

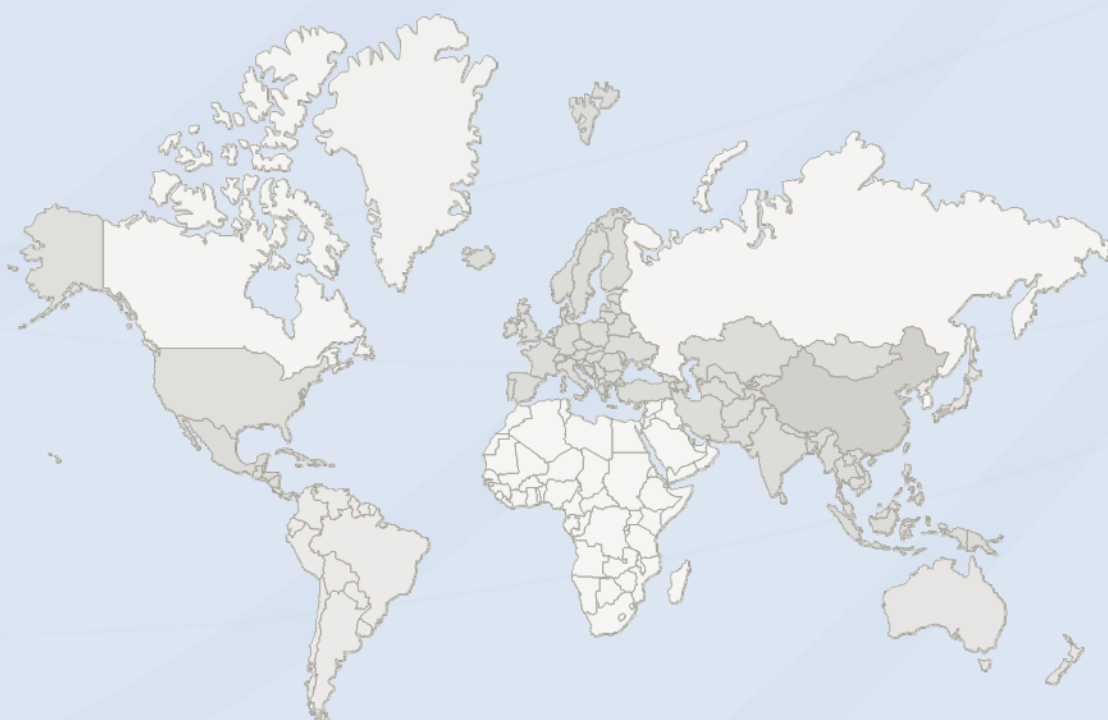
FCC TEST REPORT

Report No. : NTC-ER2201018

Applicant's name : Shenzhen Chengruishengshi Technology Co., Ltd

701J-2, 7F, Cunjin Bldg., 3005 Dongmen S. Rd

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TEST REPORT DECLARE

FCC ID	:	2A4KB-TURBOAMP
Applicant	:	Shenzhen Chengruishengshi Technology Co., Ltd
Address	:	701J-2, 7F, Cunjin Bldg., 3005 Dongmen S. Rd Jiabei Community, Nanhu Street, Luohu Dist Shenzhen CHINA 518000
Equipment under Test	:	Projector
Model No	:	TI, TII, TIII
Trade Mark	:	Turboamp
Manufacturer	:	CHENGDU ONGINE TECHNOLOGY LIMITED
Address	:	HANTIAN SOUTH ROAD, CHENGDU ECONOMIC TECHNOLOGICAL ZONE CN/CHENGDU SICHUAN
Test Laboratory	:	Dongguan New Testing Centre Co., Ltd
Address	:	3F, No. 1 the 1st North Industry Road, Songshan Lake Science & Technology Park, Dongguan, Guangdong, China, 523808

Test Standard Used:

FCC Part 15.247: Operation within the bands 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz. ANSI C63.10:2020.

We Declare:

The equipment described above is tested by Dongguan New Testing Centre Co., Ltd and in the configuration tested the equipment complied with the standards specified above. The test results are contained in this test report and Dongguan New Testing Centre Co., Ltd is assumed of full responsibility for the accuracy and completeness of these tests.

After test and evaluation, our opinion is that the equipment provided for test compliance with the requirement of the above FCC standards.

Report No.:	NTC-ER2103007		
Date of Test:	Jan.07, 2022 to Jan.17, 2022	Date of Report.:	Jan.18, 2022

Prepared By:



Jack Liu/Engineer

Approved By:



Dave Gao/Manager

Note: This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of Dongguan New Testing Centre Co., Ltd

1. Summary of test results

FCC PART 15.247		
FCC Part 15.207	AC Power Conducted Emission	PASS
FCC Part 15.247(a)(2)	6dB Bandwidth	PASS
FCC Part 15.247(d)	Spurious RF Conducted Emission	PASS
FCC Part 15.247(b)	Maximum Conducted Output Power	PASS
FCC Part 15.247(e)	Power Spectral Density	PASS
FCC Part 15.205/ 15.209	Radiated Emissions	PASS
FCC Part 15.247(d)	Band Edge	PASS
FCC Part 15.203/15.247 (b)	Antenna Requirement	PASS

GENERAL TEST INFORMATION

Description of EUT

Product Name:	Projector
Model/Type reference:	TI
Power supply:	AC 110V/60Hz
Hardware Version:	V1.0
Software Version:	V1.0
2.4G WIFI	
Supported type:	802.11b/802.11g/802.11n(H20)/802.11n(H40)
Modulation:	802.11b: DSSS 802.11g/802.11n(H20)/802.11n(H40): OFDM
Operation frequency:	802.11b/802.11g/802.11n(H20): 2412MHz~2462MHz 802.11n(H40): 2422MHz~2452MHz
Channel number:	802.11b/802.11g/802.11n(H20): 11 802.11n(H40): 7
Channel separation:	5MHz
Antenna type:	FPC Antenna
Antenna gain:	ANT1:0.0dBi ANT2:0.0dBi

Note1: For more details, please refer to the user's manual of the EUT.

Note2: Antenna gain provided by the applicant.

Frequency list:

The Applicant provides communication tools software to control the EUT for staying in continuous transmitting (Duty Cycle more than 98%) and receiving mode for testing.

There are 11 channels provided to the EUT and Channel 01/03/06/09/11 were selected for WIFI test.

Operation Frequency WIFI :

Channel	Frequency(MHz)	Channel	Frequency(MHz)
1	2412	8	2447
2	2417	9	2452
3	2422	10	2457
4	2427	11	2462
5	2432		
6	2437		
7	2442		

Note: The line display in grey were the channel selected for testing

Description of test modes

No.	TEST Mode DESCRIPTION
1	Low channel TX
2	Middle channel TX
3	High channel TX
4	Keeping TX mode
Note: Transmit by 802.11b with Data rate (1/2/5.5/11) Transmit by 802.11g with Data rate (6/9/12/18/24/36/48/54) Transmit by 802.11n (20MHz) with Data rate (6.5/13/19.5/26/39/52/58.5/65) Transmit by 802.11n (40MHz) with Data rate (13.5/27/40.5/54/81/108/121.5/135)	

Note:

- 1.The EUT has been set to operate continuously on the lowest, middle and highest operation frequency Individually, and the EUT is operating at its maximum duty cycle>or equal 98%
2. All modes under which configure applicable have been tested and the worst mode test data recording in the test report, if no other mode data.
3. For Radiated Emission, 3 axis were chosen for testing for each applicable mode.

1.1. Detail models

Model	Rating	Note
TI	AC 120V 50/60Hz	N/A

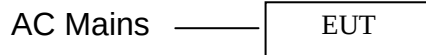
Note: All the same except model name.

1.2. Test Peripheral List

No.	Equipment	Manufacturer	Model No.	Serial No.	Note
1	Notebook	Lenovo	ThinkPadE450	PF-0LRXDH	--

1.3. Block diagram EUT configuration for test

For EUT Tx mode:



1.4. Test environment conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature range:	21-24°C
Humidity range:	40-75%
Pressure range:	86-106kPa

1.5. Measurement uncertainty

Test Item	Uncertainty
Uncertainty for Conduction emission test	3.20 dB
Uncertainty for Radiation Emission test (30MHz – 1GHz)	4.60 dB (Polarize: V)
	4.60 dB (Polarize: H)
Uncertainty for Radiation Emission test (1GHz – 18GHz)	4.82 dB (Polarize: V)
	4.52 dB (Polarize: H)
Bandwidth	±1.2%
Stop Transmitting Time Test	±0.5%
Uncertainty for frequency error	5.8×10^{-8}

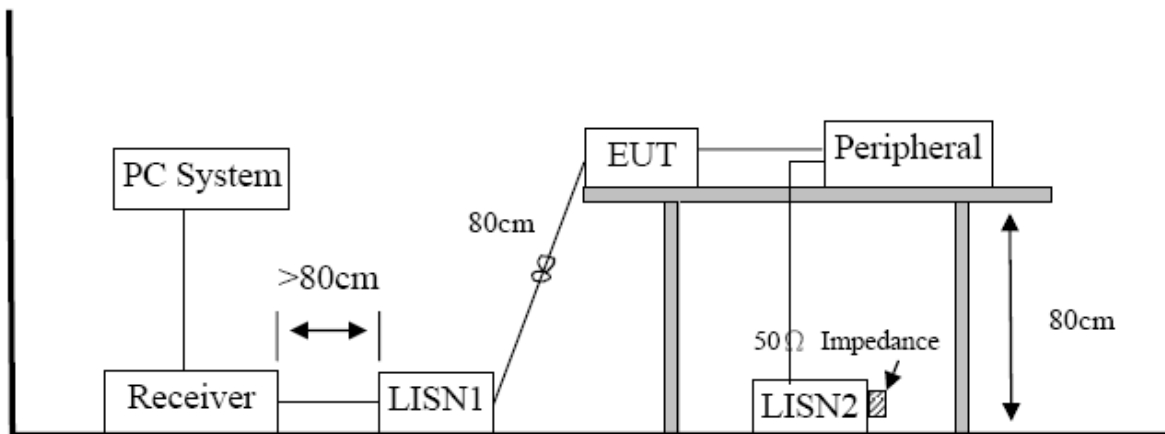
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

2. Power Line Conducted Emission Test

2.1. Test equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Test Receiver	R&S	ESPI	100146	2021-01-10	1 Year
2	LISN	R&S	ENV216	3650.6550.06	2021-05-21	1 Year
3	LISN	R&S	ENV4200	1107.2387.04	2021-05-21	1 Year
4	RF Cable	HUBER	SUCOFLEX100	30722/4E	2021-05-21	2 Year
5	MEASUREMENT SOFTWARE	FARAD	EZ-EMC(VER:1.1.4.2)	N/A	N/A	N/A

2.2. BLOCK DIAGRAM OF TEST SETUP



2.3. Power Line Conducted Emission Limits (Class B)

Frequency	Quasi-Peak Level dB(μV)	Average Level dB(μV)
150kHz ~ 500kHz	66 ~ 56*	56 ~ 46*
500kHz ~ 5MHz	56	46
5MHz ~ 30MHz	60	50

Note 1: * Decreasing linearly with logarithm of frequency.

Note 2: The lower limit shall apply at the transition frequencies.

2.4. Test Procedure

The EUT and Support equipment, if needed, were put placed on a non-metallic table, 80cm above the ground plane.

Configuration EUT to simulate typical usage as described in clause 2.3 and test equipment as described in clause 3.2 of this report.

All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.

All support equipment power received from a second LISN.

Emissions were measured on each current carrying line of the EUT using an EMI Test Receiver connected to the LISN powering the EUT.

The Receiver scanned from 150 kHz to 30MHz for emissions in each of the test modes.

During the above scans, the emissions were maximized by cable manipulation.

The test mode(s) described in clause 2.3 were scanned during the preliminary test.

After the preliminary scan, we found the test mode producing the highest emission level.

The EUT configuration and worse cable configuration of the above highest emission levels were recorded for reference of the final test.

EUT and support equipment were set up on the test bench as per the configuration with highest emission level in the preliminary test.

A scan was taken on both power lines, Neutral and Line, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit.

The test data of the worst-case condition(s) was recorded.

The bandwidth of test receiver is set at 9 KHz.

2.5. Test Result

PASS. (See below detailed test result)

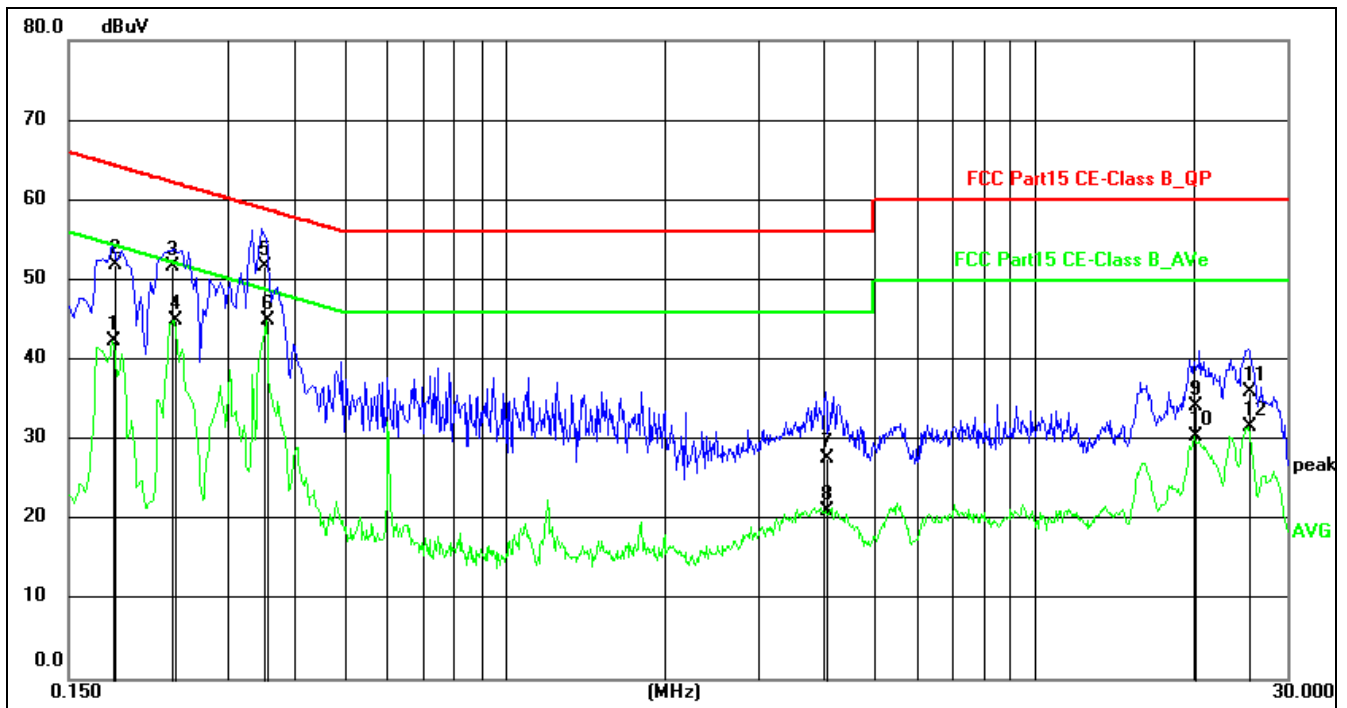
Note1: All emissions not reported below are too low against the prescribed limits.

Note2: “-----” means Peak detection; “-----” means Average detection

Note3: Measurement = Reading Level + Factor, Margin= Measurement-Limit

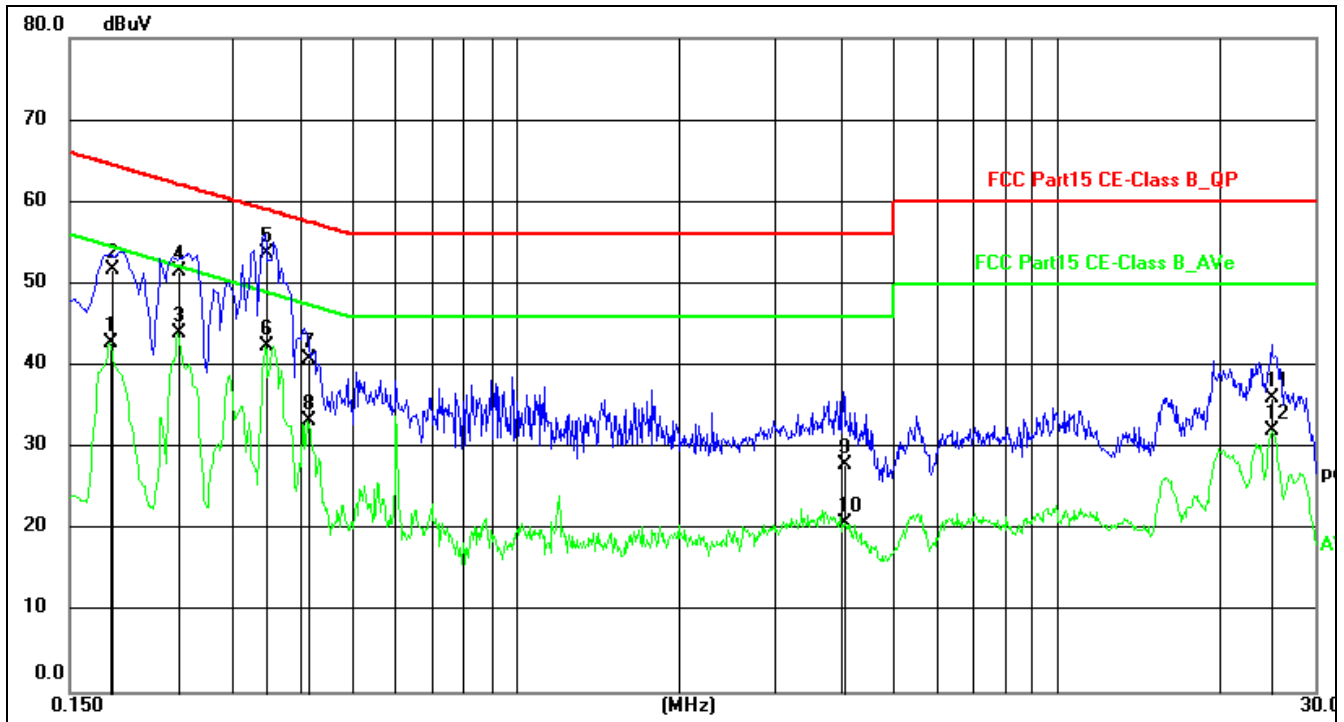
Note4: 802.11b/802.11g/802.11n (H20) mode all have been tested, only worse case of 802.11b High Channel was reported.

Conducted Emission Test Result



Site:	844LAB	Phase: L1	Temperature(C): 24(C)
Limit:	FCC Part15 CE-Class B_QP		Humidity(%): 63%
EUT:	Projector	Test Time:	2022/1/10 16:55:46
M/N.:	TI	Power Rating:	AC120/60Hz
Mode:	WIFI	Test Engineer:	
Note:	Tx mode (802.11 b 2412MHz-Worst case)		

No.	Frequency (MHz)	Reading Level(dBuV)	Factor (dB)	Measurement(dBuV)	Limit (dBuV)	Margin (dB)	Detector	Comment
1	0.1819	32.79	9.63	42.42	54.40	-11.98	AVG	N/A
2	0.1825	42.31	9.63	51.94	64.37	-12.43	QP	N/A
3	0.2353	42.13	9.63	51.76	62.26	-10.50	QP	N/A
4	0.2380	35.36	9.63	44.99	52.17	-7.18	AVG	N/A
5	0.3520	42.15	9.65	51.80	58.92	-7.12	QP	N/A
6 *	0.3540	35.32	9.65	44.97	48.87	-3.90	AVG	N/A
7	4.0420	17.91	9.70	27.61	56.00	-28.39	QP	N/A
8	4.0420	11.51	9.70	21.21	46.00	-24.79	AVG	N/A
9	20.1060	24.23	10.10	34.33	60.00	-25.67	QP	N/A
10	20.1060	20.34	10.10	30.44	50.00	-19.56	AVG	N/A
11	25.3540	25.99	10.11	36.10	60.00	-23.90	QP	N/A
12	25.3540	21.55	10.11	31.66	50.00	-18.34	AVG	N/A



Site:	844LAB	Phase:	N	Temperature(C):	24(C)
Limit:	FCC Part15 CE-Class B_QP	Test Time:	2022/1/10 16:58:51	Humidity(%):	63%
EUT:	Projector	Power Rating:	AC120/60Hz		
M/N.:	TI	Test Engineer:			
Mode:	WIFI				
Note:	Tx mode (802.11 b 2412MHz-Worst case)				

No.	Frequency (MHz)	Reading Level(dBuV)	Factor (dB)	Measurement(dBuV)	Limit (dBuV)	Margin (dB)	Detector	Comment
1	0.1780	32.53	10.30	42.83	54.58	-11.75	AVG	N/A
2	0.1787	41.40	10.30	51.70	64.55	-12.85	QP	N/A
3	0.2380	33.61	10.32	43.93	52.17	-8.24	AVG	N/A
4	0.2391	41.17	10.32	51.49	62.13	-10.64	QP	N/A
5 *	0.3460	43.38	10.34	53.72	59.06	-5.34	QP	N/A
6	0.3460	32.01	10.34	42.35	49.06	-6.71	AVG	N/A
7	0.4140	30.35	10.35	40.70	57.57	-16.87	QP	N/A
8	0.4140	22.82	10.35	33.17	47.57	-14.40	AVG	N/A
9	4.0460	17.42	10.44	27.86	56.00	-28.14	QP	N/A
10	4.0461	10.40	10.44	20.84	46.00	-25.16	AVG	N/A
11	25.0300	25.55	10.46	36.01	60.00	-23.99	QP	N/A
12	25.0300	21.67	10.46	32.13	50.00	-17.87	AVG	N/A

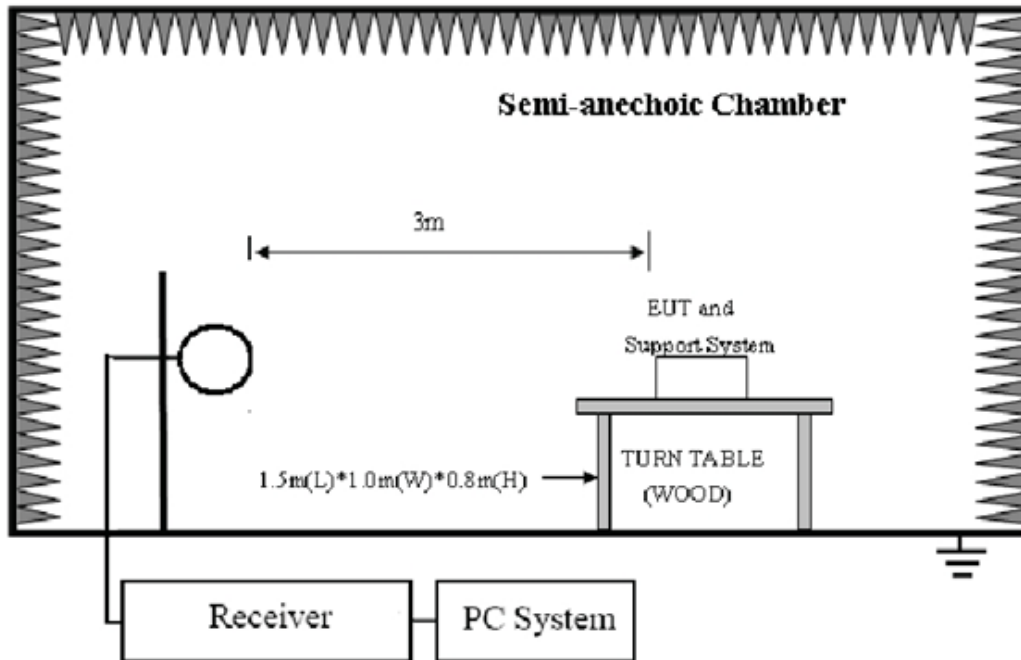
3. Radiated emission test

3.1. Test equipment

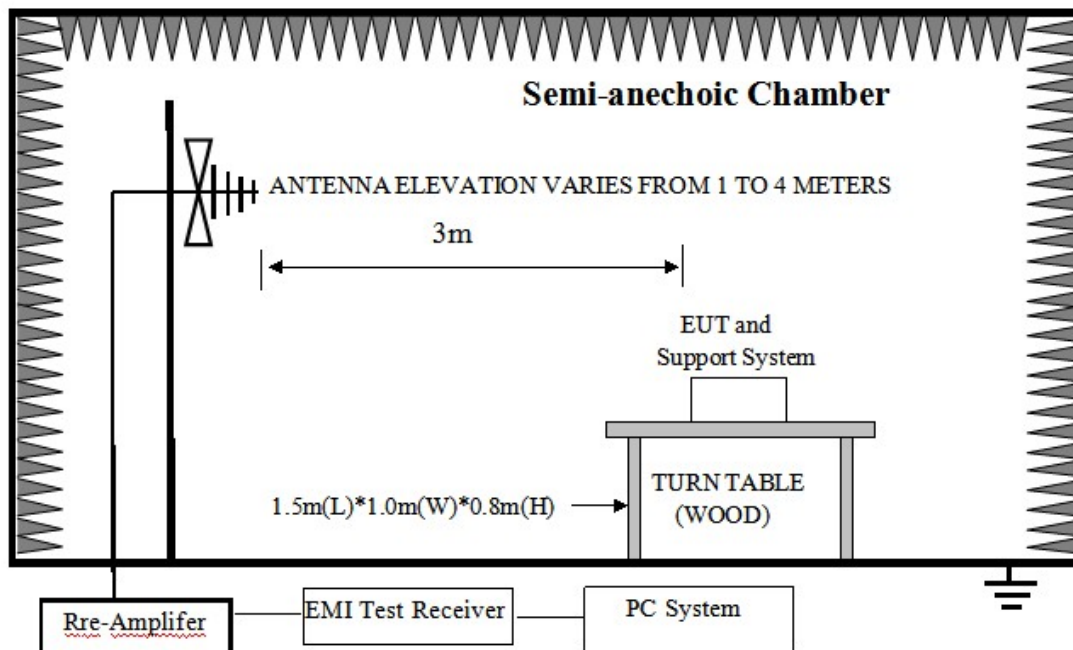
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	EMI Test Receiver	R&S	ESR	7250-30406 7528	2021-05-26	1 Year
2	Trilog Broadband Antenna	Schwarzbeck	VULB9168	00969	2021-06-16	2 Year
3	Pre-amplifier	R&S	8447F	3113A04553	2021-05-26	1 Year
4	Active Loop antenna	Schwarzbeck	FMZB-1519	1519-038	2021-05-26	1 Year
5	Horn antenna	Schwarzbeck	BBHA9120D	453	2021-05-25	2 Year
6	Double Ridged Horn Antenna	A.H. System	SAS-574	584	2021-05-25	1 Year
7	Pre-amplifier	R&S	SCU18	105326	2021-05-26	1 Year
8	RF Cable	GORE	OSQ01Q010 78.7	SN1545847 3	2021-05-26	1 Year
9	RF Cable	GORE	OSQ01Q010 78.7	SN1545847 4	2021-05-26	1 Year
10	RF Cable	ESCO	ETS-LINGR EN	RFC-SMS-1 00-SMS-340 -IN	2021-05-26	1 Year
11	Measurement software	Farad	EZ-EMC(VE R:1.1.4.2)	N/A	N/A	N/A

