



Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 1 of 189

TEST REPORT

Application No.: KSCR2406001034AT
FCC ID: 2AL8S-0235C8L2
Applicant: ZHEJIANG UNIVIEW TECHNOLOGIES CO., LTD
Address of Applicant: No. 369, Xietong Road, Xixing Sub-district, Binjiang District, Hangzhou City, 310051, Zhejiang Province, China
Manufacturer: ZHEJIANG UNIVIEW TECHNOLOGIES CO., LTD
Address of Manufacturer: No. 369, Xietong Road, Xixing Sub-district, Binjiang District, Hangzhou City, 310051, Zhejiang Province, China
Factory: ZHEJIANG UNIVIEW SYSTEM TECHNOLOGY CO., LTD
Address of Factory: No.1277 Qingfeng South Road (South), Tongxiang Economic Development Zone, Tongxiang City, Jiaxing City, 314500, Zhejiang, China
Equipment Under Test (EUT):
EUT Name: IP Camera
Model No.: Uho-S3E-M5TD, Uho-S3E-M5TD-NB, Uho-S3E-xxxxxxx-yyy-yyyy-zzzz ("x", "y", "z", can be 0-9, A-Z, a-z or blank, - may be blank) ♣
♣ 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: 2024-06-07
Date of Test: 2024-06-17 to 2024-07-13
Date of Issue: 2024-07-16

Test Result:

Pass*

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

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.



Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 2 of 189

Revision Record			
Version	Description	Date	Remark
00	Original	2024-07-16	/

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)	Customer Declaration

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:

Note: There are series models mentioned in this report, and they are identical in electrical and electronic characters. Only the model Uho-S3E-M5TD was tested since their differences were the model number and appearance.

3 Contents

	Page
1 COVER PAGE.....	1
2 Test Summary	3
3 Contents	4
4 General Information	5
4.1 Details of E.U.T.....	5
4.2 Power level setting using in test:	5
4.3 Description of Support Units	5
4.4 Measurement Uncertainty.....	6
4.5 Test Location	7
4.6 Test Facility.....	7
4.7 Deviation from Standards	7
4.8 Abnormalities from Standard Conditions	7
5 Equipment List.....	8
6 Radio Spectrum Technical Requirement	9
6.1 Antenna Requirement	9
7 Radio Spectrum Matter Test Results.....	10
7.1 Conducted Emissions at AC Power Line (150kHz-30MHz).....	10
7.2 Radiated Emissions which fall in the restricted bands.....	14
7.3 Radiated Spurious Emissions Below 1GHz.....	63
7.4 Radiated Spurious Emissions Above 1GHz	67
7.5 Conducted Average Output Power	105
7.6 Minimum 6dB Bandwidth	107
7.7 Power Spectrum Density	108
7.8 Conducted Band Edges Measurement.....	109
7.9 Conducted Spurious Emissions.....	111
8 Test Setup Photo	113
9 EUT Constructional Details (EUT Photos)	113
10 Appendix	114

4 General Information

4.1 Details of E.U.T.

Power supply:	Power Adapter: Model: TPA-141A050150UU01 Input: 100-240V~,50-60Hz,0.3A Output: 5.0V/1.5A
Test voltage	AC 120V/60Hz
Operation Frequency:	802.11b/g/n(HT20)/ax(HEW20): 2412MHz to 2462MHz; 802.11n(HT40)/ax(HEW40): 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)
Data rate:	802.11b:1/2/5.5/11Mbps 802.11g:6/9/12/18/24/36/48/54Mbps 802.11n:MCS0-MCS7
Number of Channels:	802.11b/g/n(HT20)/ax(HEW20):11;802.11n(HT40)/ax(HEW40):7
Channel Spacing:	5MHz
Antenna Type:	Internal antenna
Antenna Gain:	2.93dBi(Provided by the manufacturer)

4.2 Power level setting using in test:

Channel	802.11b	802.11g	802.11n(HT20)
	Ant 1	Ant 1	Ant 1
L	16	16	15
M	16	16	15
H	17	16	16
Channel	802.11n(HT40)	802.11ax(HE20)	802.11ax(HE40)
	Ant 1	Ant 1	Ant 1
L	13	15	12
M	13	16	14
H	13	15	12

4.3 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Notebook	LENOVO	K27	EB24537645

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



Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 8 of 189

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	Farad	EZ-EMC	/	N.C.R	N.C.R
RF Conducted Test						
1	Spectrum Analyzer	Keysight	N9020A	KUS1911E004-2	08/24/2023	08/23/2024
2	Spectrum Analyzer	Keysight	N9020A	KUS2001M001-2	08/24/2023	08/23/2024
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	08/24/2023	08/23/2024
6	Signal Generator	Agilent	N5182A	KUS2001M001-1	08/24/2023	08/23/2024
7	Radio Communication Test Station	Anritsu	MT8000A	KSEM001-1	08/24/2023	08/23/2024
8	Radio Communication Analyzer	Anritsu	MT8821C	KSEM002-1	03/19/2024	03/18/2025
9	Universal Radio Communication Tester	R&S	CMW500	KUS1911E004-1	08/24/2023	08/23/2024
10	Switcher	TST	FY562	KUS2001M001-4	01/15/2024	01/14/2025
11	AC Power Source	EXTECH	6605	KS301178	N.C.R	N.C.R
12	DC Power Supply	Aglient	E3632A	KS301180	N.C.R	N.C.R
13	Conducted Test Cable	Thermax	RF01-RF04	CZ301111-CZ301120	01/15/2024	01/14/2025
14	Temp. / Humidity Chamber	TERCHY	MHK-120AK	KS301190	08/24/2023	08/23/2024
15	Temperature & Humidity Recorder	Renke Control	RS-WS-N01-6J	KSEM024-5	03/19/2024	03/18/2025
16	Software	BST	TST-PASS	/	NCR	NCR
RF Radiated Test						
1	Spectrum Analyzer	R&S	FSV40	KUS1806E003	08/24/2023	08/23/2024
2	Universal Radio Communication Tester	R&S	CMW500	KSEM009-1	03/19/2024	03/18/2025
3	Signal Generator	Agilent	E8257C	KS301066	08/24/2023	08/23/2024
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	08/24/2023	08/23/2024
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	08/24/2023	08/23/2024
12	RE Test Cable	REBES MICROWAVE	/	CZ301097	08/24/2023	08/23/2024
13	Temperature & Humidity Recorder	Renke Control	RS-WS-N01-6J	KSEM024-4	03/19/2024	03/18/2025
14	Software	Faratronic	EZ_EMG-v 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 Internal antenna and no consideration of replacement. The best case gain of the antenna is 2.93dBi.

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: 26.3 °C

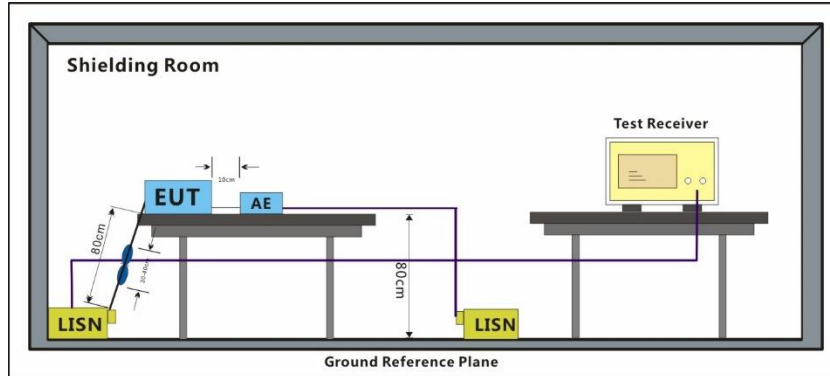
Humidity: 58.3 % RH

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(HEW20); data rate @ MCS0 is the worst case of IEEE 802.11ax(HEW40). 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

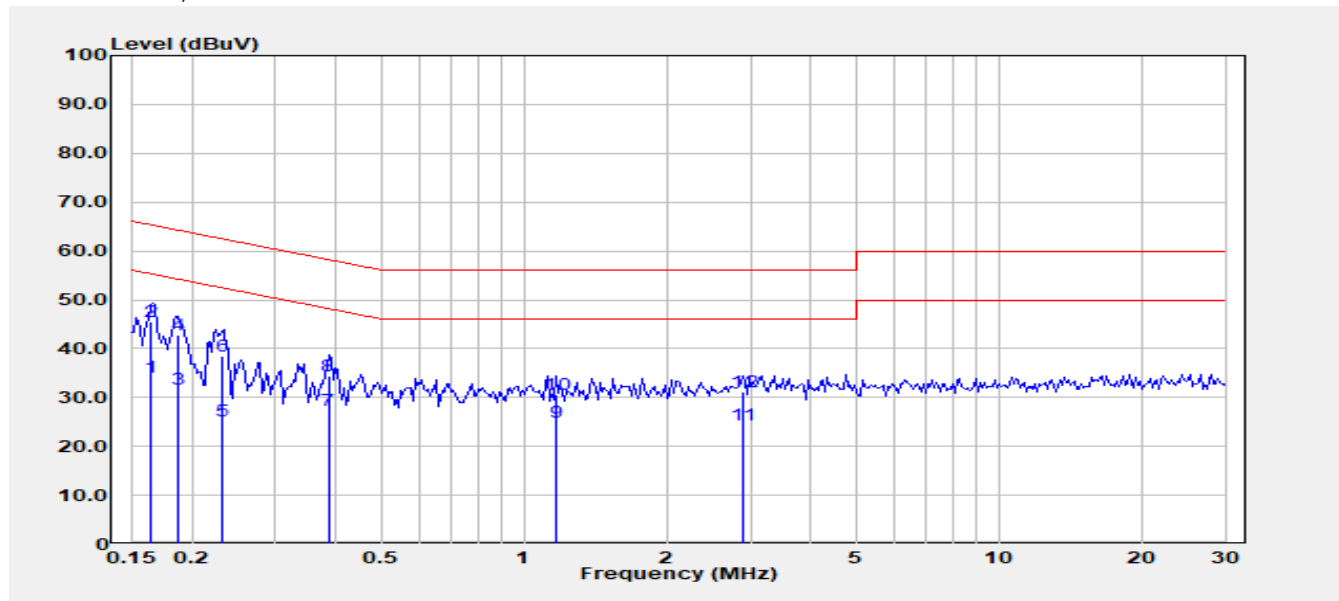
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 12 of 189

Test Mode: 00; Line: Live line



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1643	14.09	20.19	34.28	55.24	-20.96	Average
2	0.1643	25.35	20.19	45.54	65.24	-19.70	QP
3	0.1861	11.50	20.10	31.60	54.21	-22.61	Average
4	0.1861	22.71	20.10	42.81	64.21	-21.40	QP
5	0.2325	5.02	20.06	25.08	52.36	-27.28	Average
6	0.2325	18.40	20.06	38.46	62.36	-23.90	QP
7	0.3872	7.21	20.07	27.28	48.12	-20.84	Average
8	0.3872	14.27	20.07	34.34	58.12	-23.78	QP
9	1.1660	5.02	19.90	24.92	46.00	-21.08	Average
10	1.1660	10.82	19.90	30.72	56.00	-25.28	QP
11	2.8920	4.43	19.88	24.31	46.00	-21.69	Average
12	2.8920	11.39	19.88	31.27	56.00	-24.73	QP

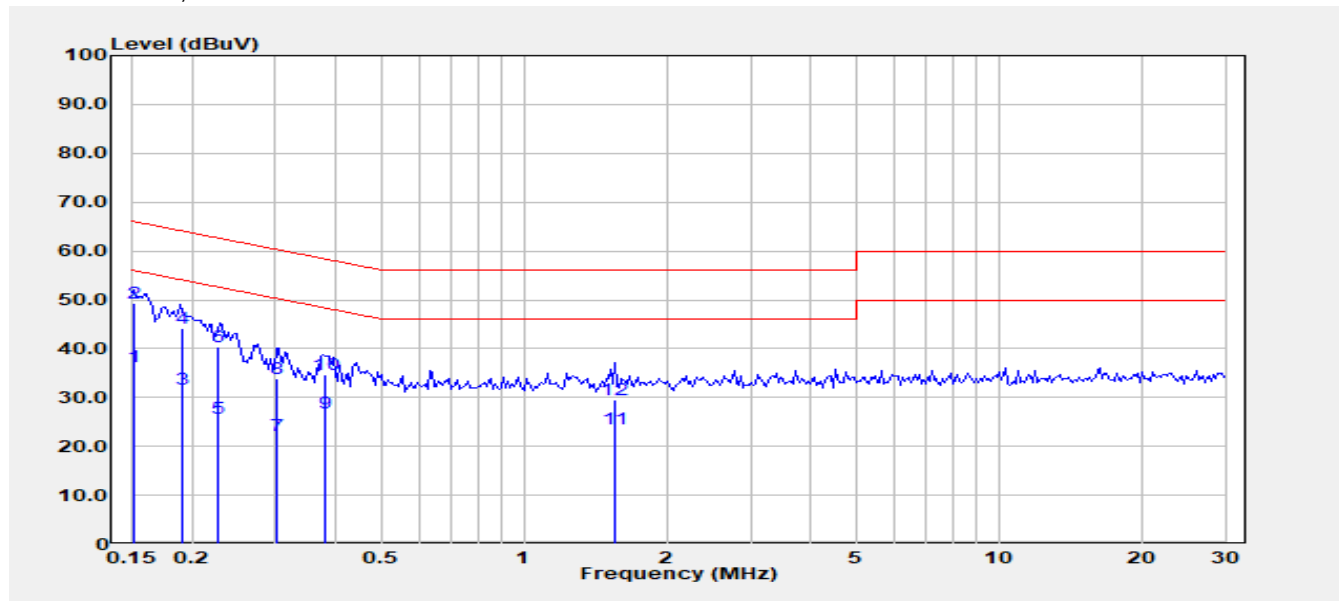
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 13 of 189

Test Mode: 00; Line: Neutral Line



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1514	16.14	20.18	36.32	55.93	-19.61	Average
2	0.1514	29.14	20.18	49.32	65.93	-16.61	QP
3	0.1904	11.57	20.13	31.70	54.02	-22.32	Average
4	0.1904	23.96	20.13	44.09	64.02	-19.93	QP
5	0.2269	5.74	20.10	25.84	52.56	-26.72	Average
6	0.2269	20.16	20.10	40.26	62.56	-22.30	QP
7	0.3026	2.12	20.08	22.20	50.17	-27.97	Average
8	0.3026	13.79	20.08	33.87	60.17	-26.30	QP
9	0.3805	6.67	20.11	26.78	48.27	-21.49	Average
10	0.3805	14.66	20.11	34.77	58.27	-23.50	QP
11	1.5470	3.73	19.90	23.62	46.00	-22.38	Average
12	1.5470	9.63	19.90	29.52	56.00	-26.48	QP

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

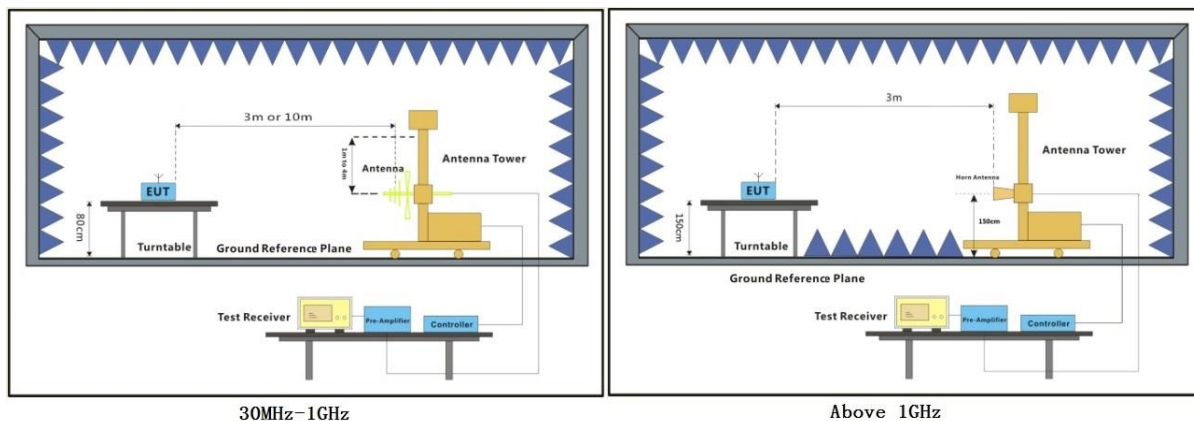
Humidity: 50.5 % RH

Atmospheric Pressure: 1010 mbar

7.2.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description

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: $\text{Level} = \text{Read Level} + \text{Cable Loss} + \text{Antenna Factor} - \text{Preamp Factor}$

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.

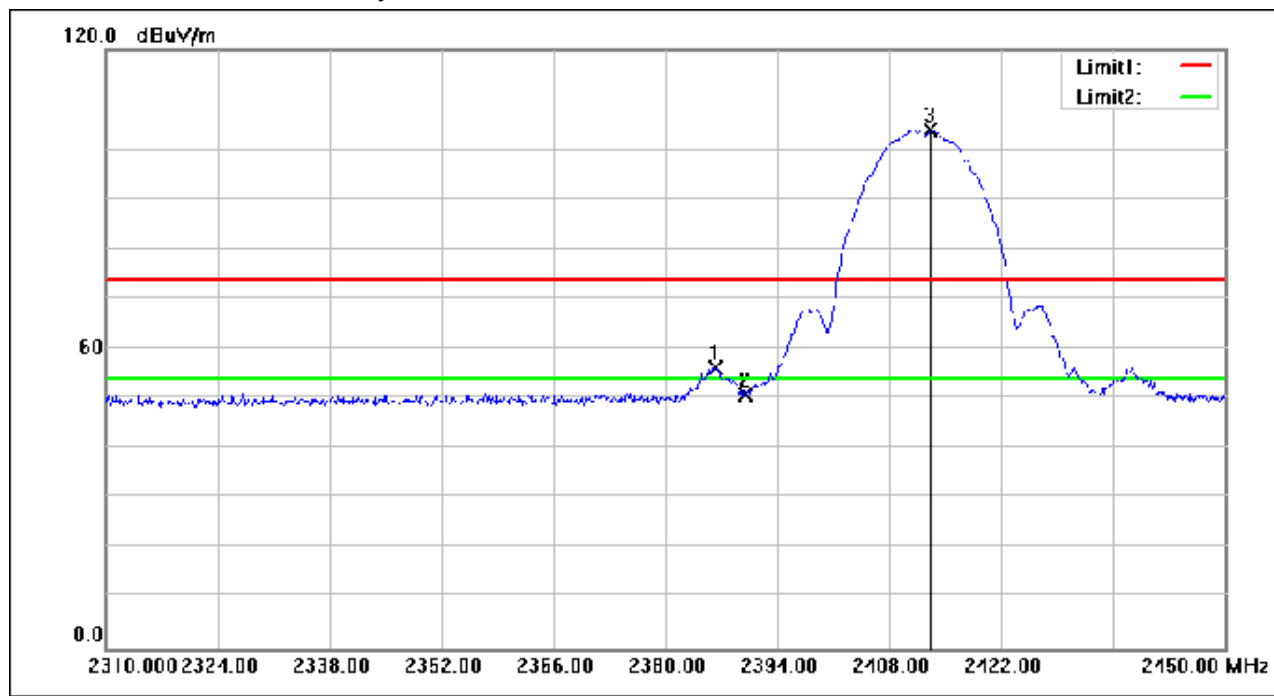
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 16 of 189

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	2386.300	81.01	-24.72	56.29	74.00	-17.71	peak
2	2390.000	75.44	-24.71	50.73	74.00	-23.27	peak
3	2413.180	128.59	-24.60	103.99	74.00	29.99	peak

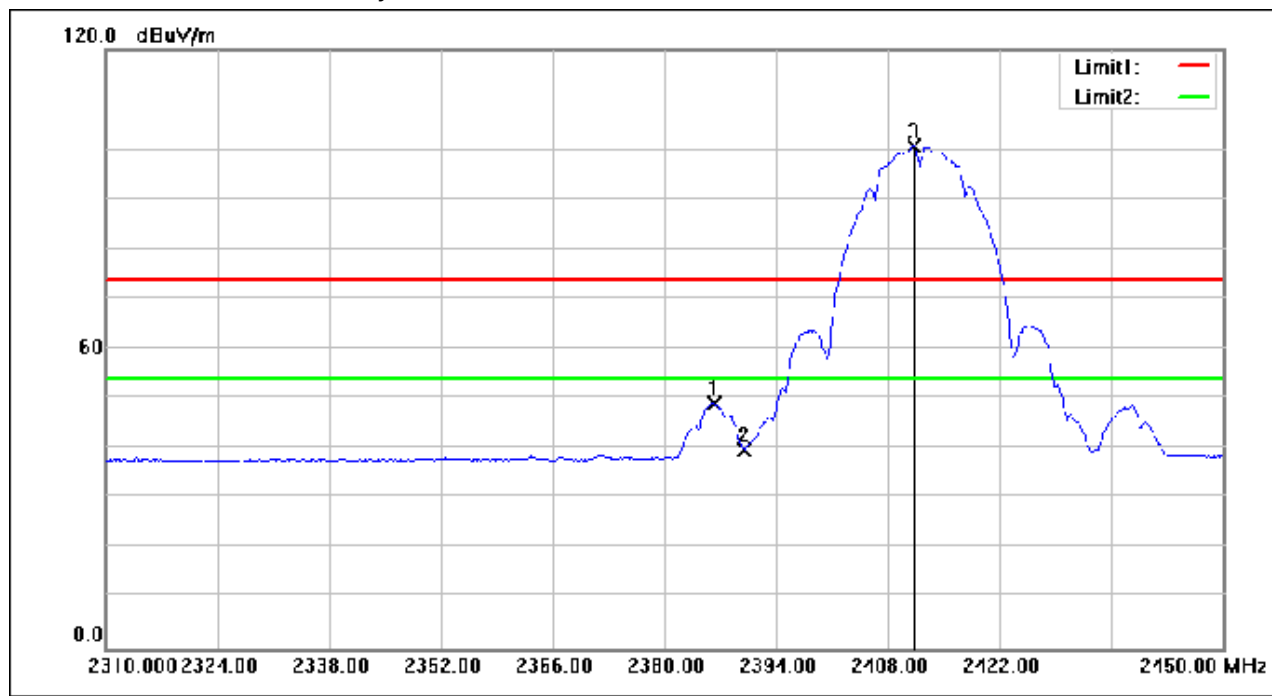
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 17 of 189

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	2386.160	73.74	-24.72	49.02	74.00	-24.98	AVG
2	2390.000	64.38	-24.71	39.67	74.00	-34.33	AVG
3	2411.220	125.27	-24.60	100.67	74.00	26.67	AVG

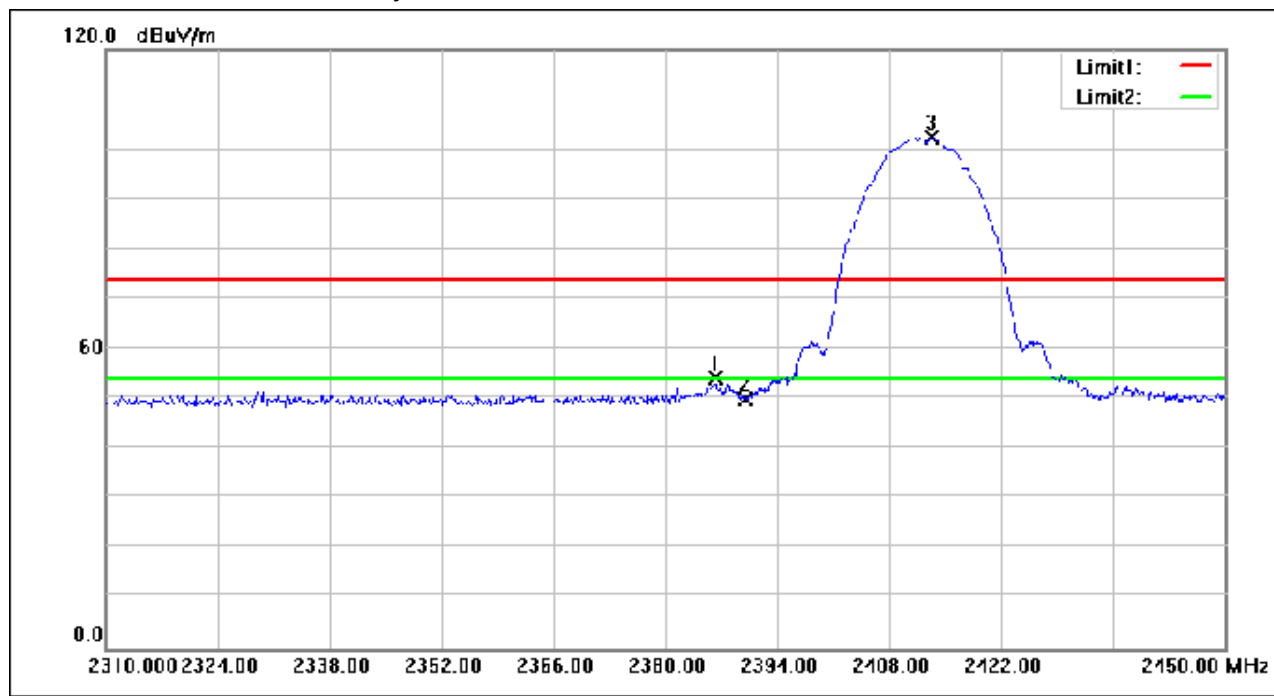
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 18 of 189

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	2386.300	78.98	-24.72	54.26	74.00	-19.74	peak
2	2390.000	74.72	-24.71	50.01	74.00	-23.99	peak
3	2413.320	127.00	-24.60	102.40	74.00	28.40	peak

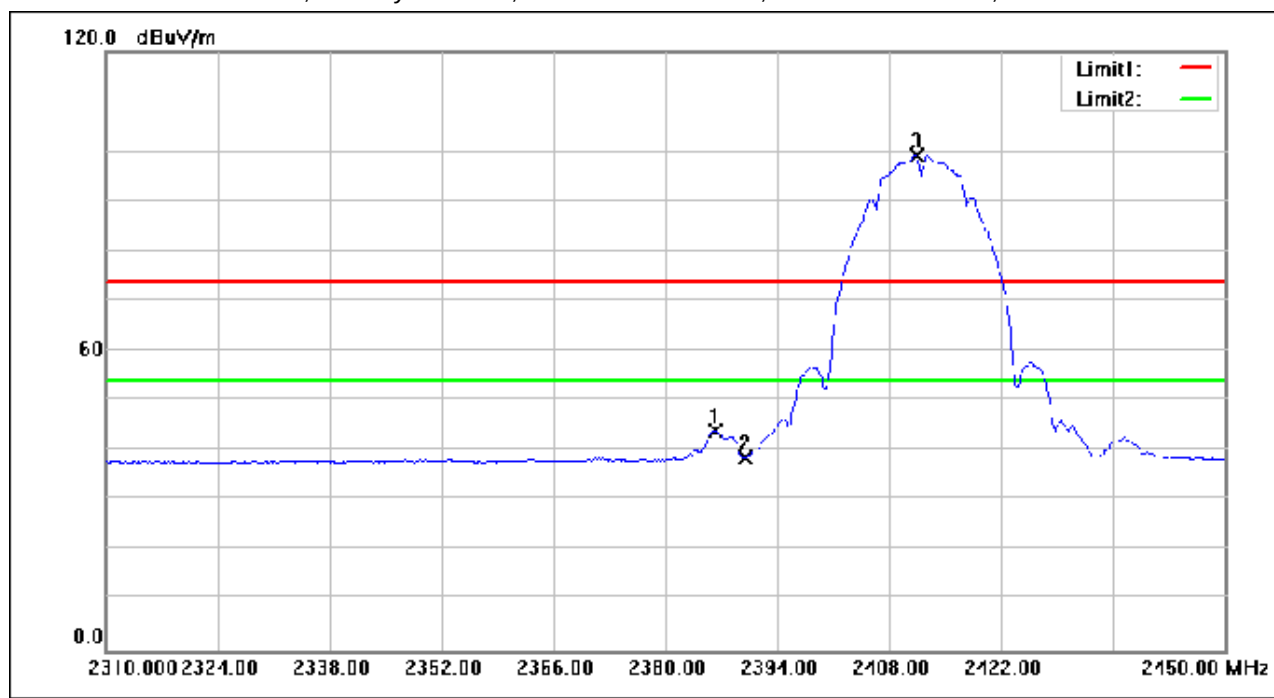
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 19 of 189

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	2386.160	68.73	-24.72	44.01	54.00	-9.99	AVG
2	2390.000	63.27	-24.71	38.56	54.00	-15.44	AVG
3	2411.360	123.76	-24.60	99.16	54.00	45.16	AVG

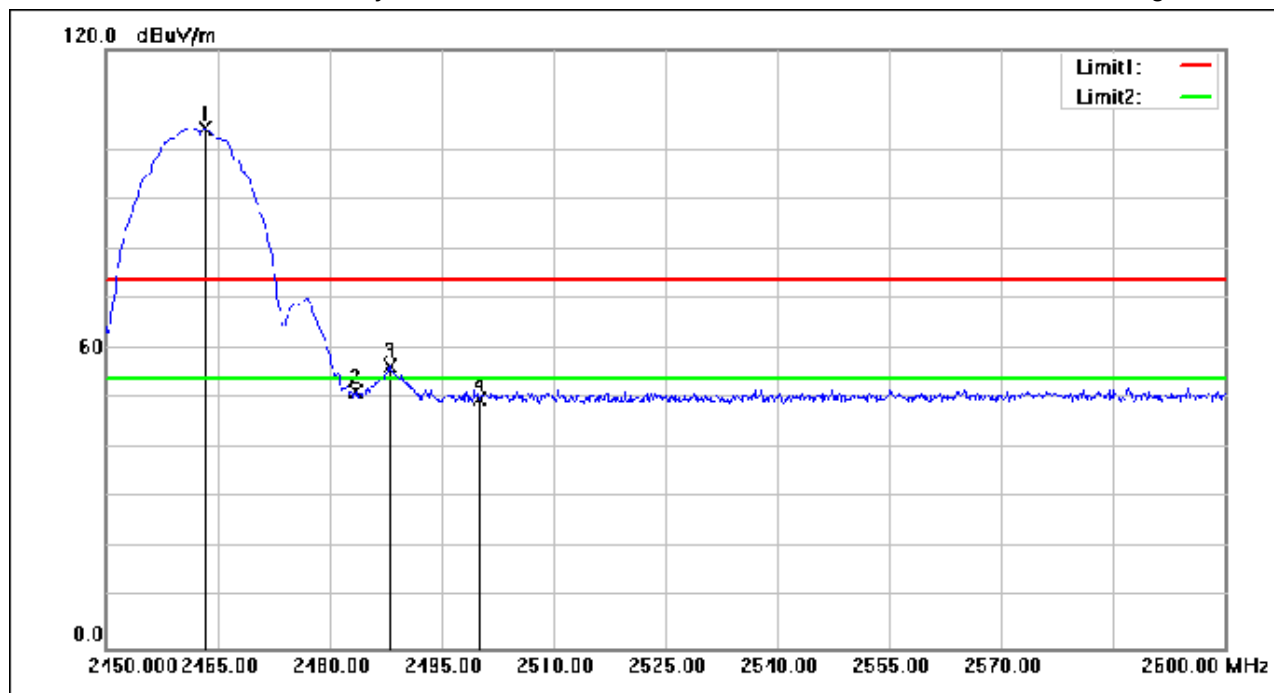
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 20 of 189

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	128.59	-24.37	104.22	74.00	30.22	peak
2	2483.500	75.64	-24.27	51.37	74.00	-22.63	peak
3	2488.100	80.88	-24.25	56.63	74.00	-17.37	peak
4	2500.000	74.16	-24.19	49.97	74.00	-24.03	peak

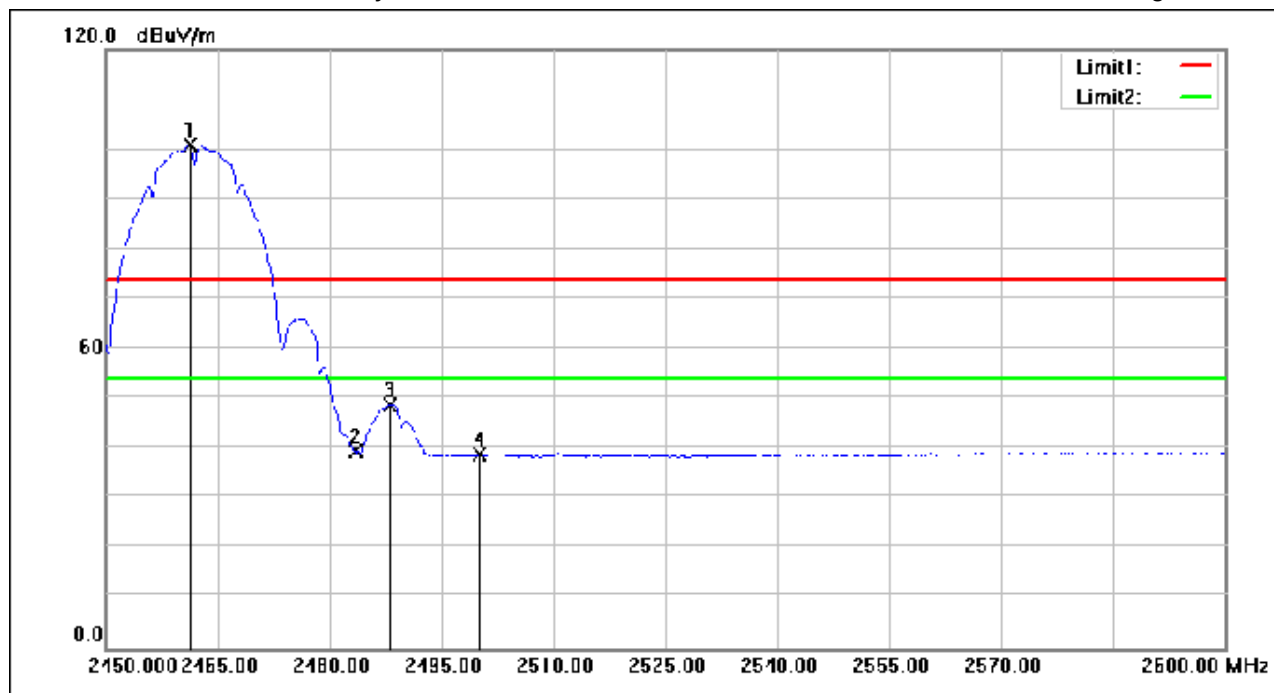
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 21 of 189

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	2461.250	125.35	-24.37	100.98	54.00	46.98	AVG
2	2483.500	63.59	-24.27	39.32	54.00	-14.68	AVG
3	2488.100	73.05	-24.25	48.80	54.00	-5.20	AVG
4	2500.000	63.03	-24.19	38.84	54.00	-15.16	AVG

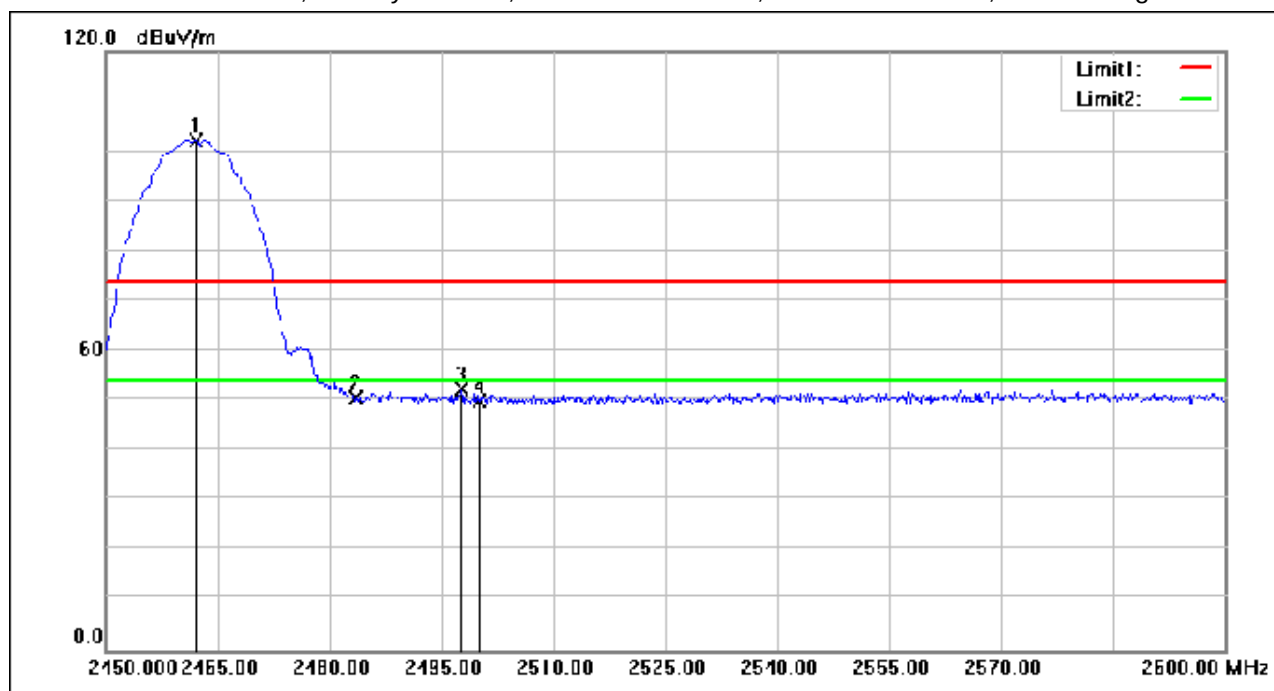
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 22 of 189

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	2462.000	126.63	-24.37	102.26	74.00	28.26	peak
2	2483.500	74.77	-24.27	50.50	74.00	-23.50	peak
3	2497.700	76.60	-24.20	52.40	74.00	-21.60	peak
4	2500.000	74.11	-24.19	49.92	74.00	-24.08	peak

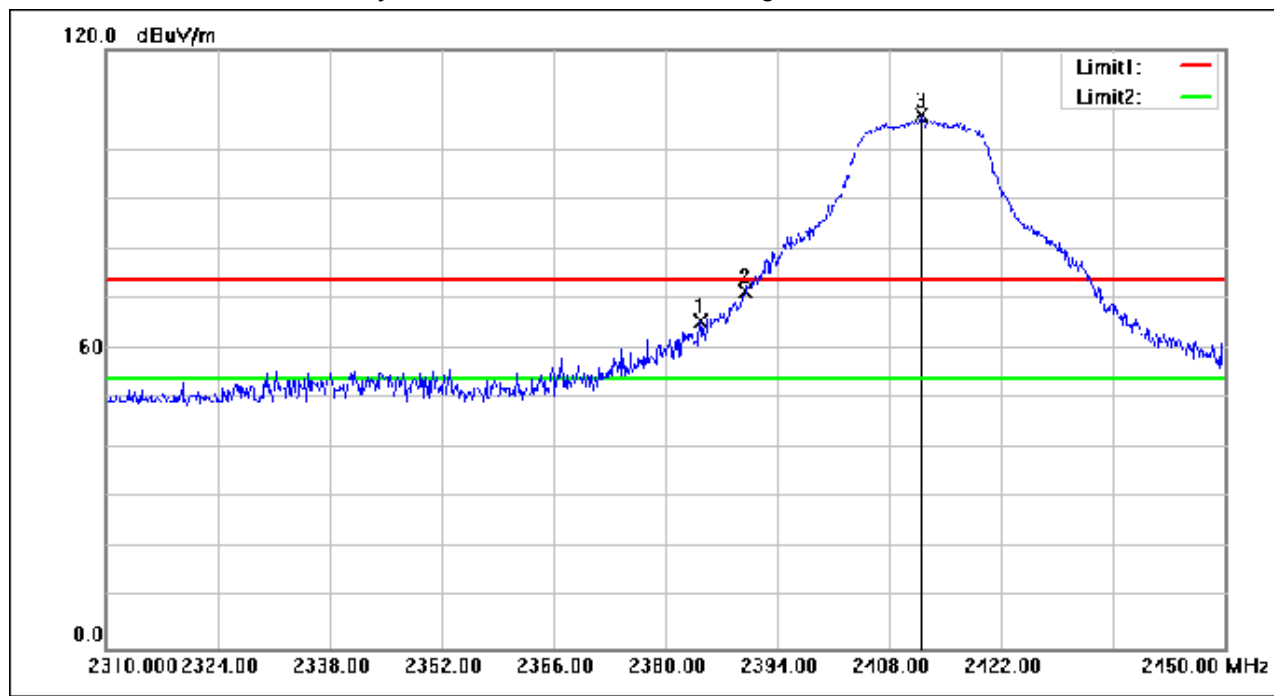
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 23 of 189

Test Mode: 00; Polarity: Horizontal; Modulation:802.11g; 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	90.24	-24.73	65.51	74.00	-8.49	peak
2	2390.000	96.31	-24.71	71.60	74.00	-2.40	peak
3	2412.060	131.61	-24.60	107.01	74.00	33.01	peak

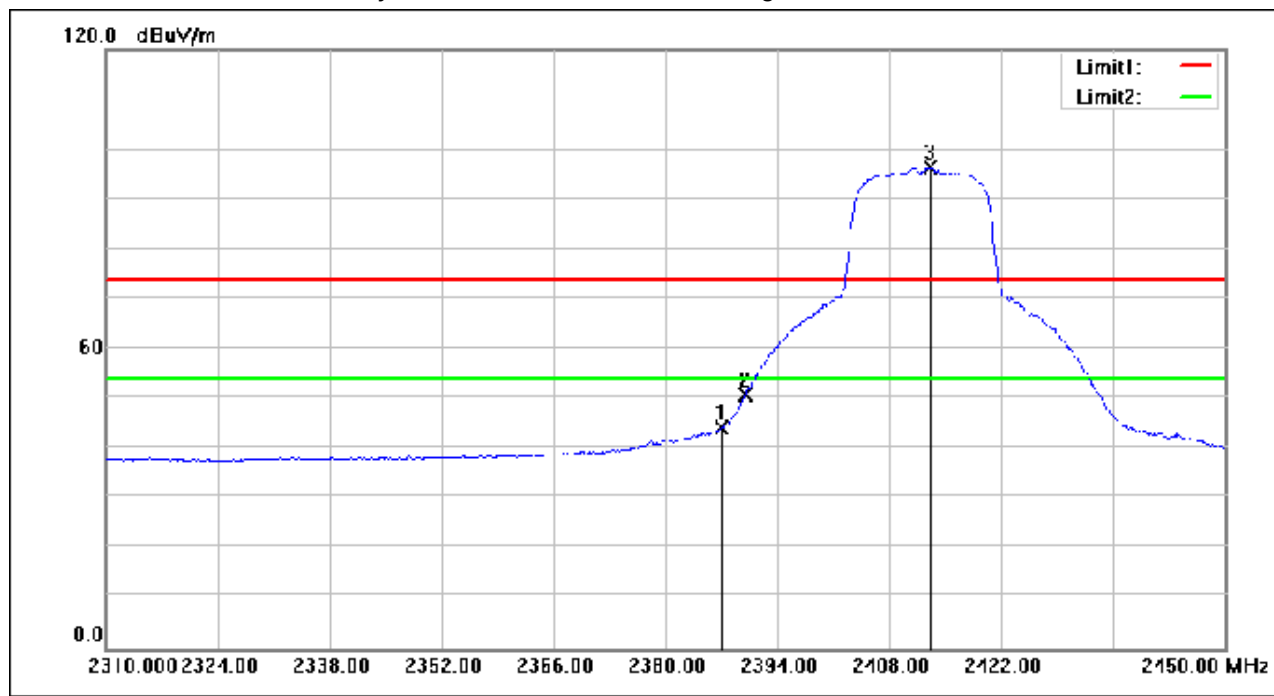
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 24 of 189

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



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2387.000	68.96	-24.72	44.24	54.00	-9.76	AVG
2	2390.000	75.71	-24.71	51.00	54.00	-3.00	AVG
3	2413.040	121.03	-24.60	96.43	54.00	42.43	AVG

