TEST REPORT

Application No.:	KSEM2008000932CR
FCC.:	2AH25NT312
Applicant:	Shanghai Sunmi Technology Co.,Ltd.
Address of Applicant:	Room 605,Block 7,KIC Plaza,No.388 Song Hu Road Yang Pu District,Shanghai,China
Manufacturer:	Shanghai Sunmi Technology Co.,Ltd.
Address of Manufacturer:	Room 605,Block 7,KIC Plaza,No.388 Song Hu Road Yang Pu District,Shanghai,China
Factory:	Kang Zhun Electronical Technology(Kunshan)Co.,Ltd.Wu Song Jiang Branch
Address of Factory:	No.299,Nansong Road,Yushan Town,Kunshan City,Jiangsu Province,China
Equipment Under Test (EUT):	
EUT Name:	Cloud POS Printer
Model No.:	NT312
Standard(s) :	47 CFR Part 15, Subpart C 15.247
Date of Receipt:	2020-08-03
Date of Test:	2020-08-14 to 2020-09-14
Date of Issue:	2020-09-16
Test Result:	**Pass***

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

Eric Lin
EMC Lab Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in writing.

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Revision Record			
Version	**Description**	**Date**	**Remark**
00	Original	2020-09-16	/

Authorized for issue by:				
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		Damon Zhou / Project Engineer		
		Eric Lin		
		Eric Lin / Reviewer		

2 Test Summary

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

Radio Spectrum Matter Part				
Item	**Standard**	**Method**	**Requirement**	**Result**
Conducted Emissions at AC Power Line (150kHz-30MHz)	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 6.2	47 CFR Part 15, Subpart C 15.207	Pass
Minimum 6dB Bandwidth	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 11.8.1	47 CFR Part 15, Subpart C 15.247a(2)	Pass
Conducted Peak Output Power	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 11.9.1	47 CFR Part 15, Subpart C 15.247(b)(3)	Pass
Power Spectrum Density	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 11.10.2	47 CFR Part 15, Subpart C 15.247(e)	Pass
Conducted Band Edges Measurement	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 11.13.3.2	47 CFR Part 15, Subpart C 15.247(d)	Pass
Conducted Spurious Emissions	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 11.11	47 CFR Part 15, Subpart C 15.247(d)	Pass
Radiated Emissions which fall in the restricted bands	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 6.10.5	47 CFR Part 15, Subpart C 15.209 & 15.247(d)	Pass
Radiated Spurious Emissions	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 6.4,6.5,6.6	47 CFR Part 15, Subpart C 15.209 & 15.247(d)	Pass

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4 General Information

Details of E.U.T.

Power supply:	DC 24V by Adapter
	Adapter Model:CYSE65-240250
	INPUT:100-240V,50/60Hz 1.7A
	OUTPUT:24V,2.5A
Test voltage:	AC 120V/60Hz
Cable:	DC cable 50cm
Antenna Gain:	1dBi
Antenna Type:	PCB Antenna
Channel Spacing:	5MHz
Modulation Type:	802.11b: DSSS (CCK, DQPSK, DBPSK)
	802.11g/n: OFDM (64QAM, 16QAM, QPSK, BPSK)
Number of Channels:	802.11b/g/n(HT20):11
Operation Frequency:	802.11b/g/n(HT20): 2412MHz to 2462MHz

Power level setting using in test:

Channel	802.11b	802.11g	802.11n(HT20)
1	default	default	default
6	default	default	default
11	default	default	default

Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Laptop	Lenovo	ThinkPad X100e	/
SecureCRT	VanDyke	V 6.2.0	/

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	2.84dB
7	Conducted Spurious emissions	0.75dB
8	RF Radiated power	4.6dB (Below 1GHz)
		4.1dB (Above 1GHz)
9	Radiated Spurious emission test	4.2dB (Below 30MHz)
		4.4dB (30MHz-1GHz)
		4.8dB (1GHz-18GHz)
		5.2dB (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.

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.

Test Facility

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

- **CNAS (No. CNAS L4354)**

CNAS has accredited Compliance Certification Services (Kunshan) Inc. to ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

- **A2LA (Certificate No. 2541.01)**

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

- **FCC (Designation Number: CN1172)**

Compliance Certification Services Inc. has been recognized as an accredited testing laboratory.

Designation Number: CN1172.

- **ISED (CAB Identifier: CN0072)**

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

CAB Identifier: CN0072.

- **VCCI (Member No.: 1938)**

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-1600, C-1707, T-1499, G-10216 respectively.

Deviation from Standards

None

Abnormalities from Standard Conditions

None

5 Equipment List

Item	Equipment	Manufacturer	Model	Serial Number	Cal Date	Cal. Due Date
Conducted Emission at Mains Terminals (150kHz-30MHz)						
1	EMI Test Receive	R&S	ESCI	100781	02/24/2020	02/23/2021
2	LISN	R&S	ENV216	101604	10/24/2019	10/23/2020
3	LISN	Schwarzbeck	NNLK 8129	8129-143	10/24/2019	10/23/2020
4	Pulse Limiter	R&S	ESH3-Z2	100609	02/24/2020	02/23/2021
5	CE test Cable	Thermax	/	14	02/24/2020	02/23/2021
RF Conducted Test						
1	Spectrum Analyzer	Agilent	E4446A	MY44020154	04/22/2020	04/21/2021
2	Spectrum Analyzer	Keysight	N9020A	MY55370209	12/19/2019	12/18/2020
3	Signal Generator	Agilent	E8257C	MY43321570	10/24/2019	10/23/2020
4	Vector Signal Generator	R&S	SMU 200A	102744	02/24/2020	02/23/2021
5	Universal Radio Communication Tester	R&S	CMU200	109525	12/19/2019	12/18/2020
6	Universal Radio Communication Tester	R&S	CMW500	159275	12/19/2019	12/18/2020
7	Power Meter	Anritsu	ML2495A	1445010	04/21/2020	04/20/2021
8	Switcher	CCSRF	FY562	KS301219	12/20/2019	12/19/2020
9	AC Power Source	EXTECH	6605	1570106	N.C.R	N.C.R
10	DC Power Supply	Aglient	E3632A	MY50340053	N.C.R	N.C.R
11	6dB Attenuator	Mini-Circuits	NAT-6-2W	15542-1	N.C.R	N.C.R
12	Power Divider	AISI	IOWOPE2068	PE2068	N.C.R	N.C.R
13	Filter	MICRO-TRONICS	BRM50701	5	N.C.R	N.C.R
14	Conducted test cable	/	RF01-RF04	/	04/21/2020	04/22/2021
15	Temp. / Humidity Chamber	TERCHY	MHK-120AK	X30109	04/21/2020	04/20/2021
RF Radiated Test						
1	Spectrum Analyzer	R&S	FSV40	101493	01/08/2020	01/07/2021
2	Signal Generator	Agilent	E8257C	MY43321570	10/24/2019	10/23/2020
3	Loop Antenna	Schwarzbeck	HXYZ9170	9170-108	02/24/2020	02/23/2021
4	Bilog Antenna	TESEQ	CBL 6112D	35403	06/22/2019	06/21/2021
5	Bilog Antenna	SCHWARZBECK	VULB9160	9160-3342	04/29/2019	04/28/2021
6	Horn-antenna(1-18GHz)	Schwarzbeck	BBHA9120D	267	11/04/2018	11/03/2020
7	Horn-antenna(1-18GHz)	ETS-LINDGREN	3117	00143290	02/25/2019	02/24/2021
8	Horn Antenna(18-40GHz)	Schwarzbeck	BBHA9170	BBHA9170171	02/27/2018	02/26/2021
9	Pre-Amplifier(30MHz~18GHz)	CCSRF	AMP1277	1	12/19/2019	12/18/2020
10	Pre-Amplifier(0.1~26.5GHz)	EMCI	EMC012645	980060	04/21/2020	04/20/2021
11	Low Pass Filter	MICRO-TRONICS	VLFX-950	RV142900829	N.C.R	N.C.R
12	High Pass Filter	Mini-Circuits	VHF-1200	15542	N.C.R	N.C.R
13	Filter (5450MHz～5770 MHz)	MICRO-TRONICS	BRC50704-01	2	N.C.R	N.C.R
14	Filter (5690 MHz～5930 MHz)	MICRO-TRONICS	BRC50705-01	4	N.C.R	N.C.R
15	Filter (5150 MHz～5350 MHz)	MICRO-TRONICS	BRC50703-01	2	N.C.R	N.C.R
16	Filter (885 MHz～915 MHz)	MICRO-TRONICS	BRM14698	1	N.C.R	N.C.R
17	Filter (815 MHz～860 MHz)	MICRO-TRONICS	BRM14697	1	N.C.R	N.C.R
18	Filter (1745 MHz～1910 MHz)	MICRO-TRONICS	BRM14700	1	N.C.R	N.C.R
19	Filter (1922 MHz～1977 MHz)	MICRO-TRONICS	BRM50715	1	N.C.R	N.C.R
20	Filter (2550 MHz)	MICRO-TRONICS	HPM13362	5	N.C.R	N.C.R
21	Filter (1532 MHz～1845 MHz)	MICRO-TRONICS	BRM50713	1	N.C.R	N.C.R
22	Filter (2.4GHz)	MICRO-TRONICS	BRM50701	5	N.C.R	N.C.R
23	RE test cable	/	RE01-RE04	/	04/21/2020	04/22/2021

6 Radio Spectrum Technical Requirement

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 integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is 1dBi.

Antenna location: Refer to Appendix (Internal Photos).

7 Radio Spectrum Matter Test Results

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.		

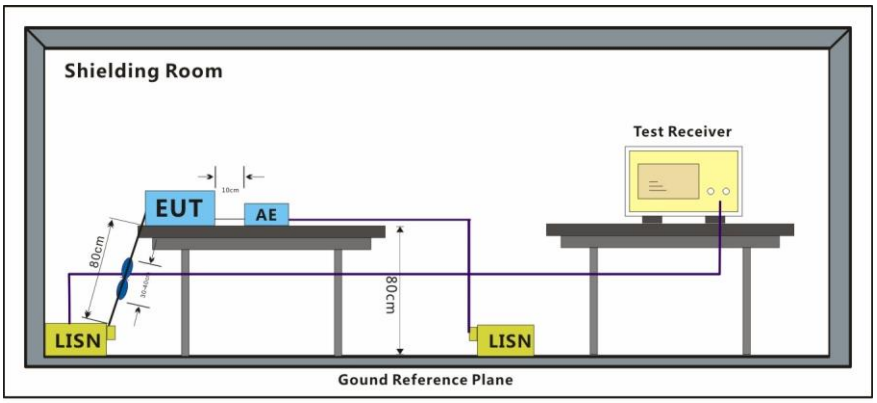
7.1.1 E.U.T. Operation

Operating Environment:

Temperature: 24 °C Humidity: 48 % RH Atmospheric Pressure: 1010 mbar

Test mode d: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). Only the data of worst case is recorded in the report.

7.1.2 Test Setup Diagram



7.1.3 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.

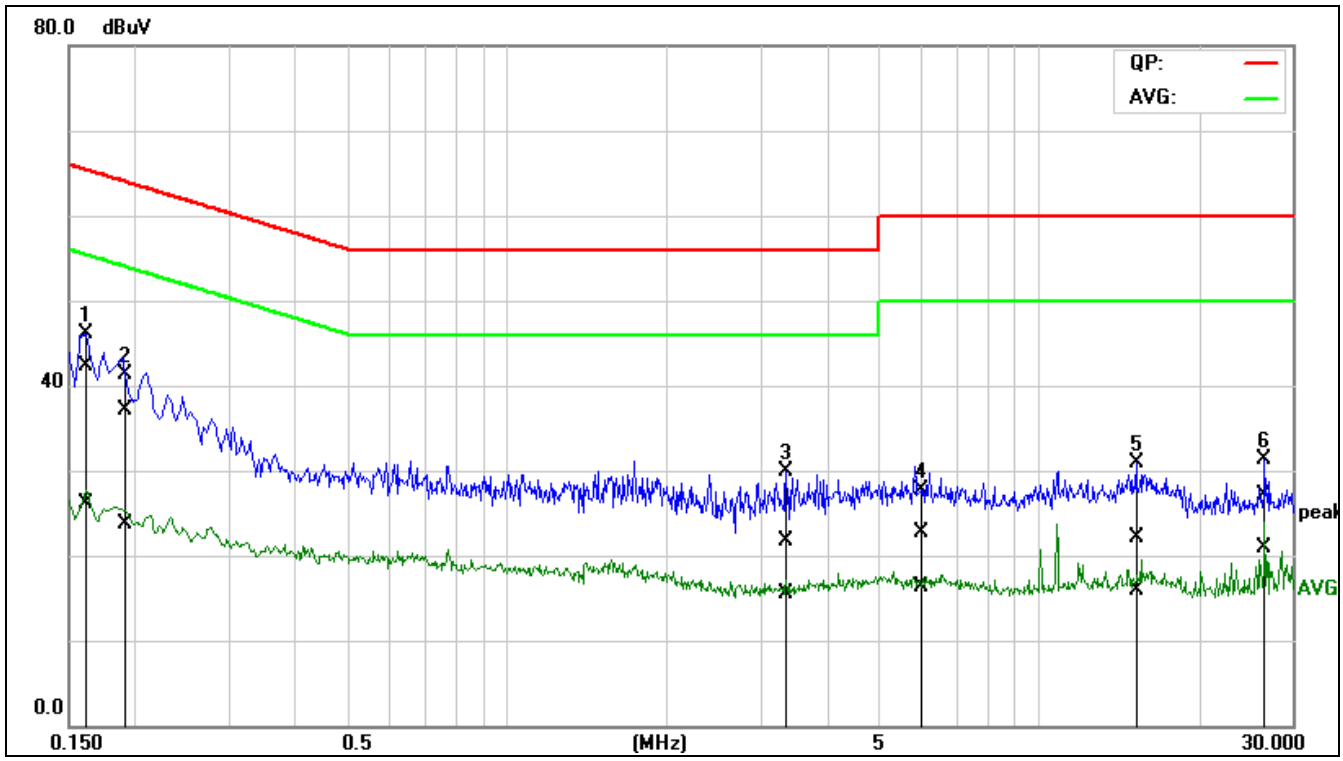
5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.

Remark:

1.LISN=Read Level+ Cable Loss+ LISN Factor

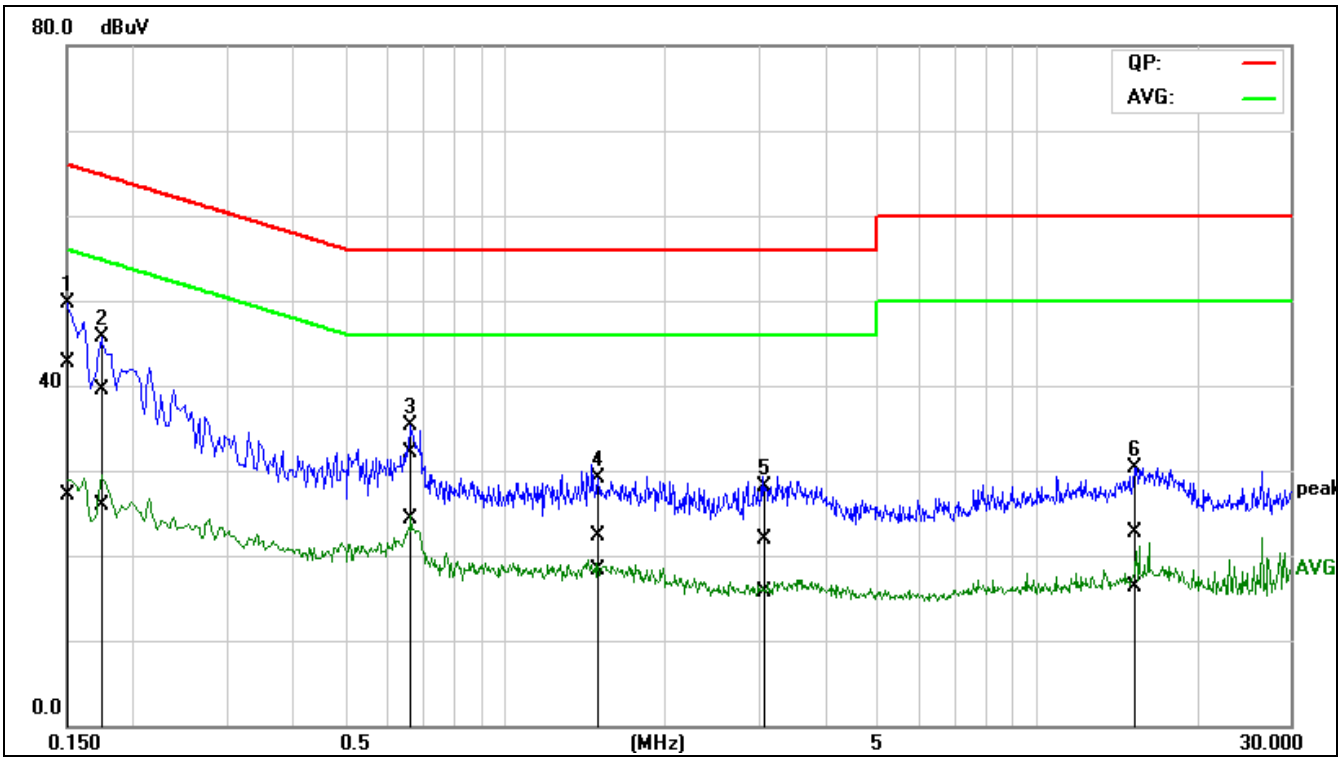
2.This test item was investigated while operating in each channel mode, however, it was determined that channel 11 operation for b modulation produced the worst conducted emissions. So the conducted emissions produced from other operation are not report.

Mode:d; Line:Live Line



No.	Frequency	QuasiPeak reading	Average reading	Correction factor	QuasiPeak result	Average result	QuasiPeak limit	Average limit	QuasiPeak margin	Average margin	Remark
	(MHz)	(dBuV)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dB)	(dB)	
1*	0.1600	22.76	6.56	19.45	42.21	26.01	65.46	55.46	-23.25	-29.45	Pass
2	0.1927	17.66	4.27	19.43	37.09	23.70	63.92	53.92	-26.83	-30.22	Pass
3	3.3299	1.88	-4.33	19.78	21.66	15.45	56.00	46.00	-34.34	-30.55	Pass
4	5.9507	2.75	-3.62	19.87	22.62	16.25	60.00	50.00	-37.38	-33.75	Pass
5	15.2447	2.00	-4.18	20.16	22.16	15.98	60.00	50.00	-37.84	-34.02	Pass
6	26.6104	6.53	0.40	20.53	27.06	20.93	60.00	50.00	-32.94	-29.07	Pass

Mode:d; Line:Neutral Line



No.	Frequency	QuasiPeak reading	Average reading	Correction factor	QuasiPeak result	Average result	QuasiPeak limit	Average limit	QuasiPeak margin	Average margin	Remark
	(MHz)	(dBuV)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dB)	(dB)	
1	0.1500	23.24	7.76	19.40	42.64	27.16	66.00	56.00	-23.36	-28.84	Pass
2	0.1716	20.16	6.42	19.40	39.56	25.82	64.88	54.88	-25.32	-29.06	Pass
3*	0.6694	12.75	4.92	19.45	32.20	24.37	56.00	46.00	-23.80	-21.63	Pass
4	1.5067	2.77	-1.39	19.60	22.37	18.21	56.00	46.00	-33.63	-27.79	Pass
5	3.0771	2.25	-4.08	19.71	21.96	15.63	56.00	46.00	-34.04	-30.37	Pass
6	15.3996	2.64	-3.80	20.12	22.76	16.32	60.00	50.00	-37.24	-33.68	Pass

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

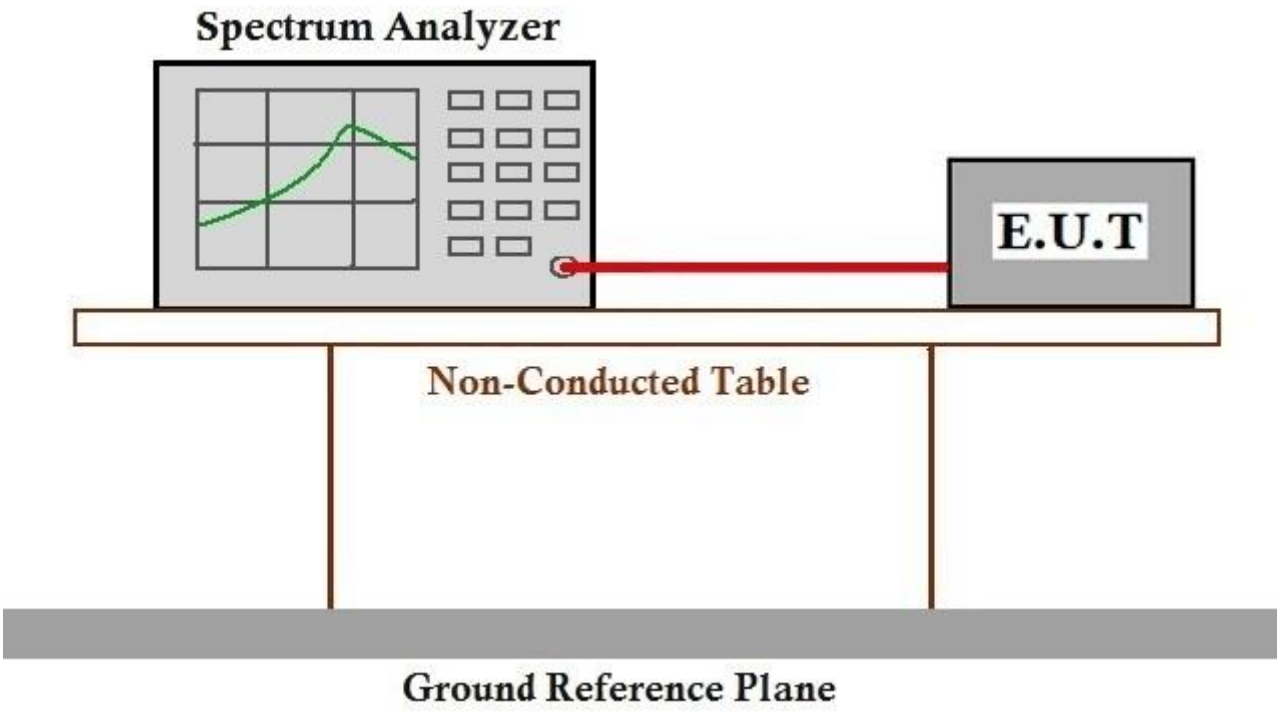
7.1.4 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1002 mbar

Test mode: d: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). Only the data of worst case is recorded in the report.

7.1.5 Test Setup Diagram



7.1.6 Measurement Procedure and Data

The detailed test data see: Appendix A for KSEM200800093201

Conducted Peak Output Power

Test Requirement 47 CFR Part 15, Subpart C 15.247(b)(3)
Test Method: ANSI C63.10 (2013) Section 11.9.1
Limit:

Frequency range(MHz)	Output power of the intentional radiator(watt)
902-928	1 for ≥50 hopping channels
	0.25 for 25≤ 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

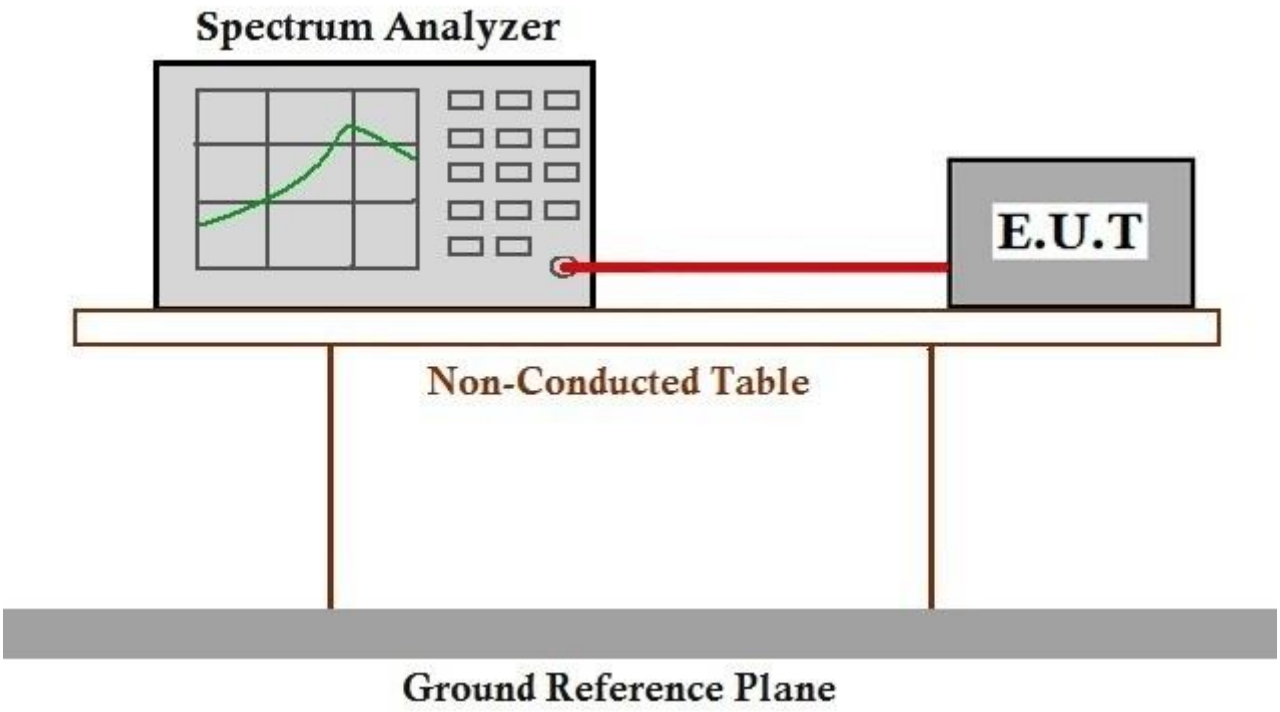
7.1.7 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1002 mbar

Test mode d: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). Only the data of worst case is recorded in the report.

7.1.8 Test Setup Diagram



7.1.9 Measurement Procedure and Data

The detailed test data see: Appendix A for KSEM200800093201

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

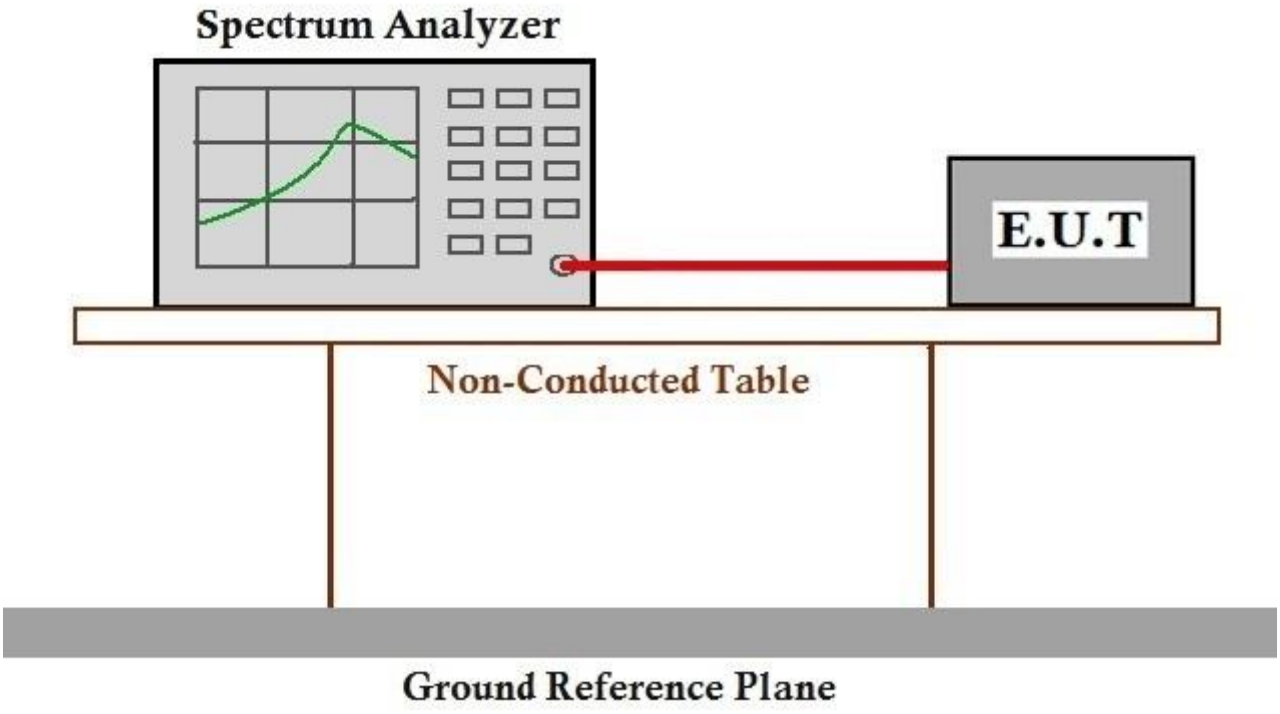
7.1.10 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1002 mbar

Test mode: d: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). Only the data of worst case is recorded in the report.

7.1.11 Test Setup Diagram



7.1.12 Measurement Procedure and Data

The detailed test data see: Appendix A for KSEM200800093201

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)

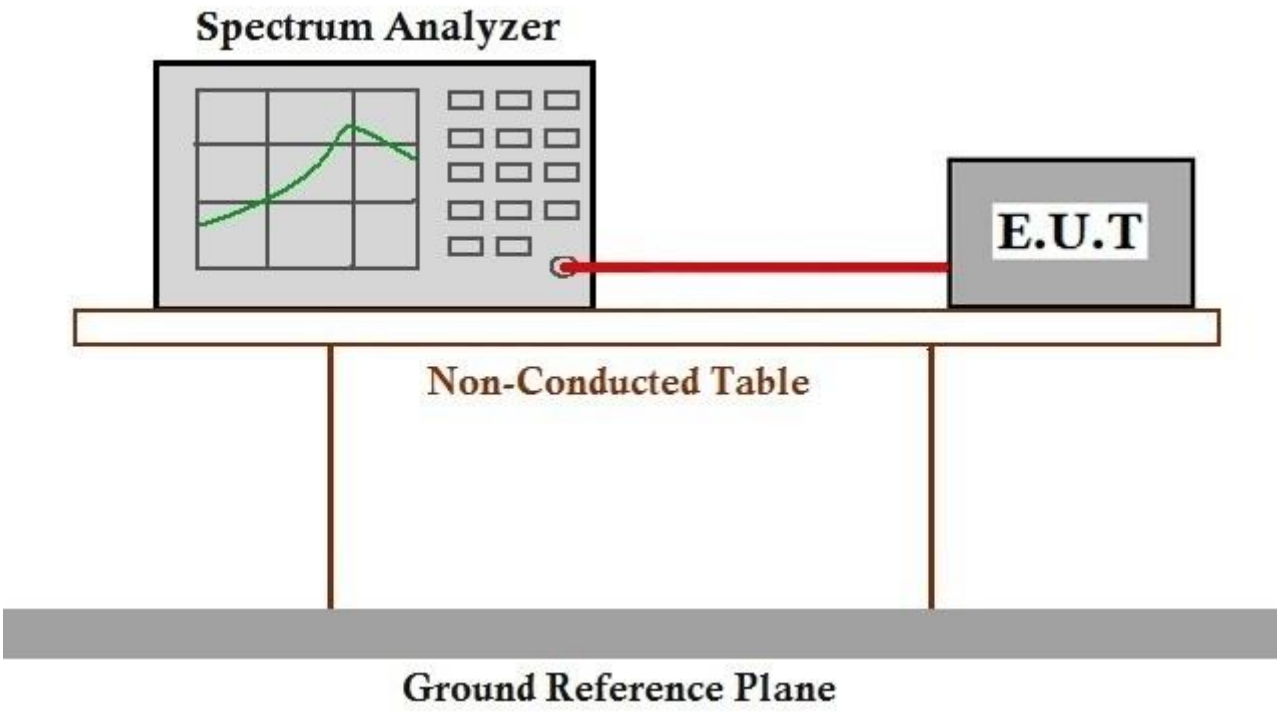
7.1.13 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1002 mbar

Test mode d: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). Only the data of worst case is recorded in the report.

7.1.14 Test Setup Diagram



7.1.15 Measurement Procedure and Data

The detailed test data see: Appendix A for KSEM200800093201

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)

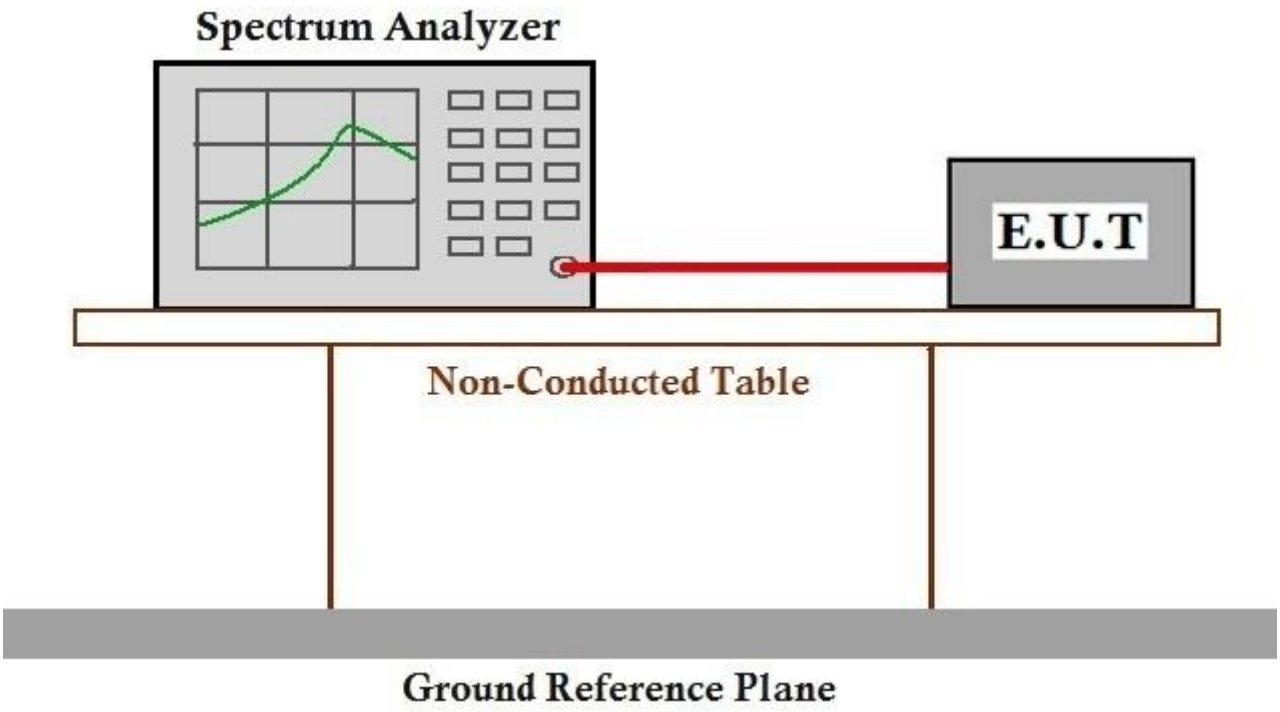
7.1.16 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1002 mbar

Test mode d: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). Only the data of worst case is recorded in the report.

7.1.17 Test Setup Diagram



7.1.18 Measurement Procedure and Data

The detailed test data see: Appendix A for KSEM200800093201

Radiated Emissions which fall in the restricted bands

Test Requirement 47 CFR Part 15, Subpart C 15.209 & 15.247(d)

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.		

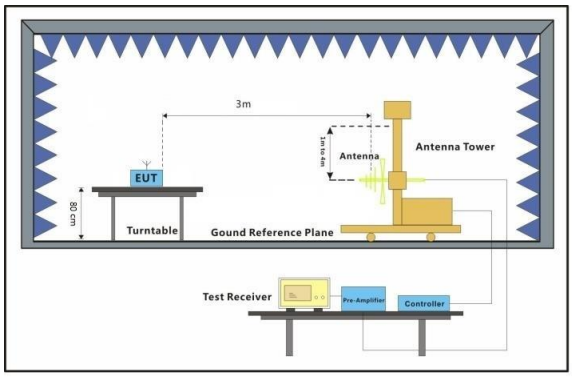
7.1.19 E.U.T. Operation

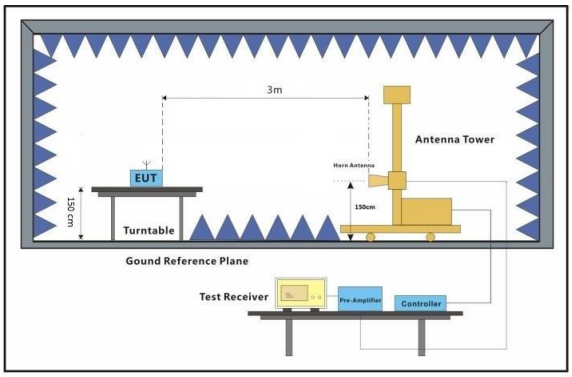
Operating Environment:

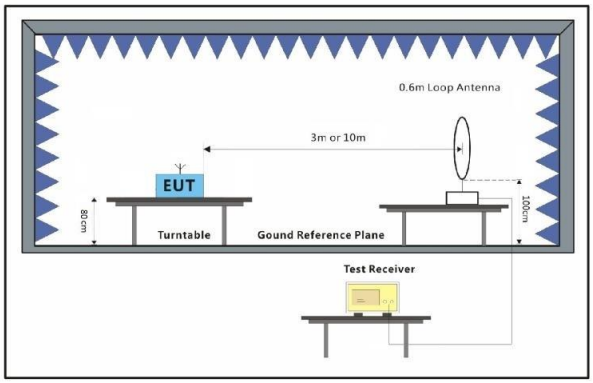
Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1002 mbar

Test mode d: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). Only the data of worst case is recorded in the report.

7.1.20 Test Setup Diagram







7.1.21 Measurement Procedure and Data

a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

c. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

d. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

e. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

g. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

h. Test the EUT in the lowest channel, the middle channel, the Highest channel.

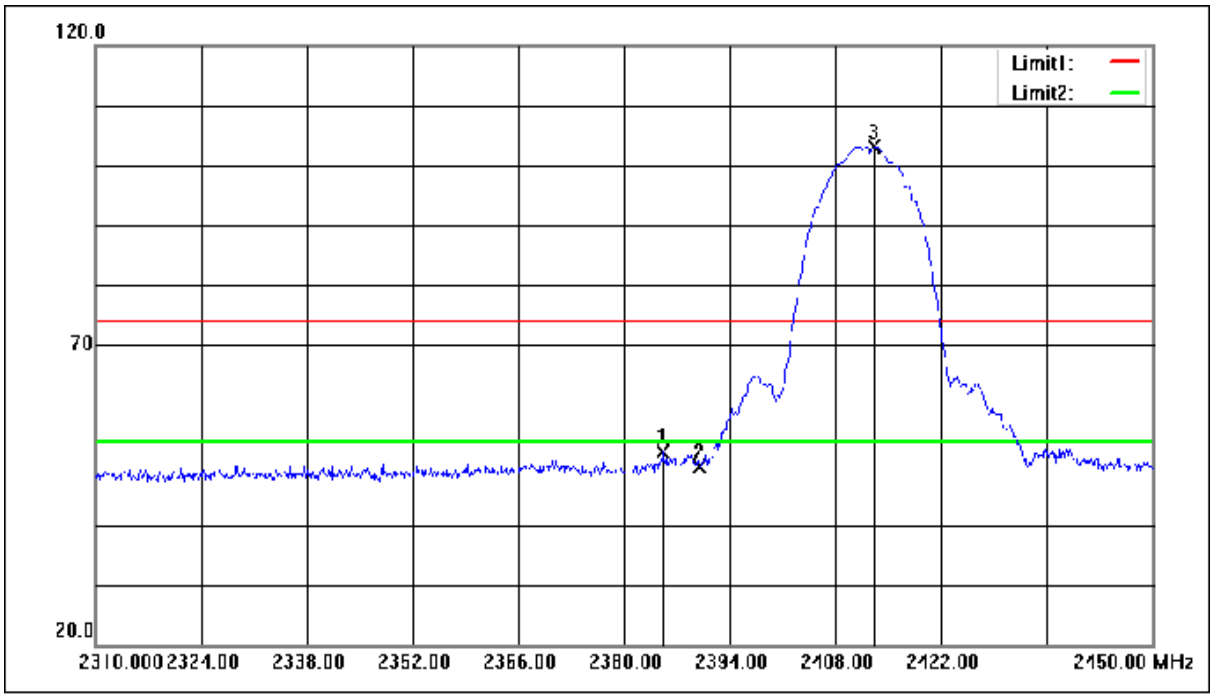
i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.

j. Repeat above procedures until all frequencies measured was complete.