3.2. Block diagram of test setup

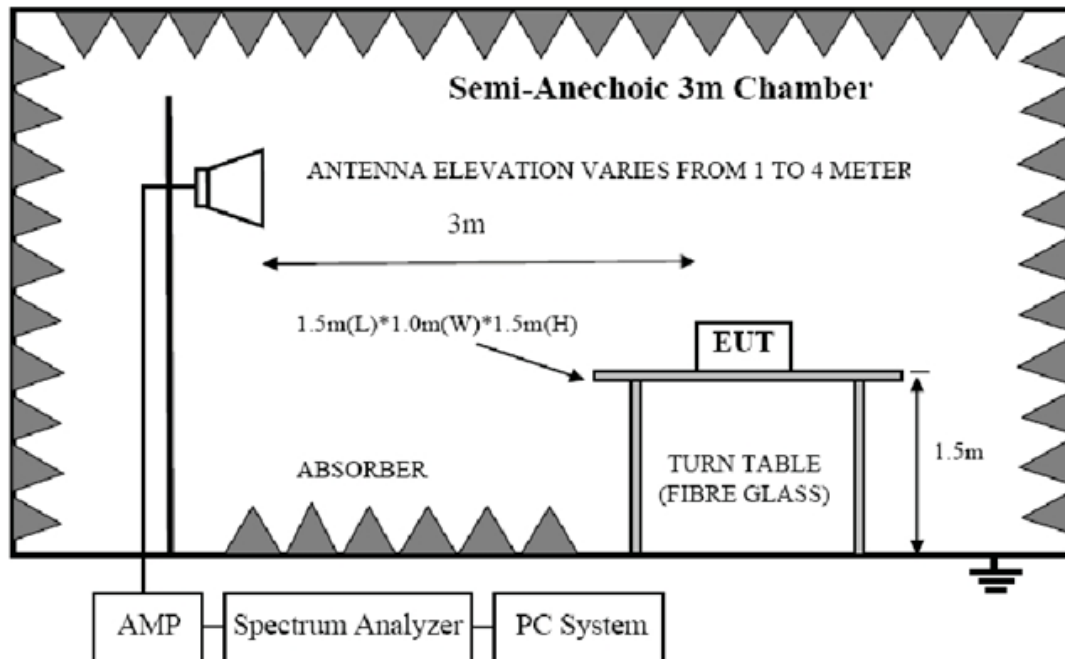
In 3m Anechoic Chamber Test Setup Diagram for 9KHz to 30MHz:



In 3m Anechoic Chamber Test Setup Diagram for 30MHz to 1GHz:



In 3m Anechoic Chamber Test Setup Diagram for frequency above 1GHz:



3.3. Limit

FCC 15.205 Restricted frequency band:

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

FCC 15.109 Limit

Frequency (MHz)	Distance (Meters)	Field Strengths Limits dB(μV)/m
30--88	3	40.0
88--216	3	43.5
216--960	3	46.0
960--1000	3	54.0
Above 1GHz	3	Peak: 74.0
	3	Average: 54.0

Note: (1) The smaller limit shall apply at the cross point between two frequency bands.

(2) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

(3) The emission limits shown in the above table are based on measurements employing a CISPR QP detector except for the frequency bands 9-90KHz, 110-490KHz and above 1000MHz. Radiated emissions limits in these three bands are based on measurements employing an average detector.

(4) At frequencies below 30MHz, measurement may be performed at a distance closer than that specified, and the limit at closer measurement distance can be extrapolated by below formula:

$$\text{Limit } 3\text{m(dBuV/m)} = \text{Limit } 30\text{m(dBuV/m)} + 40\text{Log}(30\text{m}/3\text{m})$$

(5) All the emissions appearing within 15.205 restricted frequency bands shall not exceed the limits shown in 15.109, all the other emissions shall be at least 20dB below the fundamental emissions, or comply with 15.109 limits.

3.4. Test Procedure

Procedure of Preliminary Test

Configuration EUT to simulate typical usage as described in clause 2.3 and test equipment as described in clause 4.2 of this report.

Mains cables, telephone lines or other connections to auxiliary equipment located outside the test are shall drape to the floor, be fitted with ferrite clamps or ferrite tubes placed on the floor at the point where the cable reaches the floor and then routed to the place where they leave the turntable. No extension cords shall be used to mains receptacle.

EUT height should be 0.8m for below 1GHz and 1.5m for above 1GHz at ground with absorbers.

The antenna was placed at 3 meter away from the EUT as stated in ANSI C63.10. The antenna connected to the Spectrum Analyzer via a cable and at times a pre-amplifier would be used.

The Analyzer / Receiver quickly scanned from 30MHz to 18GHz. The EUT test program was started. Emissions were scanned and measured rotating the EUT to 360 degrees and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.

The X, Y, Z three axial are tested and the report only the worst case.

The emissions from 9KHz to 1GHz, QP or average values were measured with EMI receiver with below RBW:

Frequency band	RBW
9KHz-150KHz	200Hz
150KHz-30MHz	9KHz
30MHz-1GHz	120KHz

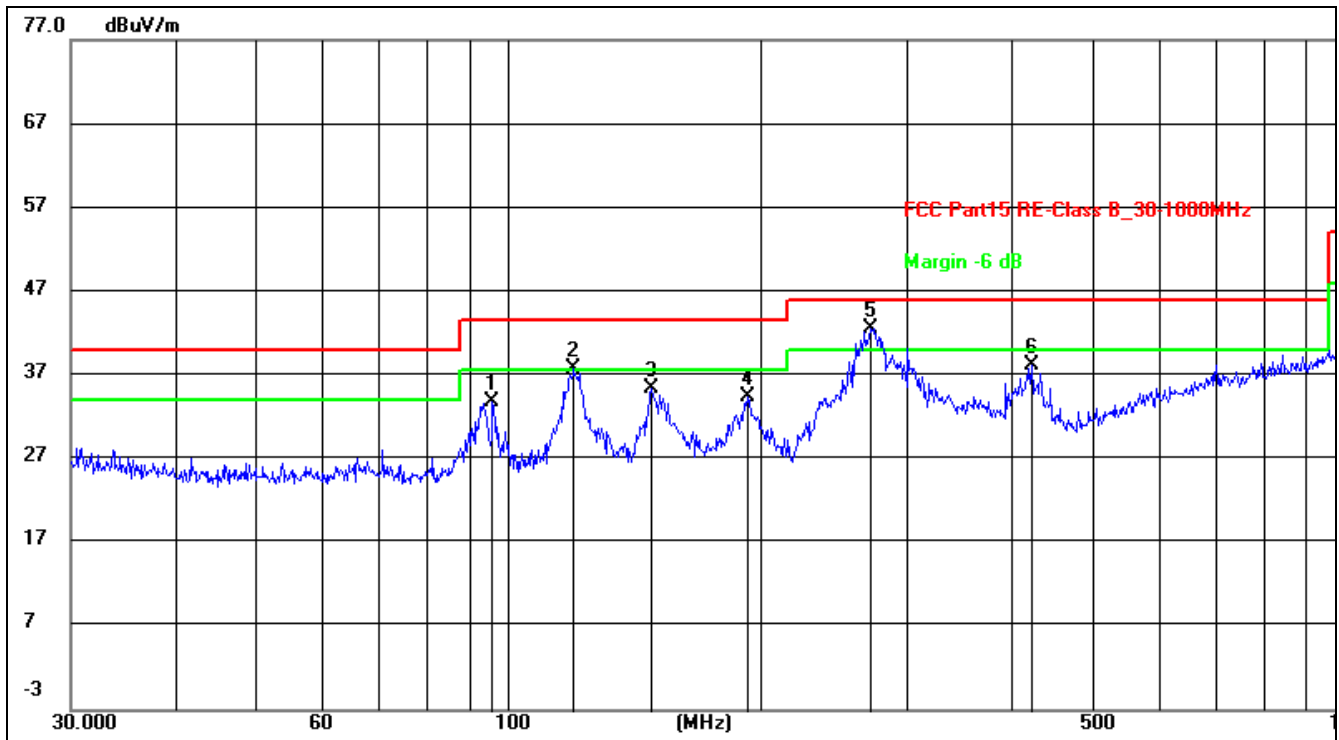
For emissions above 1GHz, both Peak and Average level were measured with Spectrum Analyzer, and the RBW is set at 1MHz, VBW is set at 3MHz for Peak measure; RMS detector RBW 1MHz VBW 3MHz for Average measure.

3.5. Test result

PASS. (See below detailed test result)

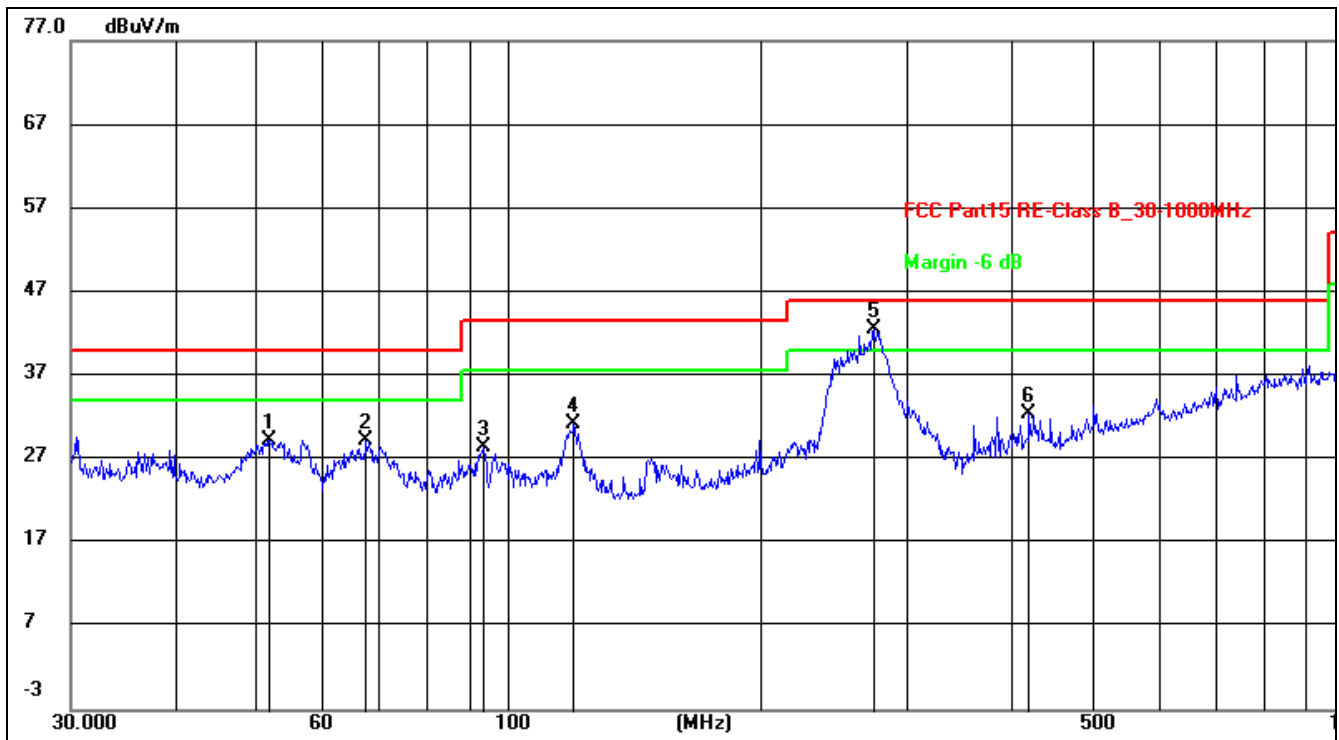
1. All three channels (lowest/middle/highest) of each mode were measured below 1GHz and recorded worst case at 802.11b low channel.
2. All three channels (lowest/middle/highest) of each mode were measured above 1GHz and recorded worst case at 802.11b mode.
3. Radiated emission test from 9 KHz to 10th harmonic of fundamental was verified, Found the emission level are attenuated 20dB below the limits from 9 kHz to 30MHz, so it does not recorded in report.

Radiated Emission Test Result



Site: 966LAB **Antenna::**Horizontal **Temperature(C):**24(C)
Limit: FCC Part15 RE-Class B_30-1000MHz **Humidity(%):**60%
EUT: Projector **Test Time:** 2022/1/13 9:08:05
M/N.: TI **Power Rating:** AC 120V/60Hz
Mode: WIFI **Test Engineer:**
Note: (802.11 b 2412MHz-Worst case)

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)	Remark
1	95.7622	21.91	11.89	33.80	43.50	-9.70	peak	200	356	N/A
2	119.8556	23.43	14.37	37.80	43.50	-5.70	peak	200	313	N/A
3	148.4410	19.18	16.31	35.49	43.50	-8.01	peak	200	282	N/A
4	193.0944	21.76	12.70	34.46	43.50	-9.04	peak	200	356	N/A
5 *	271.3245	27.85	14.69	42.54	46.00	-3.46	peak	100	21	N/A
6	422.0577	20.00	18.29	38.29	46.00	-7.71	peak	100	324	N/A



Site:	966LAB	Antenna::	Vertical	Temperature(C):	24(C)
Limit:	FCC Part15 RE-Class B_30-1000MHz			Humidity(%):	60%
EUT:	Projector	Test Time:	2022/1/13 9:10:38		
M/N.:	TI	Power Rating:	AC 120V/60Hz		
Mode:	WIFI	Test Engineer:			
Note:	(802.11 b 2412MHz-Worst case)				

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)	Remark
1	51.8430	16.22	13.07	29.29	40.00	-10.71	peak	100	313	N/A
2	67.6751	16.58	12.64	29.22	40.00	-10.78	peak	100	95	N/A
3	93.4402	17.23	11.24	28.47	43.50	-15.03	peak	100	154	N/A
4	119.8556	18.66	12.57	31.23	43.50	-12.27	peak	100	147	N/A
5 *	273.2341	28.45	14.06	42.51	46.00	-3.49	peak	100	77	N/A
6	419.1081	16.30	16.04	32.34	46.00	-13.66	peak	100	356	N/A

For 1GHz to 25GHz

802.11b Mode (above 1GHz)

Note: 802.11b/802.11g/802.11n (H20) all have been tested, only worse case 802.11b is reported

Frequency(MHz):			2412		Polarity:			HORIZONTAL	
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
4824.00	54.86	PK	74.00	19.14	50.31	33.52	6.92	35.89	4.55
4824.00	48.36	AV	54.00	5.64	43.81	33.52	6.92	35.89	4.55
5478.00	43.96	PK	74.00	30.04	36.76	34.38	7.10	34.28	7.20
5478.00	--	AV	54.00	--	--	--	--	--	--
7236.00	47.68	PK	74.00	26.32	36.41	37.1	9.19	35.02	11.27
7236.00	--	AV	54.00	--	--	--	--	--	--

Frequency(MHz):			2412		Polarity:			VERTICAL	
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
4824.00	55.68	PK	74.00	18.32	51.13	33.52	6.92	35.89	4.55
4824.00	46.45	AV	54.00	7.55	41.9	33.52	6.92	35.89	4.55
5457.00	43.36	PK	74.00	30.64	36.16	34.38	7.10	34.28	7.20
5457.00	--	AV	54.00	--	--	--	--	--	--
7236.00	46.61	PK	74.00	27.39	35.34	37.1	9.19	35.02	11.27
7236.00	--	AV	54.00	--	--	--	--	--	--

Frequency(MHz):			2437		Polarity:			HORIZONTAL	
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
4874.00	54.36	PK	74.00	19.64	48.12	33.59	6.95	34.30	6.24
4874.00	46.43	AV	54.00	7.57	40.19	33.59	6.95	34.30	6.24
5986.00	43.35	PK	74.00	30.65	35.75	34.56	7.15	34.11	7.60
5986.00	--	AV	54.00	--	--	--	--	--	--
7311.00	47.12	PK	74.00	26.88	35.46	37.44	9.22	35.00	11.66
7311.00	--	AV	54.00	--	--	--	--	--	--

Frequency(MHz):			2437		Polarity:			VERTICAL	
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
4874.00	56.58	PK	74.00	17.42	50.24	33.59	6.95	34.20	6.34
4874.00	47.52	AV	54.00	6.48	41.18	33.59	6.95	34.20	6.34
6580.00	44.74	PK	74.00	29.26	37.84	34.07	7.05	34.22	6.90
6580.00	--	AV	54.00	--	--	--	--	--	--
7311.00	46.68	PK	74.00	27.32	35.02	37.44	9.22	35.00	11.66
7311.00	--	AV	54.00	--	--	--	--	--	--

Frequency(MHz):			2462		Polarity:			HORIZONTAL	
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
4924.00	54.98	PK	74.00	19.02	50.20	33.71	6.98	35.91	4.78
4924.00	46.46	AV	54.00	7.54	41.68	33.71	6.98	35.91	4.78
6474.00	44.78	PK	74.00	29.22	37.61	34.34	7.09	34.27	7.17
6474.00	--	AV	54.00	--	--	--	--	--	--
7386.00	47.81	PK	74.00	26.19	35.93	37.61	9.25	34.98	11.88
7386.00	--	AV	54.00	--	--	--	--	--	--

Frequency(MHz):			2462		Polarity:			VERTICAL	
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
4924.00	55.66	PK	74.00	18.34	50.88	33.71	6.98	35.91	4.78
4924.00	47.58	AV	54.00	6.42	42.8	33.71	6.98	35.91	4.78
6519.00	44.75	PK	74.00	29.25	37.58	34.34	7.09	34.27	7.17
6519.00	--	AV	54.00	--	--	--	--	--	--
7386.00	42.62	PK	74.00	31.38	30.74	37.61	9.25	34.98	11.88
7386.00	--	AV	54.00	--	--	--	--	--	--

REMARKS:

1. Emission level (dBuV/m) =Raw Value (dBuV)+Correction Factor (dB/m)
2. Correction Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
3. Margin value = Limit value- Emission level.
4. -- Mean the PK detector measured value is below average limit.
5. RBW1MHz VBW3MHz Peak detector is for PK value; RBW 1MHz VBW10Hz Peak detector is for AV value.
6. Other emissions are attenuated 20dB below the limits from 9 kHz to 30MHz, so it does not recorded in report.

Results of Band Edges Test (Radiated)

Note: 802.11b/802.11g/802.11n (H20)/ 802.11n (H40) all have been tested, only worse case 802.11b is reported

Frequency(MHz):			2412		Polarity:			HORIZONTAL	
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
2412.00	118.68	PK	--	--	85.29	28.78	4.61	0	33.39
2412.00	110.45	AV	--	--	77.06	28.78	4.61	0	33.39
2362.00	45.68	PK	74	28.32	12.6	28.52	4.56	0	33.08
2362.00	--	AV	54	--	--	--	--	--	--
2390.00	50.96	PK	74	23.04	17.64	28.72	4.6	0	33.32
2390.00	--	AV	54	--	--	--	--	--	--
2400.00	57.35	PK	--	--	23.96	28.78	4.61	0	33.39
2400.00	50.42	AV	--	--	17.03	28.78	4.61	0	33.39

Frequency(MHz):			2412		Polarity:			VERTICAL	
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
2412.00	118.68	PK	--	--	85.29	28.78	4.61	0	33.39
2412.00	110.84	AV	--	--	77.45	28.78	4.61	0	33.39
2372.00	46.38	PK	74	27.62	13.3	28.52	4.56	0	33.08
2372.00	--	AV	54	--	--	--	--	--	--
2390.00	51.46	PK	74	22.54	18.14	28.72	4.60	0	33.32
2390.00	--	AV	54	--	--	--	--	--	--
2400.00	58.53	PK	--	--	25.14	28.78	4.61	0	33.39
2400.00	50.31	AV	--	--	16.92	28.78	4.61	0	33.39

Frequency(MHz):			2462		Polarity:			HORIZONTAL	
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
2462.00	118.58	PK	--	--	84.96	28.92	4.7	0	33.62
2462.00	109.72	AV	--	--	76.1	28.92	4.7	0	33.62
2483.50	58.24	PK	74	15.76	24.61	28.93	4.7	0	33.63
2483.50	50.46	AV	54	3.54	16.83	28.93	4.7	0	33.63
2485.00	46.72	PK	74	27.28	13.08	28.94	4.71	0	33.64
2485.00	--	AV	54	--	--	--	--	--	--
2500.00	44.77	PK	74	29.23	11.09	28.96	4.72	0	33.68
2500.00	--	AV	54	--	--	--	--	--	--

Frequency(MHz):			2462		Polarity:			VERTICAL	
Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
2462.00	118.16	PK	--	--	84.54	28.92	4.7	0	33.62
2462.00	109.37	AV	--	--	75.75	28.92	4.7	0	33.62
2483.50	57.91	PK	74	16.09	24.28	28.93	4.7	0	33.63
2483.50	49.45	AV	54	4.55	15.82	28.93	4.7	0	33.63
2490.00	47.36	PK	74	26.64	13.72	28.94	4.71	0	33.64
2490.00	--	AV	54	--	--	--	--	--	--
2500.00	44.58	PK	74	29.42	10.9	28.96	4.72	0	33.68
2500.00	--	AV	54	--	--	--	--	--	--

REMARKS:

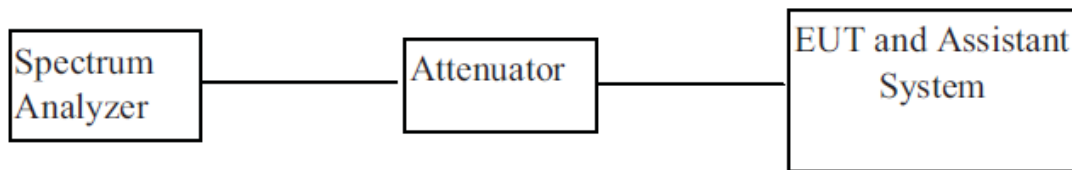
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m)
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) - Pre-amplifier Factor
3. Margin value = Limit value - Emission level.
4. -- Mean the PK detector measured value is below average limit.
5. RBW1MHz VBW3MHz Peak detector is for PK value; RBW 1MHz VBW10Hz Peak detector is for AV value.
6. For fundamental frequency, RBW 3MHz VBW 3MHz Peak detector is for PK Value; RMS detector is for AV value.
7. Other emissions are attenuated 20dB below the limits from 9kHz to 30MHz, so it does not recorded in report.

4. Output Power

4.1. Test equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	MXA Signal Analyzer	KEYSIGHT	N9020A	MY5451047 6	2021/05/26	1 Year

4.2. BLOCK DIAGRAM OF TEST SETUP



4.3. Limit

For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt (30dBm).