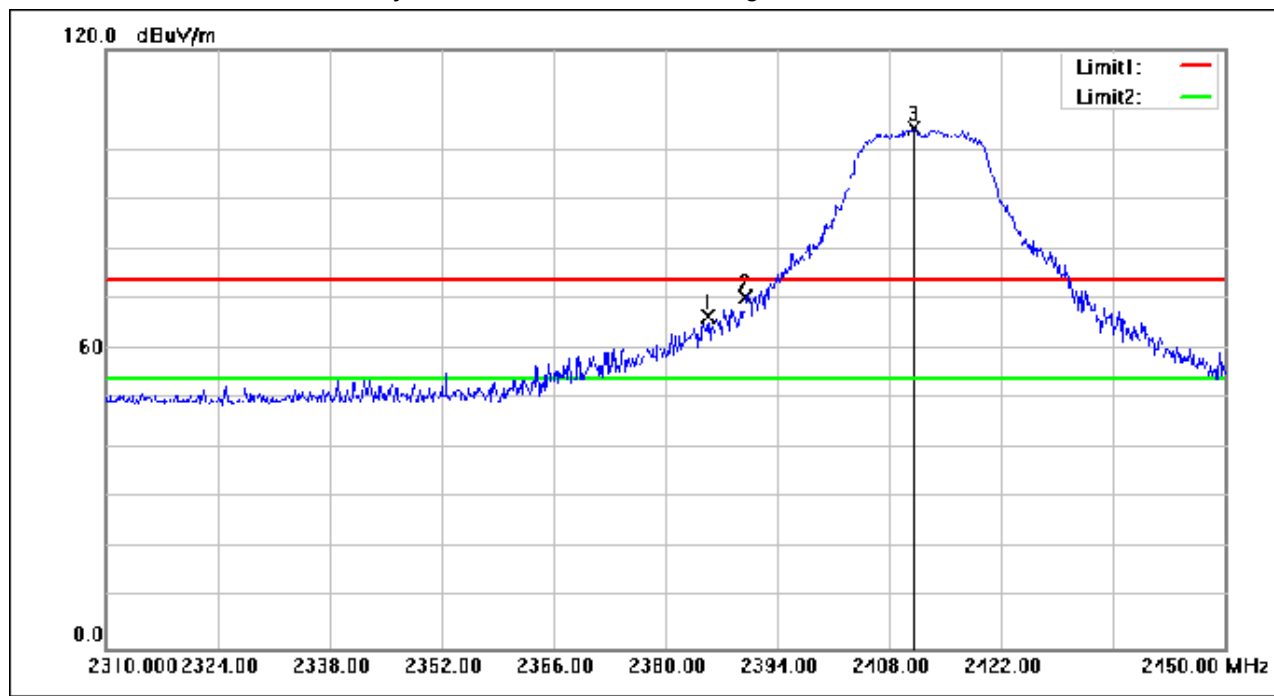
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 25 of 189

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



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2385.320	91.09	-24.73	66.36	74.00	-7.64	peak
2	2390.000	94.93	-24.71	70.22	74.00	-3.78	peak
3	2411.080	128.71	-24.60	104.11	74.00	30.11	peak

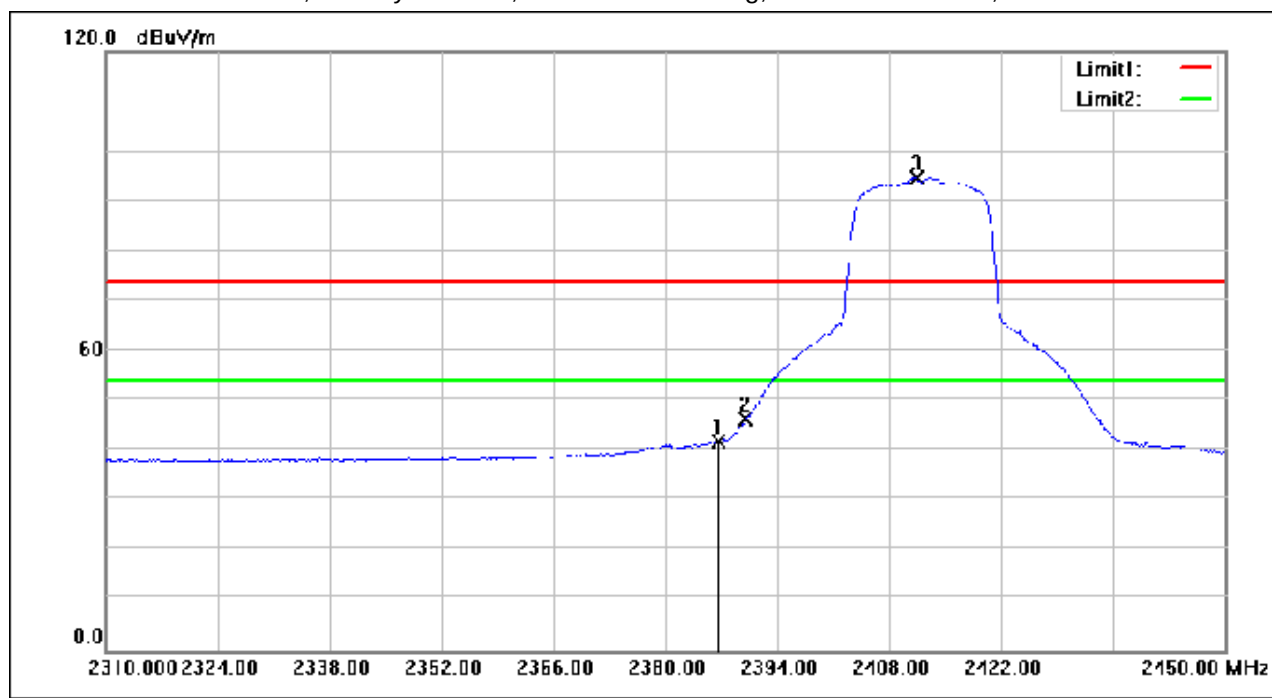
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 26 of 189

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



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2386.580	66.60	-24.72	41.88	54.00	-12.12	AVG
2	2390.000	70.95	-24.71	46.24	54.00	-7.76	AVG
3	2411.360	119.29	-24.60	94.69	54.00	40.69	AVG

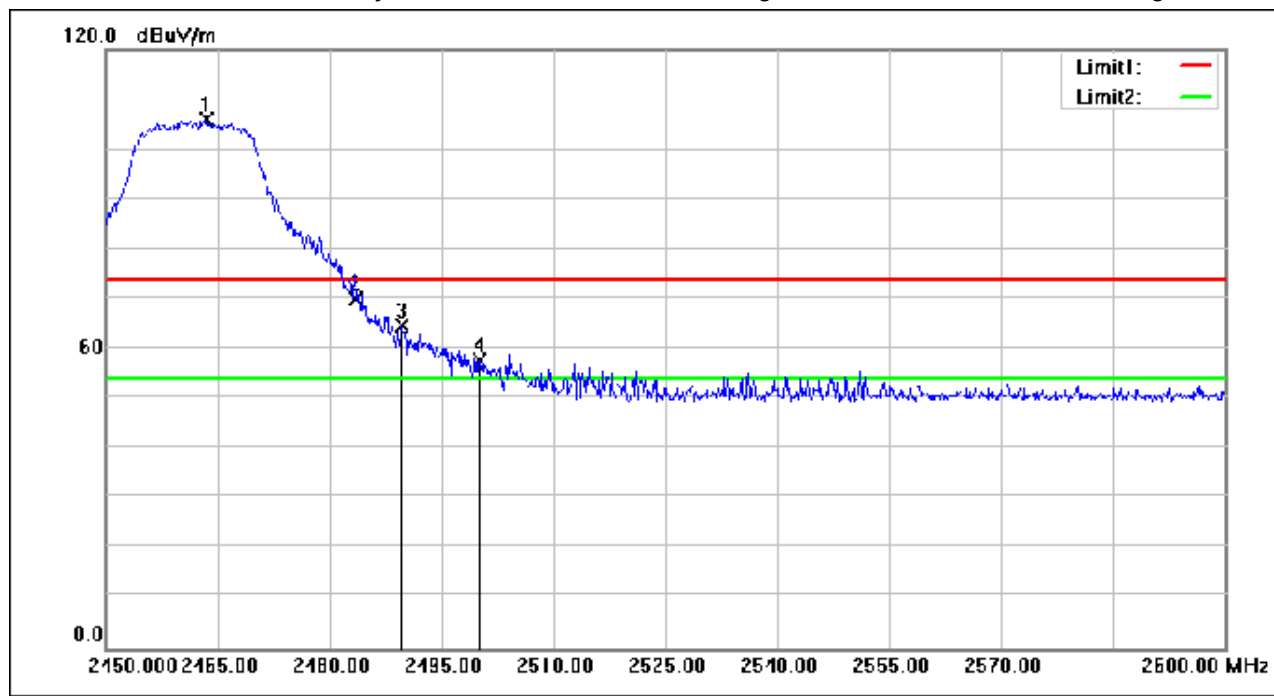
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 27 of 189

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



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2463.500	130.42	-24.37	106.05	74.00	32.05	peak
2	2483.500	94.20	-24.27	69.93	74.00	-4.07	peak
3	2489.600	88.84	-24.24	64.60	74.00	-9.40	peak
4	2500.000	82.01	-24.19	57.82	74.00	-16.18	peak

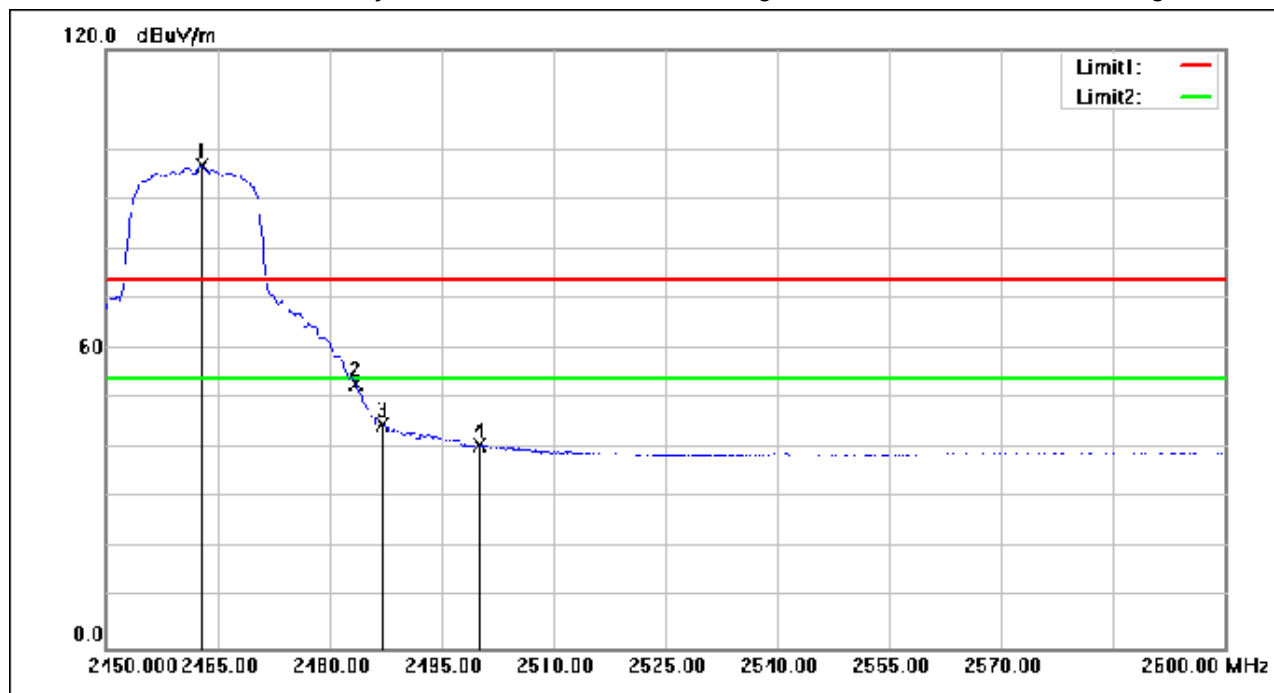
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 28 of 189

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



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2462.900	121.07	-24.37	96.70	54.00	42.70	AVG
2	2483.500	77.29	-24.27	53.02	54.00	-0.98	AVG
3	2487.050	69.25	-24.25	45.00	54.00	-9.00	AVG
4	2500.000	64.77	-24.19	40.58	54.00	-13.42	AVG

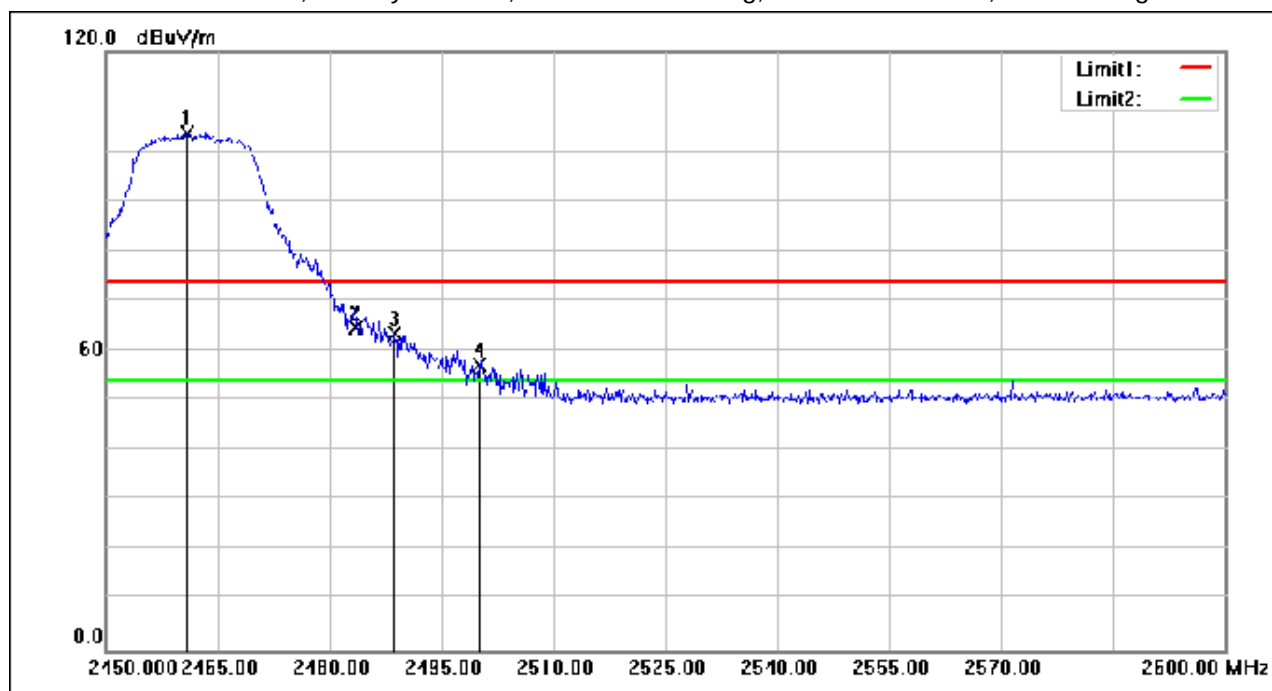
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 29 of 189

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



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2460.950	128.12	-24.38	103.74	74.00	29.74	peak
2	2483.500	89.05	-24.27	64.78	74.00	-9.22	peak
3	2488.700	87.66	-24.25	63.41	74.00	-10.59	peak
4	2500.000	81.47	-24.19	57.28	74.00	-16.72	peak

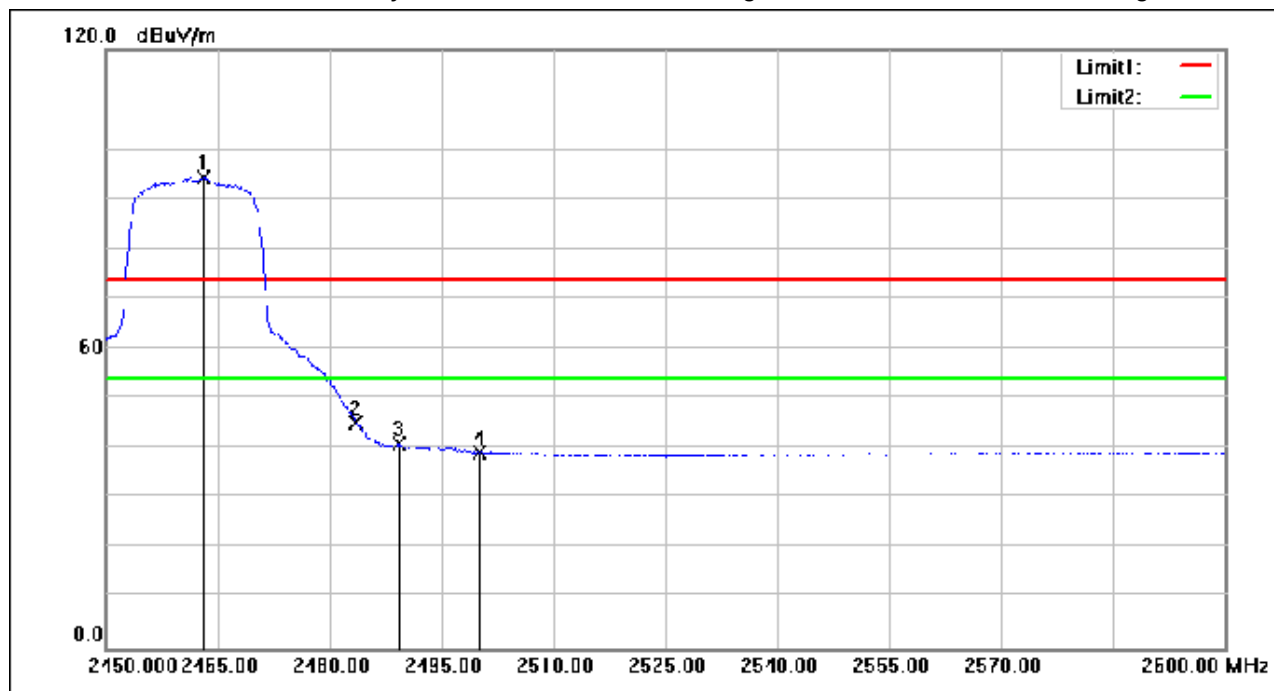
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 30 of 189

Test Mode: 00; Polarity: Vertical; Modulation:802.11g; 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	118.76	-24.37	94.39	54.00	40.39	AVG
2	2483.500	69.30	-24.27	45.03	54.00	-8.97	AVG
3	2489.300	65.07	-24.24	40.83	54.00	-13.17	AVG
4	2500.000	63.44	-24.19	39.25	54.00	-14.75	AVG

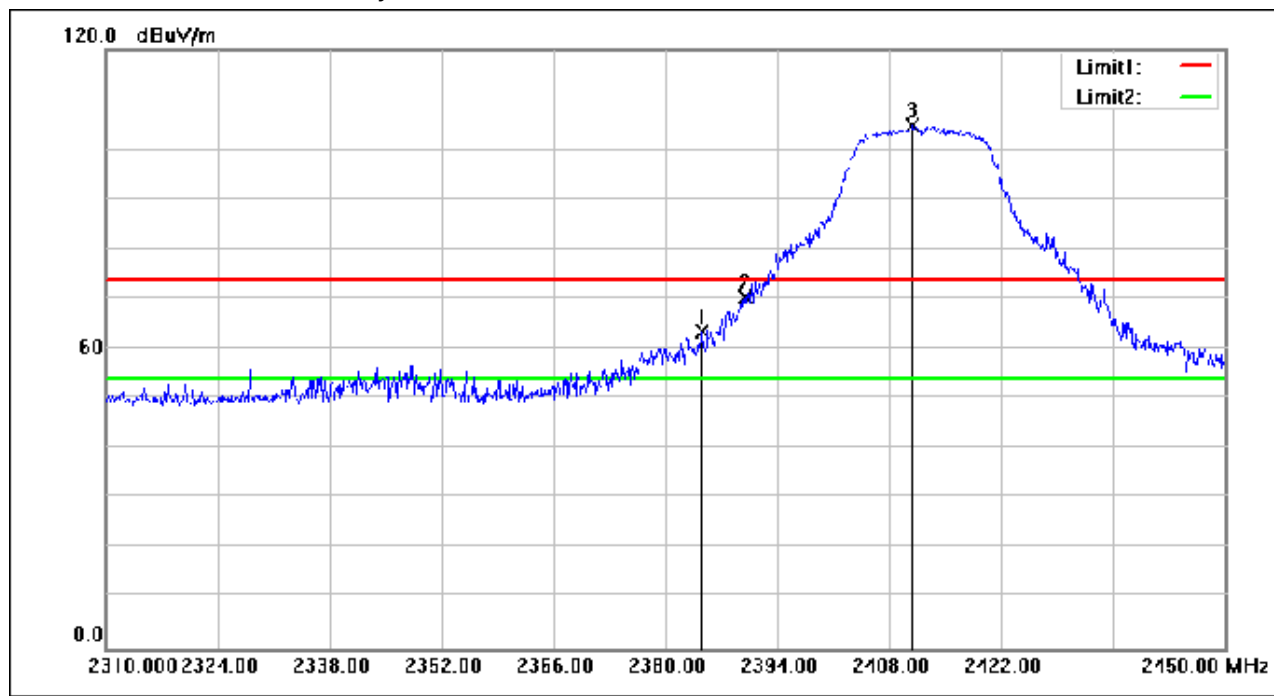
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 31 of 189

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	2384.480	88.07	-24.73	63.34	74.00	-10.66	peak
2	2390.000	94.97	-24.71	70.26	74.00	-3.74	peak
3	2410.940	129.40	-24.61	104.79	74.00	30.79	peak

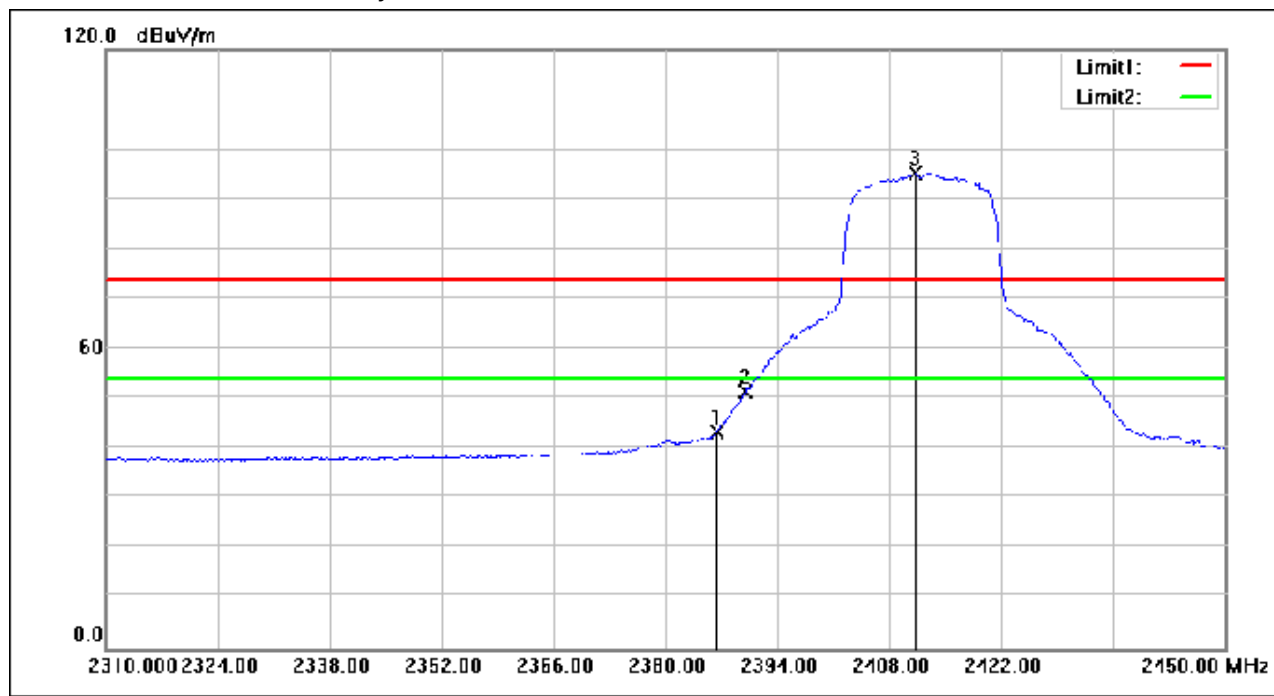
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 32 of 189

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	2386.440	68.14	-24.72	43.42	54.00	-10.58	AVG
2	2390.000	76.22	-24.71	51.51	54.00	-2.49	AVG
3	2411.220	119.87	-24.60	95.27	54.00	41.27	AVG

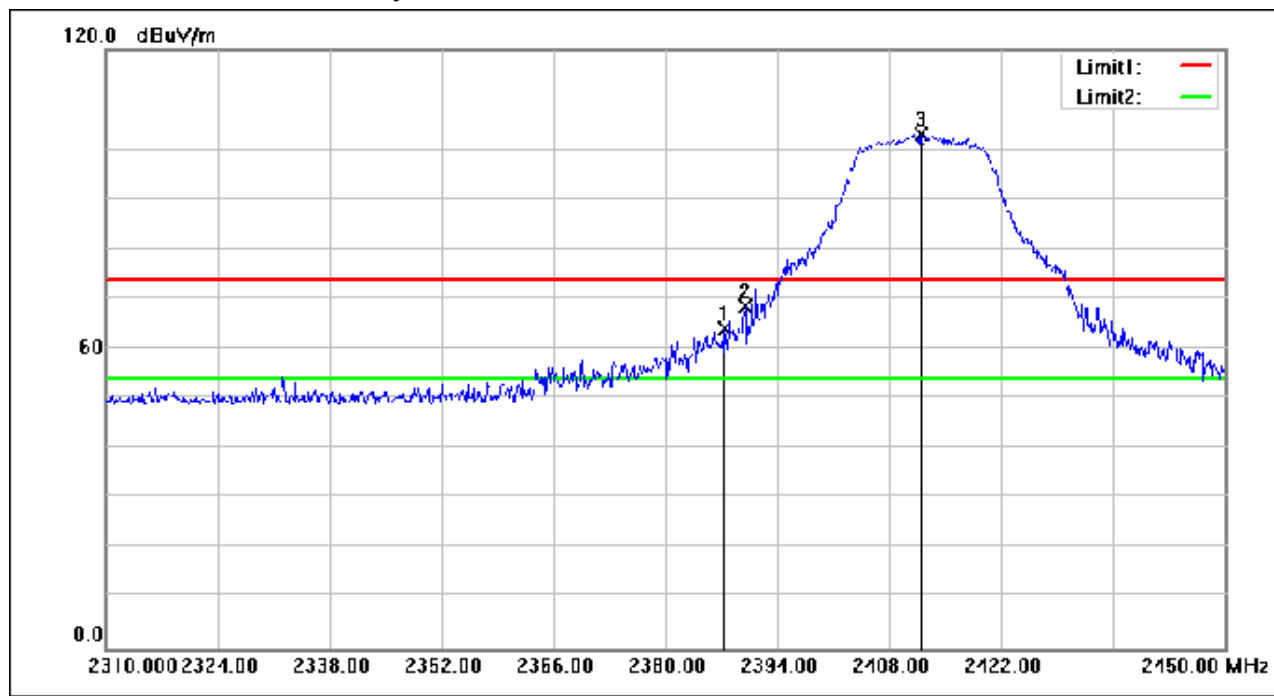
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 33 of 189

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	2387.420	88.91	-24.72	64.19	74.00	-9.81	peak
2	2390.000	93.20	-24.71	68.49	74.00	-5.51	peak
3	2411.920	127.68	-24.60	103.08	74.00	29.08	peak

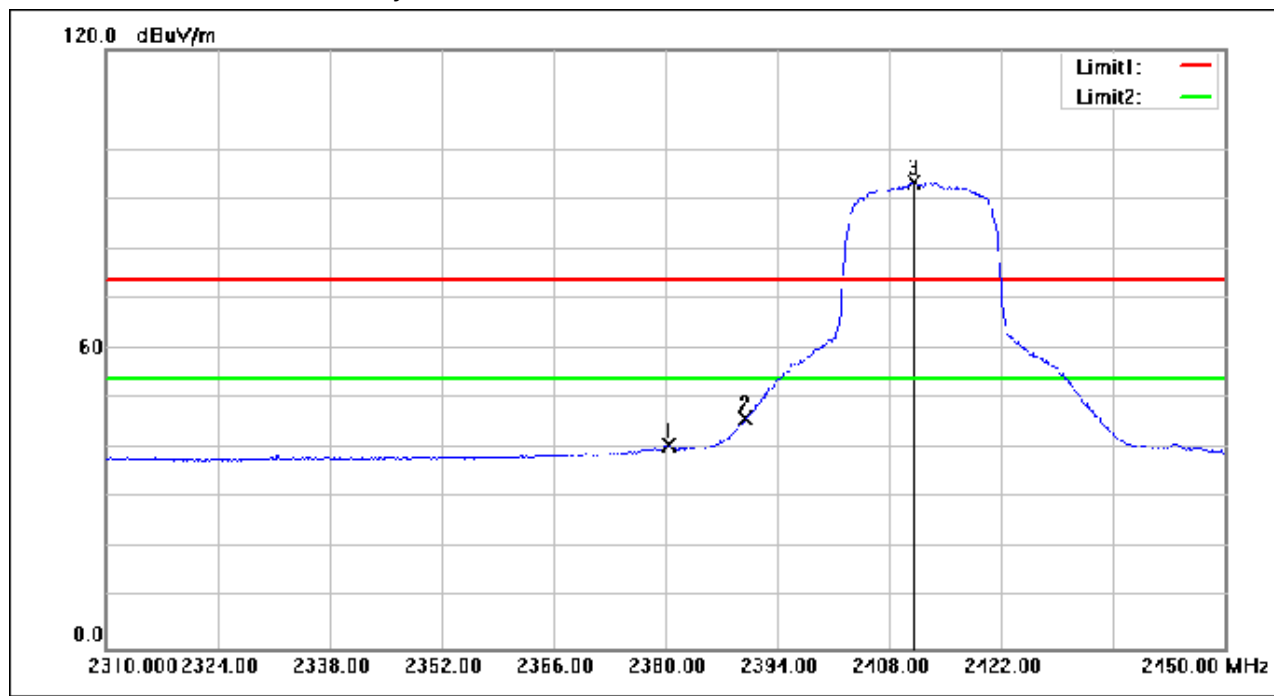
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 34 of 189

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	2380.420	65.43	-24.75	40.68	54.00	-13.32	AVG
2	2390.000	70.86	-24.71	46.15	54.00	-7.85	AVG
3	2411.080	118.07	-24.60	93.47	54.00	39.47	AVG

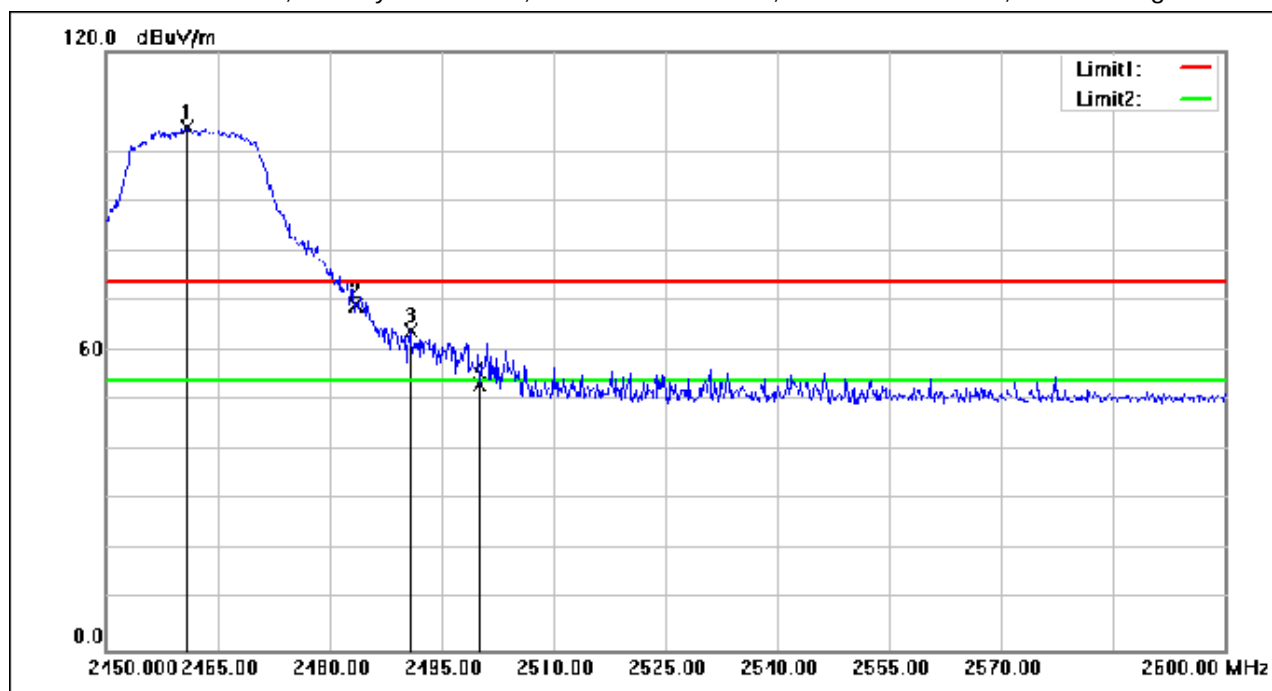
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 35 of 189

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	129.13	-24.38	104.75	74.00	30.75	peak
2	2483.500	93.46	-24.27	69.19	74.00	-4.81	peak
3	2490.800	88.19	-24.24	63.95	74.00	-10.05	peak
4	2500.000	77.54	-24.19	53.35	74.00	-20.65	peak

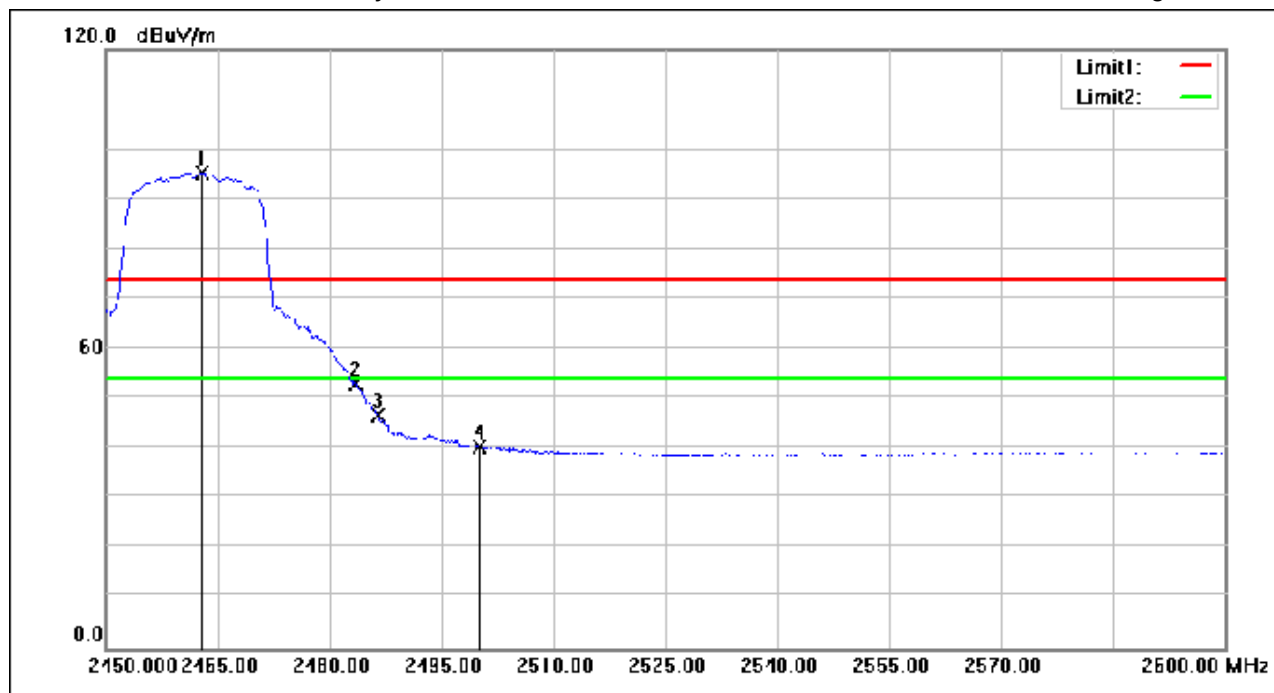
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 36 of 189

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	2462.900	119.71	-24.37	95.34	54.00	41.34	AVG
2	2483.500	77.27	-24.27	53.00	54.00	-1.00	AVG
3	2486.450	70.77	-24.25	46.52	54.00	-7.48	AVG
4	2500.000	64.46	-24.19	40.27	54.00	-13.73	AVG

Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 37 of 189

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	2461.100	127.65	-24.38	103.27	74.00	29.27	peak
2	2483.500	85.43	-24.27	61.16	74.00	-12.84	peak
3	2485.850	87.58	-24.26	63.32	74.00	-10.68	peak
4	2500.000	82.13	-24.19	57.94	74.00	-16.06	peak

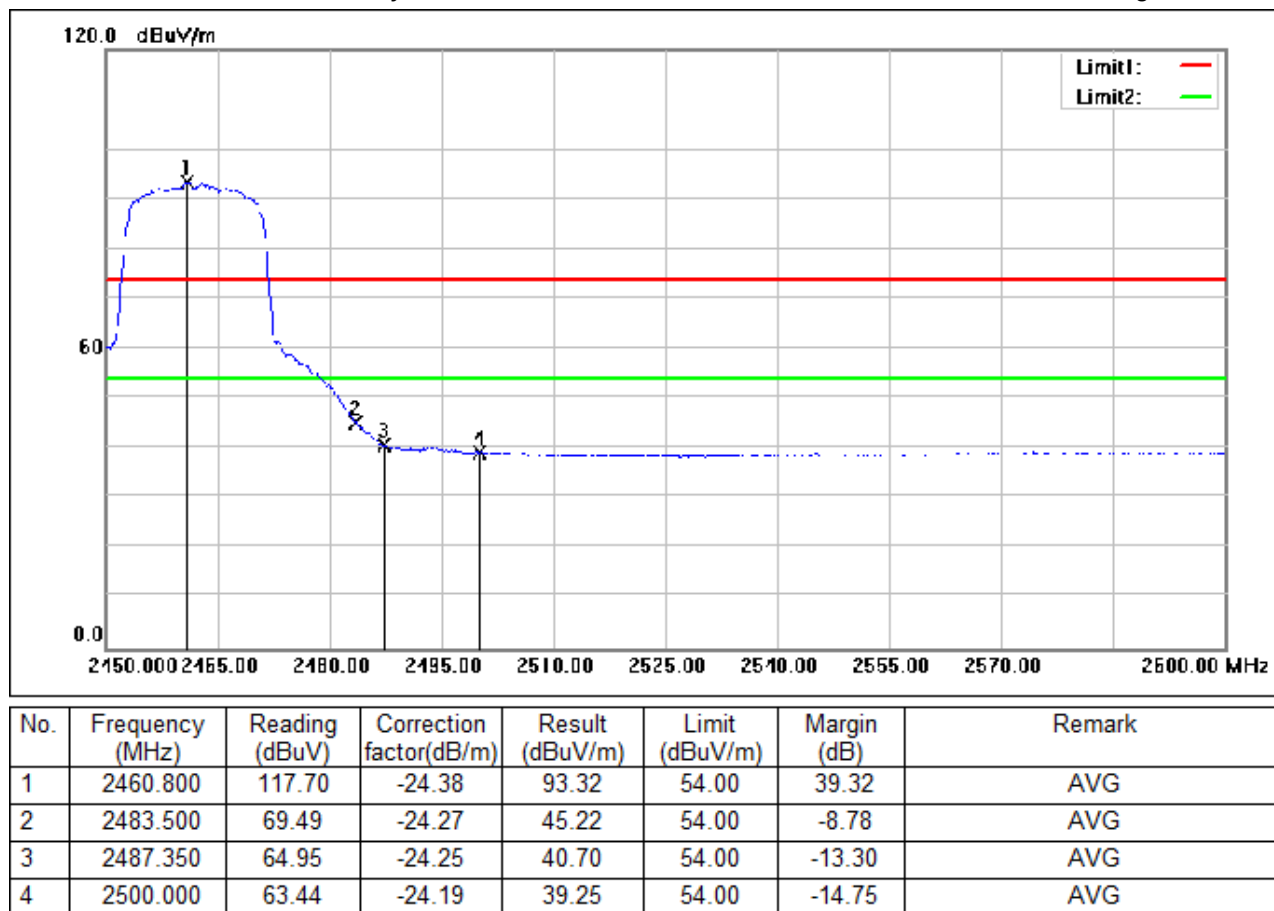
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 38 of 189

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



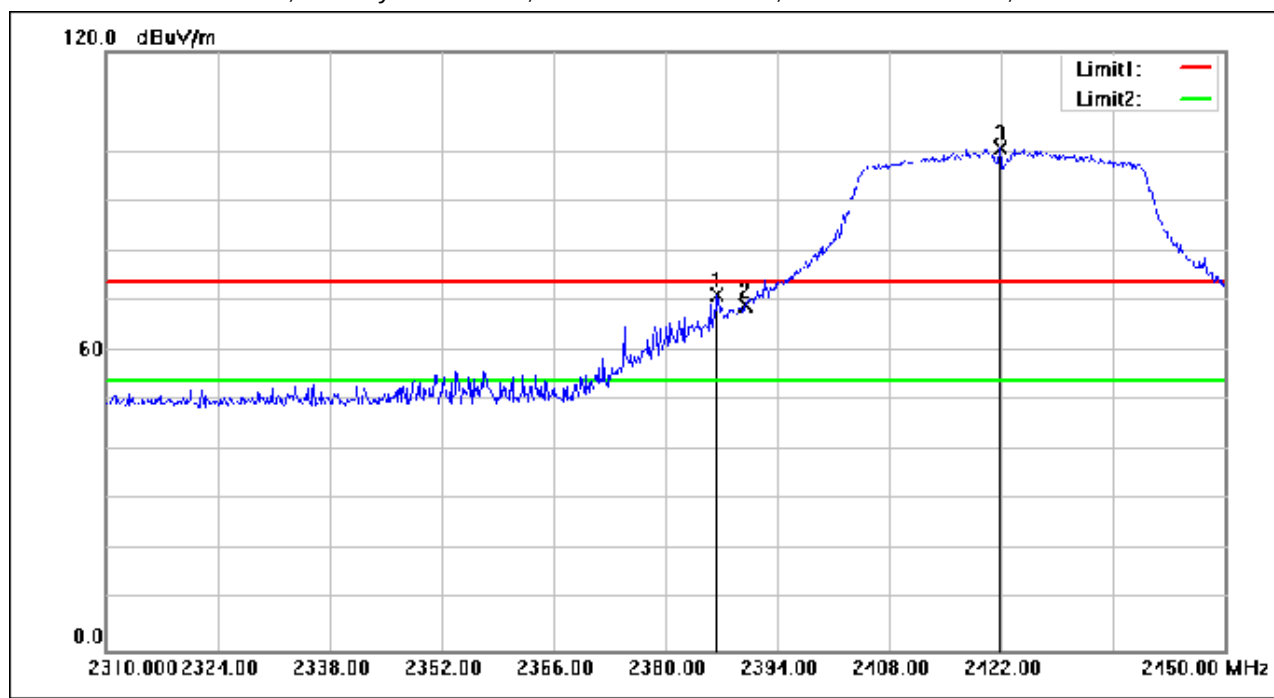
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 39 of 189

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	2386.440	96.06	-24.72	71.34	74.00	-2.66	peak
2	2390.000	93.98	-24.71	69.27	74.00	-4.73	peak
3	2421.860	125.06	-24.55	100.51	74.00	26.51	peak

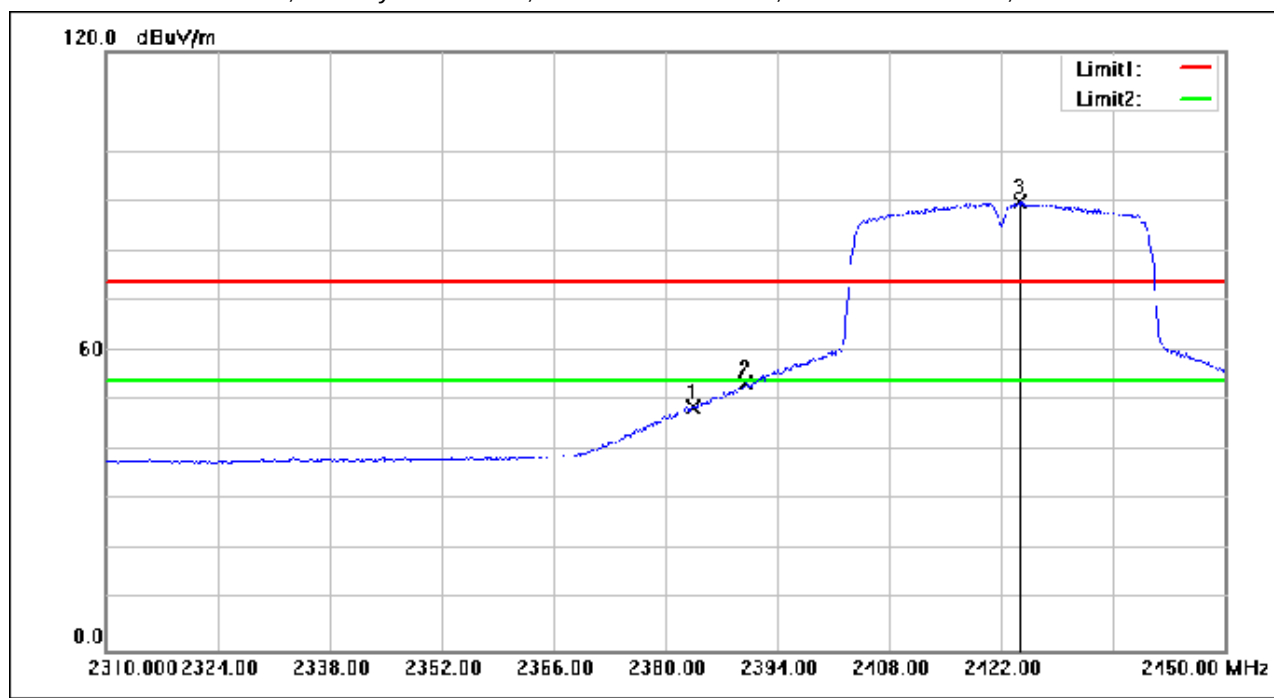
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 40 of 189