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

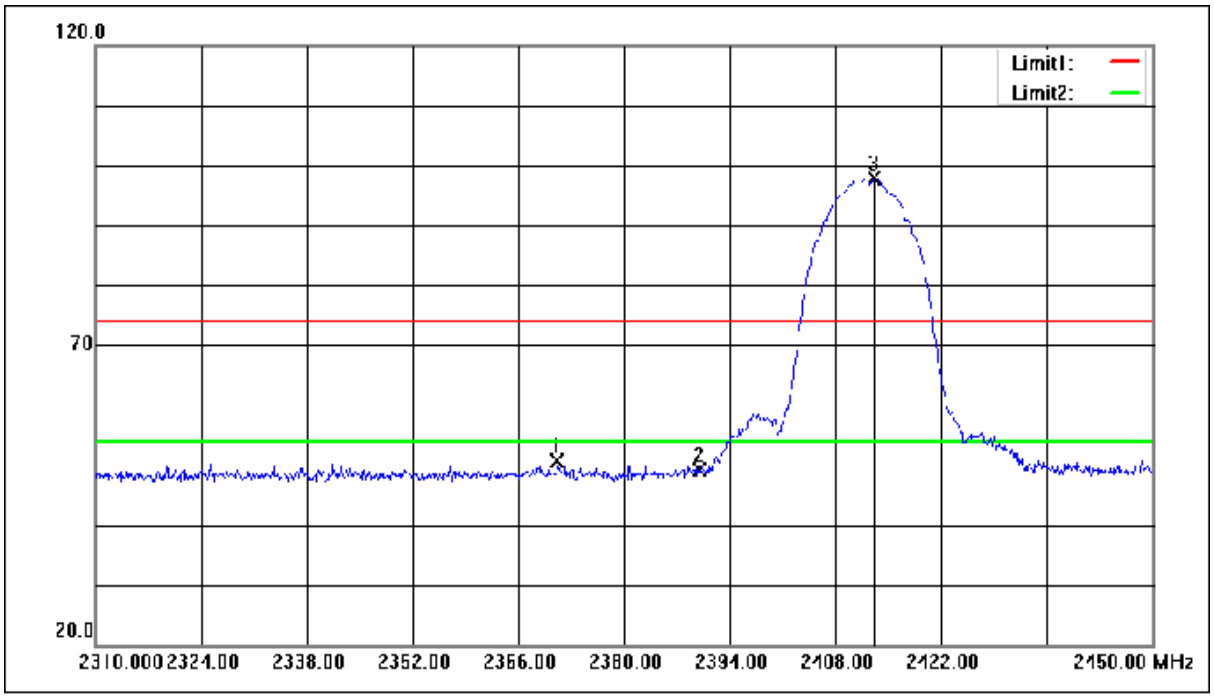
Remark 2: For frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level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

Mode:d; Polarization:Horizontal; Modulation:b; bandwidth:20MHz; Channel:Low



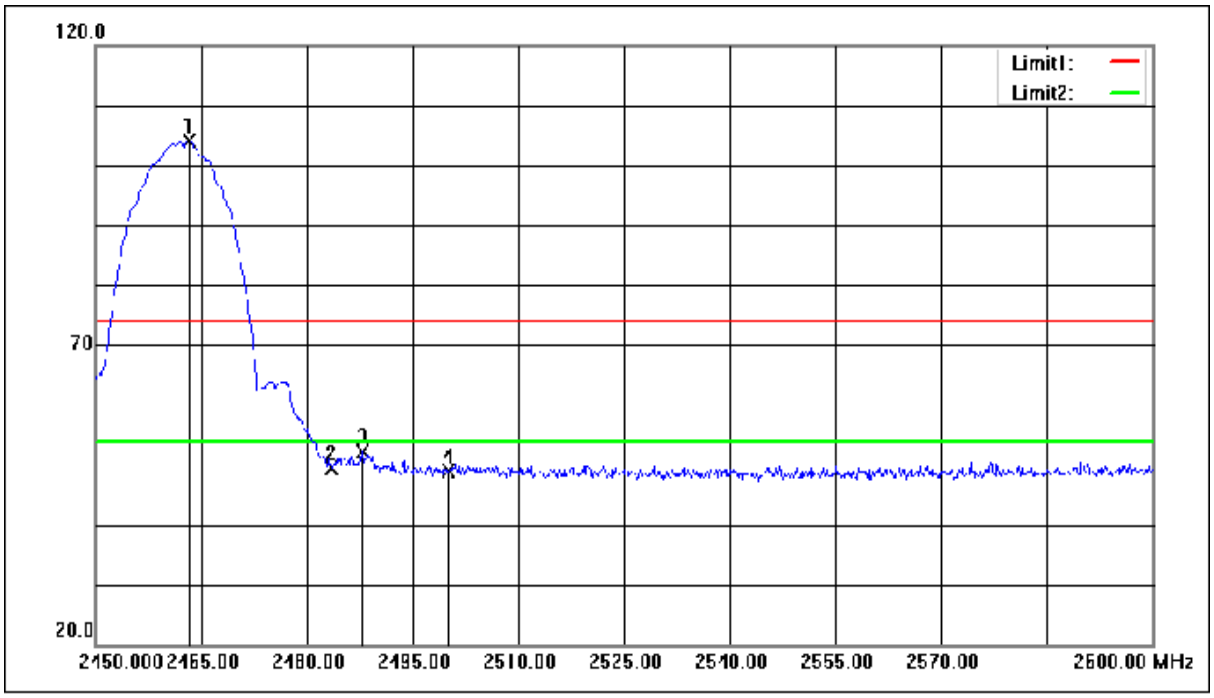
No.	Frequency (MHz)	Reading ()	Correction factor()	Result ()	Limit ()	Margin (dB)	Remark
1	2385.180	56.27	-4.26	52.01	74.00	-21.99	peak
2	2390.000	53.86	-4.24	49.62	74.00	-24.38	peak
3	2413.180	107.40	-4.18	103.22	74.00	29.22	peak

Mode:d; Polarization:Vertical; Modulation:b; bandwidth:20MHz; Channel:Low



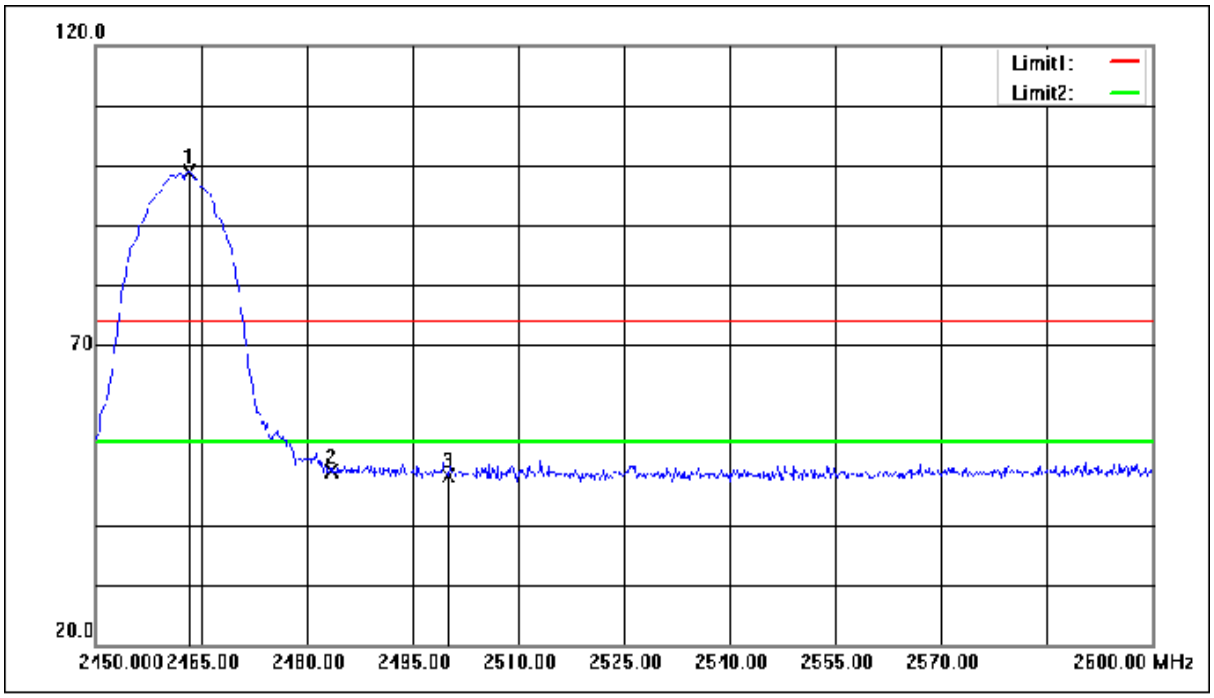
No.	Frequency (MHz)	Reading ()	Correction factor()	Result ()	Limit ()	Margin (dB)	Remark
1	2371.180	54.88	-4.29	50.59	74.00	-23.41	peak
2	2390.000	53.37	-4.24	49.13	74.00	-24.87	peak
3	2413.180	102.13	-4.18	97.95	74.00	23.95	peak

Mode:d; Polarization:Horizontal; Modulation:b; bandwidth:20MHz; Channel:High



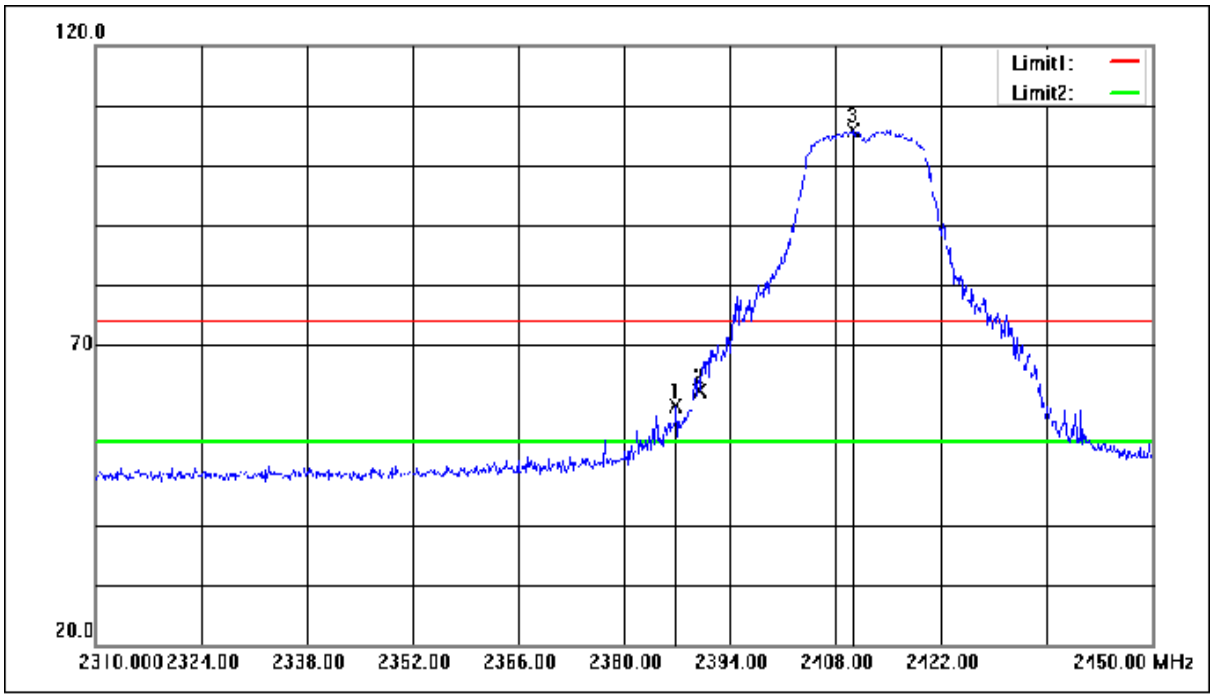
No.	Frequency (MHz)	Reading ()	Correction factor()	Result ()	Limit ()	Margin (dB)	Remark
1	2463.200	108.11	-4.05	104.06	74.00	30.06	peak
2	2483.500	53.47	-4.00	49.47	74.00	-24.53	peak
3	2487.800	56.23	-3.99	52.24	74.00	-21.76	peak
4	2500.000	52.81	-3.96	48.85	74.00	-25.15	peak

Mode:d; Polarization:Vertical; Modulation:b; bandwidth:20MHz; Channel:High



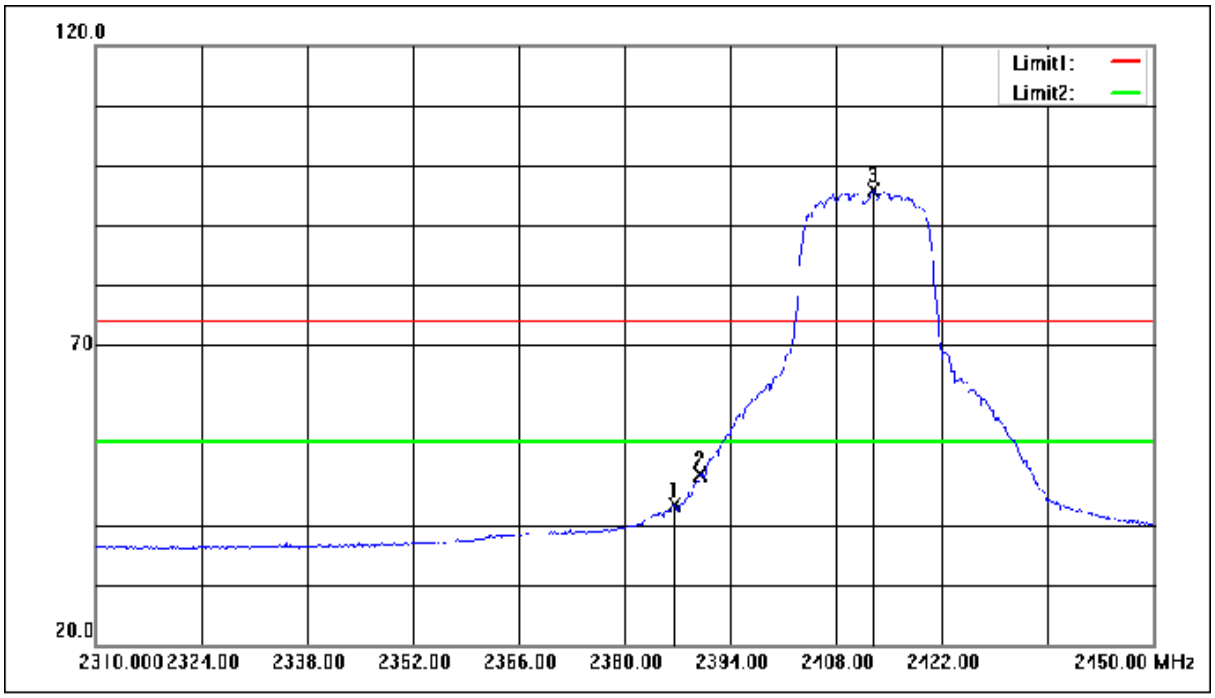
No.	Frequency (MHz)	Reading ()	Correction factor()	Result ()	Limit ()	Margin (dB)	Remark
1	2463.200	102.95	-4.05	98.90	74.00	24.90	peak
2	2483.500	52.86	-4.00	48.86	74.00	-25.14	peak
3	2500.000	52.13	-3.96	48.17	74.00	-25.83	peak

Mode:d; Polarization:Horizontal; Modulation:g; bandwidth:20MHz; Channel:Low



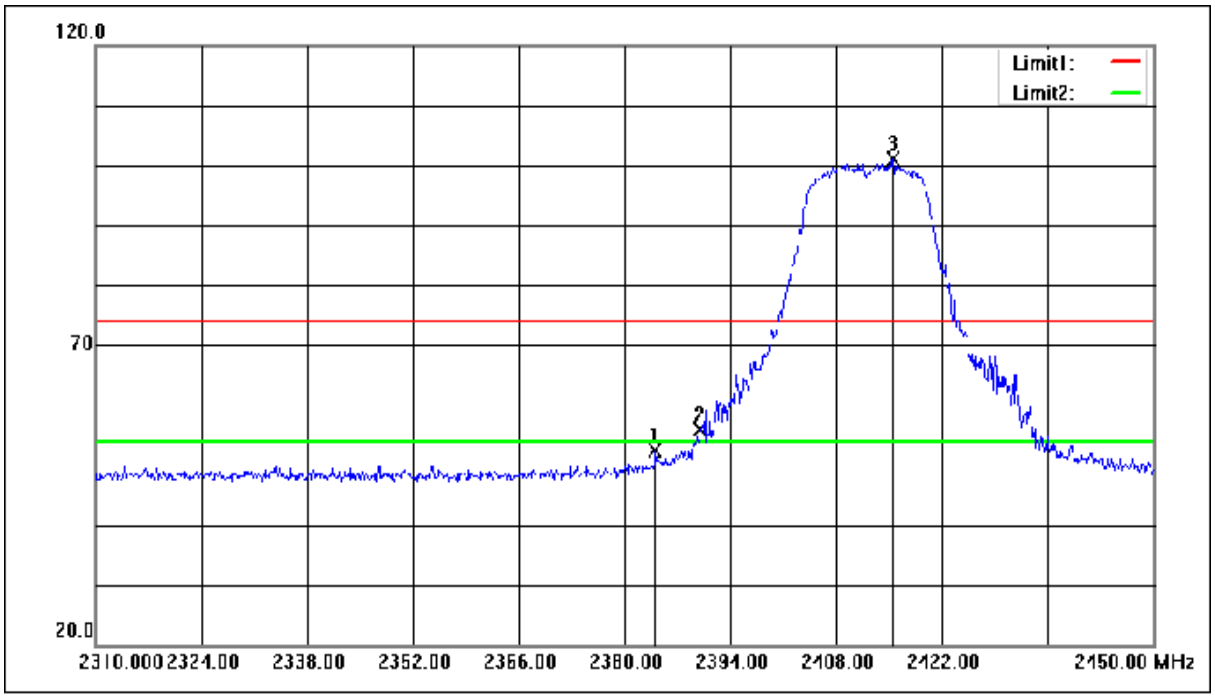
No.	Frequency (MHz)	Reading ()	Correction factor()	Result ()	Limit ()	Margin (dB)	Remark
1	2386.860	64.01	-4.25	59.76	74.00	-14.24	peak
2	2390.000	66.60	-4.24	62.36	74.00	-11.64	peak
3	2410.240	110.15	-4.19	105.96	74.00	31.96	peak

Mode:d; Polarization:Horizontal; Modulation:g; bandwidth:20MHz; Channel:Low



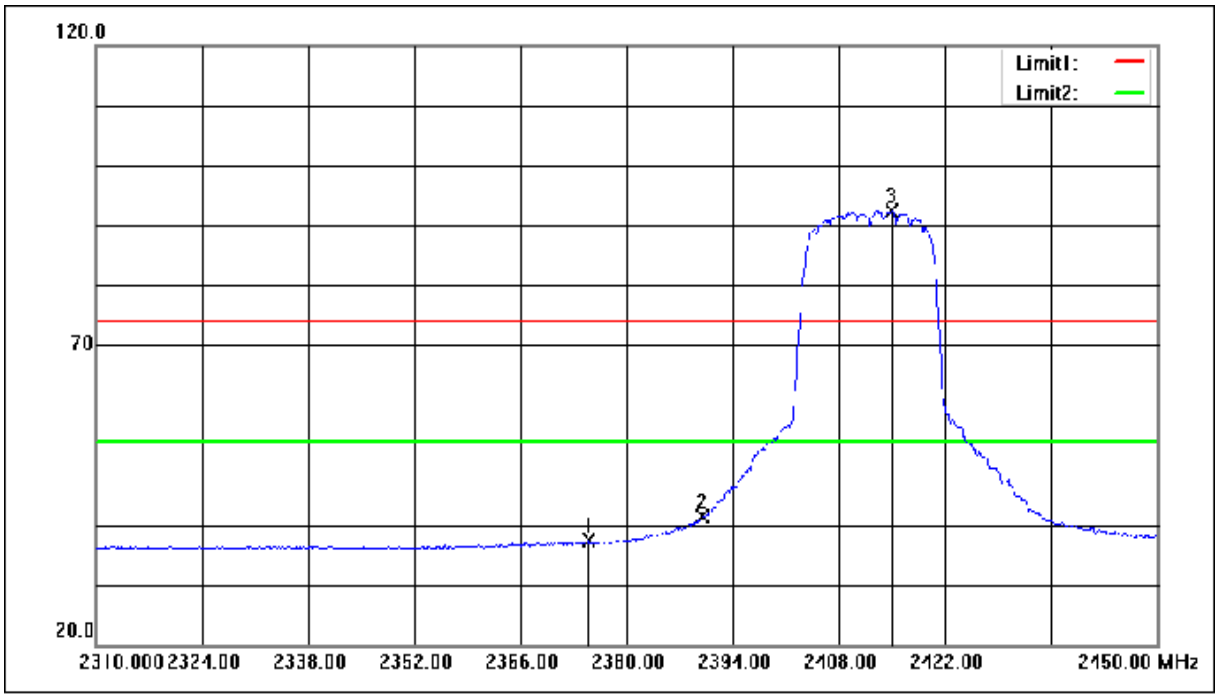
No.	Frequency (MHz)	Reading ()	Correction factor()	Result ()	Limit ()	Margin (dB)	Remark
1	2386.580	47.52	-4.25	43.27	54.00	-10.73	AVG
2	2390.000	52.55	-4.24	48.31	54.00	-5.69	AVG
3	2412.900	99.95	-4.18	95.77	74.00	21.77	peak

Mode:d; Polarization:Vertical; Modulation:g; bandwidth:20MHz; Channel:Low



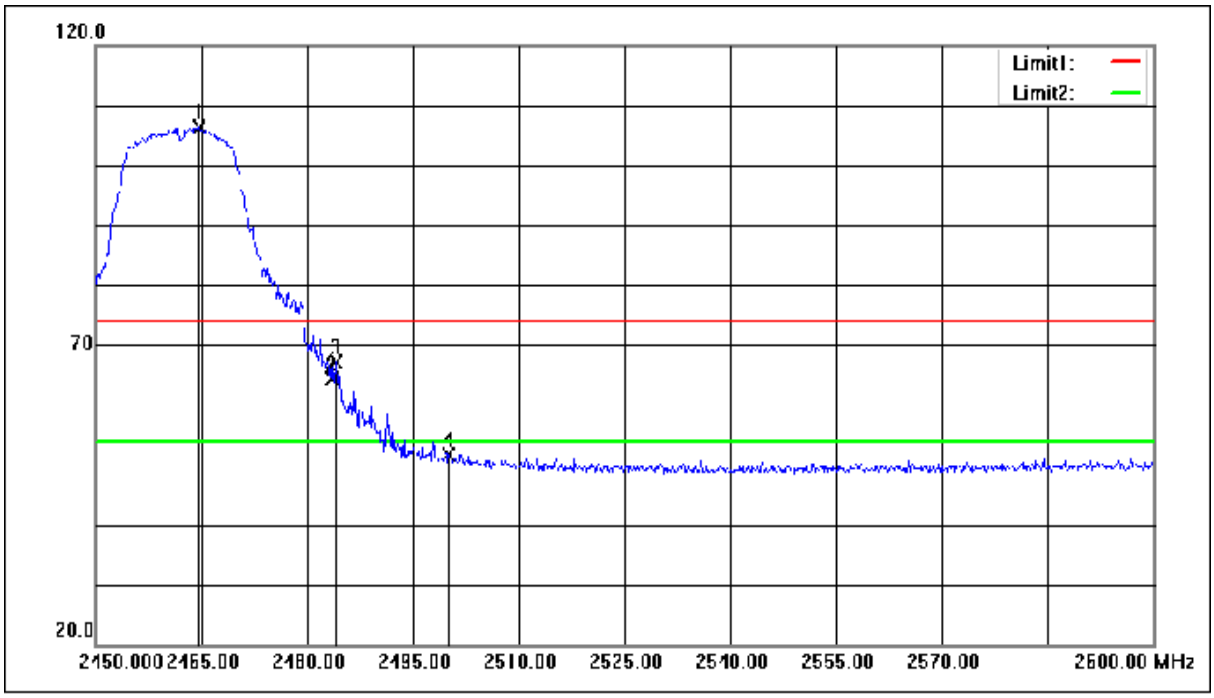
No.	Frequency (MHz)	Reading ()	Correction factor()	Result ()	Limit ()	Margin (dB)	Remark
1	2384.060	56.64	-4.26	52.38	74.00	-21.62	peak
2	2390.000	60.24	-4.24	56.00	74.00	-18.00	peak
3	2415.560	105.30	-4.18	101.12	74.00	27.12	peak

Mode:d; Polarization:Vertical; Modulation:g; bandwidth:20MHz; Channel:Low



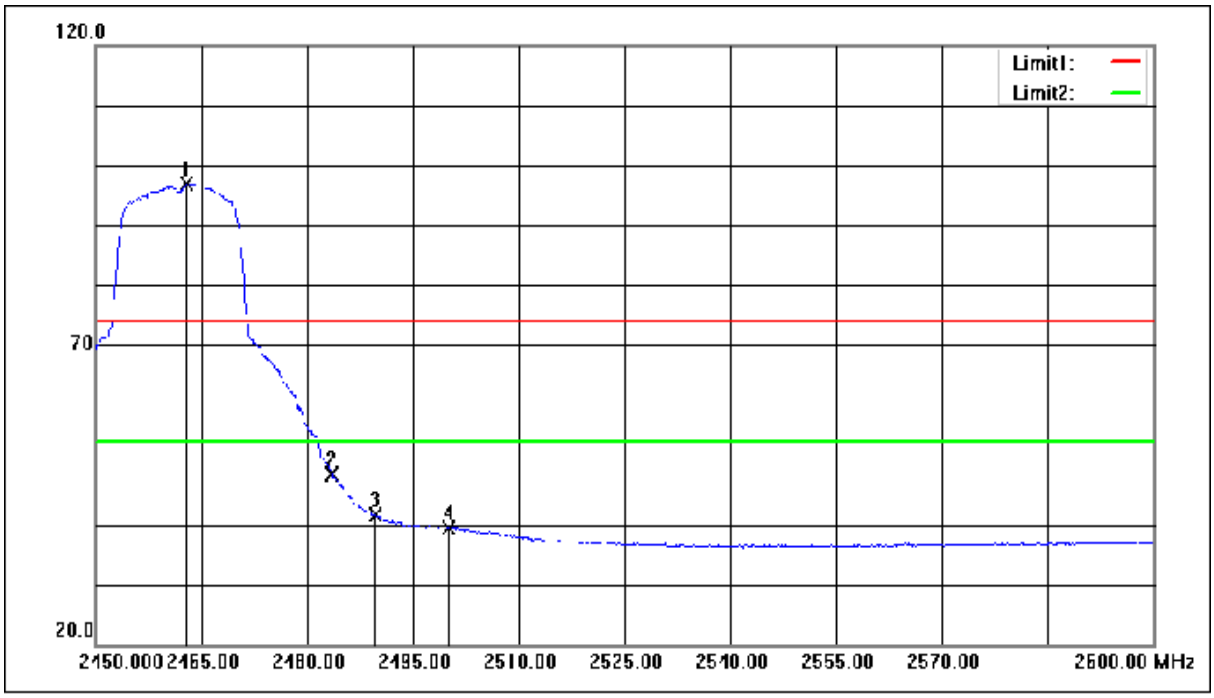
No.	Frequency (MHz)	Reading ()	Correction factor()	Result ()	Limit ()	Margin (dB)	Remark
1	2374.960	41.57	-4.28	37.29	54.00	-16.71	AVG
2	2390.000	45.67	-4.24	41.43	54.00	-12.57	AVG
3	2415.000	96.67	-4.18	92.49	74.00	18.49	peak

Mode:d; Polarization:Horizontal; Modulation:g; bandwidth:20MHz; Channel:High



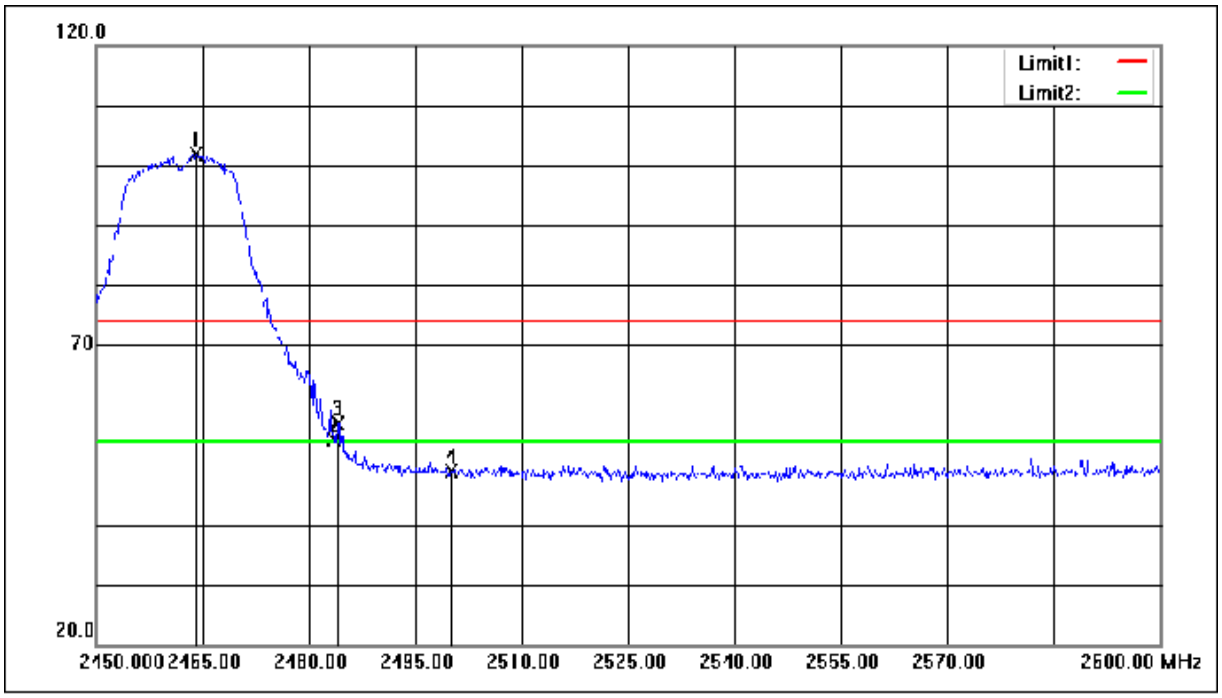
No.	Frequency (MHz)	Reading ()	Correction factor()	Result ()	Limit ()	Margin (dB)	Remark
1	2464.700	110.35	-4.05	106.30	74.00	32.30	peak
2	2483.500	68.26	-4.00	64.26	74.00	-9.74	peak
3	2484.050	71.07	-4.00	67.07	74.00	-6.93	peak
4	2500.000	55.56	-3.96	51.60	74.00	-22.40	peak

Mode:d; Polarization:Horizontal; Modulation:g; bandwidth:20MHz; Channel:High



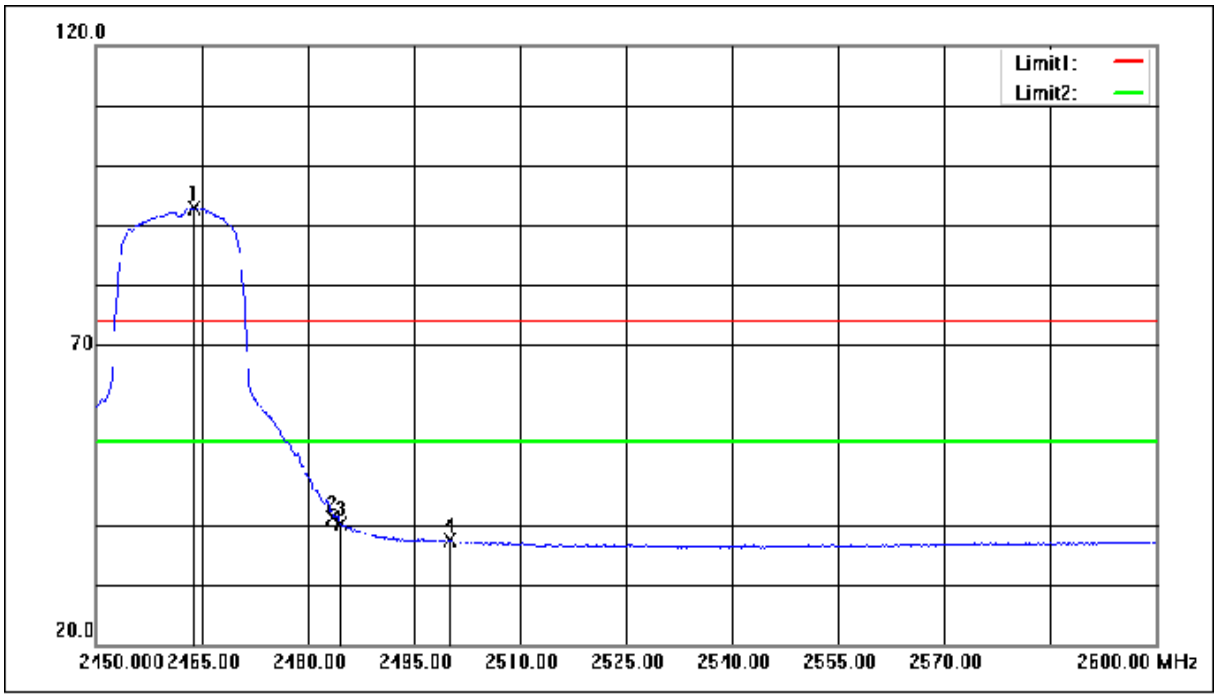
No.	Frequency (MHz)	Reading ()	Correction factor()	Result ()	Limit ()	Margin (dB)	Remark
1	2462.900	101.02	-4.06	96.96	74.00	22.96	peak
2	2483.500	52.35	-4.00	48.35	54.00	-5.65	AVG
3	2489.600	45.69	-3.99	41.70	54.00	-12.30	AVG
4	2500.000	43.35	-3.96	39.39	54.00	-14.61	AVG

Mode:d; Polarization:Vertical; Modulation:g; bandwidth:20MHz; Channel:High



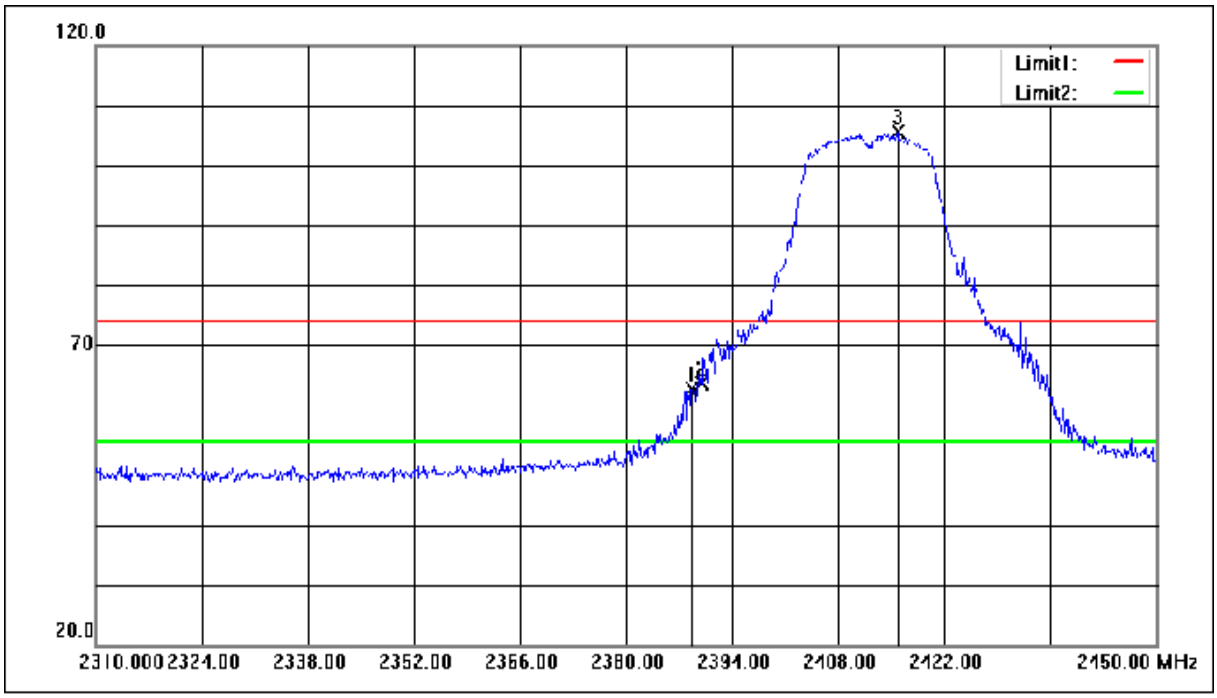
No.	Frequency (MHz)	Reading ()	Correction factor()	Result ()	Limit ()	Margin (dB)	Remark
1	2464.100	105.86	-4.05	101.81	74.00	27.81	peak
2	2483.500	58.04	-4.00	54.04	74.00	-19.96	peak
3	2484.050	60.98	-4.00	56.98	74.00	-17.02	peak
4	2500.000	52.76	-3.96	48.80	74.00	-25.20	peak

Mode:d; Polarization:Vertical; Modulation:g; bandwidth:20MHz; Channel:High



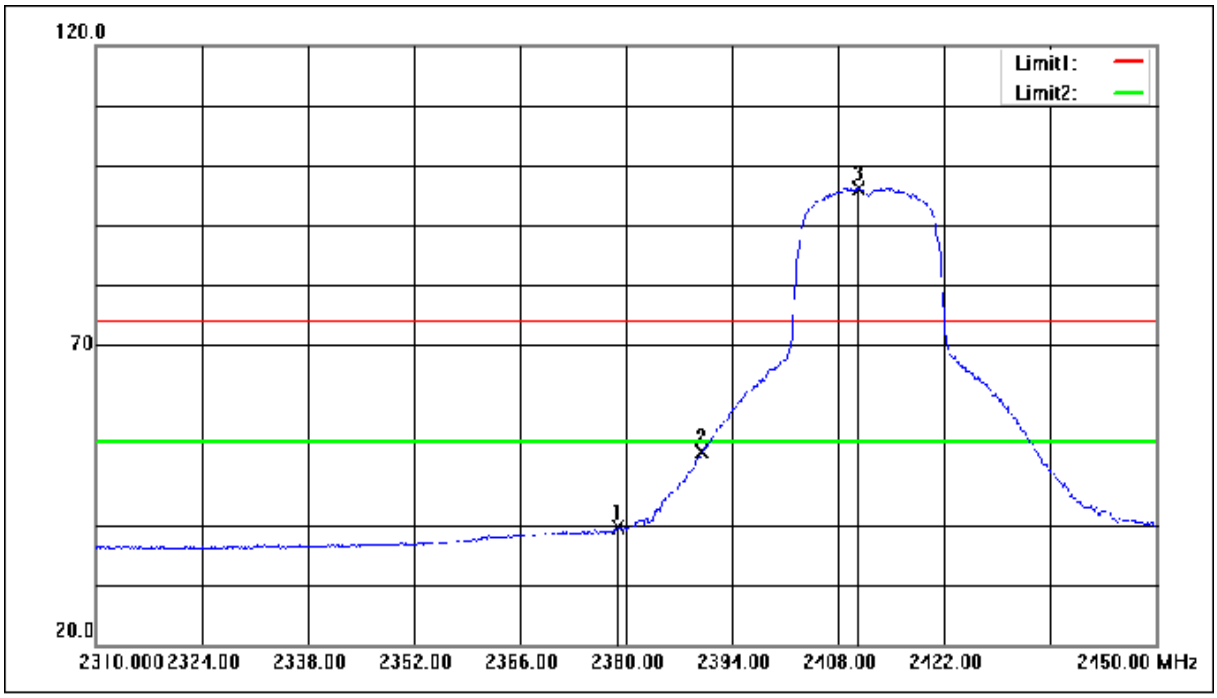
No.	Frequency (MHz)	Reading ()	Correction factor()	Result ()	Limit ()	Margin (dB)	Remark
1	2463.950	97.00	-4.05	92.95	74.00	18.95	peak
2	2483.500	45.03	-4.00	41.03	54.00	-12.97	AVG
3	2484.650	44.10	-4.00	40.10	54.00	-13.90	AVG
4	2500.000	41.43	-3.96	37.47	54.00	-16.53	AVG