4.4. Test Procedure

For output power test:

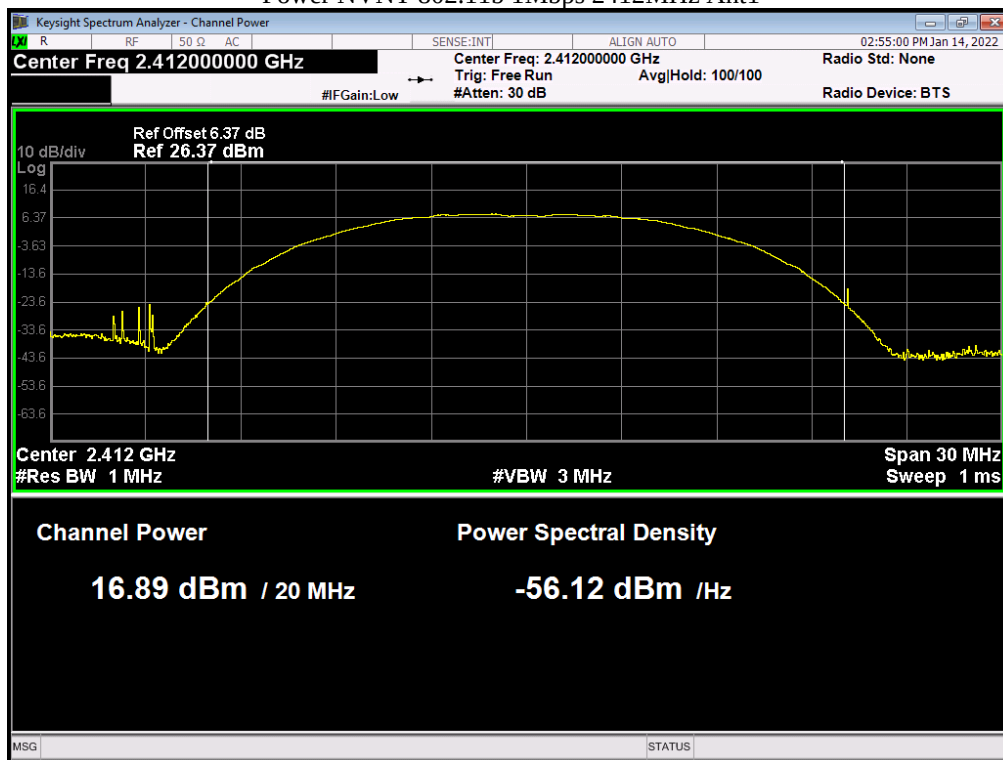
1. Connect EUT RF output port to power sensor through an RF attenuator.
2. Connect the power sensor to the PC.
3. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
4. Record the maximum power from the software.

Note : The EUT was tested according to KDB 558074v03r04 for compliance to FCC 47CFR 15.247 requirements.

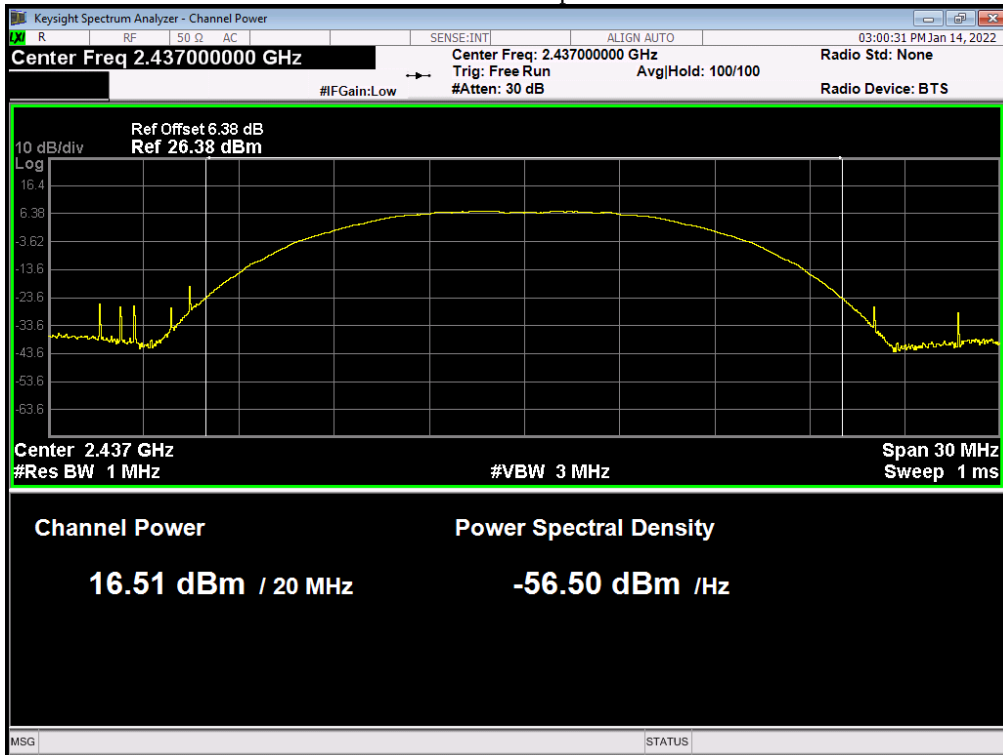
4.5. Test result

Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	802.11b 1Mbps	2412	Ant 1	16.888	0	16.888	30	Pass
NVNT	802.11b 1Mbps	2437	Ant 1	16.507	0	16.507	30	Pass
NVNT	802.11b 1Mbps	2462	Ant 1	15.482	0	15.482	30	Pass

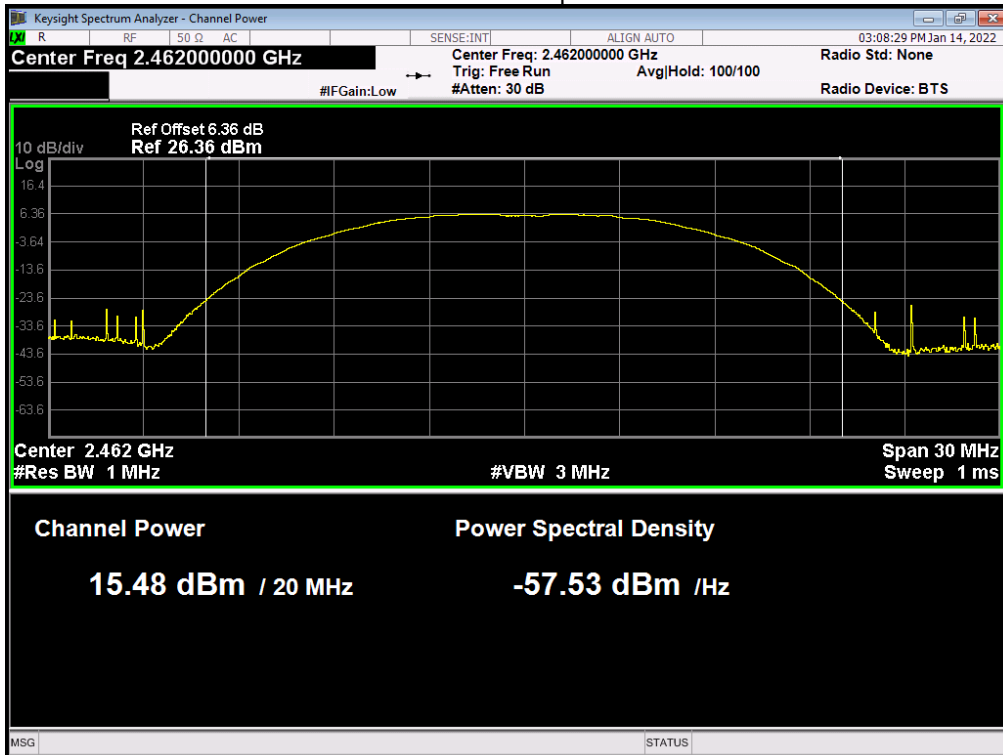
Power NVNT 802.11b 1Mbps 2412MHz Ant1



Power NVNT 802.11b 1Mbps 2437MHz Ant1

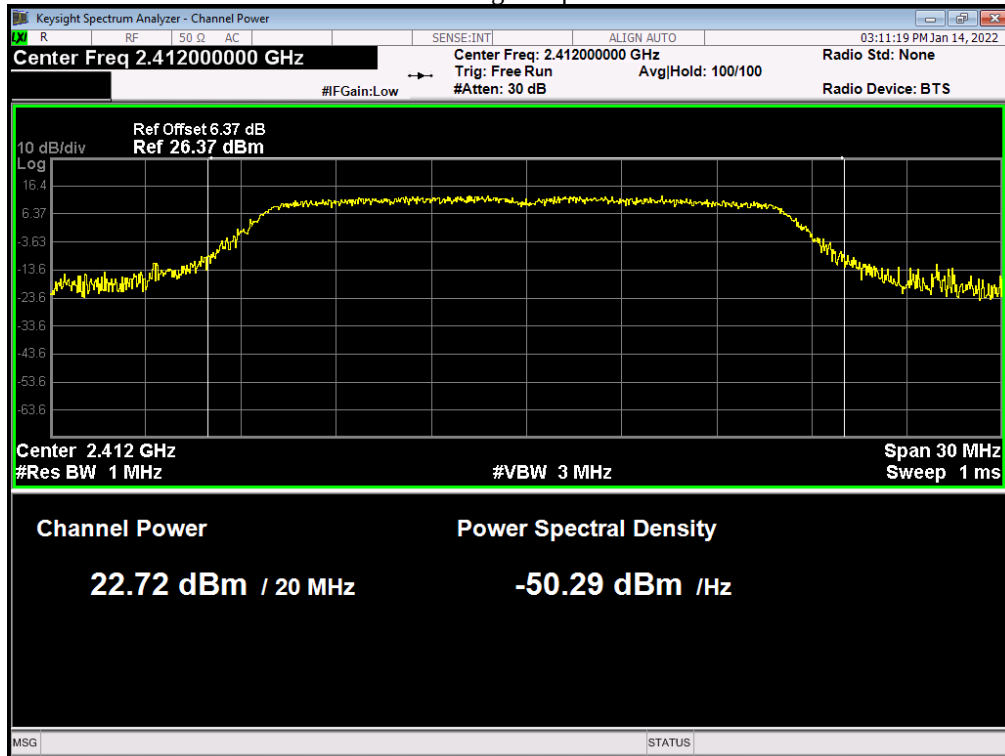


Power NVNT 802.11b 1Mbps 2462MHz Ant1

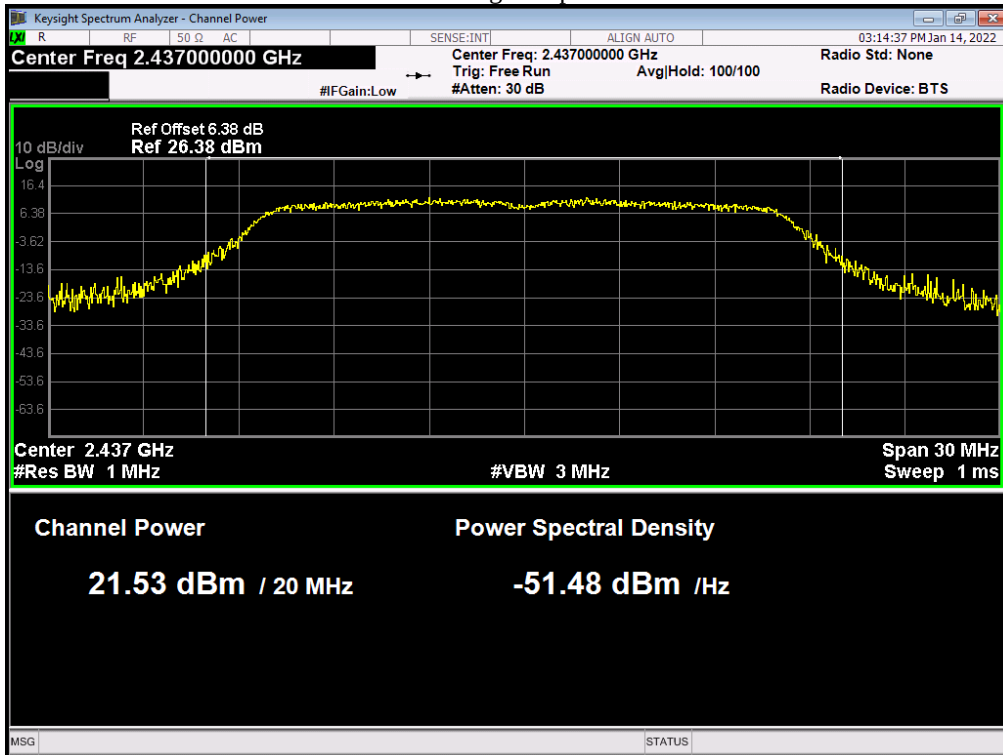


Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	802.11g 6Mbps	2412	Ant 1	22.720	0	22.720	30	Pass
NVNT	802.11g 6Mbps	2437	Ant 1	21.533	0	21.533	30	Pass
NVNT	802.11g 6Mbps	2462	Ant 1	20.417	0	20.417	30	Pass

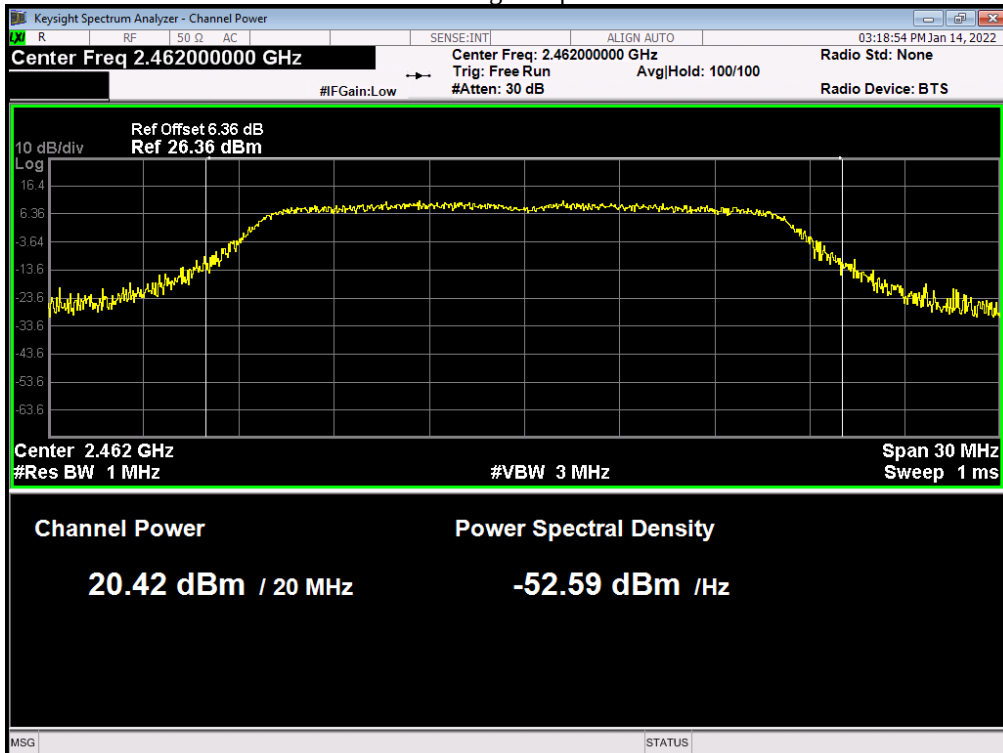
Power NVNT 802.11g 6Mbps 2412MHz Ant1



Power NVNT 802.11g 6Mbps 2437MHz Ant1

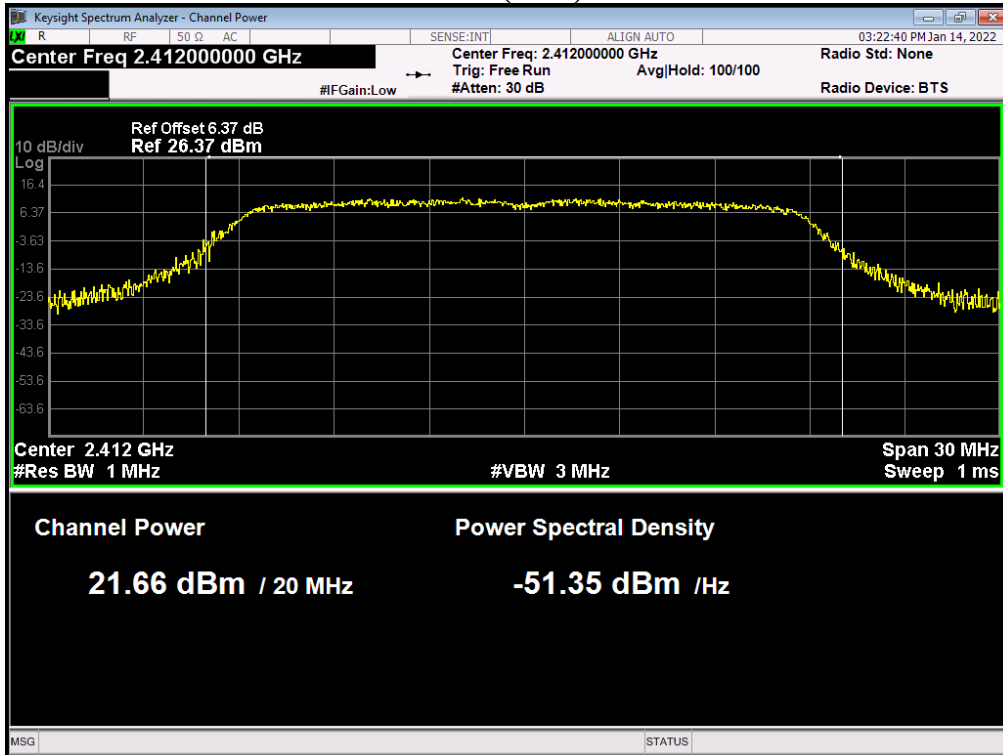


Power NVNT 802.11g 6Mbps 2462MHz Ant1

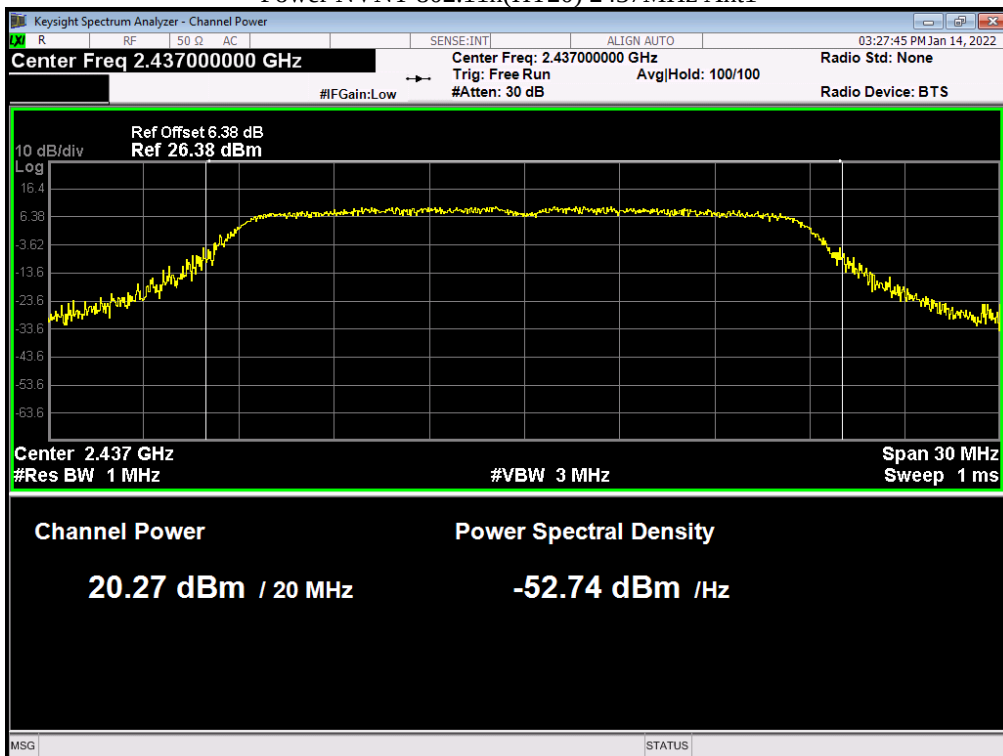


Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	802.11n(HT20)	2412	Ant 1	21.660	0	21.660	30	Pass
NVNT	802.11n(HT20)	2437	Ant 1	20.274	0	20.274	30	Pass
NVNT	802.11n(HT20)	2462	Ant 1	19.767	0	19.767	30	Pass

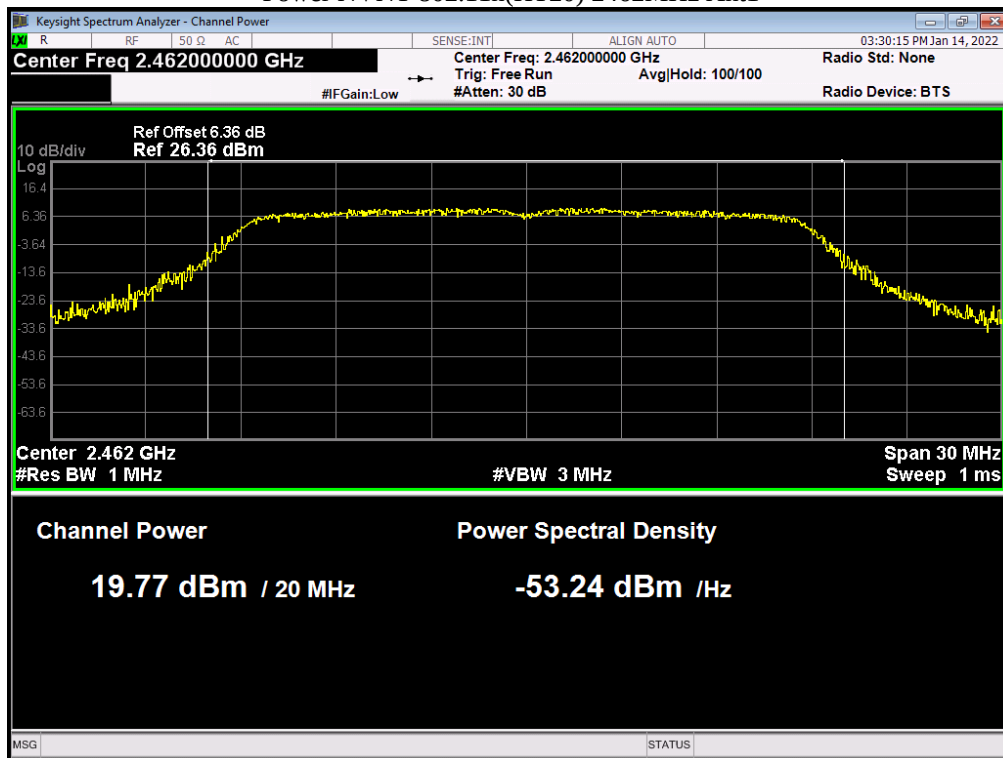
Power NVNT 802.11n(HT20) 2412MHz Ant1



Power NVNT 802.11n(HT20) 2437MHz Ant1

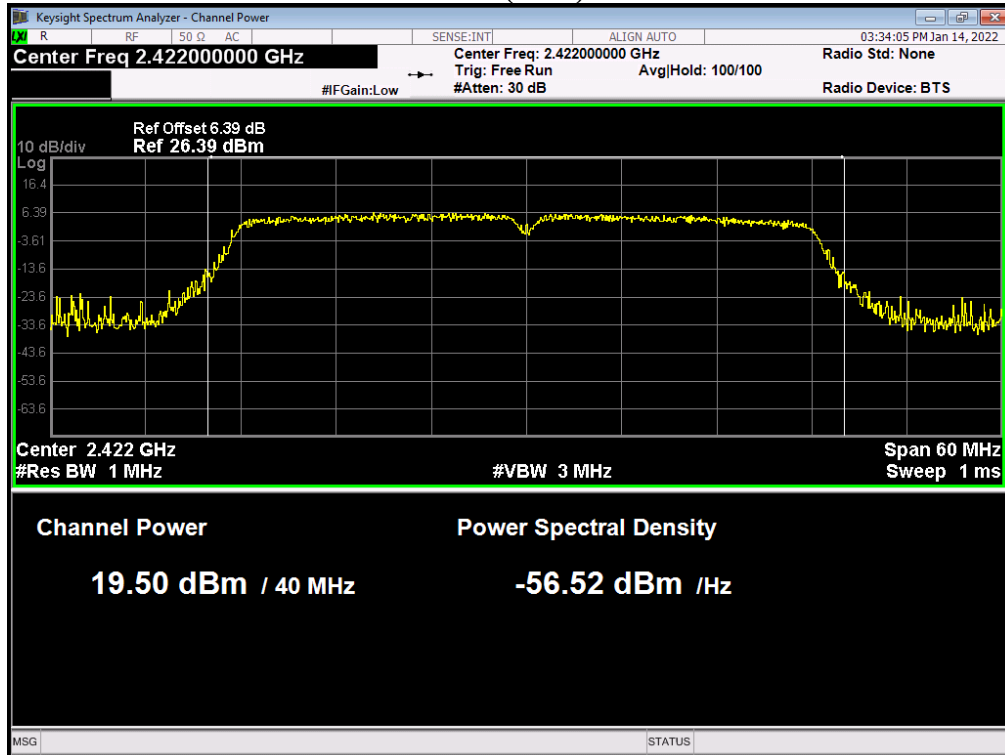


Power NVNT 802.11n(HT20) 2462MHz Ant1

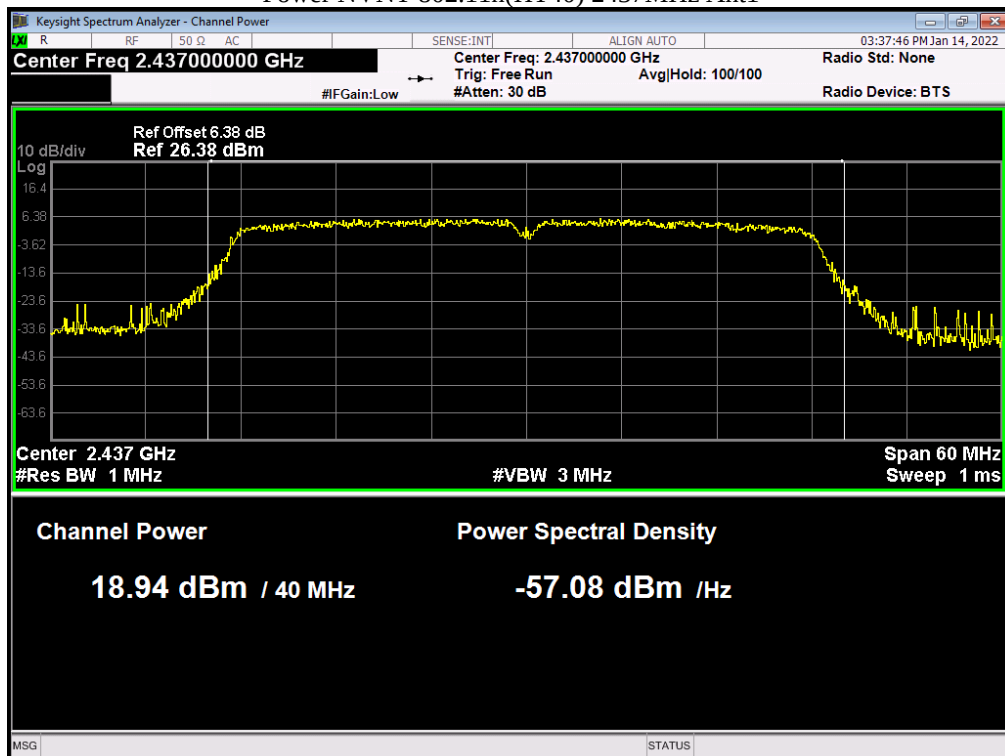


Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	802.11n(HT40)	2422	Ant 1	19.502	0	19.502	30	Pass
NVNT	802.11n(HT40)	2437	Ant 1	18.938	0	18.938	30	Pass
NVNT	802.11n(HT40)	2452	Ant 1	18.519	0	18.519	30	Pass