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	2383.360	73.61	-24.74	48.87	54.00	-5.13	AVG
2	2390.000	78.12	-24.71	53.41	54.00	-0.59	AVG
3	2424.240	114.27	-24.54	89.73	54.00	35.73	AVG

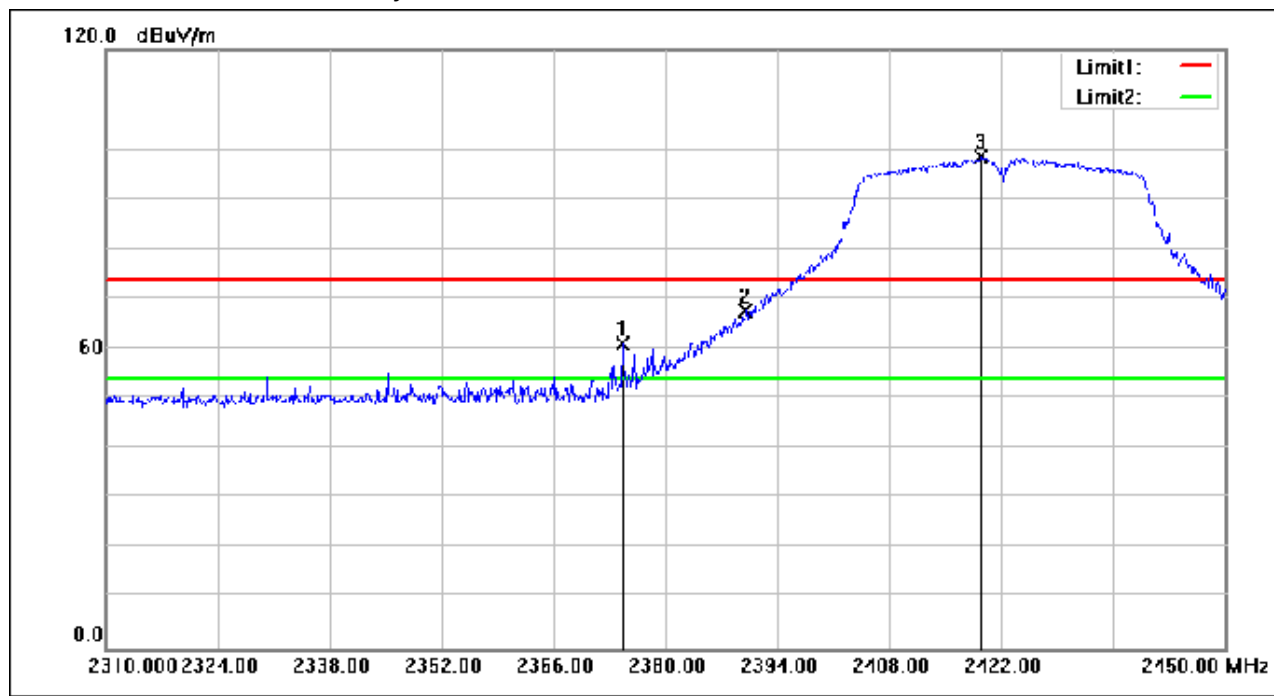
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 41 of 189

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	2374.680	85.71	-24.78	60.93	74.00	-13.07	peak
2	2390.000	92.32	-24.71	67.61	74.00	-6.39	peak
3	2419.480	123.04	-24.57	98.47	74.00	24.47	peak

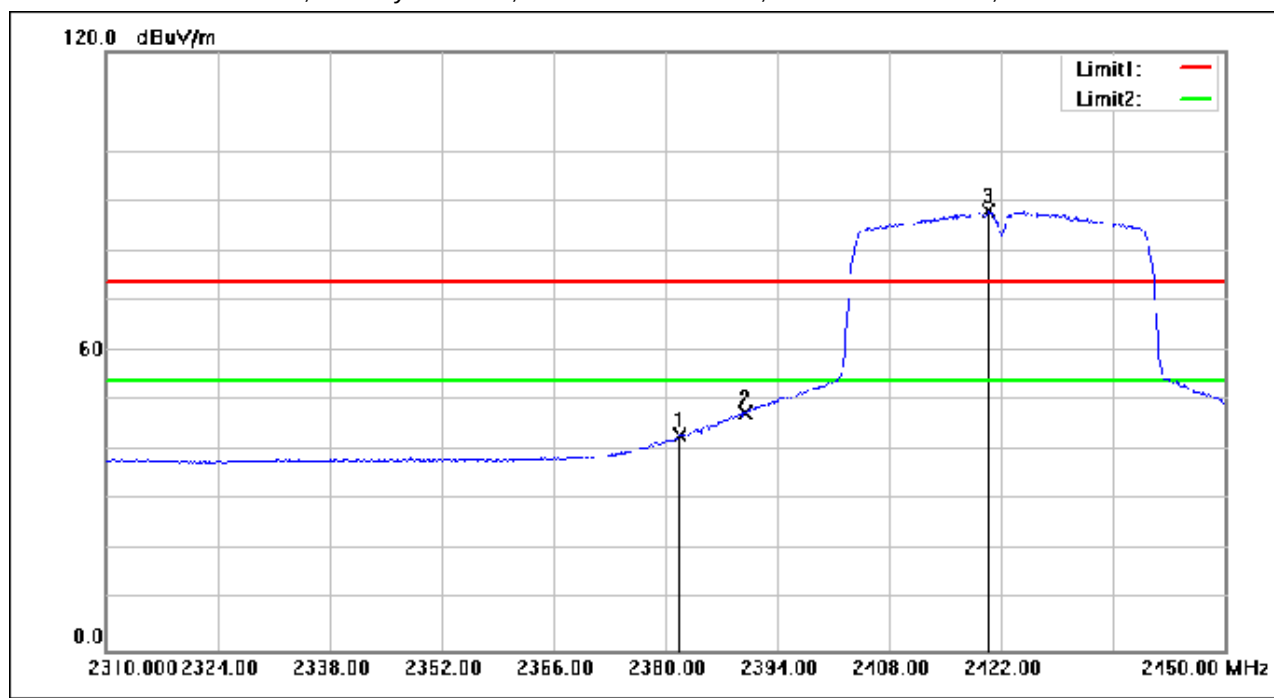
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 42 of 189

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	2381.680	67.77	-24.74	43.03	54.00	-10.97	AVG
2	2390.000	72.40	-24.71	47.69	54.00	-6.31	AVG
3	2420.460	112.56	-24.57	87.99	54.00	33.99	AVG

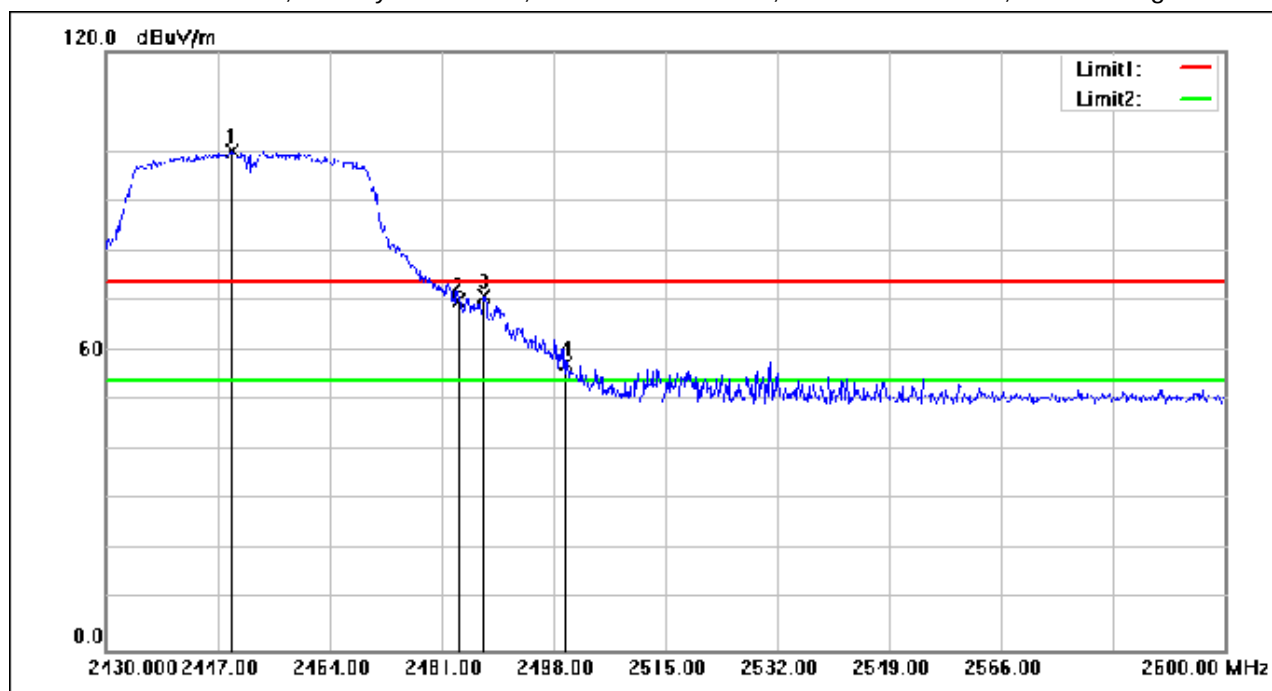
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 43 of 189

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	2449.040	124.53	-24.43	100.10	74.00	26.10	peak
2	2483.500	94.33	-24.27	70.06	74.00	-3.94	peak
3	2487.460	95.22	-24.25	70.97	74.00	-3.03	peak
4	2500.000	81.55	-24.19	57.36	74.00	-16.64	peak

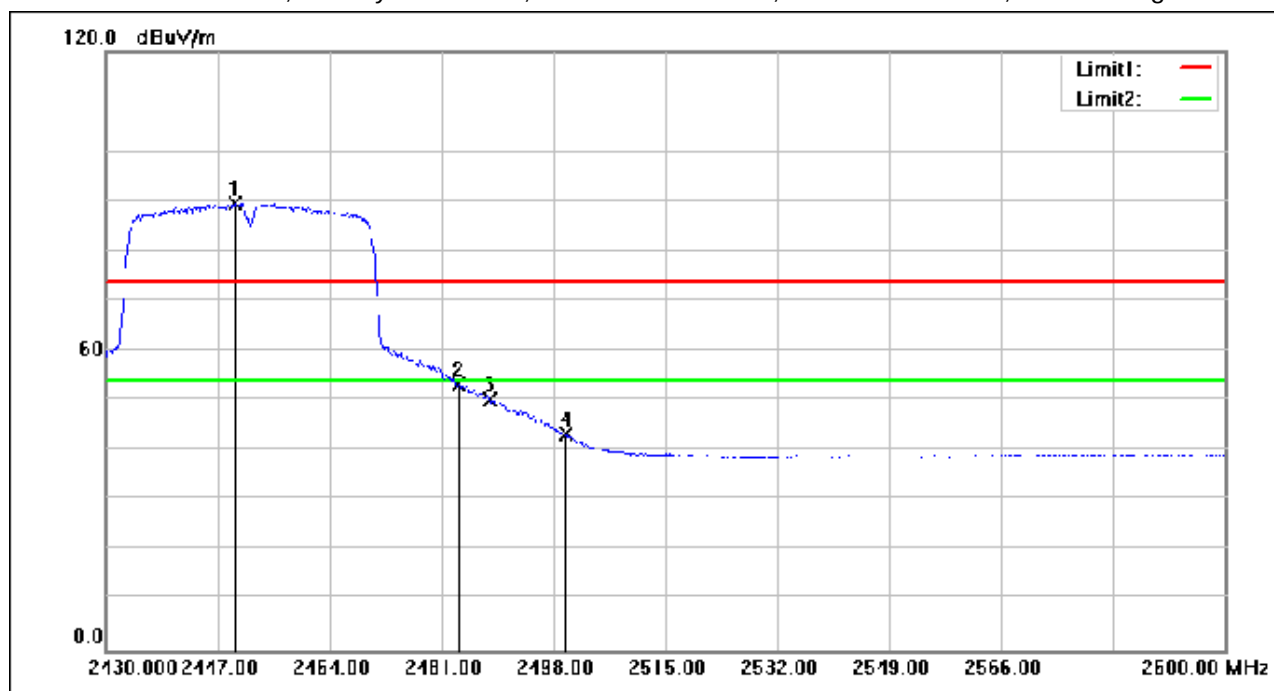
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 44 of 189

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	2449.550	114.13	-24.43	89.70	54.00	35.70	AVG
2	2483.500	77.40	-24.27	53.13	54.00	-0.87	AVG
3	2488.310	74.51	-24.25	50.26	54.00	-3.74	AVG
4	2500.000	67.47	-24.19	43.28	54.00	-10.72	AVG

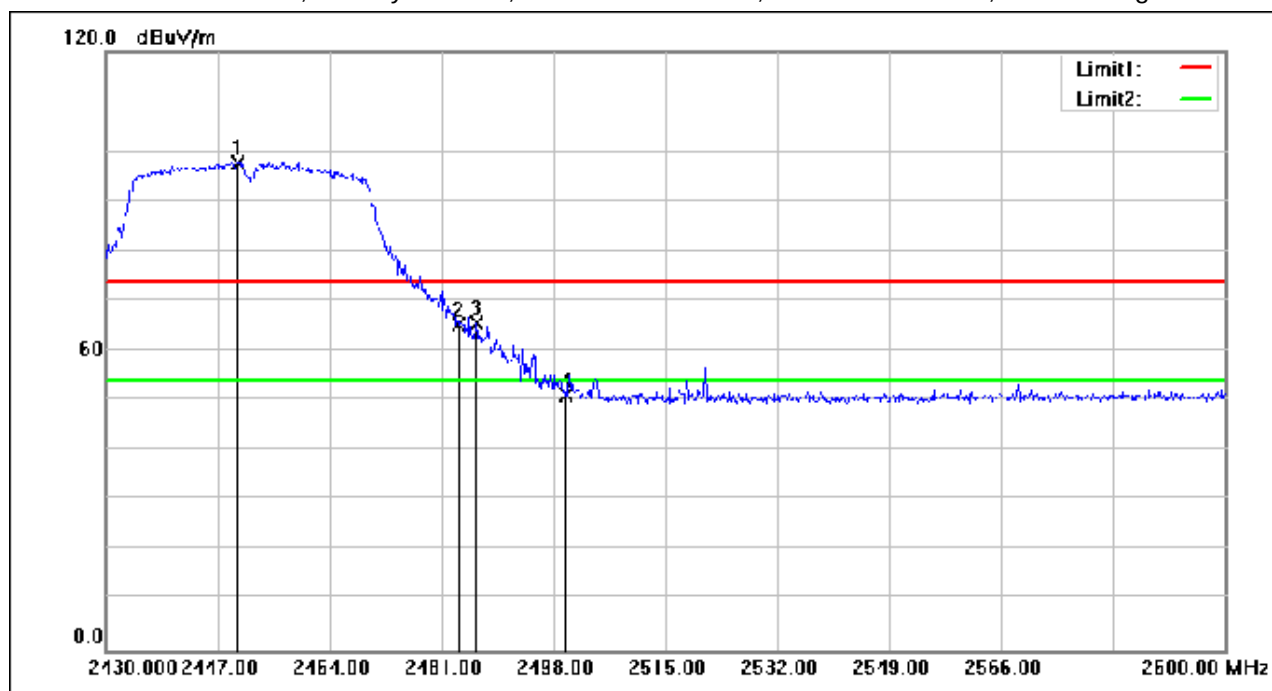
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 45 of 189

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	2450.060	122.16	-24.42	97.74	74.00	23.74	peak
2	2483.500	89.48	-24.27	65.21	74.00	-8.79	peak
3	2486.270	89.81	-24.26	65.55	74.00	-8.45	peak
4	2500.000	75.20	-24.19	51.01	74.00	-22.99	peak

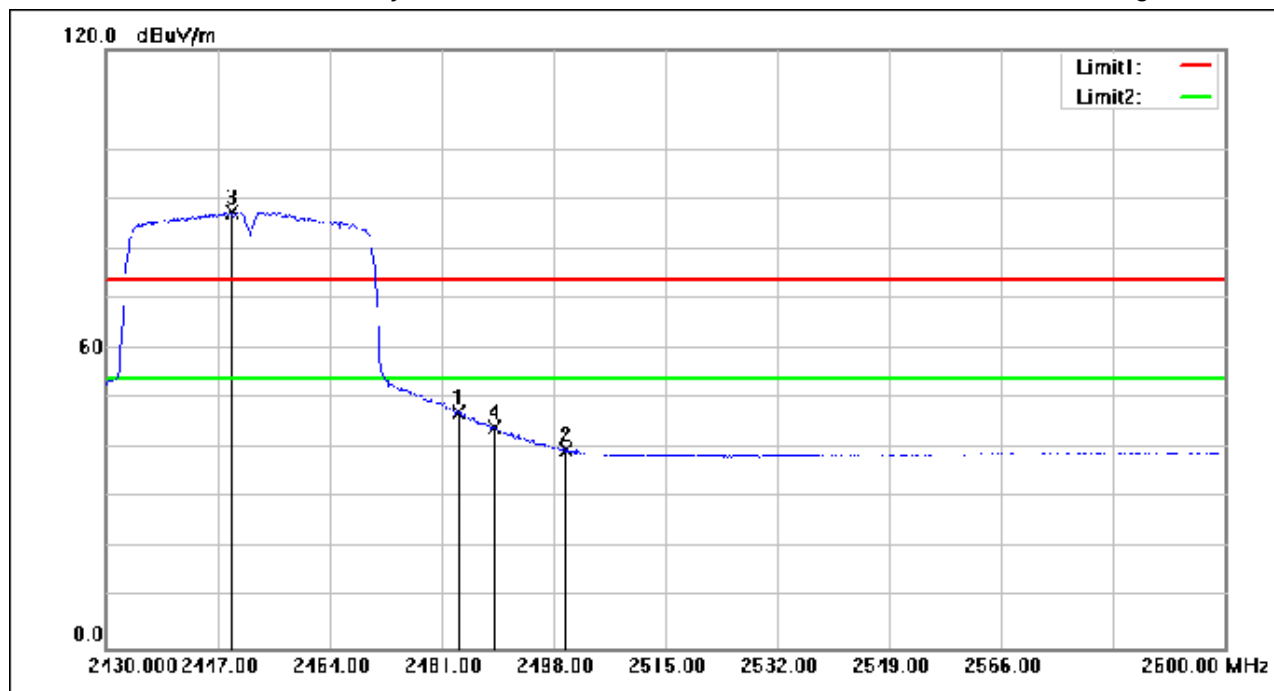
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 46 of 189

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	2483.500	71.58	-24.27	47.31	54.00	-6.69	AVG
2	2500.000	63.82	-24.19	39.63	54.00	-14.37	AVG
3	2449.040	111.90	-24.43	87.47	54.00	33.47	AVG
4	2488.990	68.43	-24.24	44.19	54.00	-9.81	AVG

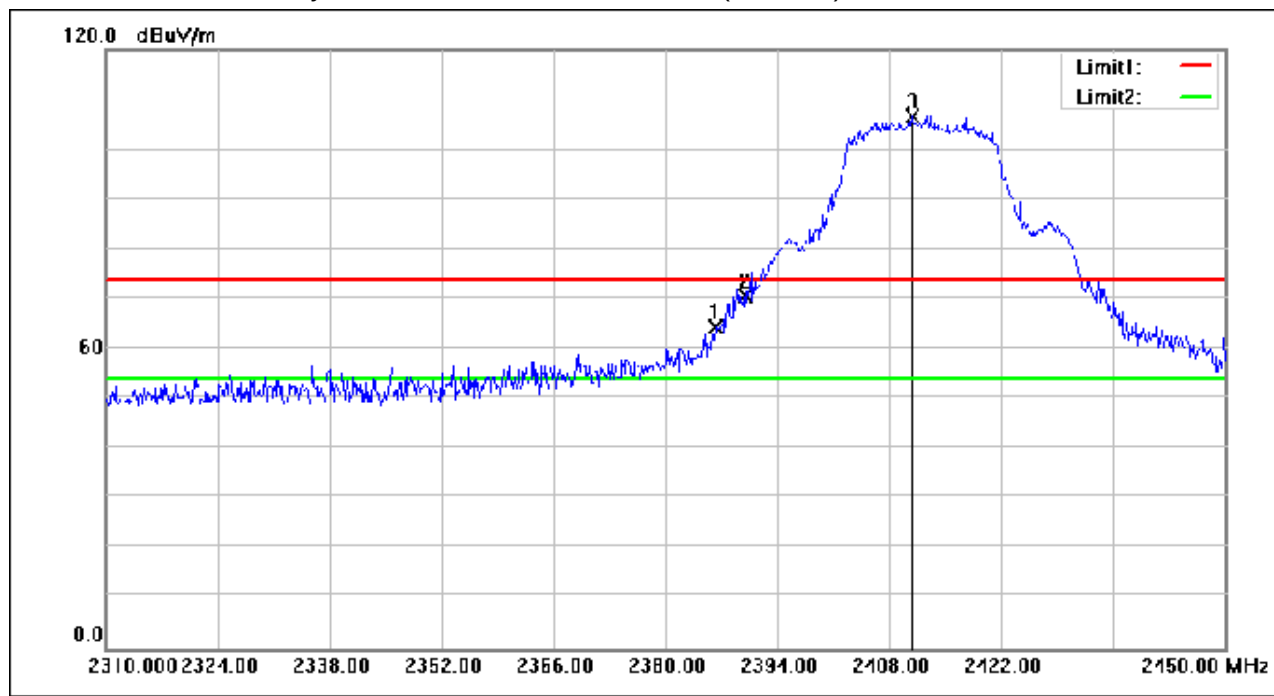
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 47 of 189

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	2386.160	89.11	-24.72	64.39	74.00	-9.61	peak
2	2390.000	95.50	-24.71	70.79	74.00	-3.21	peak
3	2410.800	131.37	-24.61	106.76	74.00	32.76	peak

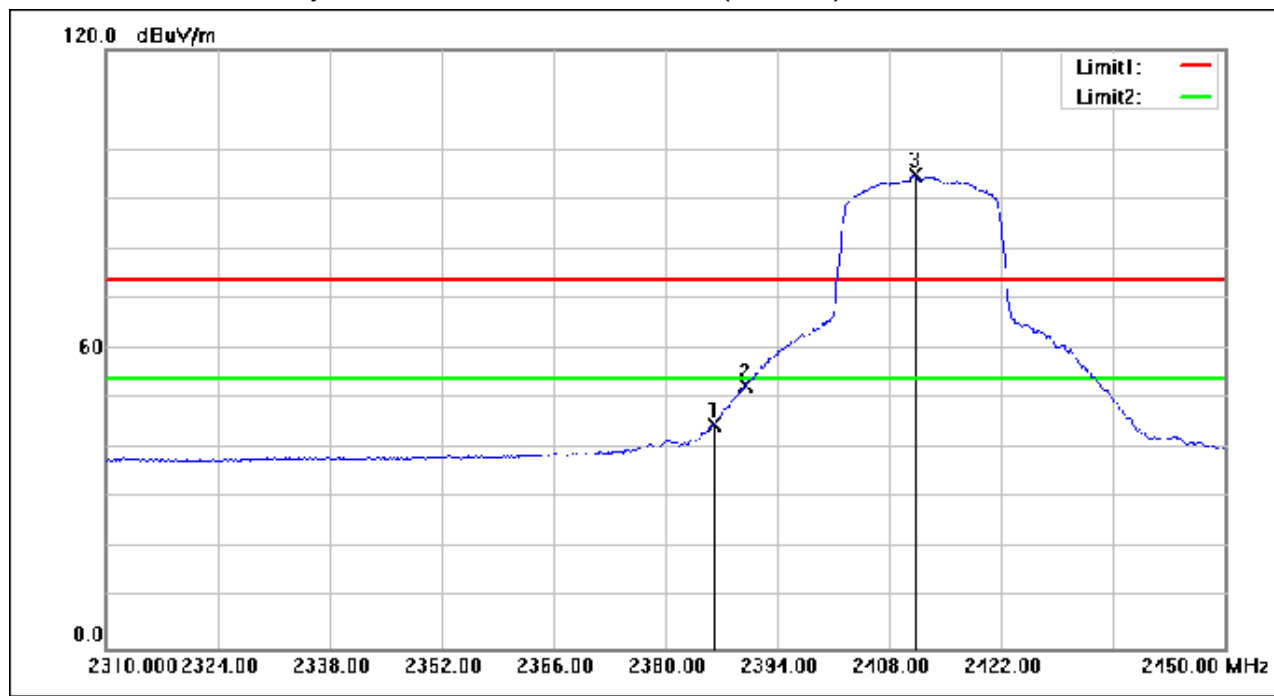
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 48 of 189

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	2386.020	69.63	-24.72	44.91	54.00	-9.09	AVG
2	2390.000	77.24	-24.71	52.53	54.00	-1.47	AVG
3	2411.220	119.46	-24.60	94.86	54.00	40.86	AVG

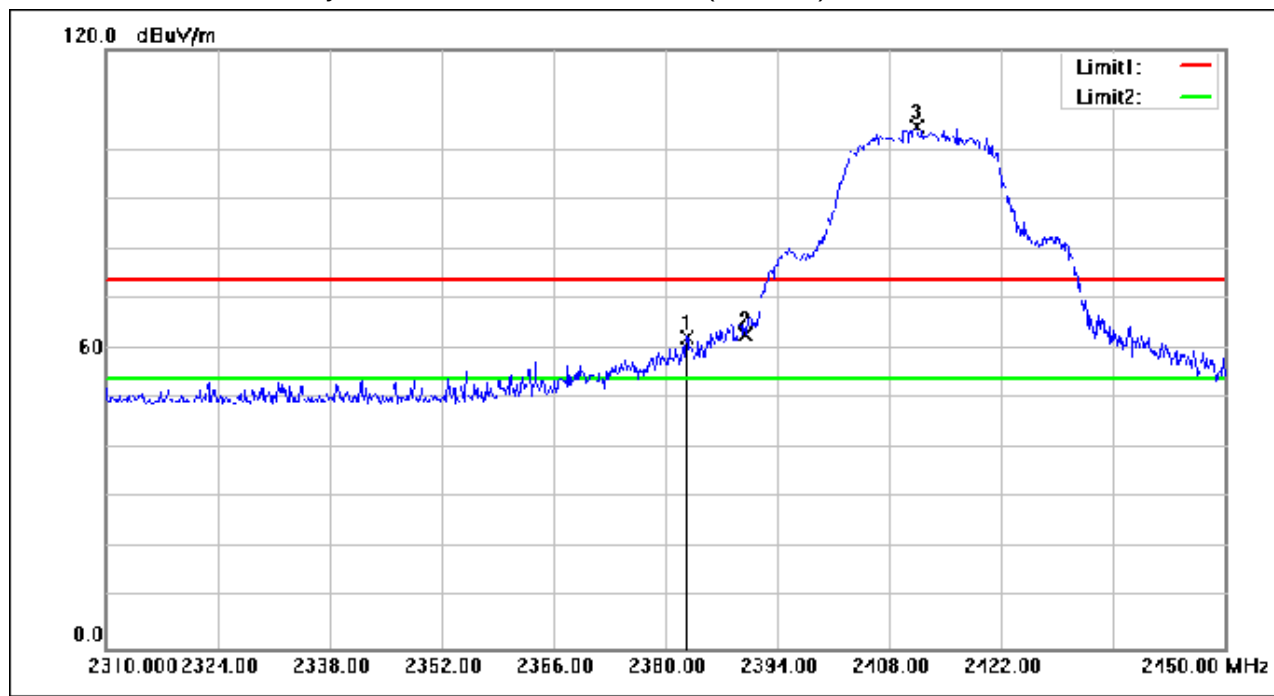
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 49 of 189

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	2382.660	87.14	-24.74	62.40	74.00	-11.60	peak
2	2390.000	87.54	-24.71	62.83	74.00	-11.17	peak
3	2411.360	129.27	-24.60	104.67	74.00	30.67	peak

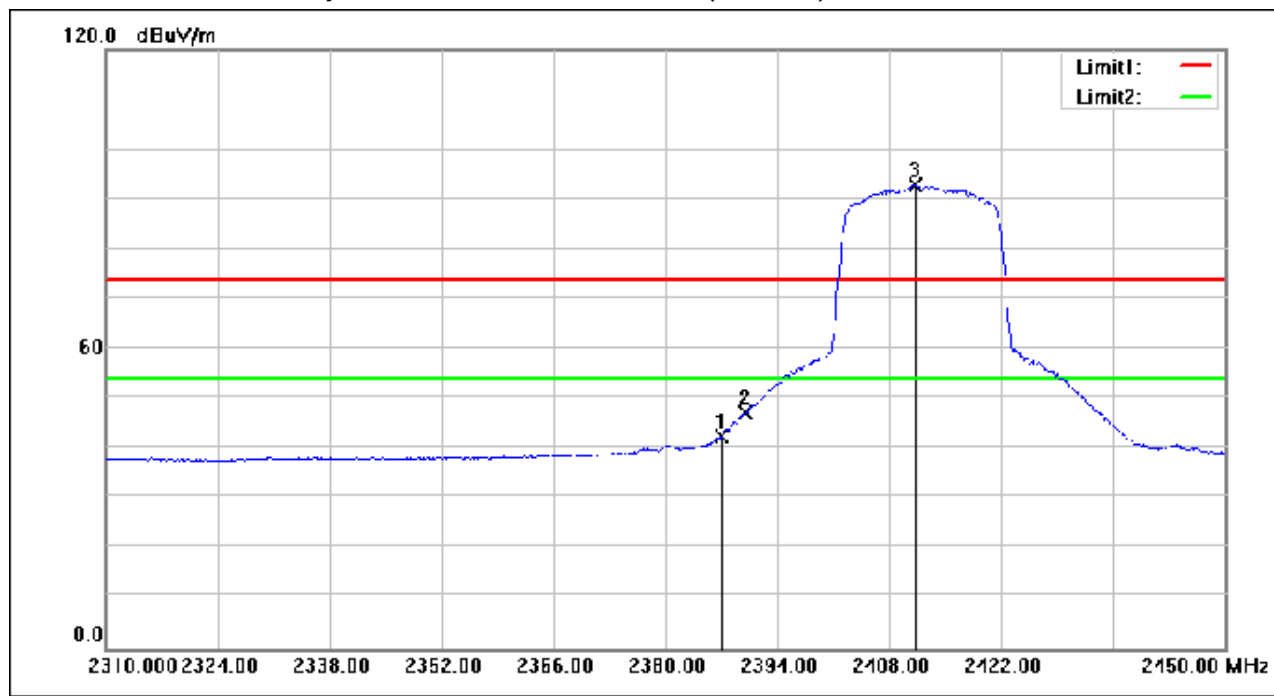
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 50 of 189

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	2387.000	67.29	-24.72	42.57	54.00	-11.43	AVG
2	2390.000	71.84	-24.71	47.13	54.00	-6.87	AVG
3	2411.220	117.57	-24.60	92.97	54.00	38.97	AVG

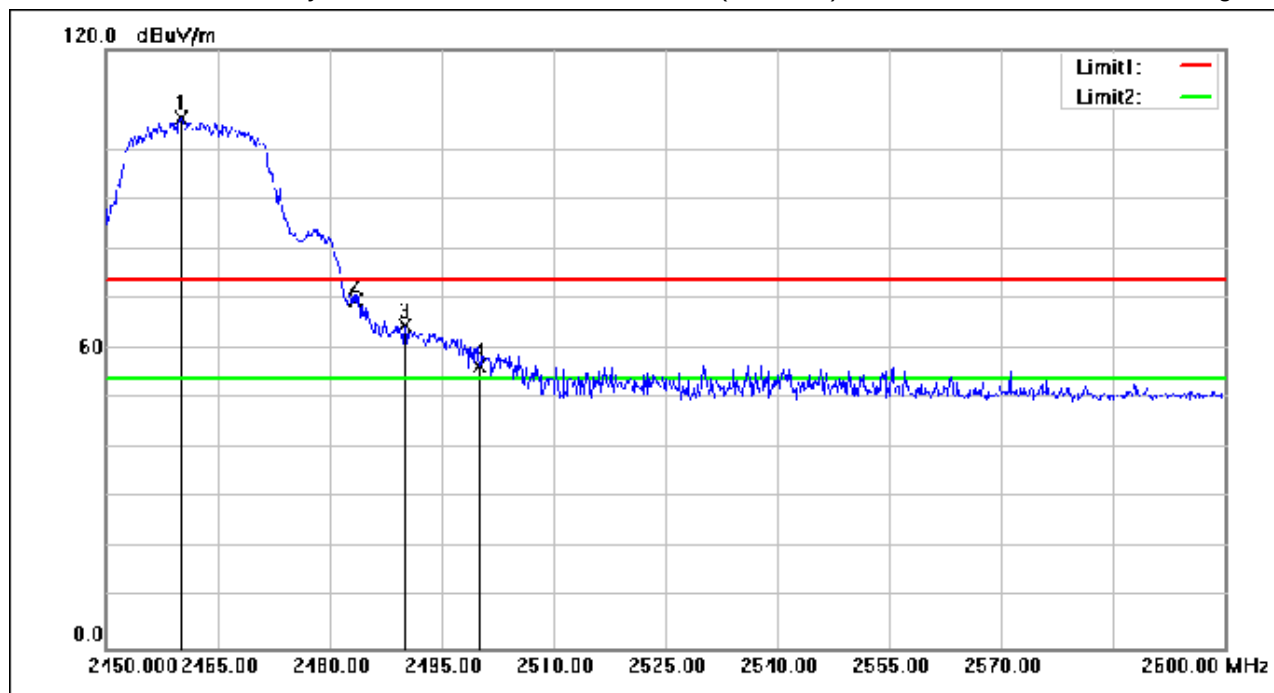
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 51 of 189

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	2460.050	130.60	-24.38	106.22	74.00	32.22	peak
2	2483.500	94.03	-24.27	69.76	74.00	-4.24	peak
3	2490.050	88.94	-24.24	64.70	74.00	-9.30	peak
4	2500.000	80.66	-24.19	56.47	74.00	-17.53	peak

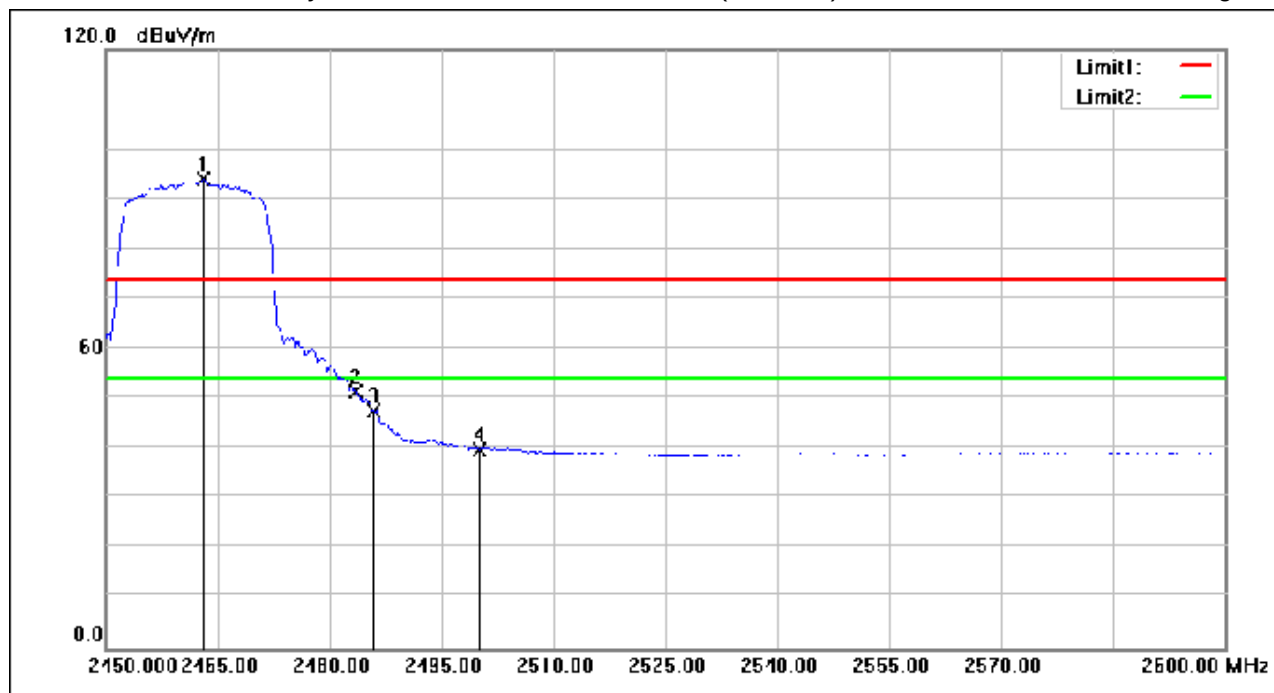
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 52 of 189

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	2463.050	118.31	-24.37	93.94	54.00	39.94	AVG
2	2483.500	75.84	-24.27	51.57	54.00	-2.43	AVG
3	2485.850	71.70	-24.26	47.44	54.00	-6.56	AVG
4	2500.000	64.04	-24.19	39.85	54.00	-14.15	AVG

Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 53 of 189

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	2458.400	128.85	-24.39	104.46	74.00	30.46	peak
2	2483.500	84.33	-24.27	60.06	74.00	-13.94	peak
3	2488.850	85.84	-24.24	61.60	74.00	-12.40	peak
4	2500.000	78.34	-24.19	54.15	74.00	-19.85	peak

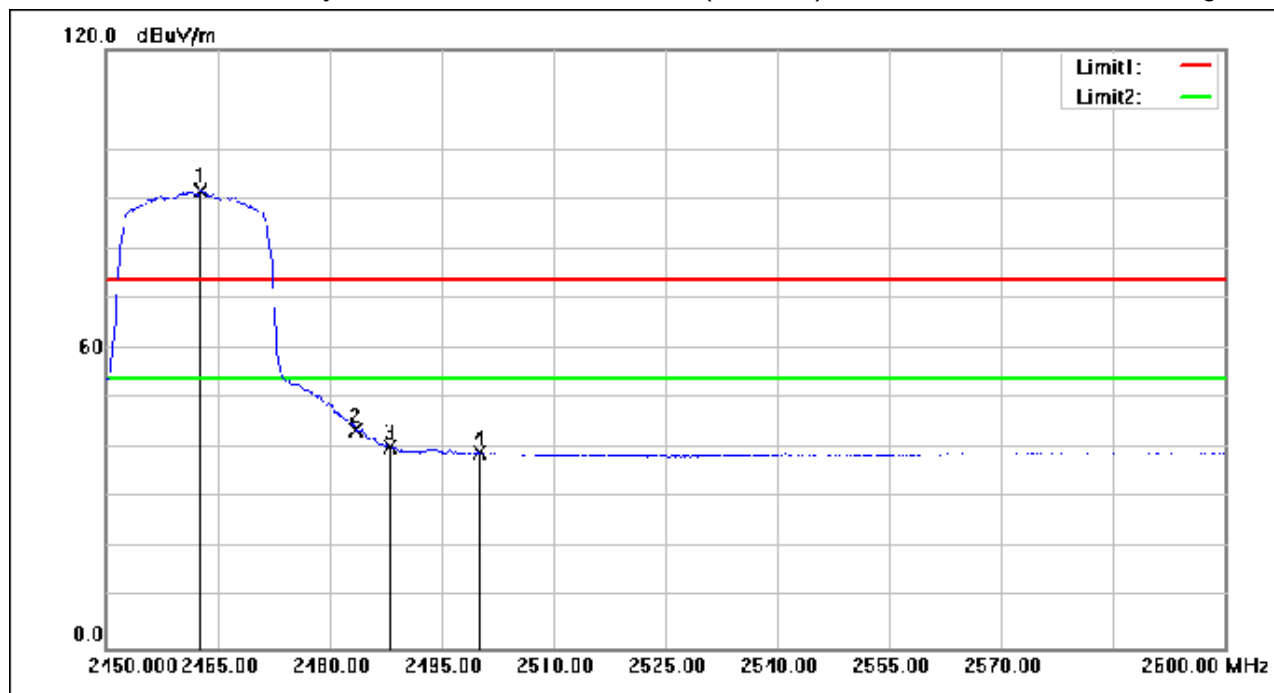
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 54 of 189

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	116.10	-24.37	91.73	54.00	37.73	AVG
2	2483.500	67.96	-24.27	43.69	54.00	-10.31	AVG
3	2488.100	64.56	-24.25	40.31	54.00	-13.69	AVG
4	2500.000	63.23	-24.19	39.04	54.00	-14.96	AVG

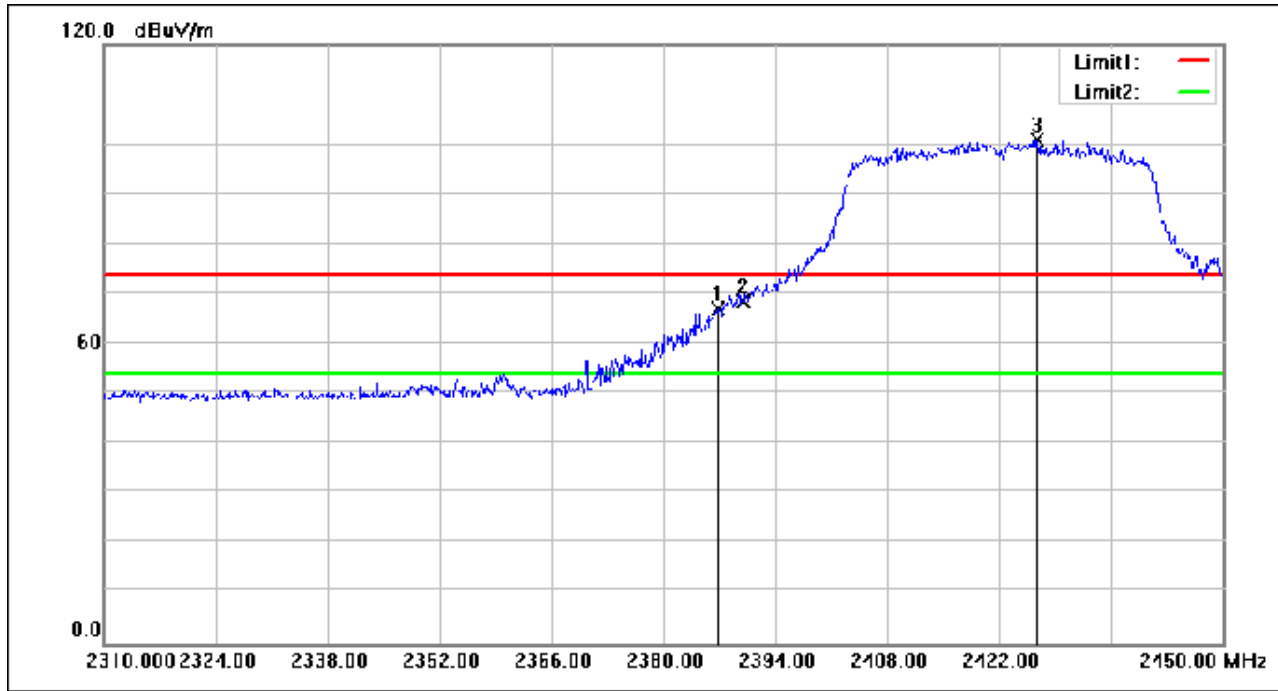
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 55 of 189

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	2386.720	91.88	-24.72	67.16	74.00	-6.84	peak
2	2390.000	93.37	-24.71	68.66	74.00	-5.34	peak
3	2426.760	125.50	-24.53	100.97	74.00	26.97	peak

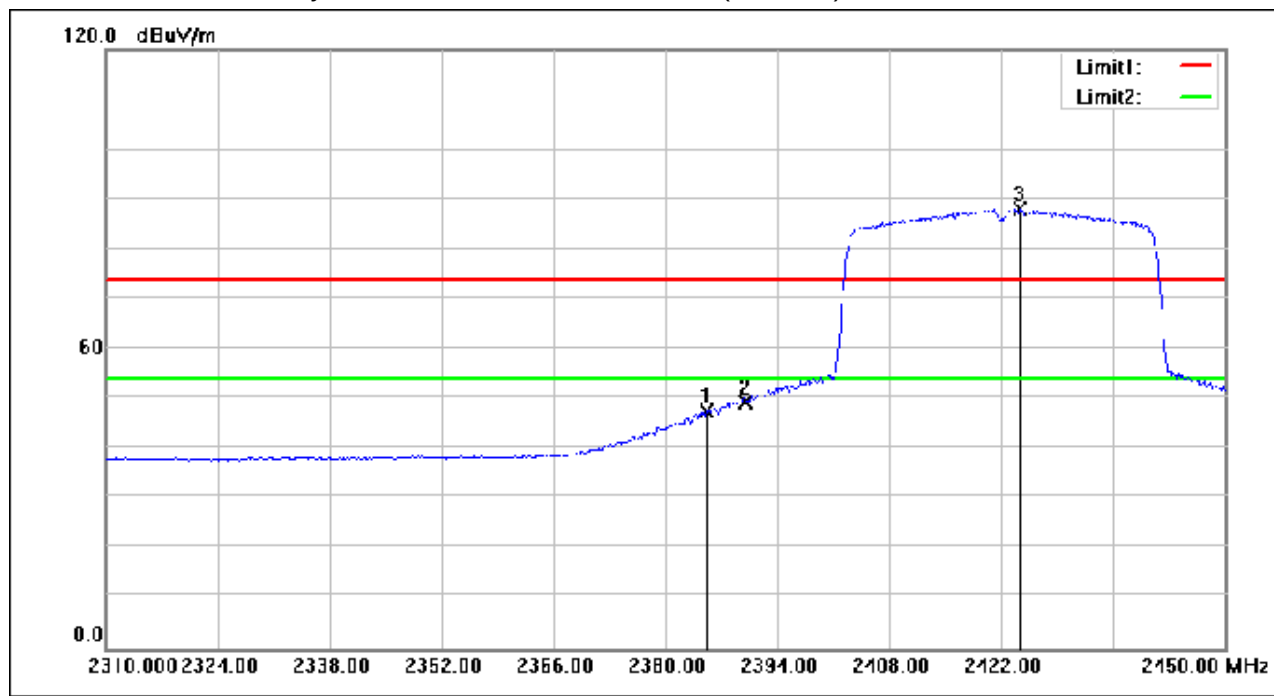
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 56 of 189