Mode:d; Polarization:Horizontal; Modulation:n; bandwidth:20MHz; Channel:Low



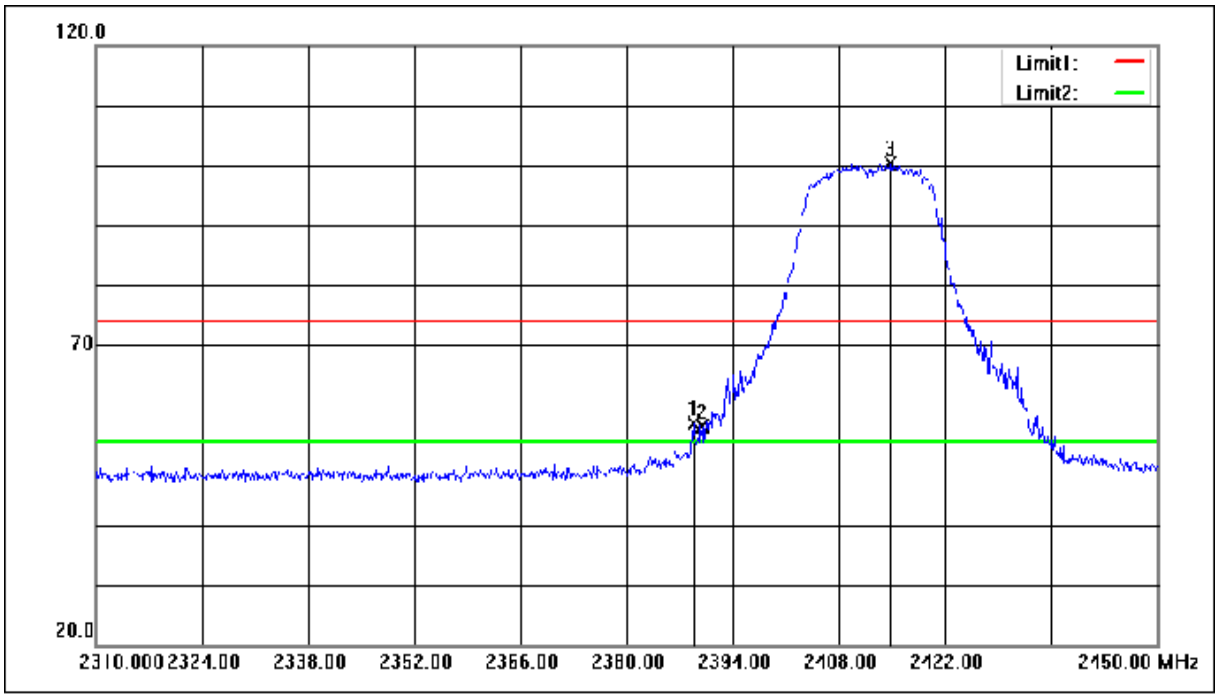
No.	Frequency (MHz)	Reading ()	Correction factor()	Result ()	Limit ()	Margin (dB)	Remark
1	2388.680	66.80	-4.25	62.55	74.00	-11.45	peak
2	2390.000	67.96	-4.24	63.72	74.00	-10.28	peak
3	2415.840	109.77	-4.18	105.59	74.00	31.59	peak

Mode:d; Polarization:Horizontal; Modulation:n; bandwidth:20MHz; Channel:Low



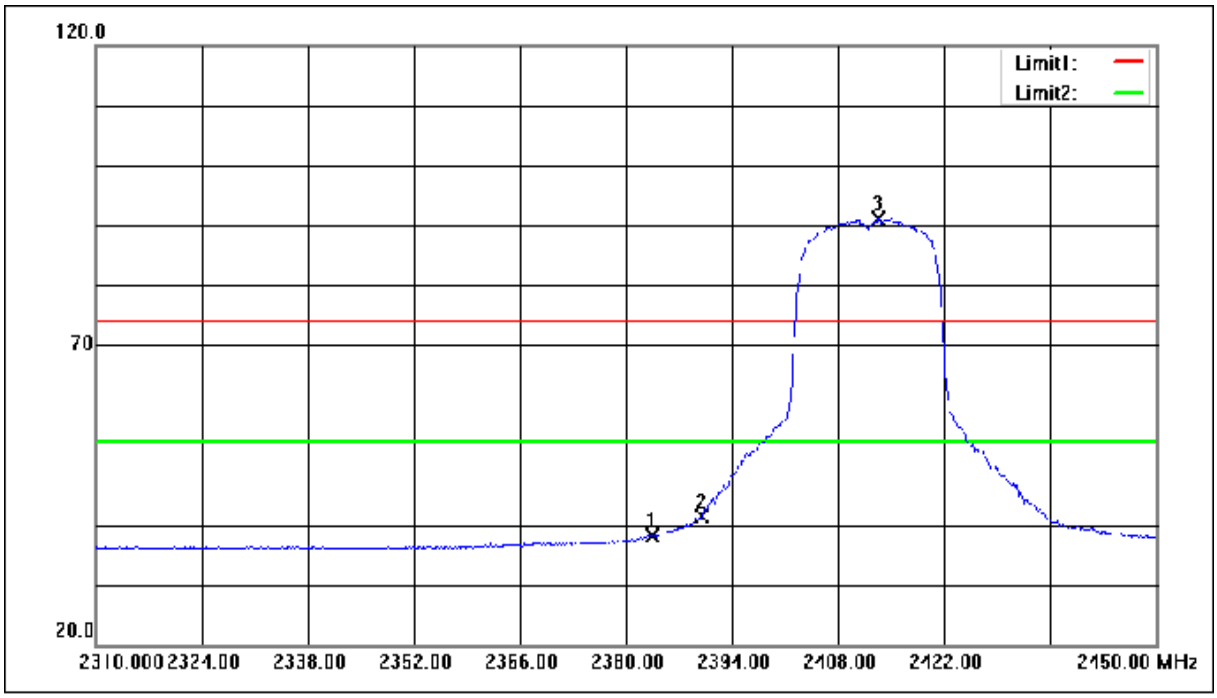
No.	Frequency (MHz)	Reading ()	Correction factor()	Result ()	Limit ()	Margin (dB)	Remark
1	2379.020	43.85	-4.27	39.58	54.00	-14.42	AVG
2	2390.000	56.26	-4.24	52.02	74.00	-21.98	peak
3	2410.660	100.42	-4.19	96.23	74.00	22.23	peak

Mode:d; Polarization:Vertical; Modulation:n; bandwidth:20MHz; Channel:Low



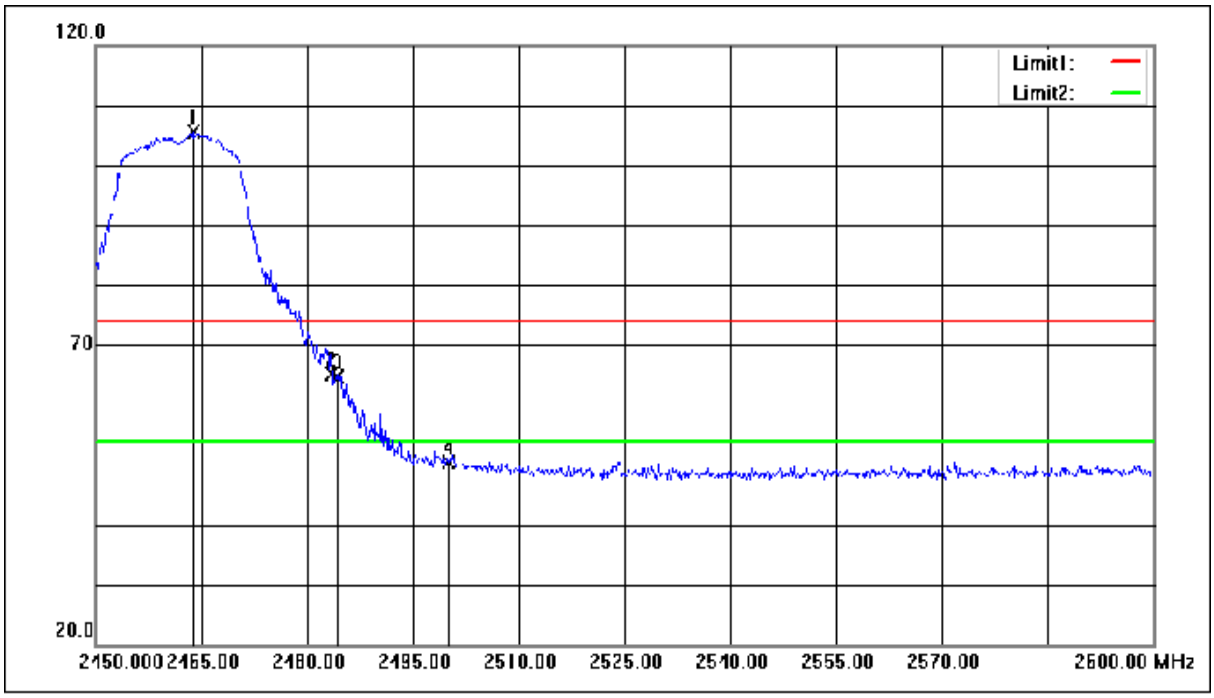
No.	Frequency (MHz)	Reading ()	Correction factor()	Result ()	Limit ()	Margin (dB)	Remark
1	2388.820	61.24	-4.25	56.99	74.00	-17.01	peak
2	2390.000	60.58	-4.24	56.34	74.00	-17.66	peak
3	2414.860	104.51	-4.18	100.33	74.00	26.33	peak

Mode:d; Polarization:Vertical; Modulation:n; bandwidth:20MHz; Channel:Low



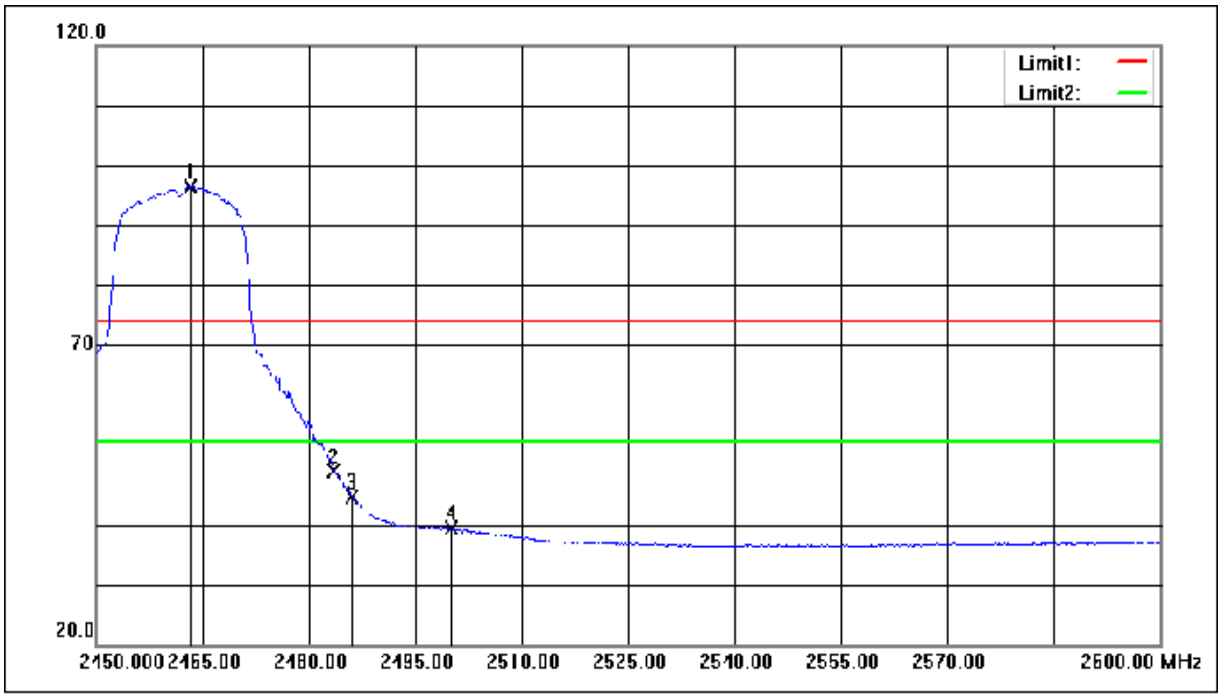
No.	Frequency (MHz)	Reading ()	Correction factor()	Result ()	Limit ()	Margin (dB)	Remark
1	2383.500	42.41	-4.26	38.15	54.00	-15.85	AVG
2	2390.000	45.56	-4.24	41.32	54.00	-12.68	AVG
3	2413.320	95.28	-4.18	91.10	74.00	17.10	peak

Mode:d; Polarization:Horizontal; Modulation:n; bandwidth:20MHz; Channel:High



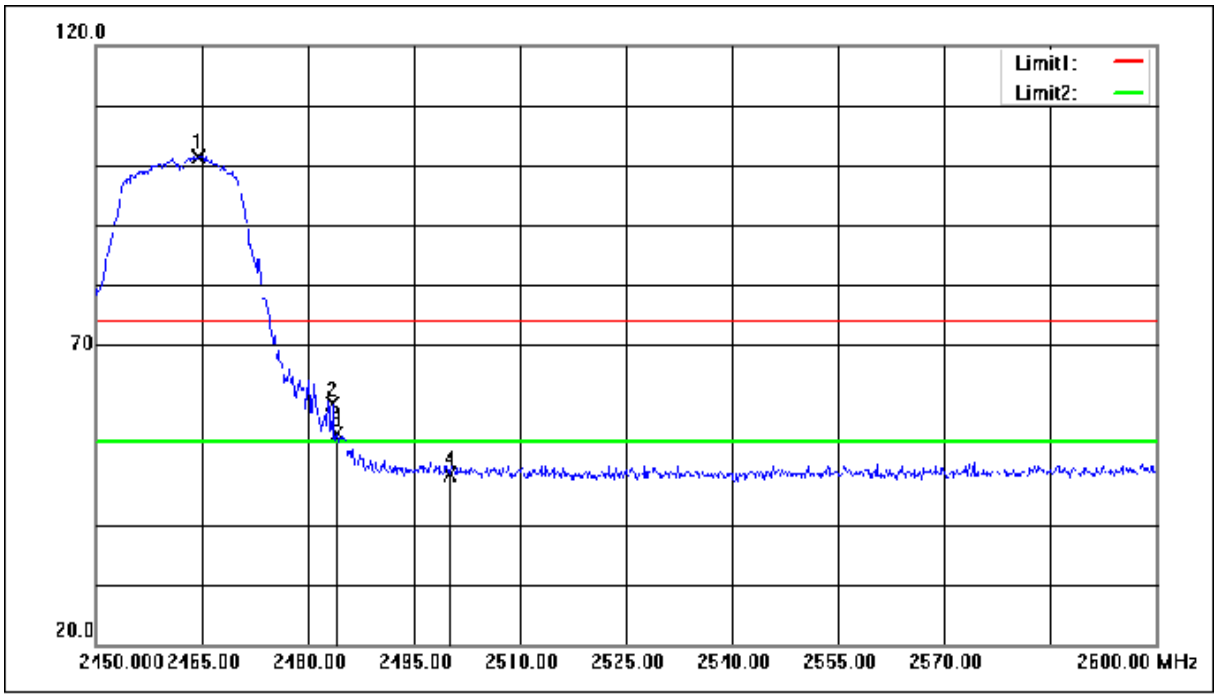
No.	Frequency (MHz)	Reading ()	Correction factor()	Result ()	Limit ()	Margin (dB)	Remark
1	2463.800	109.63	-4.05	105.58	74.00	31.58	peak
2	2483.500	69.23	-4.00	65.23	74.00	-8.77	peak
3	2484.350	68.62	-4.00	64.62	74.00	-9.38	peak
4	2500.000	54.40	-3.96	50.44	74.00	-23.56	peak

Mode:d; Polarization:Horizontal; Modulation:n; bandwidth:20MHz; Channel:High



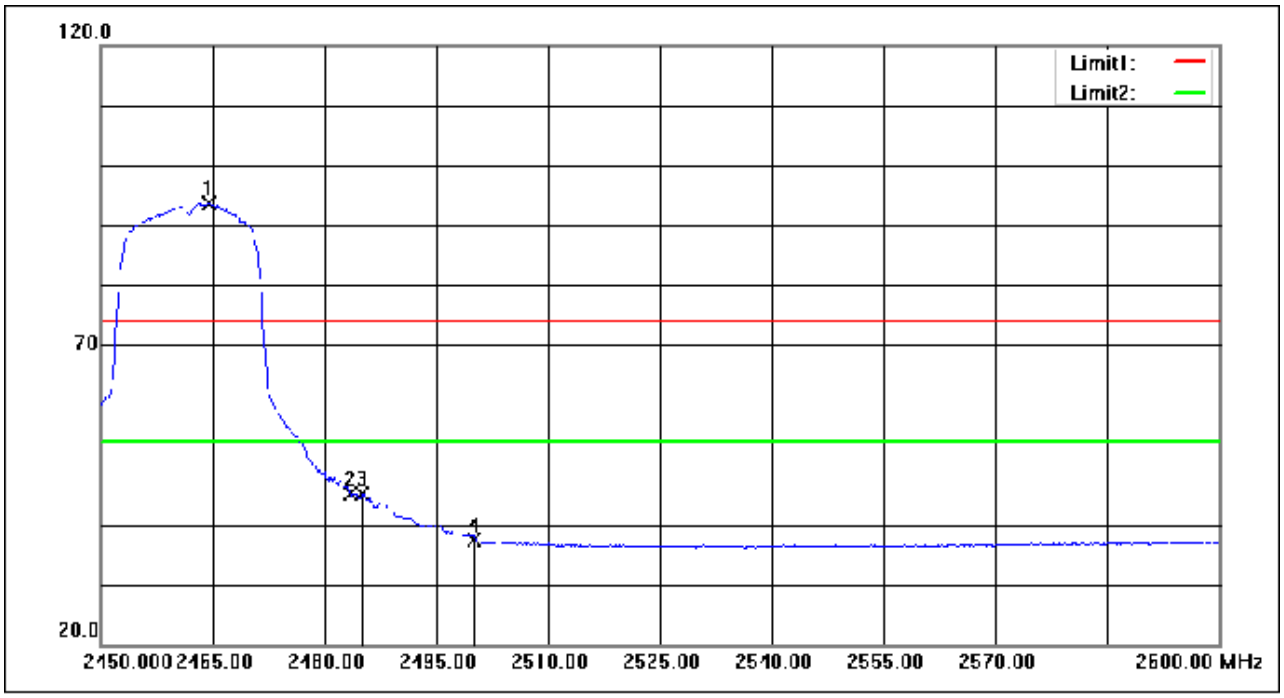
No.	Frequency (MHz)	Reading ()	Correction factor()	Result ()	Limit ()	Margin (dB)	Remark
1	2463.200	100.45	-4.05	96.40	74.00	22.40	peak
2	2483.500	52.98	-4.00	48.98	54.00	-5.02	AVG
3	2486.150	48.60	-4.00	44.60	54.00	-9.40	AVG
4	2500.000	43.35	-3.96	39.39	54.00	-14.61	AVG

Mode:d; Polarization:Vertical; Modulation:n; bandwidth:20MHz; Channel:High



No.	Frequency (MHz)	Reading ()	Correction factor()	Result ()	Limit ()	Margin (dB)	Remark
1	2464.550	105.52	-4.05	101.47	74.00	27.47	peak
2	2483.500	64.17	-4.00	60.17	74.00	-13.83	peak
3	2484.050	59.06	-4.00	55.06	74.00	-18.94	peak
4	2500.000	52.45	-3.96	48.49	74.00	-25.51	peak

Mode:d; Polarization:Vertical; Modulation:n; bandwidth:20MHz; Channel:High



No.	Frequency (MHz)	Reading ()	Correction factor()	Result ()	Limit ()	Margin (dB)	Remark
1	2464.400	97.74	-4.05	93.69	74.00	19.69	peak
2	2483.500	49.05	-4.00	45.05	74.00	-28.95	peak
3	2485.100	49.22	-4.00	45.22	74.00	-28.78	peak
4	2500.000	41.24	-3.96	37.28	54.00	-16.72	AVG

Radiated Spurious Emissions

Test Requirement 47 CFR Part 15, Subpart C 15.209 & 15.247(d)

Test Method: ANSI C63.10 (2013) Section 6.4,6.5,6.6

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.		

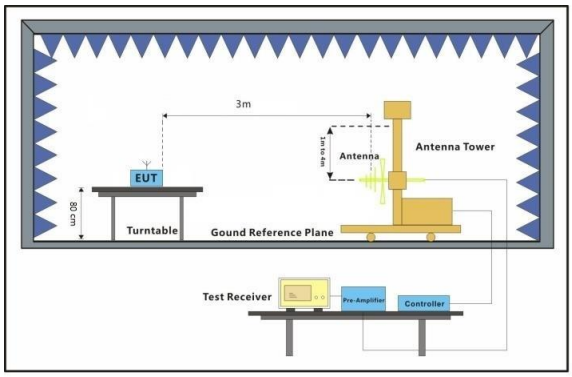
7.1.22 E.U.T. Operation

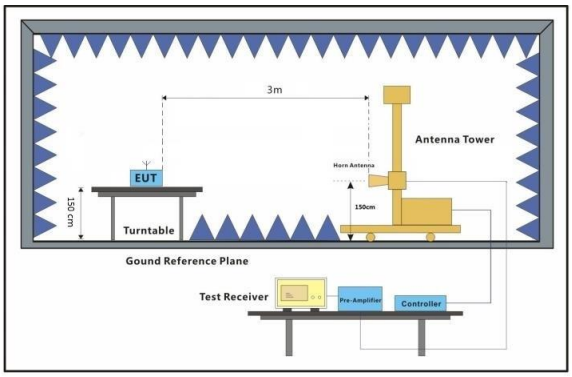
Operating Environment:

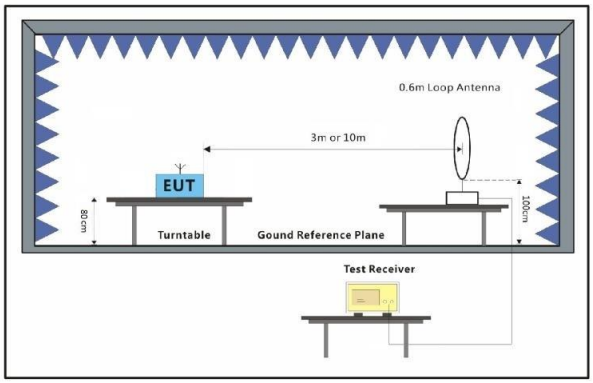
Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1002 mbar

Test mode d: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). Only the data of worst case is recorded in the report.

7.1.23 Test Setup Diagram







7.1.24 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) For emission below 1GHz, through pre-scan found the worst case is the lowest channel. Only the worst case is recorded in the report.

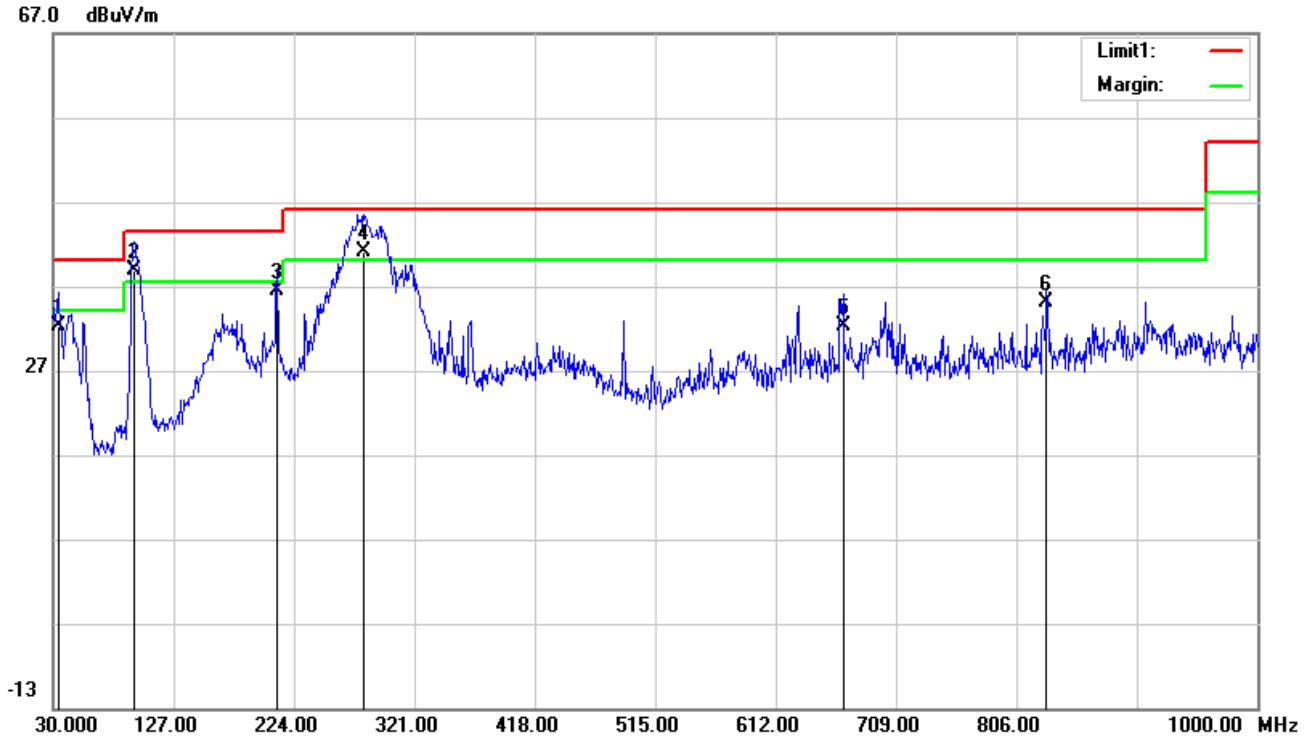
2) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level =Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor

3) Scan from 9kHz to 25GHz, the disturbance above 18GHz and 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.

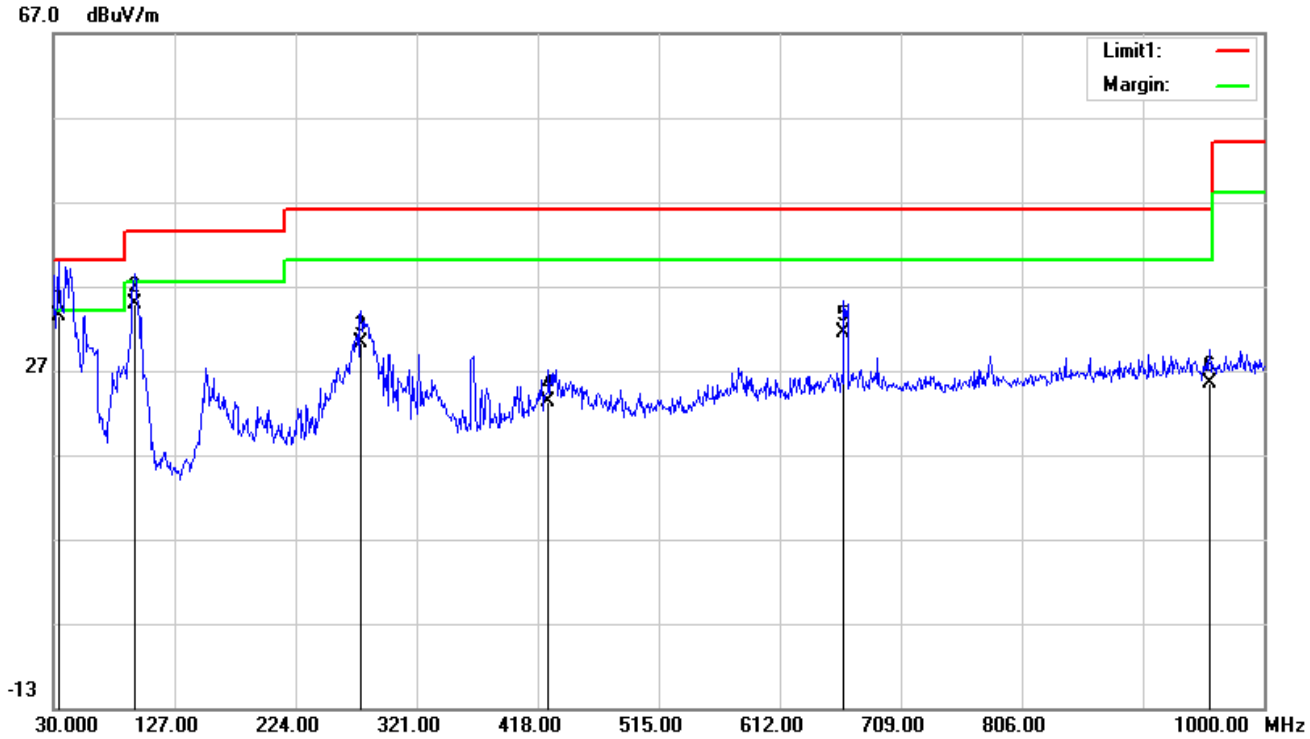
4) For frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower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

30MHz-1GHz
Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	33.8800	8.30	23.91	32.21	40.00	-7.79	300	187	QP
2	94.9900	26.26	12.63	38.89	43.50	-4.61	118	360	QP
3	210.4200	21.66	14.73	36.39	43.50	-7.11	200	83	QP
4	280.2600	23.37	17.74	41.11	46.00	-4.89	100	153	QP
5	666.3200	8.03	24.35	32.38	46.00	-13.62	139	360	QP
6	830.2500	9.91	25.23	35.14	46.00	-10.86	200	214	QP

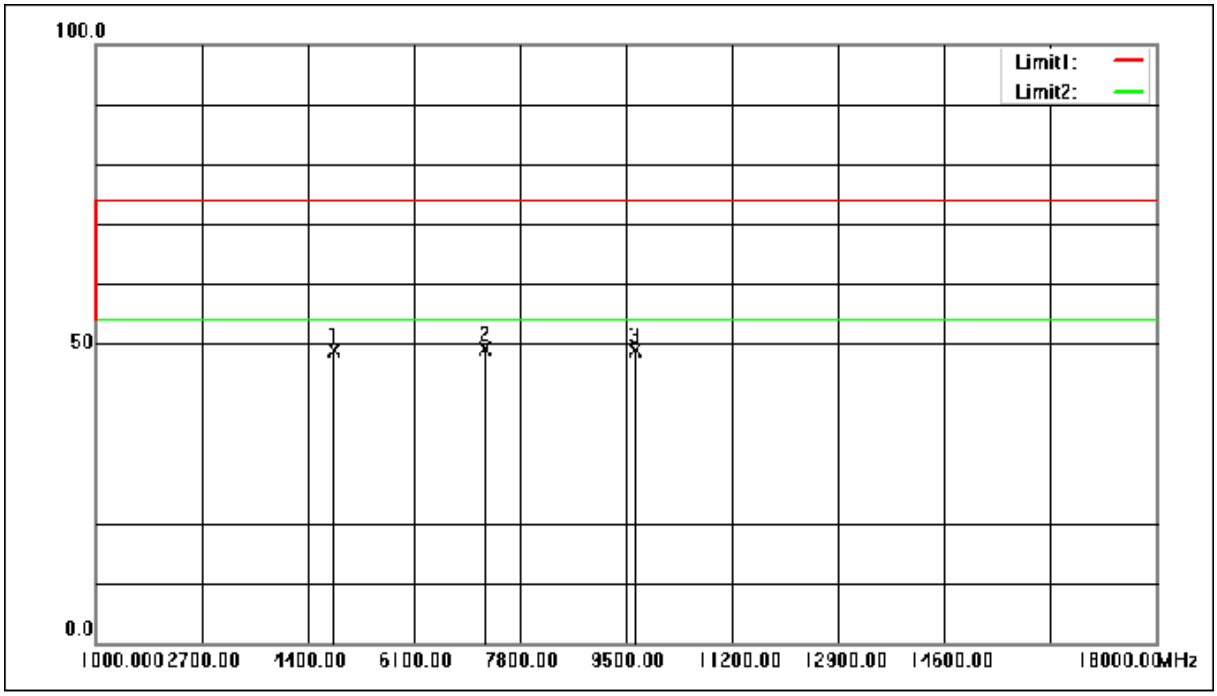
Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	33.8800	9.48	23.91	33.39	40.00	-6.61	400	360	QP
2	94.9900	22.26	12.63	34.89	43.50	-8.61	300	360	QP
3	276.3800	12.68	17.68	30.36	46.00	-15.64	200	360	QP
4	426.7300	2.68	20.69	23.37	46.00	-22.63	100	360	QP
5	663.4100	7.11	24.33	31.44	46.00	-14.56	100	100	QP
6	956.3500	-0.51	26.06	25.55	46.00	-20.45	100	67	QP

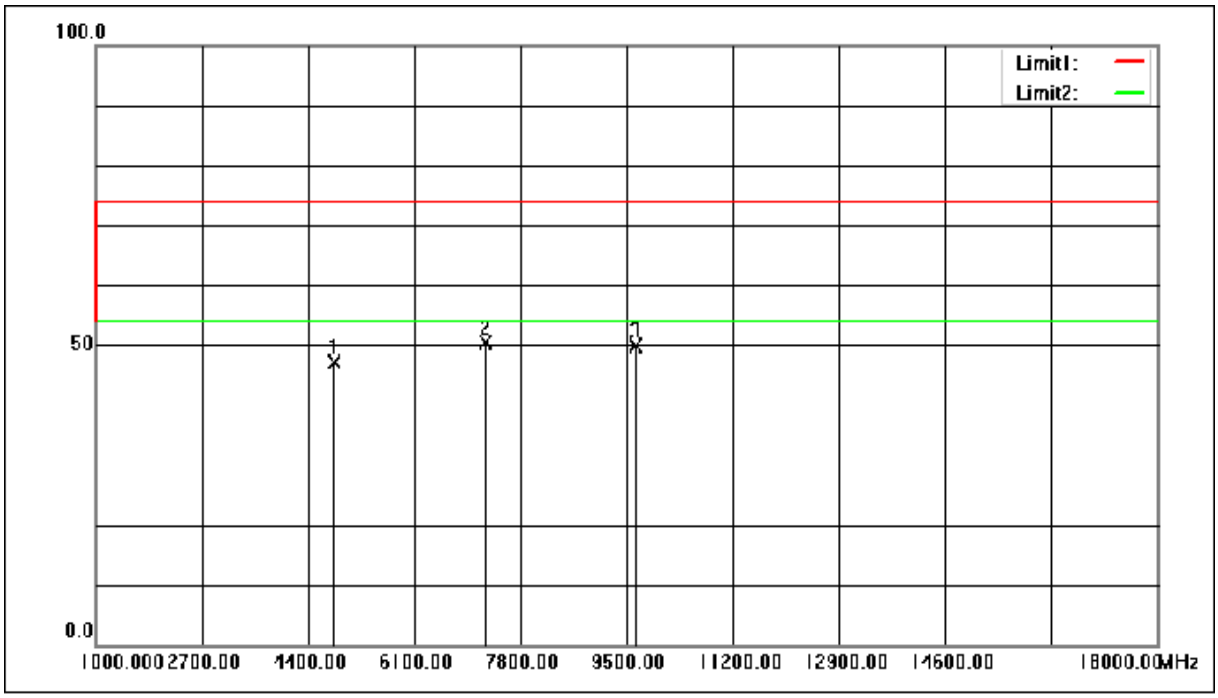
Above 1GHz

Mode:d; Polarization:Horizontal; Modulation:b; bandwidth:20MHz; Channel:Low



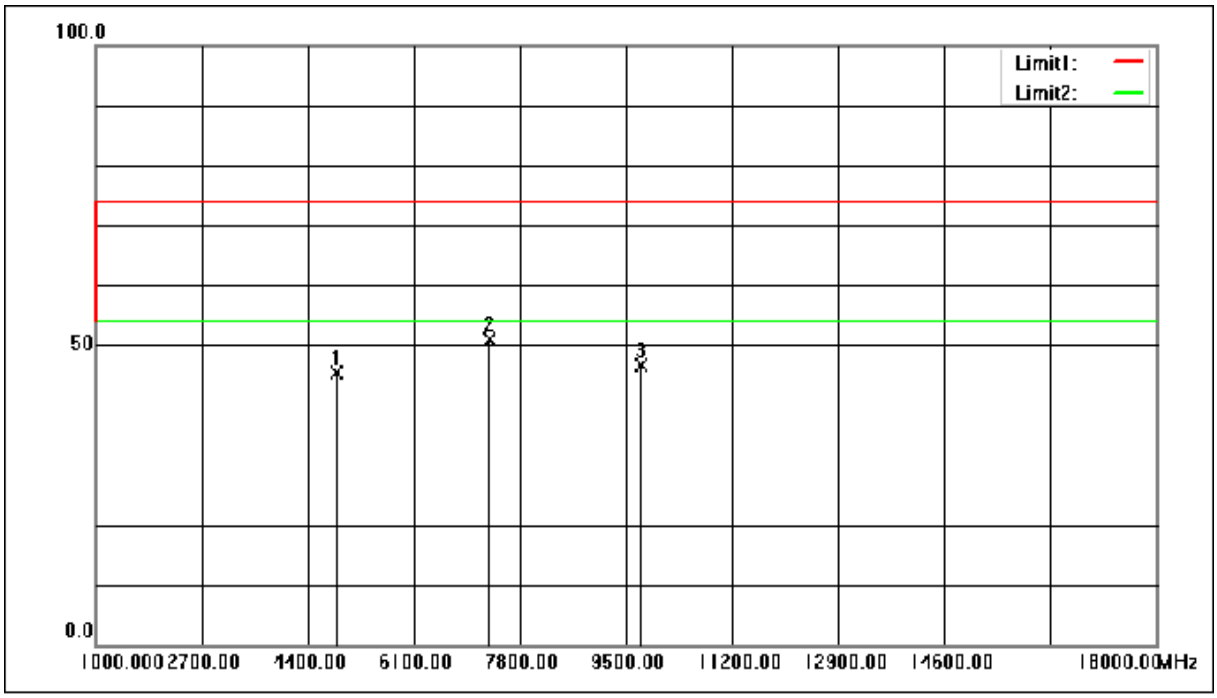
No.	Frequency (MHz)	Reading ()	Correction factor()	Result ()	Limit ()	Margin (dB)	Remark
1	4824.000	59.04	-10.21	48.83	74.00	-25.17	peak
2	7236.000	56.24	-7.05	49.19	74.00	-24.81	peak
3	9648.000	53.63	-4.77	48.86	74.00	-25.14	peak

Mode:d; Polarization:Vertical; Modulation:b; bandwidth:20MHz; Channel:Low



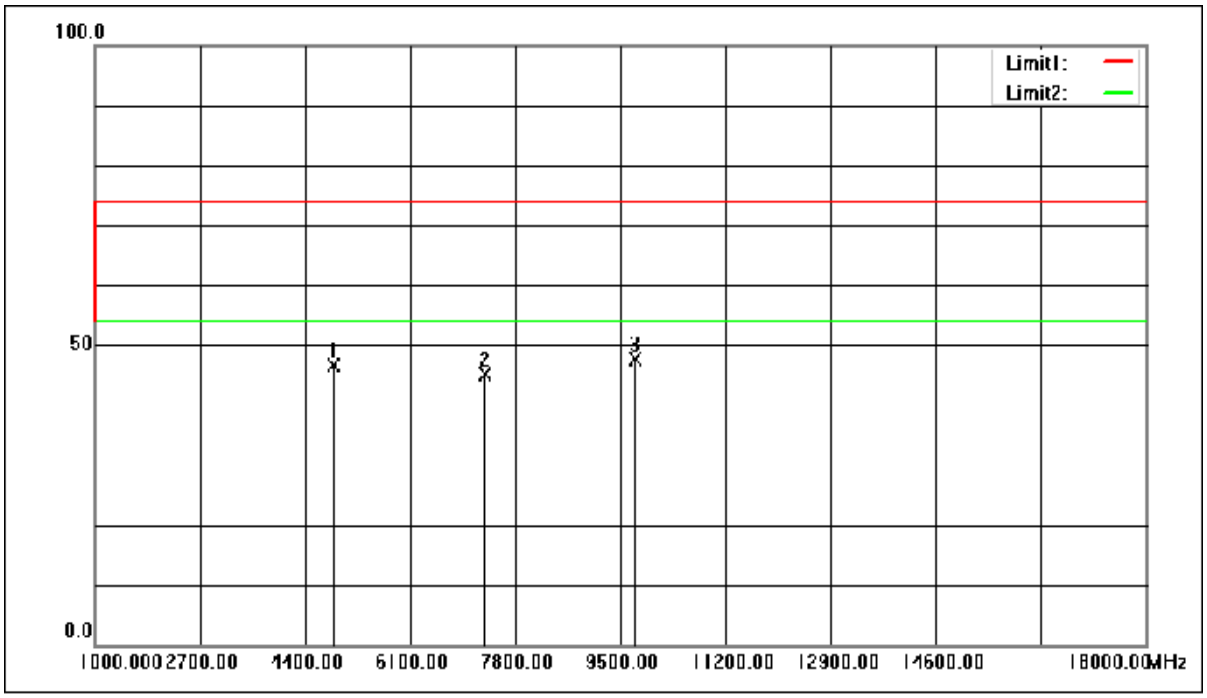
No.	Frequency (MHz)	Reading ()	Correction factor()	Result ()	Limit ()	Margin (dB)	Remark
1	4824.000	57.46	-10.21	47.25	74.00	-26.75	peak
2	7236.000	57.40	-7.05	50.35	74.00	-23.65	peak
3	9648.000	54.74	-4.77	49.97	74.00	-24.03	peak