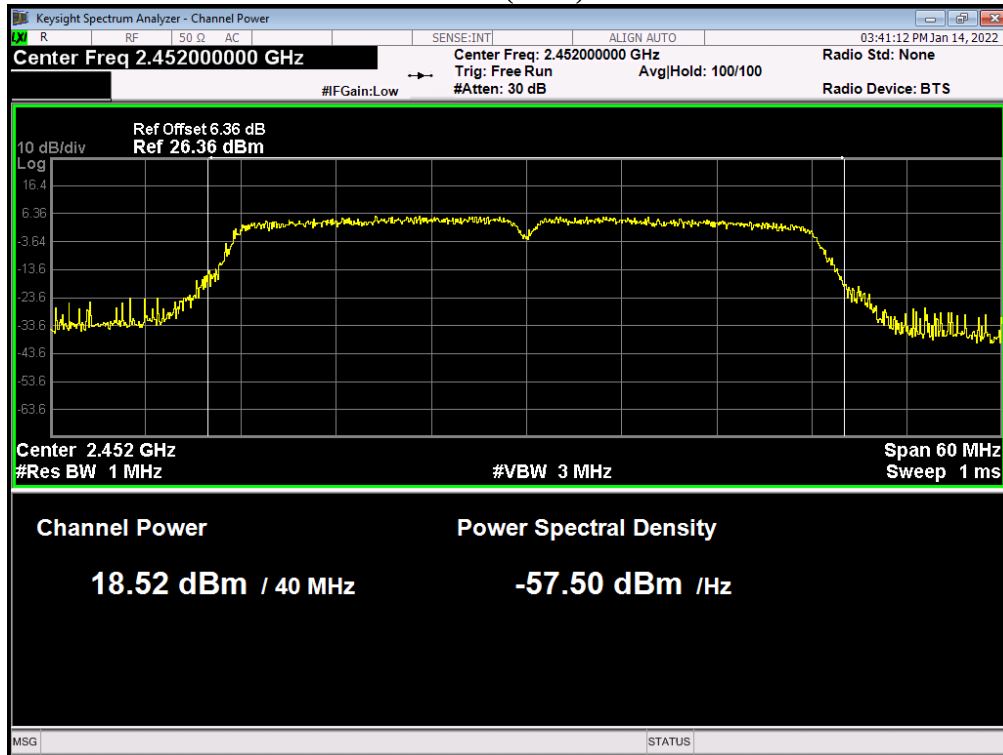
Power NVNT 802.11n(HT40) 2422MHz Ant1



Power NVNT 802.11n(HT40) 2437MHz Ant1

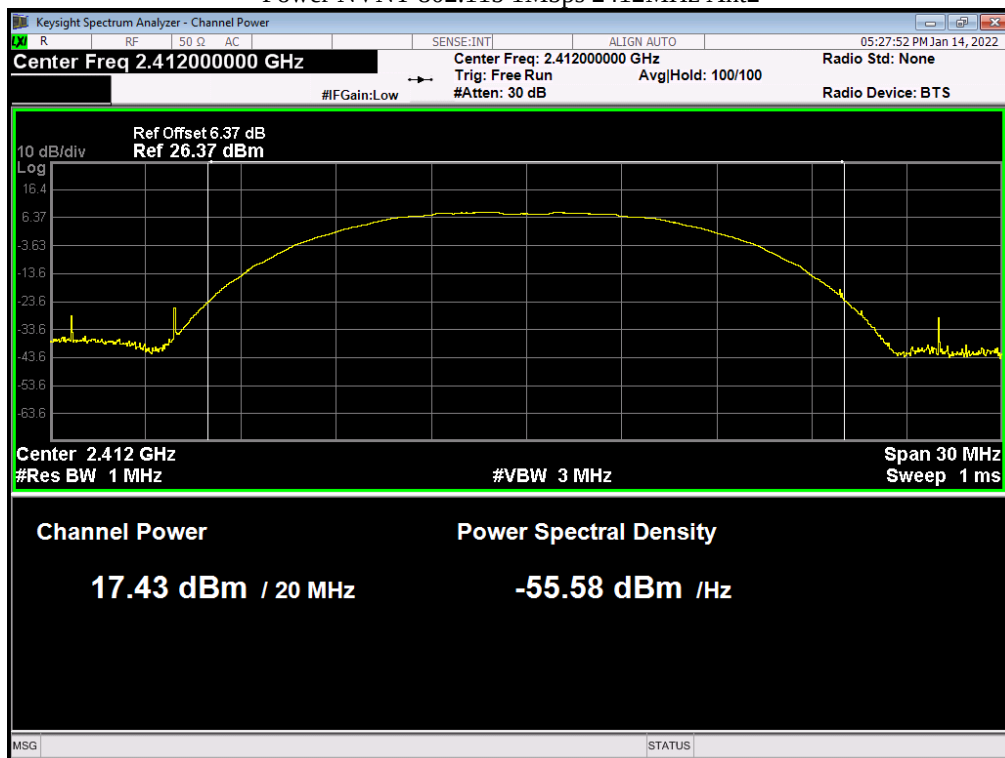


Power NVNT 802.11n(HT40) 2452MHz Ant1

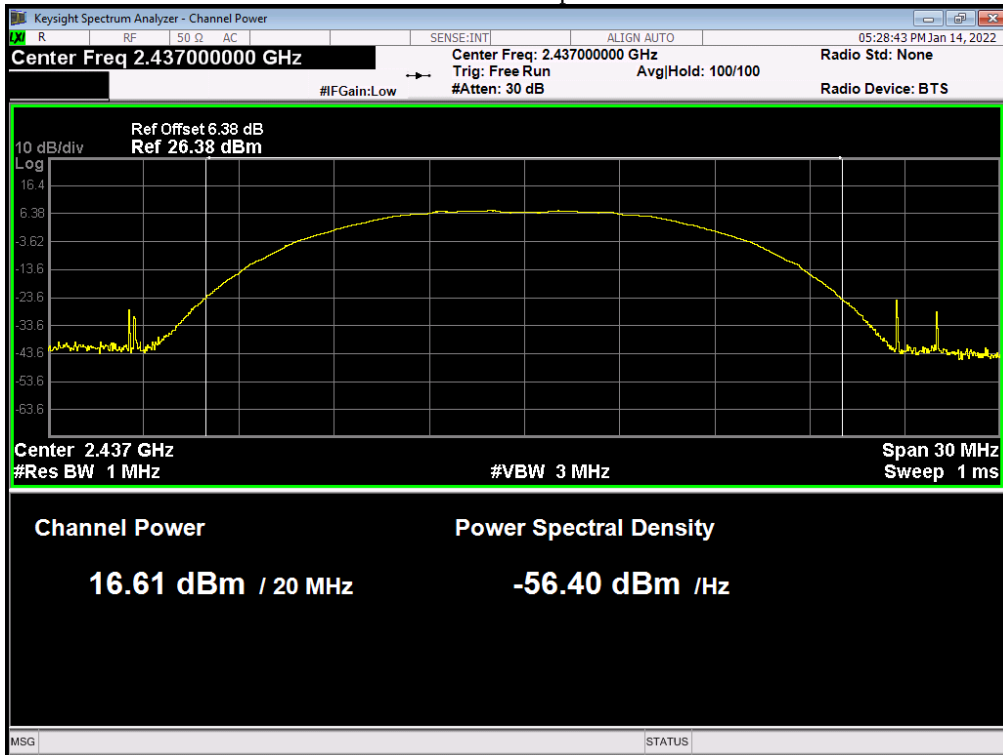


Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	802.11b 1Mbps	2412	Ant 2	17.429	0	17.429	30	Pass
NVNT	802.11b 1Mbps	2437	Ant 2	16.611	0	16.611	30	Pass
NVNT	802.11b 1Mbps	2462	Ant 2	15.656	0	15.656	30	Pass

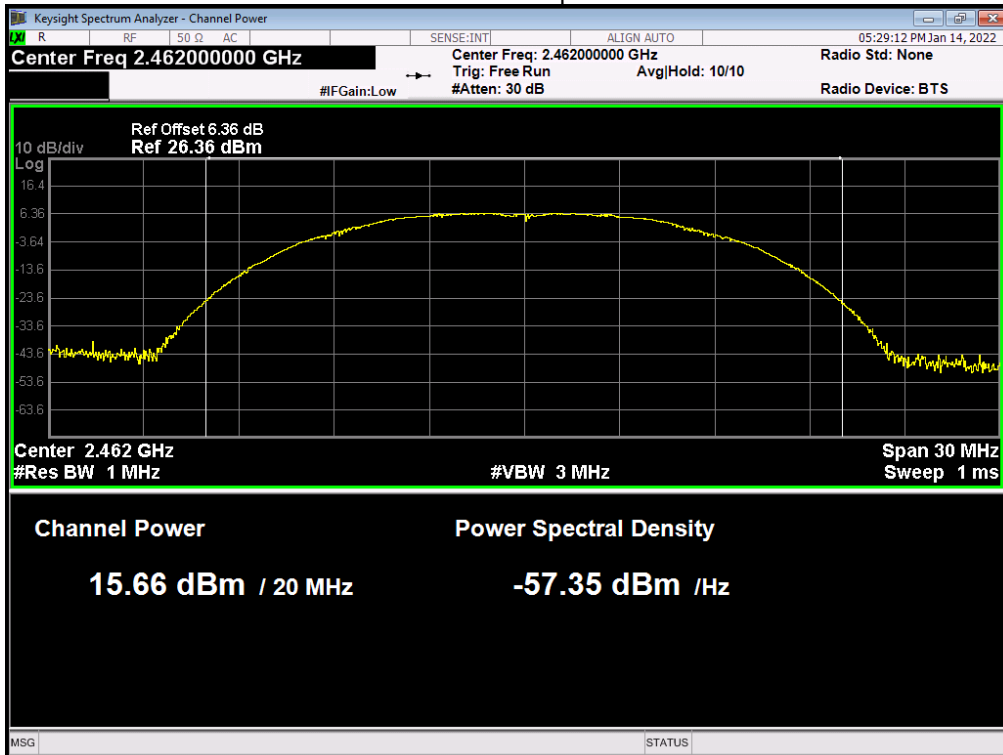
Power NVNT 802.11b 1Mbps 2412MHz Ant2



Power NVNT 802.11b 1Mbps 2437MHz Ant2

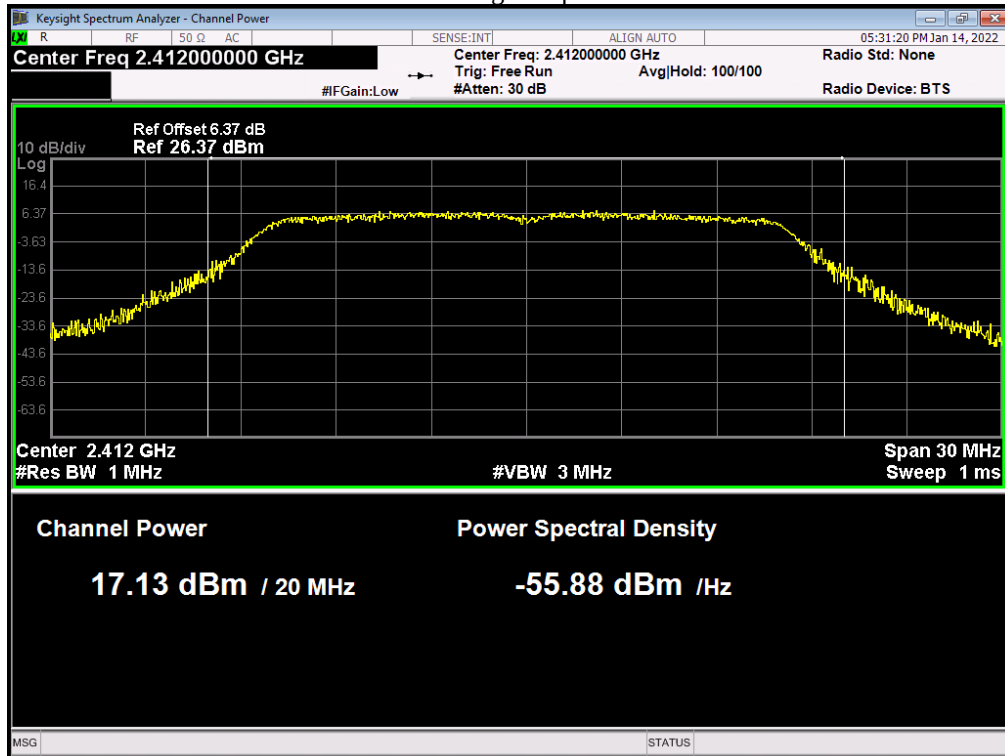


Power NVNT 802.11b 1Mbps 2462MHz Ant2

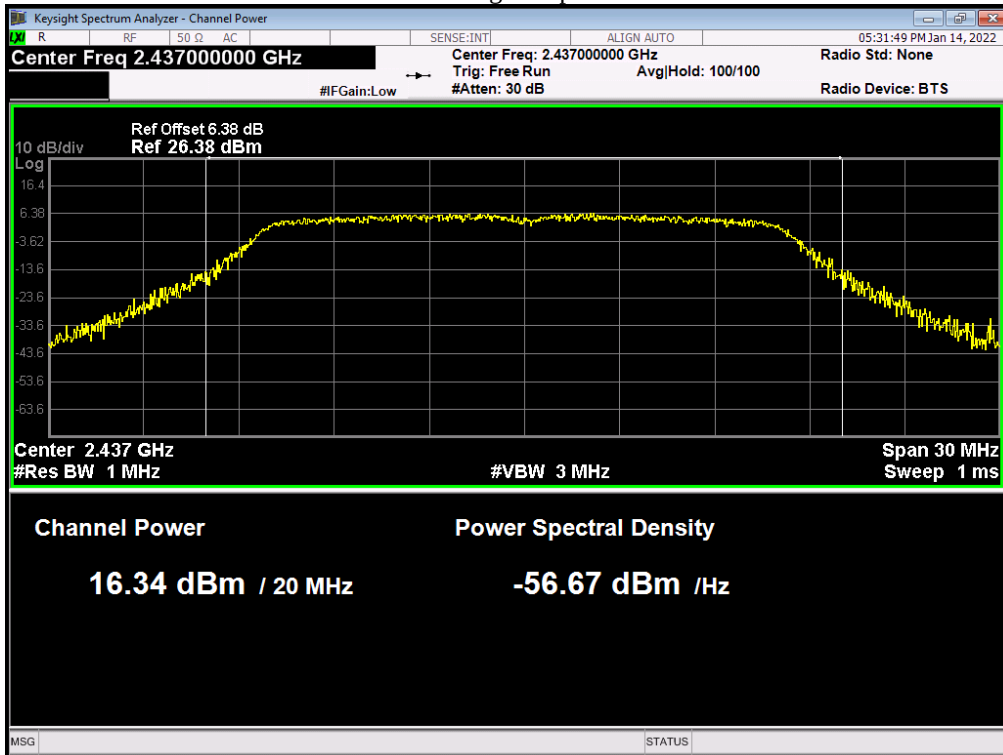


Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	802.11g 6Mbps	2412	Ant 2	17.128	0	17.128	30	Pass
NVNT	802.11g 6Mbps	2437	Ant 2	16.343	0	16.343	30	Pass
NVNT	802.11g 6Mbps	2462	Ant 2	15.63	0	15.63	30	Pass

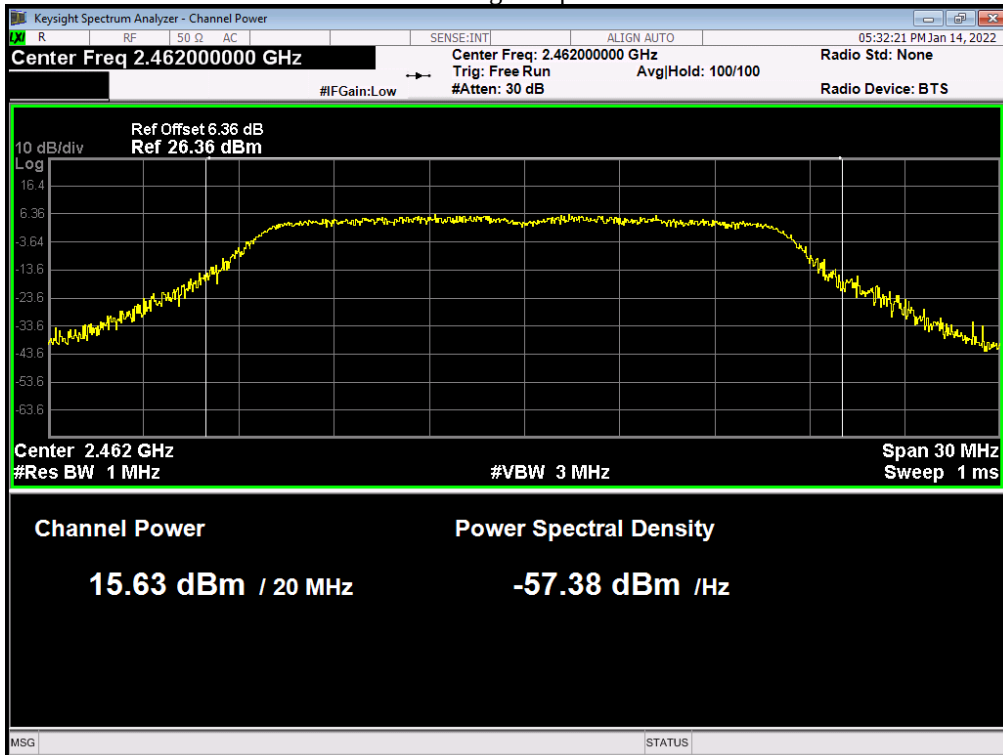
Power NVNT 802.11g 6Mbps 2412MHz Ant2



Power NVNT 802.11g 6Mbps 2437MHz Ant2

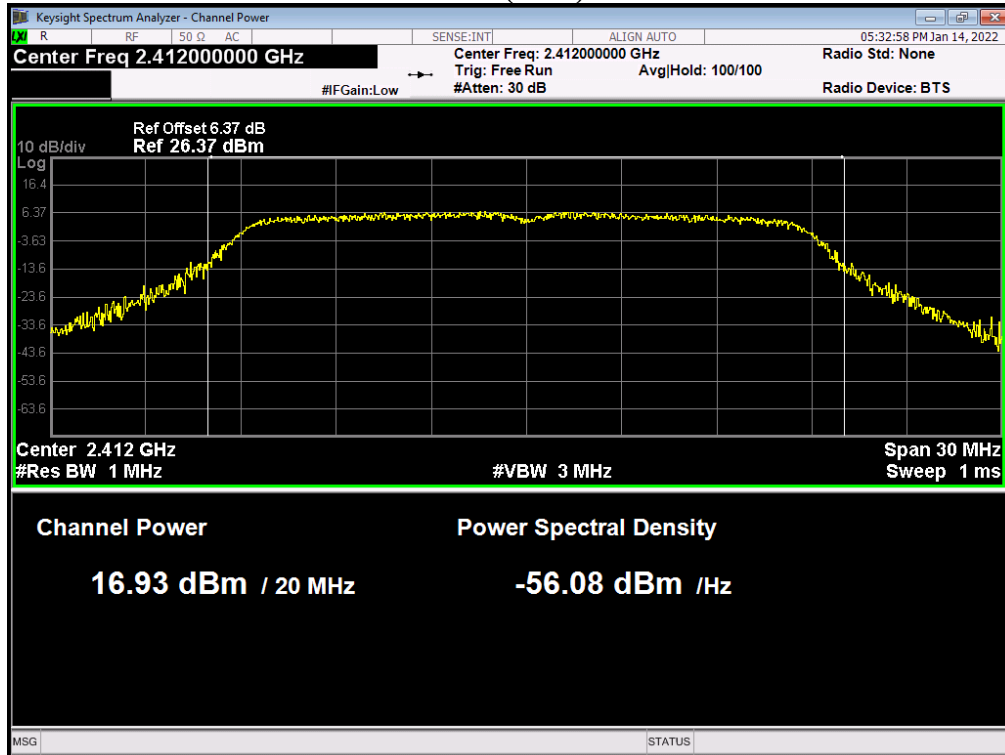


Power NVNT 802.11g 6Mbps 2462MHz Ant2

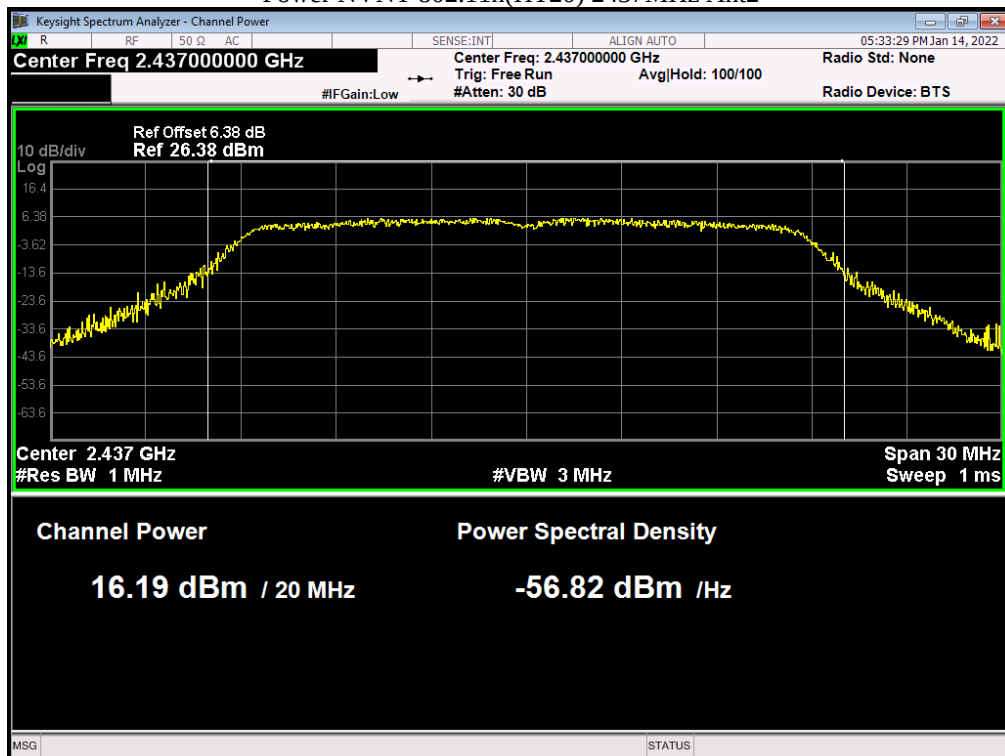


Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	802.11n(HT20)	2412	Ant 2	16.934	0	16.934	30	Pass
NVNT	802.11n(HT20)	2437	Ant 2	16.191	0	16.191	30	Pass
NVNT	802.11n(HT20)	2462	Ant 2	15.288	0	15.288	30	Pass