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	2385.180	72.29	-24.73	47.56	54.00	-6.44	AVG
2	2390.000	74.12	-24.71	49.41	54.00	-4.59	AVG
3	2424.380	112.67	-24.54	88.13	54.00	34.13	AVG

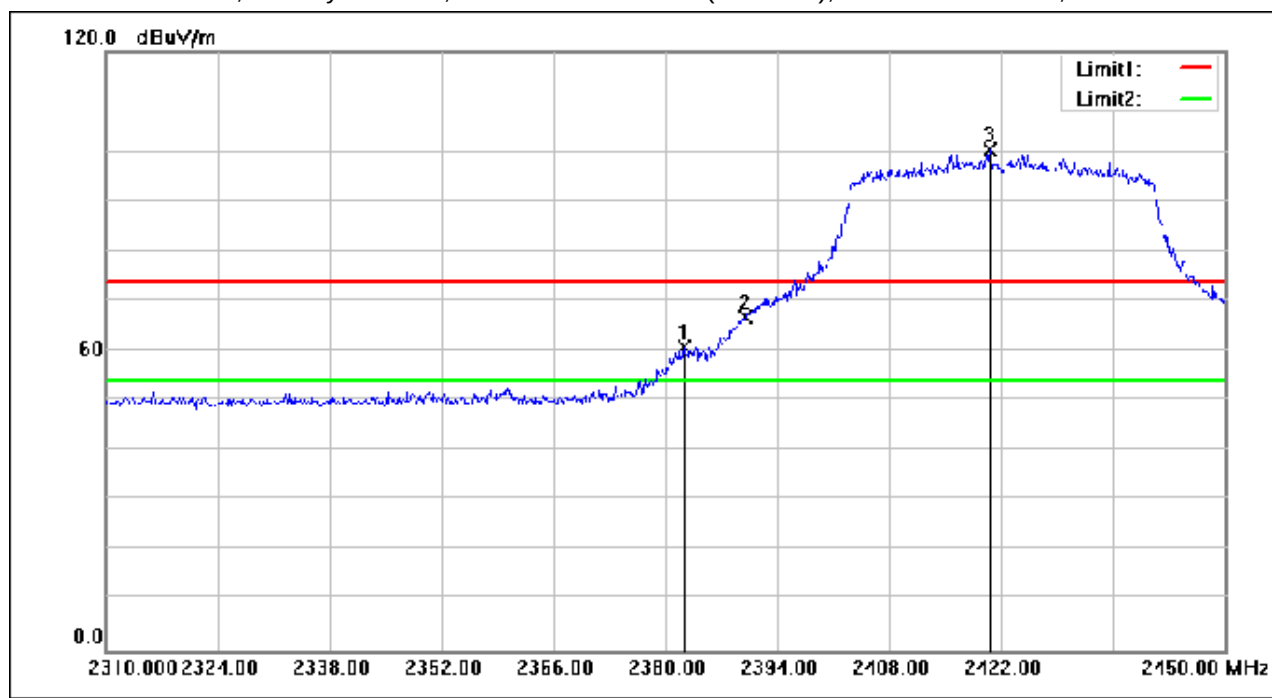
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 57 of 189

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	2382.240	85.54	-24.74	60.80	74.00	-13.20	peak
2	2390.000	91.36	-24.71	66.65	74.00	-7.35	peak
3	2420.600	124.83	-24.57	100.26	74.00	26.26	peak

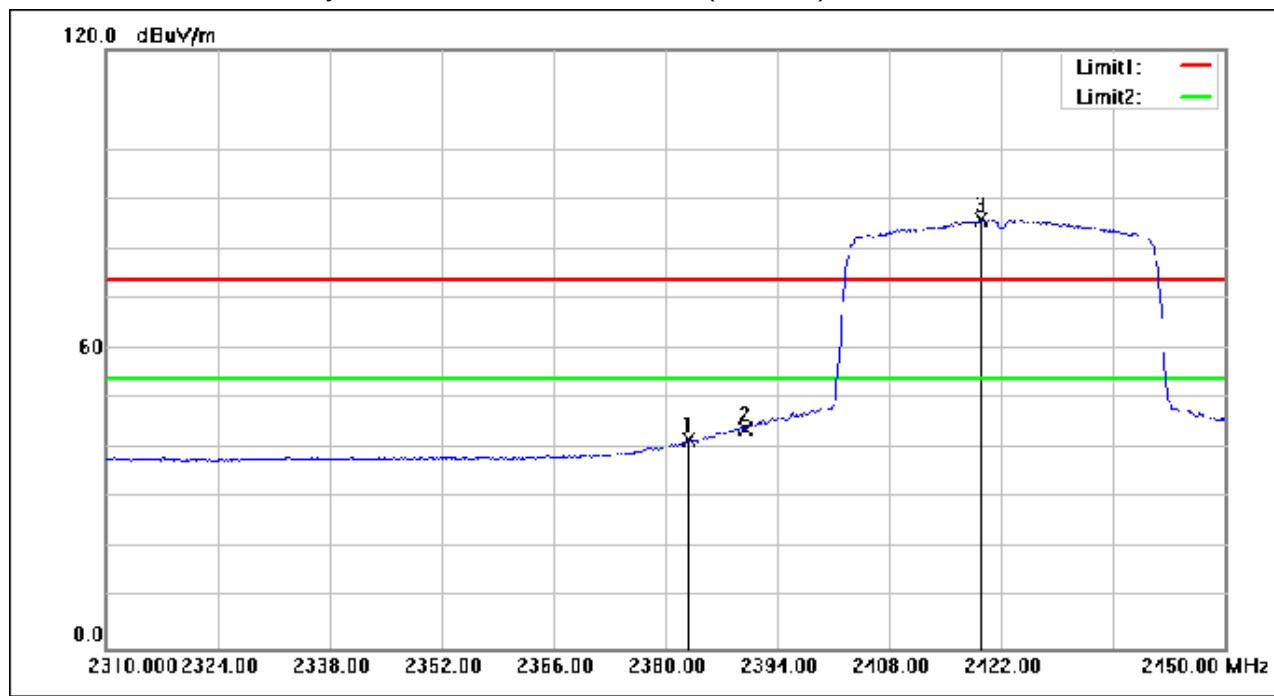
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 58 of 189

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	2382.940	66.54	-24.74	41.80	54.00	-12.20	AVG
2	2390.000	68.54	-24.71	43.83	54.00	-10.17	AVG
3	2419.480	110.62	-24.57	86.05	54.00	32.05	AVG

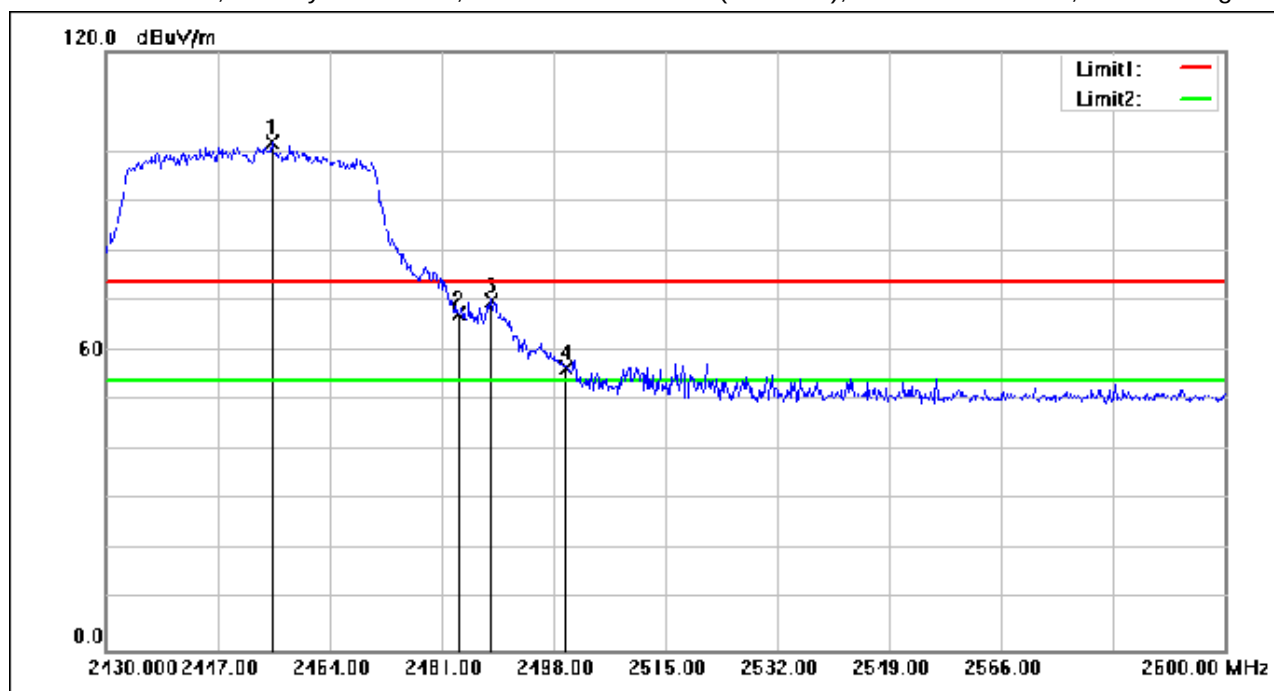
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 59 of 189

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	2455.160	126.28	-24.40	101.88	74.00	27.88	peak
2	2483.500	91.65	-24.27	67.38	74.00	-6.62	peak
3	2488.650	94.43	-24.25	70.18	74.00	-3.82	peak
4	2500.000	80.79	-24.19	56.60	74.00	-17.40	peak

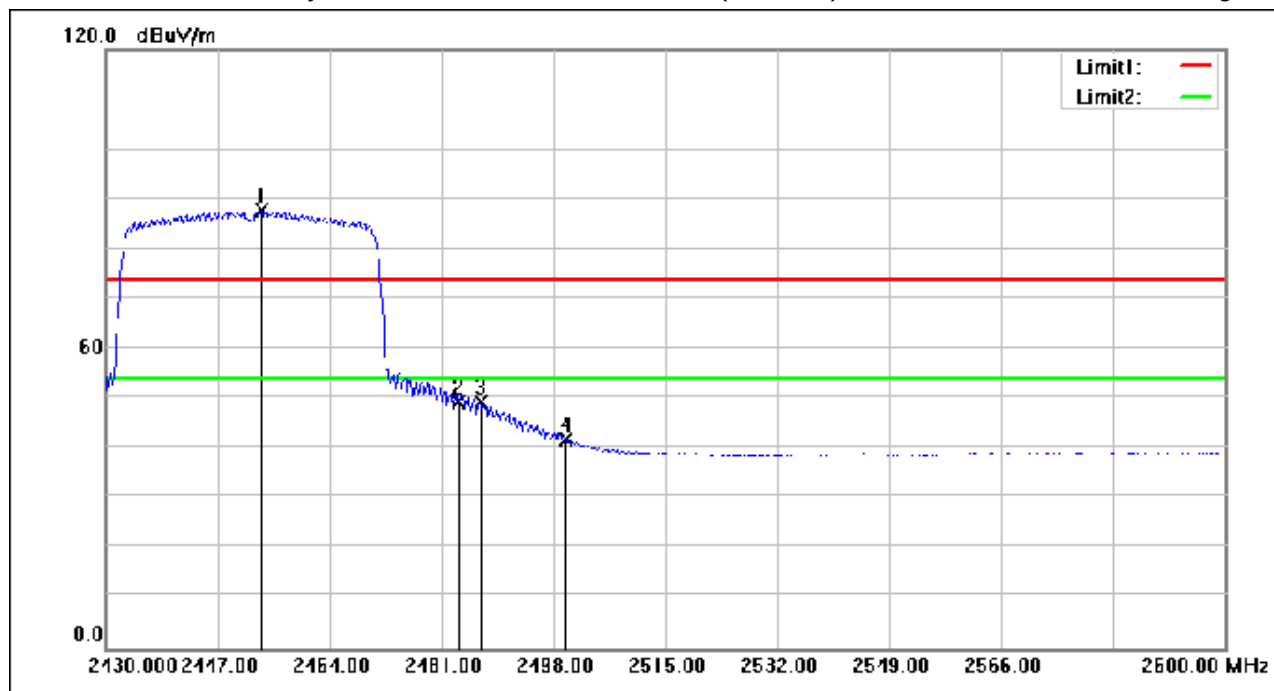
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 60 of 189

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	2453.630	112.25	-24.41	87.84	54.00	33.84	AVG
2	2483.500	73.67	-24.27	49.40	54.00	-4.60	AVG
3	2486.950	73.58	-24.25	49.33	54.00	-4.67	AVG
4	2500.000	66.14	-24.19	41.95	54.00	-12.05	AVG

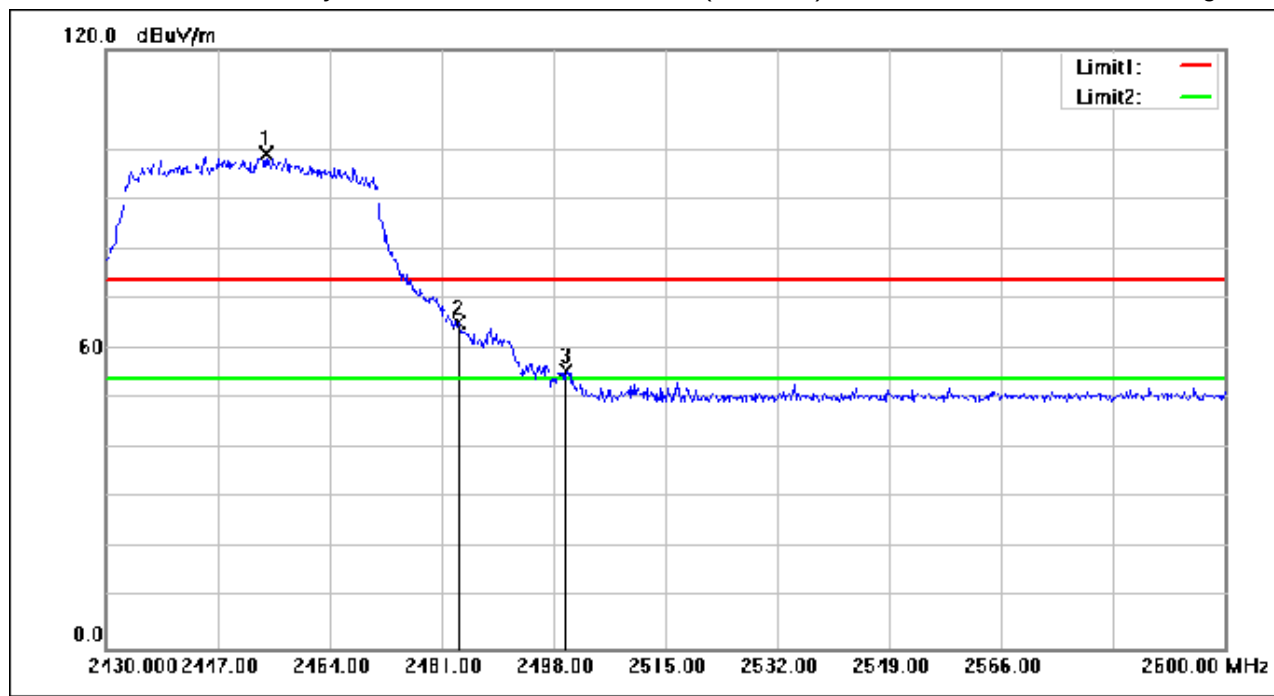
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 61 of 189

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	2454.310	123.61	-24.40	99.21	74.00	25.21	peak
2	2483.500	89.46	-24.27	65.19	74.00	-8.81	peak
3	2500.000	79.74	-24.19	55.55	74.00	-18.45	peak

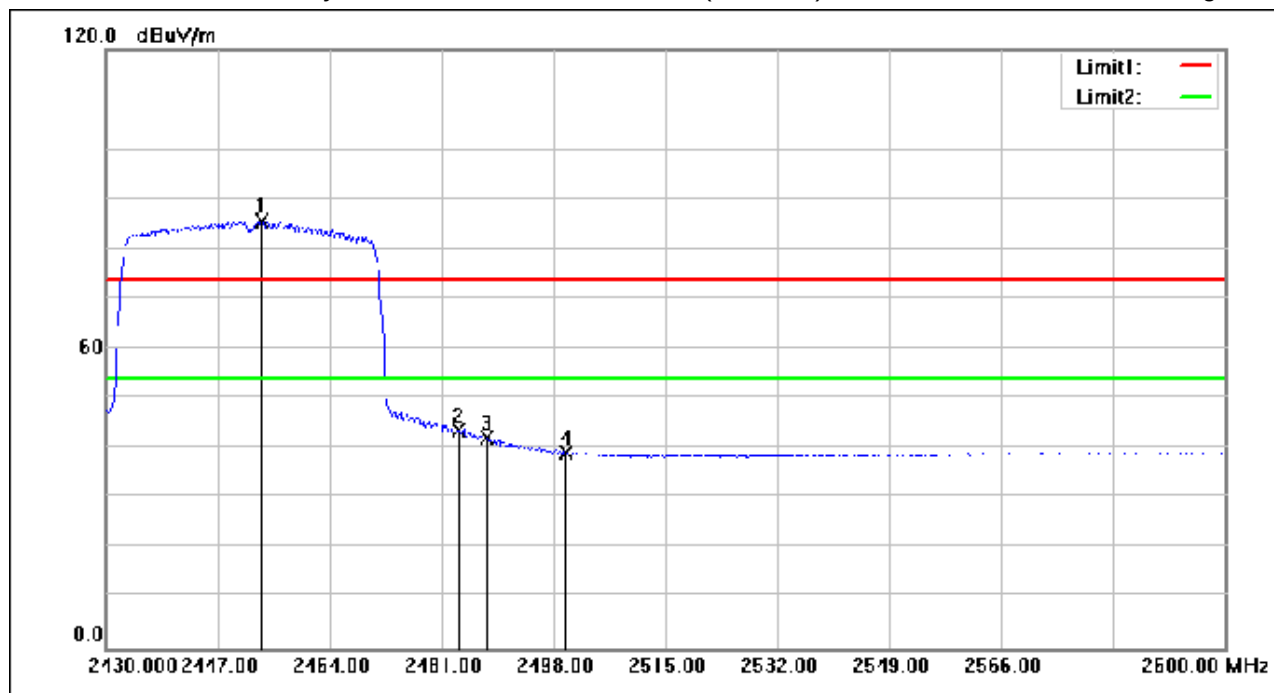
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 62 of 189

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	2453.630	110.01	-24.41	85.60	54.00	31.60	AVG
2	2483.500	67.96	-24.27	43.69	54.00	-10.31	AVG
3	2487.800	66.54	-24.25	42.29	54.00	-11.71	AVG
4	2500.000	63.28	-24.19	39.09	54.00	-14.91	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

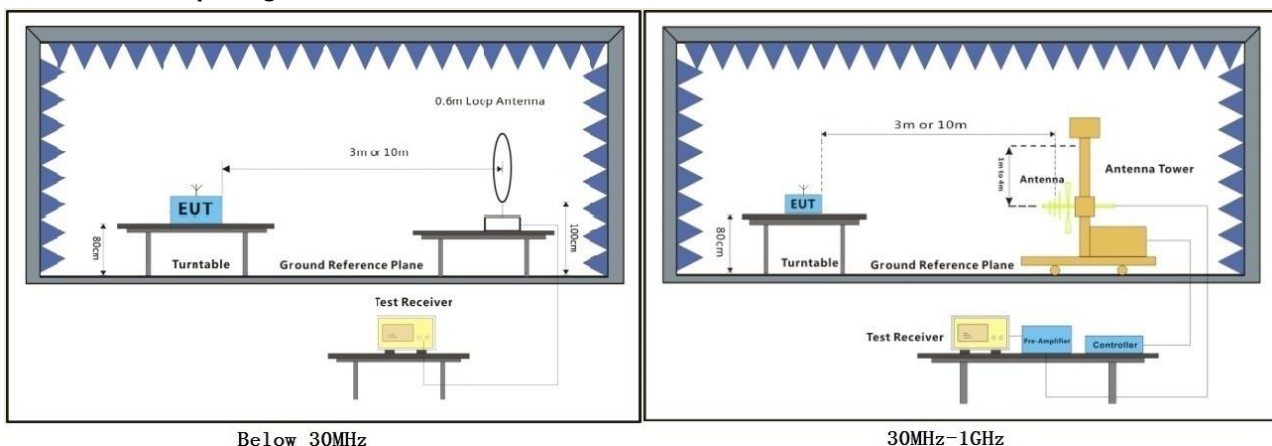
Humidity: 50.5 % RH

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(HEW20); data rate @ MCS0 is the worst case of IEEE 802.11ax(HEW40). 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.

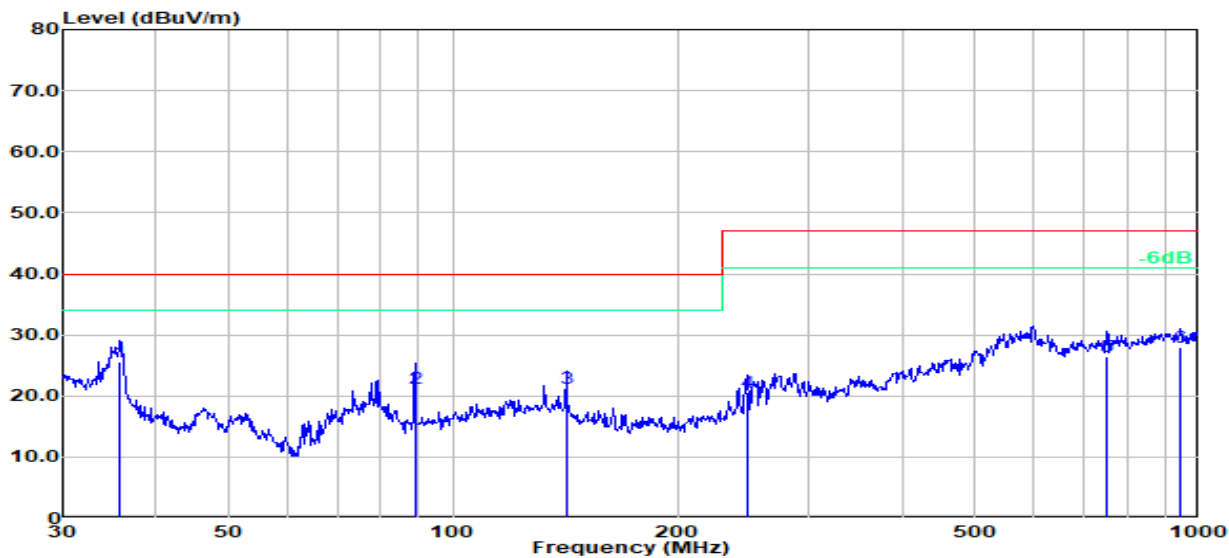
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 65 of 189

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	35.7490	34.26	-8.63	25.63	40.00	-14.37	100	25	QP
2	88.9640	36.25	-14.90	21.35	40.00	-18.65	200	126	QP
3	141.8260	35.26	-14.03	21.23	40.00	-18.77	300	335	QP
4	247.6820	28.54	-7.96	20.58	47.00	-26.42	200	225	QP
5	750.1080	24.02	2.43	26.45	47.00	-20.55	100	342	QP
6	945.4400	22.32	5.55	27.87	47.00	-19.13	100	12	QP

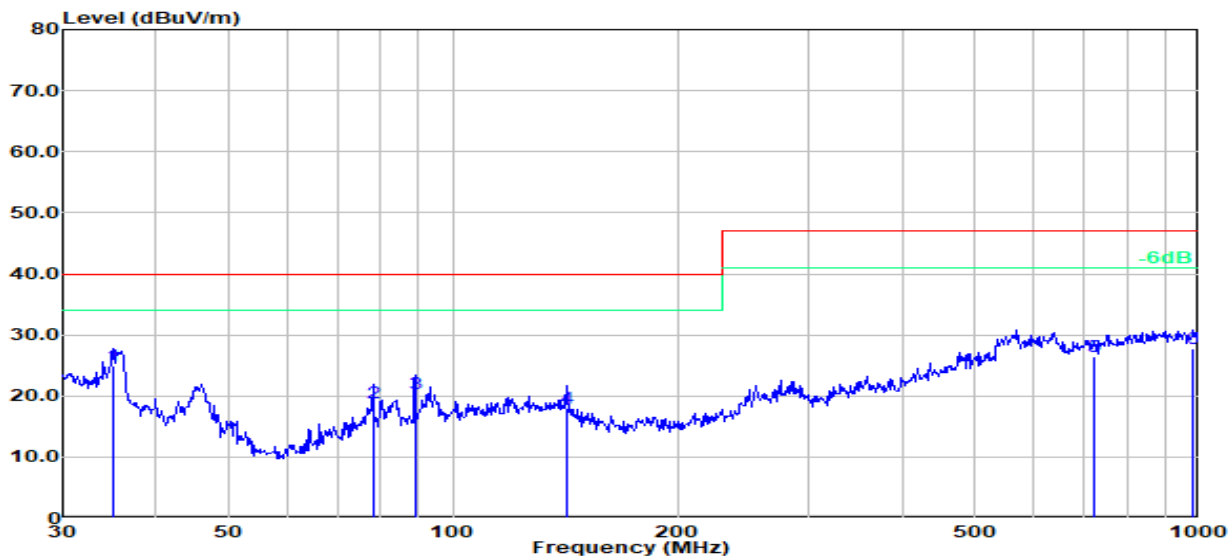
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 66 of 189

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	35.1280	33.25	-8.29	24.96	40.00	-15.04	100	253	QP
2	78.1390	35.20	-16.23	18.97	40.00	-21.03	200	22	QP
3	88.9640	35.26	-14.90	20.36	40.00	-19.64	100	352	QP
4	141.8260	32.05	-14.03	18.02	40.00	-21.98	200	156	QP
5	724.2610	24.53	1.98	26.51	47.00	-20.49	300	228	QP
6	982.6200	22.15	5.59	27.74	47.00	-19.26	200	3	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

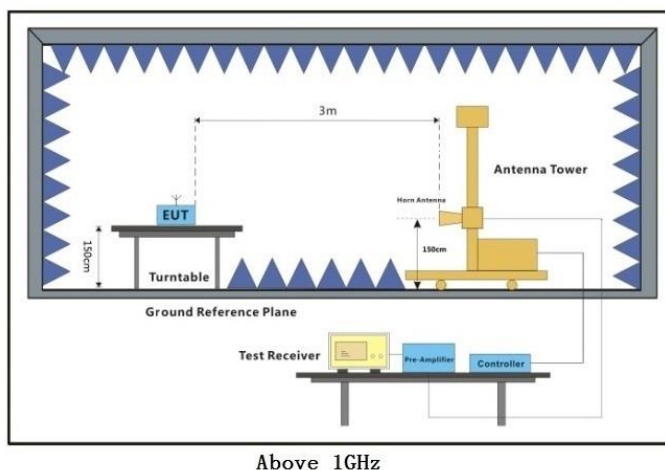
Humidity: 50.5 % RH

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(HEW20); data rate @ MCS0 is the worst case of IEEE 802.11ax(HEW40). 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. $\text{Level} = \text{Read Level} + \text{Cable Loss} + \text{Antenna Factor} - \text{Preamplifier Factor}$
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.

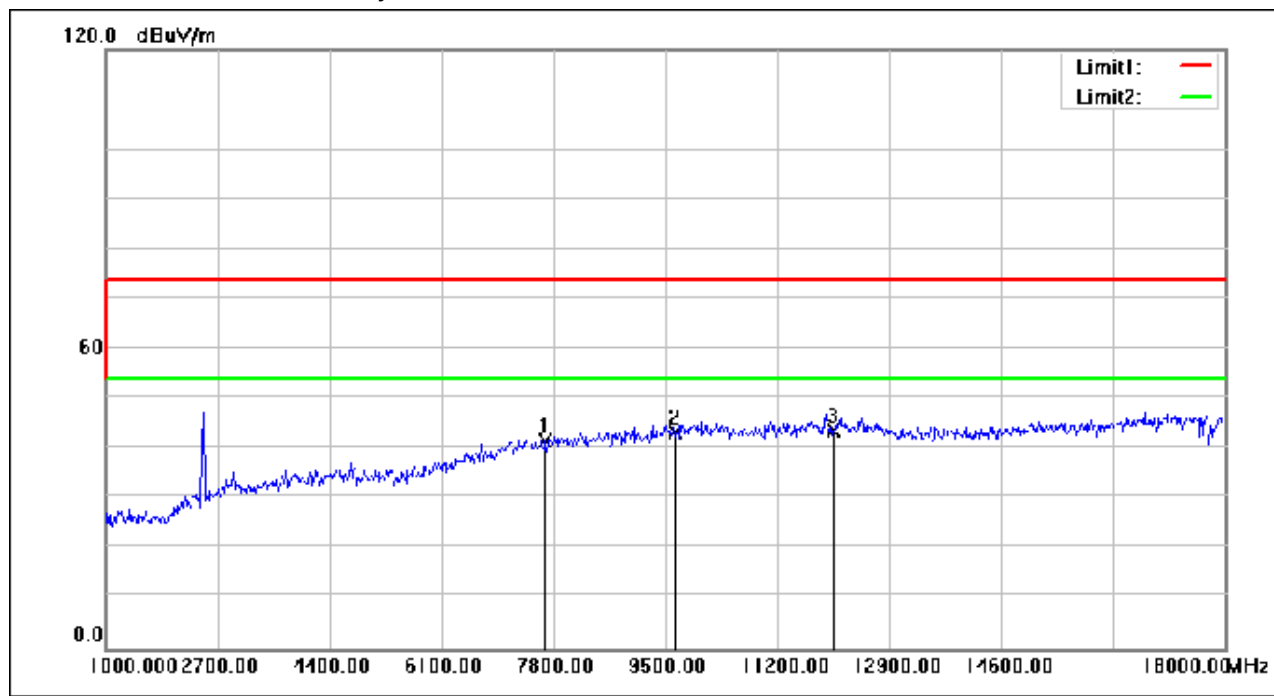
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 69 of 189

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	7690.520	52.62	-11.01	41.61	74.00	-32.39	peak
2	9655.040	50.98	-7.67	43.31	74.00	-30.69	peak
3	12058.160	49.66	-5.91	43.75	74.00	-30.25	peak

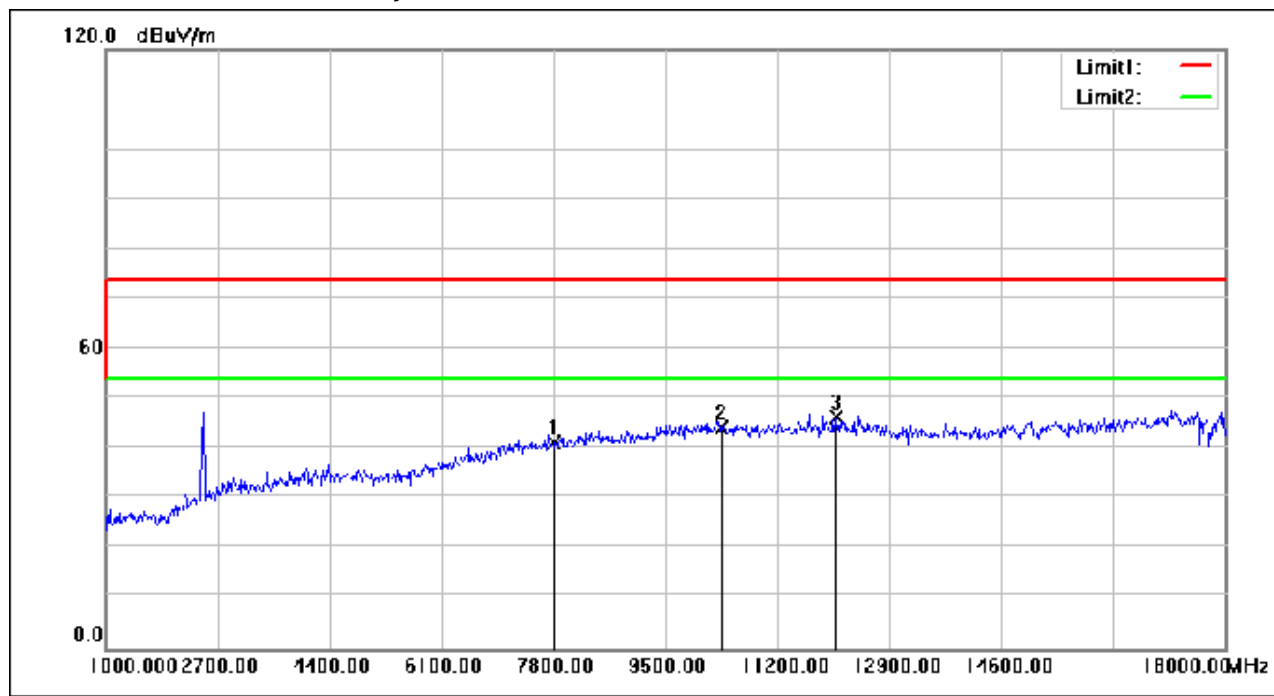
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 70 of 189

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	7831.960	52.21	-10.83	41.38	74.00	-32.62	peak
2	10353.400	51.29	-7.12	44.17	74.00	-29.83	peak
3	12114.600	52.31	-5.94	46.37	74.00	-27.63	peak

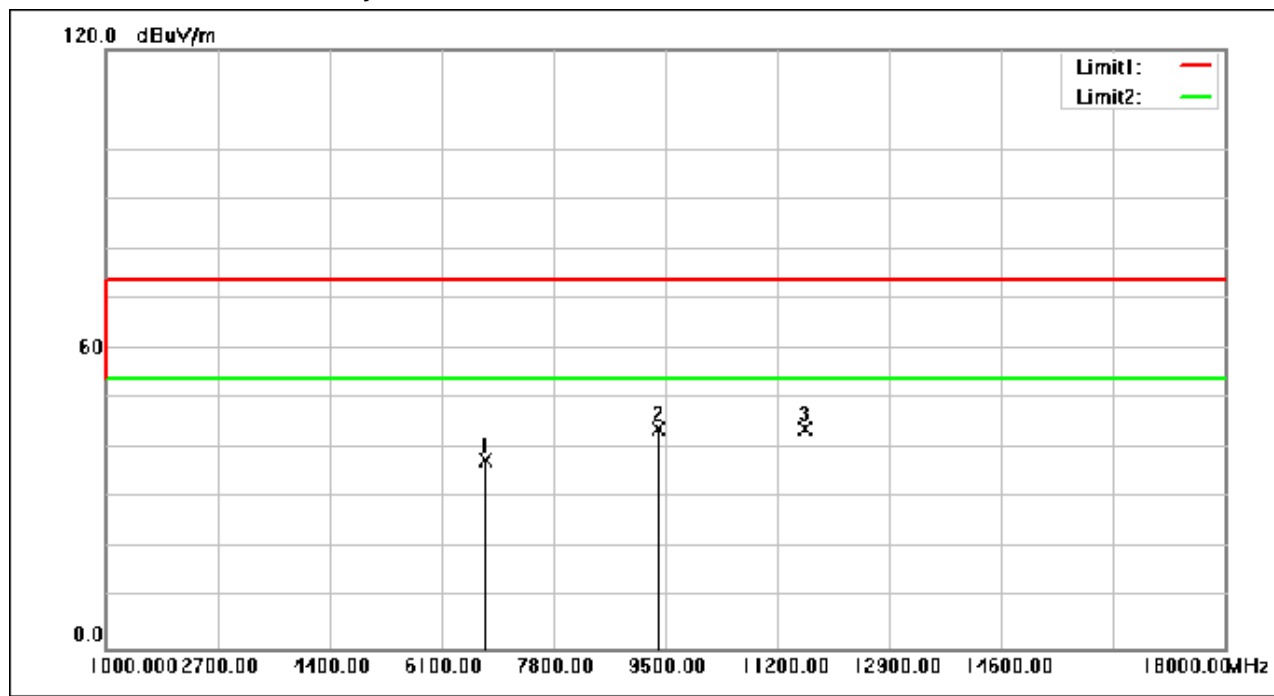
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 71 of 189

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	6773.200	49.70	-11.96	37.74	74.00	-36.26	peak
2	9403.440	52.22	-8.14	44.08	74.00	-29.92	peak
3	11627.040	50.33	-6.25	44.08	74.00	-29.92	peak

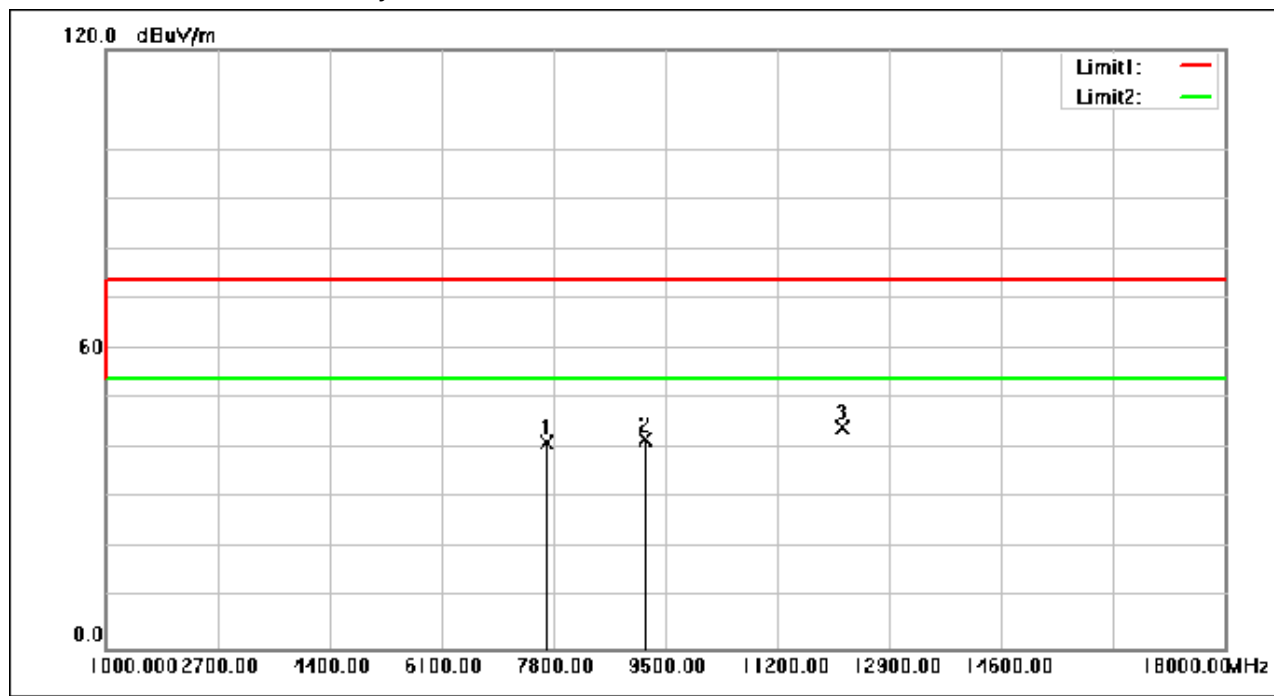
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 72 of 189

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	7708.200	52.33	-10.98	41.35	74.00	-32.65	peak
2	9198.080	50.45	-8.52	41.93	74.00	-32.07	peak
3	12194.840	50.26	-5.97	44.29	74.00	-29.71	peak

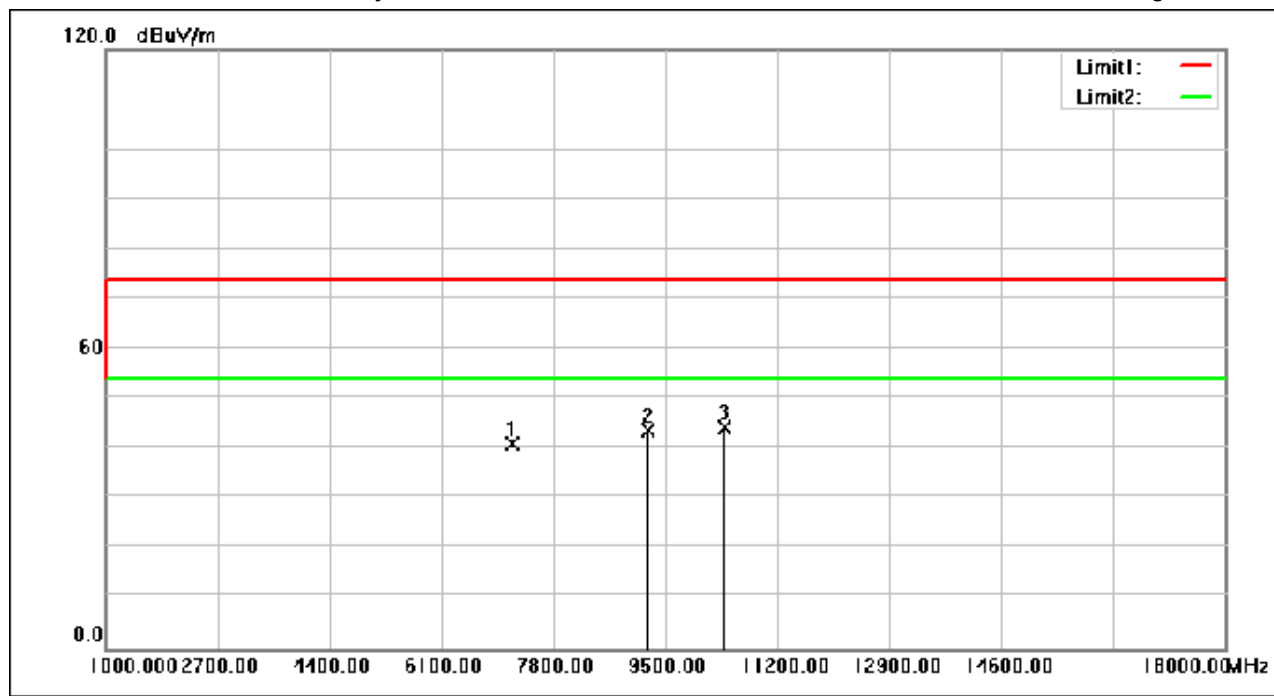
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 73 of 189

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	7173.720	52.42	-11.48	40.94	74.00	-33.06	peak
2	9250.440	51.98	-8.43	43.55	74.00	-30.45	peak
3	10417.320	51.48	-7.09	44.39	74.00	-29.61	peak

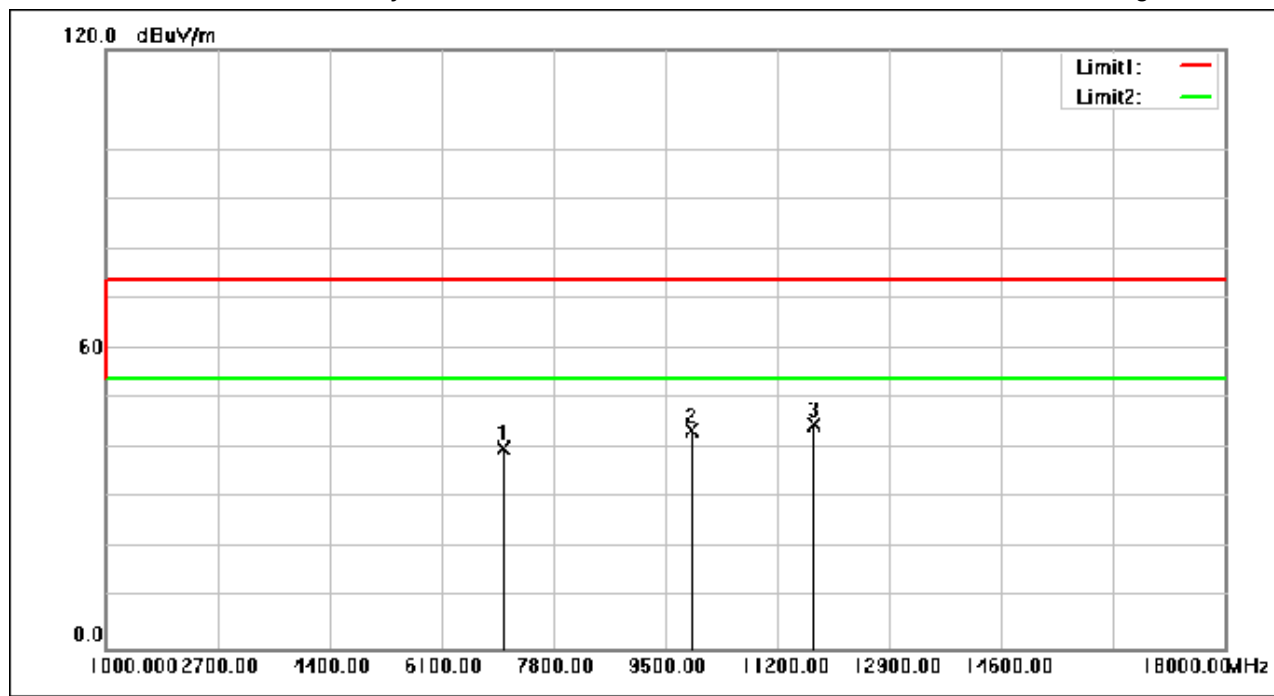
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 74 of 189