Mode:d; Polarization:Horizontal; Modulation:b; bandwidth:20MHz; Channel:middle



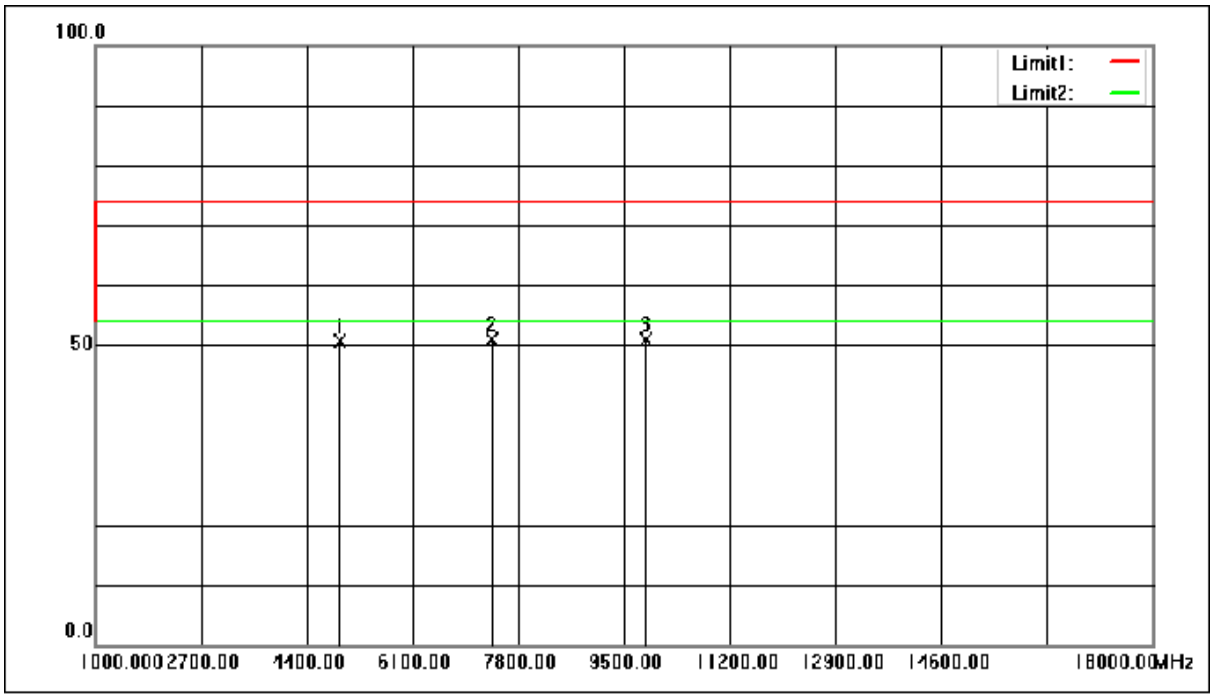
No.	Frequency (MHz)	Reading ()	Correction factor()	Result ()	Limit ()	Margin (dB)	Remark
1	4874.000	55.28	-10.01	45.27	74.00	-28.73	peak
2	7311.000	57.82	-6.93	50.89	74.00	-23.11	peak
3	9748.000	50.81	-4.30	46.51	74.00	-27.49	peak

Mode:d; Polarization:Vertical; Modulation:b; bandwidth:20MHz; Channel:middle



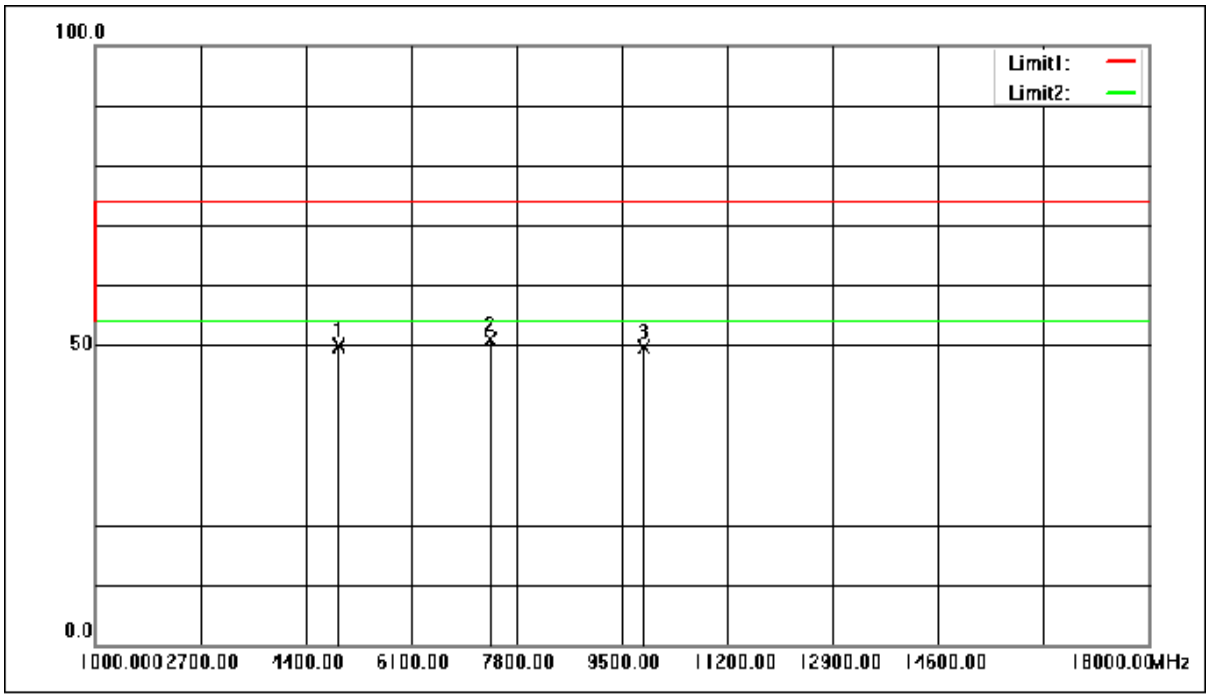
No.	Frequency (MHz)	Reading ()	Correction factor()	Result ()	Limit ()	Margin (dB)	Remark
1	4874.000	56.66	-10.01	46.65	74.00	-27.35	peak
2	7311.000	52.07	-6.93	45.14	74.00	-28.86	peak
3	9748.000	51.93	-4.30	47.63	74.00	-26.37	peak

Mode:d; Polarization:Horizontal; Modulation:b; bandwidth:20MHz; Channel:High



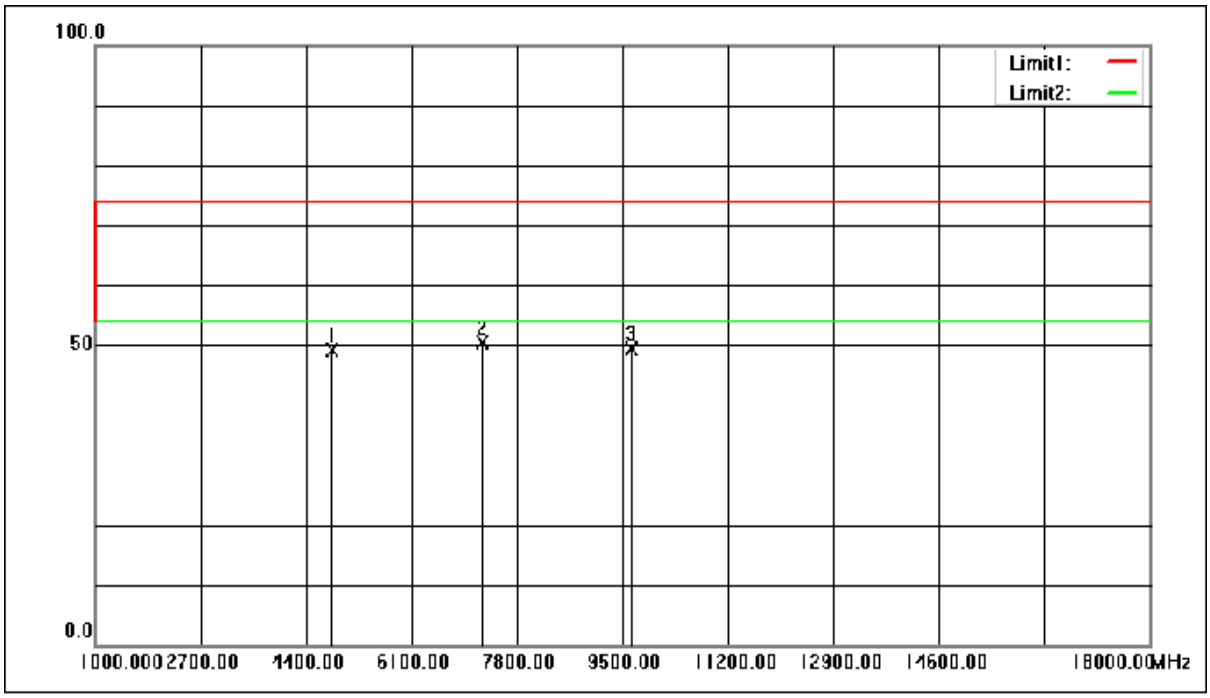
No.	Frequency (MHz)	Reading ()	Correction factor()	Result ()	Limit ()	Margin (dB)	Remark
1	4924.000	60.53	-9.82	50.71	74.00	-23.29	peak
2	7386.000	57.58	-6.80	50.78	74.00	-23.22	peak
3	9848.000	54.84	-3.84	51.00	74.00	-23.00	peak

Mode:d; Polarization:Vertical; Modulation:b; bandwidth:20MHz; Channel:High



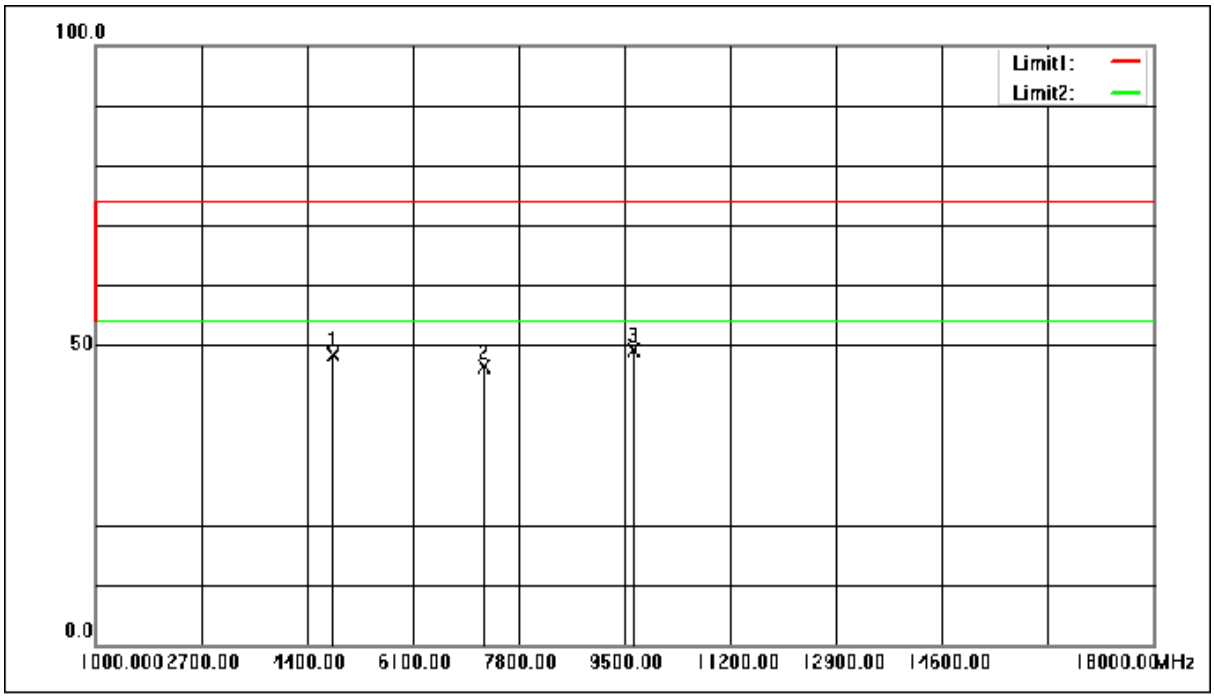
No.	Frequency (MHz)	Reading ()	Correction factor()	Result ()	Limit ()	Margin (dB)	Remark
1	4924.000	59.67	-9.82	49.85	74.00	-24.15	peak
2	7386.000	57.57	-6.80	50.77	74.00	-23.23	peak
3	9848.000	53.43	-3.84	49.59	74.00	-24.41	peak

Mode:d; Polarization:Horizontal; Modulation:g; bandwidth:20MHz; Channel:Low



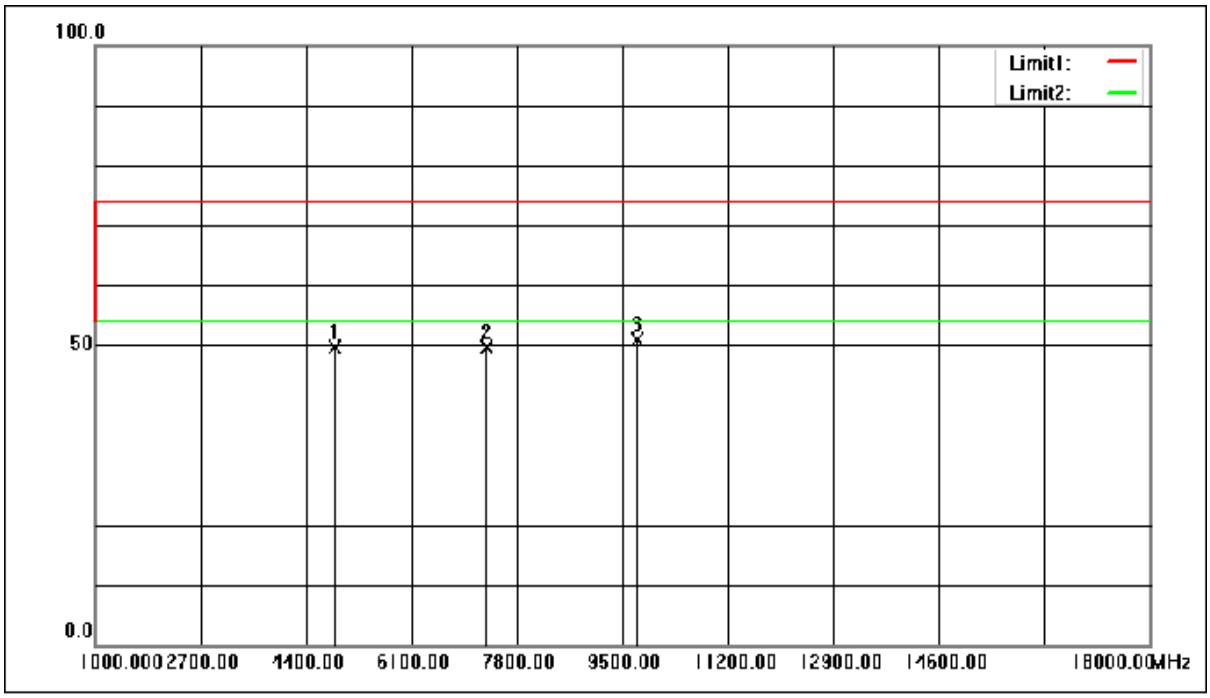
No.	Frequency (MHz)	Reading ()	Correction factor()	Result ()	Limit ()	Margin (dB)	Remark
1	4824.000	59.32	-10.21	49.11	74.00	-24.89	peak
2	7236.000	57.34	-7.05	50.29	74.00	-23.71	peak
3	9648.000	54.17	-4.77	49.40	74.00	-24.60	peak

Mode:d; Polarization:Vertical; Modulation:g; bandwidth:20MHz; Channel:Low



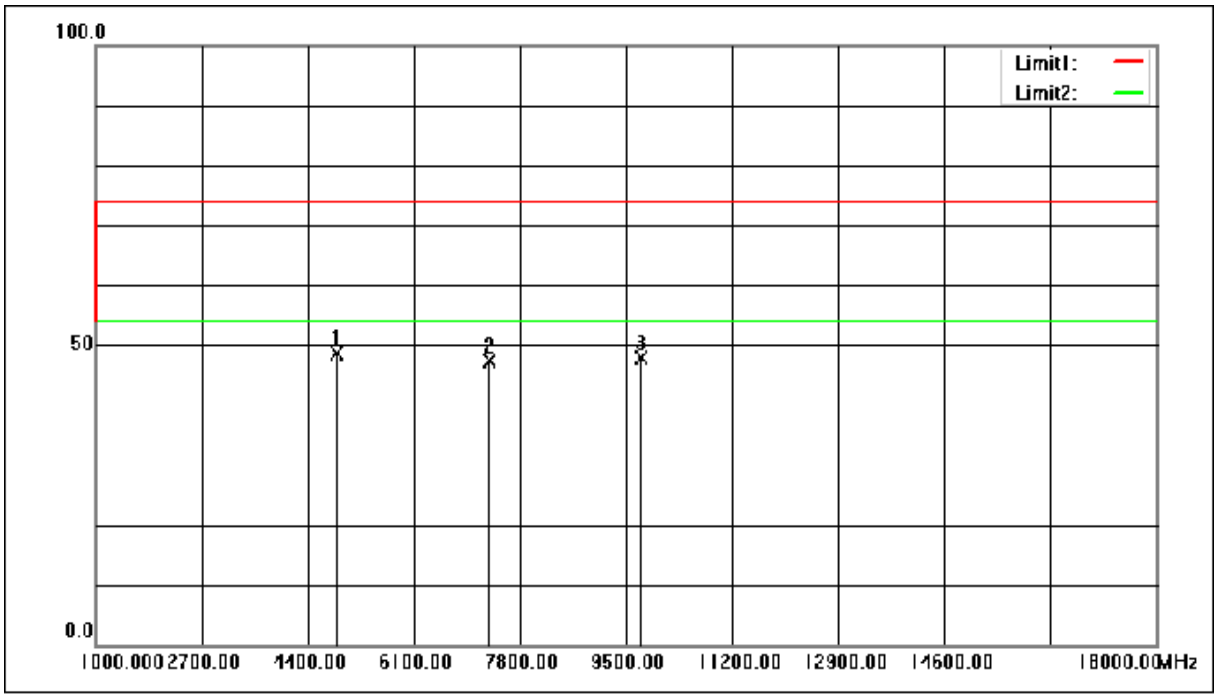
No.	Frequency (MHz)	Reading ()	Correction factor()	Result ()	Limit ()	Margin (dB)	Remark
1	4824.000	58.63	-10.21	48.42	74.00	-25.58	peak
2	7236.000	53.32	-7.05	46.27	74.00	-27.73	peak
3	9648.000	53.92	-4.77	49.15	74.00	-24.85	peak

Mode:d; Polarization:Horizontal; Modulation:g; bandwidth:20MHz; Channel:middle



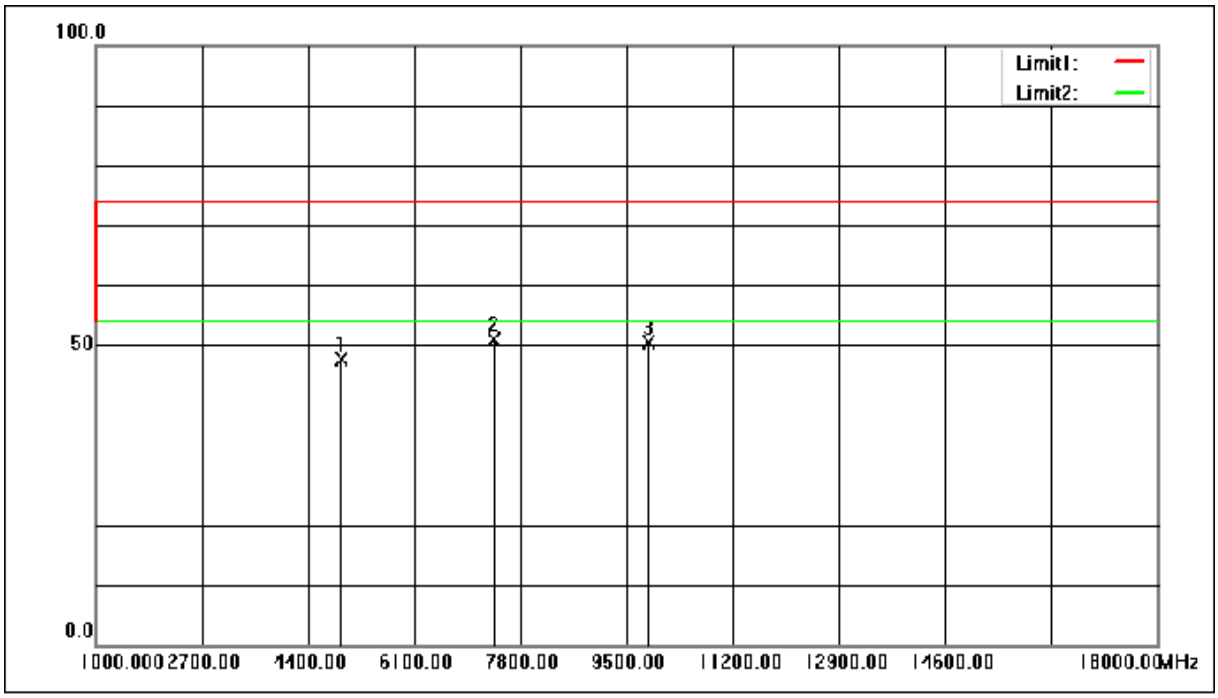
No.	Frequency (MHz)	Reading ()	Correction factor()	Result ()	Limit ()	Margin (dB)	Remark
1	4874.000	59.64	-10.01	49.63	74.00	-24.37	peak
2	7311.000	56.59	-6.93	49.66	74.00	-24.34	peak
3	9748.000	55.15	-4.30	50.85	74.00	-23.15	peak

Mode:d; Polarization:Vertical; Modulation:g; bandwidth:20MHz; Channel:middle



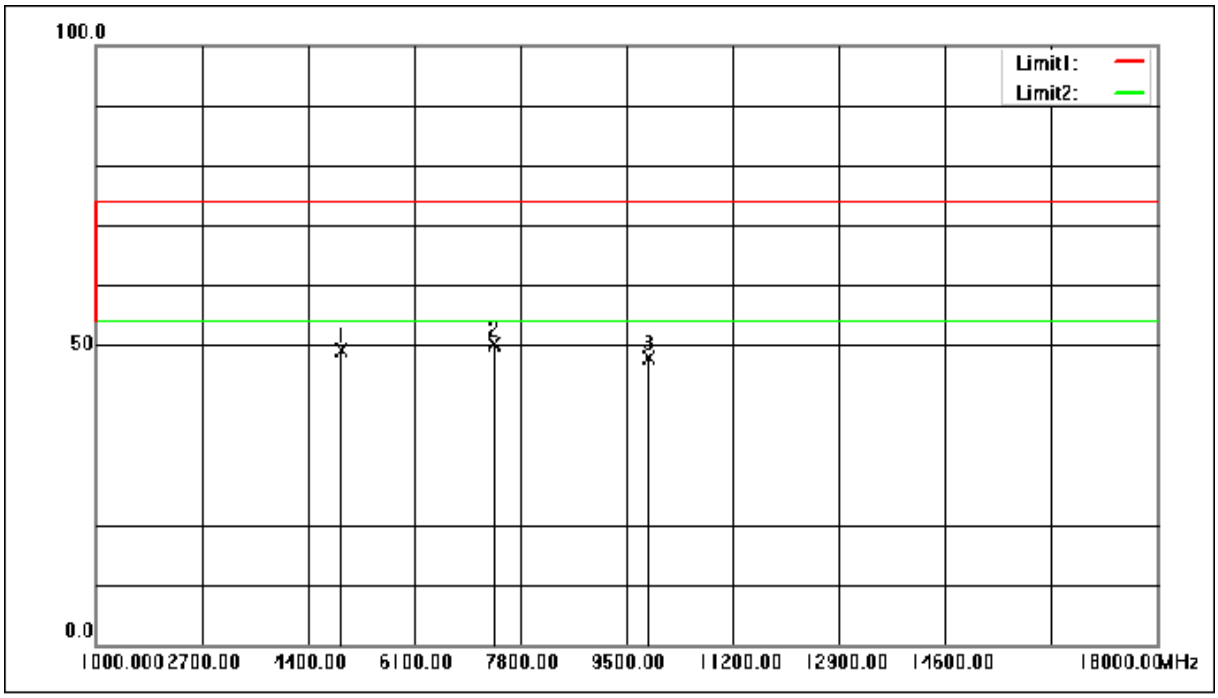
No.	Frequency (MHz)	Reading ()	Correction factor()	Result ()	Limit ()	Margin (dB)	Remark
1	4874.000	58.76	-10.01	48.75	74.00	-25.25	peak
2	7311.000	54.27	-6.93	47.34	74.00	-26.66	peak
3	9748.000	52.19	-4.30	47.89	74.00	-26.11	peak

Mode:d; Polarization:Horizontal; Modulation:g; bandwidth:20MHz; Channel:High



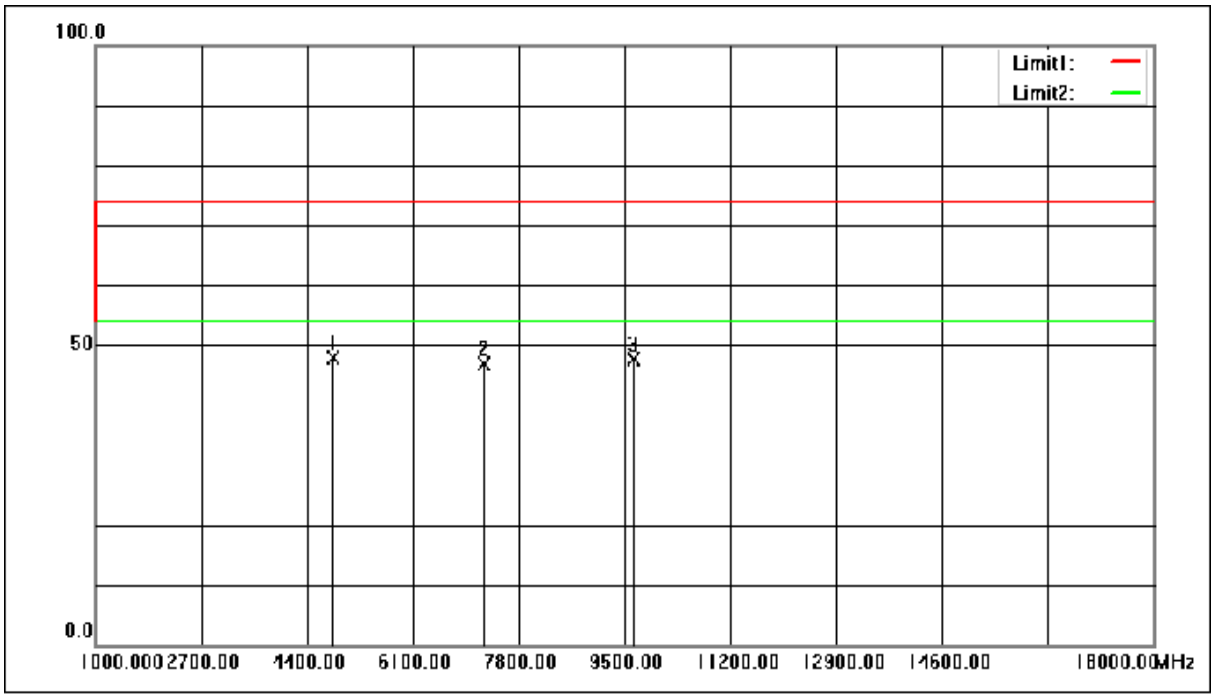
No.	Frequency (MHz)	Reading ()	Correction factor()	Result ()	Limit ()	Margin (dB)	Remark
1	4924.000	57.54	-9.82	47.72	74.00	-26.28	peak
2	7386.000	57.74	-6.80	50.94	74.00	-23.06	peak
3	9848.000	54.34	-3.84	50.50	74.00	-23.50	peak

Mode:d; Polarization:Vertical; Modulation:g; bandwidth:20MHz; Channel:High



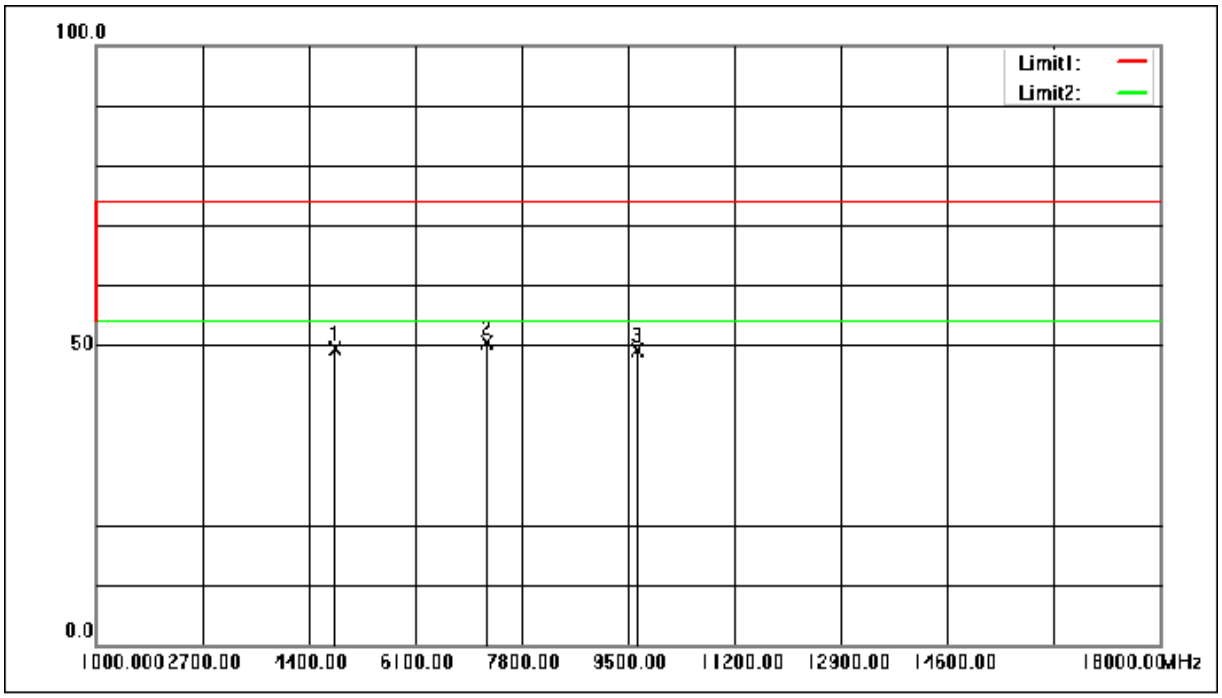
No.	Frequency (MHz)	Reading ()	Correction factor()	Result ()	Limit ()	Margin (dB)	Remark
1	4924.000	59.03	-9.82	49.21	74.00	-24.79	peak
2	7386.000	56.86	-6.80	50.06	74.00	-23.94	peak
3	9848.000	51.62	-3.84	47.78	74.00	-26.22	peak

Mode:d; Polarization:Horizontal; Modulation:n; bandwidth:20MHz; Channel:Low



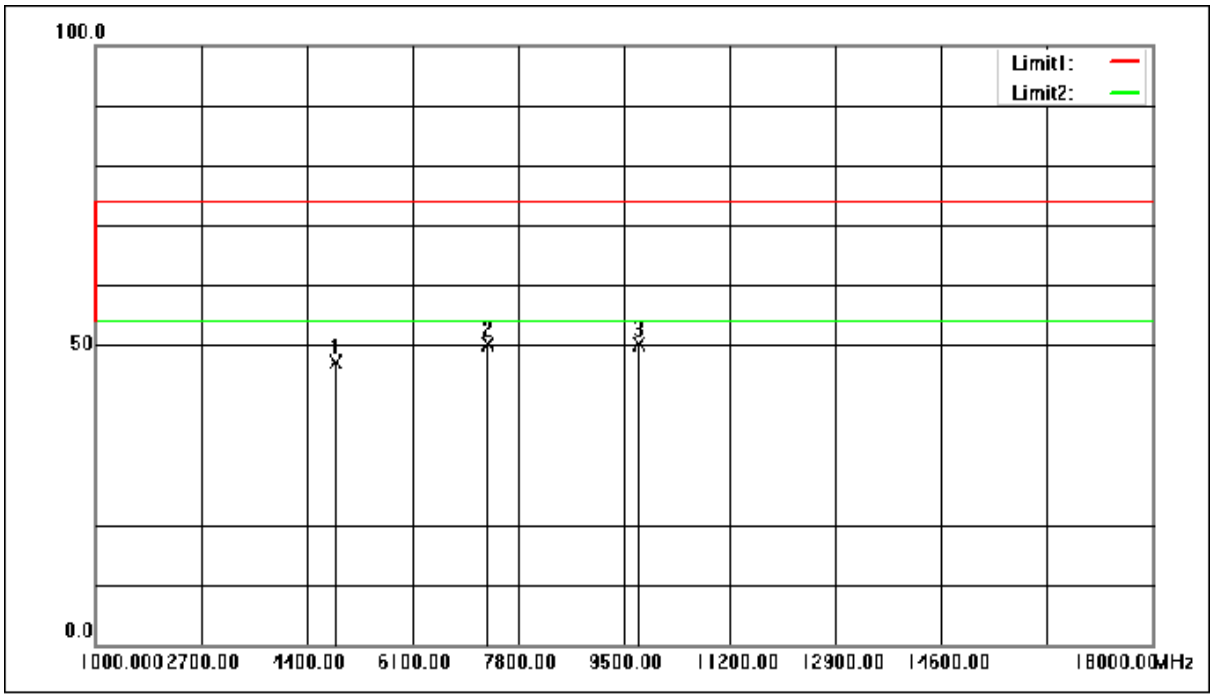
No.	Frequency (MHz)	Reading ()	Correction factor()	Result ()	Limit ()	Margin (dB)	Remark
1	4824.000	58.05	-10.21	47.84	74.00	-26.16	peak
2	7236.000	53.85	-7.05	46.80	74.00	-27.20	peak
3	9648.000	52.52	-4.77	47.75	74.00	-26.25	peak

Mode:d; Polarization:Vertical; Modulation:n; bandwidth:20MHz; Channel:Low



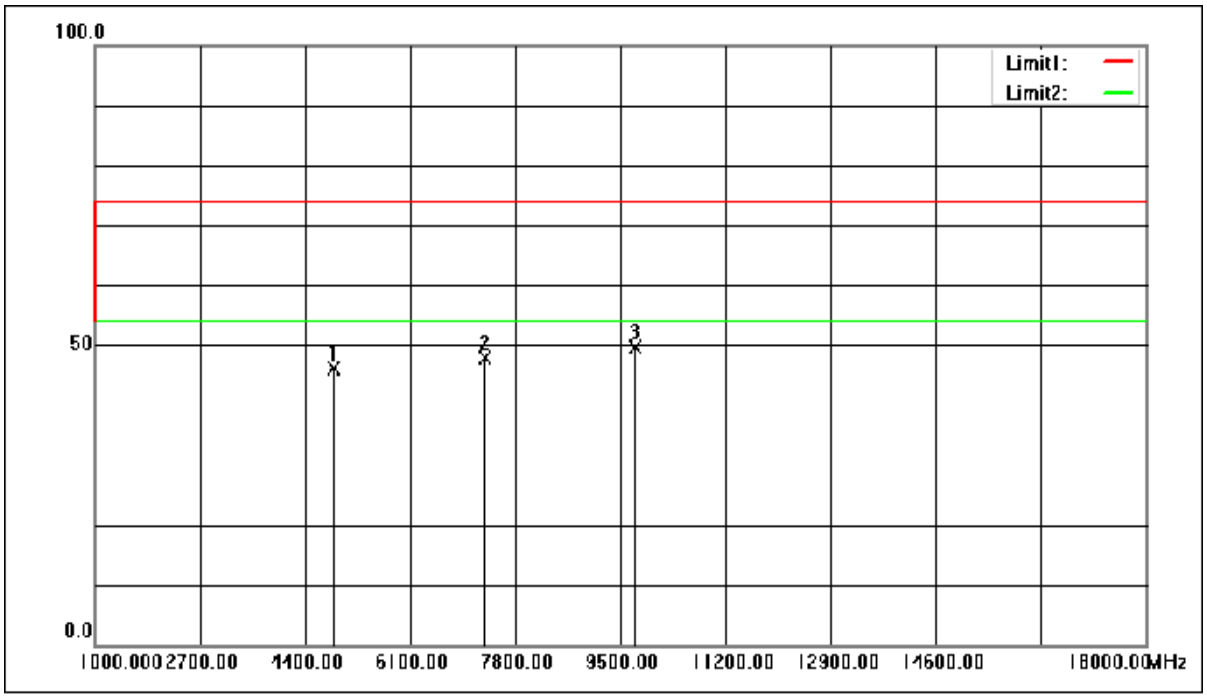
No.	Frequency (MHz)	Reading ()	Correction factor()	Result ()	Limit ()	Margin (dB)	Remark
1	4824.000	59.53	-10.21	49.32	74.00	-24.68	peak
2	7236.000	57.51	-7.05	50.46	74.00	-23.54	peak
3	9648.000	53.90	-4.77	49.13	74.00	-24.87	peak

Mode:d; Polarization:Horizontal; Modulation:n; bandwidth:20MHz; Channel:middle



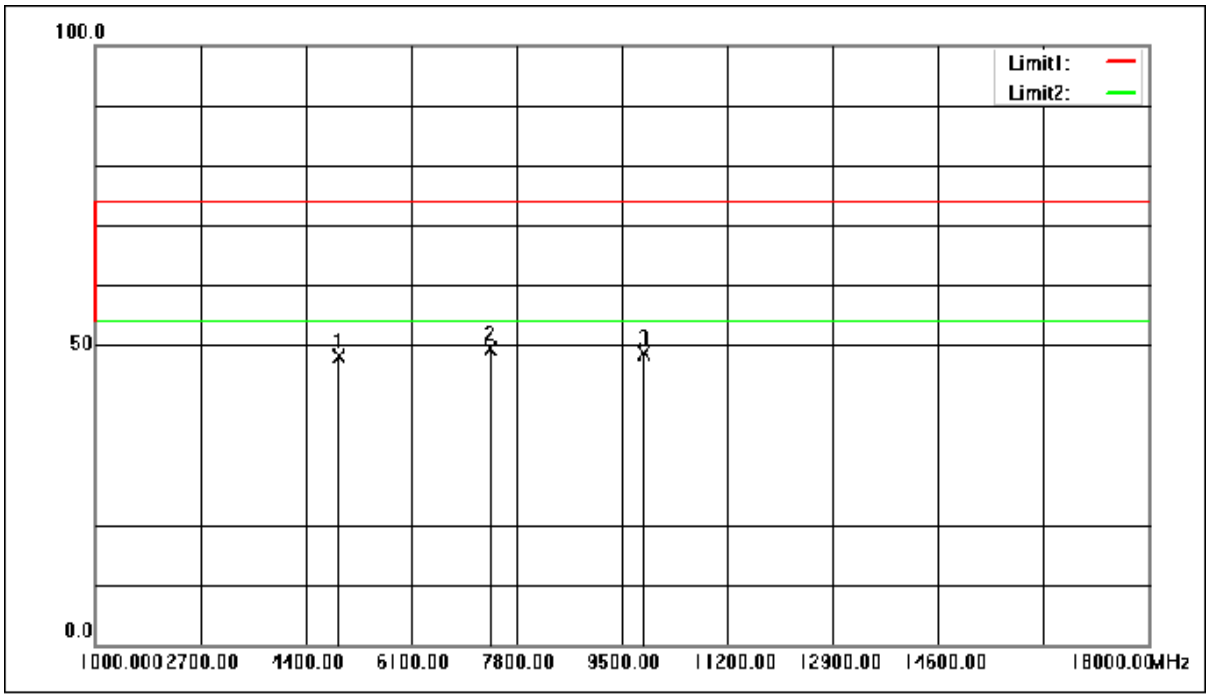
No.	Frequency (MHz)	Reading ()	Correction factor()	Result ()	Limit ()	Margin (dB)	Remark
1	4874.000	57.16	-10.01	47.15	74.00	-26.85	peak
2	7311.000	57.03	-6.93	50.10	74.00	-23.90	peak
3	9748.000	54.52	-4.30	50.22	74.00	-23.78	peak

Mode:d; Polarization:Vertical; Modulation:n; bandwidth:20MHz; Channel:middle



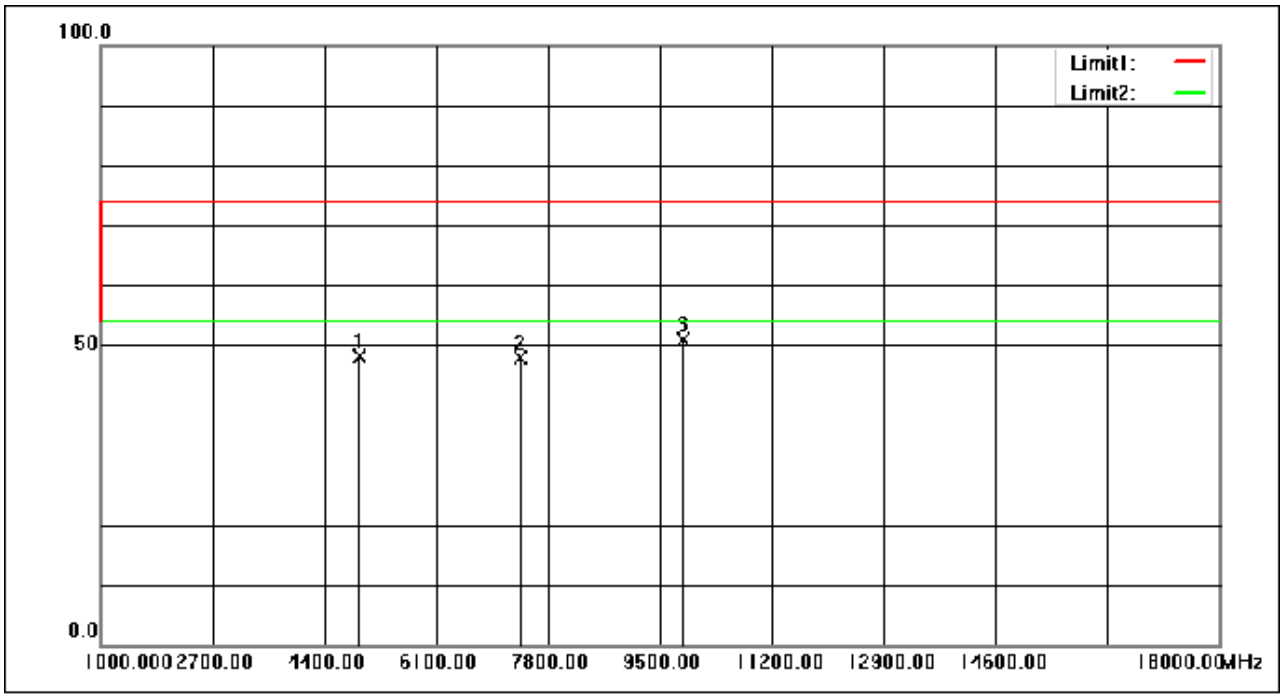
No.	Frequency (MHz)	Reading ()	Correction factor()	Result ()	Limit ()	Margin (dB)	Remark
1	4874.000	56.03	-10.01	46.02	74.00	-27.98	peak
2	7311.000	54.79	-6.93	47.86	74.00	-26.14	peak
3	9748.000	53.89	-4.30	49.59	74.00	-24.41	peak

Mode:d; Polarization:Horizontal; Modulation:n; bandwidth:20MHz; Channel:High



No.	Frequency (MHz)	Reading ()	Correction factor()	Result ()	Limit ()	Margin (dB)	Remark
1	4924.000	57.85	-9.82	48.03	74.00	-25.97	peak
2	7386.000	56.29	-6.80	49.49	74.00	-24.51	peak
3	9848.000	52.43	-3.84	48.59	74.00	-25.41	peak

Mode:d; Polarization:Vertical; Modulation:n; bandwidth:20MHz; Channel:High



No.	Frequency (MHz)	Reading ()	Correction factor()	Result ()	Limit ()	Margin (dB)	Remark
1	4924.000	58.06	-9.82	48.24	74.00	-25.76	peak
2	7386.000	54.71	-6.80	47.91	74.00	-26.09	peak
3	9848.000	54.70	-3.84	50.86	74.00	-23.14	peak

8 Test Setup Photographs

Refer to the < Test Setup photos-FCC>.