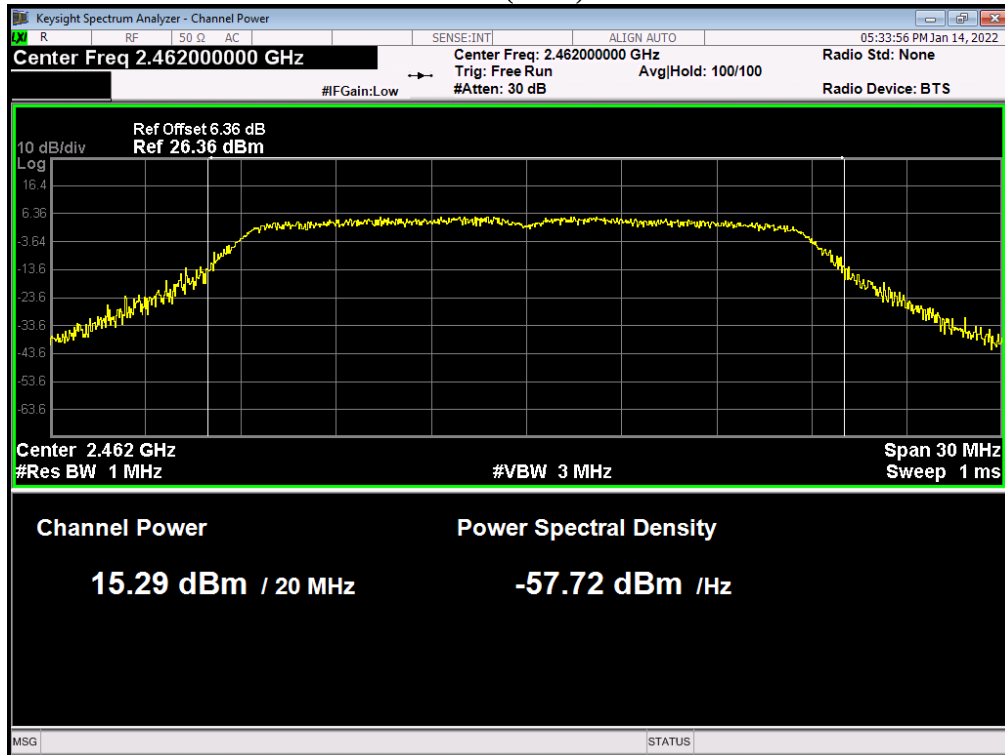
Power NVNT 802.11n(HT20) 2412MHz Ant2



Power NVNT 802.11n(HT20) 2437MHz Ant2

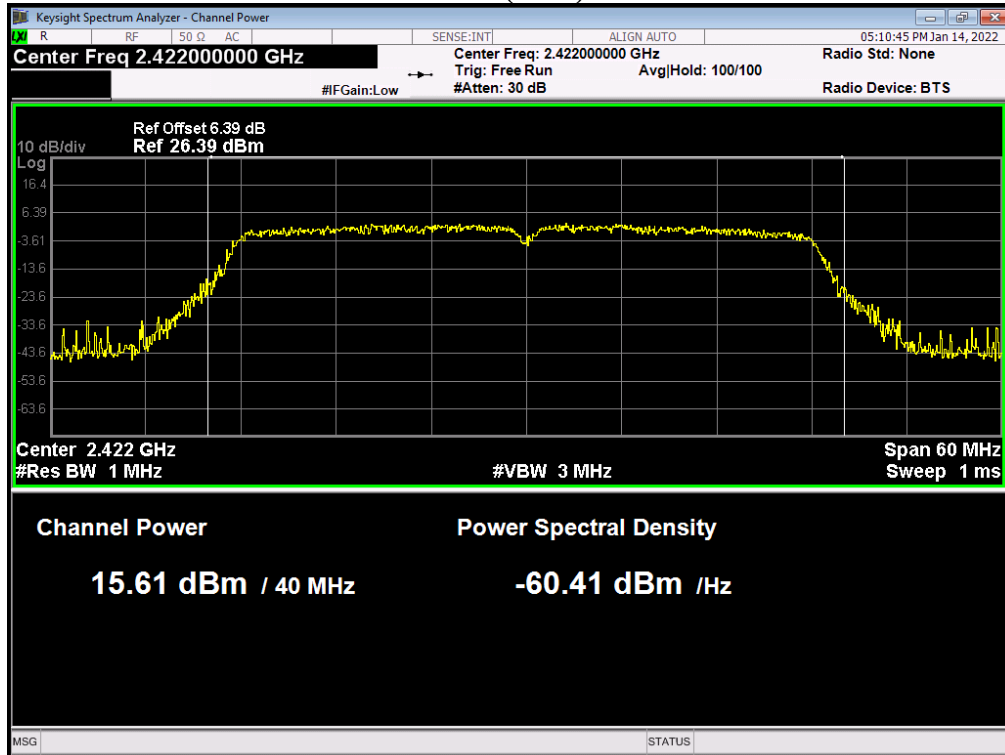


Power NVNT 802.11n(HT20) 2462MHz Ant2

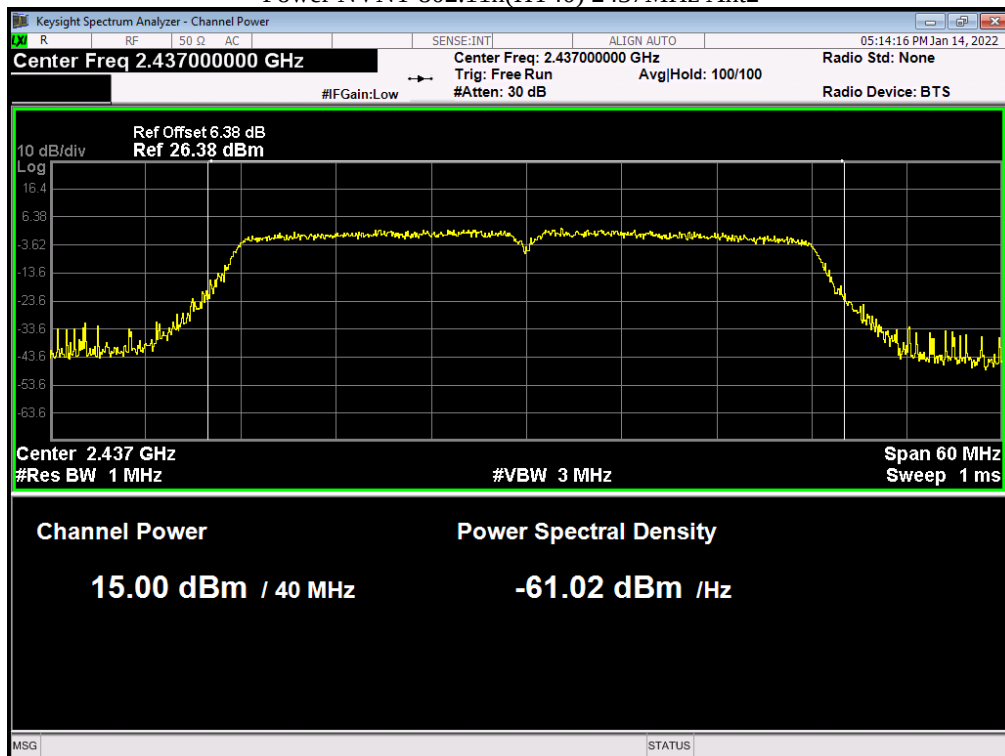


Condition	Mode	Frequency (MHz)	Antenna	Conducted Power (dBm)	Duty Factor (dB)	Total Power (dBm)	Limit (dBm)	Verdict
NVNT	802.11n(HT40)	2422	Ant 2	15.611	0	15.611	30	Pass
NVNT	802.11n(HT40)	2437	Ant 2	14.997	0	14.997	30	Pass
NVNT	802.11n(HT40)	2452	Ant 2	14.045	0	14.045	30	Pass

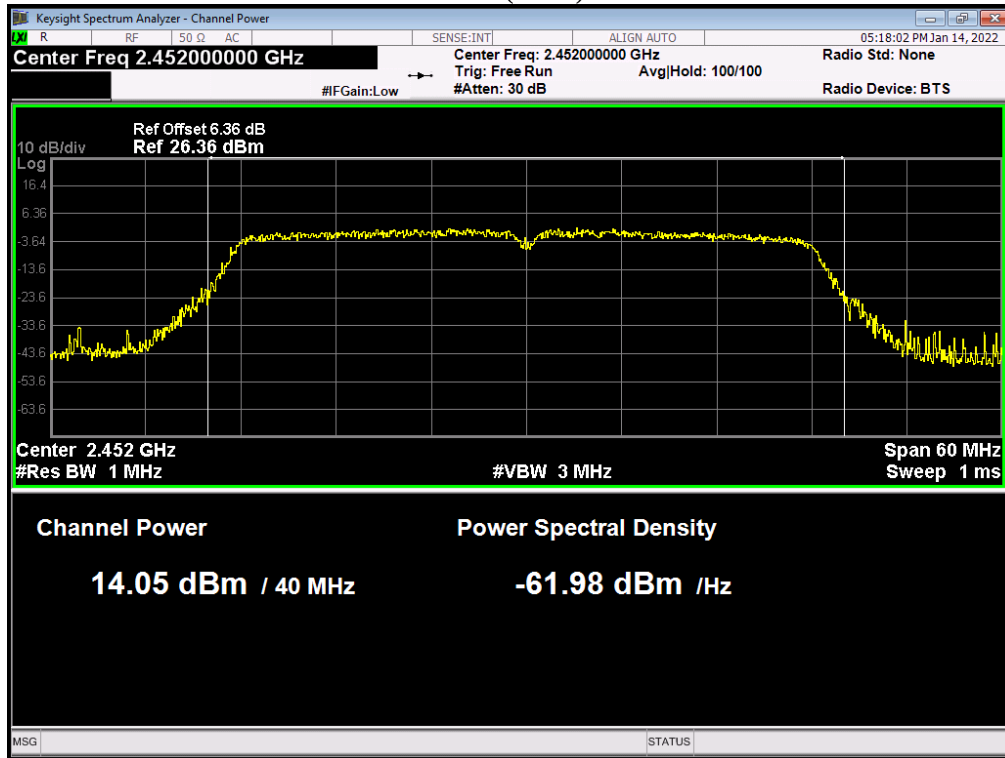
Power NVNT 802.11n(HT40) 2422MHz Ant2



Power NVNT 802.11n(HT40) 2437MHz Ant2



Power NVNT 802.11n(HT40) 2452MHz Ant2

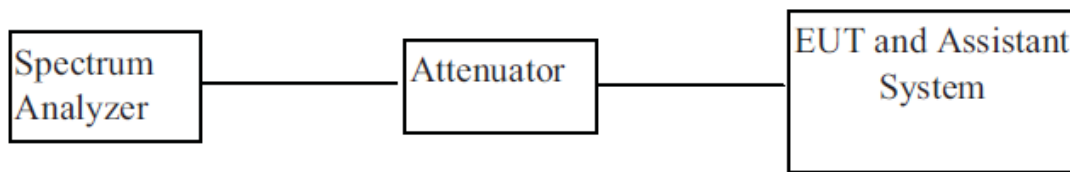


6. -6dB Bandwidth

6.1. Test equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	MXA Signal Analyzer	KEYSIGHT	N9020A	MY5451047 6	2021/05/26	1 Year

6.2. BLOCK DIAGRAM OF TEST SETUP



6.3. Limit

Systems using digital modulation techniques may operate in the 902 - 928 MHz, 2400 - 2483.5 MHz, and 5725 - 5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

6.4. Test Procedure

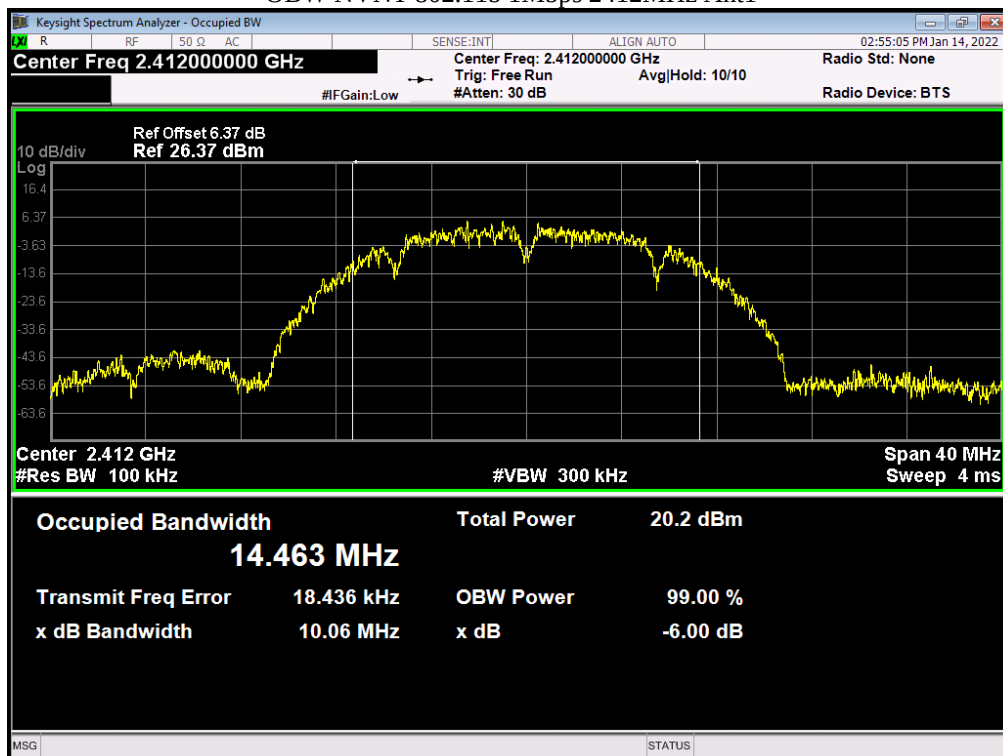
1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
2. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
3. Set SPA Centre Frequency = Operation Frequency, RBW= 100 KHz, VBW $\geq$ 3 $\times$ RBW.
4. Set SPA Trace 1 Max hold, then View.

Note: The EUT was tested according to KDB 558074 for compliance to FCC 47CFR 15.247 requirements.

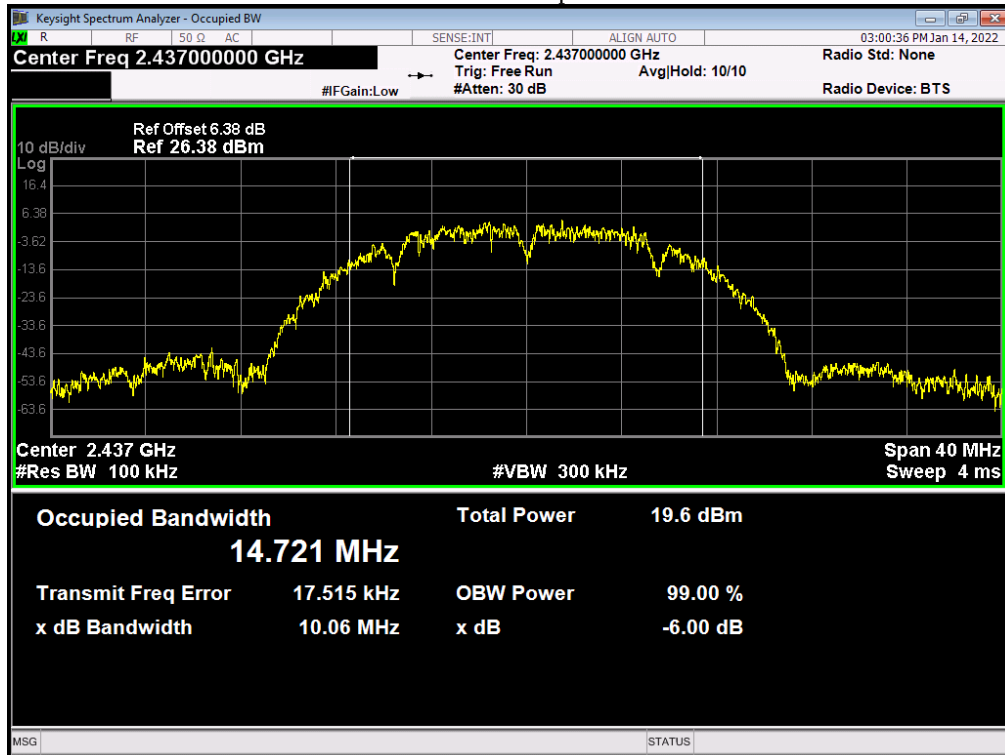
6.5. Test result

Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	802.11b 1Mbps	2412	Ant 1	14.4628	10.0636	0.5	Pass
NVNT	802.11b 1Mbps	2437	Ant 1	14.7215	10.0591	0.5	Pass
NVNT	802.11b 1Mbps	2462	Ant 1	14.5632	9.963	0.5	Pass

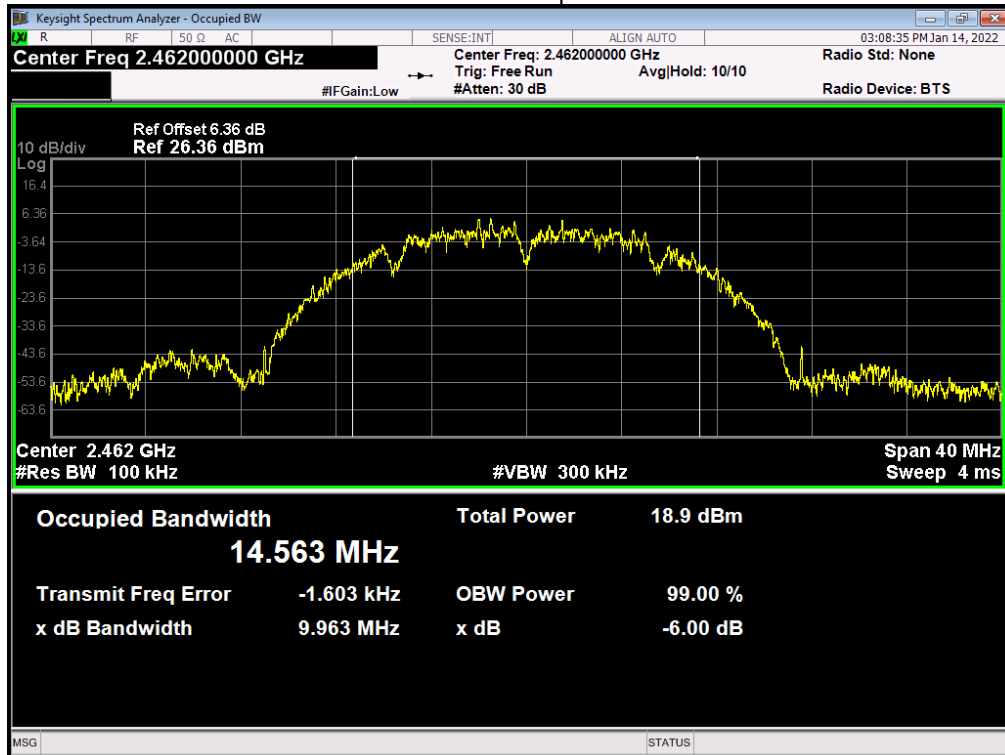
OBW NVNT 802.11b 1Mbps 2412MHz Ant1



OBW NVNT 802.11b 1Mbps 2437MHz Ant1

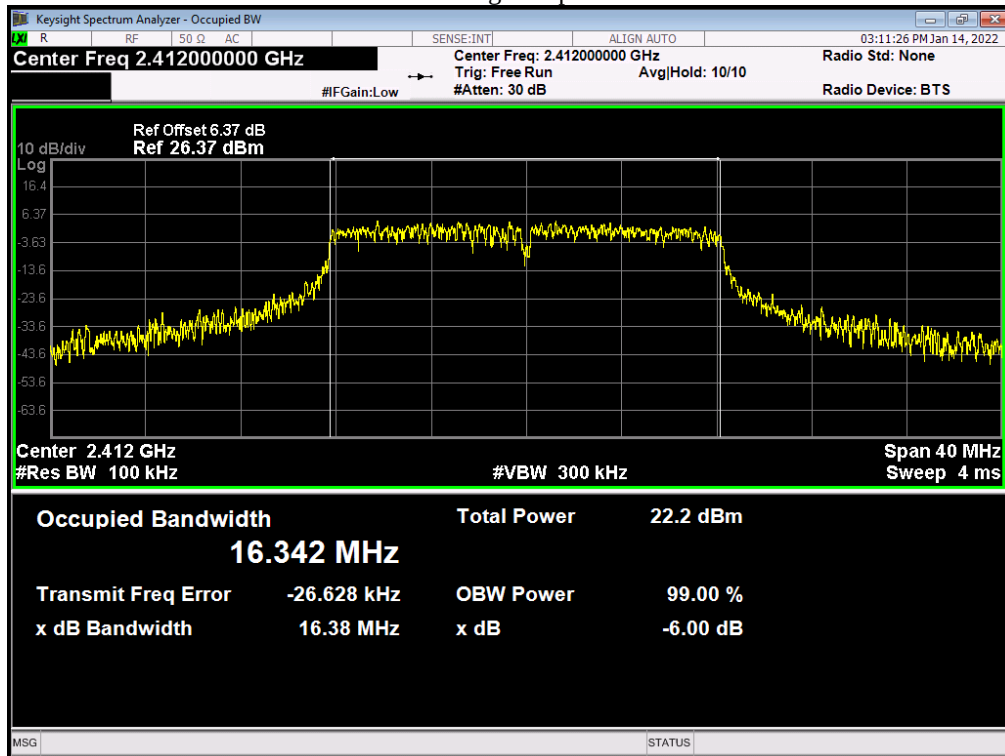


OBW NVNT 802.11b 1Mbps 2462MHz Ant1

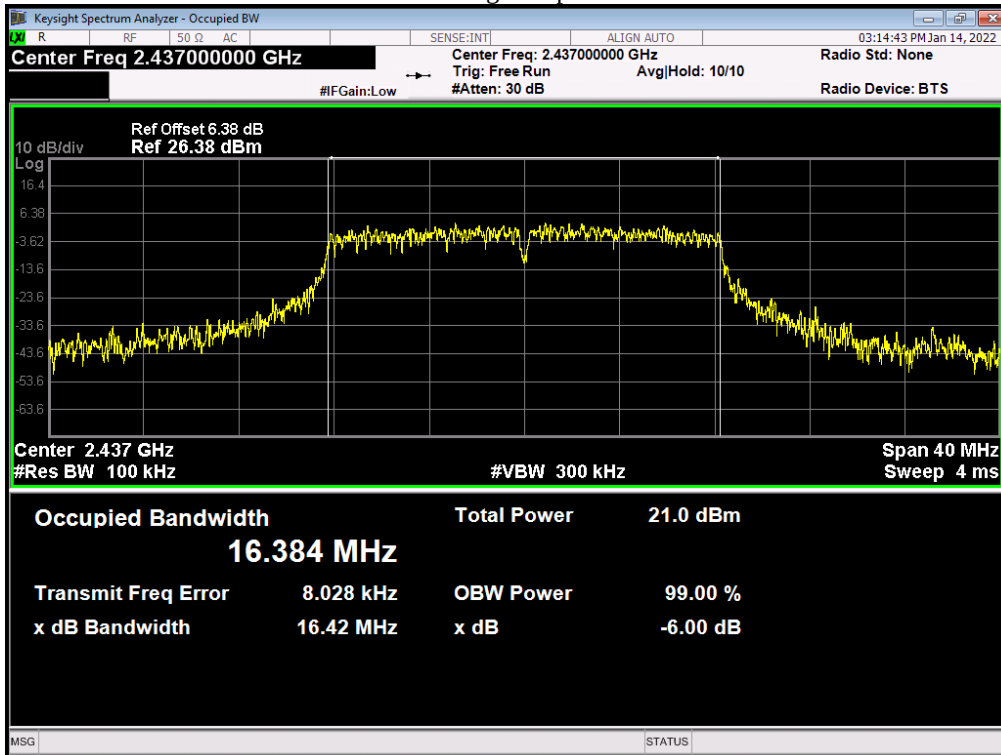


Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	802.11g 6Mbps	2412	Ant 1	16.3419	16.382	0.5	Pass
NVNT	802.11g 6Mbps	2437	Ant 1	16.3843	16.4166	0.5	Pass
NVNT	802.11g 6Mbps	2462	Ant 1	16.3577	15.9912	0.5	Pass