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	7039.760	51.68	-11.55	40.13	74.00	-33.87	peak
2	9893.040	50.83	-7.31	43.52	74.00	-30.48	peak
3	11766.440	50.92	-6.14	44.78	74.00	-29.22	peak

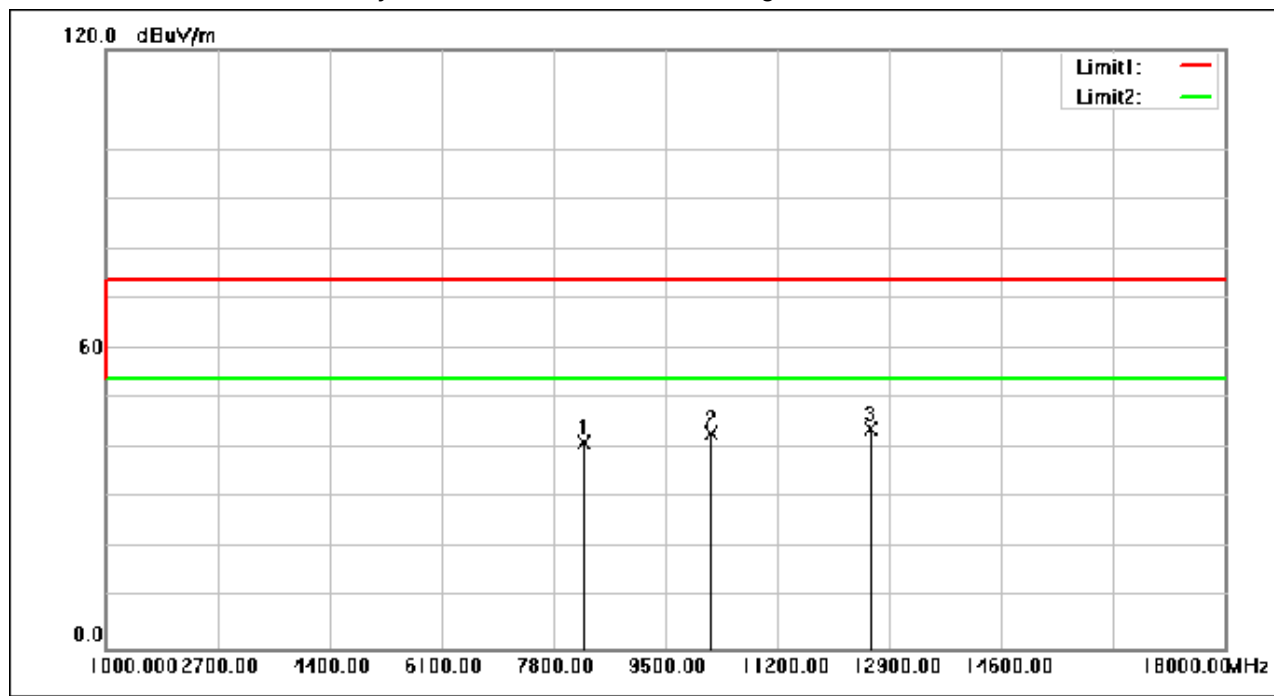
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 75 of 189

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



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8259.680	51.36	-10.15	41.21	74.00	-32.79	peak
2	10213.320	50.21	-7.20	43.01	74.00	-30.99	peak
3	12621.200	50.20	-6.17	44.03	74.00	-29.97	peak

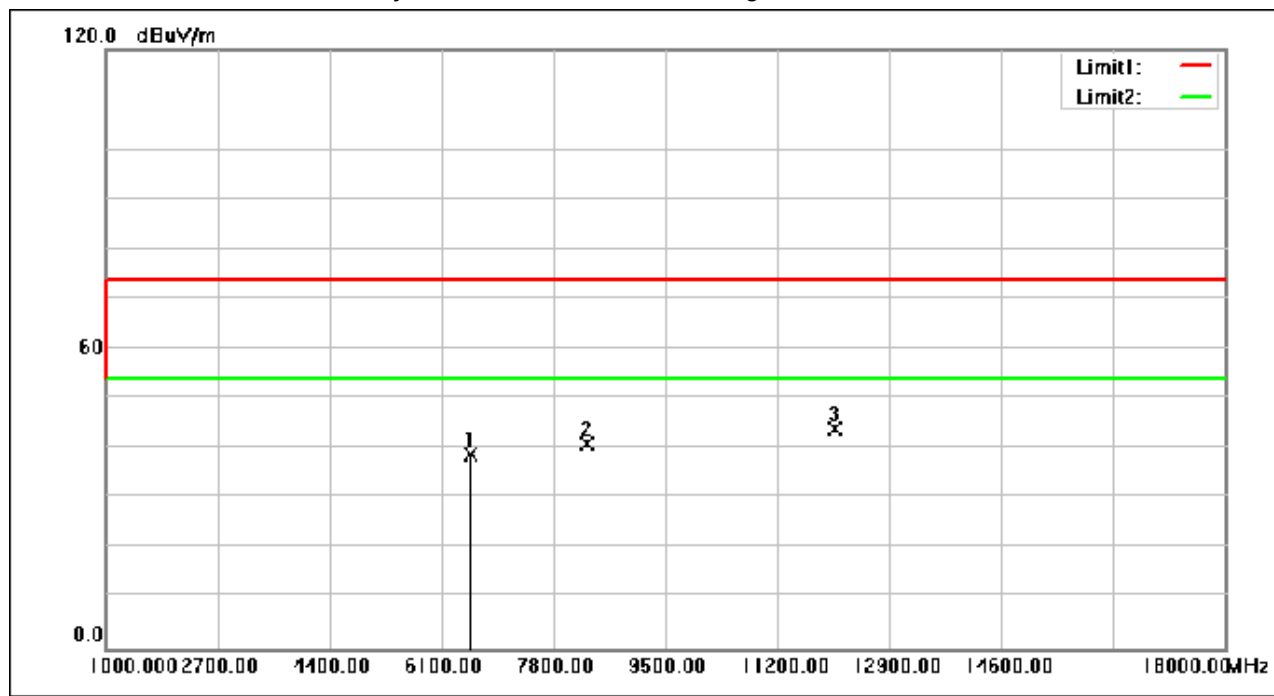
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 76 of 189

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



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	6554.240	51.92	-12.94	38.98	74.00	-35.02	peak
2	8322.920	51.14	-10.04	41.10	74.00	-32.90	peak
3	12069.040	49.83	-5.92	43.91	74.00	-30.09	peak

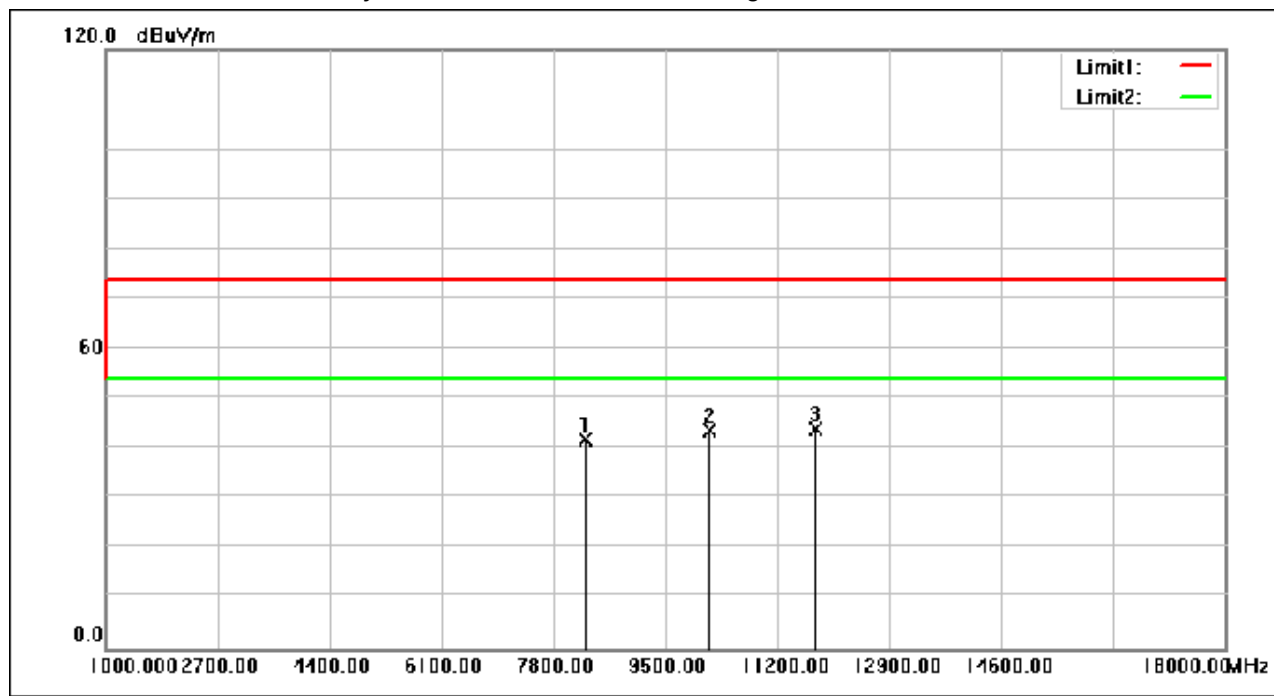
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 77 of 189

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



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8308.640	51.83	-10.07	41.76	74.00	-32.24	peak
2	10170.480	50.86	-7.23	43.63	74.00	-30.37	peak
3	11793.640	50.12	-6.13	43.99	74.00	-30.01	peak

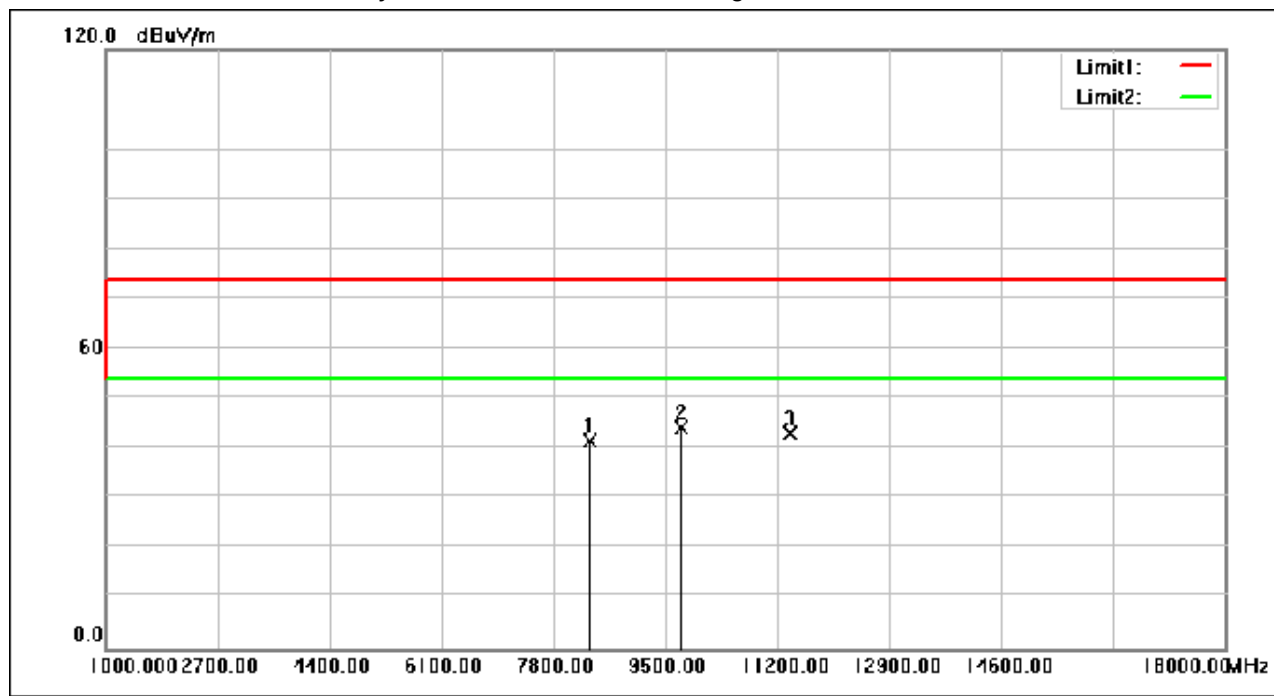
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 78 of 189

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



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8372.560	51.46	-9.97	41.49	74.00	-32.51	peak
2	9747.520	51.71	-7.48	44.23	74.00	-29.77	peak
3	11395.160	49.51	-6.44	43.07	74.00	-30.93	peak

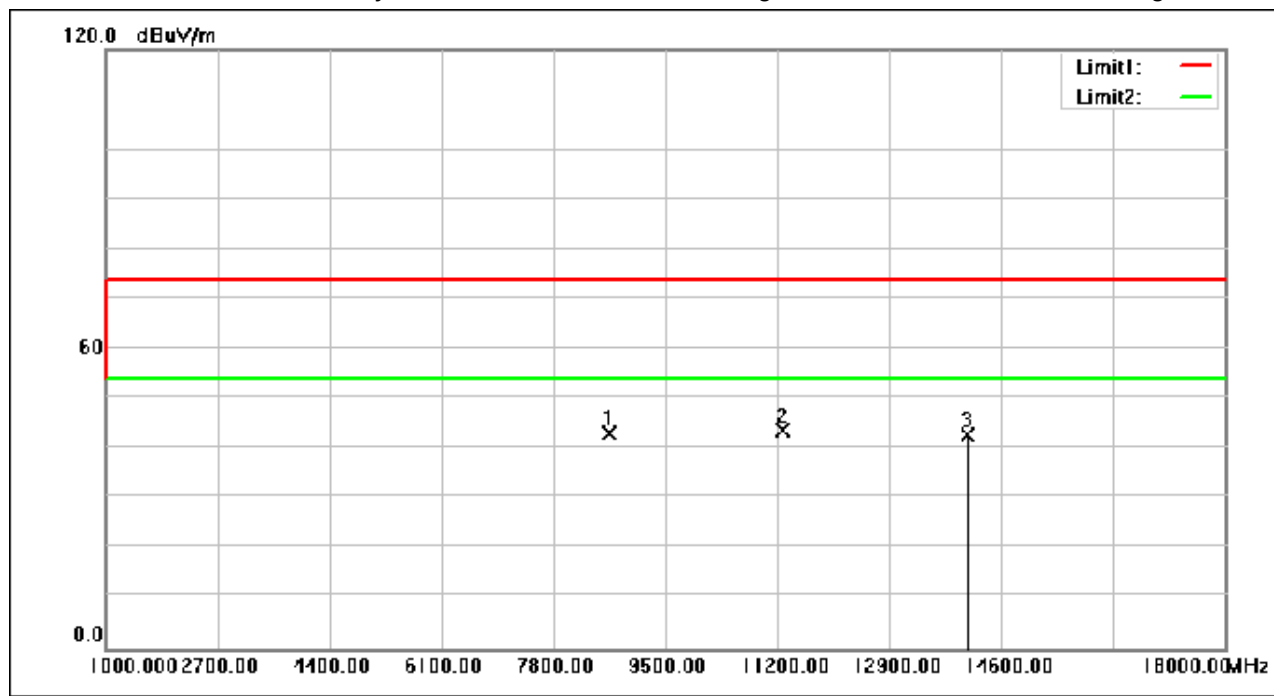
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 79 of 189

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



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8650.000	52.51	-9.51	43.00	74.00	-31.00	peak
2	11298.600	50.18	-6.52	43.66	74.00	-30.34	peak
3	14092.040	49.06	-6.35	42.71	74.00	-31.29	peak

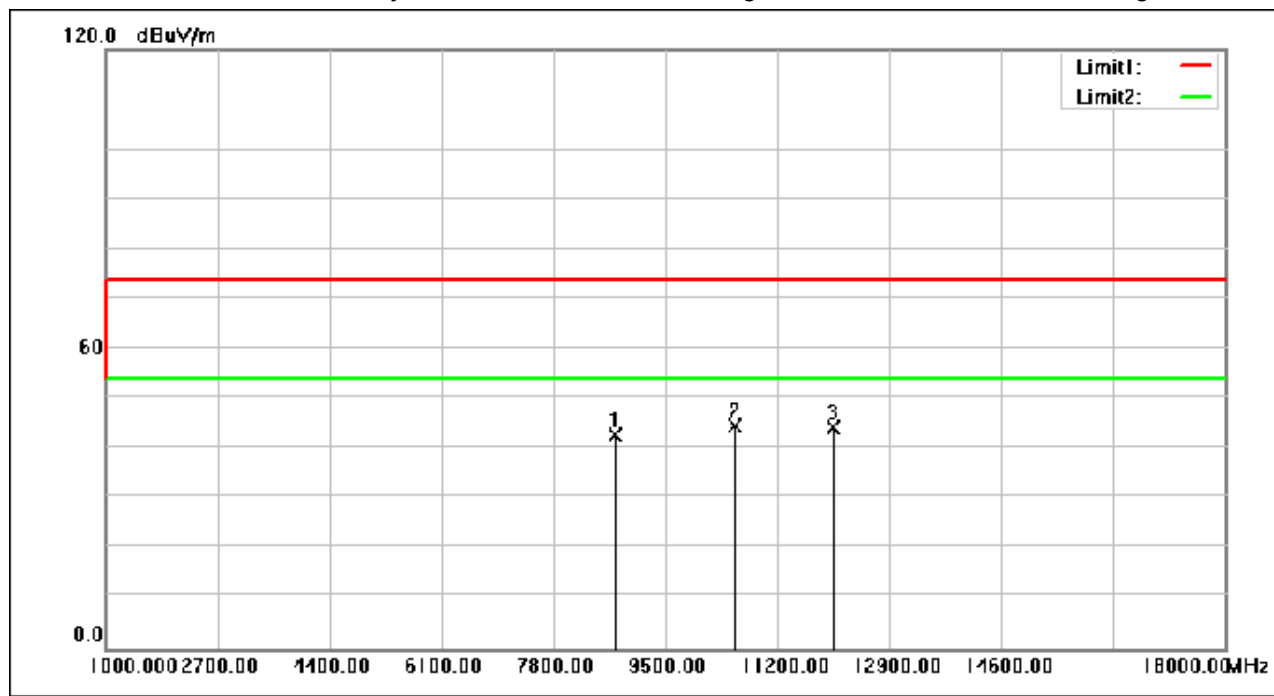
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 80 of 189

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



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8739.080	52.13	-9.36	42.77	74.00	-31.23	peak
2	10554.680	51.62	-7.01	44.61	74.00	-29.39	peak
3	12054.760	50.05	-5.91	44.14	74.00	-29.86	peak

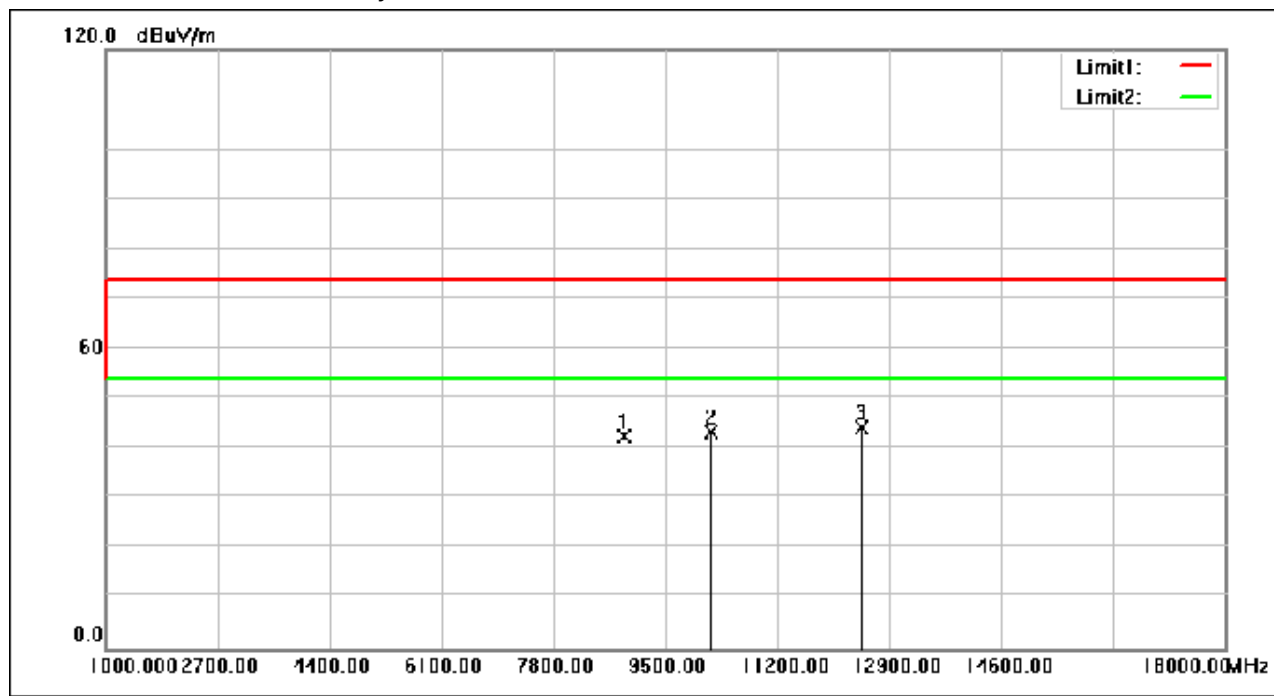
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 81 of 189

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	8872.360	51.67	-9.14	42.53	74.00	-31.47	peak
2	10203.800	50.57	-7.21	43.36	74.00	-30.64	peak
3	12475.680	50.21	-6.10	44.11	74.00	-29.89	peak

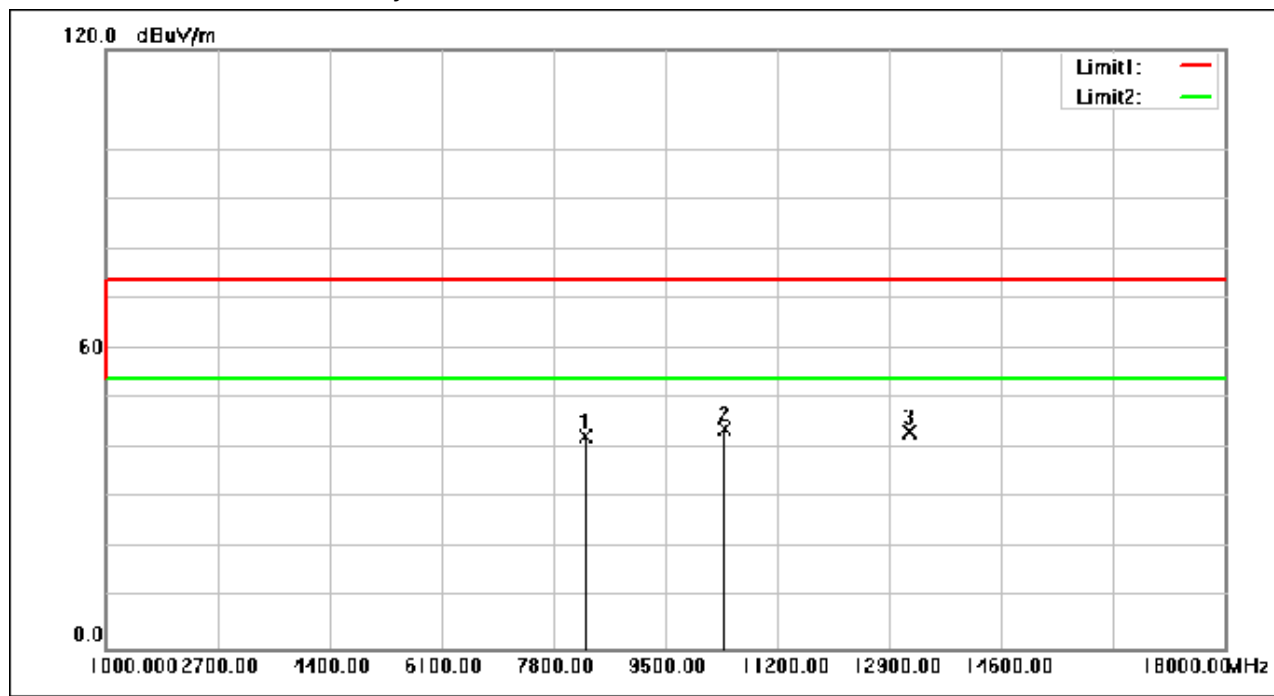
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 82 of 189

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	8295.040	52.69	-10.09	42.60	74.00	-31.40	peak
2	10404.400	50.96	-7.10	43.86	74.00	-30.14	peak
3	13218.240	49.78	-6.29	43.49	74.00	-30.51	peak

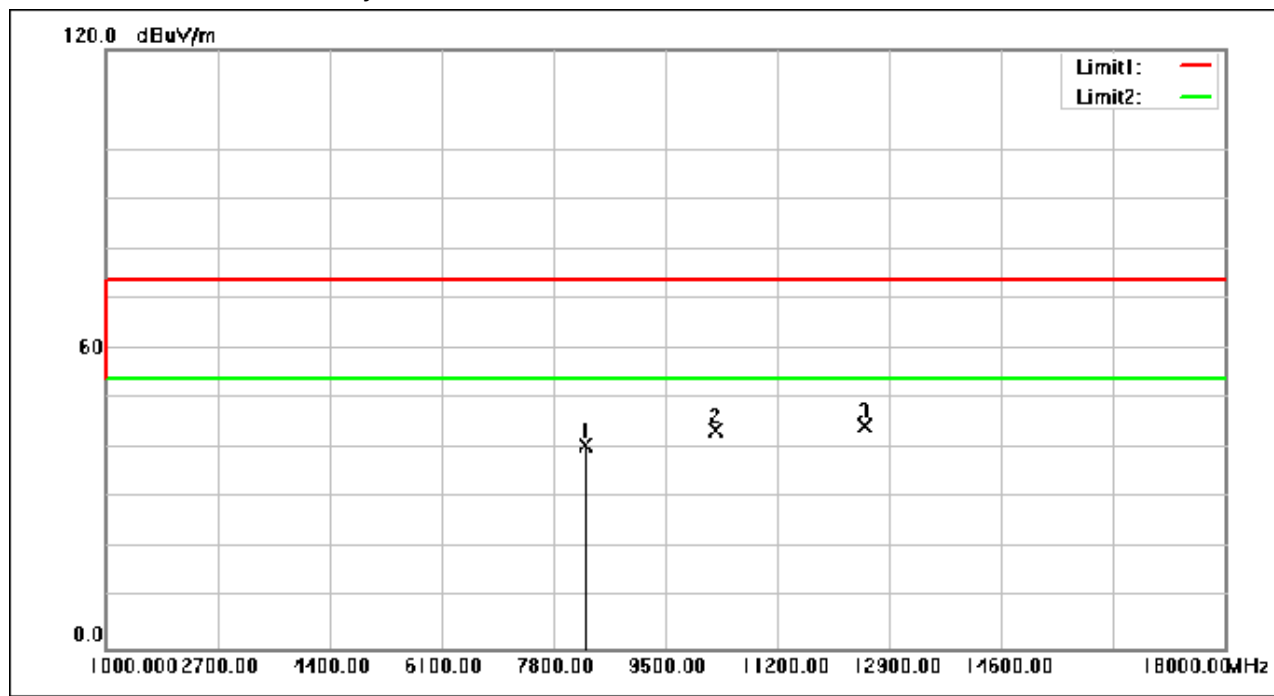
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 83 of 189

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	8299.800	50.87	-10.08	40.79	74.00	-33.21	peak
2	10268.400	50.89	-7.17	43.72	74.00	-30.28	peak
3	12530.760	50.61	-6.12	44.49	74.00	-29.51	peak

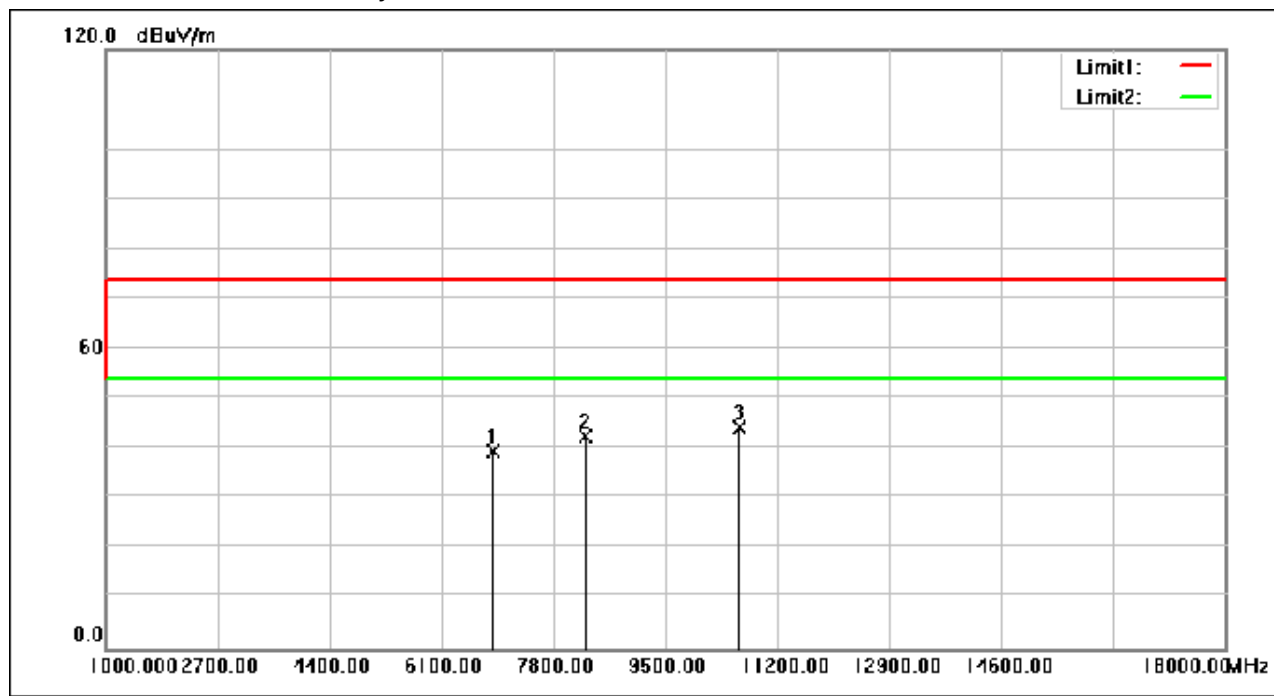
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 84 of 189

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	6894.920	51.22	-11.75	39.47	74.00	-34.53	peak
2	8294.360	52.61	-10.09	42.52	74.00	-31.48	peak
3	10622.000	51.29	-6.96	44.33	74.00	-29.67	peak

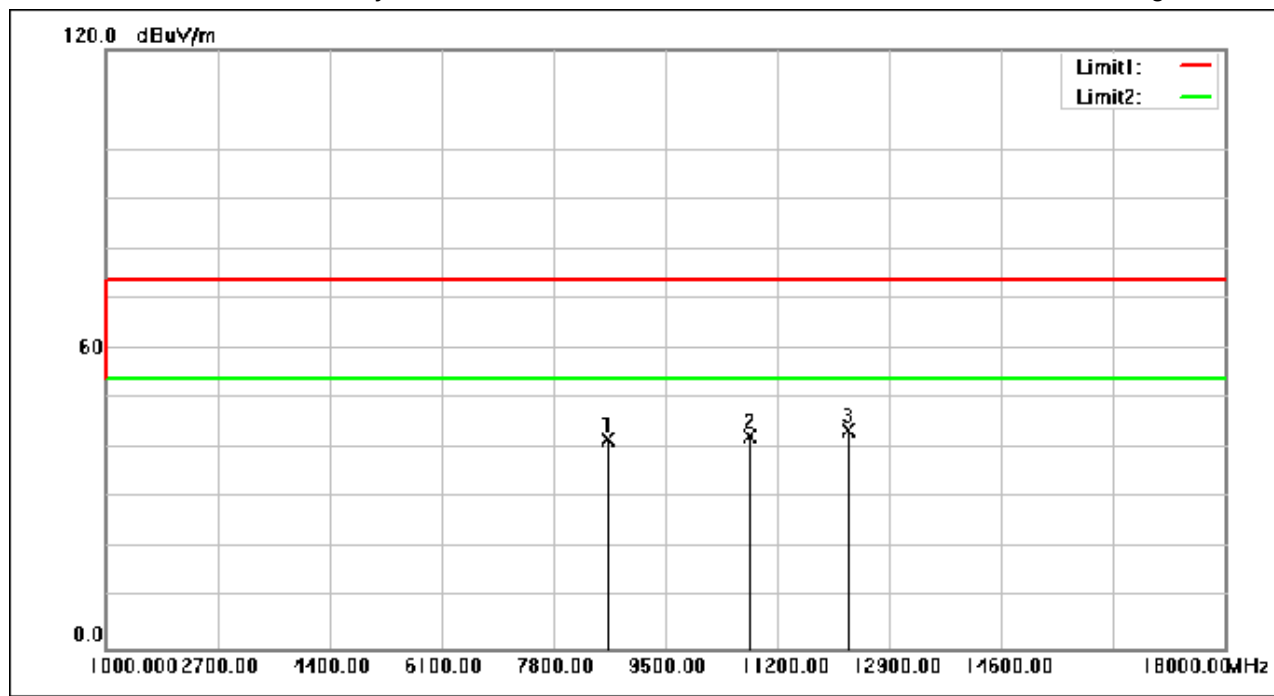
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 85 of 189

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	8643.200	51.36	-9.52	41.84	74.00	-32.16	peak
2	10777.040	49.28	-6.88	42.40	74.00	-31.60	peak
3	12277.800	49.65	-6.02	43.63	74.00	-30.37	peak

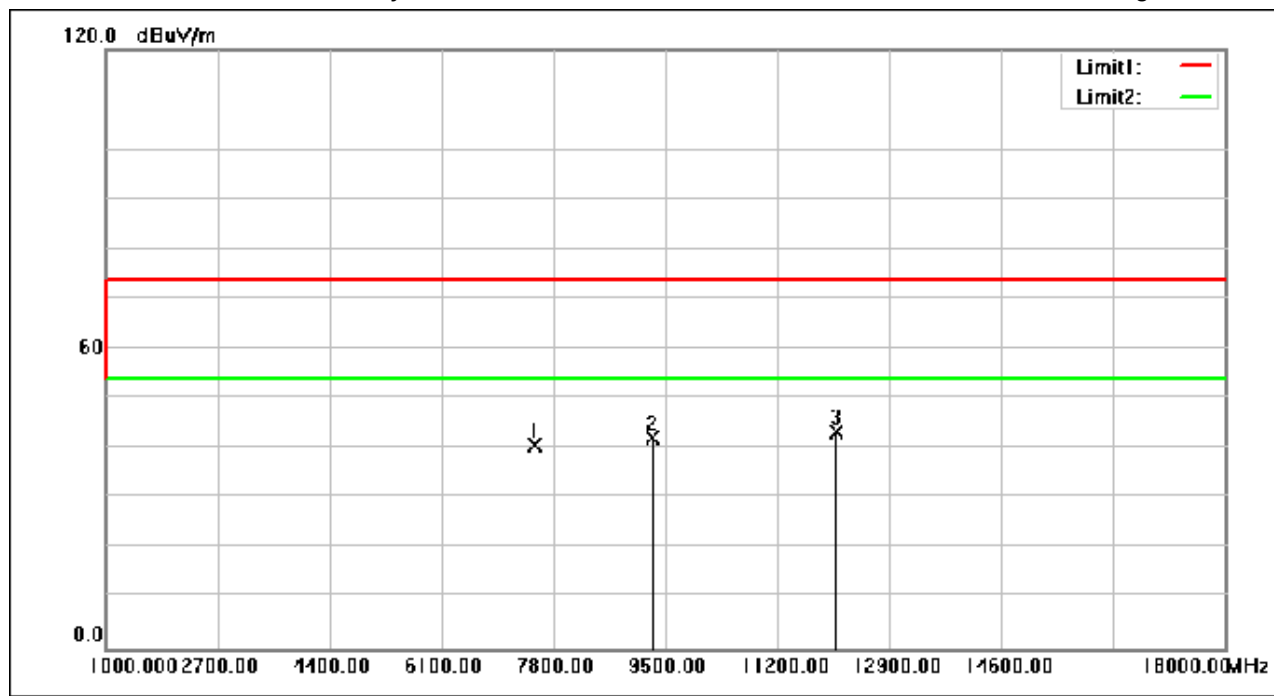
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 86 of 189

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	7521.880	51.93	-11.23	40.70	74.00	-33.30	peak
2	9318.440	50.47	-8.30	42.17	74.00	-31.83	peak
3	12116.640	49.28	-5.94	43.34	74.00	-30.66	peak

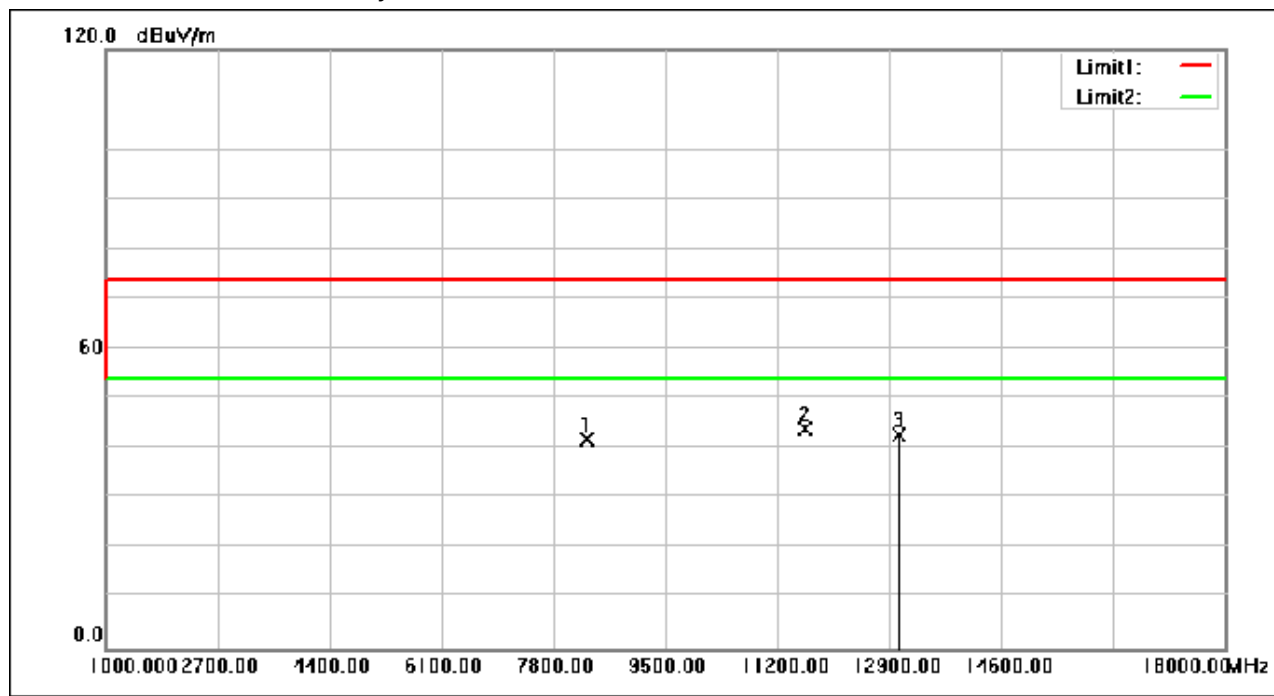
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 87 of 189

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	8311.360	51.85	-10.07	41.78	74.00	-32.22	peak
2	11640.640	50.18	-6.25	43.93	74.00	-30.07	peak
3	13058.440	49.17	-6.30	42.87	74.00	-31.13	peak

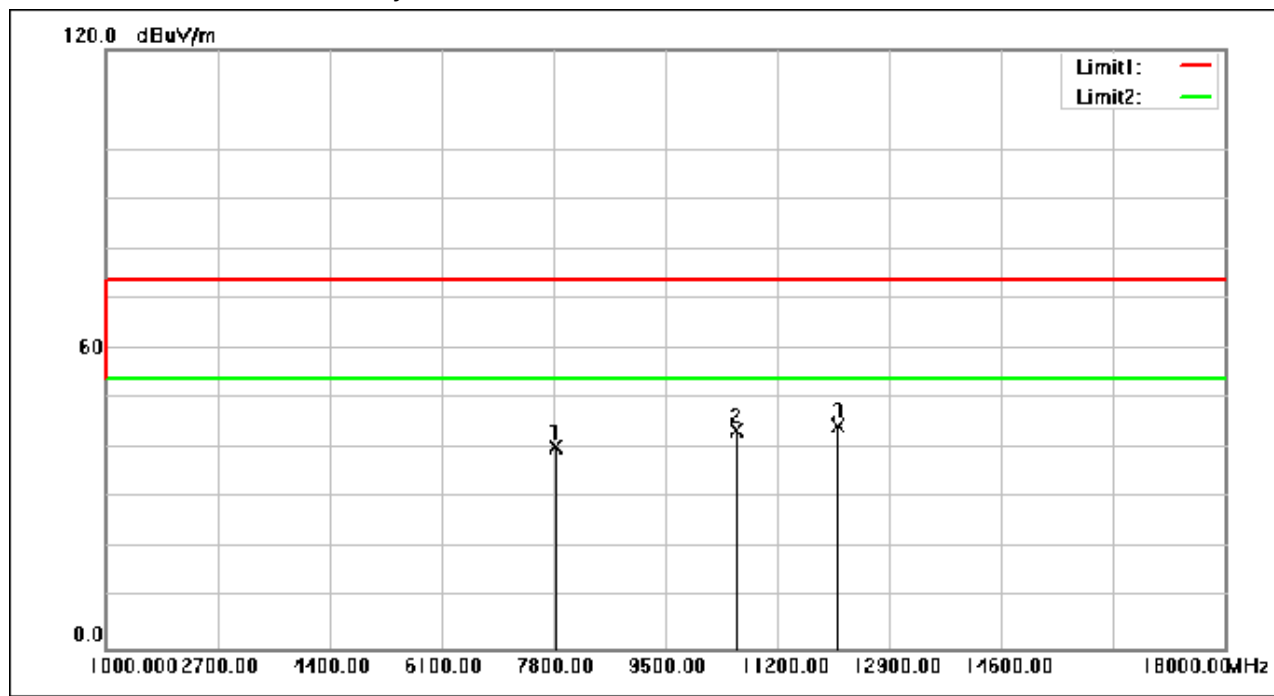
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 88 of 189

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	7847.600	51.10	-10.80	40.30	74.00	-33.70	peak
2	10584.600	50.54	-6.99	43.55	74.00	-30.45	peak
3	12131.600	50.55	-5.94	44.61	74.00	-29.39	peak

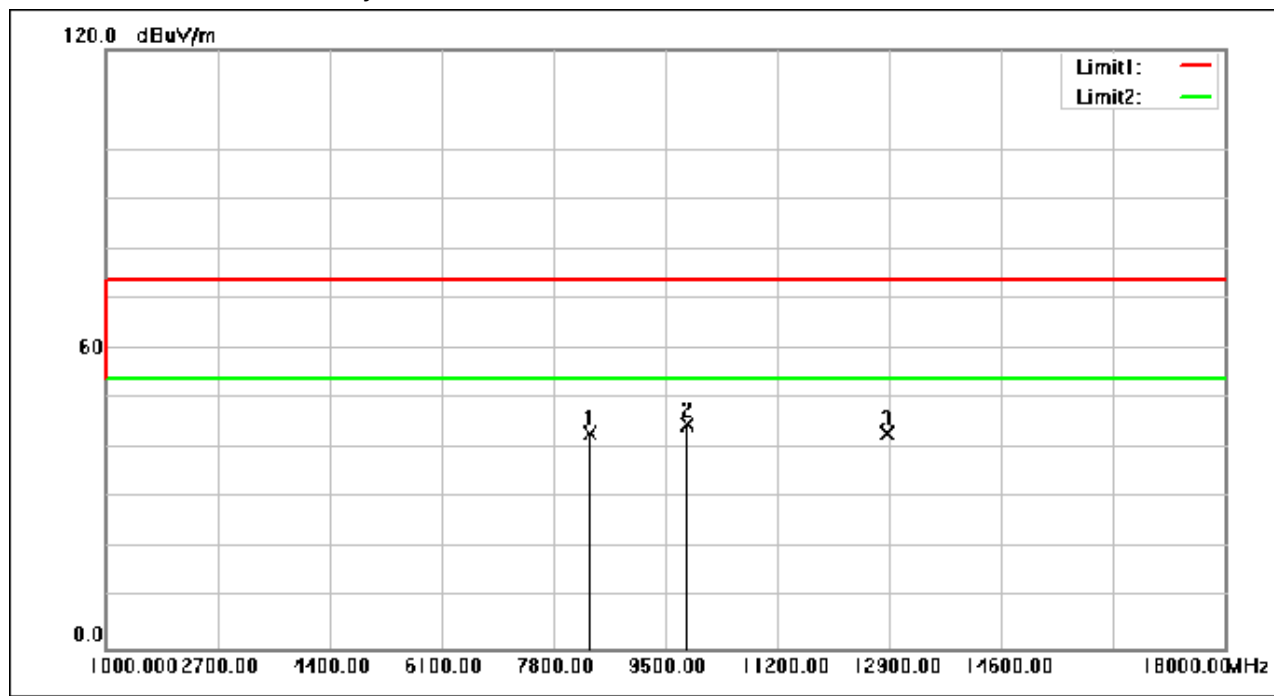
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 89 of 189