9 EUT Constructional Details

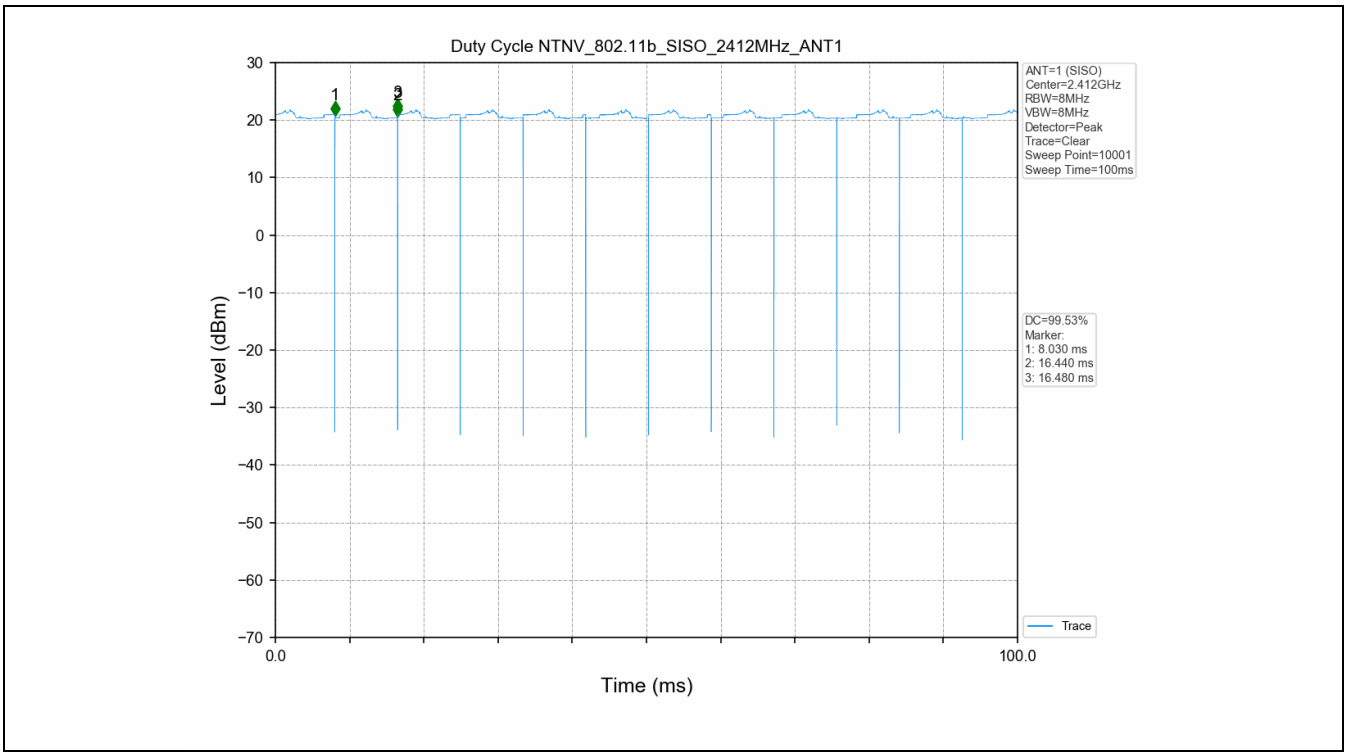
Refer to the < External Photos > & < Internal Photos >.

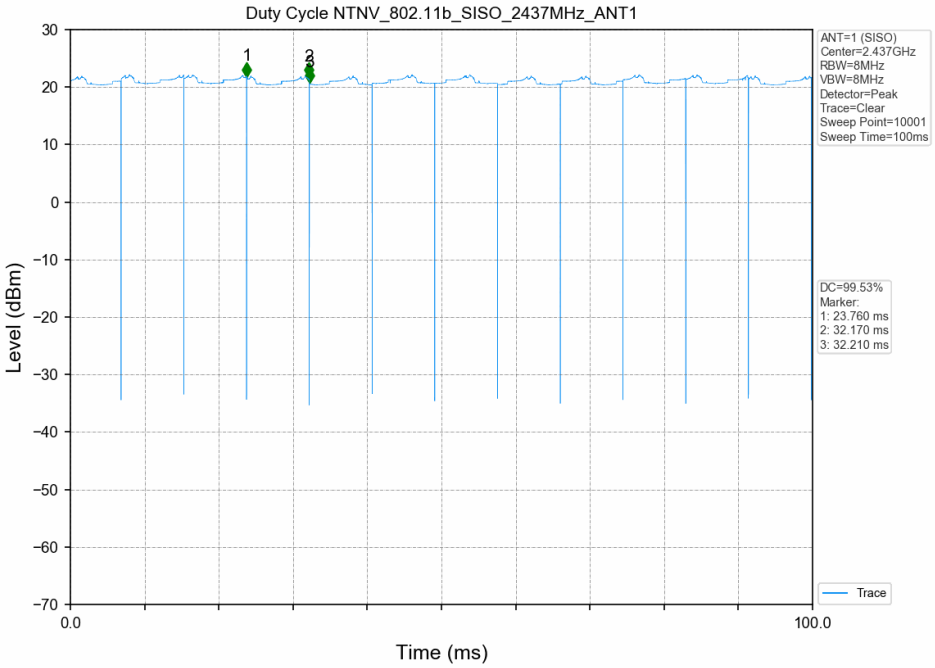
Appendix A for KSEM200800093201
1. Duty Cycle

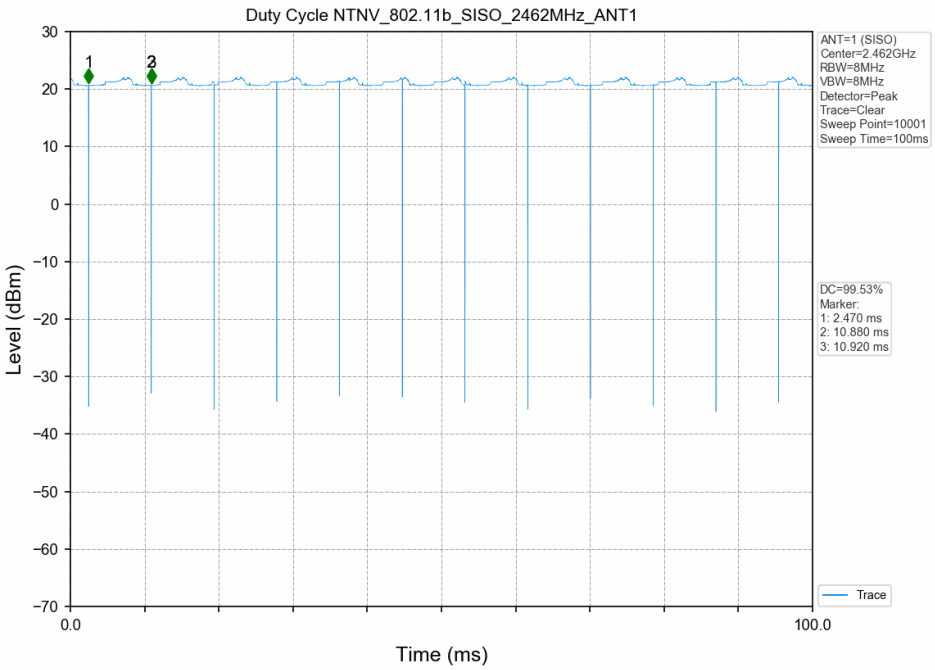
1.1 Test Result

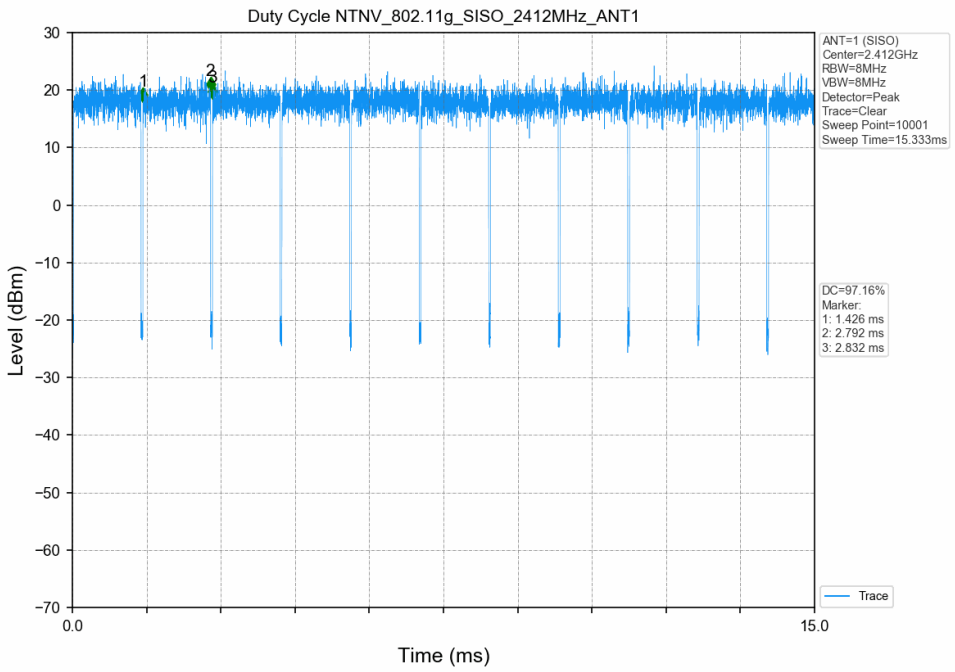
Test Mode	Channel Frequency(MHz)	TX Type	ANT No.	T_on (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)
802.11b	2412	SISO	1	8.410	8.450	99.53	0.02
	2437	SISO	1	8.410	8.450	99.53	0.02
	2462	SISO	1	8.410	8.450	99.53	0.02
802.11g	2412	SISO	1	1.366	1.406	97.16	0.13
	2437	SISO	1	1.366	1.406	97.16	0.13
	2462	SISO	1	1.365	1.406	97.08	0.13
802.11n(HT20)	2412	SISO	1	1.307	1.348	96.96	0.13
	2437	SISO	1	1.308	1.349	96.96	0.13
	2462	SISO	1	1.307	1.348	96.96	0.13

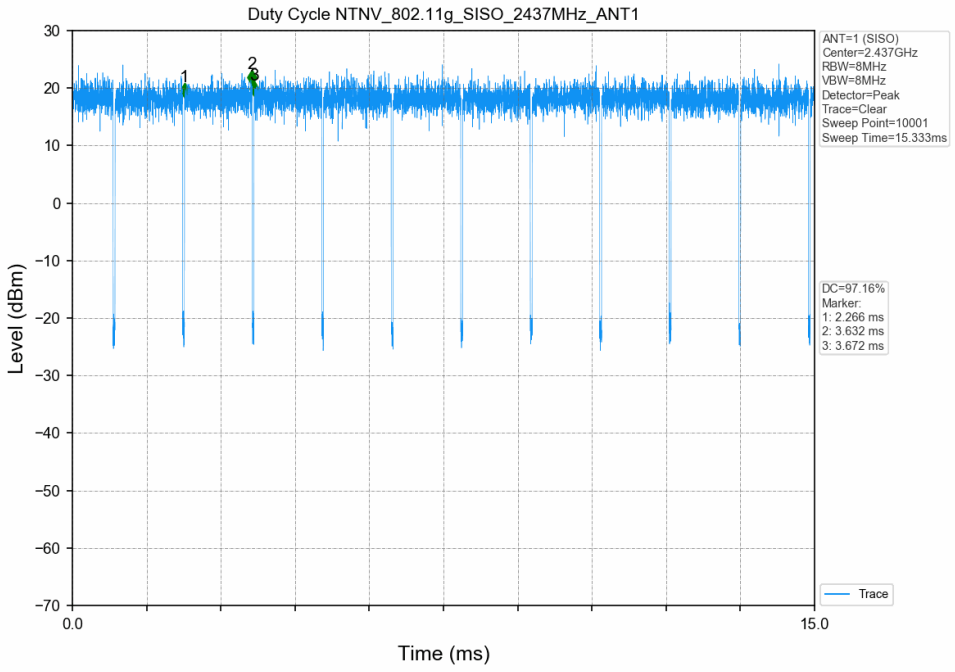
1.2 Test Graph

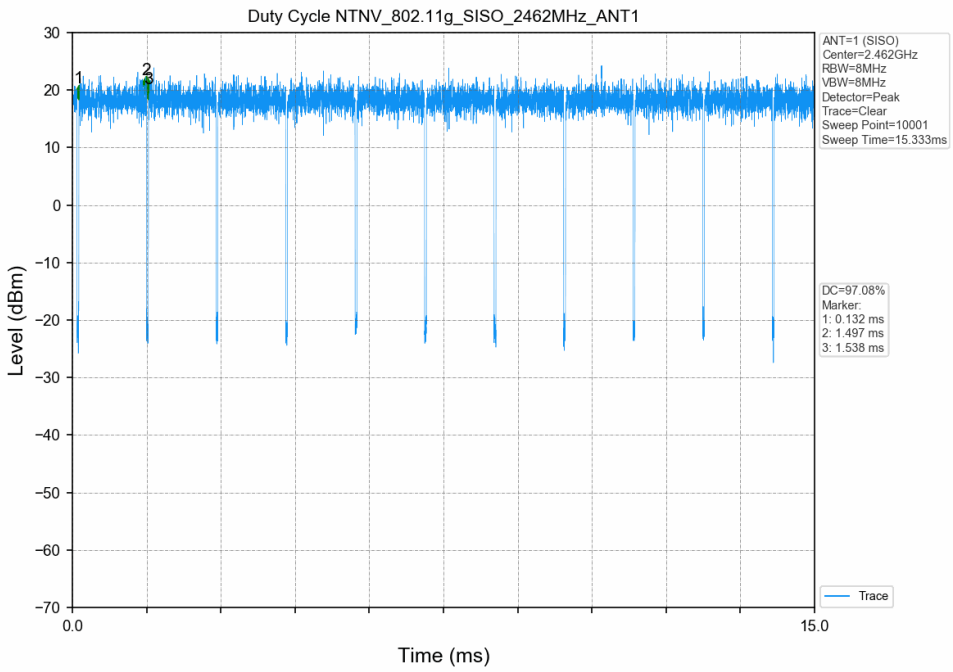


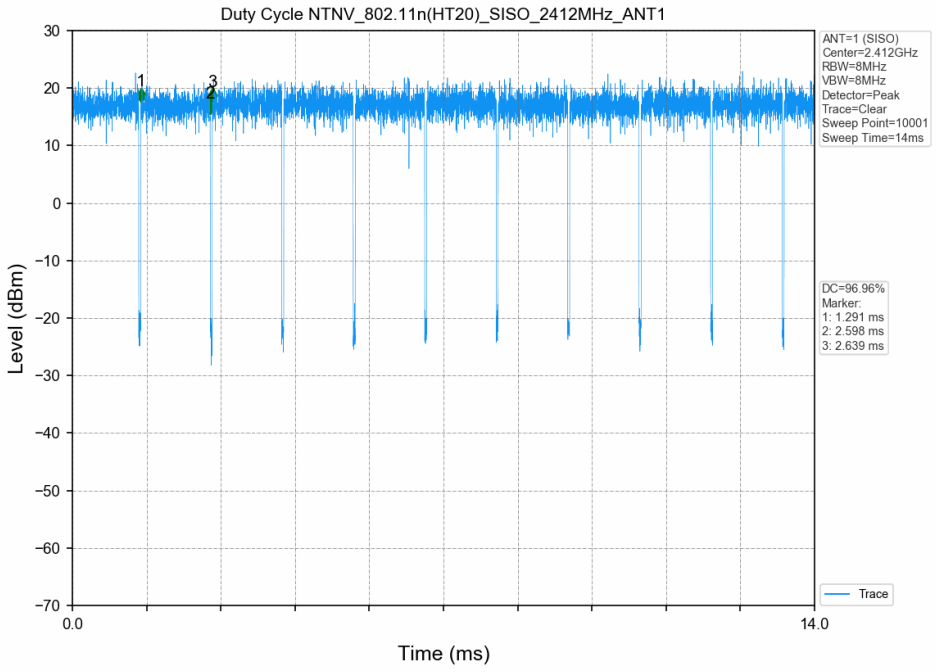

Duty Cycle NTNV_802.11b_SISO_2437MHz_ANT1
ANT=1 (SISO)
Center=2.437GHz
RBW=8MHz
VBW=8MHz
Detector=Peak
Trace=Clear
Sweep Point=10001
Sweep Time=100ms
DC=99.53%
Marker:
1: 23.760 ms
2: 32.170 ms
3: 32.210 ms
Trace
Level (dBm)
Time (ms)
30
20
10
0
−10
−20
−30
−40
−50
−60
−70
0.0
100.0

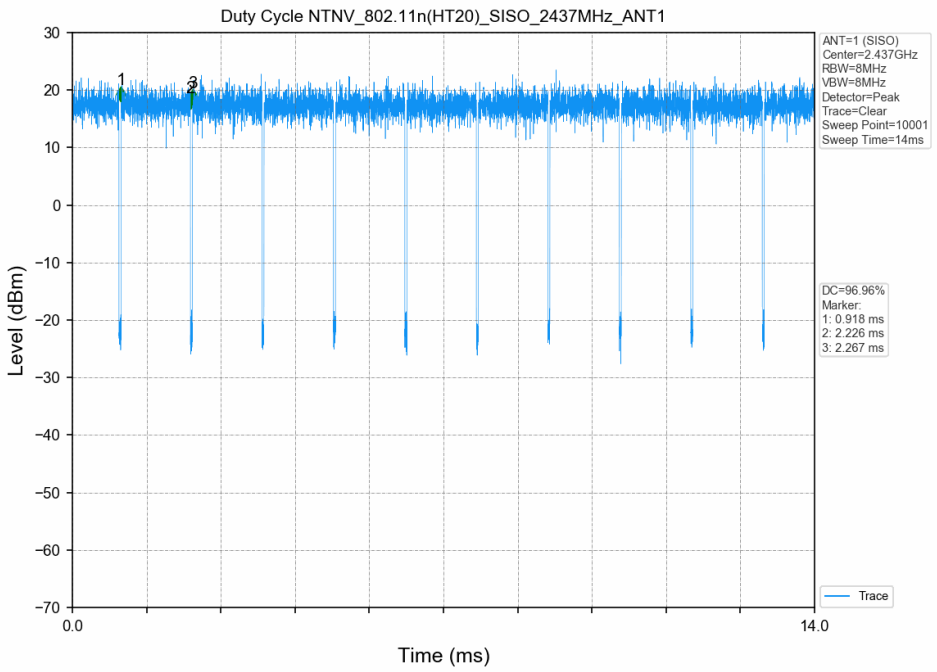

Duty Cycle NTNV_802.11b_SISO_2462MHz_ANT1
ANT=1 (SISO)
Center=2.462GHz
RBW=8MHz
VBW=8MHz
Detector=Peak
Trace=Clear
Sweep Point=10001
Sweep Time=100ms
DC=99.53%
Marker:
1: 2.470 ms
2: 10.880 ms
3: 10.920 ms
Trace
Level (dBm)
Time (ms)
30
20
10
0
−10
−20
−30
−40
−50
−60
−70
0.0
100.0

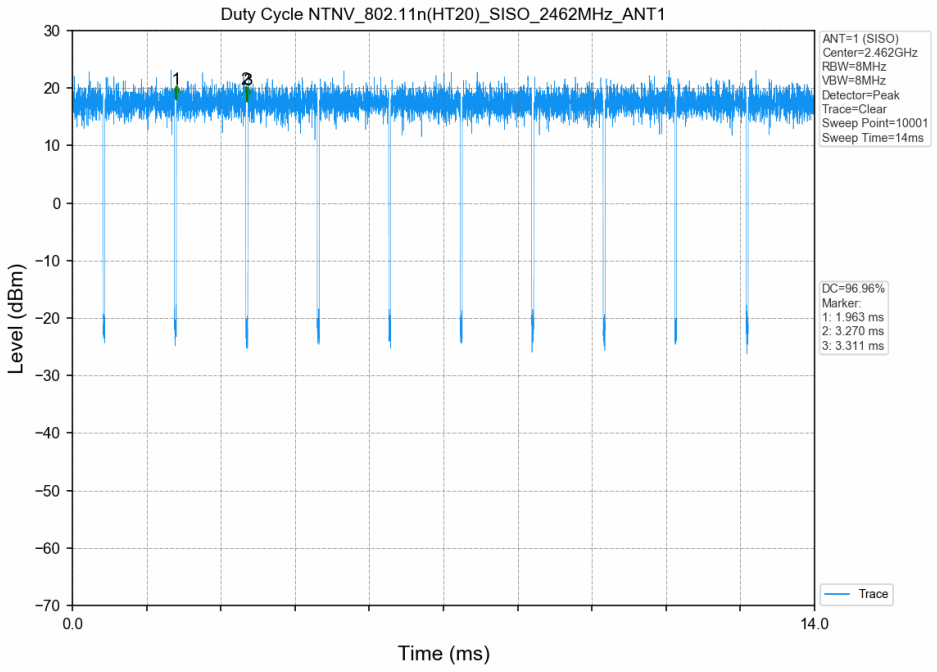

Duty Cycle NTNV_802.11g_SISO_2412MHz_ANT1
ANT=1 (SISO)
Center=2.412GHz
RBW=8MHz
VBW=8MHz
Detector=Peak
Trace=Clear
Sweep Point=10001
Sweep Time=15.333ms
DC=97.16%
Marker:
1: 1.426 ms
2: 2.792 ms
3: 2.832 ms
Trace
Level (dBm)
Time (ms)
0.0
15.0


Duty Cycle NTNV_802.11g_SISO_2437MHz_ANT1
ANT=1 (SISO)
Center=2.437GHz
RBW=8MHz
VBW=8MHz
Detector=Peak
Trace=Clear
Sweep Point=10001
Sweep Time=15.333ms
DC=97.16%
Marker:
1: 2.266 ms
2: 3.632 ms
3: 3.672 ms
Trace
Level (dBm)
Time (ms)
0.0
15.0


Duty Cycle NTNV_802.11g_SISO_2462MHz_ANT1
ANT=1 (SISO)
Center=2.462GHz
RBW=8MHz
VBW=8MHz
Detector=Peak
Trace=Clear
Sweep Point=10001
Sweep Time=15.333ms
DC=97.08%
Marker:
1: 0.132 ms
2: 1.497 ms
3: 1.538 ms
Trace
Level (dBm)
Time (ms)
0.0
15.0


Duty Cycle NTNV_802.11n(HT20)_SISO_2412MHz_ANT1
ANT=1 (SISO)
Center=2.412GHz
RBW=8MHz
VBW=8MHz
Detector=Peak
Trace=Clear
Sweep Point=10001
Sweep Time=14ms
DC=96.96%
Marker:
1: 1.291 ms
2: 2.598 ms
3: 2.639 ms
Trace
Level (dBm)
Time (ms)
0.0
14.0


Duty Cycle NTNV_802.11n(HT20)_SISO_2437MHz_ANT1
ANT=1 (SISO)
Center=2.437GHz
RBW=8MHz
VBW=8MHz
Detector=Peak
Trace=Clear
Sweep Point=10001
Sweep Time=14ms
DC=96.96%
Marker:
1: 0.918 ms
2: 2.226 ms
3: 2.267 ms
Trace
Level (dBm)
Time (ms)
0.0
14.0


Duty Cycle NTNV_802.11n(HT20)_SISO_2462MHz_ANT1
ANT=1 (SISO)
Center=2.462GHz
RBW=8MHz
VBW=8MHz
Detector=Peak
Trace=Clear
Sweep Point=10001
Sweep Time=14ms
DC=96.96%
Marker:
1: 1.963 ms
2: 3.270 ms
3: 3.311 ms
Trace
Level (dBm)
Time (ms)
0.0
14.0

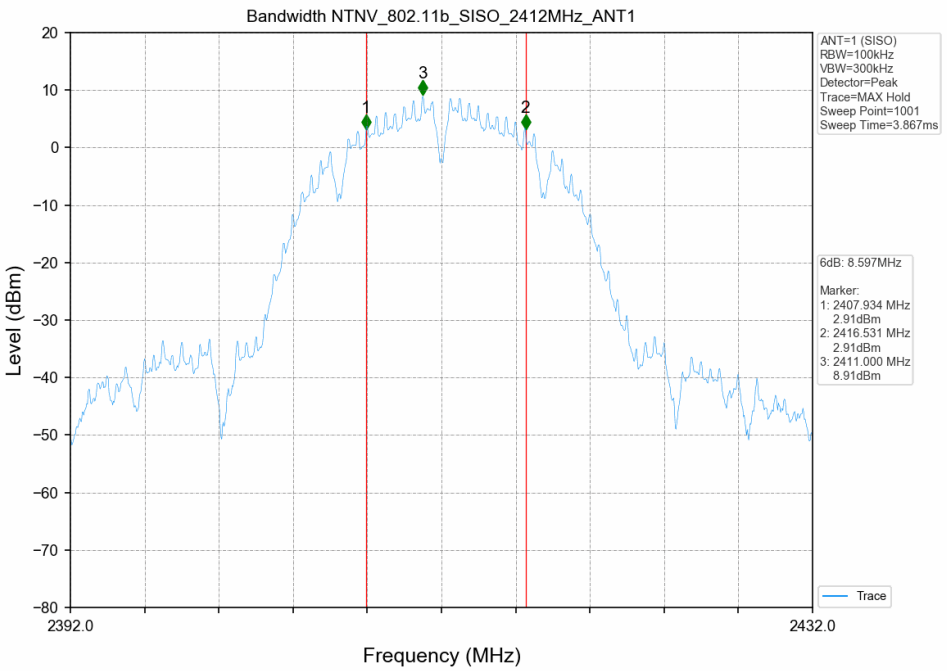
2. Bandwidth

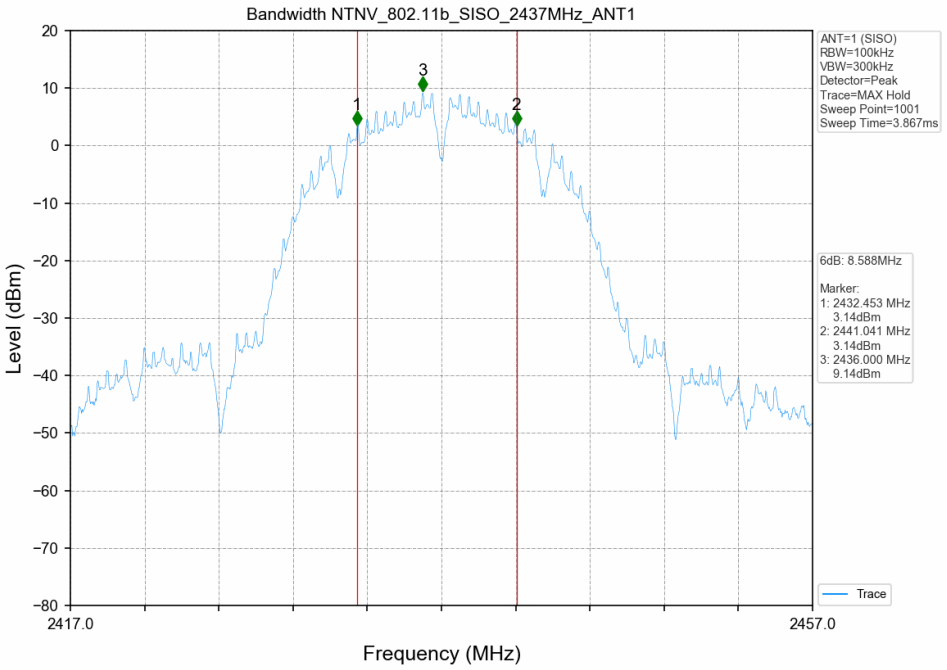
2.1 Test Result

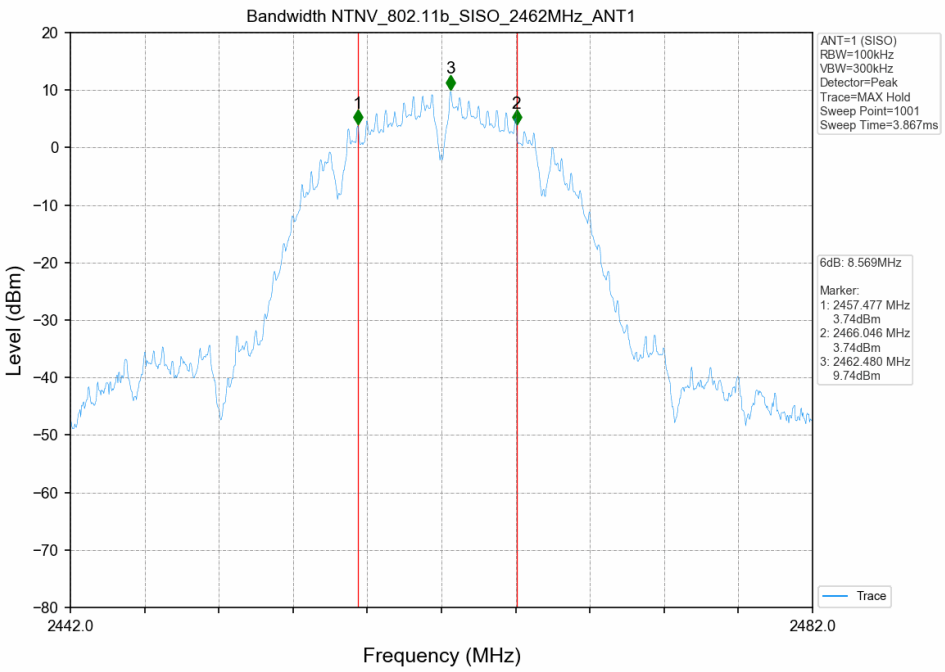
Test Mode	Frequency (MHz)	TX Type	ANT No.	6dB Bandwidth		Verdict
				Test Result (MHz)	Limits (MHz)	
802.11b	2412	SISO	1	8.597	≥0.5	PASS
	2437	SISO	1	8.588	≥0.5	PASS
	2462	SISO	1	8.569	≥0.5	PASS
802.11g	2412	SISO	1	15.149	≥0.5	PASS
	2437	SISO	1	15.078	≥0.5	PASS
	2462	SISO	1	14.758	≥0.5	PASS
802.11n(HT20)	2412	SISO	1	15.098	≥0.5	PASS
	2437	SISO	1	15.147	≥0.5	PASS
	2462	SISO	1	15.151	≥0.5	PASS

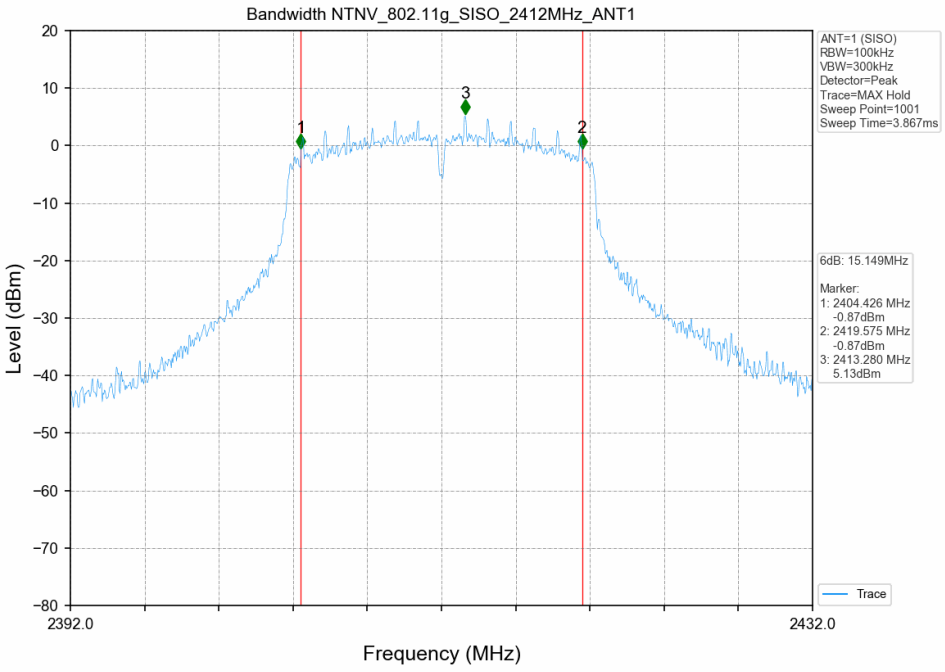
Test Mode	Frequency (MHz)	TX Type	ANT No.	99% Occupied Bandwidth	
				Test Result (MHz)	
802.11b	2412	SISO	1	13.976	Only for Report Use
	2437	SISO	1	13.980	Only for Report Use
	2462	SISO	1	13.960	Only for Report Use
802.11g	2412	SISO	1	16.476	Only for Report Use
	2437	SISO	1	16.507	Only for Report Use
	2462	SISO	1	16.472	Only for Report Use
802.11n(HT20)	2412	SISO	1	17.543	Only for Report Use
	2437	SISO	1	17.585	Only for Report Use
	2462	SISO	1	17.564	Only for Report Use

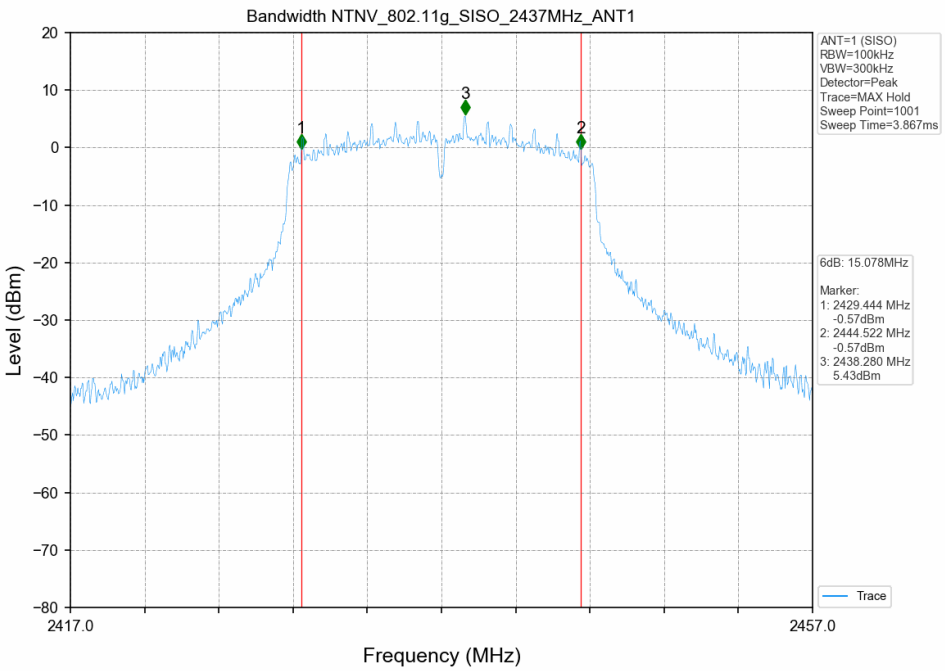
2.2 Test Graph - 6dB Bandwidth

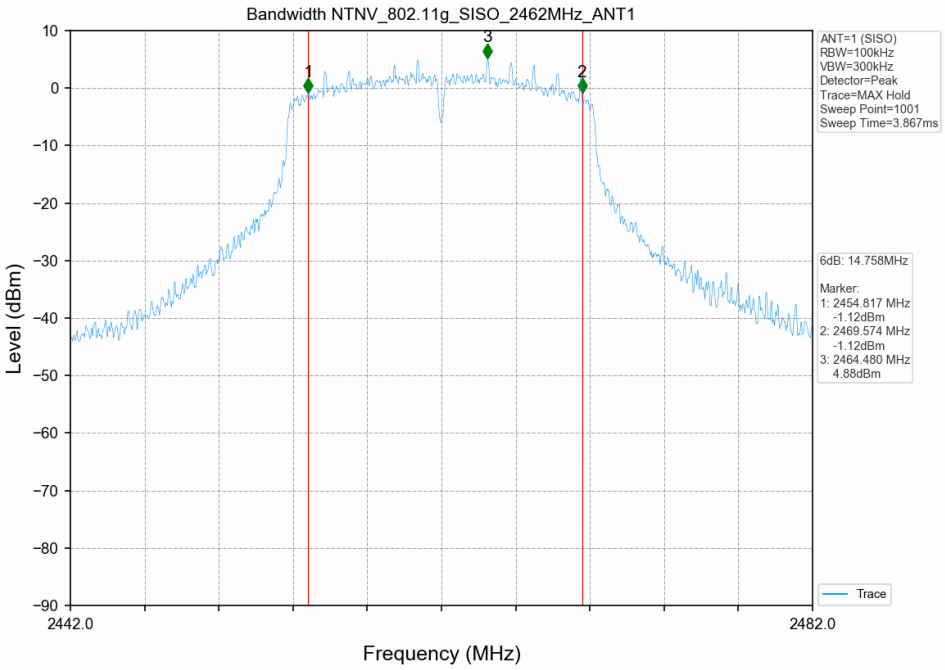

Bandwidth NTNV_802.11b_SISO_2412MHz_ANT1
ANT=1 (SISO)
RBW=100kHz
VBW=300kHz
Detector=Peak
Trace=MAX Hold
Sweep Point=1001
Sweep Time=3.867ms
6dB: 8.597MHz
Marker:
1: 2407.934 MHz
2.91dBm
2: 2416.531 MHz
2.91dBm
3: 2411.000 MHz
8.91dBm
Trace
Level (dBm)
Frequency (MHz)
2392.0
2432.0