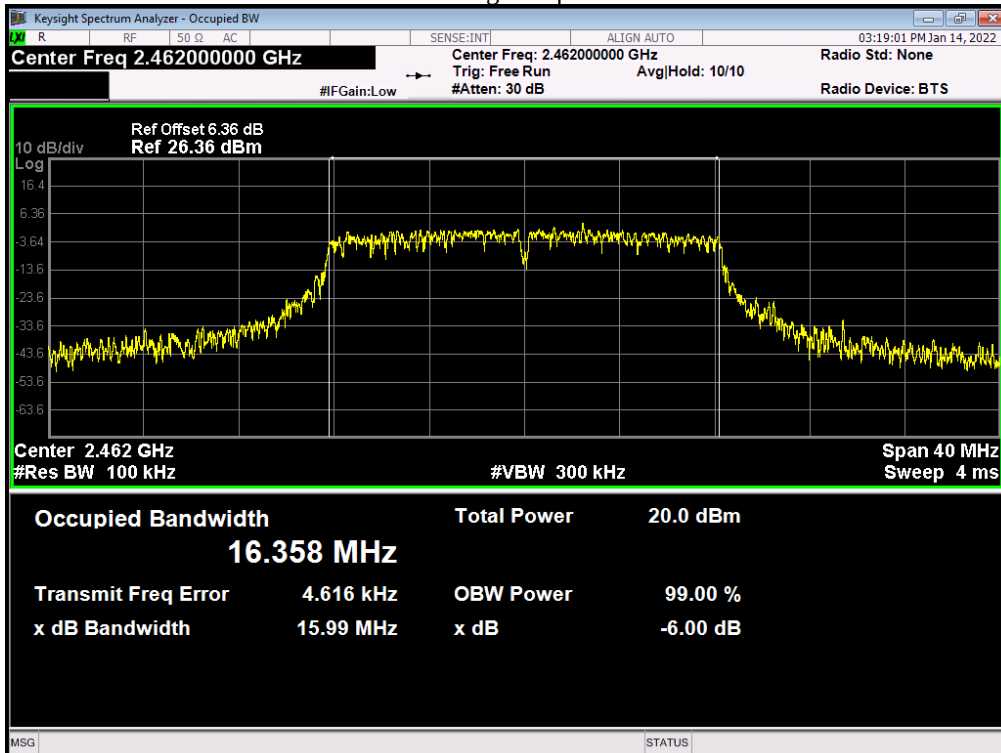
OBW NVNT 802.11g 6Mbps 2412MHz Ant1



OBW NVNT 802.11g 6Mbps 2437MHz Ant1

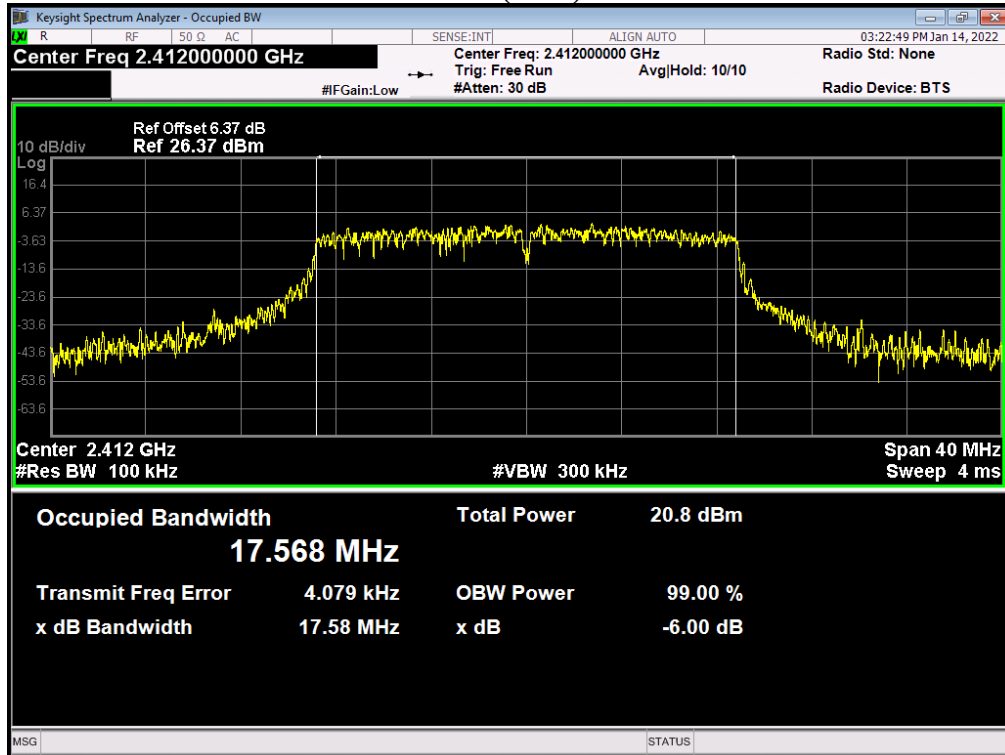


OBW NVNT 802.11g 6Mbps 2462MHz Ant1

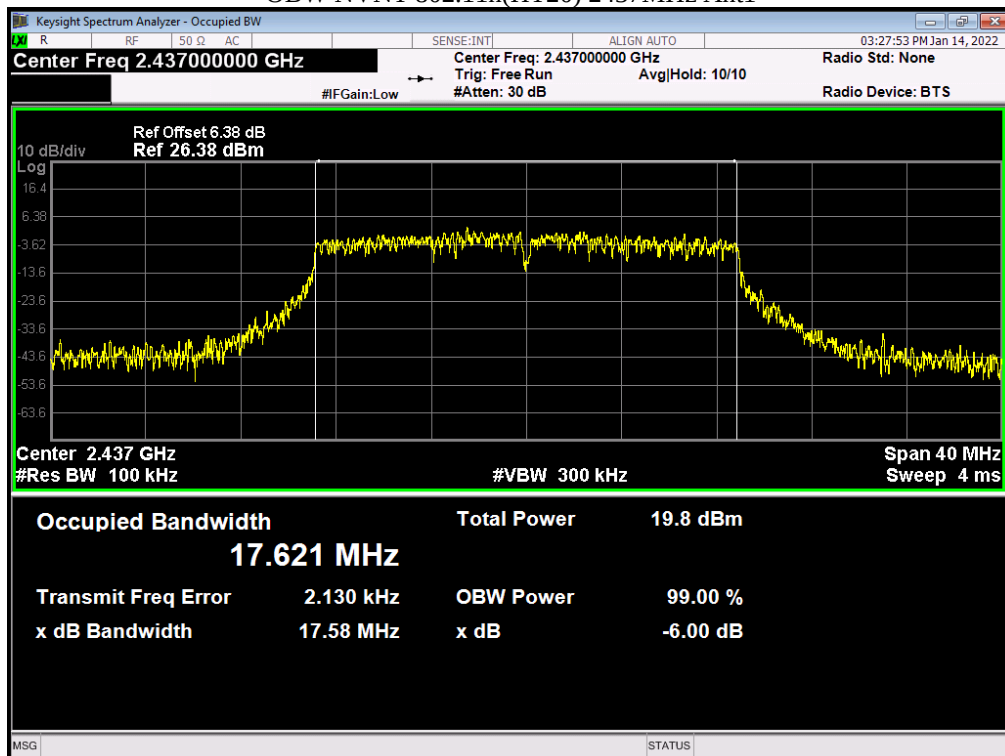


Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	802.11n(HT20)	2412	Ant 1	17.5676	17.5798	0.5	Pass
NVNT	802.11n(HT20)	2437	Ant 1	17.621	17.5779	0.5	Pass
NVNT	802.11n(HT20)	2462	Ant 1	17.5956	17.6471	0.5	Pass

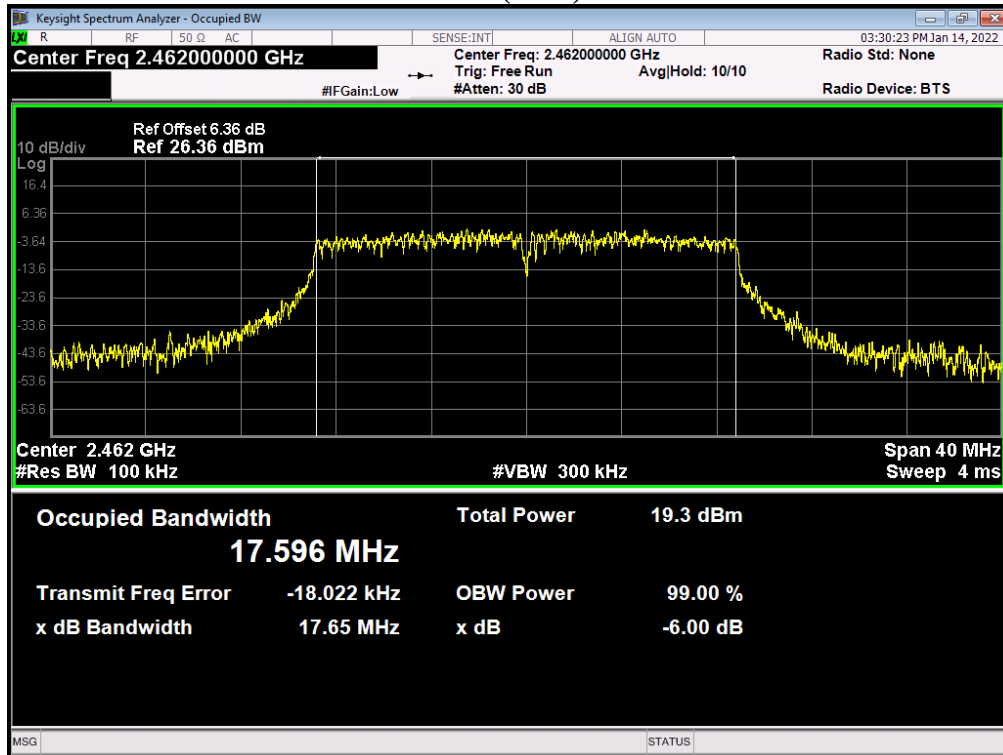
OBW NVNT 802.11n(HT20) 2412MHz Ant1



OBW NVNT 802.11n(HT20) 2437MHz Ant1

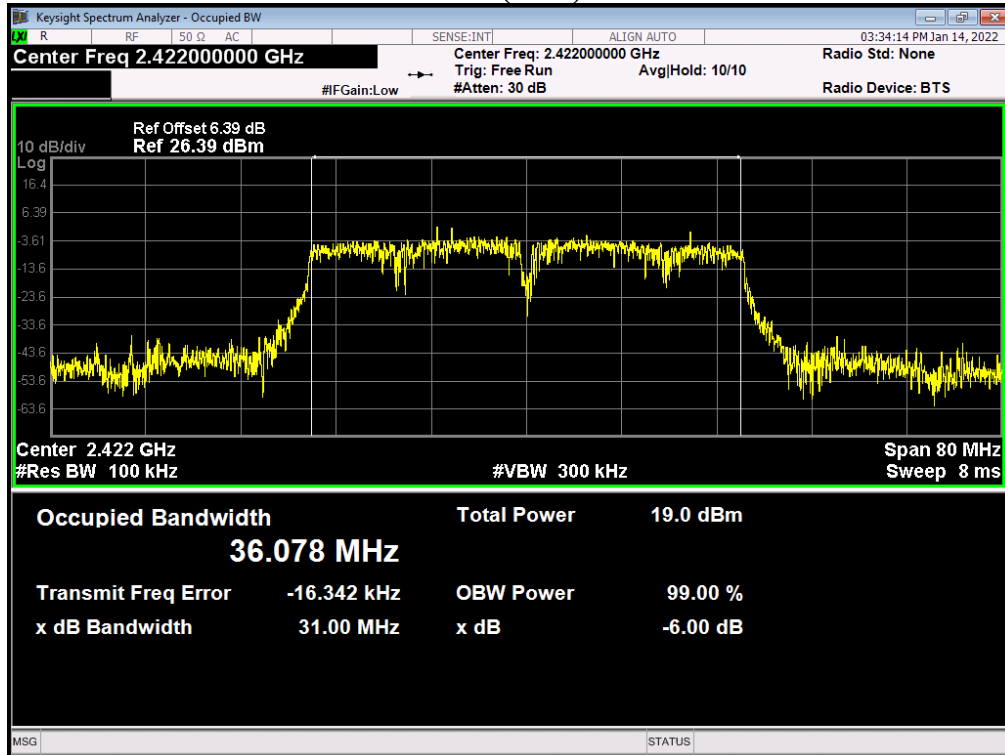


OBW NVNT 802.11n(HT20) 2462MHz Ant1

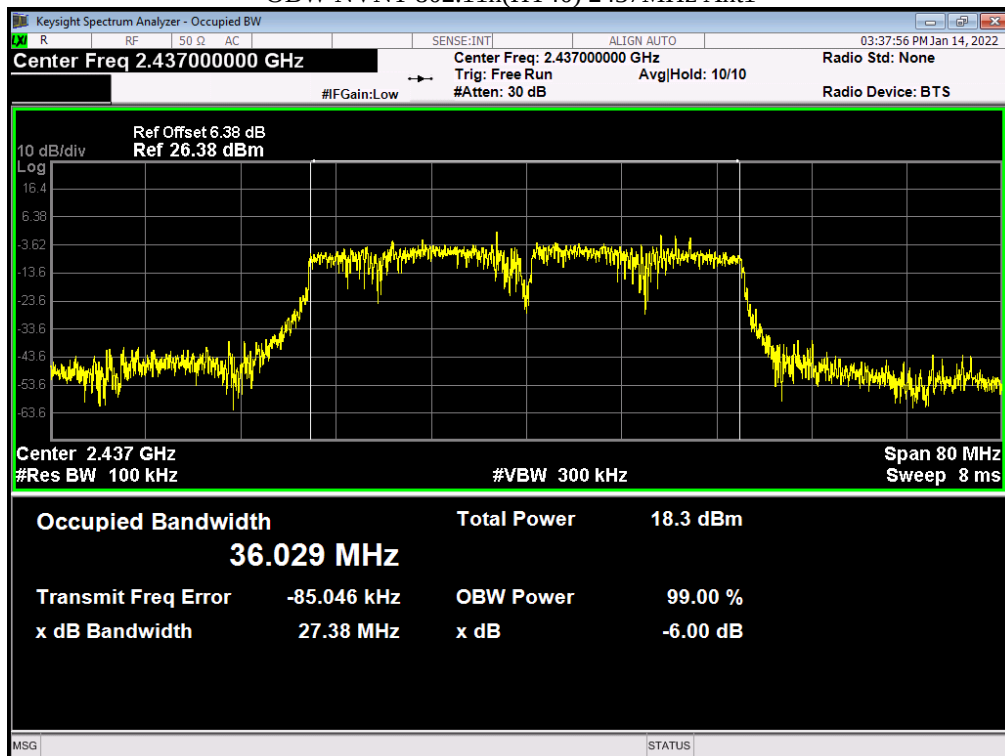


Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	802.11n(HT40)	2422	Ant 1	36.0779	31.0009	0.5	Pass
NVNT	802.11n(HT40)	2437	Ant 1	36.0285	27.3810	0.5	Pass
NVNT	802.11n(HT40)	2452	Ant 1	36.0656	35.2745	0.5	Pass

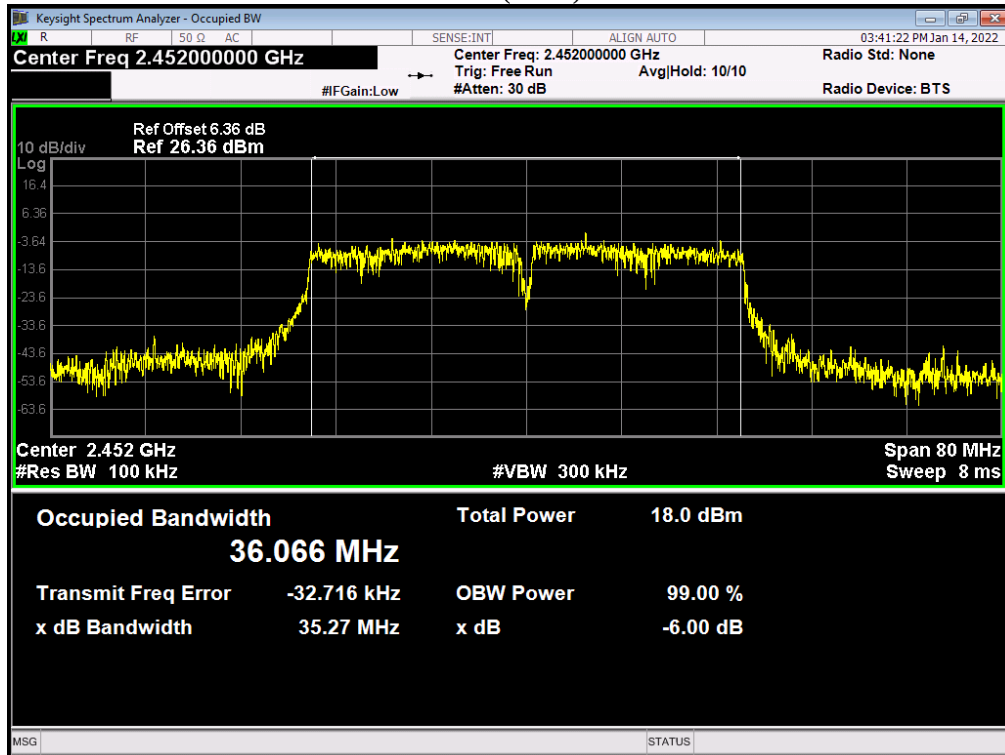
OBW NVNT 802.11n(HT40) 2422MHz Ant1



OBW NVNT 802.11n(HT40) 2437MHz Ant1

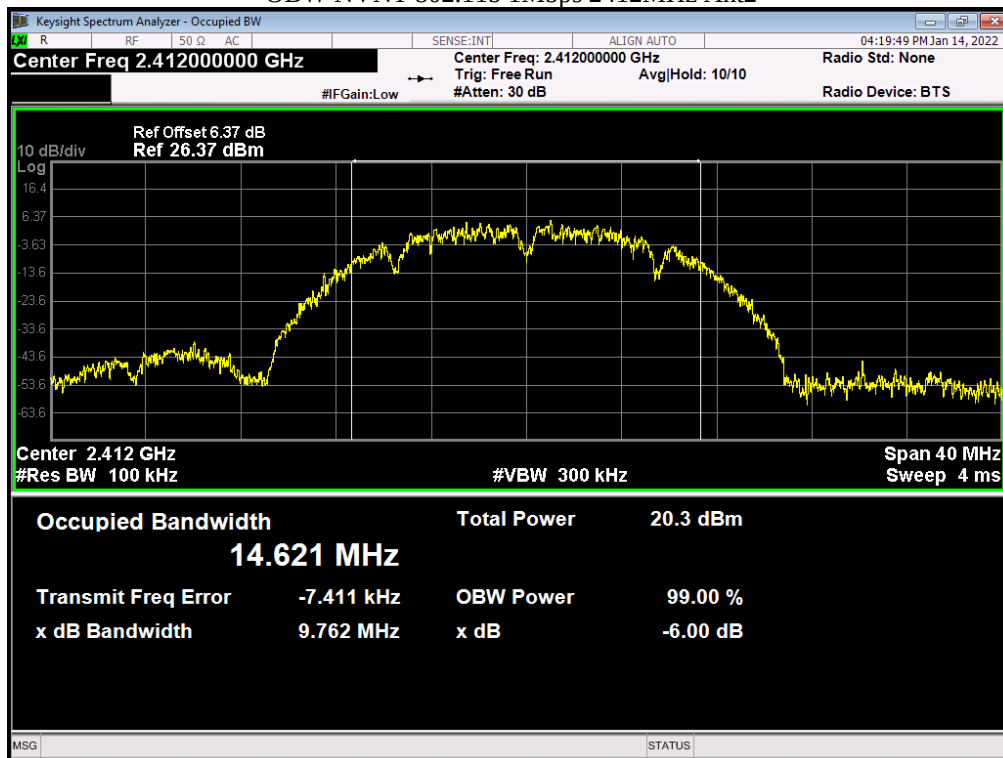


OBW NVNT 802.11n(HT40) 2452MHz Ant1

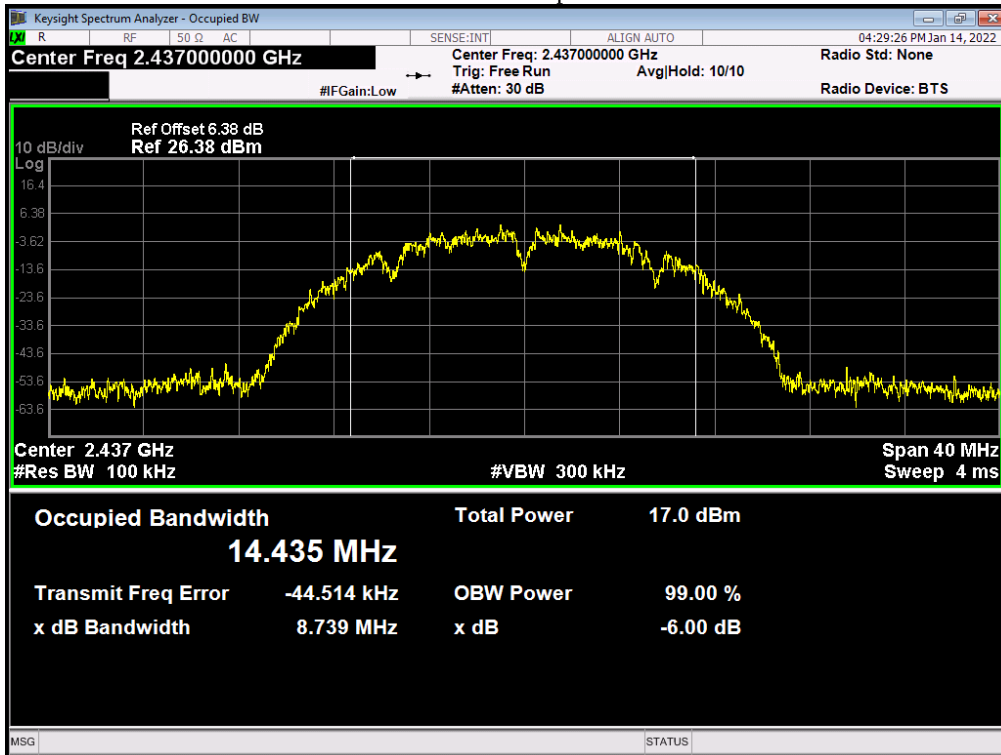


Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	802.11b 1Mbps	2412	Ant 2	14.6215	9.7619	0.5	Pass
NVNT	802.11b 1Mbps	2437	Ant 2	14.4348	8.7391	0.5	Pass
NVNT	802.11b 1Mbps	2462	Ant 2	14.497	9.9681	0.5	Pass