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	8373.920	53.00	-9.96	43.04	74.00	-30.96	peak
2	9828.440	52.18	-7.33	44.85	74.00	-29.15	peak
3	12867.360	49.39	-6.28	43.11	74.00	-30.89	peak

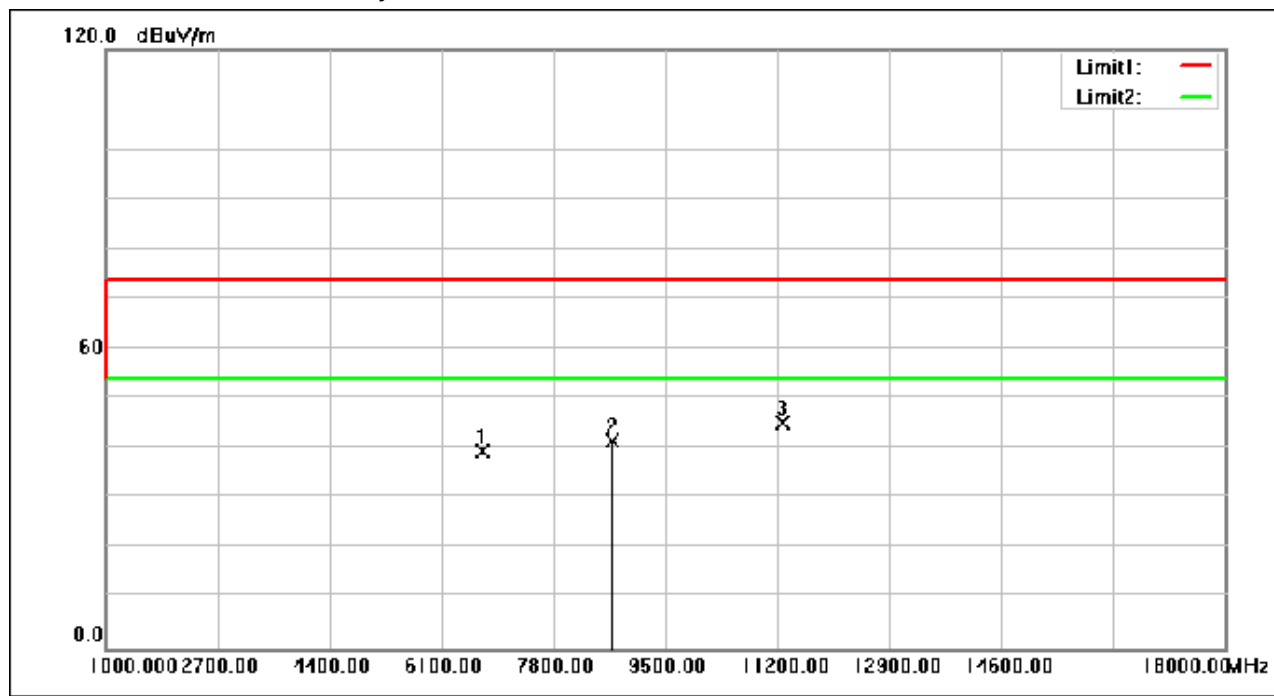
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 90 of 189

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	6733.080	51.51	-12.03	39.48	74.00	-34.52	peak
2	8705.080	51.09	-9.42	41.67	74.00	-32.33	peak
3	11298.600	51.60	-6.52	45.08	74.00	-28.92	peak

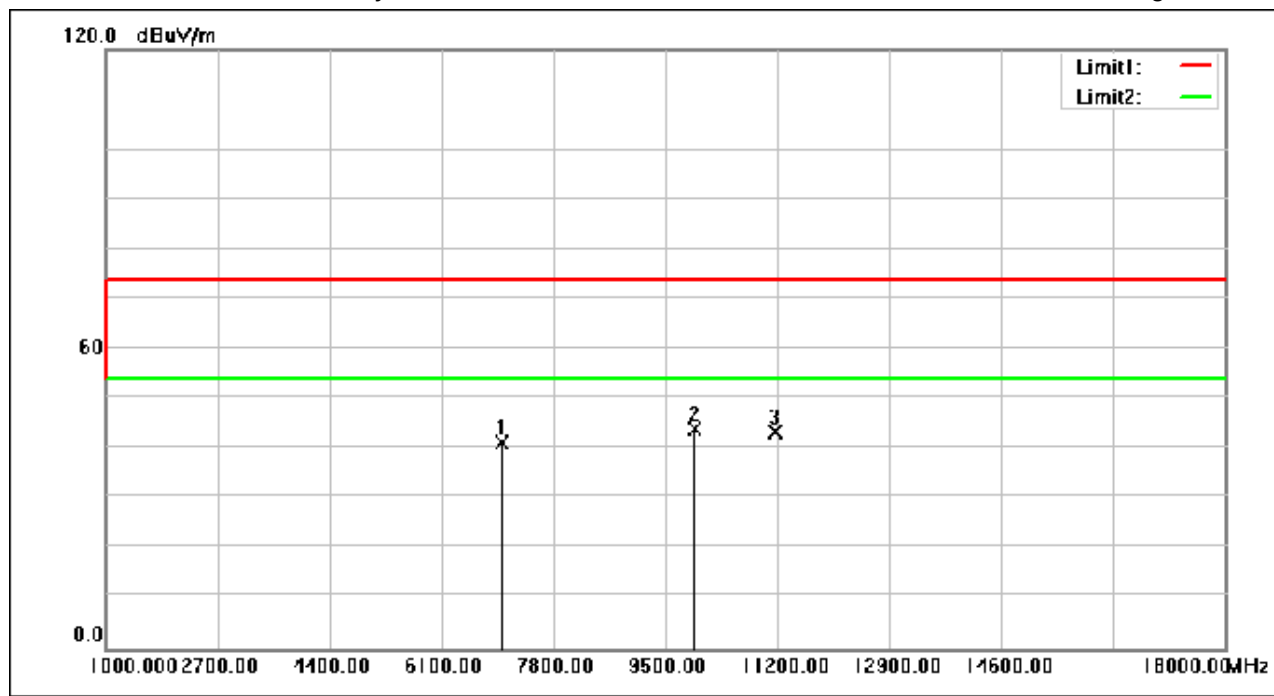
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 91 of 189

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	7021.400	52.66	-11.55	41.11	74.00	-32.89	peak
2	9950.160	51.30	-7.32	43.98	74.00	-30.02	peak
3	11174.840	49.87	-6.63	43.24	74.00	-30.76	peak

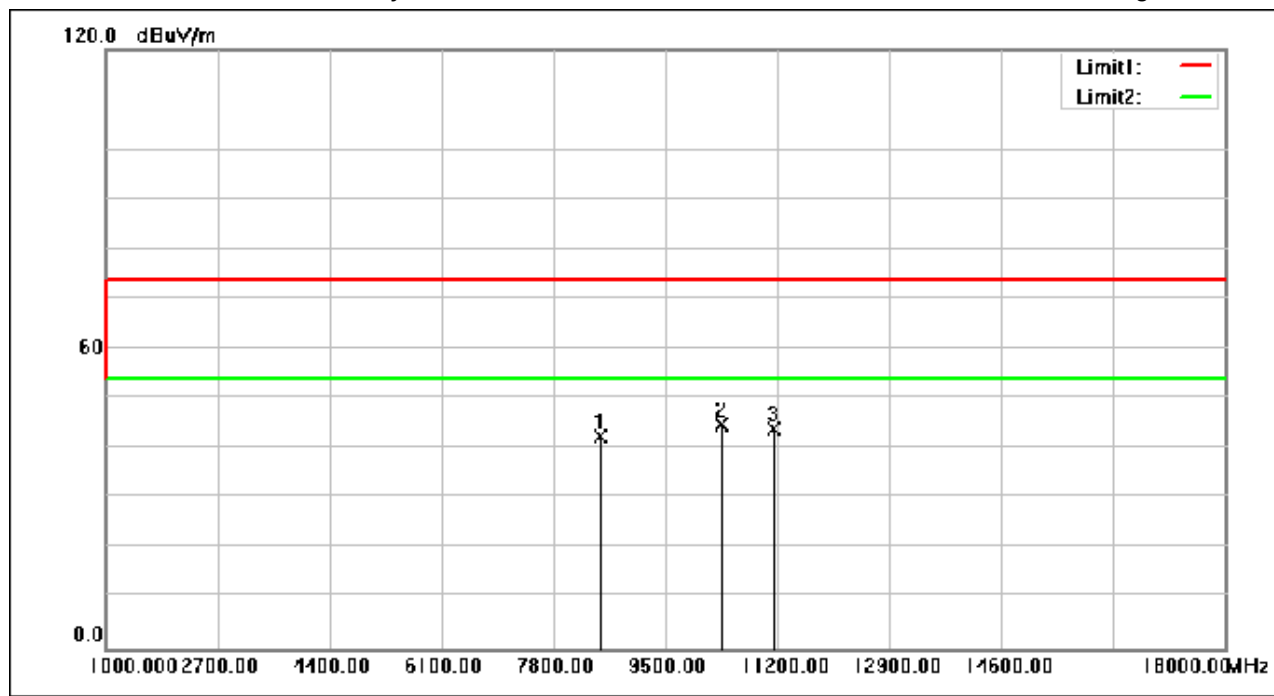
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 92 of 189

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	8516.720	52.27	-9.72	42.55	74.00	-31.45	peak
2	10360.200	51.83	-7.12	44.71	74.00	-29.29	peak
3	11159.880	50.52	-6.63	43.89	74.00	-30.11	peak

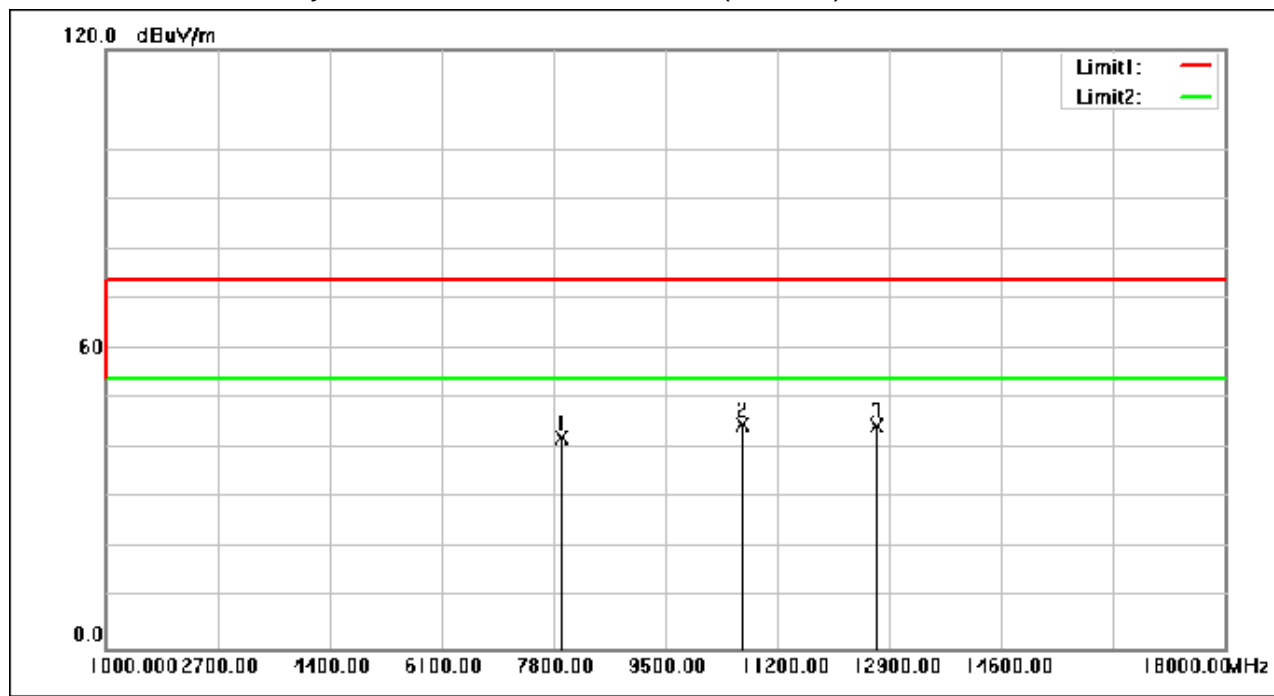
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 93 of 189

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	7922.400	52.84	-10.70	42.14	74.00	-31.86	peak
2	10689.320	51.92	-6.93	44.99	74.00	-29.01	peak
3	12727.280	50.73	-6.22	44.51	74.00	-29.49	peak

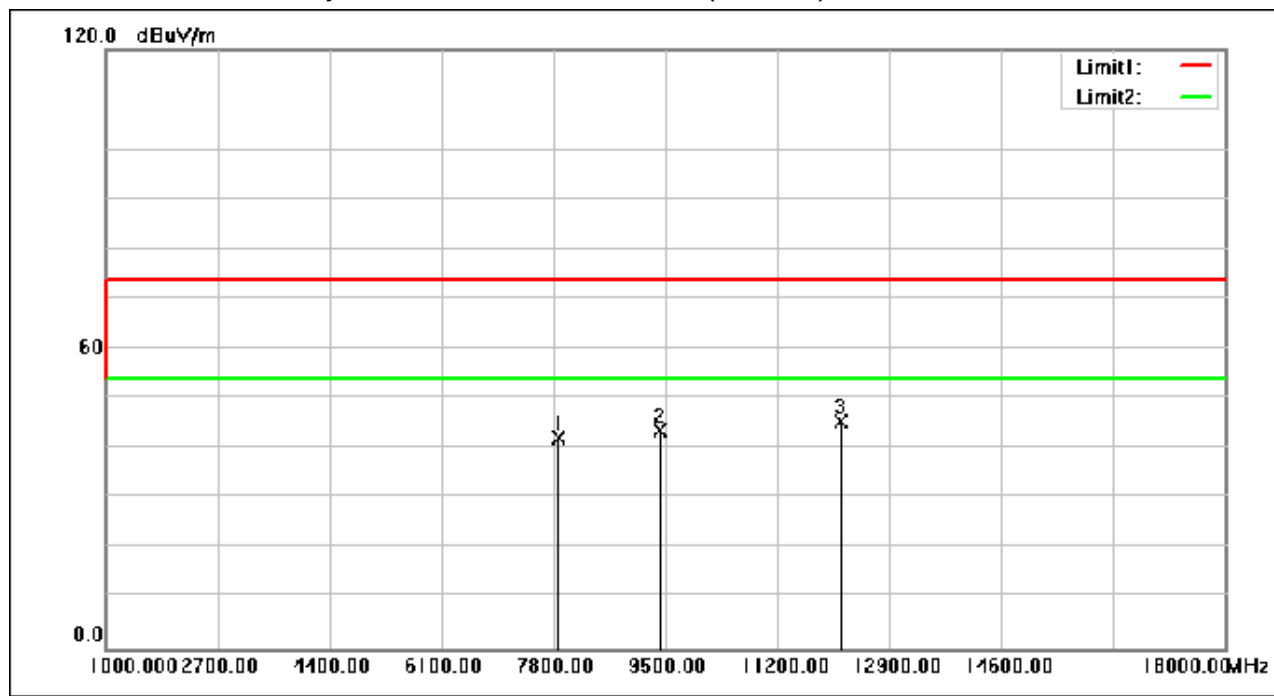
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 94 of 189

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	7885.000	53.01	-10.76	42.25	74.00	-31.75	peak
2	9425.200	51.77	-8.09	43.68	74.00	-30.32	peak
3	12180.560	51.40	-5.97	45.43	74.00	-28.57	peak

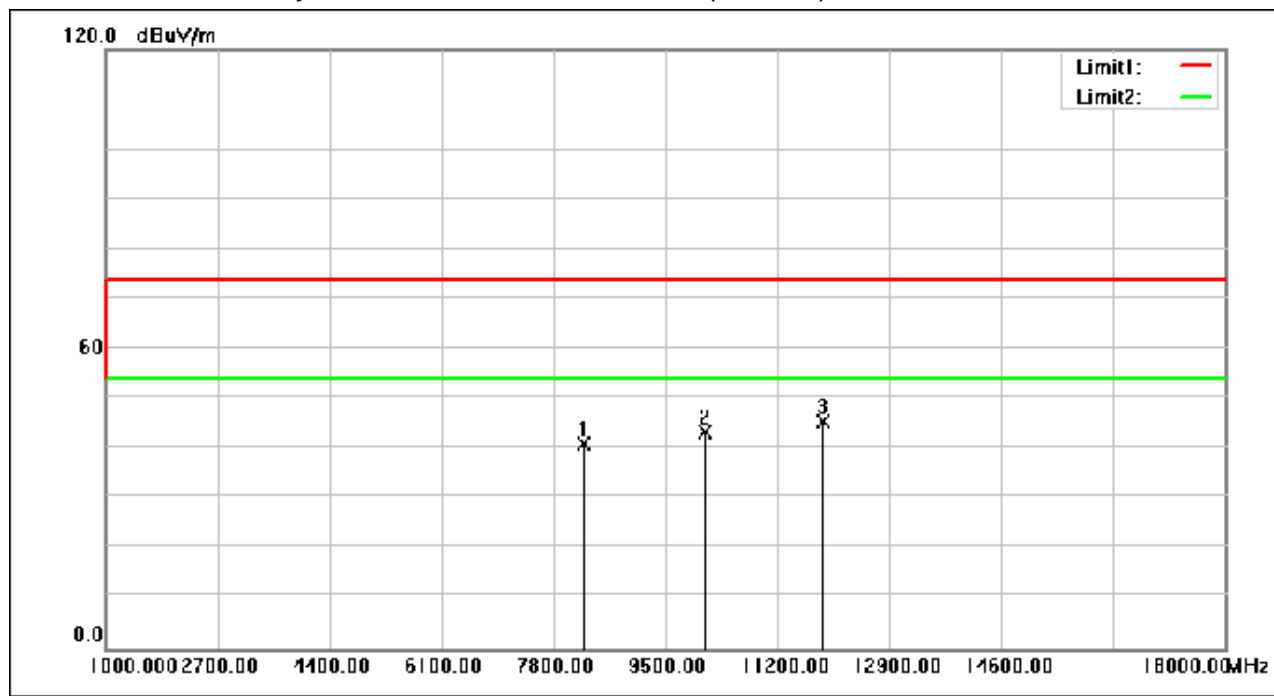
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 95 of 189

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	8269.880	51.19	-10.13	41.06	74.00	-32.94	peak
2	10099.760	50.49	-7.27	43.22	74.00	-30.78	peak
3	11905.160	51.50	-6.03	45.47	74.00	-28.53	peak

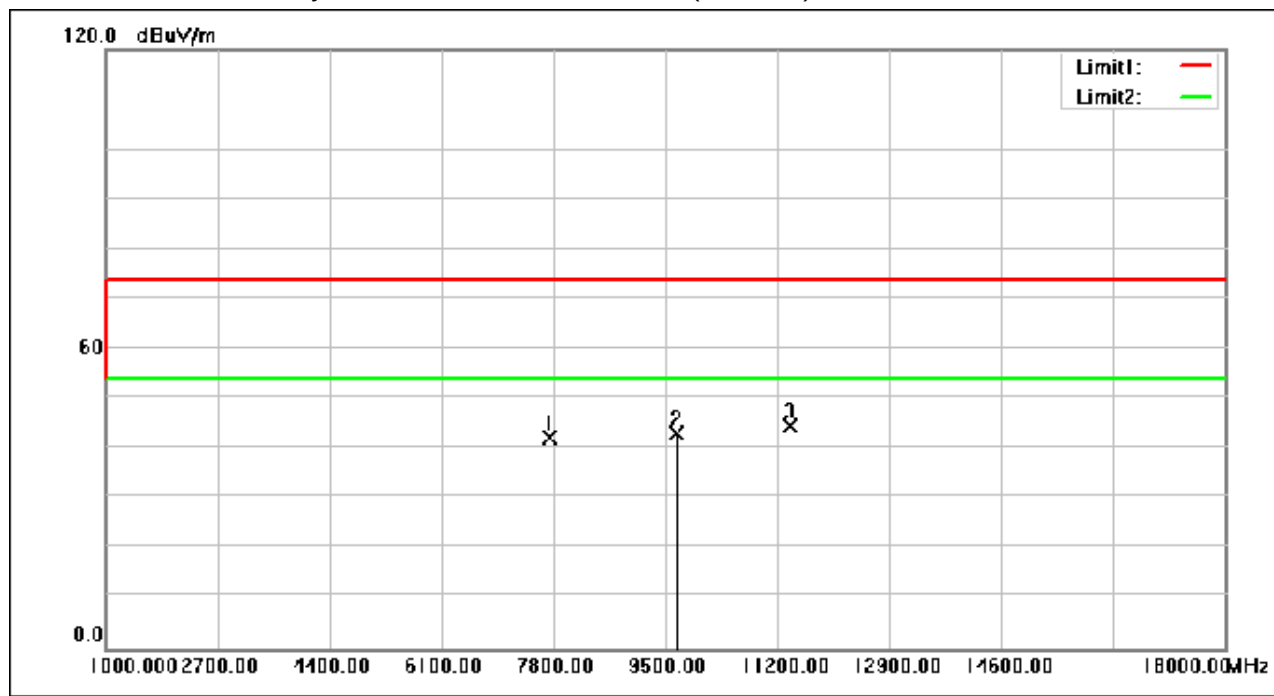
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 96 of 189

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	7755.800	53.07	-10.92	42.15	74.00	-31.85	peak
2	9670.680	50.79	-7.63	43.16	74.00	-30.84	peak
3	11389.040	50.92	-6.45	44.47	74.00	-29.53	peak

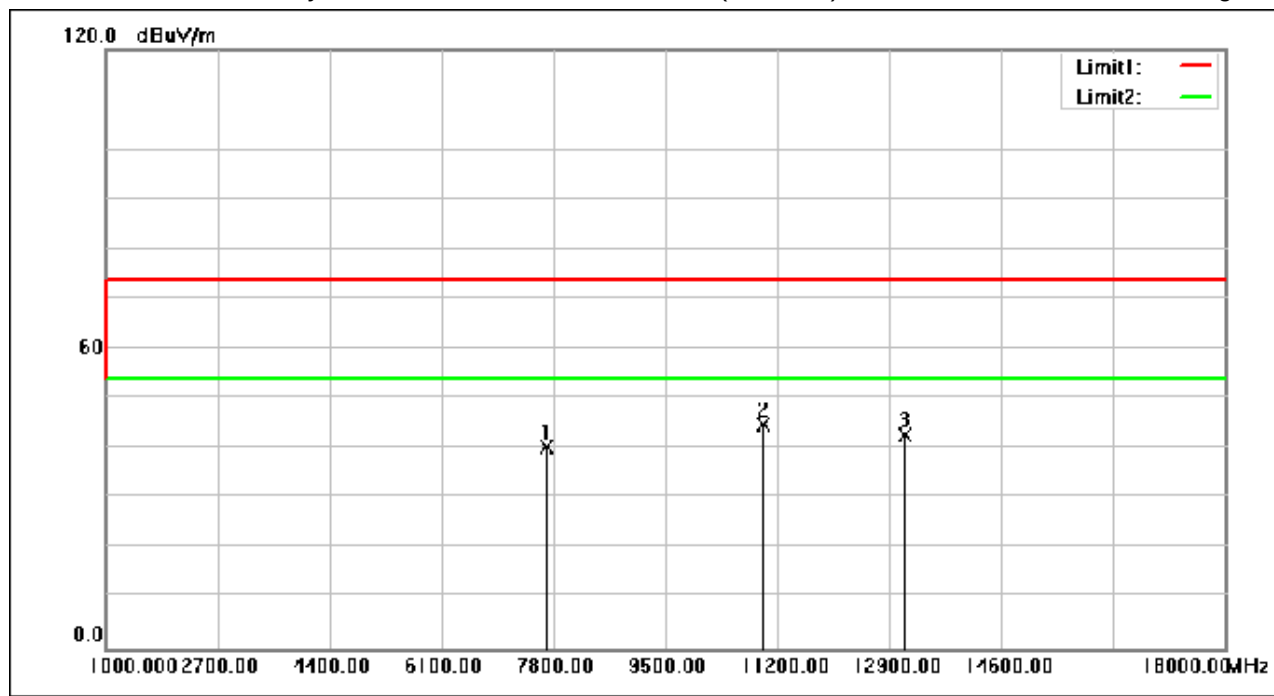
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 97 of 189

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	7708.880	51.46	-10.98	40.48	74.00	-33.52	peak
2	10993.280	51.63	-6.76	44.87	74.00	-29.13	peak
3	13144.120	48.90	-6.28	42.62	74.00	-31.38	peak

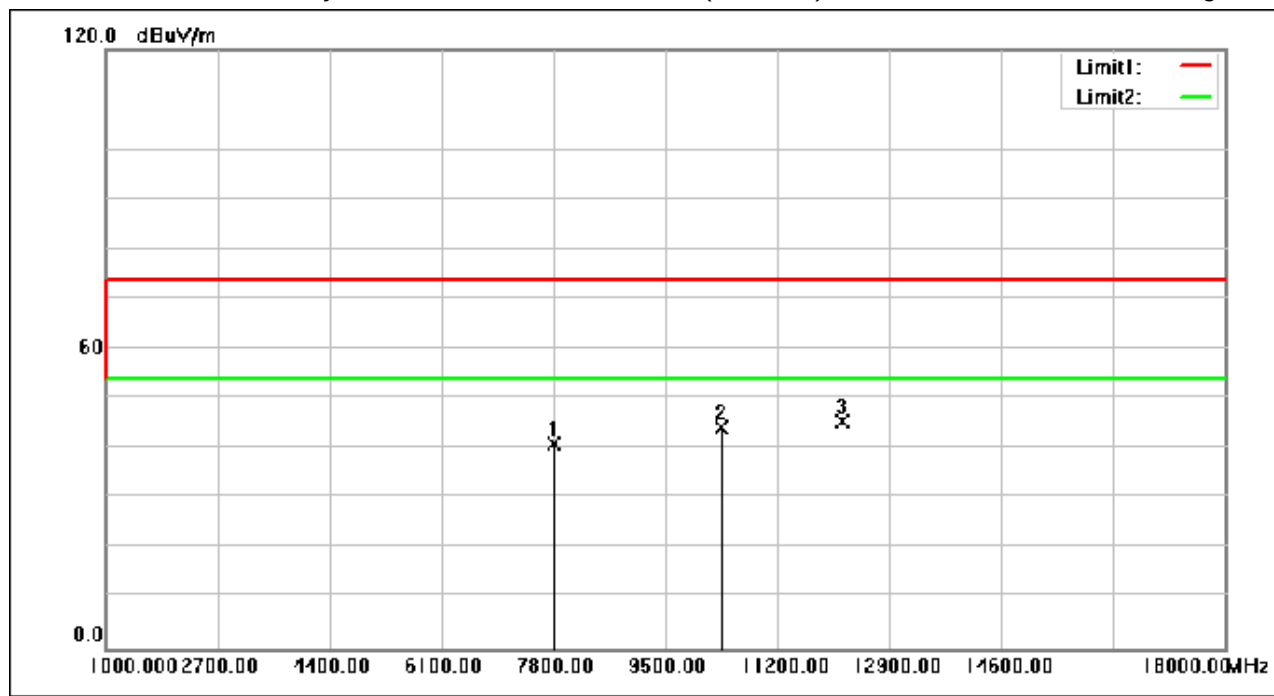
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 98 of 189

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	7829.920	51.69	-10.83	40.86	74.00	-33.14	peak
2	10363.600	51.25	-7.12	44.13	74.00	-29.87	peak
3	12196.880	51.44	-5.98	45.46	74.00	-28.54	peak

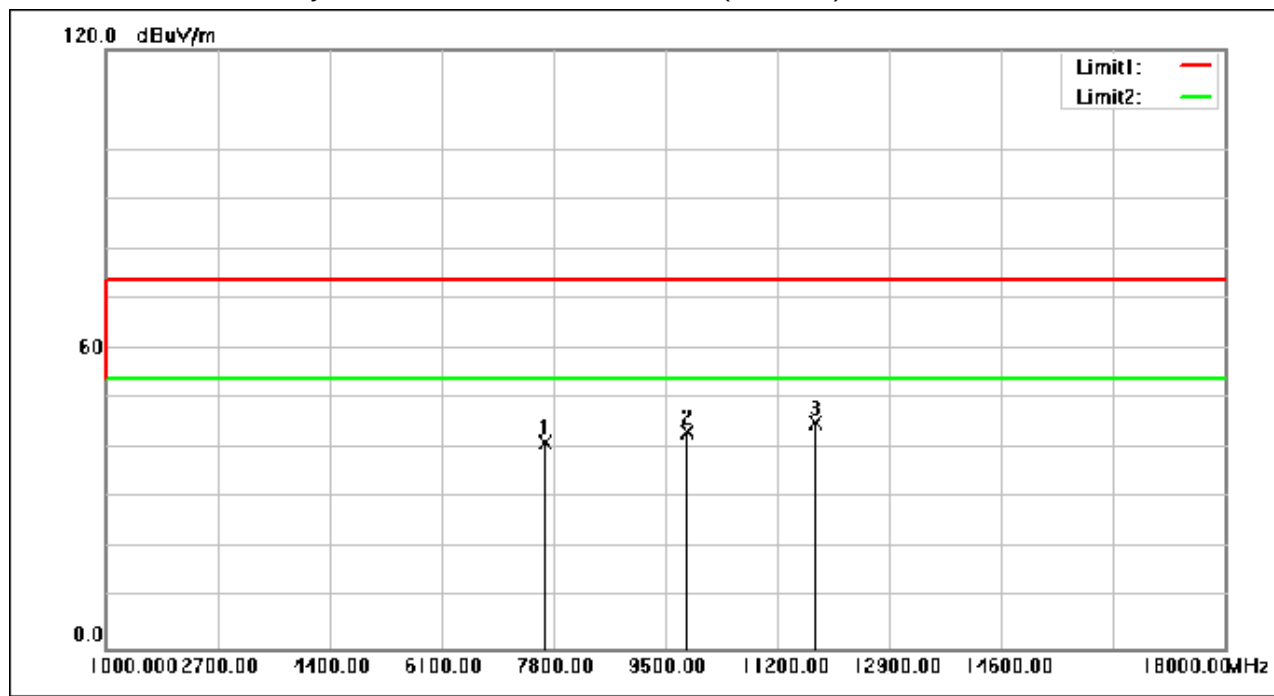
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 99 of 189

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	7683.720	52.36	-11.02	41.34	74.00	-32.66	peak
2	9825.040	50.72	-7.34	43.38	74.00	-30.62	peak
3	11781.400	51.24	-6.13	45.11	74.00	-28.89	peak

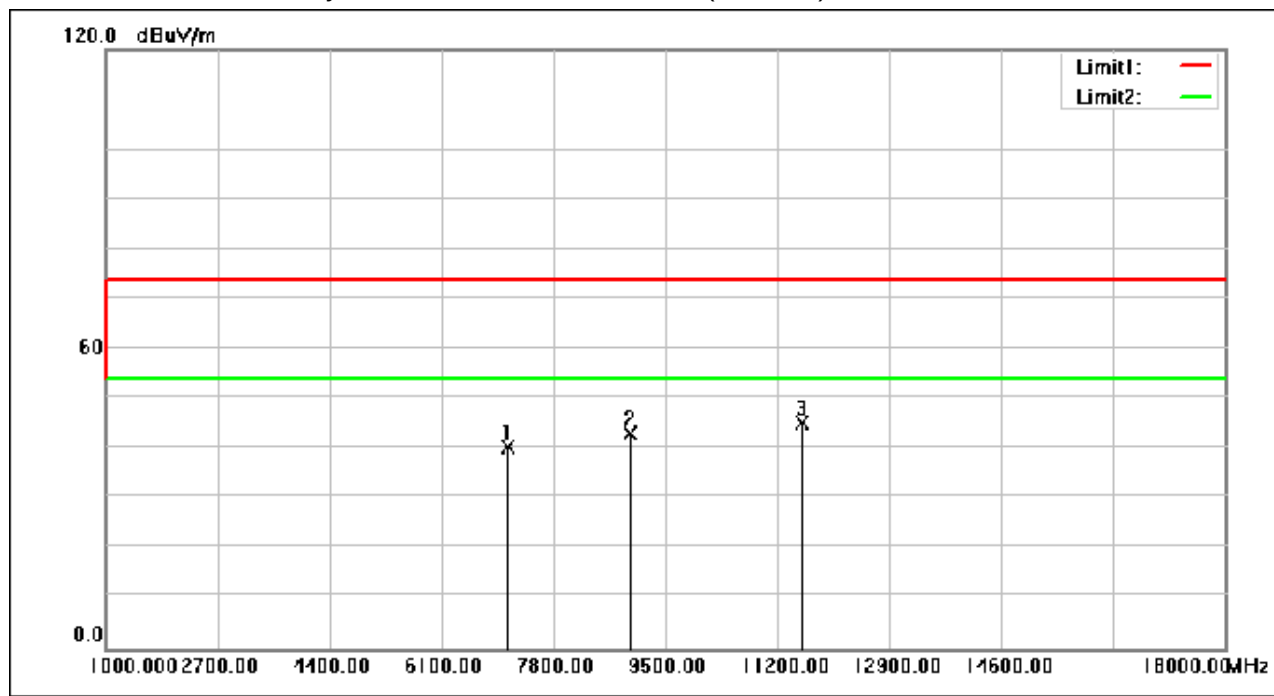
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 100 of 189

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	7117.960	51.99	-11.51	40.48	74.00	-33.52	peak
2	8979.120	52.11	-8.95	43.16	74.00	-30.84	peak
3	11584.880	51.38	-6.30	45.08	74.00	-28.92	peak

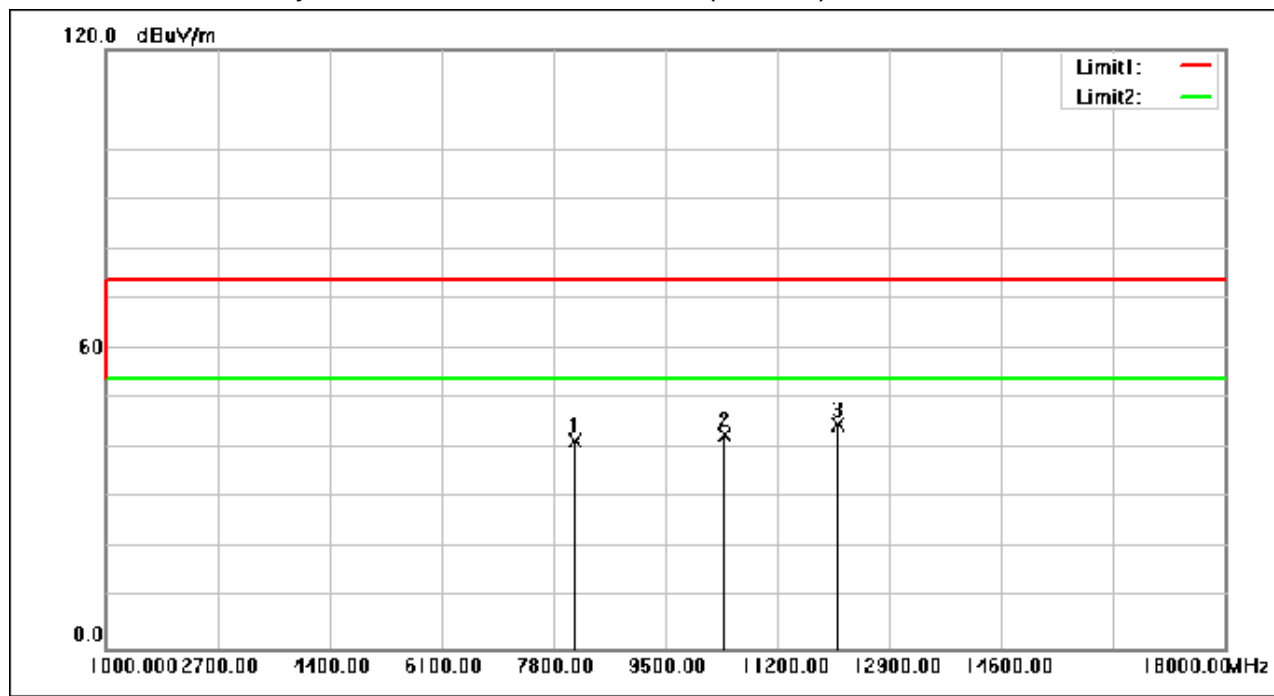
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 101 of 189

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	8129.800	51.90	-10.37	41.53	74.00	-32.47	peak
2	10406.440	49.74	-7.10	42.64	74.00	-31.36	peak
3	12130.240	50.80	-5.94	44.86	74.00	-29.14	peak

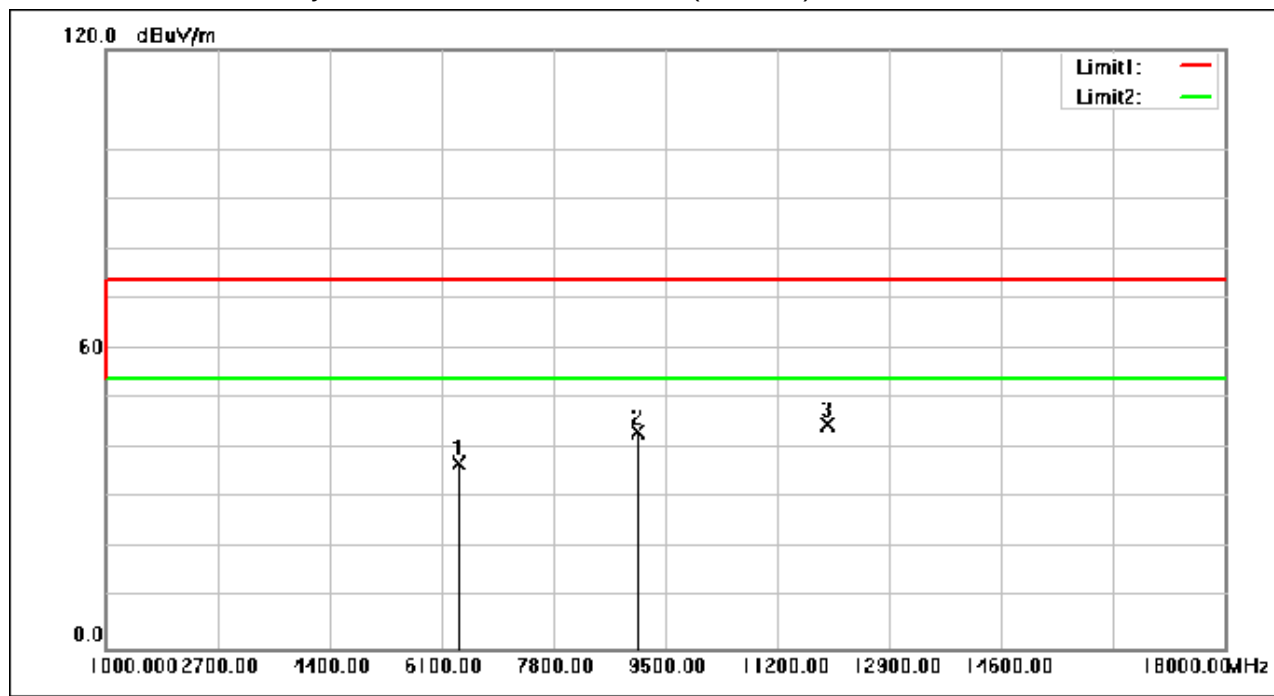
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 102 of 189

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	6360.440	50.89	-13.95	36.94	74.00	-37.06	peak
2	9087.920	52.12	-8.73	43.39	74.00	-30.61	peak
3	11966.360	50.89	-5.94	44.95	74.00	-29.05	peak

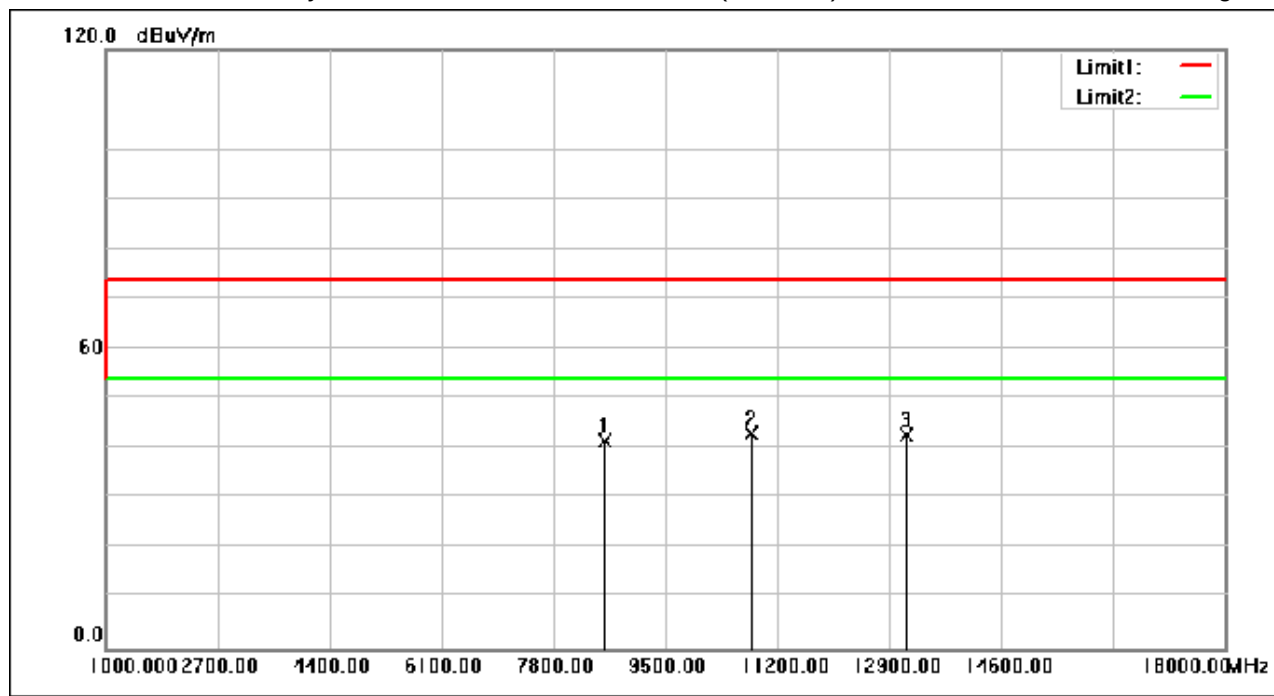
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 103 of 189

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	8587.440	51.10	-9.61	41.49	74.00	-32.51	peak
2	10813.760	50.05	-6.86	43.19	74.00	-30.81	peak
3	13171.320	48.97	-6.28	42.69	74.00	-31.31	peak

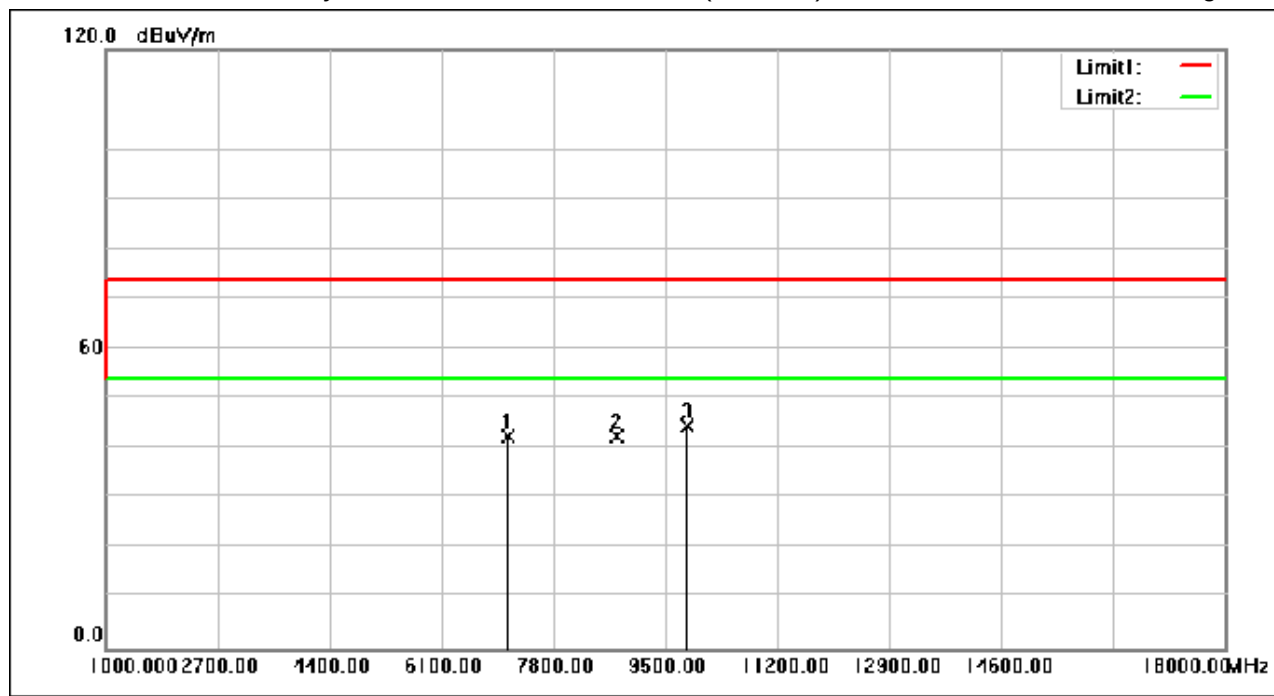
Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 104 of 189

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	7104.360	53.94	-11.52	42.42	74.00	-31.58	peak
2	8770.360	51.87	-9.31	42.56	74.00	-31.44	peak
3	9836.600	51.88	-7.31	44.57	74.00	-29.43	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: 26.3 °C

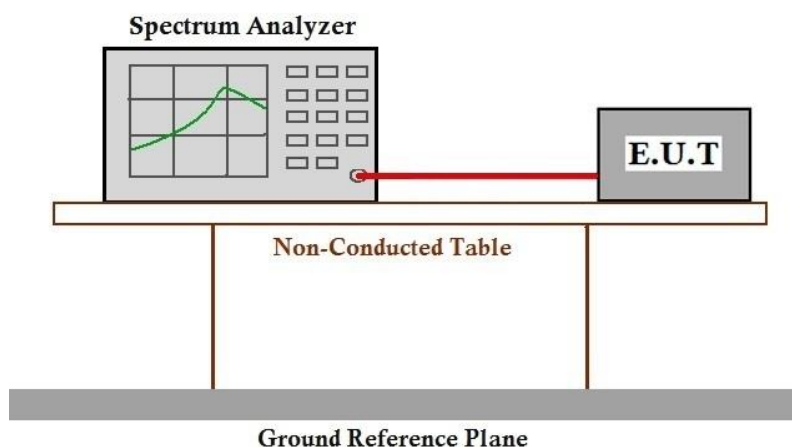
Humidity: 58.3 % RH

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(HEW20); data rate @ MCS0 is the worst case of IEEE 802.11ax(HEW40). Only the data of worst case is recorded in the report.