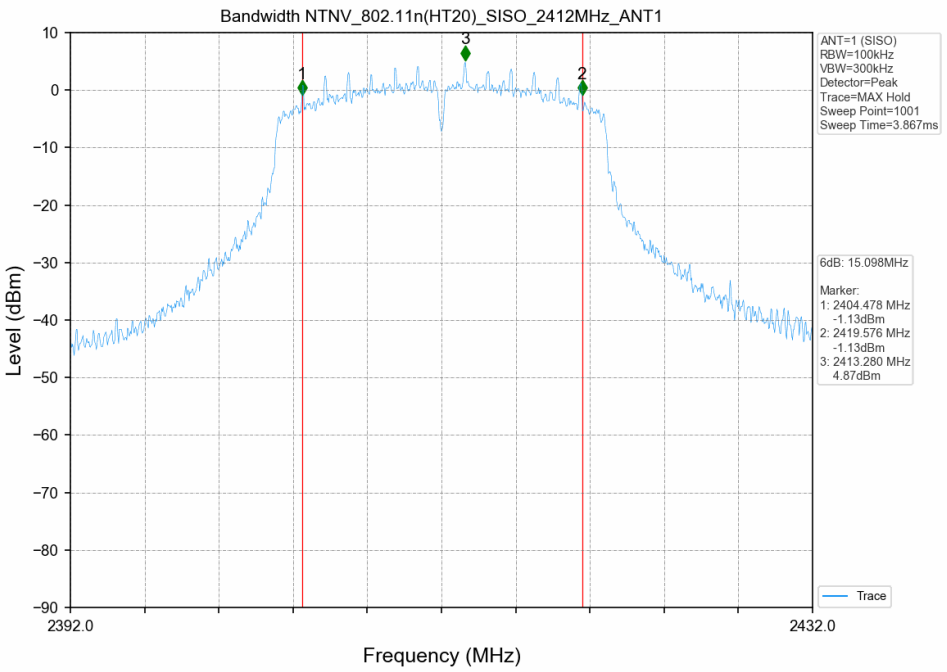

Bandwidth NTNV_802.11b_SISO_2437MHz_ANT1
ANT=1 (SISO)
RBW=100kHz
VBW=300kHz
Detector=Peak
Trace=MAX Hold
Sweep Point=1001
Sweep Time=3.867ms
6dB: 8.588MHz
Marker:
1: 2432.453 MHz
3.14dBm
2: 2441.041 MHz
3.14dBm
3: 2436.000 MHz
9.14dBm
Trace
Level (dBm)
Frequency (MHz)
2417.0
2457.0

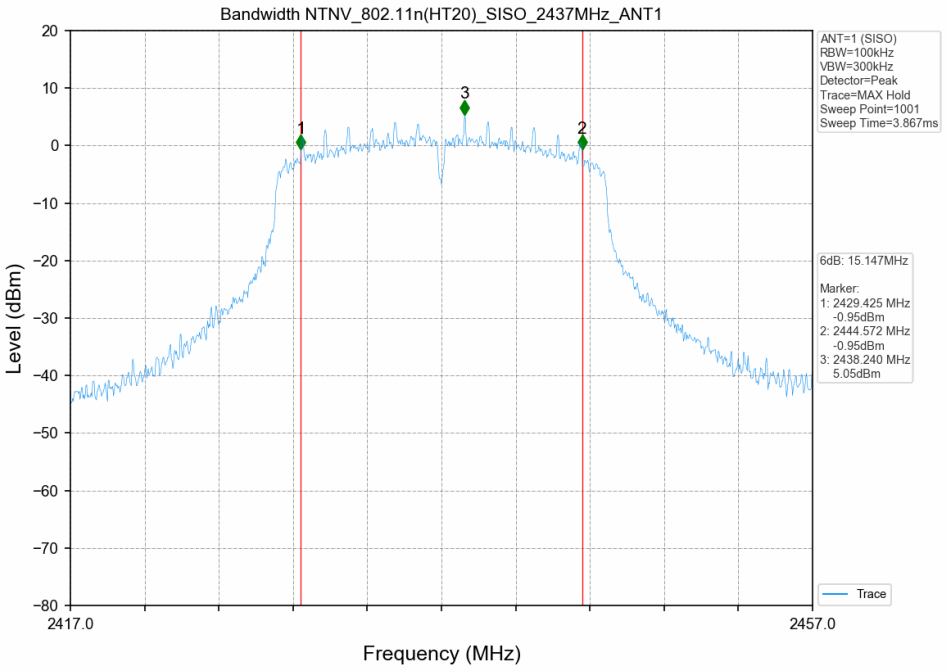

Bandwidth NTNV_802.11b_SISO_2462MHz_ANT1
ANT=1 (SISO)
RBW=100kHz
VBW=300kHz
Detector=Peak
Trace=MAX Hold
Sweep Point=1001
Sweep Time=3.867ms
6dB: 8.569MHz
Marker:
1: 2457.477 MHz
3.74dBm
2: 2466.046 MHz
3.74dBm
3: 2462.480 MHz
9.74dBm
Trace
Level (dBm)
Frequency (MHz)
2442.0
2482.0

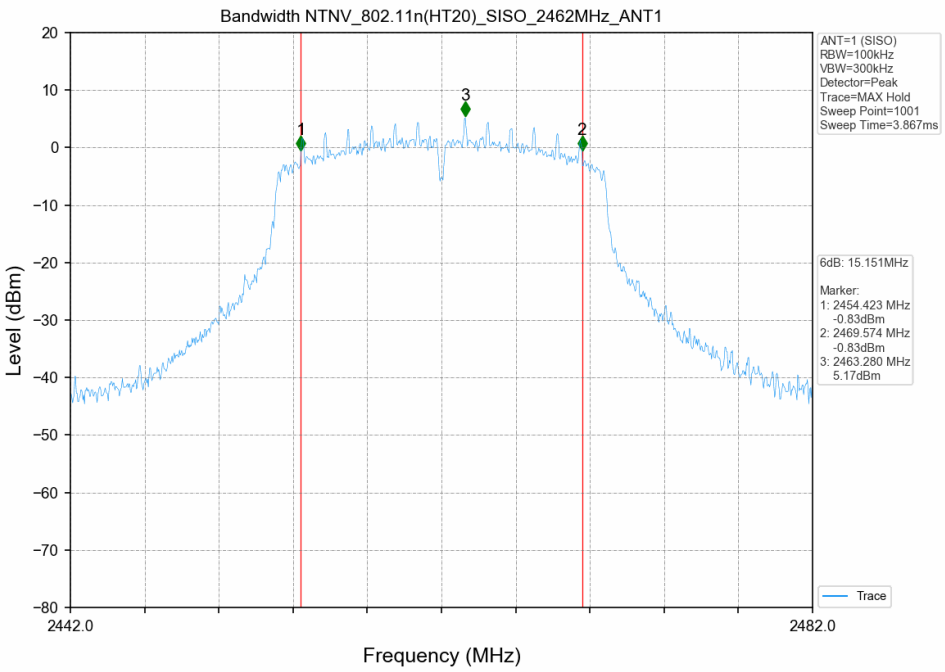

Bandwidth NTNV_802.11g_SISO_2412MHz_ANT1
ANT=1 (SISO)
RBW=100kHz
VBW=300kHz
Detector=Peak
Trace=MAX Hold
Sweep Point=1001
Sweep Time=3.867ms
6dB: 15.149MHz
Marker:
1: 2404.426 MHz
-0.87dBm
2: 2419.575 MHz
-0.87dBm
3: 2413.280 MHz
5.13dBm
Trace
Level (dBm)
Frequency (MHz)
2392.0
2432.0


Bandwidth NTNV_802.11g_SISO_2437MHz_ANT1
ANT=1 (SISO)
RBW=100kHz
VBW=300kHz
Detector=Peak
Trace=MAX Hold
Sweep Point=1001
Sweep Time=3.867ms
6dB: 15.078MHz
Marker:
1: 2429.444 MHz
-0.57dBm
2: 2444.522 MHz
-0.57dBm
3: 2438.280 MHz
5.43dBm
Trace
Level (dBm)
Frequency (MHz)
2417.0
2457.0

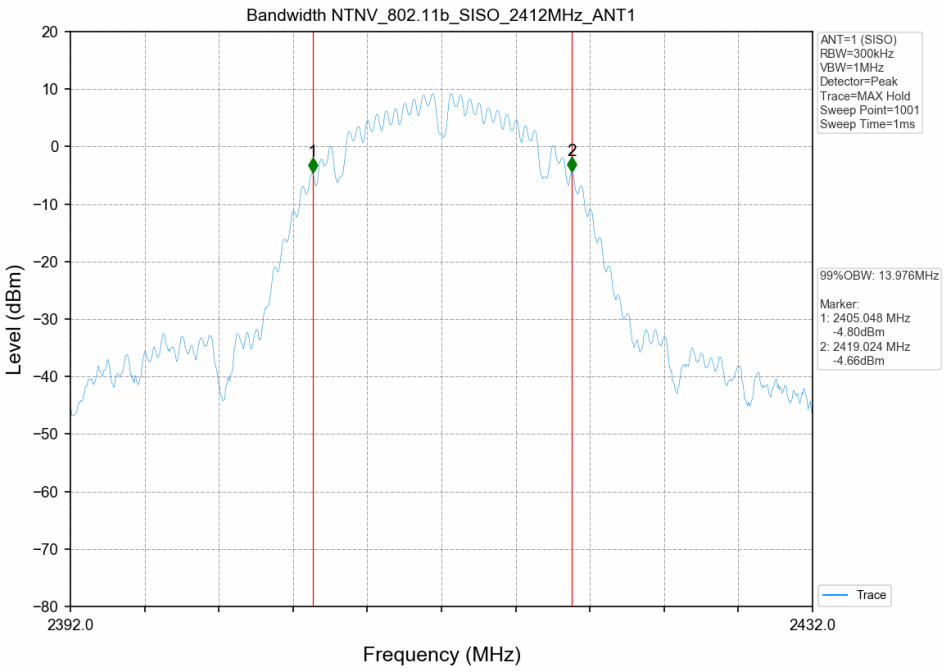

Bandwidth NTNV_802.11g_SISO_2462MHz_ANT1
ANT=1 (SISO)
RBW=100kHz
VBW=300kHz
Detector=Peak
Trace=MAX Hold
Sweep Point=1001
Sweep Time=3.867ms
6dB: 14.758MHz
Marker:
1: 2454.817 MHz
-1.12dBm
2: 2469.574 MHz
-1.12dBm
3: 2464.480 MHz
4.88dBm
Trace
Level (dBm)
Frequency (MHz)
2442.0
2482.0

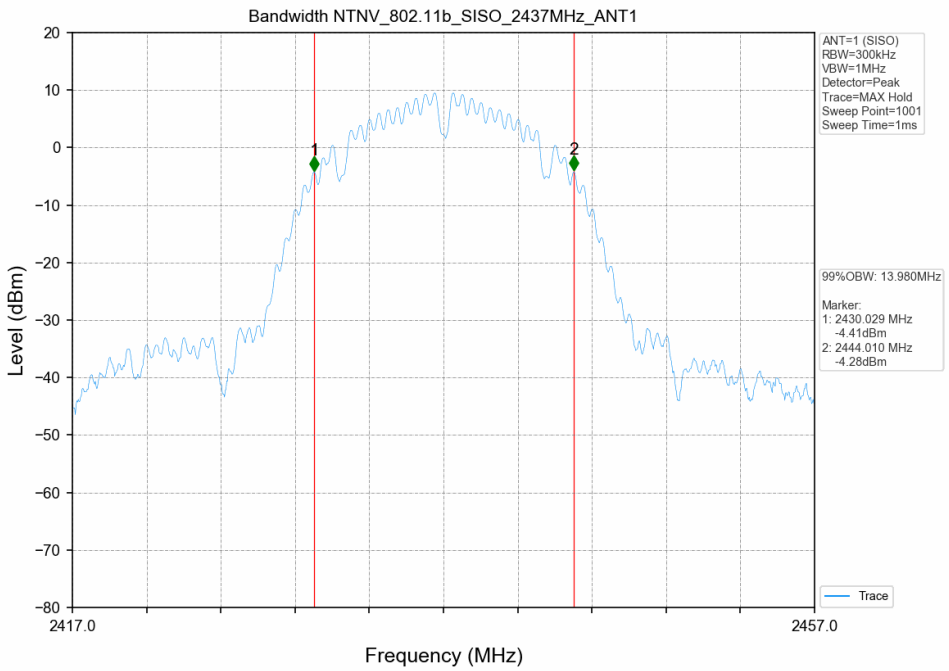

Bandwidth NTNV_802.11n(HT20)_SISO_2412MHz_ANT1
ANT=1 (SISO)
RBW=100kHz
VBW=300kHz
Detector=Peak
Trace=MAX Hold
Sweep Point=1001
Sweep Time=3.867ms
6dB: 15.098MHz
Marker:
1: 2404.478 MHz
-1.13dBm
2: 2419.576 MHz
-1.13dBm
3: 2413.280 MHz
4.87dBm
Trace
Level (dBm)
Frequency (MHz)
2392.0
2432.0

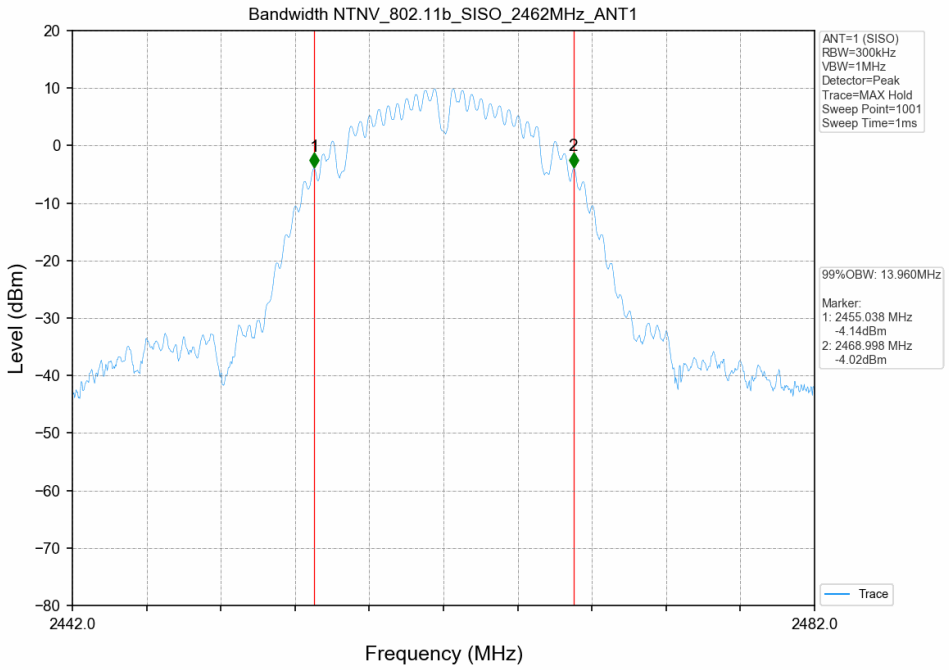

Bandwidth NTNV_802.11n(HT20)_SISO_2437MHz_ANT1
ANT=1 (SISO)
RBW=100kHz
VBW=300kHz
Detector=Peak
Trace=MAX Hold
Sweep Point=1001
Sweep Time=3.867ms
6dB: 15.147MHz
Marker:
1: 2429.425 MHz
-0.95dBm
2: 2444.572 MHz
-0.95dBm
3: 2438.240 MHz
5.05dBm
Trace
Level (dBm)
Frequency (MHz)
2417.0
2457.0

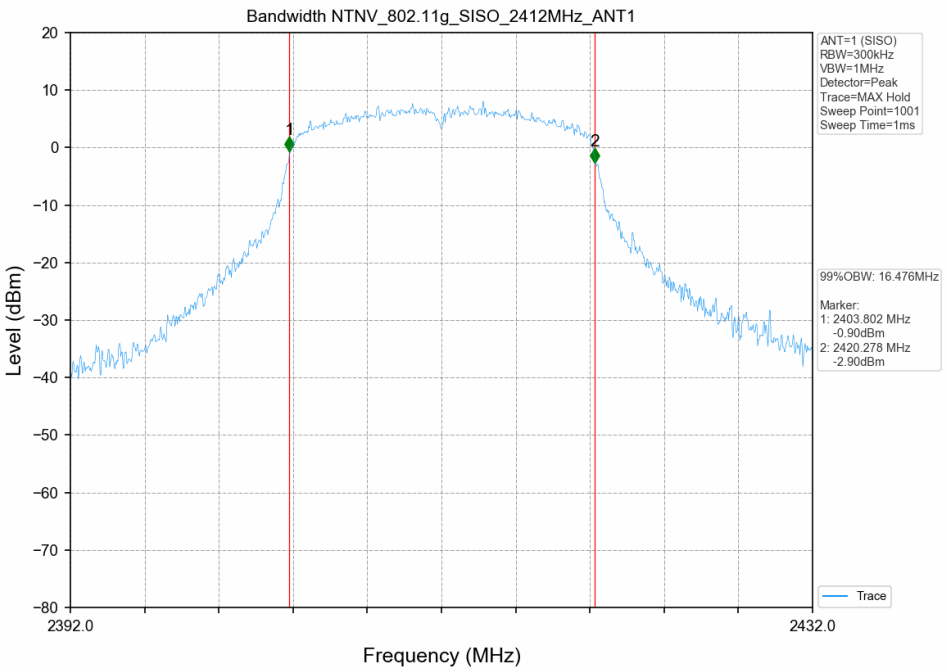


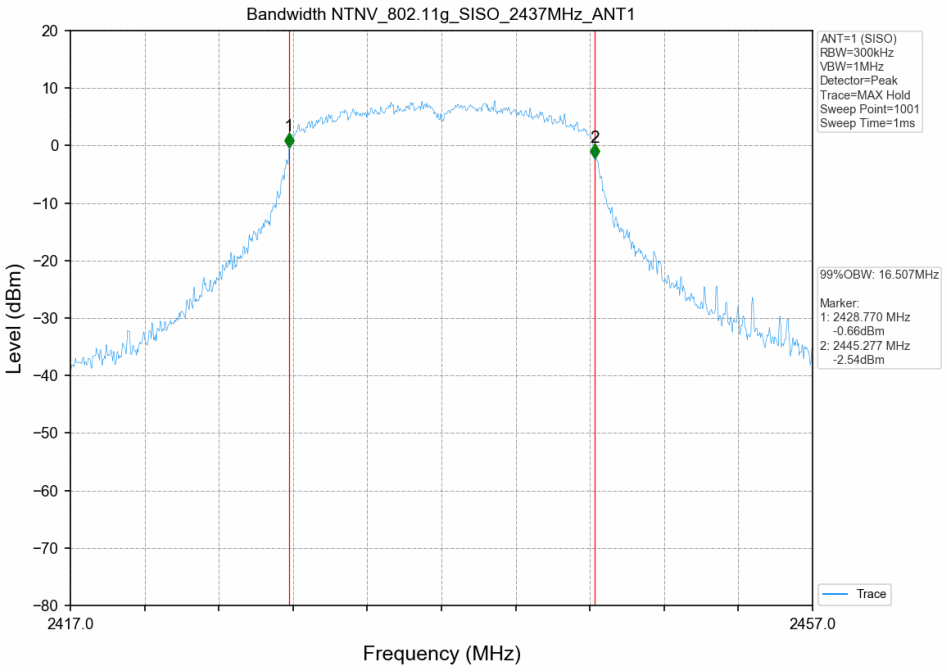
2.3 Test Graph - 99% Occupied Bandwidth

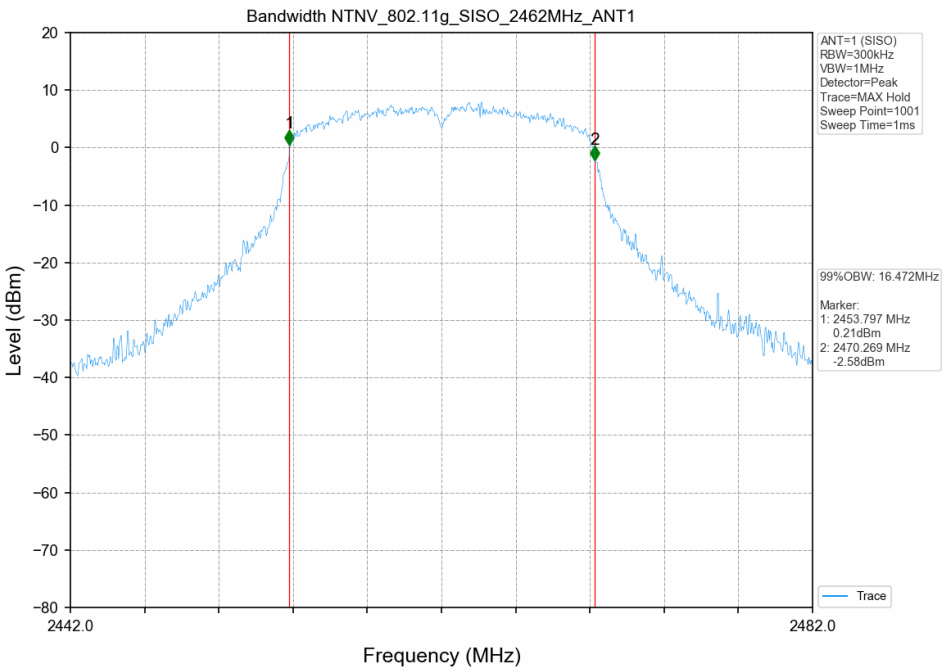


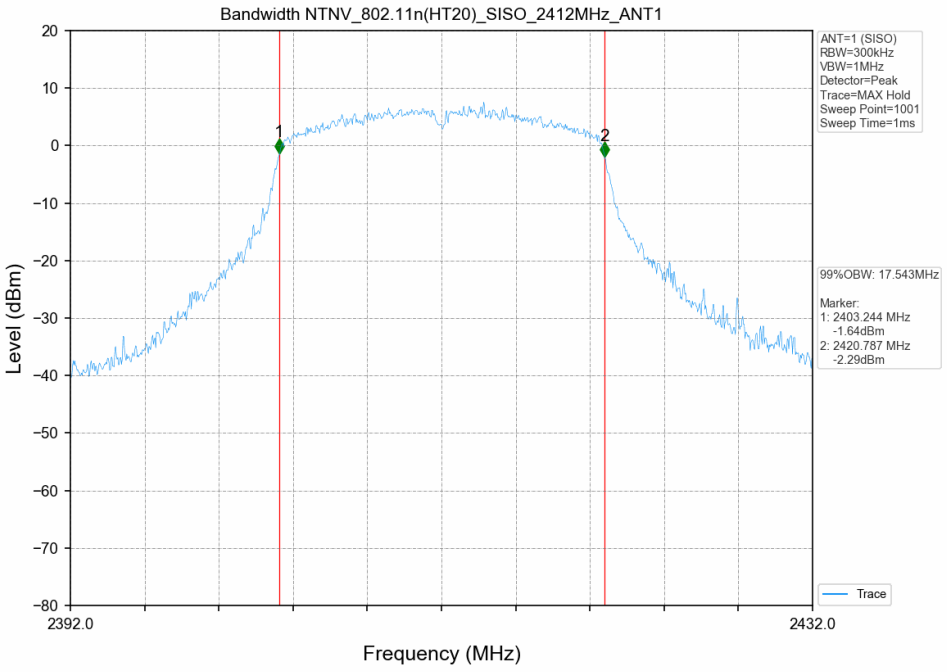

Bandwidth NTNV_802.11b_SISO_2437MHz_ANT1
ANT=1 (SISO)
RBW=300kHz
VBW=1MHz
Detector=Peak
Trace=MAX Hold
Sweep Point=1001
Sweep Time=1ms
99%OBW: 13.980MHz
Marker:
1: 2430.029 MHz
-4.41dBm
2: 2444.010 MHz
-4.28dBm
Trace
Level (dBm)
Frequency (MHz)
2417.0
2457.0

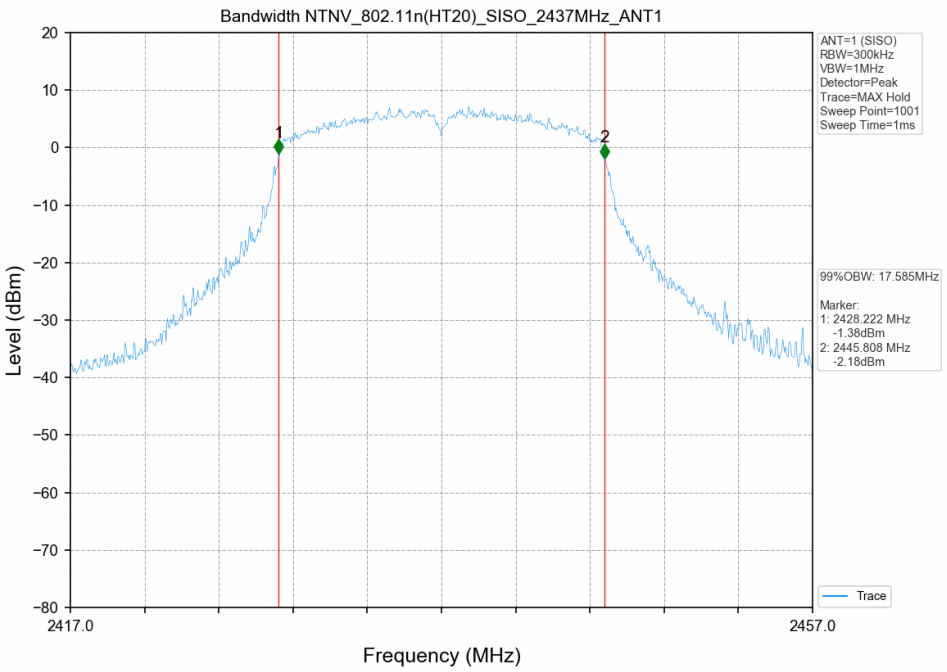

Bandwidth NTNV_802.11b_SISO_2462MHz_ANT1
ANT=1 (SISO)
RBW=300kHz
VBW=1MHz
Detector=Peak
Trace=MAX Hold
Sweep Point=1001
Sweep Time=1ms
99%OBW: 13.960MHz
Marker:
1: 2455.038 MHz
-4.14dBm
2: 2468.998 MHz
-4.02dBm
Trace
Level (dBm)
Frequency (MHz)
2442.0
2482.0

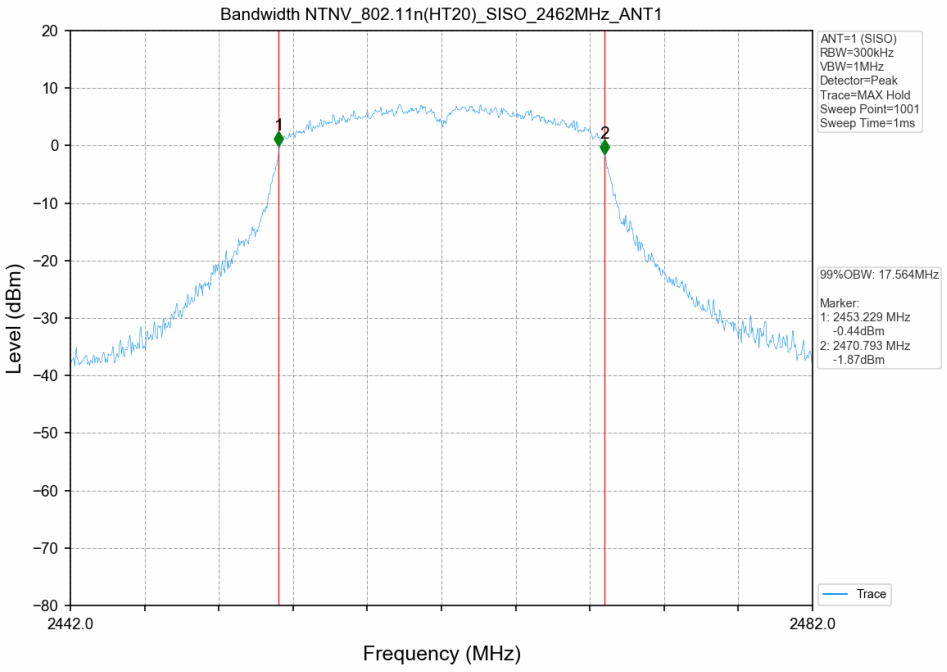

Bandwidth NTNV_802.11g_SISO_2412MHz_ANT1
ANT=1 (SISO)
RBW=300kHz
VBW=1MHz
Detector=Peak
Trace=MAX Hold
Sweep Point=1001
Sweep Time=1ms
99%OBW: 16.476MHz
Marker:
1: 2403.802 MHz
-0.90dBm
2: 2420.278 MHz
-2.90dBm
Trace
Level (dBm)
Frequency (MHz)
2392.0
2432.0


Bandwidth NTNV_802.11g_SISO_2437MHz_ANT1
ANT=1 (SISO)
RBW=300kHz
VBW=1MHz
Detector=Peak
Trace=MAX Hold
Sweep Point=1001
Sweep Time=1ms
99%OBW: 16.507MHz
Marker:
1: 2428.770 MHz
-0.66dBm
2: 2445.277 MHz
-2.54dBm
Trace
Level (dBm)
Frequency (MHz)
2417.0
2457.0


Bandwidth NTNV_802.11g_SISO_2462MHz_ANT1
ANT=1 (SISO)
RBW=300kHz
VBW=1MHz
Detector=Peak
Trace=MAX Hold
Sweep Point=1001
Sweep Time=1ms
99%OBW: 16.472MHz
Marker:
1: 2453.797 MHz
0.21dBm
2: 2470.269 MHz
-2.58dBm
Trace
Level (dBm)
Frequency (MHz)
2442.0
2482.0


Bandwidth NTNV_802.11n(HT20)_SISO_2412MHz_ANT1
ANT=1 (SISO)
RBW=300kHz
VBW=1MHz
Detector=Peak
Trace=MAX Hold
Sweep Point=1001
Sweep Time=1ms
99%OBW: 17.543MHz
Marker:
1: 2403.244 MHz
-1.64dBm
2: 2420.787 MHz
-2.29dBm
Trace
Level (dBm)
Frequency (MHz)
2392.0
2432.0


Bandwidth NTNV_802.11n(HT20)_SISO_2437MHz_ANT1
ANT=1 (SISO)
RBW=300kHz
VBW=1MHz
Detector=Peak
Trace=MAX Hold
Sweep Point=1001
Sweep Time=1ms
99%OBW: 17.585MHz
Marker:
1: 2428.222 MHz
-1.38dBm
2: 2445.808 MHz
-2.18dBm
Trace
Level (dBm)
Frequency (MHz)
2417.0
2457.0

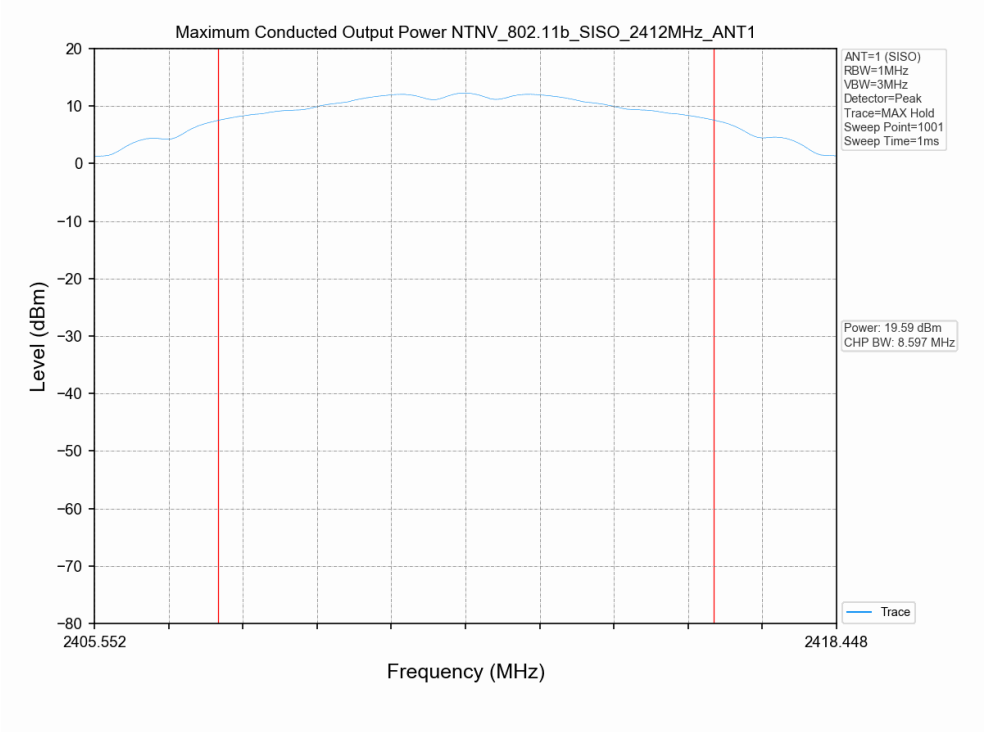

Bandwidth NTNV_802.11n(HT20)_SISO_2462MHz_ANT1
ANT=1 (SISO)
RBW=300kHz
VBW=1MHz
Detector=Peak
Trace=MAX Hold
Sweep Point=1001
Sweep Time=1ms
99%OBW: 17.564MHz
Marker:
1: 2453.229 MHz
-0.44dBm
2: 2470.793 MHz
-1.87dBm
Trace
Level (dBm)
Frequency (MHz)
2442.0
2482.0

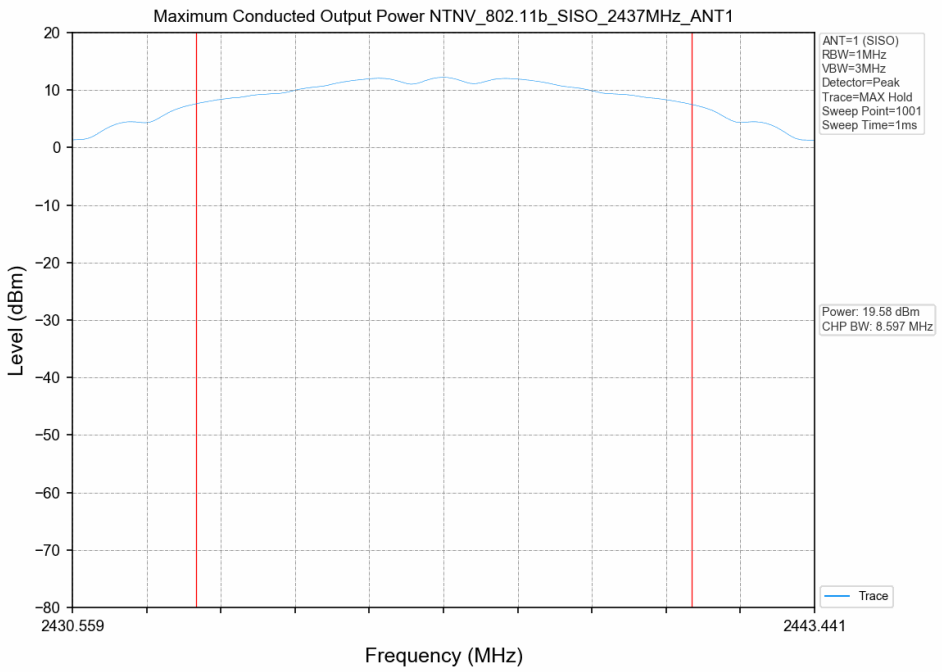
3. Maximum Conducted Output Power

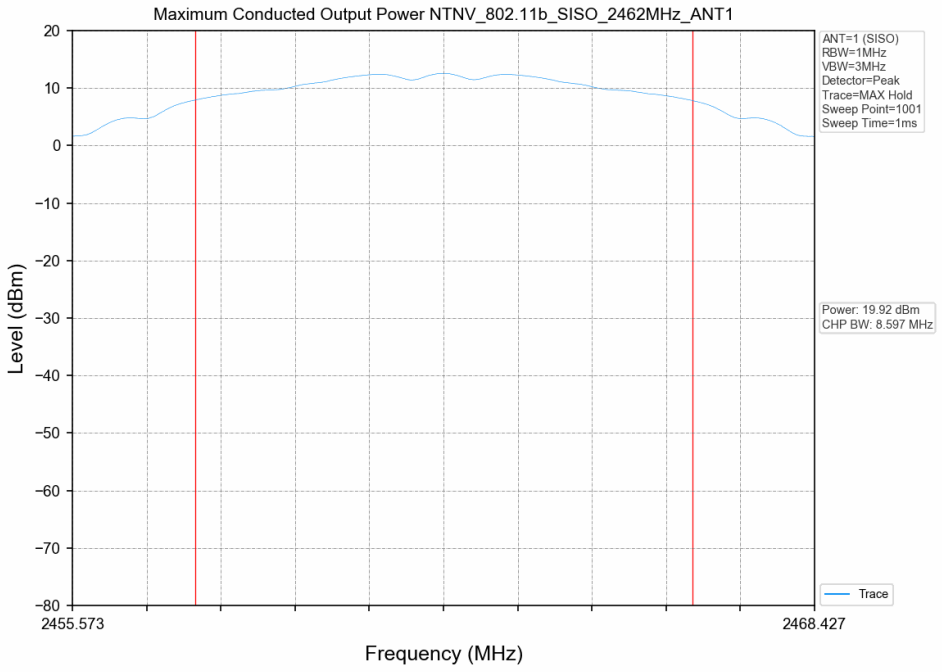
3.1 Test Result

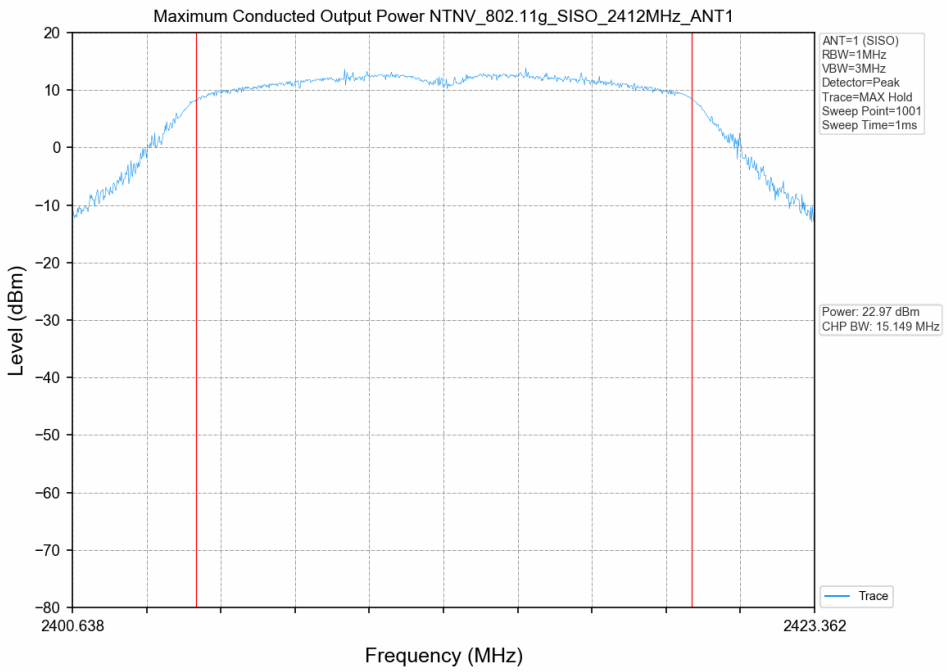
Test Mode	Frequency (MHz)	Tx Type	Measured Peak Output Power (dBm)	Limits (dBm)	Verdict
			Ant 1		
802.11b	2412	SISO	19.59	30	PASS
	2437	SISO	19.58	30	PASS
	2462	SISO	19.92	30	PASS
802.11g	2412	SISO	22.97	30	PASS
	2437	SISO	23.24	30	PASS
	2462	SISO	23.37	30	PASS
802.11n(HT20)	2412	SISO	22.32	30	PASS
	2437	SISO	22.46	30	PASS
	2462	SISO	22.66	30	PASS