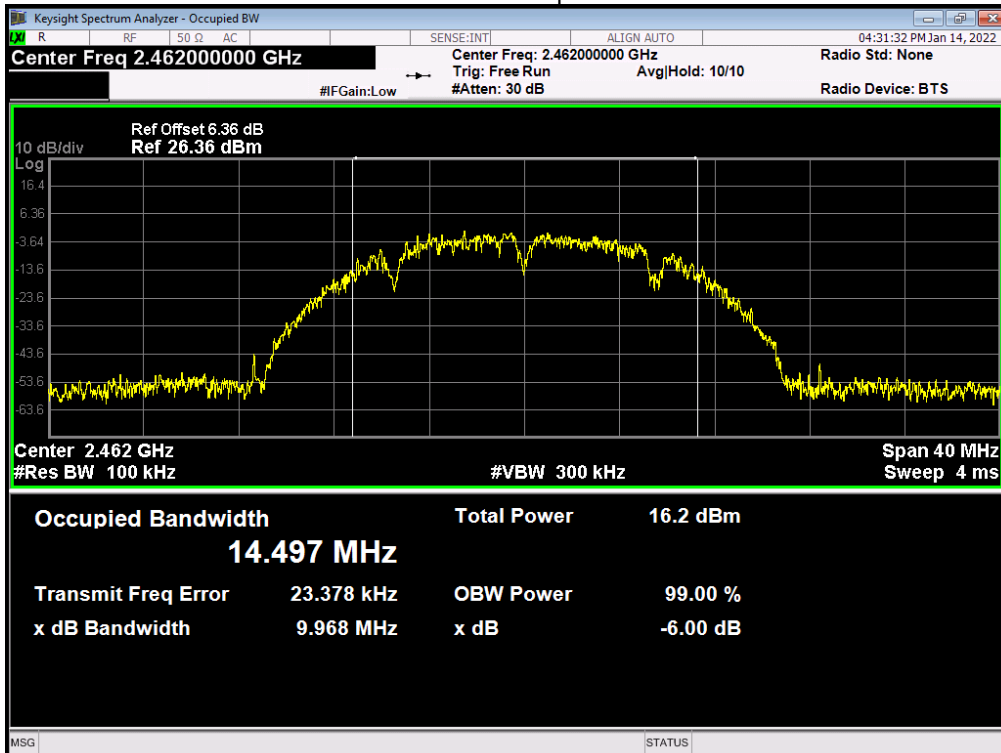
OBW NVNT 802.11b 1Mbps 2412MHz Ant2



OBW NVNT 802.11b 1Mbps 2437MHz Ant2

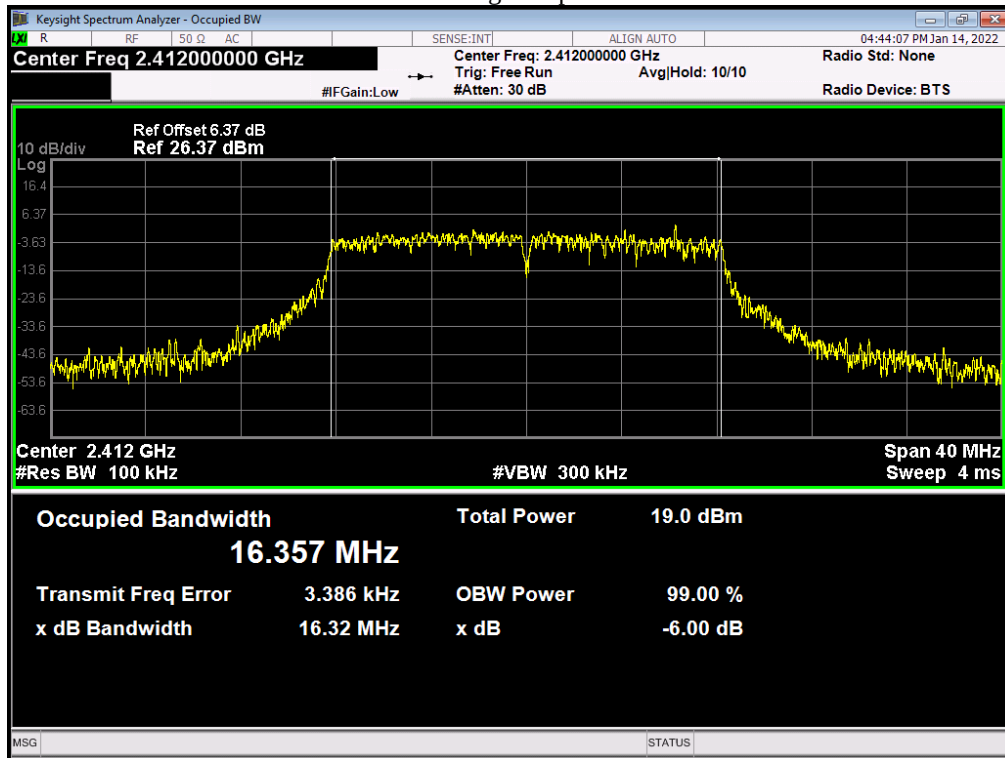


OBW NVNT 802.11b 1Mbps 2462MHz Ant2

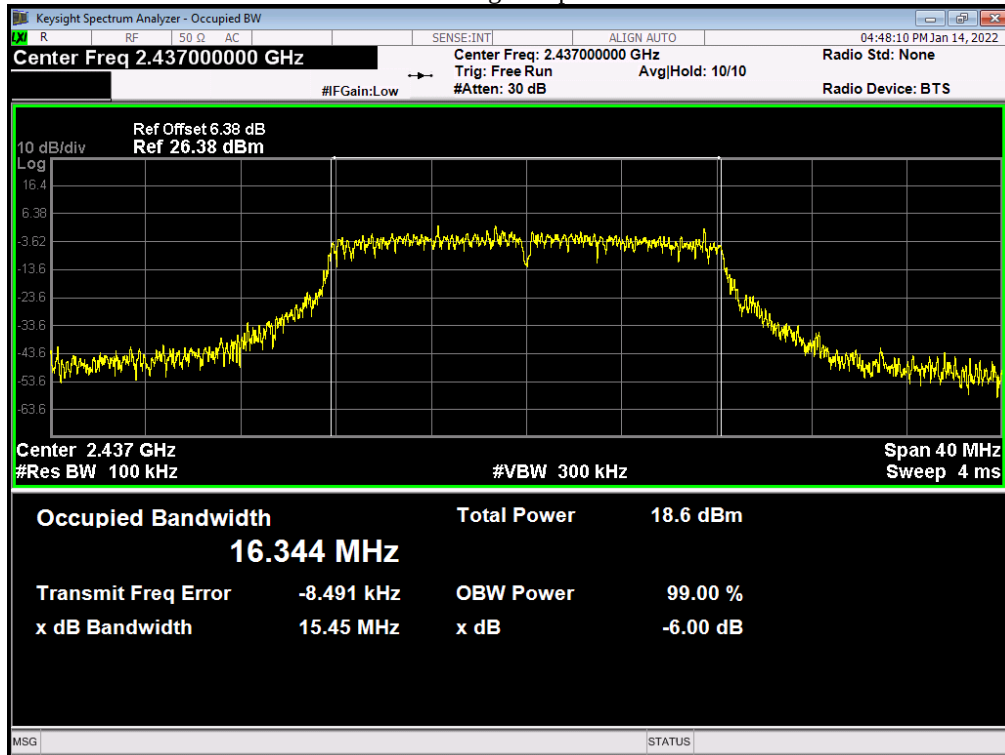


Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	802.11g 6Mbps	2412	Ant 2	16.3568	16.3158	0.5	Pass
NVNT	802.11g 6Mbps	2437	Ant 2	16.3436	15.4515	0.5	Pass
NVNT	802.11g 6Mbps	2462	Ant 2	16.358	16.4249	0.5	Pass

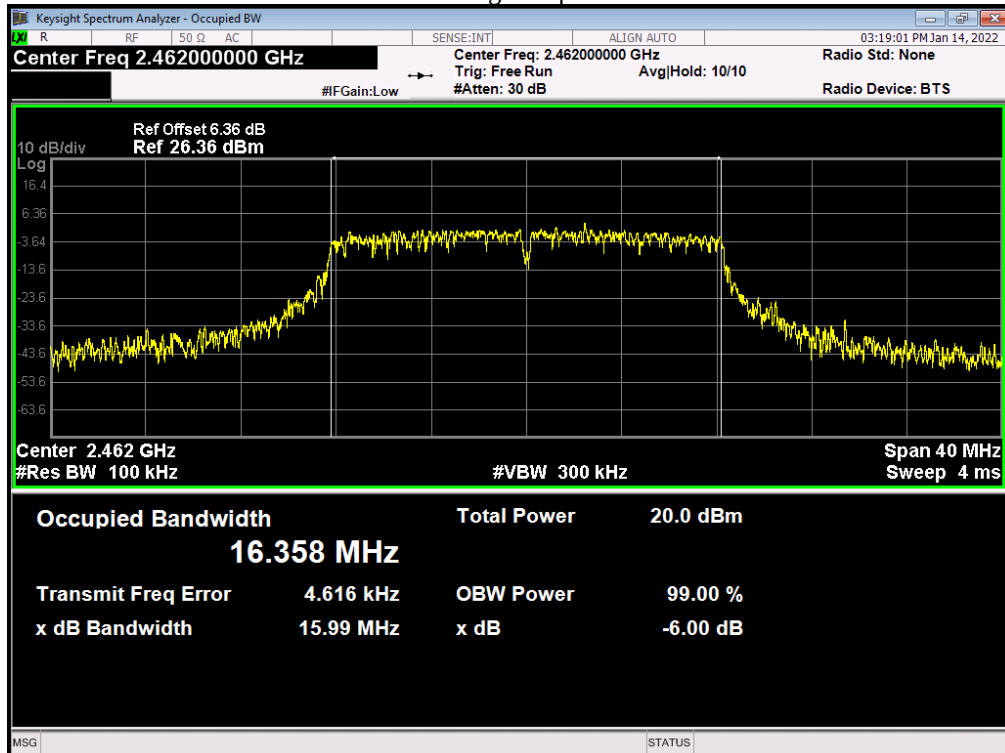
OBW NVNT 802.11g 6Mbps 2412MHz Ant2



OBW NVNT 802.11g 6Mbps 2437MHz Ant2

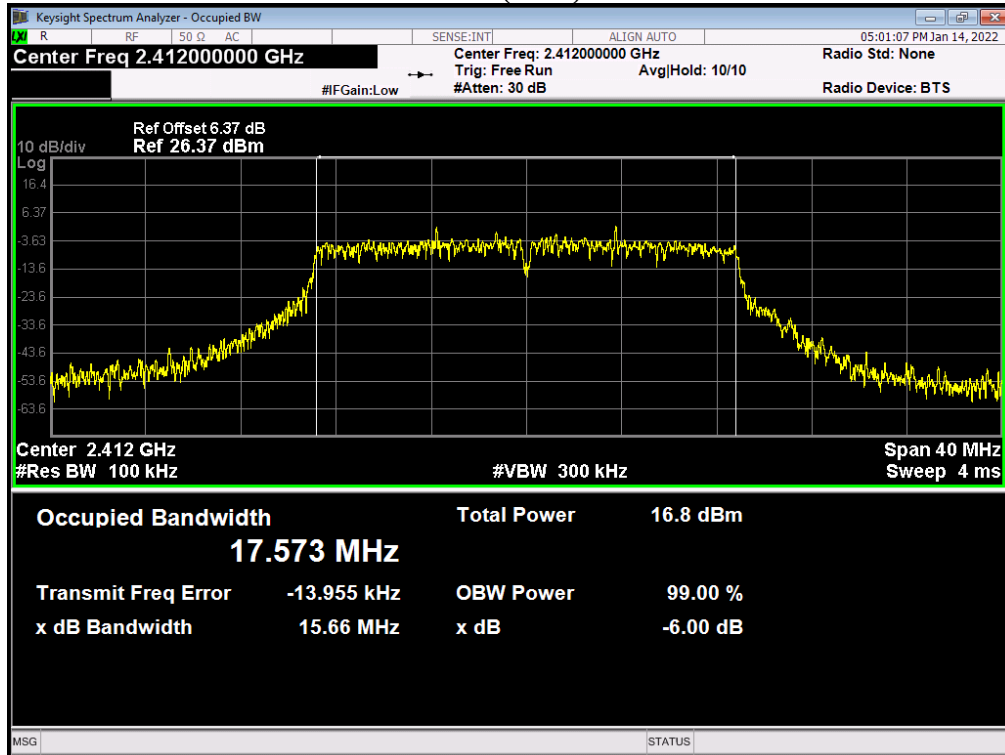


OBW NVNT 802.11g 6Mbps 2462MHz Ant2

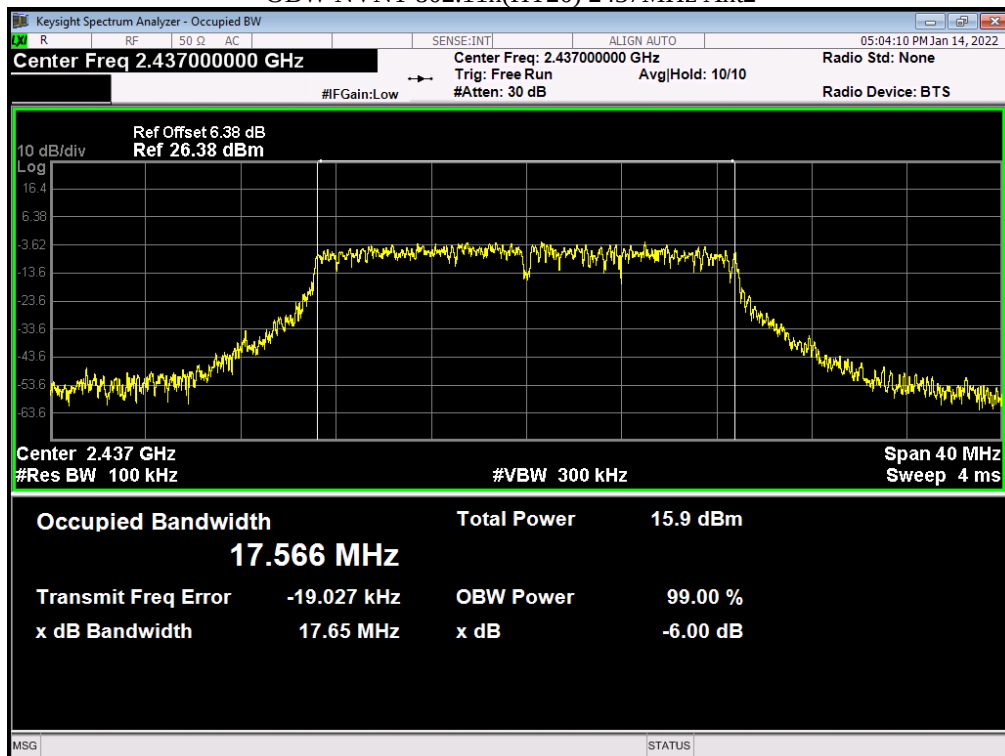


Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	802.11n(HT20)	2412	Ant 2	17.5733	15.657	0.5	Pass
NVNT	802.11n(HT20)	2437	Ant 2	17.5664	17.6513	0.5	Pass
NVNT	802.11n(HT20)	2462	Ant 2	17.5180	15.1753	0.5	Pass

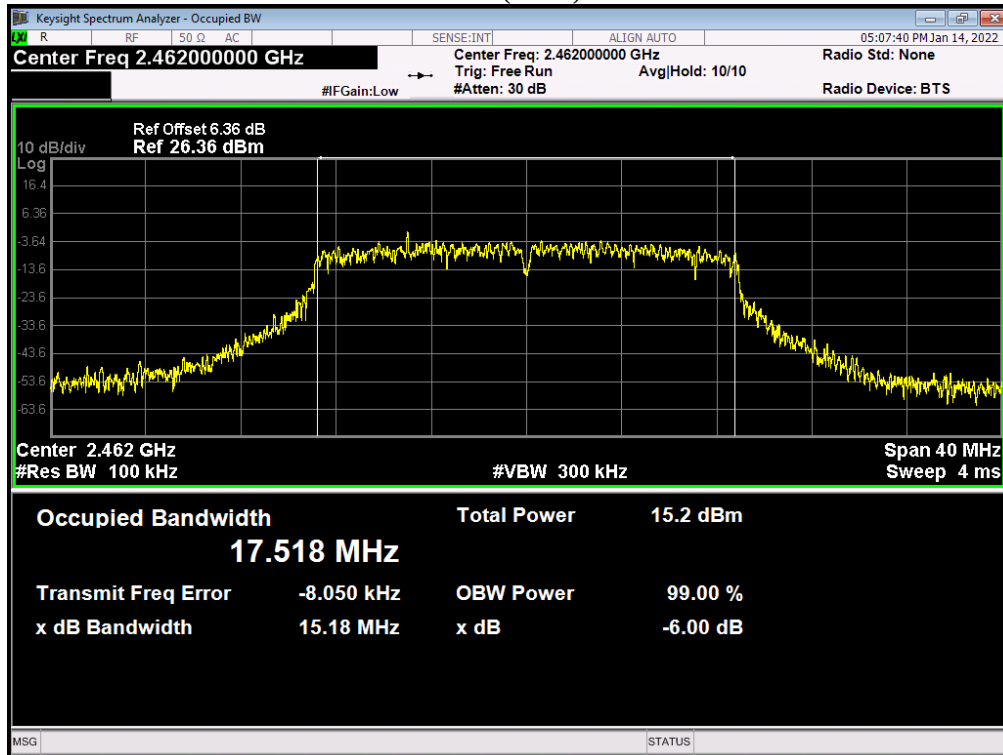
OBW NVNT 802.11n(HT20) 2412MHz Ant2



OBW NVNT 802.11n(HT20) 2437MHz Ant2

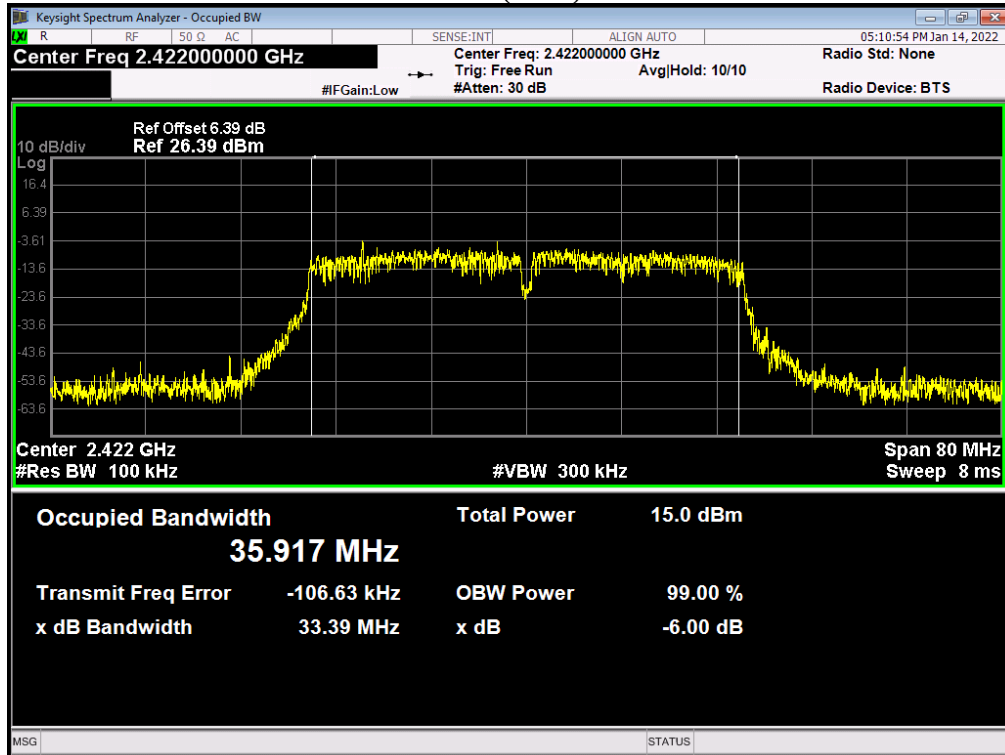


OBW NVNT 802.11n(HT20) 2462MHz Ant2

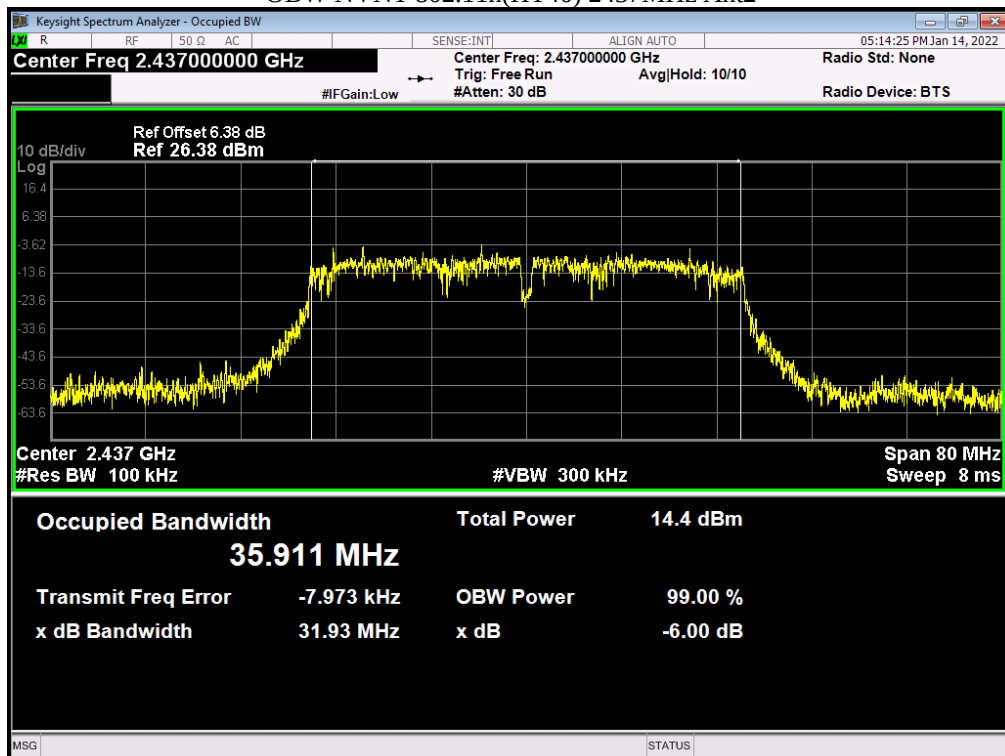


Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict
NVNT	802.11n(HT40)	2422	Ant 2	35.9167	33.3933	0.5	Pass
NVNT	802.11n(HT40)	2437	Ant 2	35.9112	31.9322	0.5	Pass
NVNT	802.11n(HT40)	2452	Ant 2	35.9279	31.5321	0.5	Pass

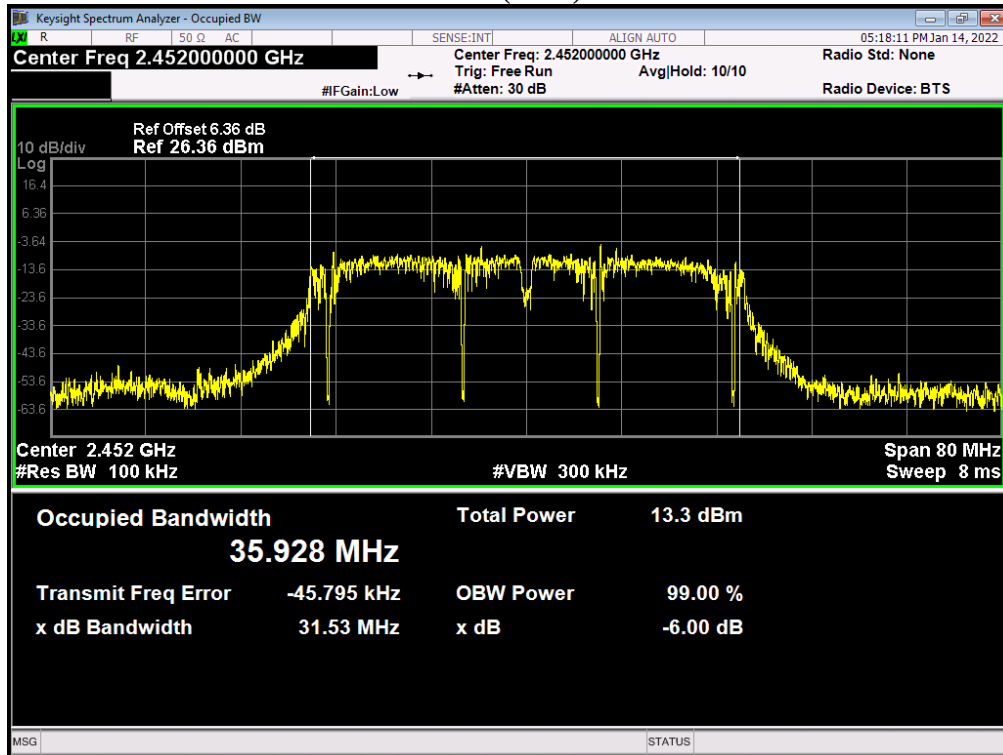
OBW NVNT 802.11n(HT40) 2422MHz Ant2



OBW NVNT 802.11n(HT40) 2437MHz Ant2



OBW NVNT 802.11n(HT40) 2452MHz Ant2

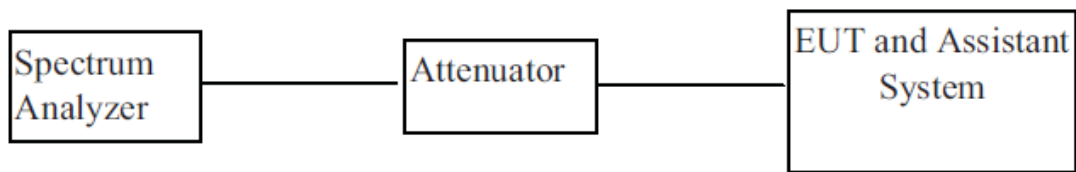


7. Band Edges Measurement

7.1. Test equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	MXA Signal Analyzer	KEYSIGHT	N9020A	MY5451047 6	2021/05/26	1 Year

7.2. BLOCK DIAGRAM OF TEST SETUP



7.3. Limit

Below -30dB of the highest emission level of operating band (In 100 kHz Resolution Bandwidth)

7.4. Test Procedure

The transmitter output was connected to the spectrum analyzer via a low lose cable.