7.5.3 Test Setup Diagram





Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 106 of 189

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: 26.3 °C

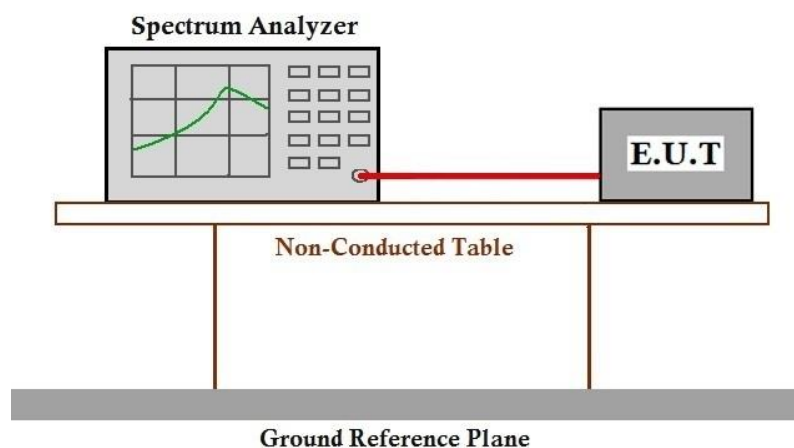
Humidity: 58.3 % RH

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(HEW20); data rate @ MCS0 is the worst case of IEEE 802.11ax(HEW40). 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: 26.3 °C

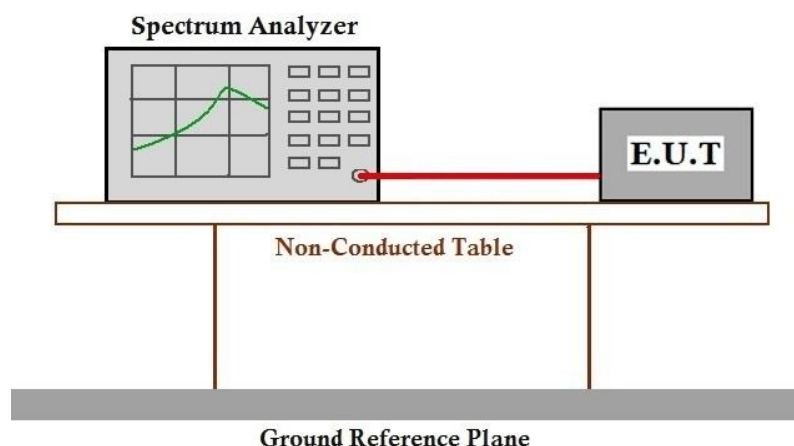
Humidity: 58.3 % RH

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(HEW20); data rate @ MCS0 is the worst case of IEEE 802.11ax(HEW40). 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

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

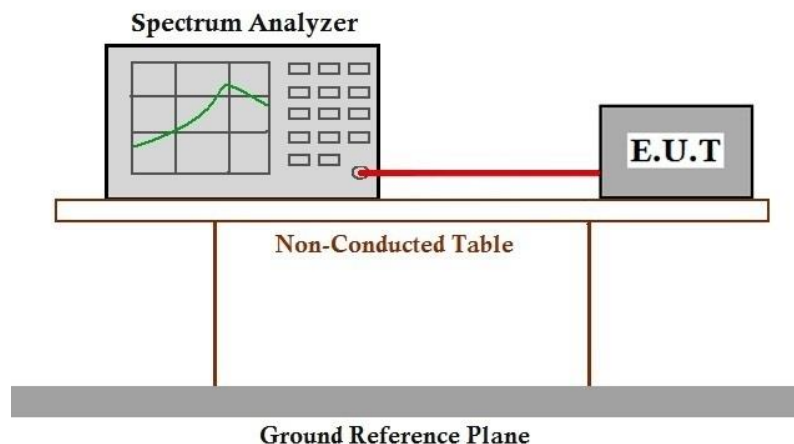
Operating Environment:

Temperature: 26.3 °C Humidity: 58.3 % 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(HEW20); data rate @ MCS0 is the worst case of IEEE 802.11ax(HEW40). Only the data of worst case is recorded in the report.

7.8.3 Test Setup Diagram





Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 110 of 189

7.8.4 Measurement Procedure and Data

Please Refer to Appendix for Details

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: 26.3 °C

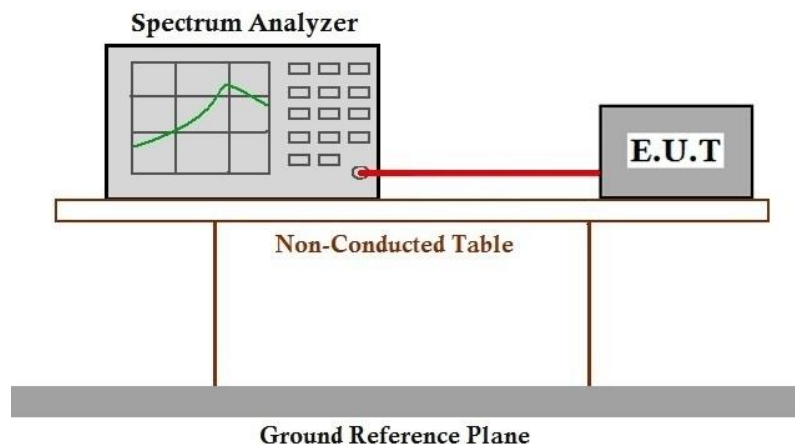
Humidity: 58.3 % RH

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(HEW20); data rate @ MCS0 is the worst case of IEEE 802.11ax(HEW40). Only the data of worst case is recorded in the report.

7.9.3 Test Setup Diagram





Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 112 of 189

7.9.4 Measurement Procedure and Data

Please Refer to Appendix for Details



Compliance Certification Services (Kunshan) Inc.

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

Report No.: KSCR240600103401

Page: 113 of 189

8 Test Setup Photo

Refer to Appendix - Test Setup Photo for KSCR2406001034AT

9 EUT Constructional Details (EUT Photos)

Refer to Appendix - Photographs of EUT Constructional Details for KSCR2406001034AT

10 Appendix

1. Duty Cycle

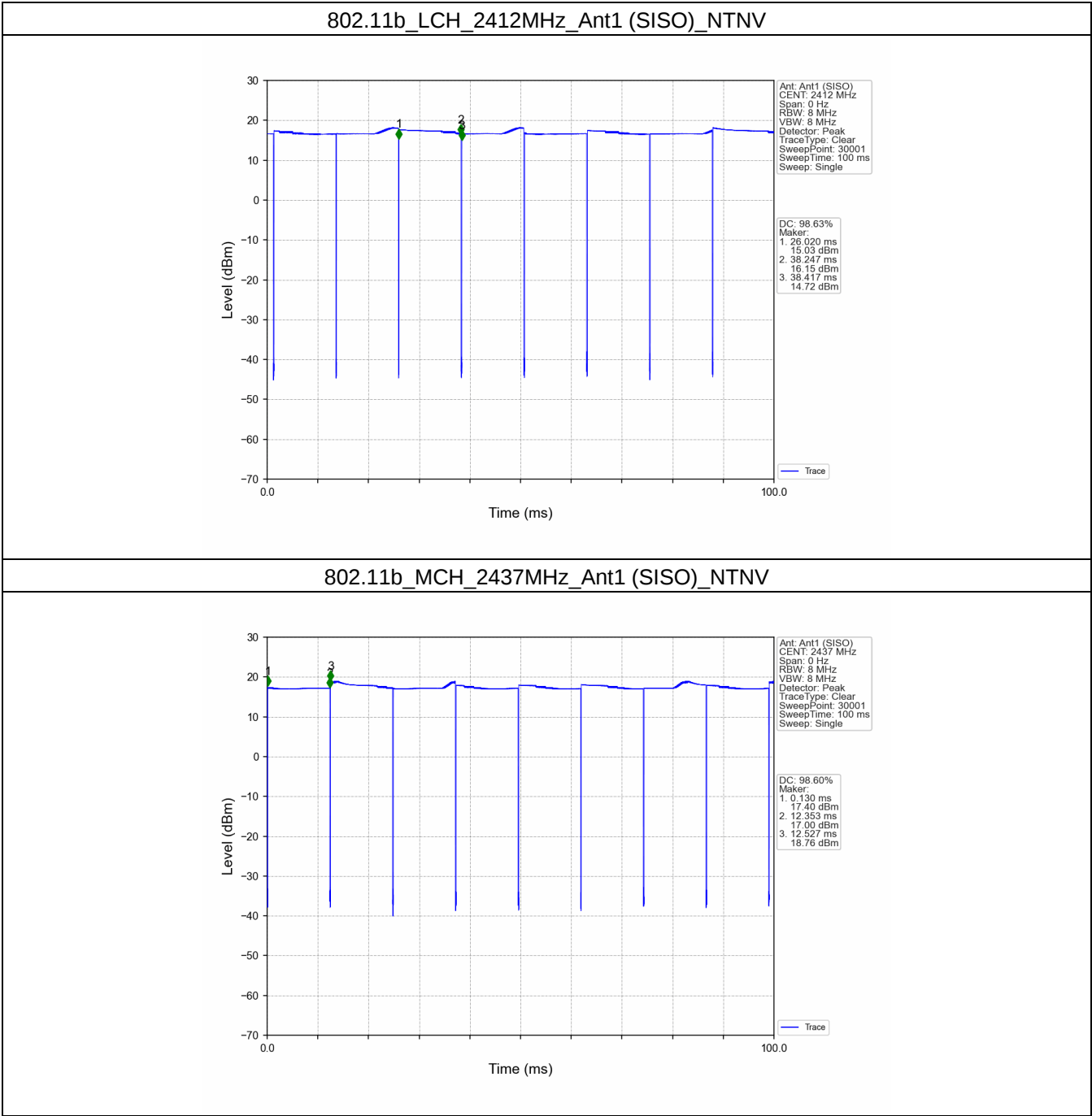
1.1 Test Result

1.1.1 Ant1

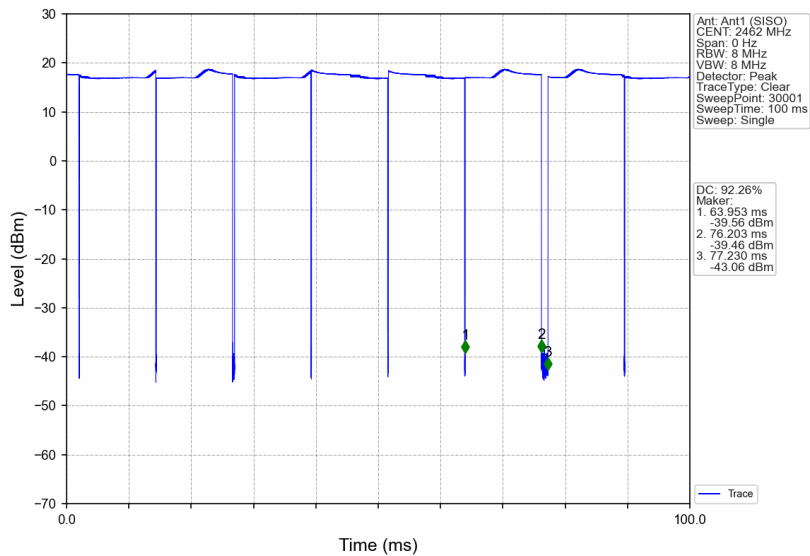
Ant1									
Mode	TX Type	Frequency (MHz)	RU	RU Pos	T_on (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	Max. DC Variation (%)
802.11b	SISO	2412	/	/	12.227	12.397	98.63	0.06	0.51
		2437	/	/	12.223	12.397	98.60	0.06	0.51
		2462	/	/	12.250	13.277	92.26	0.35	7.06
802.11g	SISO	2412	/	/	1.364	1.550	88.00	0.56	0.03
		2437	/	/	1.364	1.550	88.00	0.56	0.03
		2462	/	/	1.364	1.549	88.06	0.55	0.03
802.11n (HT20)	SISO	2412	/	/	1.277	1.462	87.35	0.59	0.03
		2437	/	/	1.277	1.463	87.29	0.59	0.03
		2462	/	/	1.276	1.461	87.34	0.59	0.03
802.11n (HT40)	SISO	2422	/	/	0.637	0.822	77.49	1.11	0.04
		2437	/	/	0.636	0.821	77.47	1.11	0.06
		2452	/	/	0.636	0.822	77.37	1.11	0.06
802.11ax (HEW20)	SISO	2412	RU242	Left	0.996	1.182	84.26	0.74	0.03
		2437	RU242	Left	0.997	1.182	84.35	0.74	0.01
		2462	RU242	Left	0.996	1.182	84.26	0.74	0.06
802.11ax (HEW40)	SISO	2422	RU484	Left	0.528	0.714	73.95	1.31	0.01
		2437	RU484	Left	0.529	0.714	74.09	1.30	0.01
		2452	RU484	Left	0.529	0.714	74.09	1.30	0.03

1.2 Test Graph

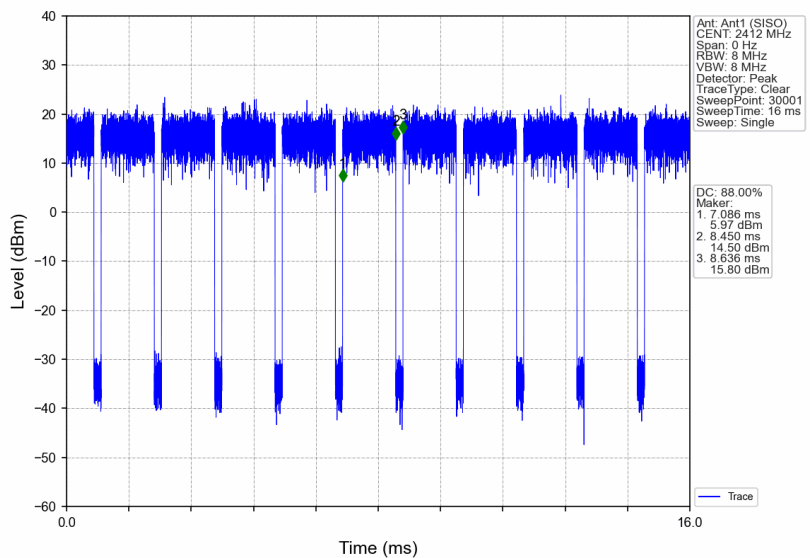
1.2.1 Ant1



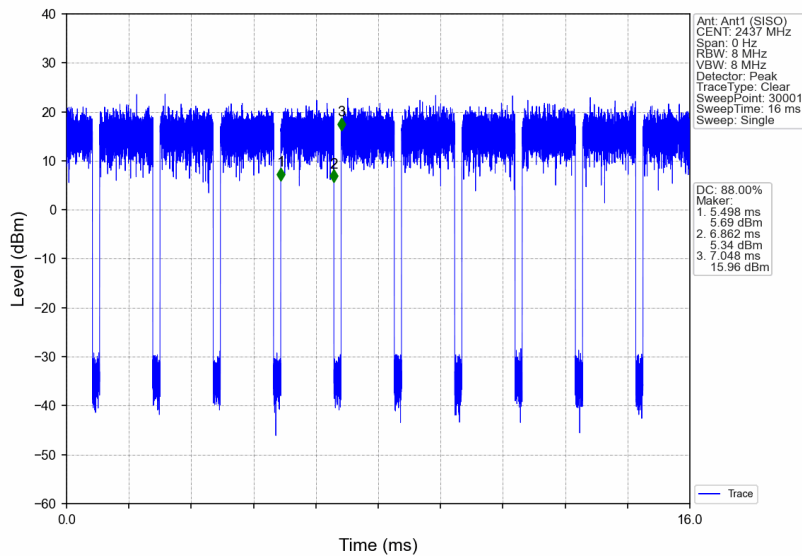
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



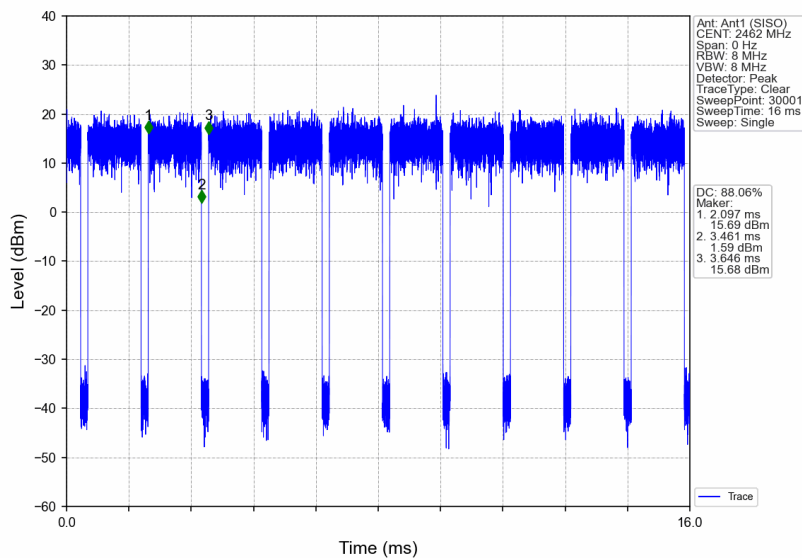
802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



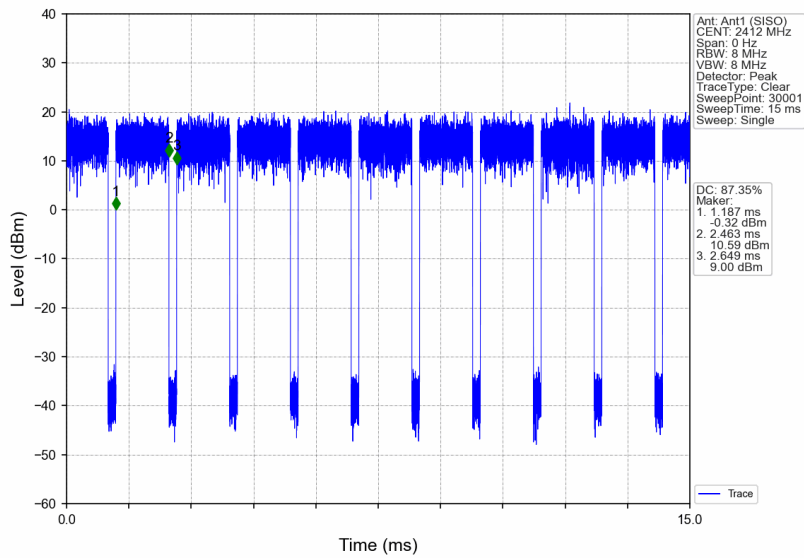
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



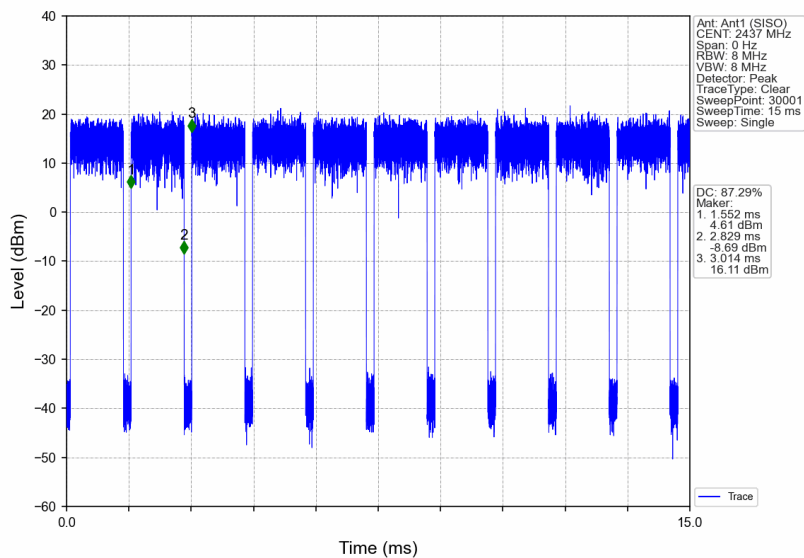
802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



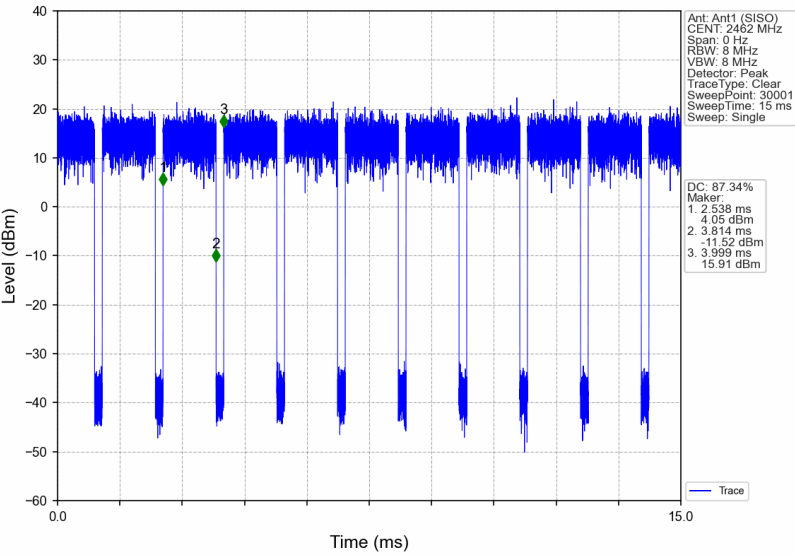
802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



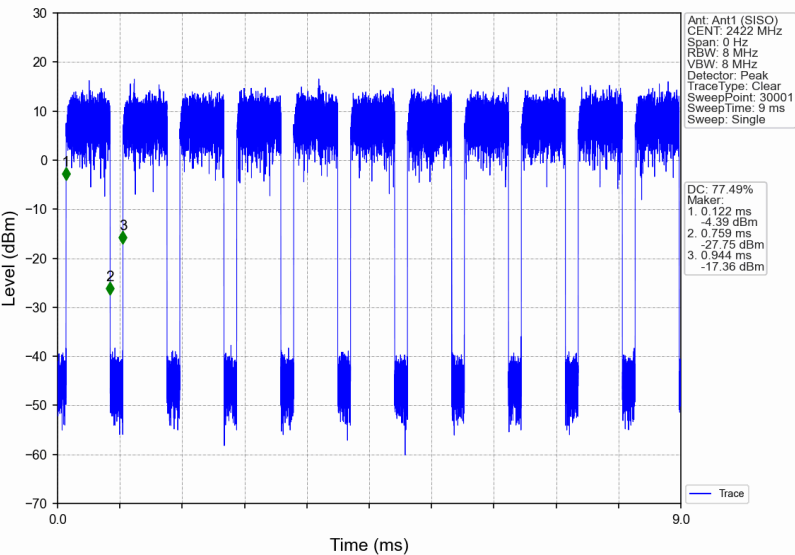
802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV



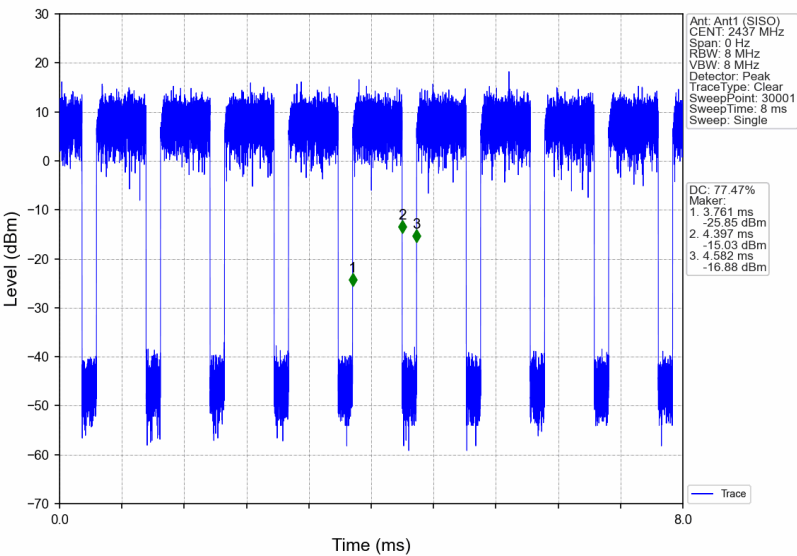
802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV



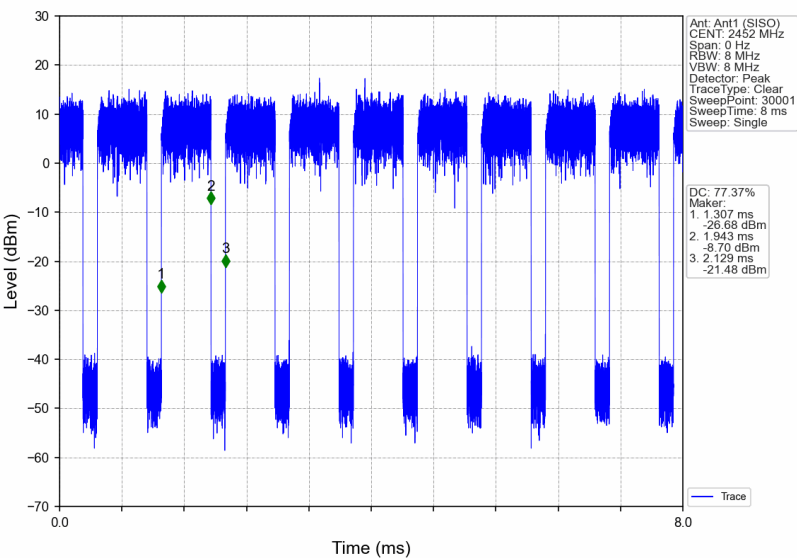
802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



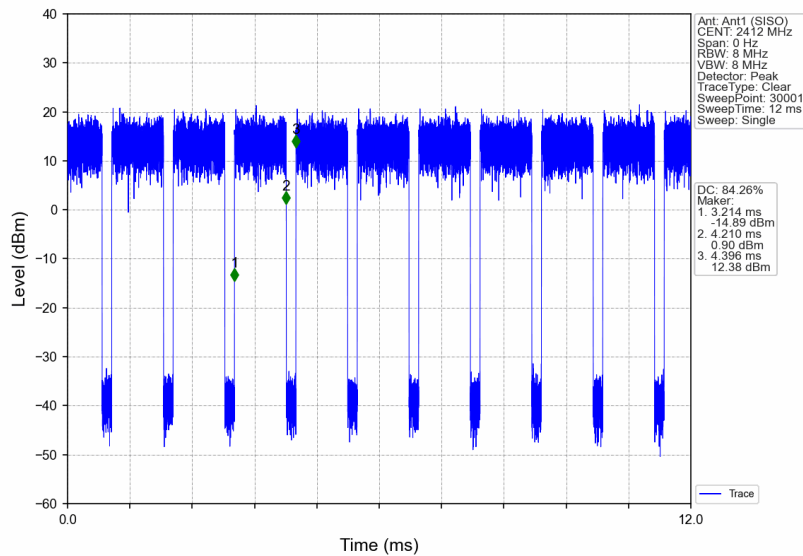
802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV



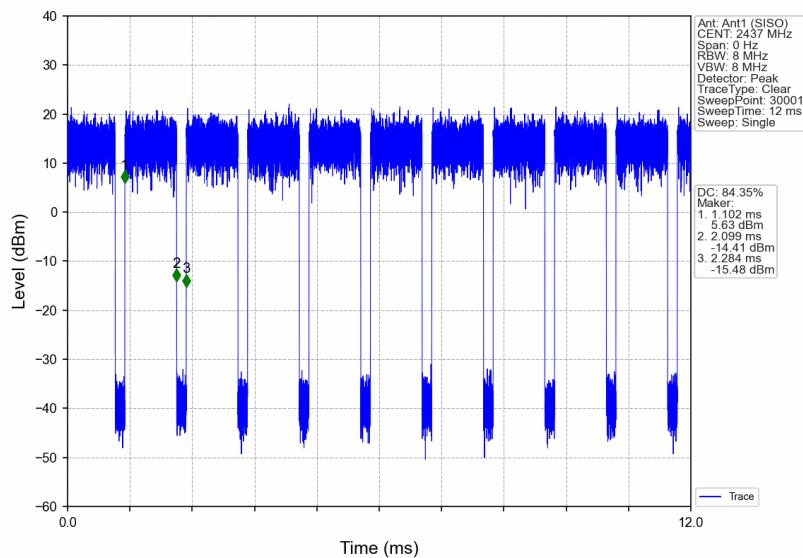
802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV



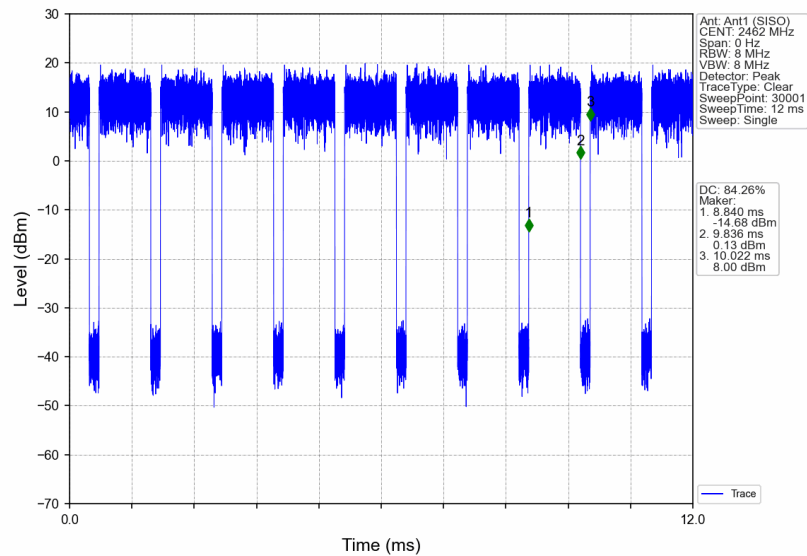
802.11ax(HEW20)_LCH_2412MHz_RU242_Left_Ant1 (SISO)_NTNV



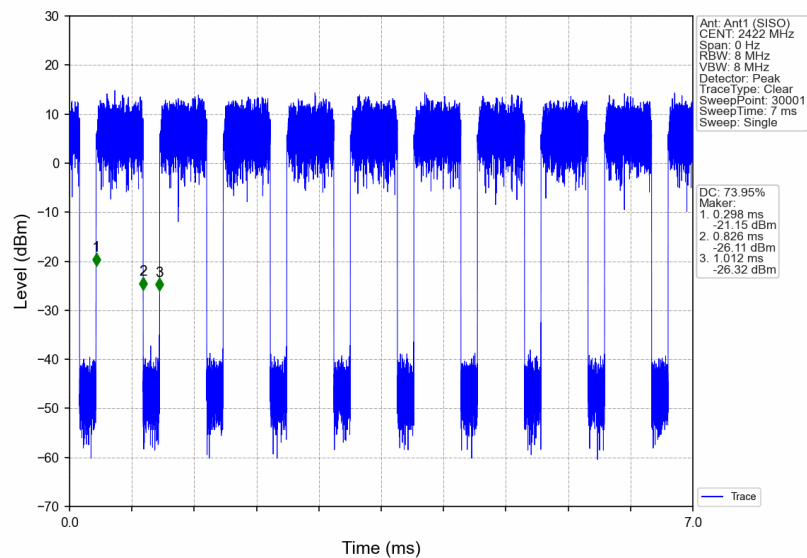
802.11ax(HEW20)_MCH_2437MHz_RU242_Left_Ant1 (SISO)_NTNV



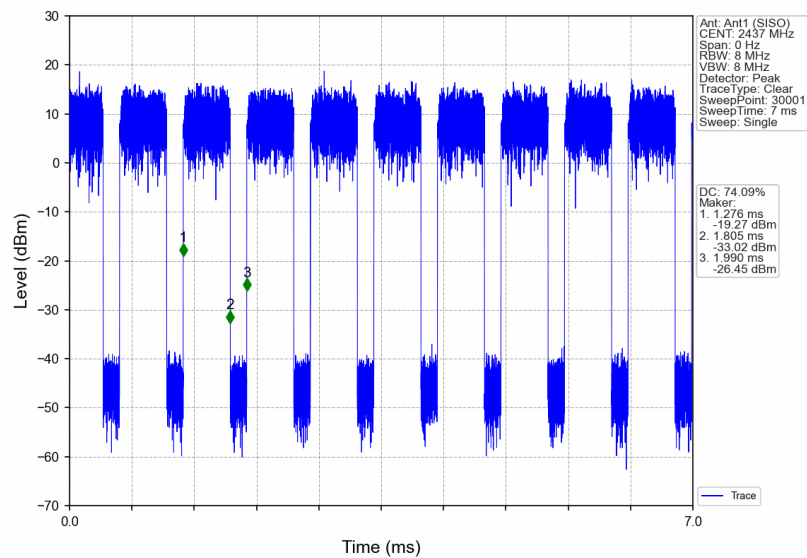
802.11ax(HEW20)_HCH_2462MHz_RU242_Left_Ant1 (SISO)_NTNV



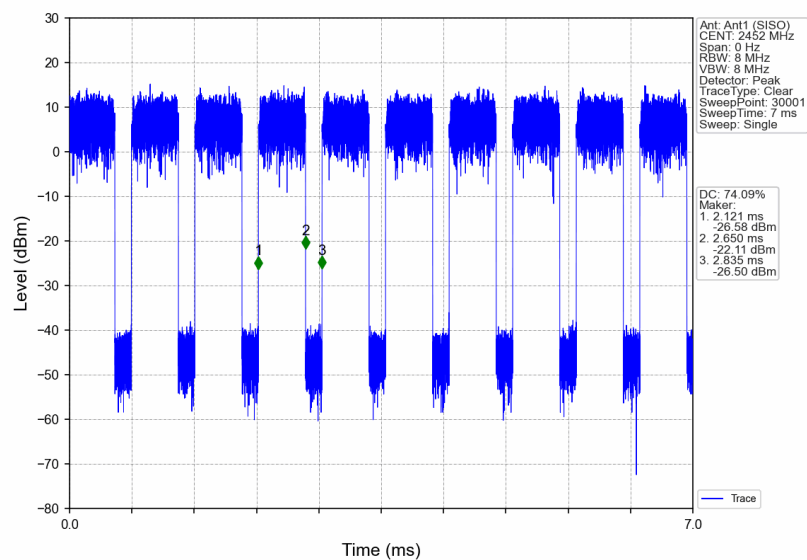
802.11ax(HEW40)_LCH_2422MHz_RU484_Left_Ant1 (SISO)_NTNV



802.11ax(HEW40)_MCH_2437MHz_RU484_Left_Ant1 (SISO)_NTNV



802.11ax(HEW40)_HCH_2452MHz_RU484_Left_Ant1 (SISO)_NTNV



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	15.165	/	Pass
		2437	/	/	1	15.213	/	Pass
		2462	/	/	1	15.105	/	Pass
802.11g	SISO	2412	/	/	1	18.568	/	Pass
		2437	/	/	1	19.083	/	Pass
		2462	/	/	1	18.668	/	Pass
802.11n (HT20)	SISO	2412	/	/	1	19.739	/	Pass
		2437	/	/	1	19.920	/	Pass
		2462	/	/	1	19.759	/	Pass
802.11n (HT40)	SISO	2422	/	/	1	39.314	/	Pass
		2437	/	/	1	39.126	/	Pass
		2452	/	/	1	39.234	/	Pass
802.11ax (HEW20)	SISO	2412	RU242	Left	1	20.062	/	Pass
		2437	RU242	Left	1	20.071	/	Pass
		2462	RU242	Left	1	20.008	/	Pass
802.11ax (HEW40)	SISO	2422	RU484	Left	1	38.793	/	Pass
		2437	RU484	Left	1	39.177	/	Pass
		2452	RU484	Left	1	38.988	/	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	10.106	≥ 0.5	Pass
		2437	/	/	1	10.045	≥ 0.5	Pass
		2462	/	/	1	10.073	≥ 0.5	Pass
802.11g	SISO	2412	/	/	1	15.162	≥ 0.5	Pass
		2437	/	/	1	15.494	≥ 0.5	Pass
		2462	/	/	1	15.477	≥ 0.5	Pass
802.11n (HT20)	SISO	2412	/	/	1	15.162	≥ 0.5	Pass
		2437	/	/	1	15.173	≥ 0.5	Pass
		2462	/	/	1	15.165	≥ 0.5	Pass
802.11n (HT40)	SISO	2422	/	/	1	35.169	≥ 0.5	Pass
		2437	/	/	1	35.180	≥ 0.5	Pass
		2452	/	/	1	35.492	≥ 0.5	Pass



Compliance Certification Services (Kunshan) Inc.