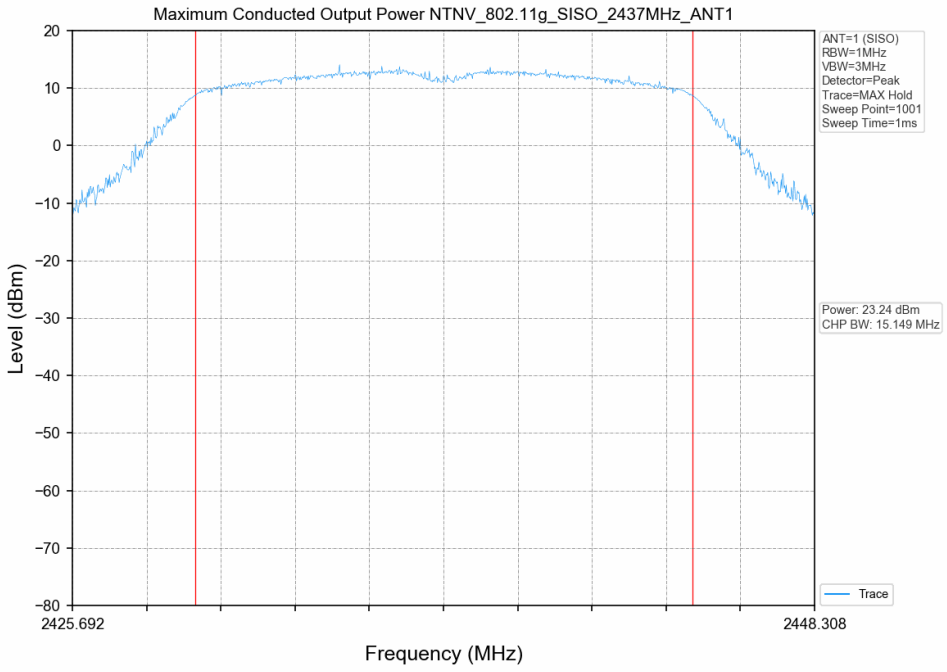
3.2 Test Graph

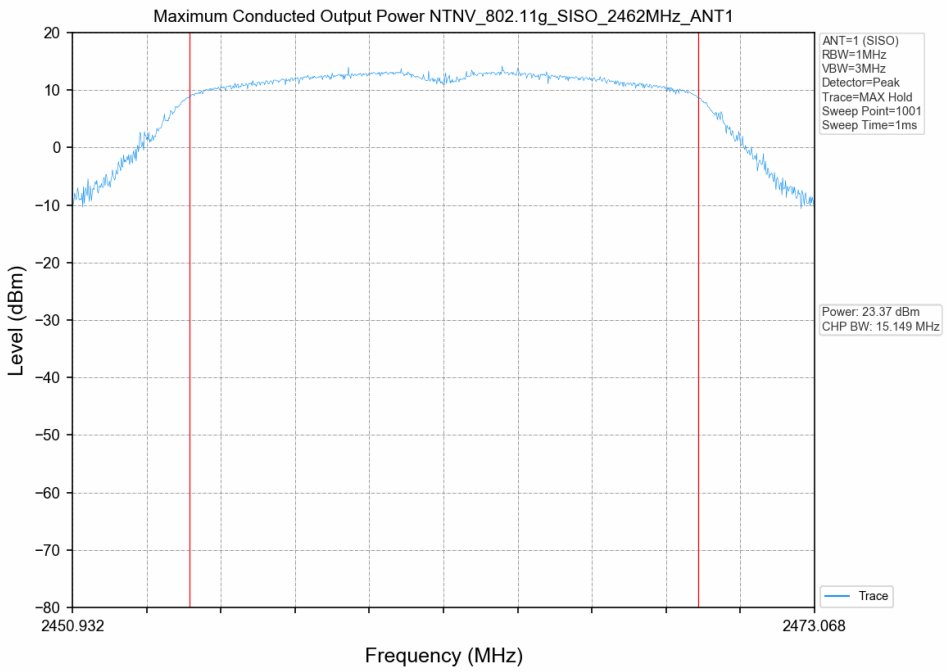


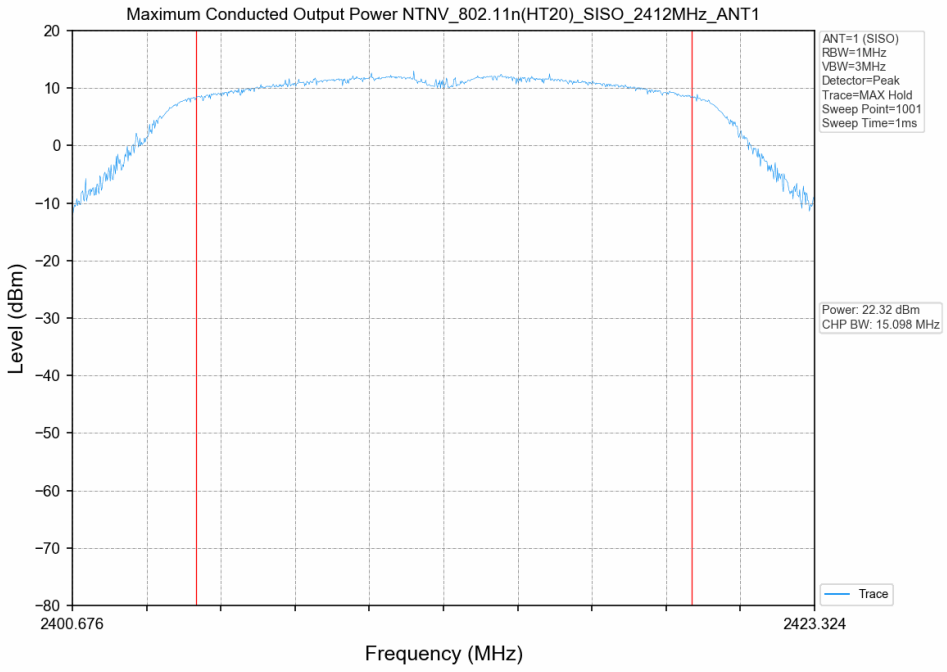

Maximum Conducted Output Power NTNV_802.11b_SISO_2437MHz_ANT1
ANT=1 (SISO)
RBW=1MHz
VBW=3MHz
Detector=Peak
Trace=MAX Hold
Sweep Point=1001
Sweep Time=1ms
Power: 19.58 dBm
CHP BW: 8.597 MHz
Trace
Level (dBm)
20
10
0
−10
−20
−30
−40
−50
−60
−70
−80
2430.559
2443.441
Frequency (MHz)

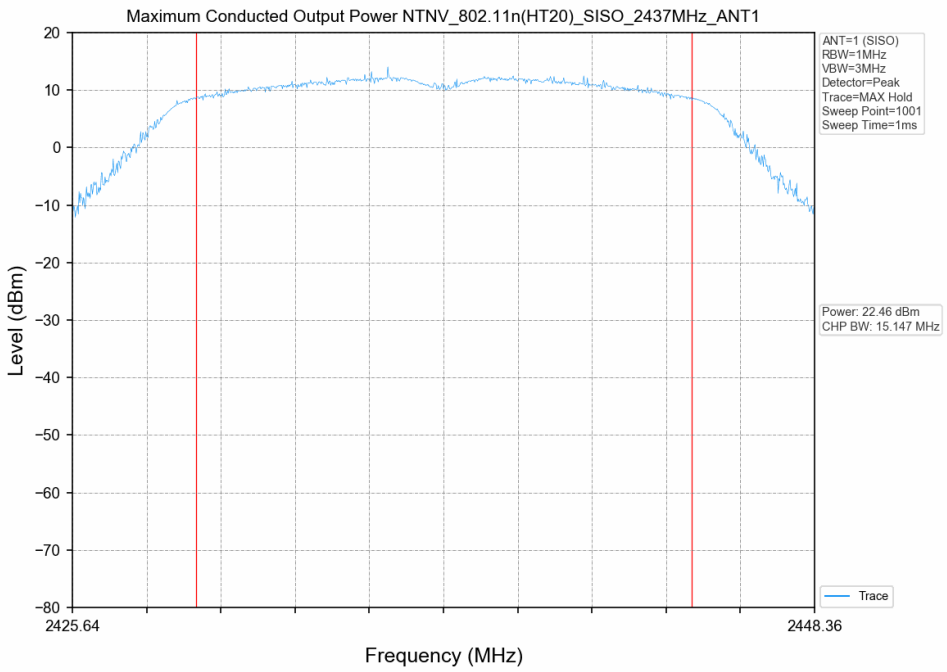

Maximum Conducted Output Power NTNV_802.11b_SISO_2462MHz_ANT1
ANT=1 (SISO)
RBW=1MHz
VBW=3MHz
Detector=Peak
Trace=MAX Hold
Sweep Point=1001
Sweep Time=1ms
Power: 19.92 dBm
CHP BW: 8.597 MHz
Trace
Level (dBm)
20
10
0
−10
−20
−30
−40
−50
−60
−70
−80
2455.573
2468.427
Frequency (MHz)

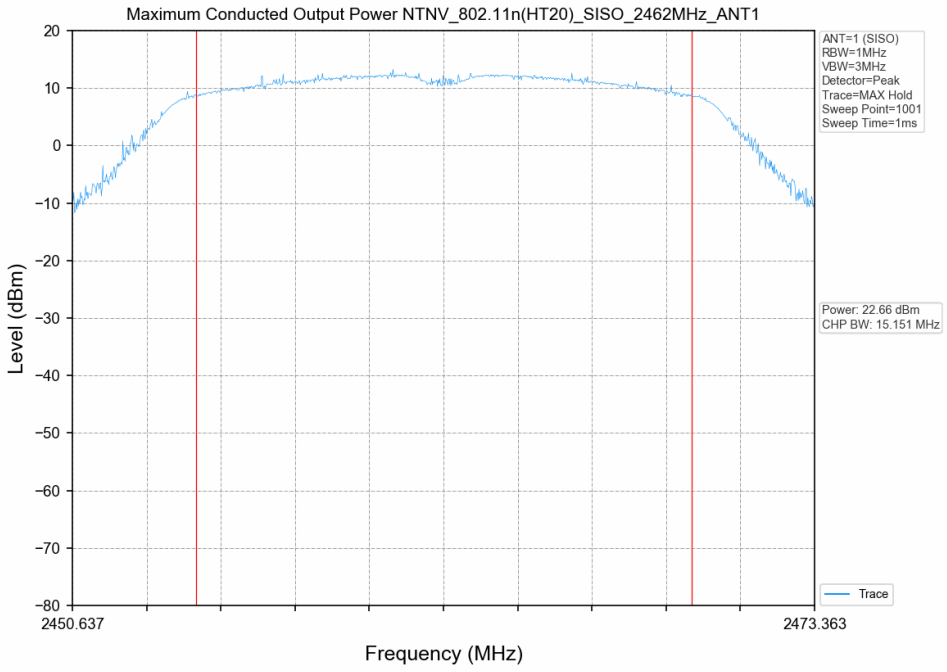

Maximum Conducted Output Power NTNV_802.11g_SISO_2412MHz_ANT1
ANT=1 (SISO)
RBW=1MHz
VBW=3MHz
Detector=Peak
Trace=MAX Hold
Sweep Point=1001
Sweep Time=1ms
Power: 22.97 dBm
CHP BW: 15.149 MHz
Trace
Level (dBm)
20
10
0
−10
−20
−30
−40
−50
−60
−70
−80
2400.638
2423.362
Frequency (MHz)


Maximum Conducted Output Power NTNV_802.11g_SISO_2437MHz_ANT1
ANT=1 (SISO)
RBW=1MHz
VBW=3MHz
Detector=Peak
Trace=MAX Hold
Sweep Point=1001
Sweep Time=1ms
Power: 23.24 dBm
CHP BW: 15.149 MHz
Trace
Level (dBm)
20
10
0
−10
−20
−30
−40
−50
−60
−70
−80
2425.692
2448.308
Frequency (MHz)


Maximum Conducted Output Power NTNV_802.11g_SISO_2462MHz_ANT1
ANT=1 (SISO)
RBW=1MHz
VBW=3MHz
Detector=Peak
Trace=MAX Hold
Sweep Point=1001
Sweep Time=1ms
Power: 23.37 dBm
CHP BW: 15.149 MHz
Trace
Level (dBm)
20
10
0
−10
−20
−30
−40
−50
−60
−70
−80
2450.932
2473.068
Frequency (MHz)


Maximum Conducted Output Power NTNV_802.11n(HT20)_SISO_2412MHz_ANT1
ANT=1 (SISO)
RBW=1MHz
VBW=3MHz
Detector=Peak
Trace=MAX Hold
Sweep Point=1001
Sweep Time=1ms
Power: 22.32 dBm
CHP BW: 15.098 MHz
Trace
Level (dBm)
20
10
0
−10
−20
−30
−40
−50
−60
−70
−80
2400.676
2423.324
Frequency (MHz)





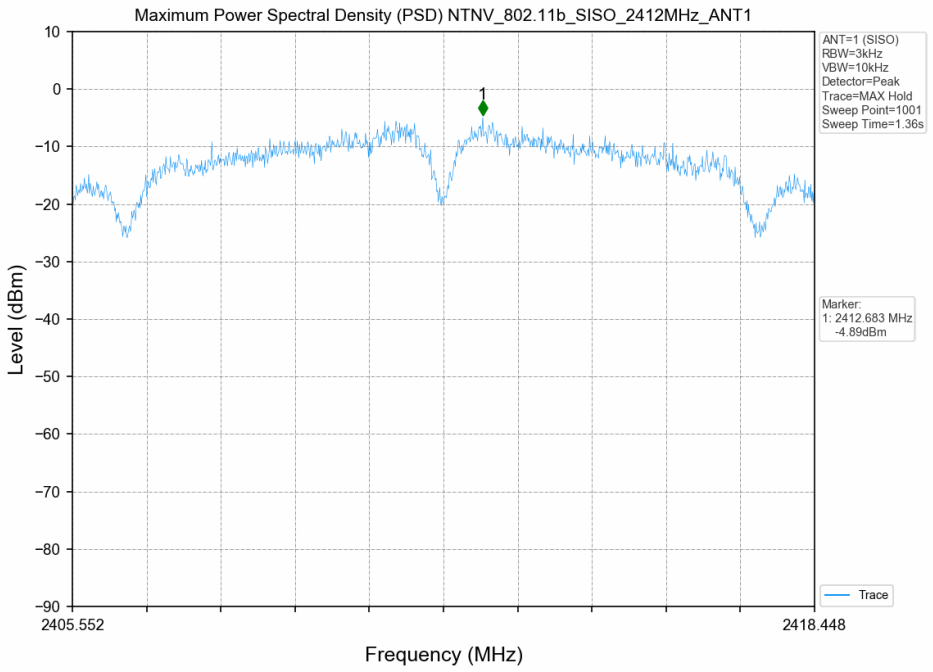
4. Maximum Power Spectral Density (PSD)

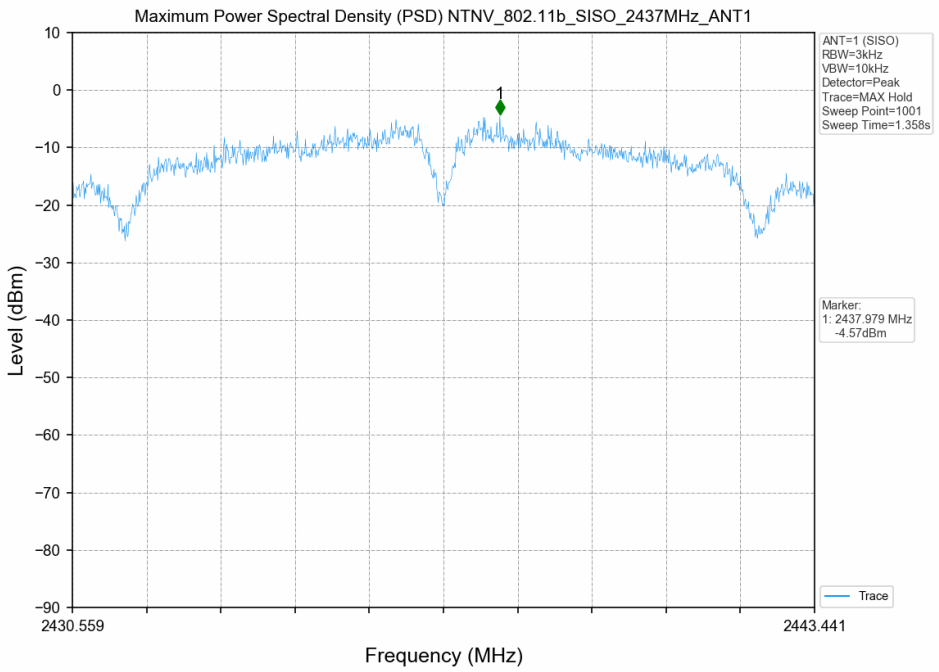
4.1 Test Result

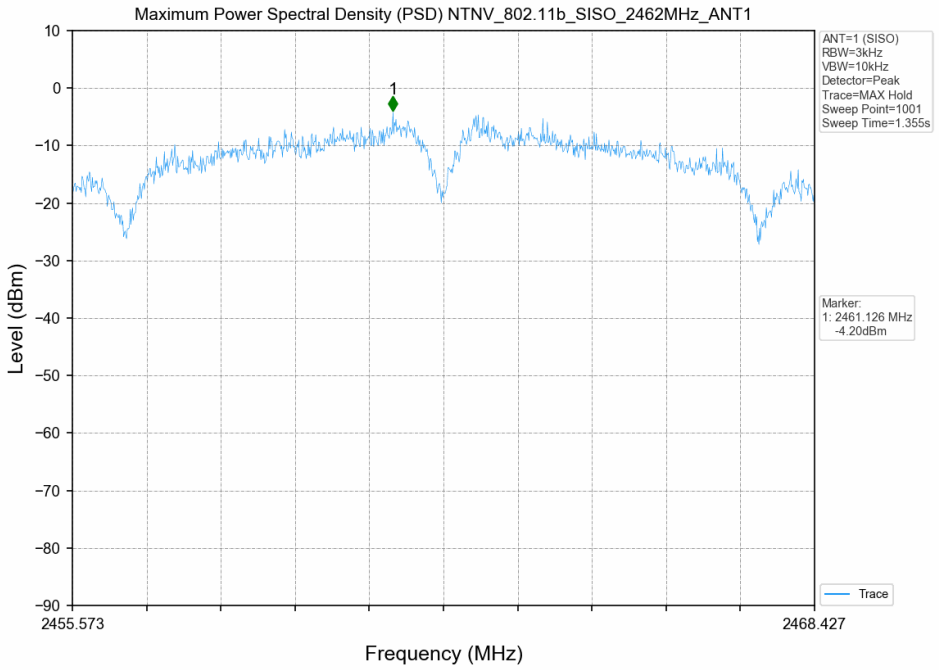
Test Mode	Frequency (MHz)	Tx Type	Maximum Power Spectral Density (dBm/3KHz)	Limits (dBm/3kHz)	Verdict
			Ant 1		

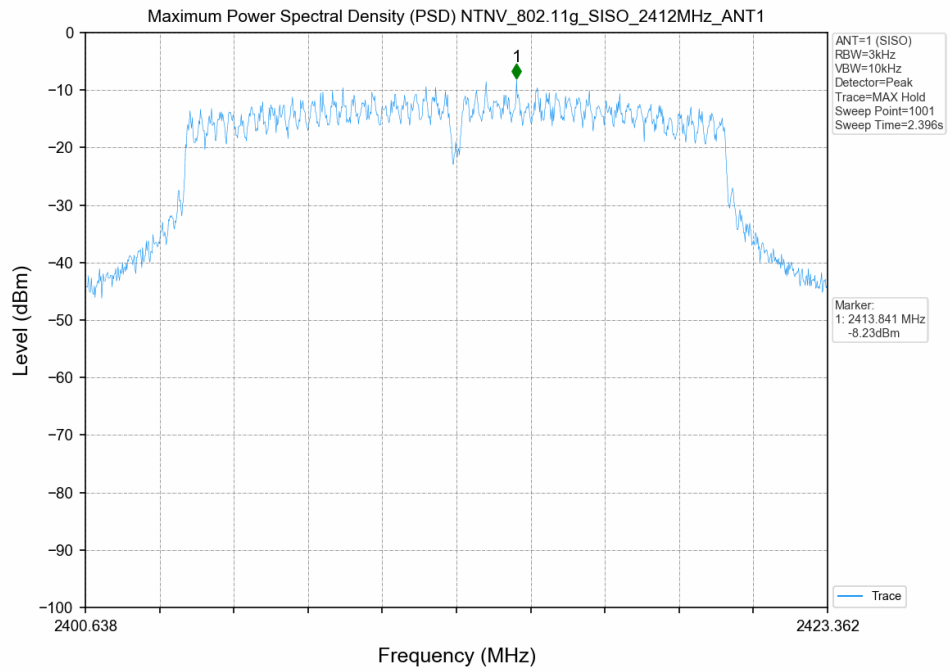
802.11b	2412	SISO	-4.89	≤8	PASS
	2437	SISO	-4.57	≤8	PASS
	2462	SISO	-4.20	≤8	PASS
802.11g	2412	SISO	-8.23	≤8	PASS
	2437	SISO	-7.53	≤8	PASS
	2462	SISO	-9.08	≤8	PASS
802.11n(HT20)	2412	SISO	-8.35	≤8	PASS
	2437	SISO	-8.77	≤8	PASS
	2462	SISO	-9.25	≤8	PASS

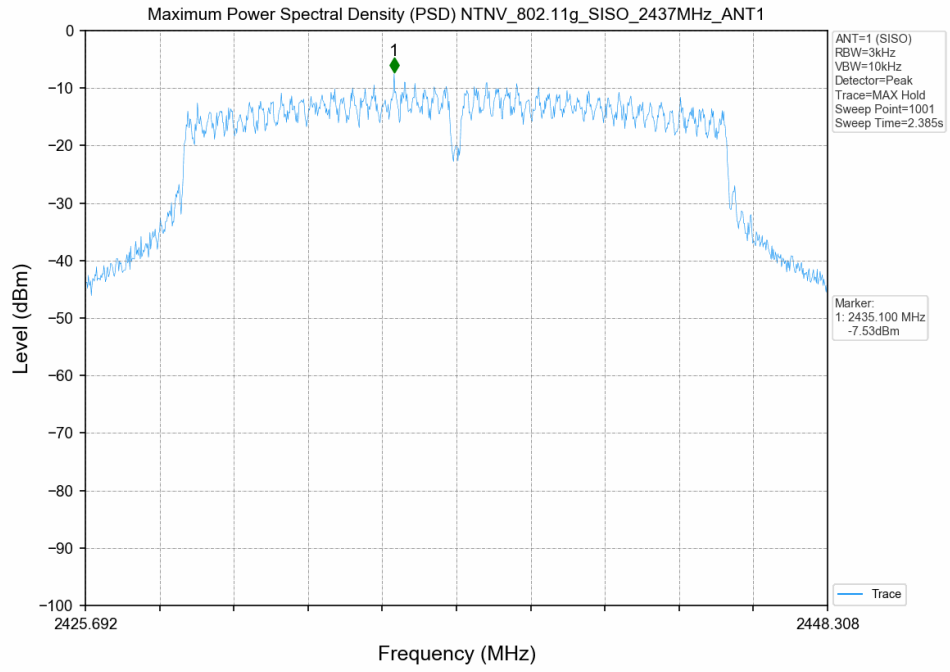
4.2 Test Graph

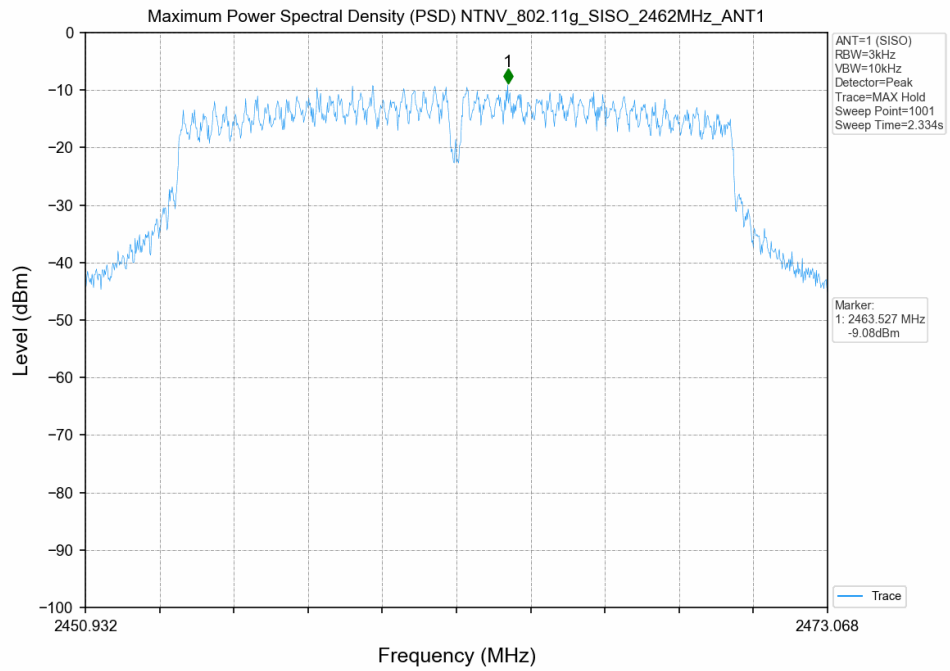


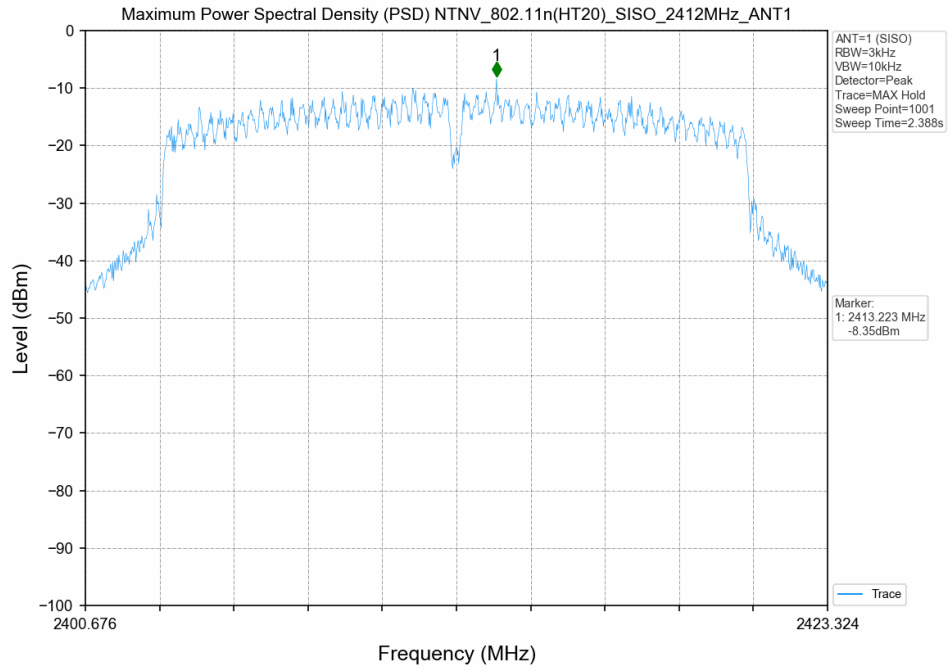

Maximum Power Spectral Density (PSD) NTNV_802.11b_SISO_2437MHz_ANT1
ANT=1 (SISO)
RBW=3kHz
VBW=10kHz
Detector=Peak
Trace=MAX Hold
Sweep Point=1001
Sweep Time=1.358s
Marker:
1: 2437.979 MHz
-4.57dBm
Trace
Level (dBm)
Frequency (MHz)
2430.559
2443.441

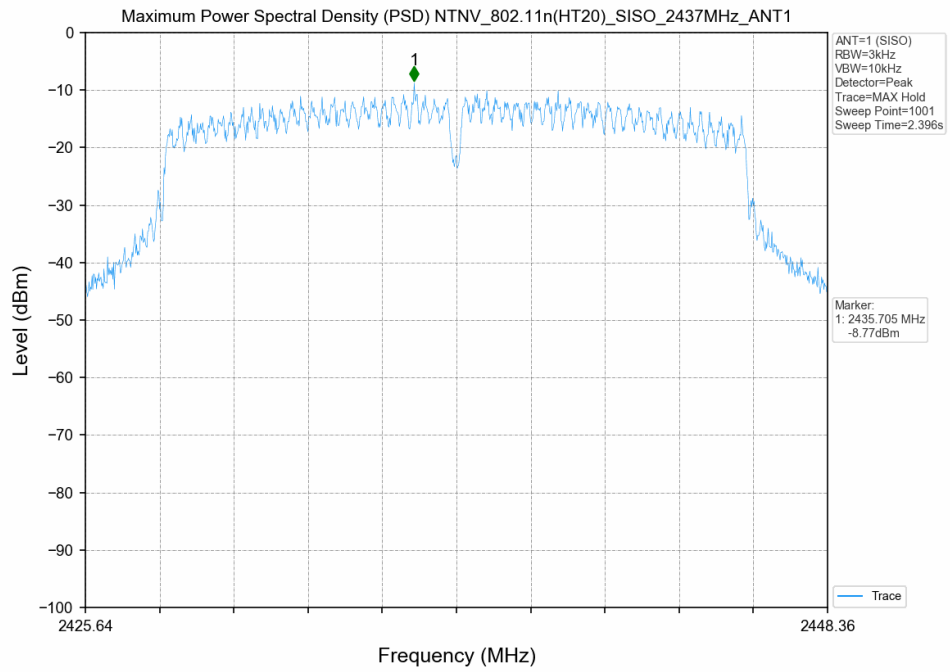

Maximum Power Spectral Density (PSD) NTNV_802.11b_SISO_2462MHz_ANT1
ANT=1 (SISO)
RBW=3kHz
VBW=10kHz
Detector=Peak
Trace=MAX Hold
Sweep Point=1001
Sweep Time=1.355s
Marker:
1: 2461.126 MHz
-4.20dBm
Trace
Level (dBm)
Frequency (MHz)
2455.573
2468.427

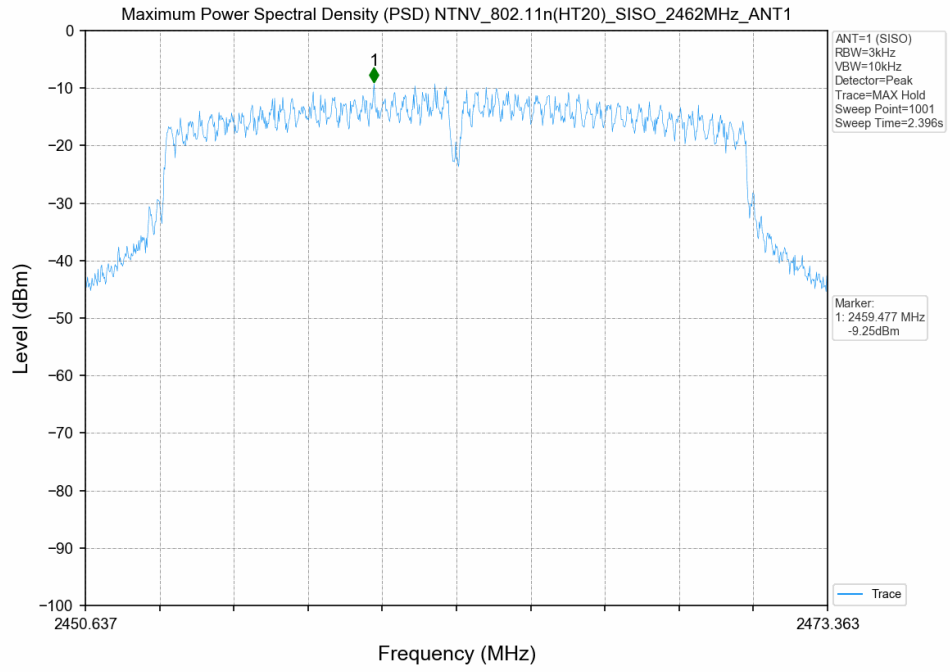

Maximum Power Spectral Density (PSD) NTNV_802.11g_SISO_2412MHz_ANT1
ANT=1 (SISO)
RBW=3kHz
VBW=10kHz
Detector=Peak
Trace=MAX Hold
Sweep Point=1001
Sweep Time=2.396s
Marker:
1: 2413.841 MHz
-8.23dBm
Trace
Level (dBm)
Frequency (MHz)
2400.638
2423.362


Maximum Power Spectral Density (PSD) NTNV_802.11g_SISO_2437MHz_ANT1
ANT=1 (SISO)
RBW=3kHz
VBW=10kHz
Detector=Peak
Trace=MAX Hold
Sweep Point=1001
Sweep Time=2.385s
Marker:
1: 2435.100 MHz
-7.53dBm
Trace
Level (dBm)
Frequency (MHz)
2425.692
2448.308


Maximum Power Spectral Density (PSD) NTNV_802.11g_SISO_2462MHz_ANT1
ANT=1 (SISO)
RBW=3kHz
VBW=10kHz
Detector=Peak
Trace=MAX Hold
Sweep Point=1001
Sweep Time=2.334s
Marker:
1: 2463.527 MHz
-9.08dBm
Trace
Level (dBm)
Frequency (MHz)
2450.932
2473.068


Maximum Power Spectral Density (PSD) NTNV_802.11n(HT20)_SISO_2412MHz_ANT1
ANT=1 (SISO)
RBW=3kHz
VBW=10kHz
Detector=Peak
Trace=MAX Hold
Sweep Point=1001
Sweep Time=2.388s
Marker:
1: 2413.223 MHz
-8.35dBm
Trace
Level (dBm)
Frequency (MHz)
2400.676
2423.324





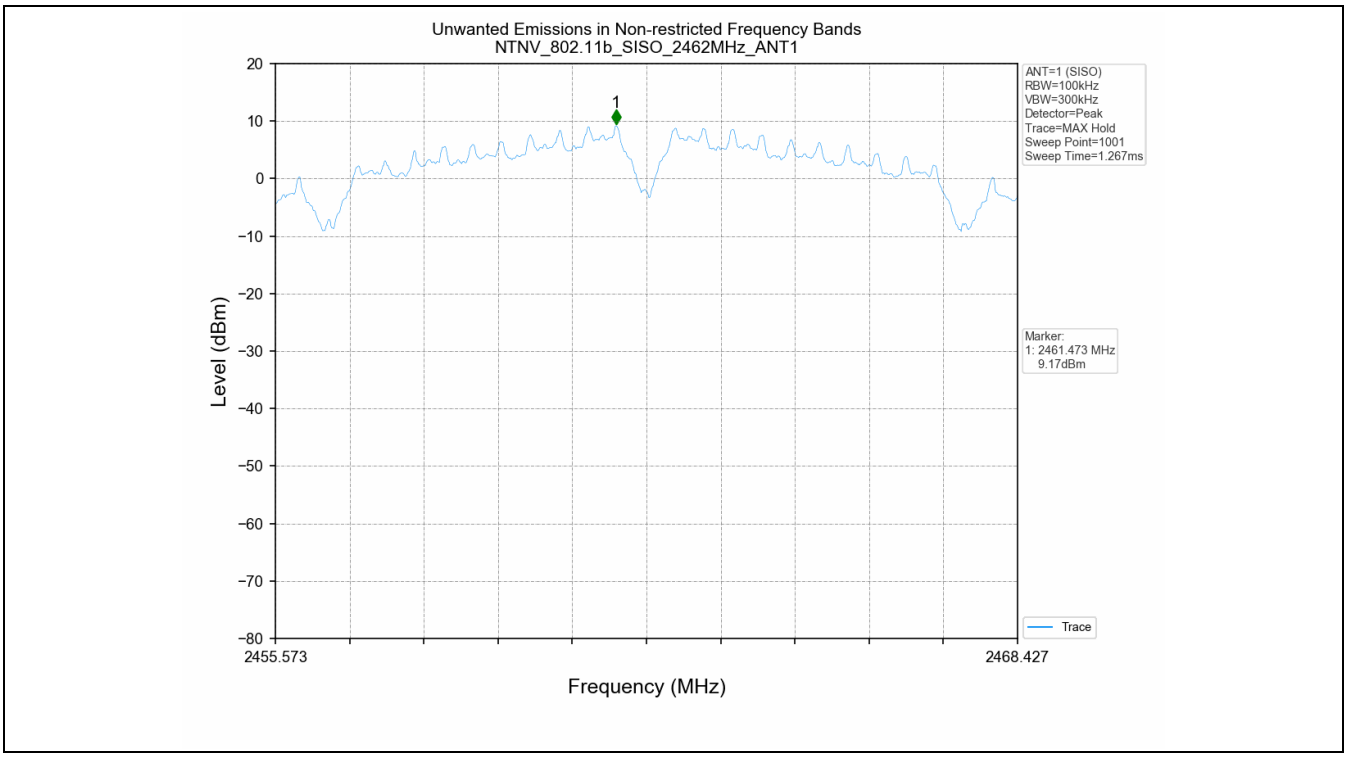
5. Unwanted Emissions in Non-restricted Frequency Bands

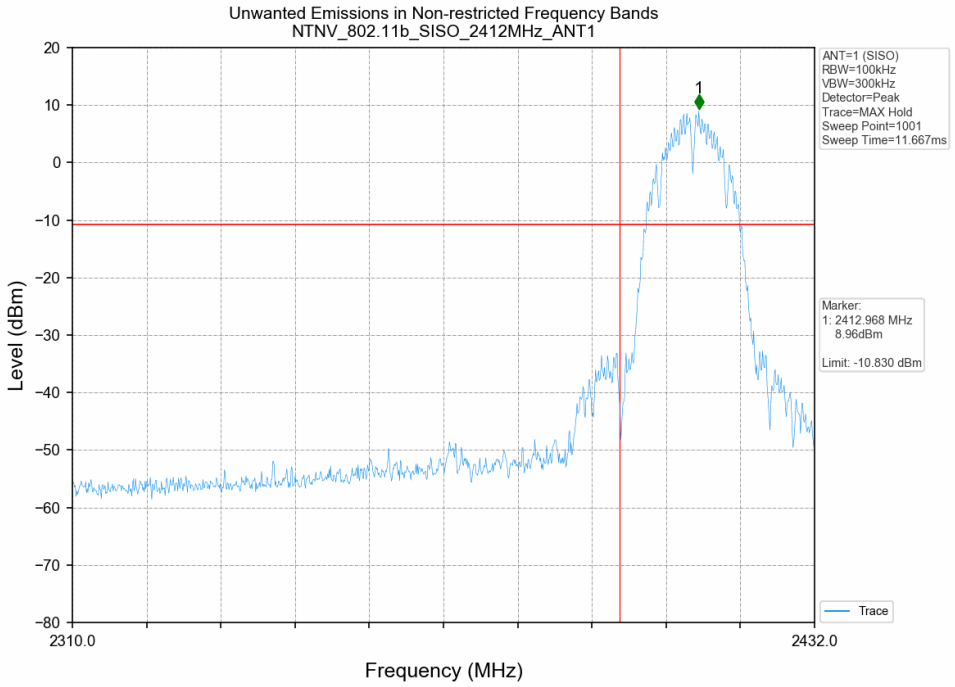
5.1 Test Result

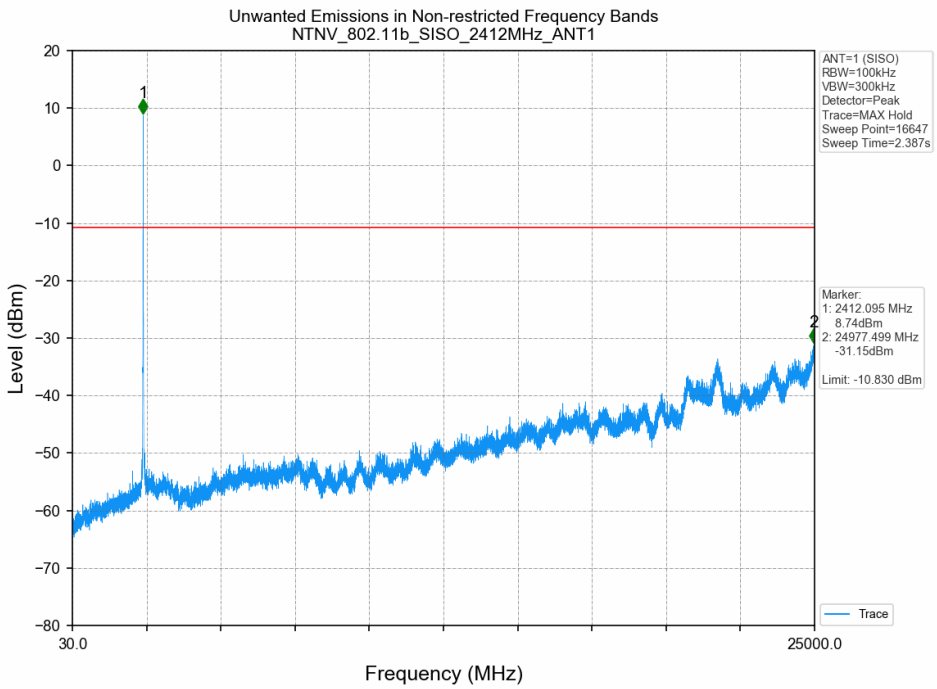
Test Mode	Frequency (MHz)	TX Type	ANT No.	Spurious Conducted Emission (dBm)	Limits (dBm)	Verdict
802.11b	2412	SISO	1	Refer to test graph	-10.83	PASS
	2437	SISO	1	Refer to test graph	-10.83	PASS

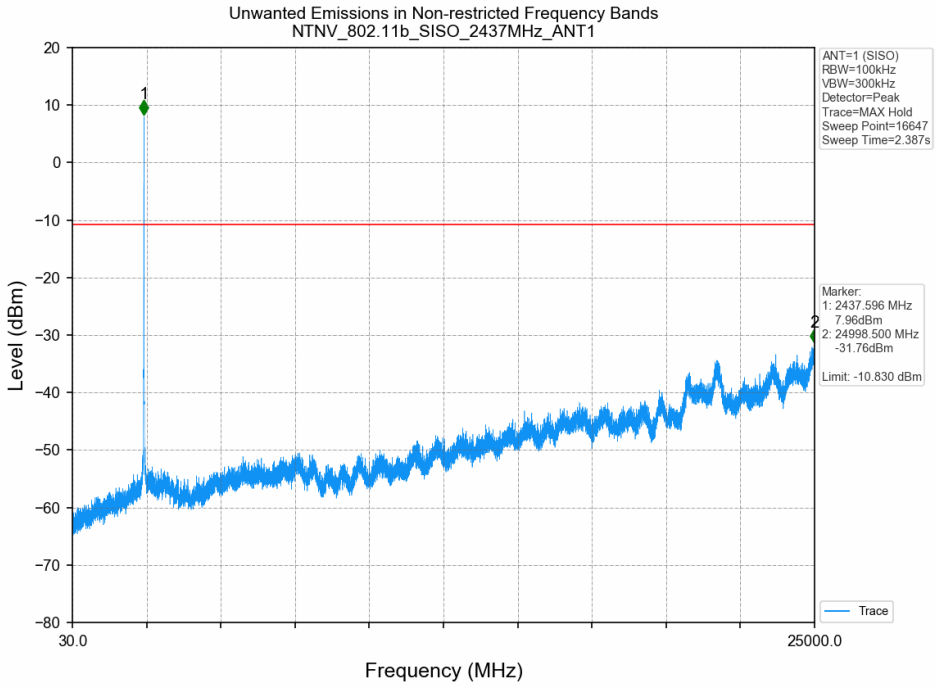
	2462	SISO	1	Refer to test graph	-10.83	PASS
802.11g	2412	SISO	1	Refer to test graph	-14.39	PASS
	2437	SISO	1	Refer to test graph	-14.39	PASS
	2462	SISO	1	Refer to test graph	-14.39	PASS
802.11n(HT20)	2412	SISO	1	Refer to test graph	-14.96	PASS
	2437	SISO	1	Refer to test graph	-14.96	PASS
	2462	SISO	1	Refer to test graph	-14.96	PASS

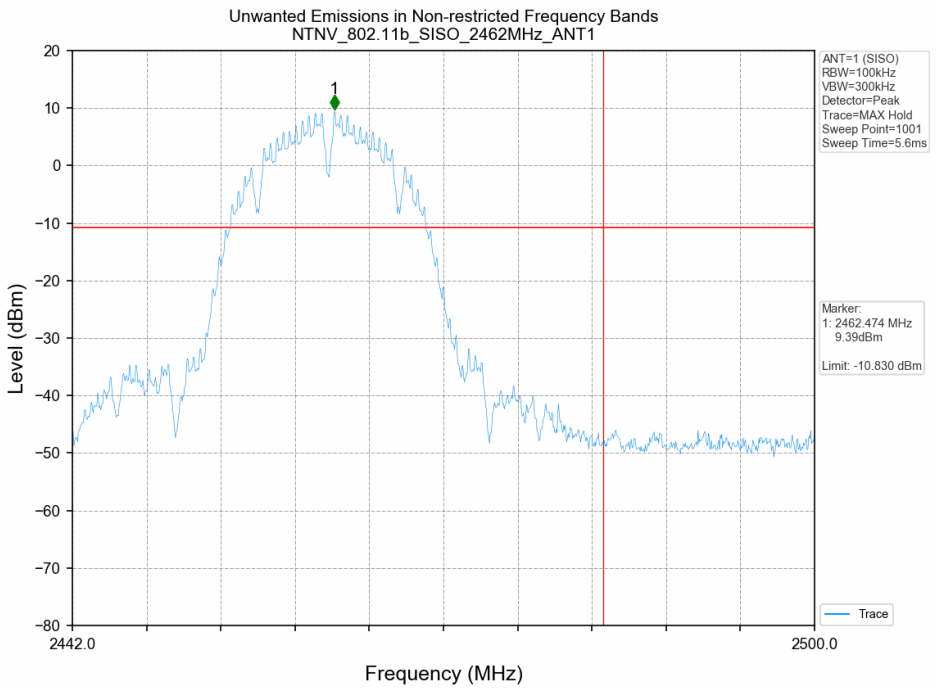
5.2 Test Graph

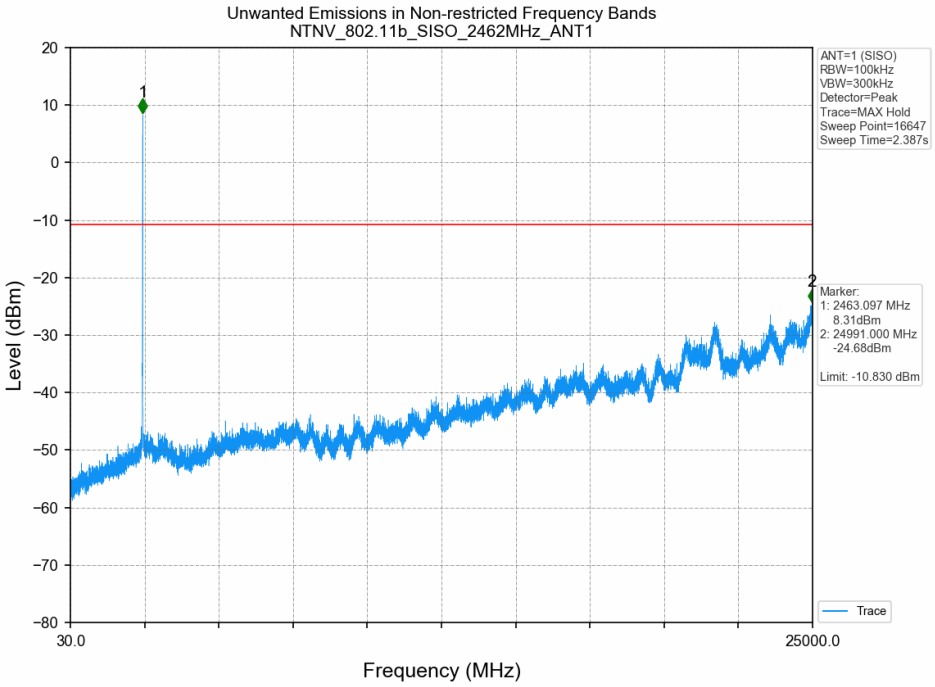


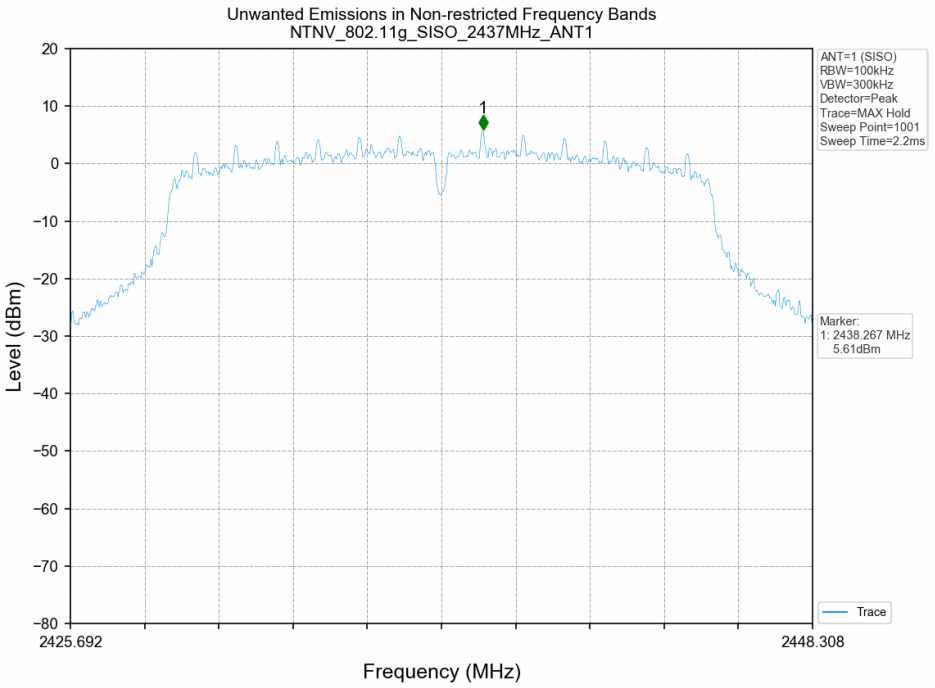

Unwanted Emissions in Non-restricted Frequency Bands
NTNV_802.11b_SISO_2412MHz_ANT1
ANT=1 (SISO)
RBW=100kHz
VBW=300kHz
Detector=Peak
Trace=MAX Hold
Sweep Point=1001
Sweep Time=11.667ms
Marker:
1: 2412.968 MHz
8.96dBm
Limit: -10.830 dBm
Trace
Level (dBm)
Frequency (MHz)
2310.0
2432.0

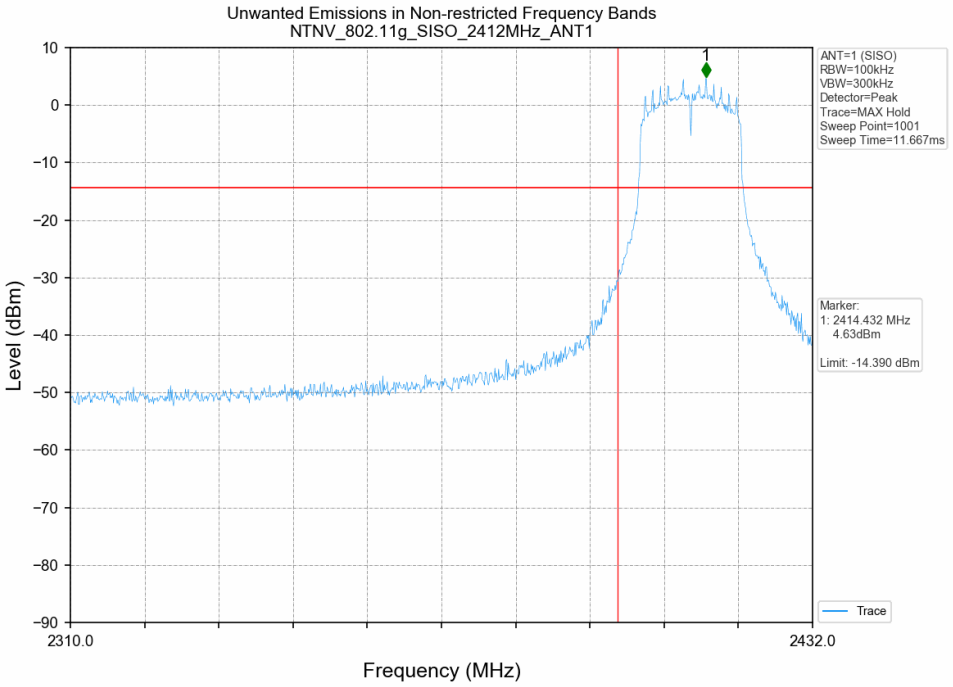

Unwanted Emissions in Non-restricted Frequency Bands
NTNV_802.11b_SISO_2412MHz_ANT1
ANT=1 (SISO)
RBW=100kHz
VBW=300kHz
Detector=Peak
Trace=MAX Hold
Sweep Point=16647
Sweep Time=2.387s
Marker:
1: 2412.095 MHz
8.74dBm
2: 24977.499 MHz
-31.15dBm
Limit: -10.830 dBm
Trace
Level (dBm)
Frequency (MHz)
30.0
25000.0

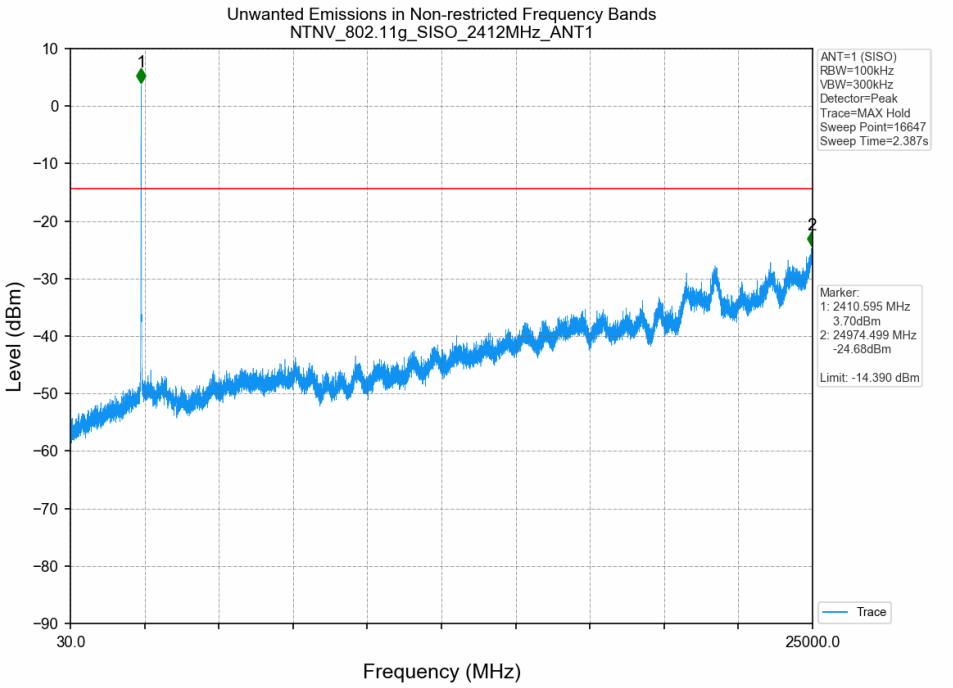

Unwanted Emissions in Non-restricted Frequency Bands
NTNV_802.11b_SISO_2437MHz_ANT1
ANT=1 (SISO)
RBW=100kHz
VBW=300kHz
Detector=Peak
Trace=MAX Hold
Sweep Point=16647
Sweep Time=2.387s
Marker:
1: 2437.596 MHz
7.96dBm
2: 24998.500 MHz
-31.76dBm
Limit: -10.830 dBm
Trace
Level (dBm)
Frequency (MHz)
30.0
25000.0

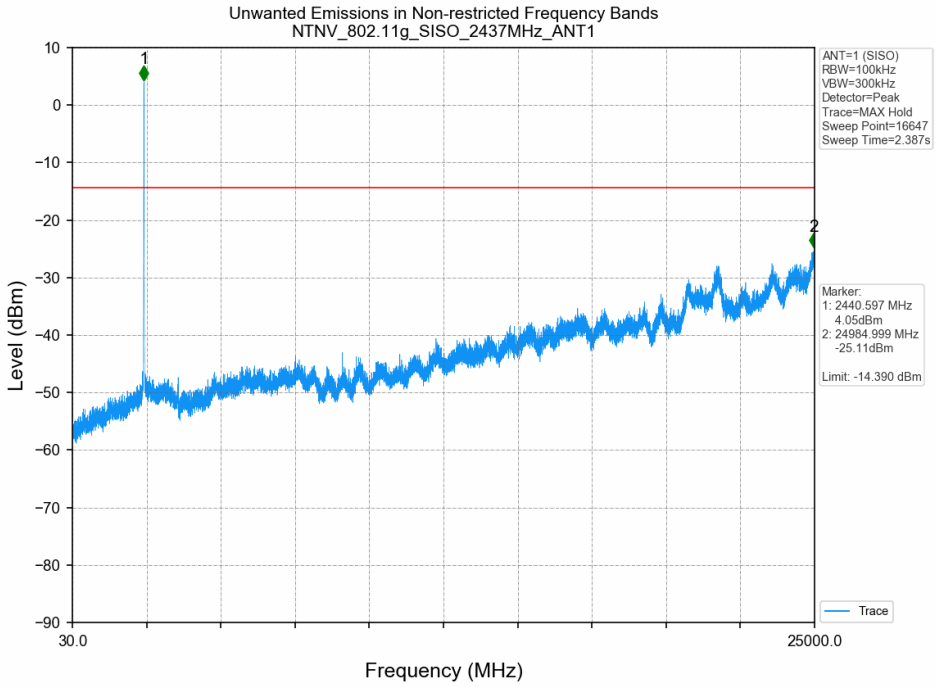

Unwanted Emissions in Non-restricted Frequency Bands
NTNV_802.11b_SISO_2462MHz_ANT1
ANT=1 (SISO)
RBW=100kHz
VBW=300kHz
Detector=Peak
Trace=MAX Hold
Sweep Point=1001
Sweep Time=5.6ms
Marker:
1: 2462.474 MHz
9.39dBm
Limit: -10.830 dBm
Trace
Level (dBm)
Frequency (MHz)
2442.0
2500.0

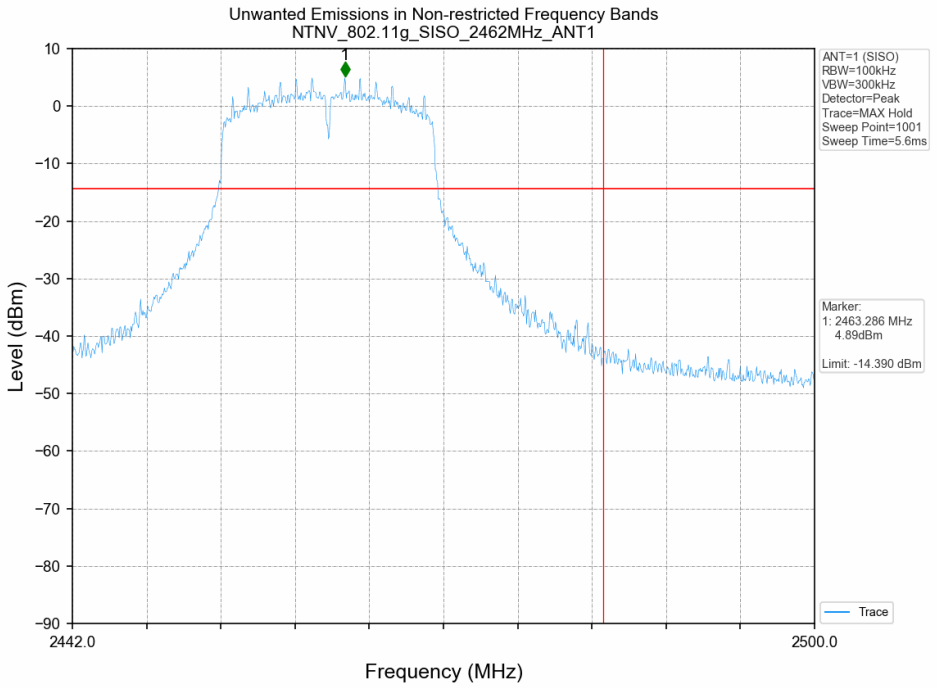

Unwanted Emissions in Non-restricted Frequency Bands
NTNV_802.11b_SISO_2462MHz_ANT1
ANT=1 (SISO)
RBW=100kHz
VBW=300kHz
Detector=Peak
Trace=MAX Hold
Sweep Point=16647
Sweep Time=2.387s
Marker:
1: 2463.097 MHz
8.31dBm
2: 24991.000 MHz
-24.68dBm
Limit: -10.830 dBm
Trace
Level (dBm)
Frequency (MHz)
30.0
25000.0

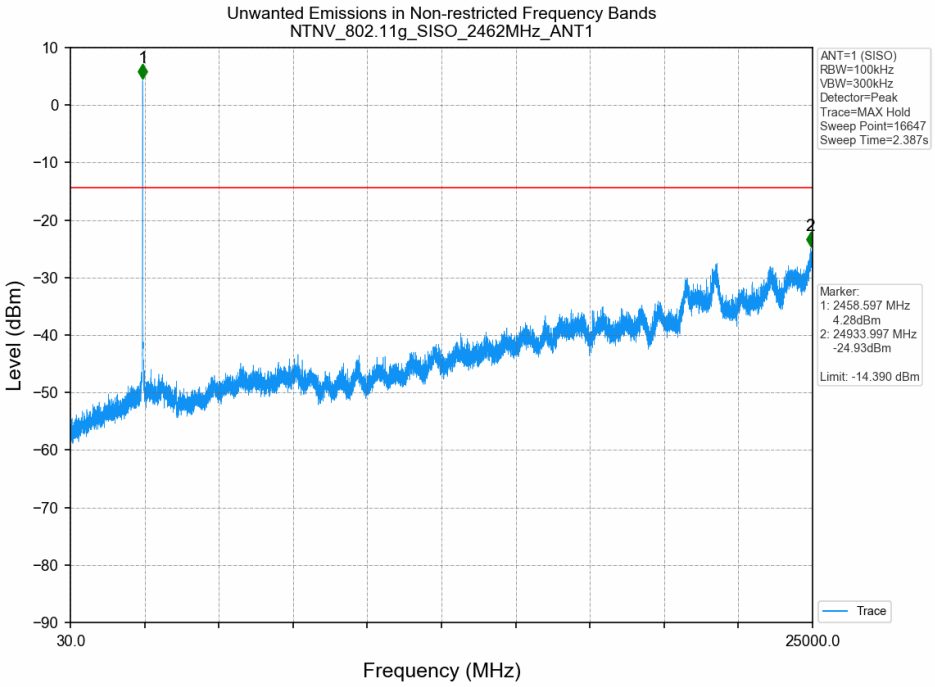

Unwanted Emissions in Non-restricted Frequency Bands
NTNV_802.11g_SISO_2437MHz_ANT1
ANT=1 (SISO)
RBW=100kHz
VBW=300kHz
Detector=Peak
Trace=MAX Hold
Sweep Point=1001
Sweep Time=2.2ms
Marker:
1: 2438.267 MHz
5.61dBm
Trace
Level (dBm)
Frequency (MHz)
2425.692
2448.308

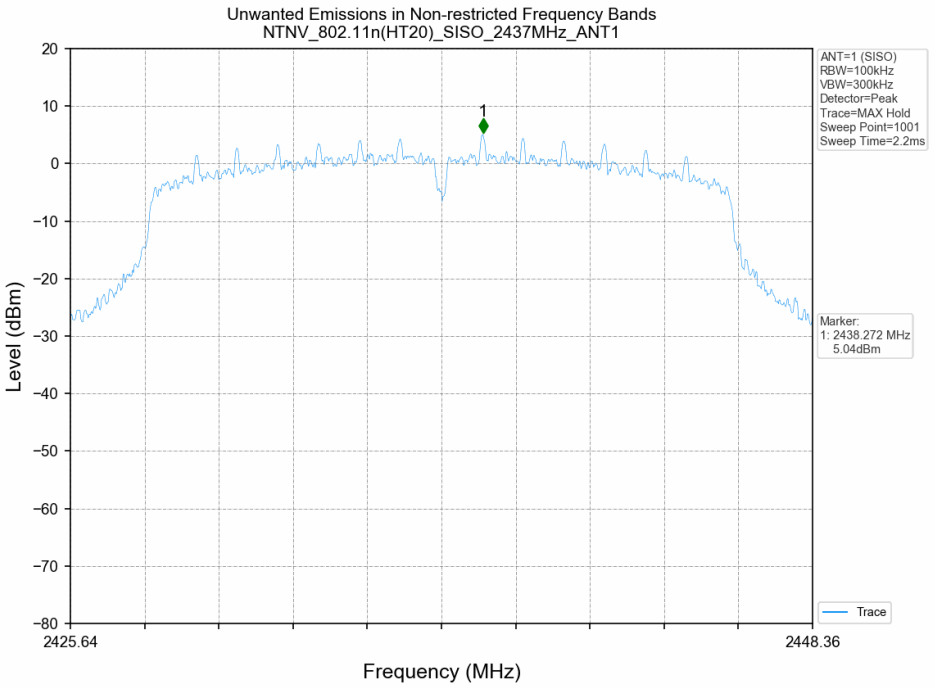

Unwanted Emissions in Non-restricted Frequency Bands
NTNV_802.11g_SISO_2412MHz_ANT1
ANT=1 (SISO)
RBW=100kHz
VBW=300kHz
Detector=Peak
Trace=MAX Hold
Sweep Point=1001
Sweep Time=11.667ms
Marker:
1: 2414.432 MHz
4.63dBm
Limit: -14.390 dBm
Trace
Level (dBm)
Frequency (MHz)
2310.0
2432.0

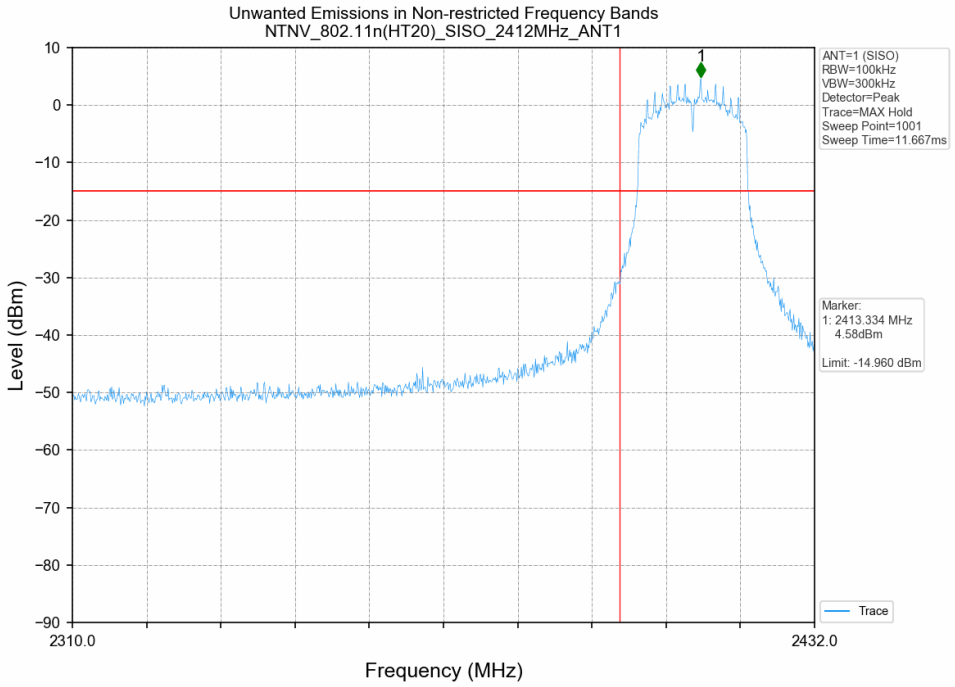

Unwanted Emissions in Non-restricted Frequency Bands
NTNV_802.11g_SISO_2412MHz_ANT1
ANT=1 (SISO)
RBW=100kHz
VBW=300kHz
Detector=Peak
Trace=MAX Hold
Sweep Point=16647
Sweep Time=2.387s
Marker:
1: 2410.595 MHz
3.70dBm
2: 24974.499 MHz
-24.68dBm
Limit: -14.390 dBm
Trace
Level (dBm)
Frequency (MHz)
30.0
25000.0

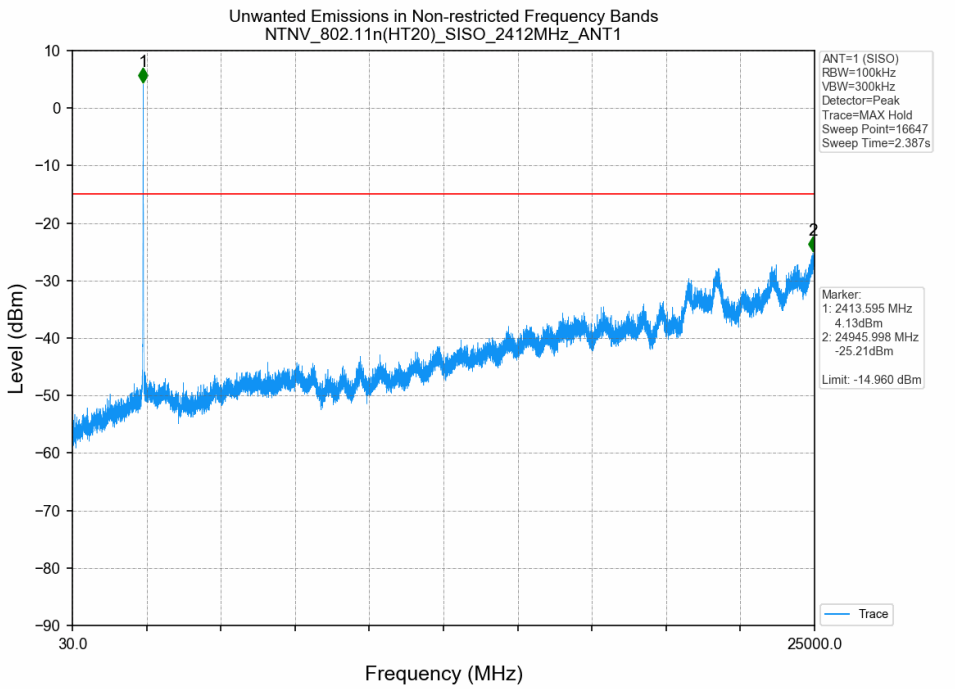

Unwanted Emissions in Non-restricted Frequency Bands
NTNV_802.11g_SISO_2437MHz_ANT1
ANT=1 (SISO)
RBW=100kHz
VBW=300kHz
Detector=Peak
Trace=MAX Hold
Sweep Point=16647
Sweep Time=2.387s
Marker:
1: 2440.597 MHz
4.05dBm
2: 24984.999 MHz
-25.11dBm
Limit: -14.390 dBm
Trace
Level (dBm)
Frequency (MHz)
30.0
25000.0

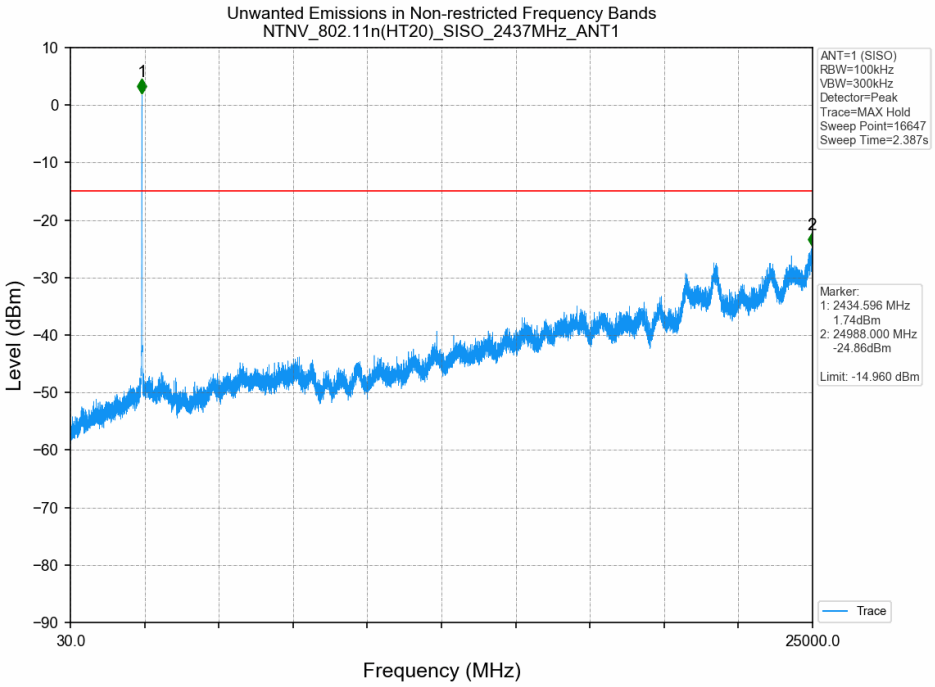

Unwanted Emissions in Non-restricted Frequency Bands
NTNV_802.11g_SISO_2462MHz_ANT1
ANT=1 (SISO)
RBW=100kHz
VBW=300kHz
Detector=Peak
Trace=MAX Hold
Sweep Point=1001
Sweep Time=5.6ms
Marker:
1: 2463.286 MHz
4.89dBm
Limit: -14.390 dBm
Trace
Level (dBm)
Frequency (MHz)
2442.0
2500.0

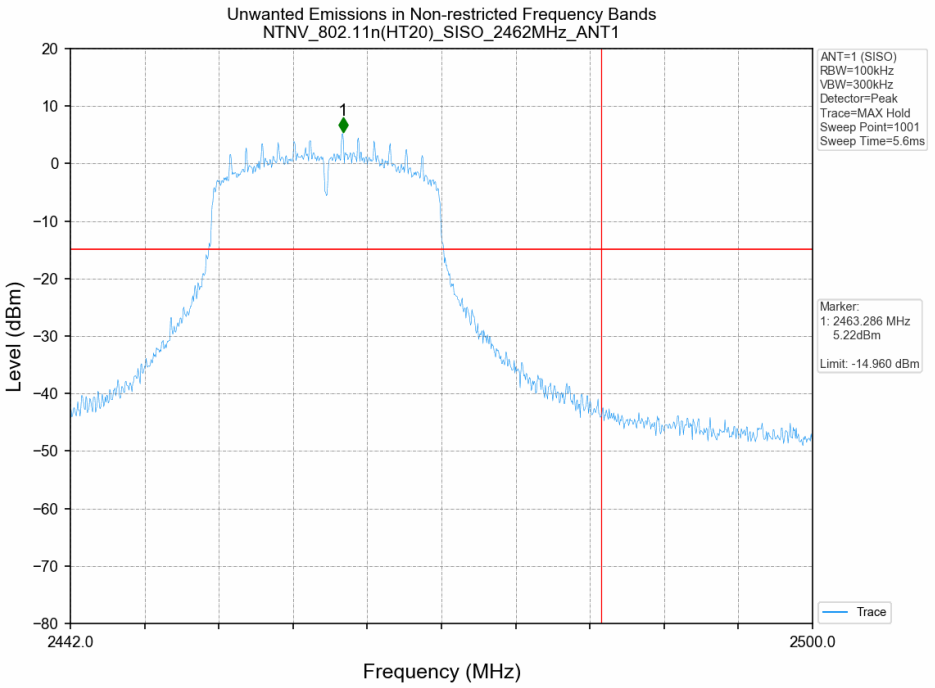

Unwanted Emissions in Non-restricted Frequency Bands
NTNV_802.11g_SISO_2462MHz_ANT1
ANT=1 (SISO)
RBW=100kHz
VBW=300kHz
Detector=Peak
Trace=MAX Hold
Sweep Point=16647
Sweep Time=2.387s
Marker:
1: 2458.597 MHz
4.28dBm
2: 24933.997 MHz
-24.93dBm
Limit: -14.390 dBm
Trace
Level (dBm)
Frequency (MHz)
30.0
25000.0

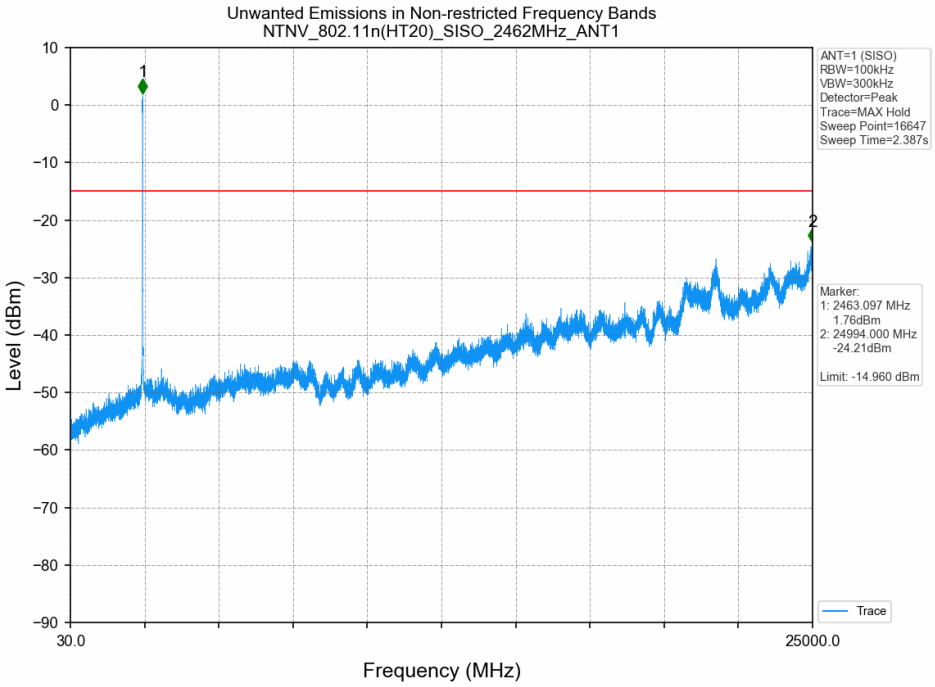

Unwanted Emissions in Non-restricted Frequency Bands
NTNV_802.11n(HT20)_SISO_2437MHz_ANT1
ANT=1 (SISO)
RBW=100kHz
VBW=300kHz
Detector=Peak
Trace=MAX Hold
Sweep Point=1001
Sweep Time=2.2ms
Marker:
1: 2438.272 MHz
5.04dBm
Trace
Level (dBm)
Frequency (MHz)
2425.64
2448.36


Unwanted Emissions in Non-restricted Frequency Bands
NTNV_802.11n(HT20)_SISO_2412MHz_ANT1
ANT=1 (SISO)
RBW=100kHz
VBW=300kHz
Detector=Peak
Trace=MAX Hold
Sweep Point=1001
Sweep Time=11.667ms
Marker:
1: 2413.334 MHz
4.58dBm
Limit: -14.960 dBm
Trace
Level (dBm)
Frequency (MHz)
2310.0
2432.0


Unwanted Emissions in Non-restricted Frequency Bands
NTNV_802.11n(HT20)_SISO_2412MHz_ANT1
ANT=1 (SISO)
RBW=100kHz
VBW=300kHz
Detector=Peak
Trace=MAX Hold
Sweep Point=16647
Sweep Time=2.387s
Marker:
1: 2413.595 MHz
4.13dBm
2: 24945.998 MHz
-25.21dBm
Limit: -14.960 dBm
Trace
Level (dBm)
Frequency (MHz)
30.0
25000.0


Unwanted Emissions in Non-restricted Frequency Bands
NTNV_802.11n(HT20)_SISO_2437MHz_ANT1
ANT=1 (SISO)
RBW=100kHz
VBW=300kHz
Detector=Peak
Trace=MAX Hold
Sweep Point=16647
Sweep Time=2.387s
Marker:
1: 2434.596 MHz
1.74dBm
2: 24988.000 MHz
-24.86dBm
Limit: -14.960 dBm
Trace
Level (dBm)
Frequency (MHz)
30.0
25000.0


Unwanted Emissions in Non-restricted Frequency Bands
NTNV_802.11n(HT20)_SISO_2462MHz_ANT1
ANT=1 (SISO)
RBW=100kHz
VBW=300kHz
Detector=Peak
Trace=MAX Hold
Sweep Point=1001
Sweep Time=5.6ms
Marker:
1: 2463.286 MHz
5.22dBm
Limit: -14.960 dBm
Trace
Level (dBm)
Frequency (MHz)
2442.0
2500.0



- End of the Report -