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

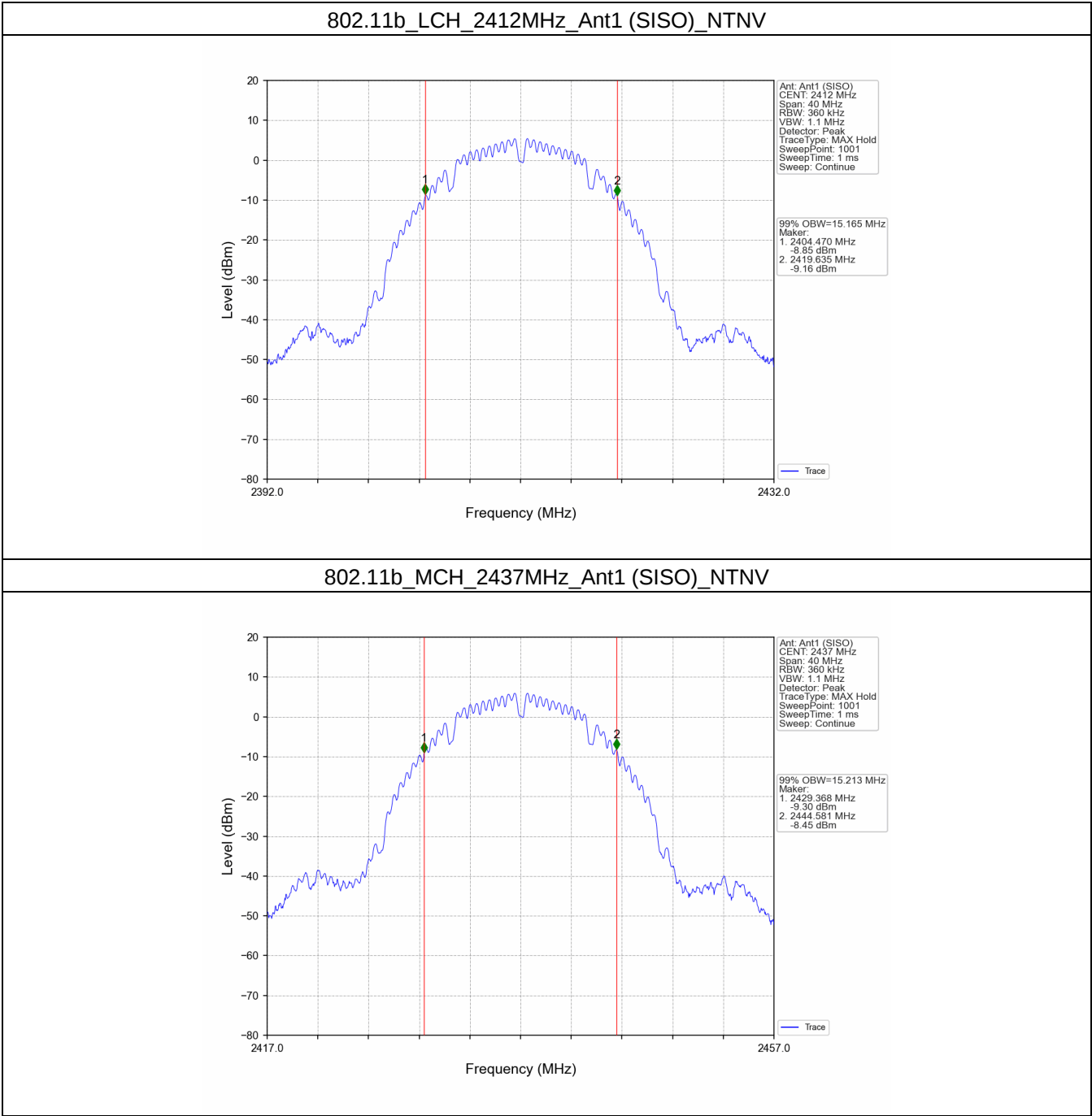
Report No.: KSCR240600103401

Page: 125 of 189

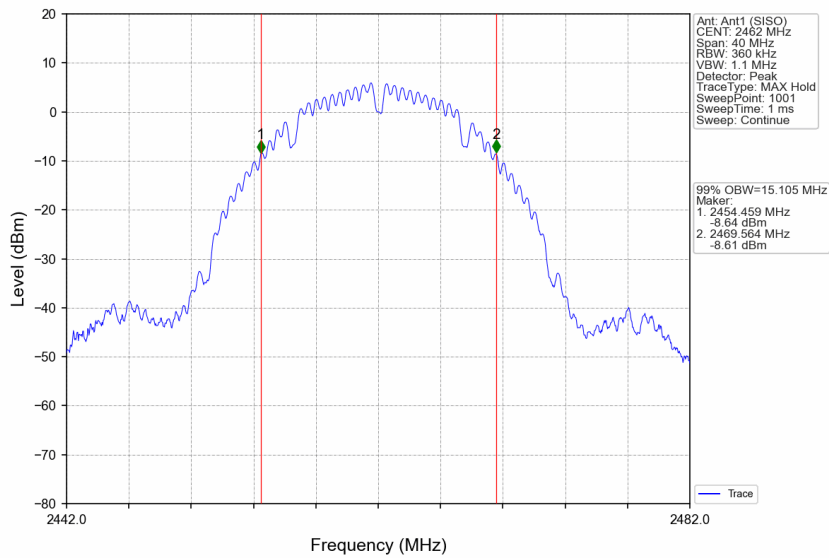
802.11ax (HEW20)	SISO	2412	RU242	Left	1	15.910	≥ 0.5	Pass
		2437	RU242	Left	1	17.007	≥ 0.5	Pass
		2462	RU242	Left	1	16.916	≥ 0.5	Pass
802.11ax (HEW40)	SISO	2422	RU484	Left	1	35.516	≥ 0.5	Pass
		2437	RU484	Left	1	36.680	≥ 0.5	Pass
		2452	RU484	Left	1	36.126	≥ 0.5	Pass

2.2 Test Graph

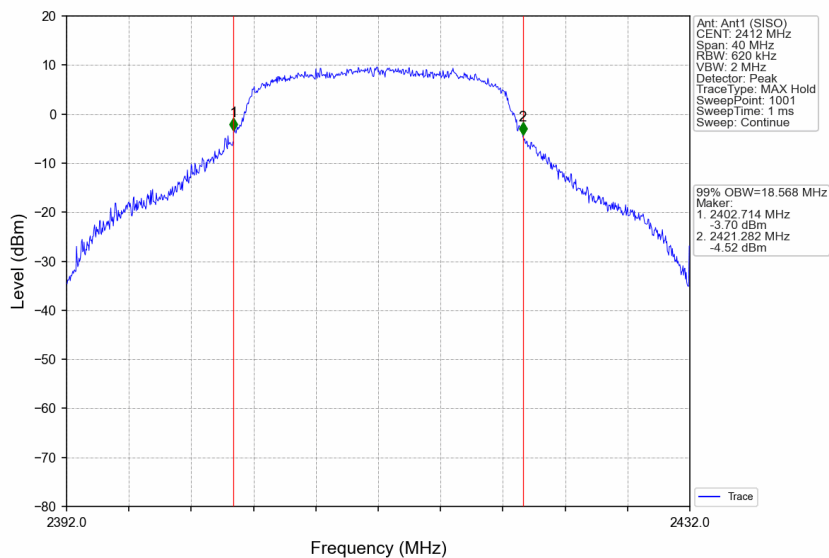
2.2.1 OBW



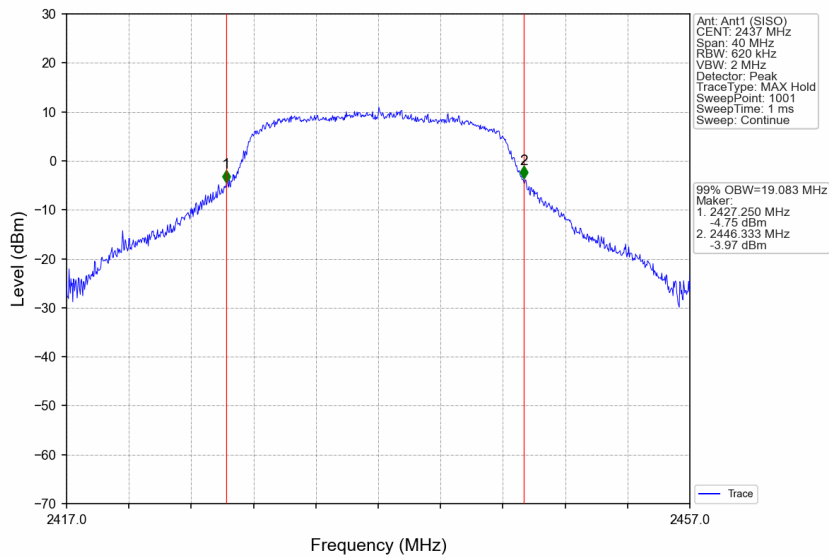
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



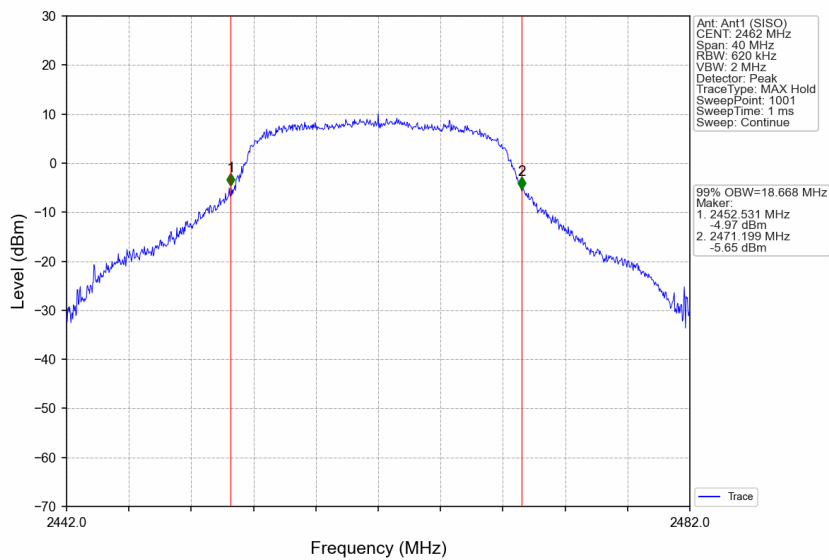
802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



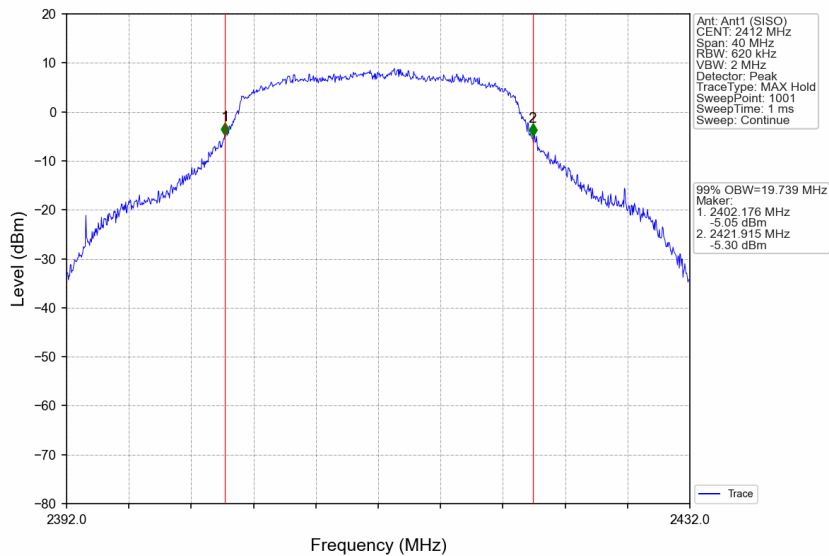
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



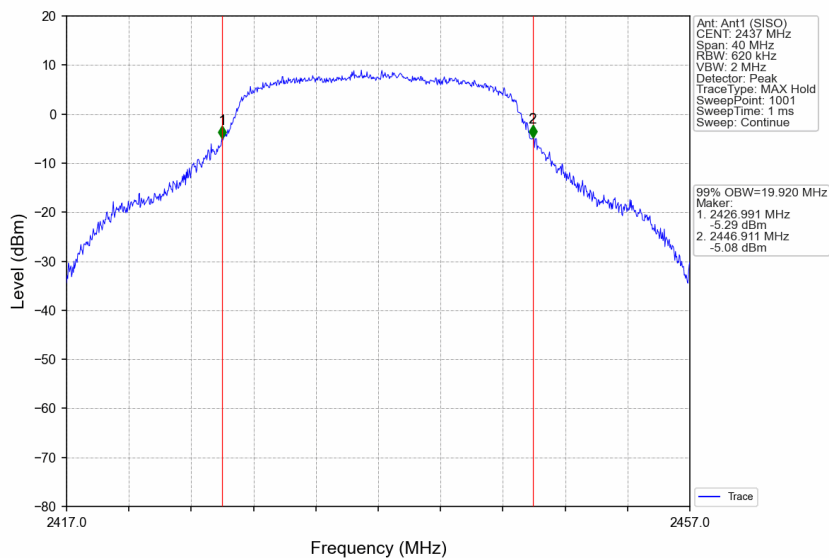
802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV



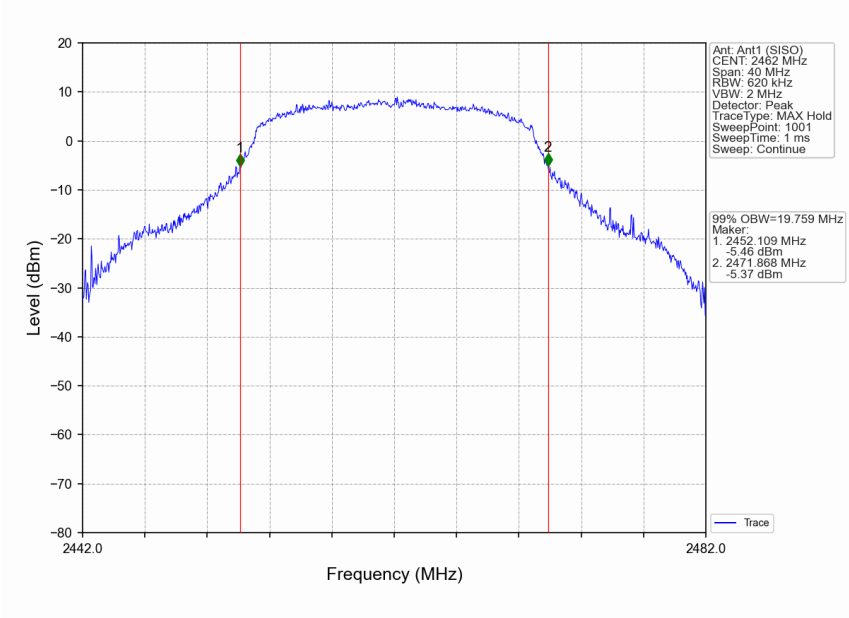
Compliance Certification Services (Kunshan) Inc.

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

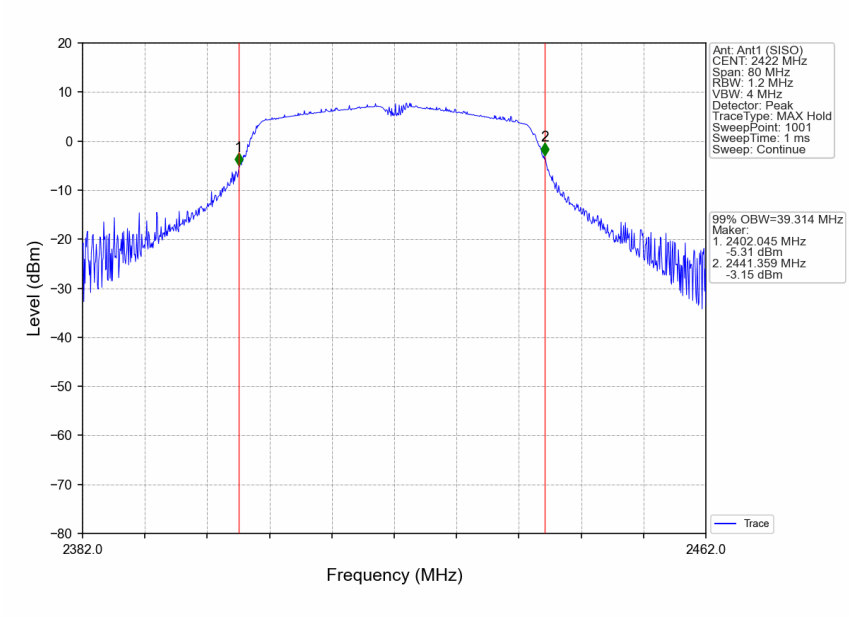
Report No.: KSCR240600103401

Page: 130 of 189

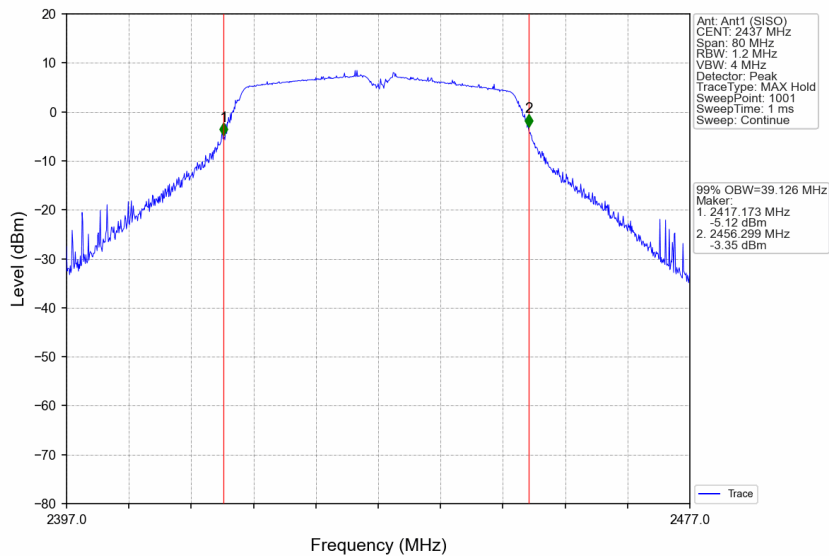
802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV



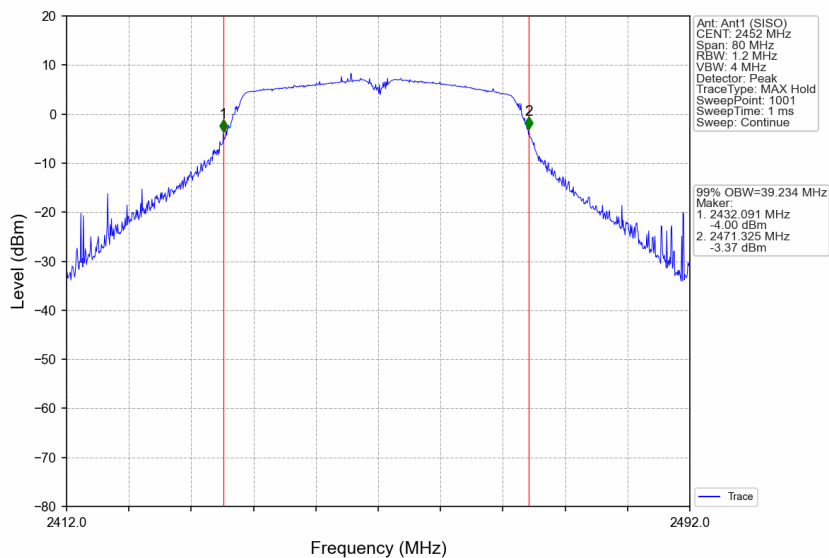
802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



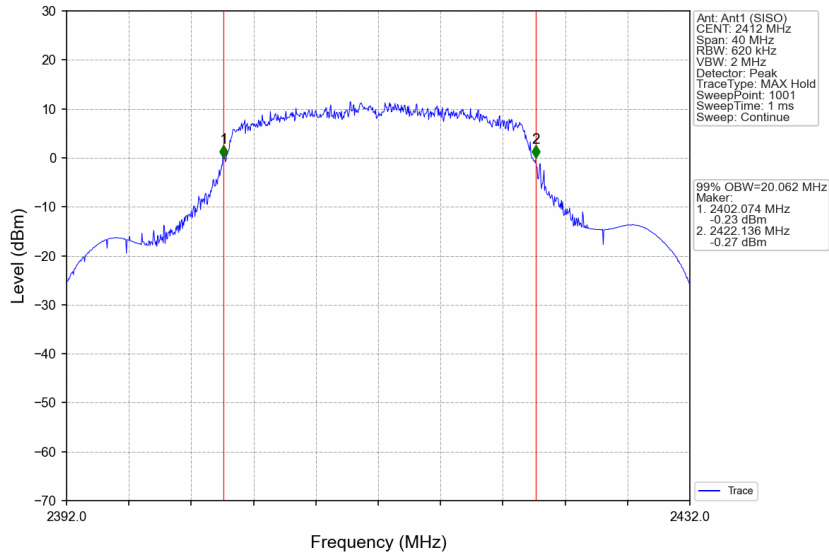
802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV



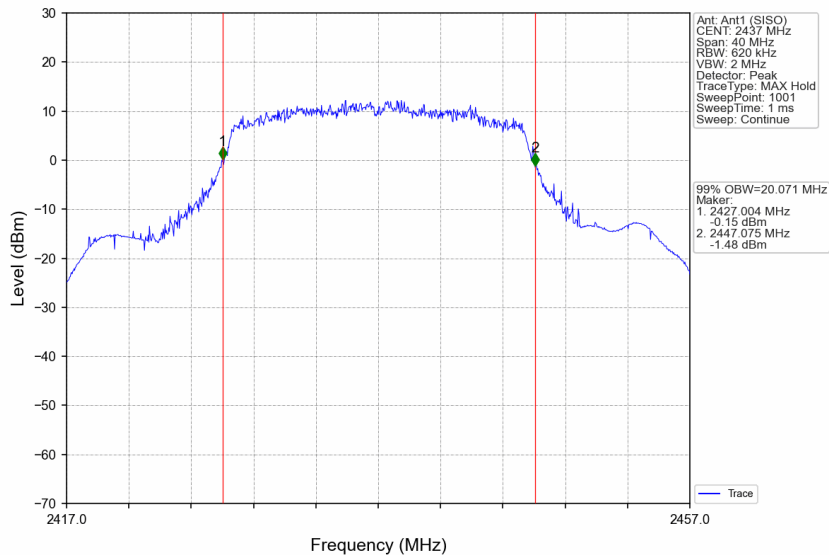
802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV



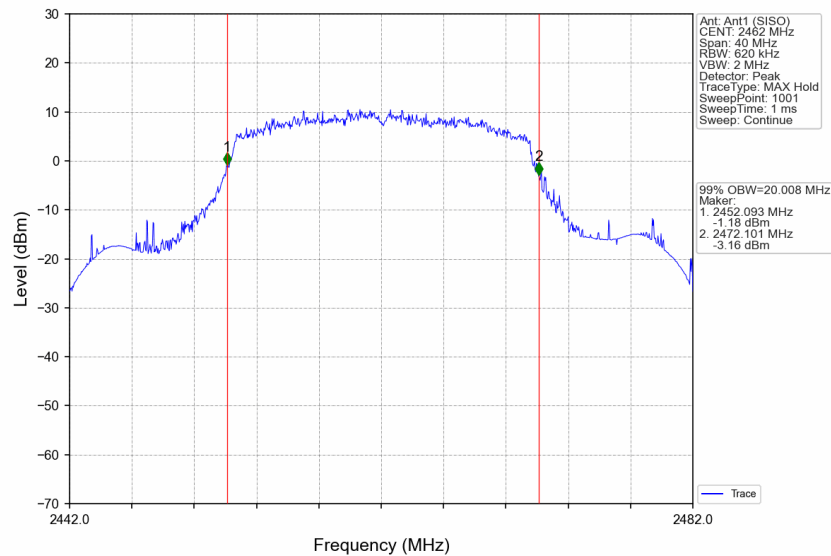
802.11ax(HEW20)_LCH_2412MHz_RU242_Left_Ant1 (SISO)_NTNV



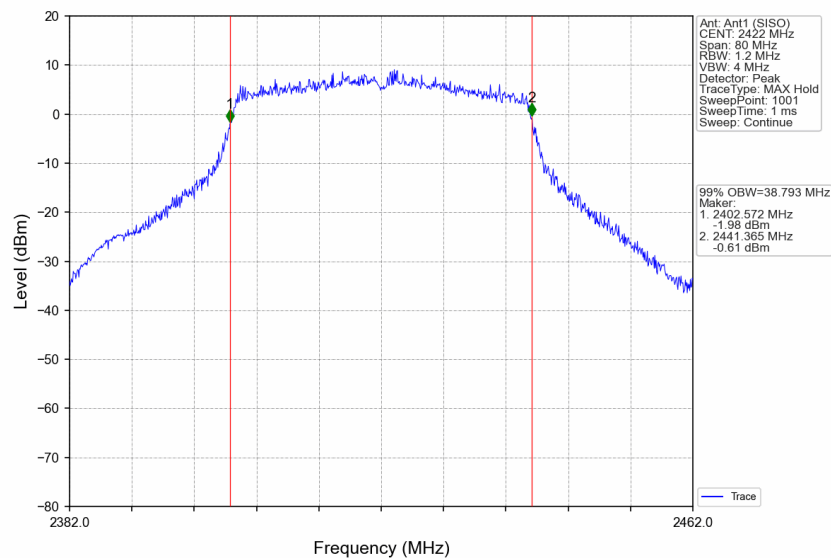
802.11ax(HEW20)_MCH_2437MHz_RU242_Left_Ant1 (SISO)_NTNV



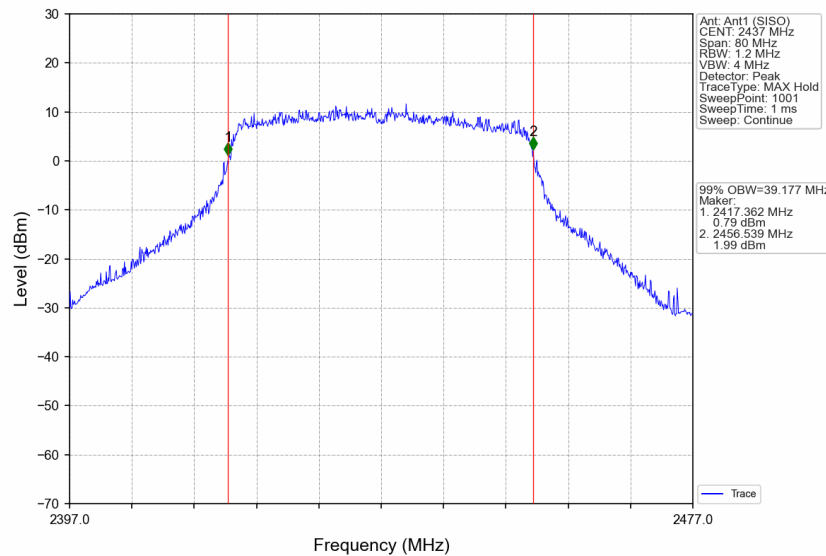
802.11ax(HEW20)_HCH_2462MHz_RU242_Left_Ant1 (SISO)_NTNV



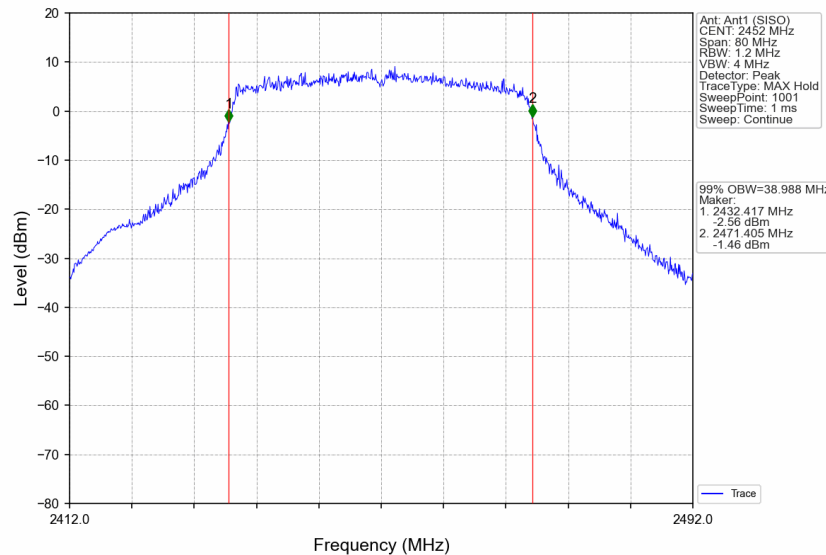
802.11ax(HEW40)_LCH_2422MHz_RU484_Left_Ant1 (SISO)_NTNV



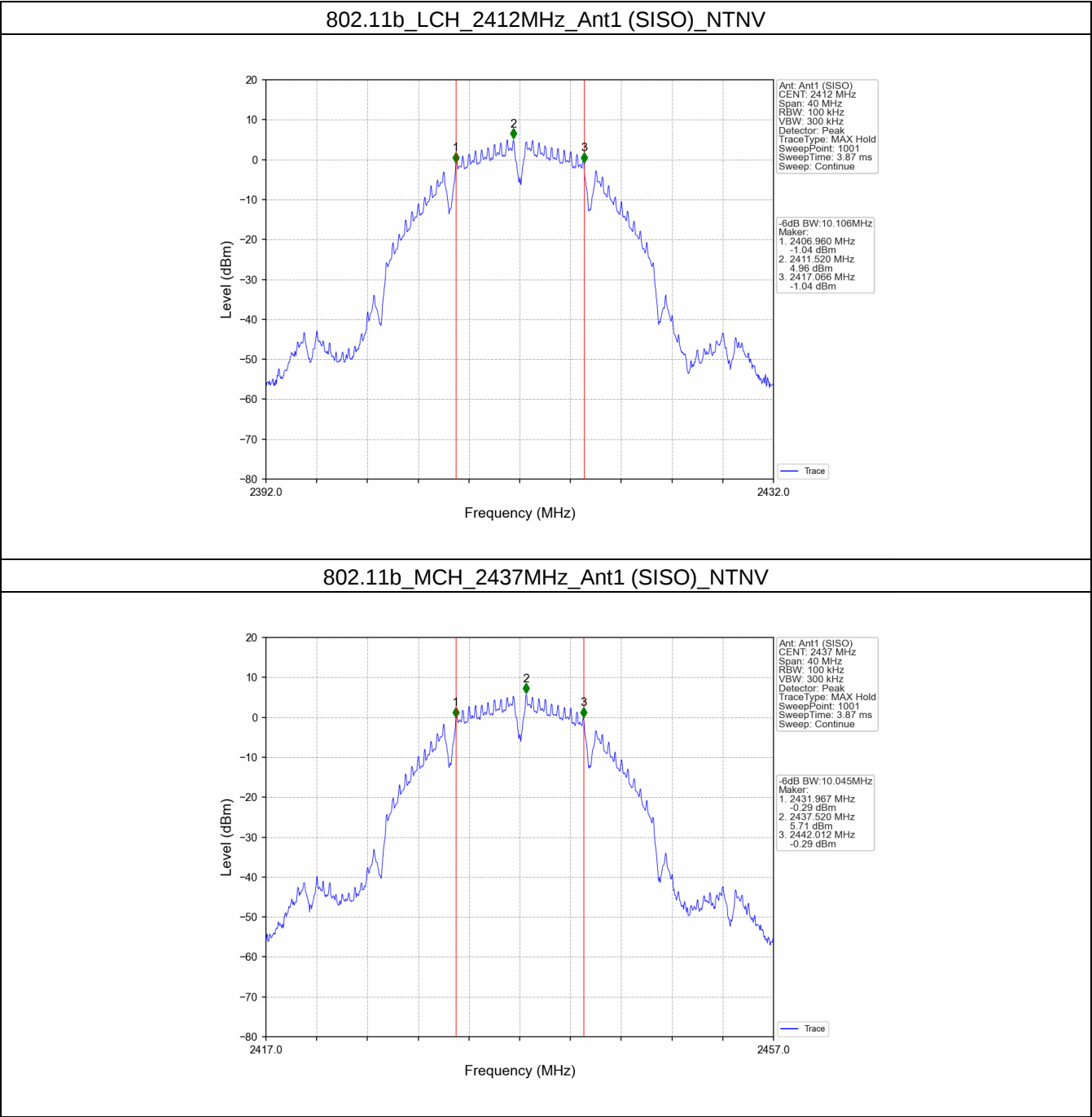
802.11ax(HEW40)_MCH_2437MHz_RU484_Left_Ant1 (SISO)_NTNV



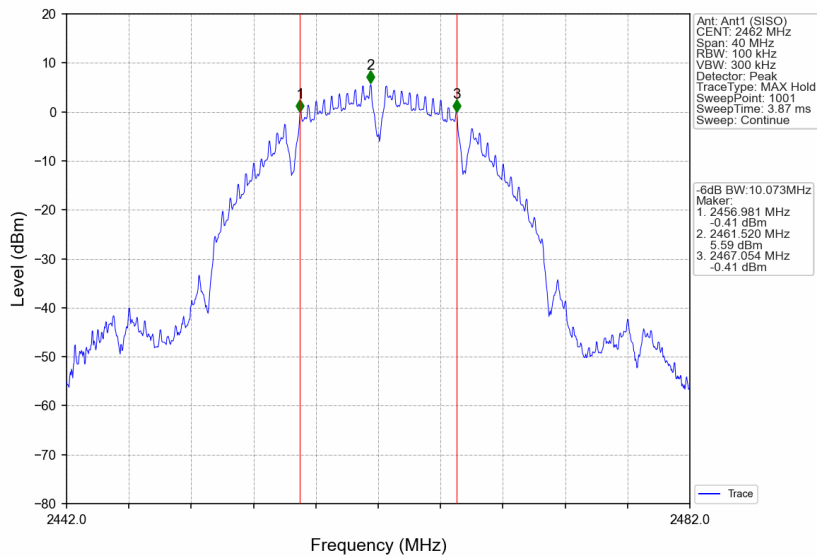
802.11ax(HEW40)_HCH_2452MHz_RU484_Left_Ant1 (SISO)_NTNV



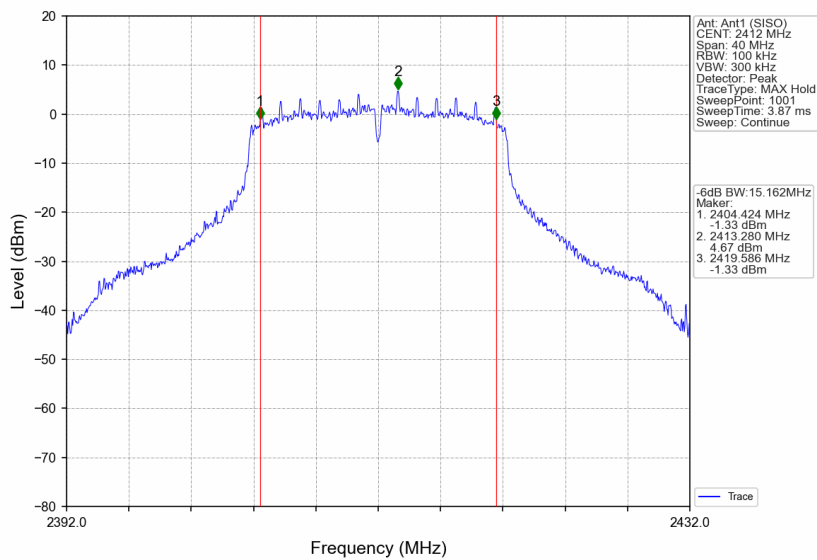
2.2.2 6dB BW



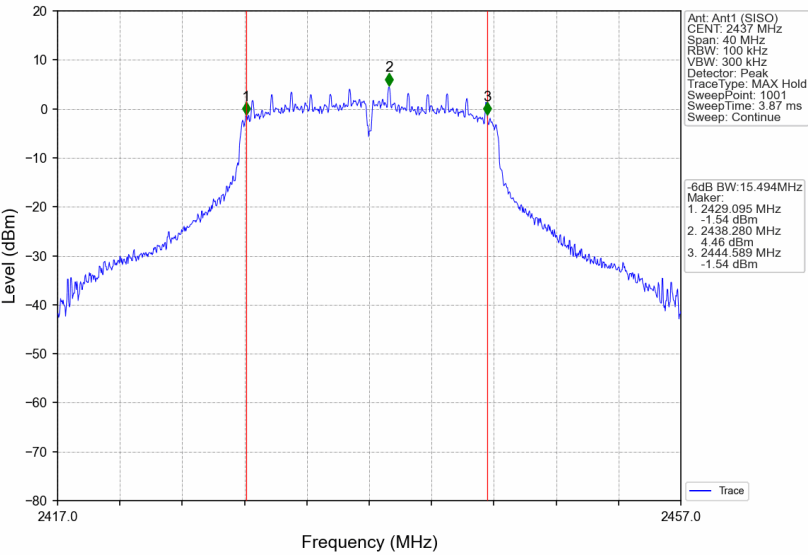
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



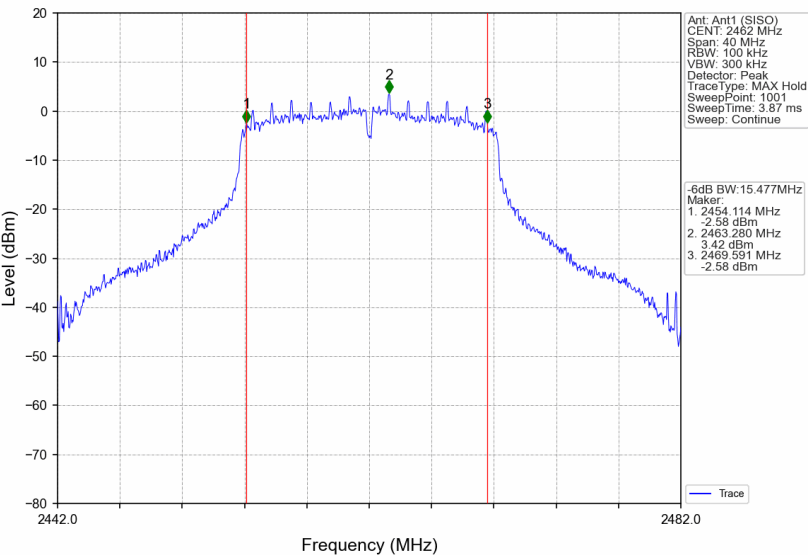
802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



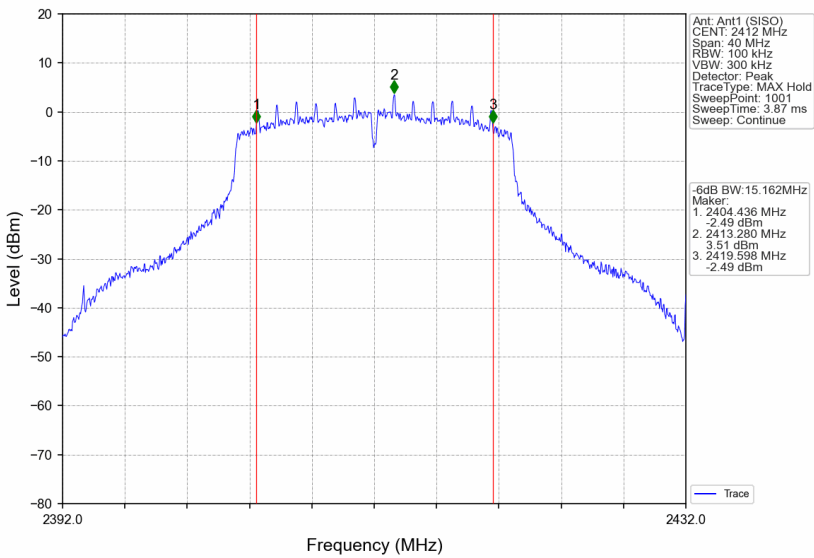
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



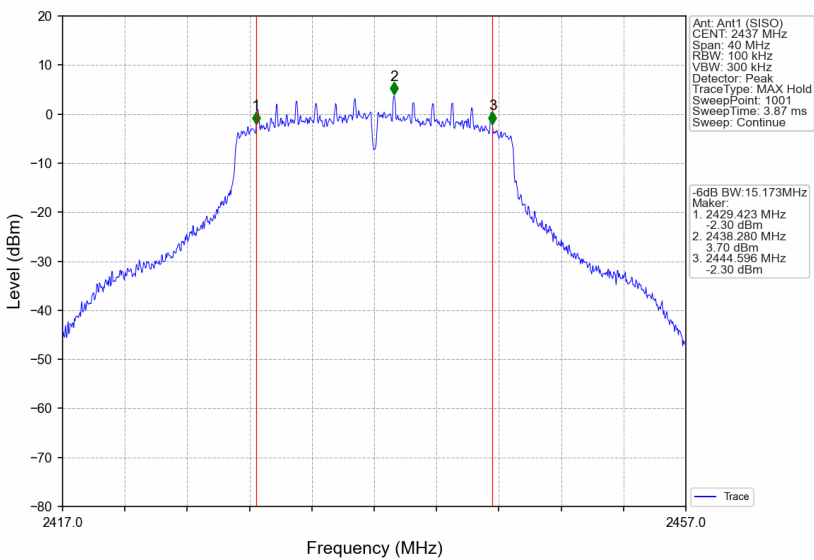
802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV



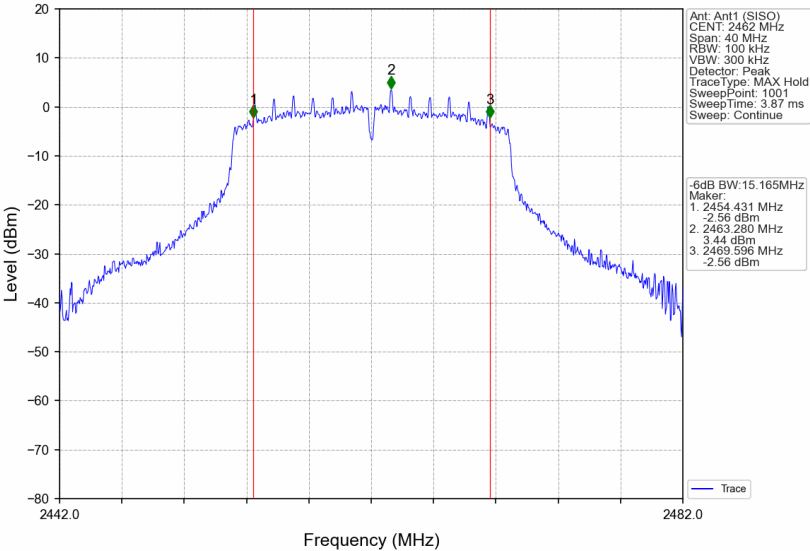
Compliance Certification Services (Kunshan) Inc.

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

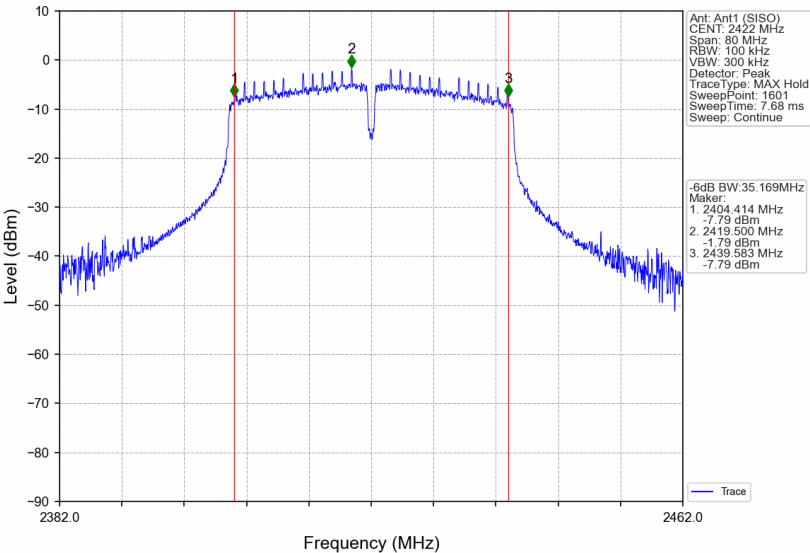
Report No.: KSCR240600103401

Page: 139 of 189

802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



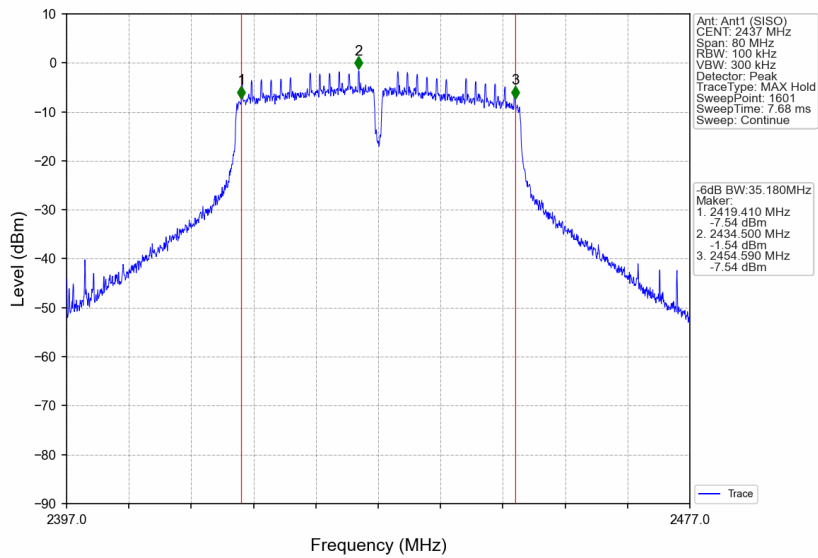
Compliance Certification Services (Kunshan) Inc.

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

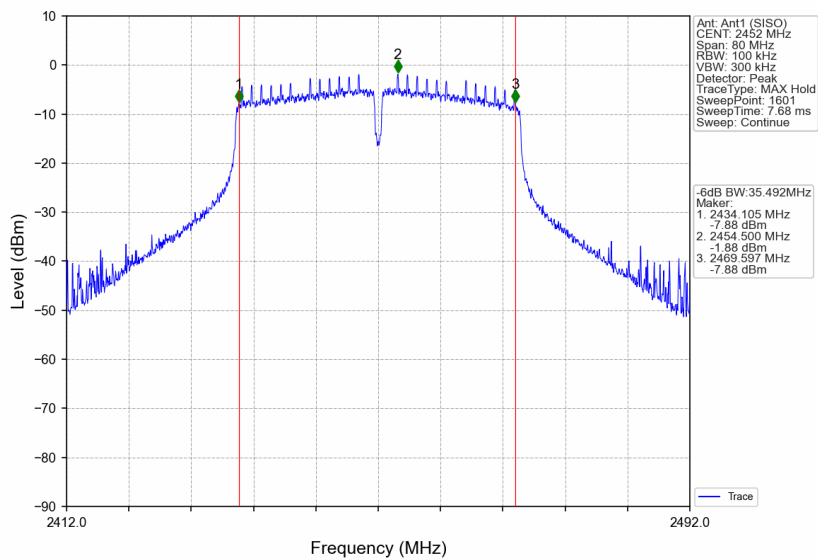
Report No.: KSCR240600103401

Page: 140 of 189

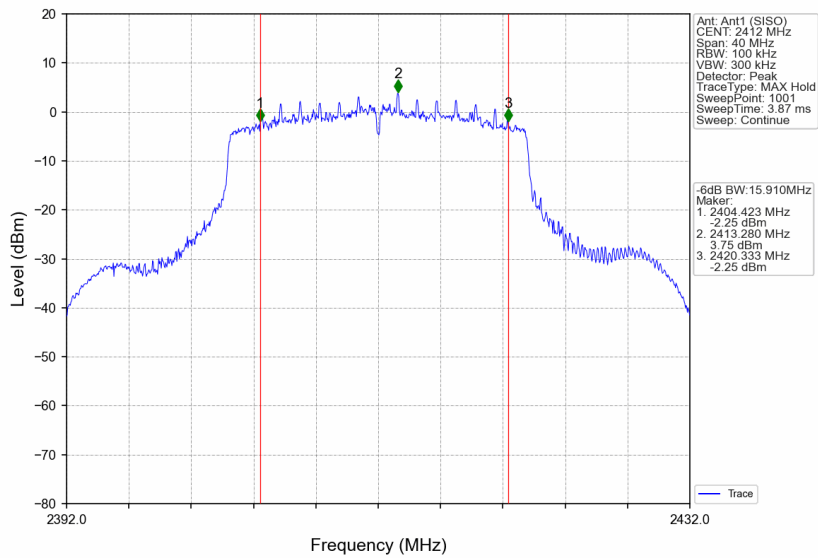
802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV



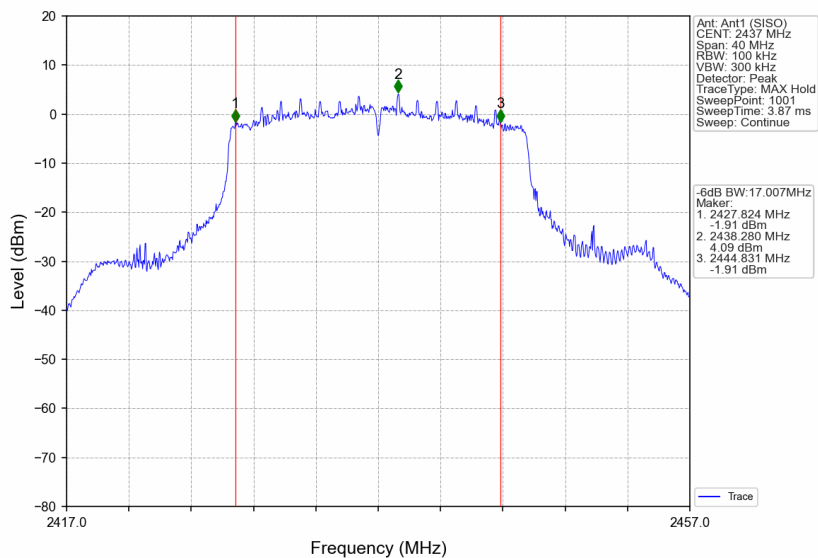
802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV



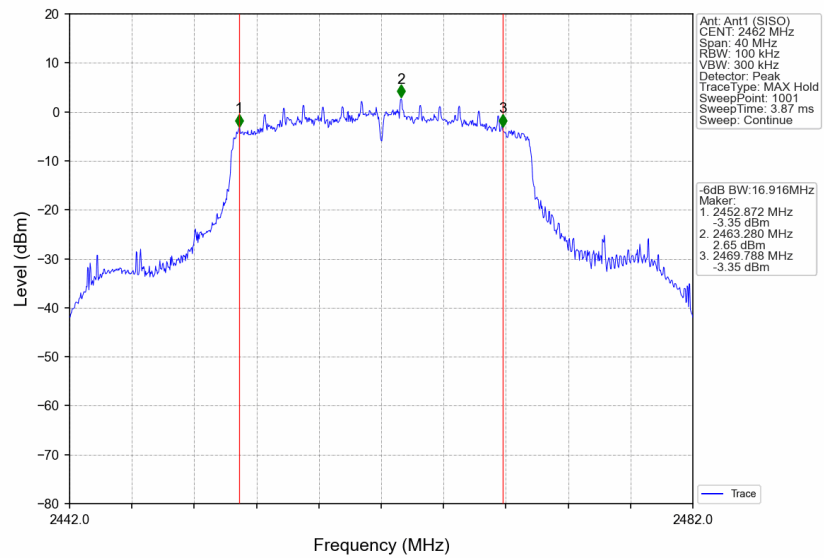
802.11ax(HEW20)_LCH_2412MHz_RU242_Left_Ant1 (SISO)_NTNV



802.11ax(HEW20)_MCH_2437MHz_RU242_Left_Ant1 (SISO)_NTNV



802.11ax(HEW20)_HCH_2462MHz_RU242_Left_Ant1 (SISO)_NTNV



802.11ax(HEW40)_LCH_2422MHz_RU484_Left_Ant1 (SISO)_NTNV