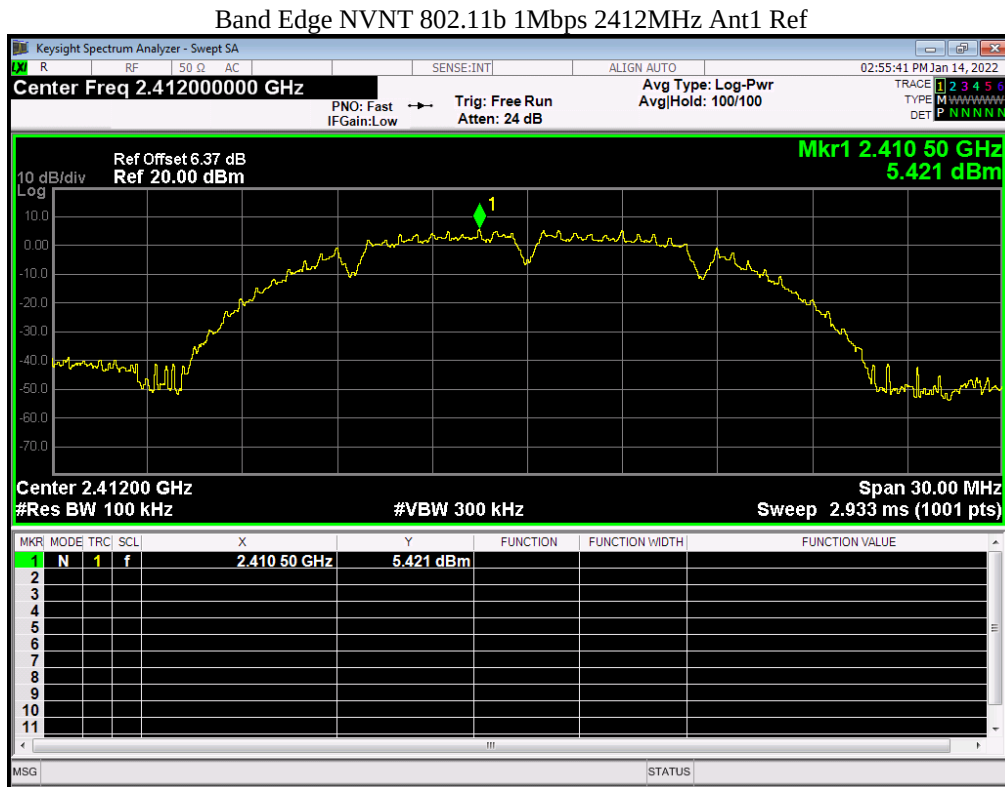
Set RBW of spectrum analyzer to 100 KHz and VBW of spectrum analyzer to 300 KHz with convenient frequency span including 100 KHz bandwidth from band edge.

Peak conducted output power measured within any 100 kHz outside the authorized frequency band shall be attenuated by at least 30dB relative to the maximum measured in-band peak PSD level.

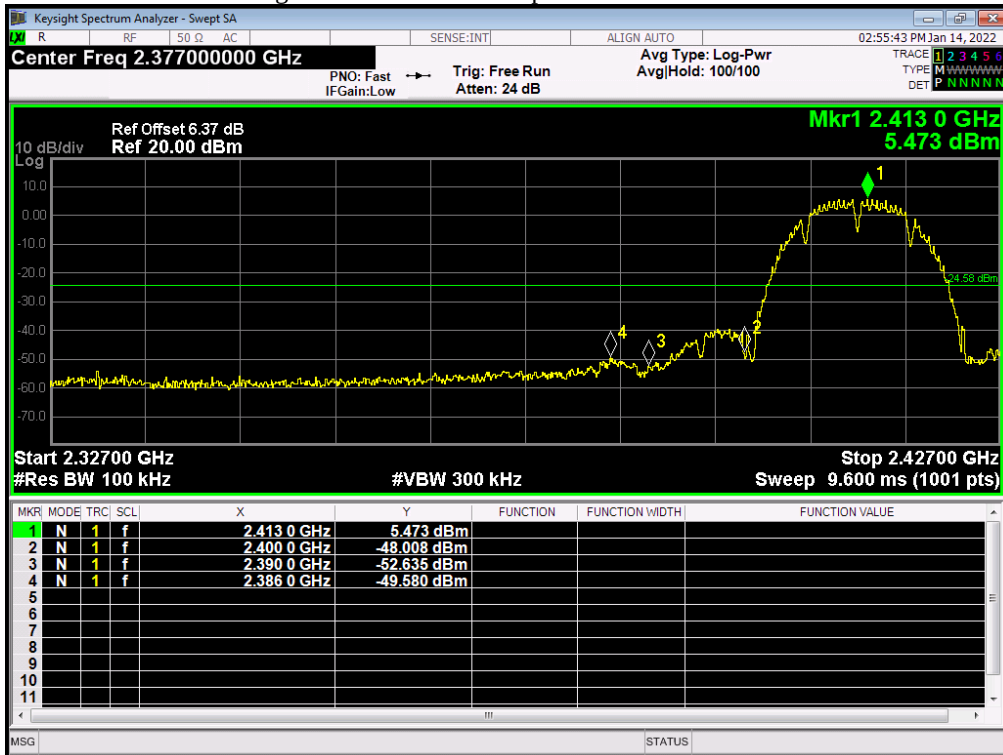
The band edges was measured and recorded.

7.5. Test result

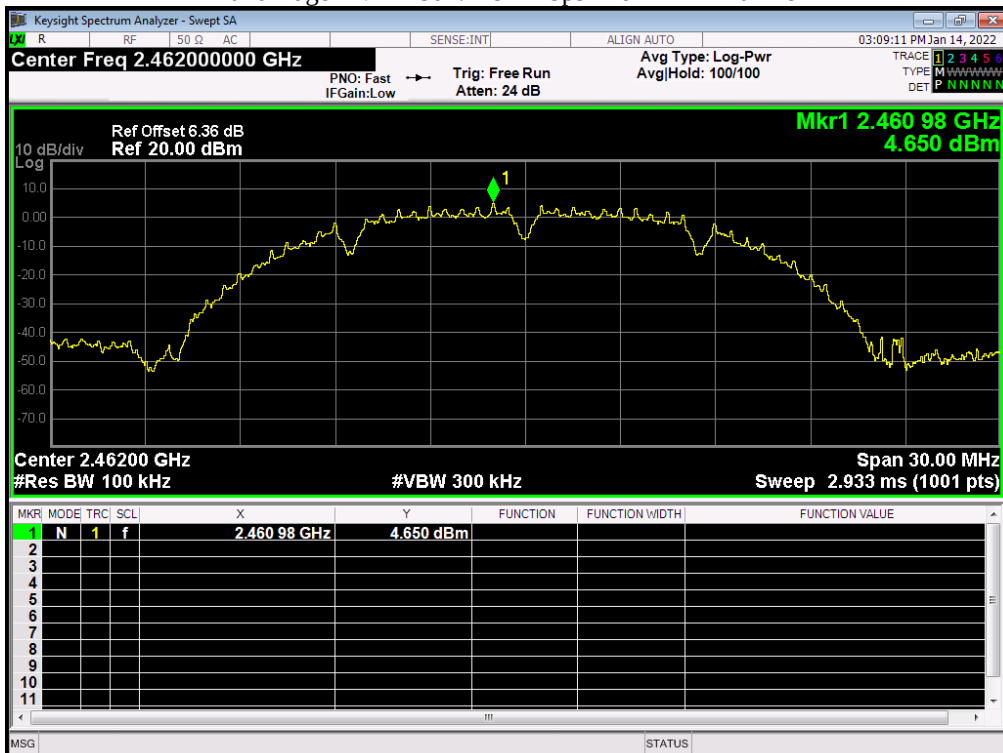
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	802.11b 1Mbps	2412	Ant 1	-54.991	-30	Pass
NVNT	802.11b 1Mbps	2462	Ant 1	-57.51	-30	Pass



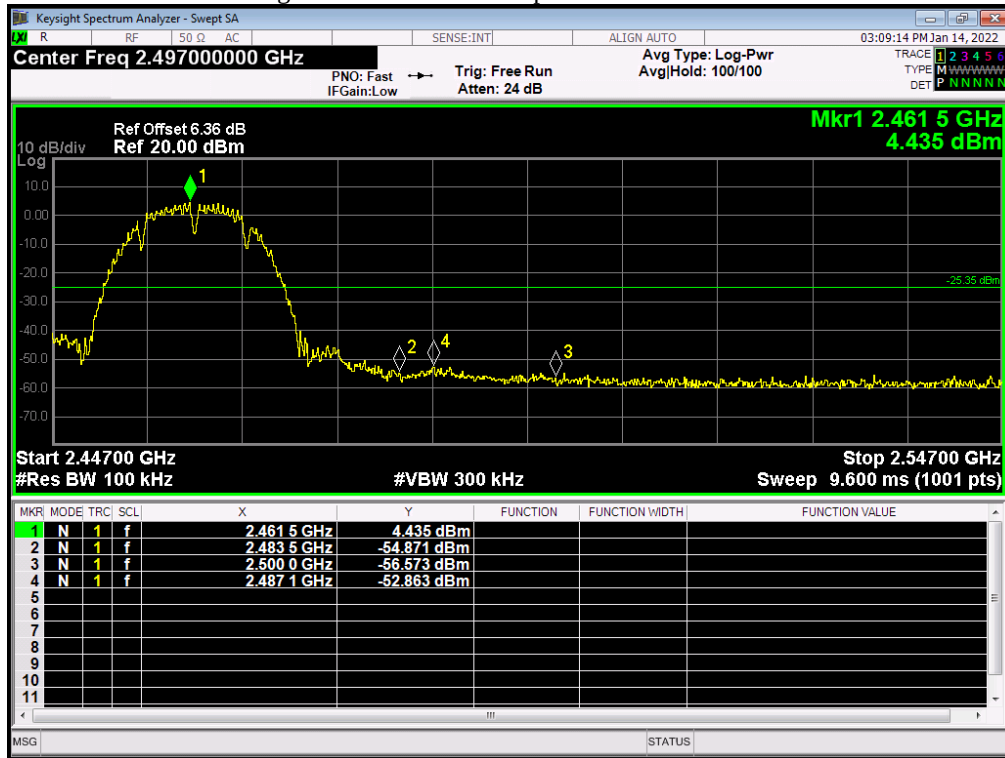
Band Edge NVNT 802.11b 1Mbps 2412MHz Ant1 Emission



Band Edge NVNT 802.11b 1Mbps 2462MHz Ant1 Ref

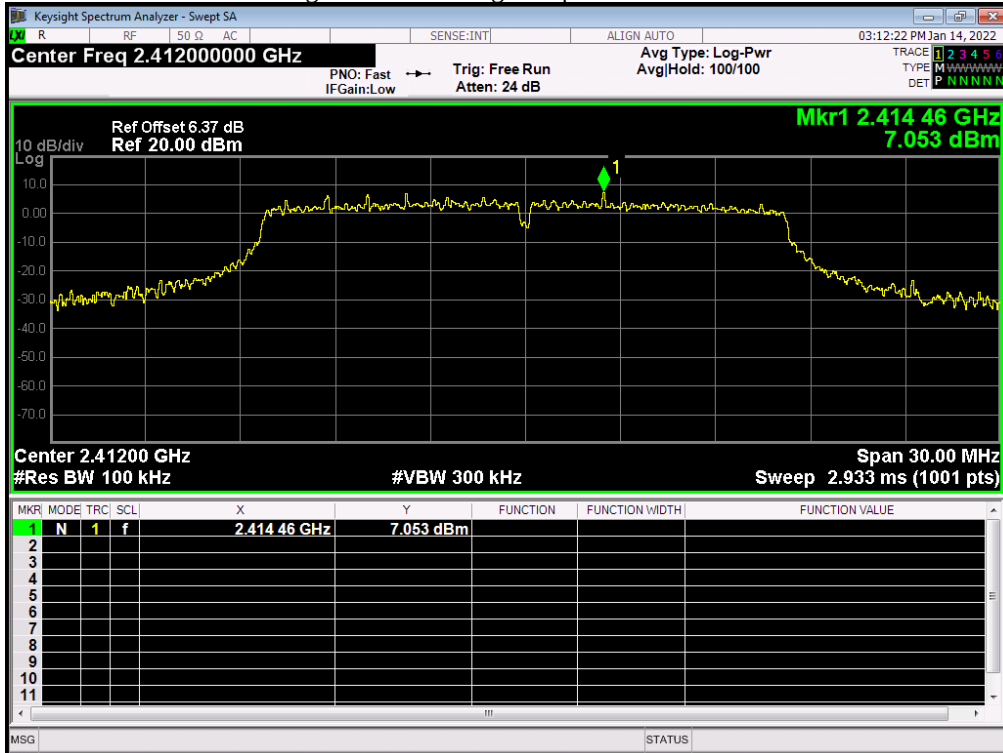


Band Edge NVNT 802.11b 1Mbps 2462MHz Ant1 Emission

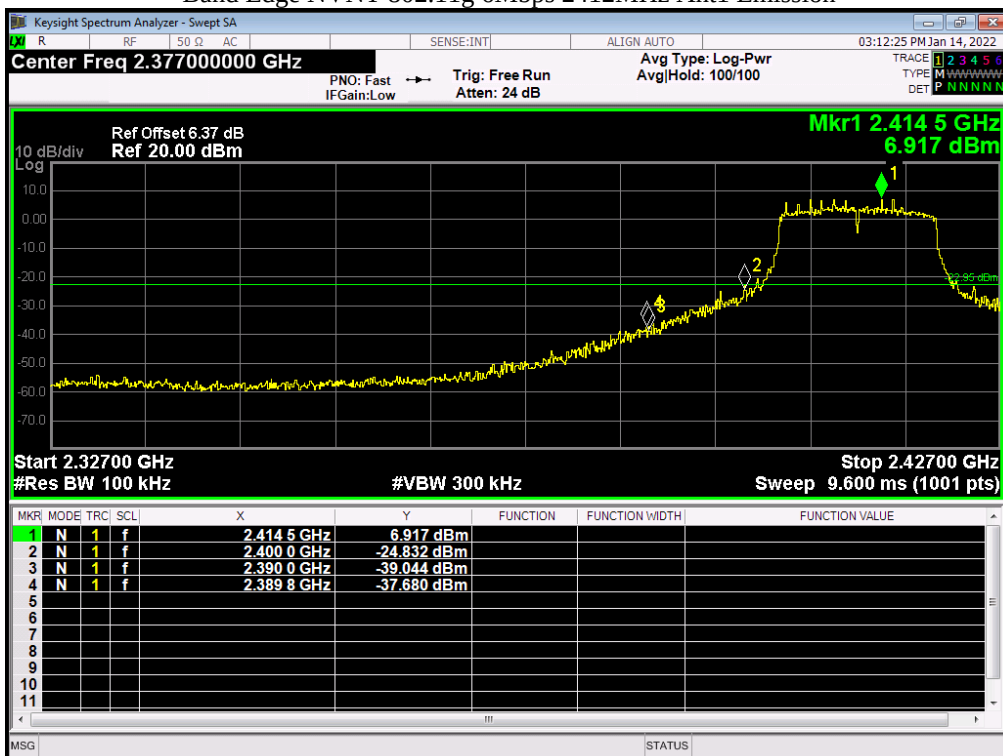


Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	802.11g 6Mbps	2412	Ant 1	-44.723	-30	Pass
NVNT	802.11g 6Mbps	2462	Ant 1	-44.077	-30	Pass

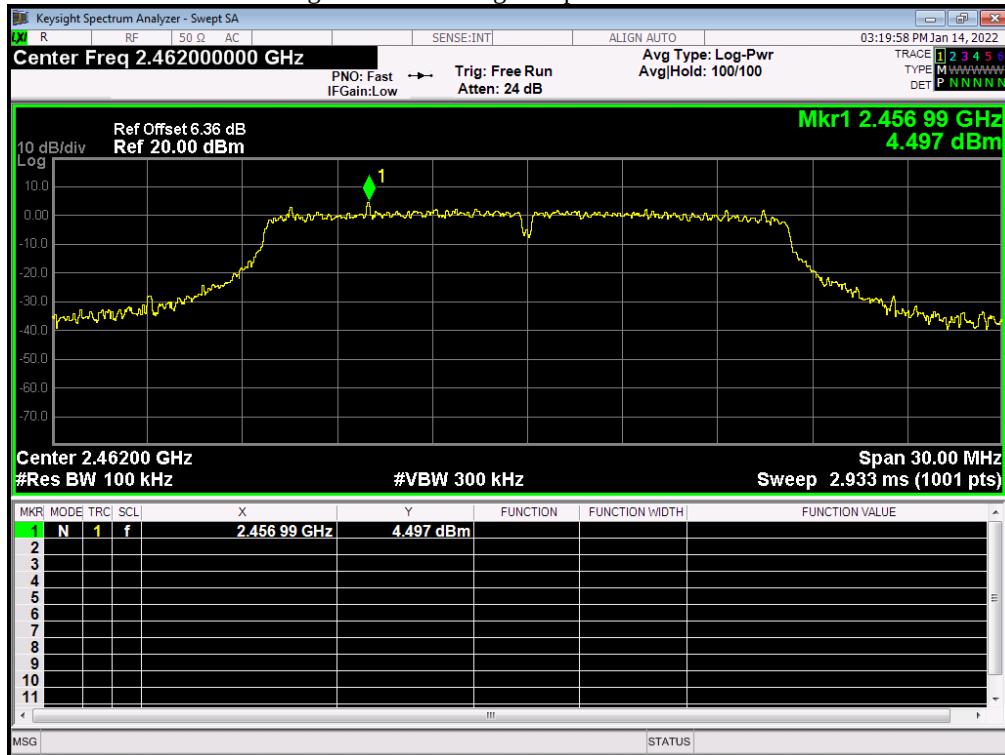
Band Edge NVNT 802.11g 6Mbps 2412MHz Ant1 Ref



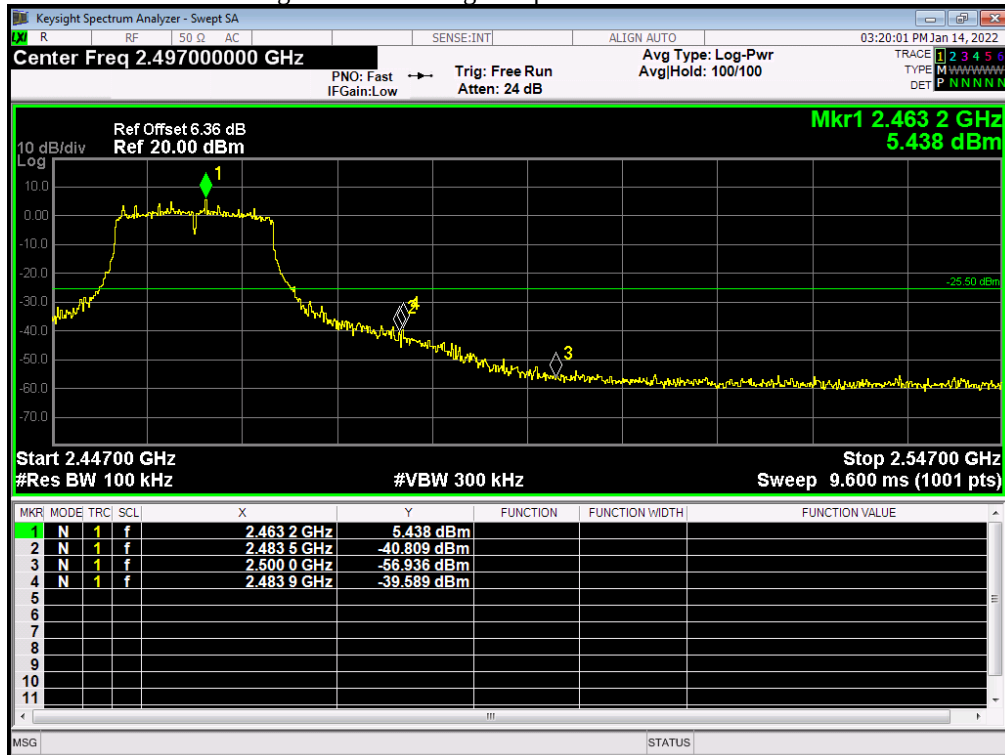
Band Edge NVNT 802.11g 6Mbps 2412MHz Ant1 Emission



Band Edge NVNT 802.11g 6Mbps 2462MHz Ant1 Ref

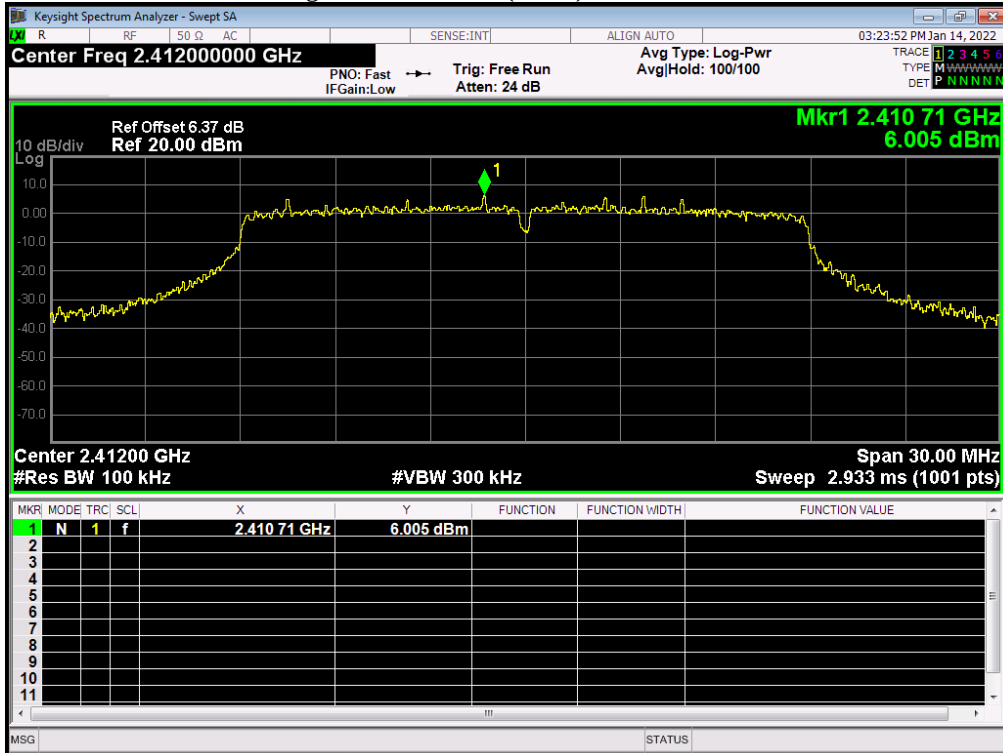


Band Edge NVNT 802.11g 6Mbps 2462MHz Ant1 Emission

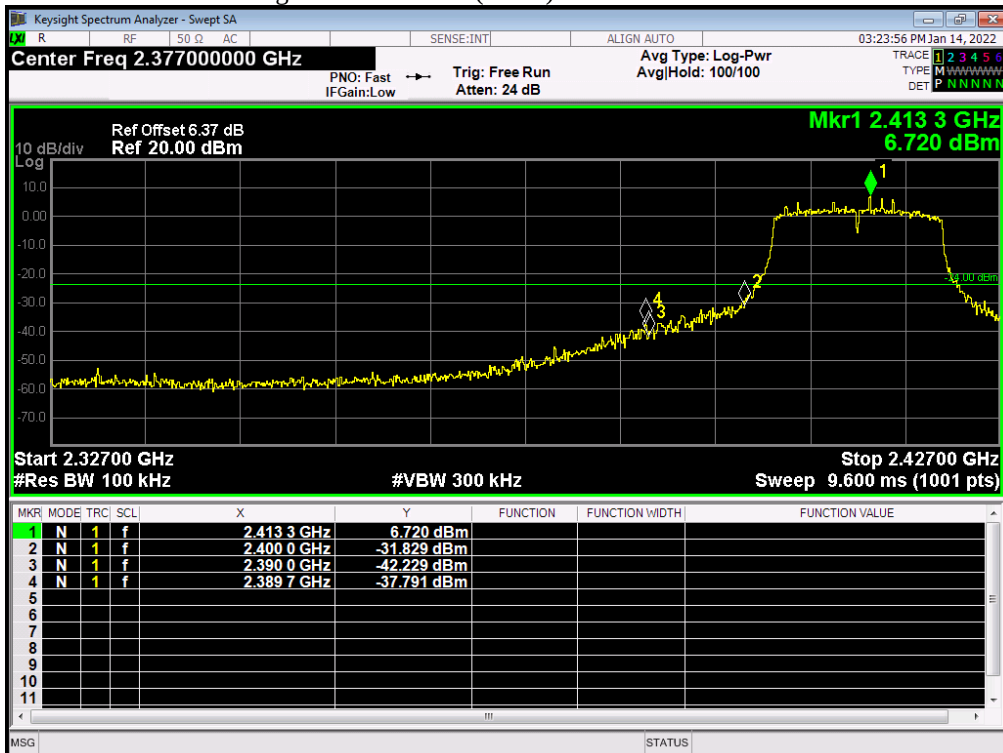


Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	802.11n(HT20)	2412	Ant 1	-43.795	-30	Pass
NVNT	802.11n(HT20)	2462	Ant 1	-46.185	-30	Pass

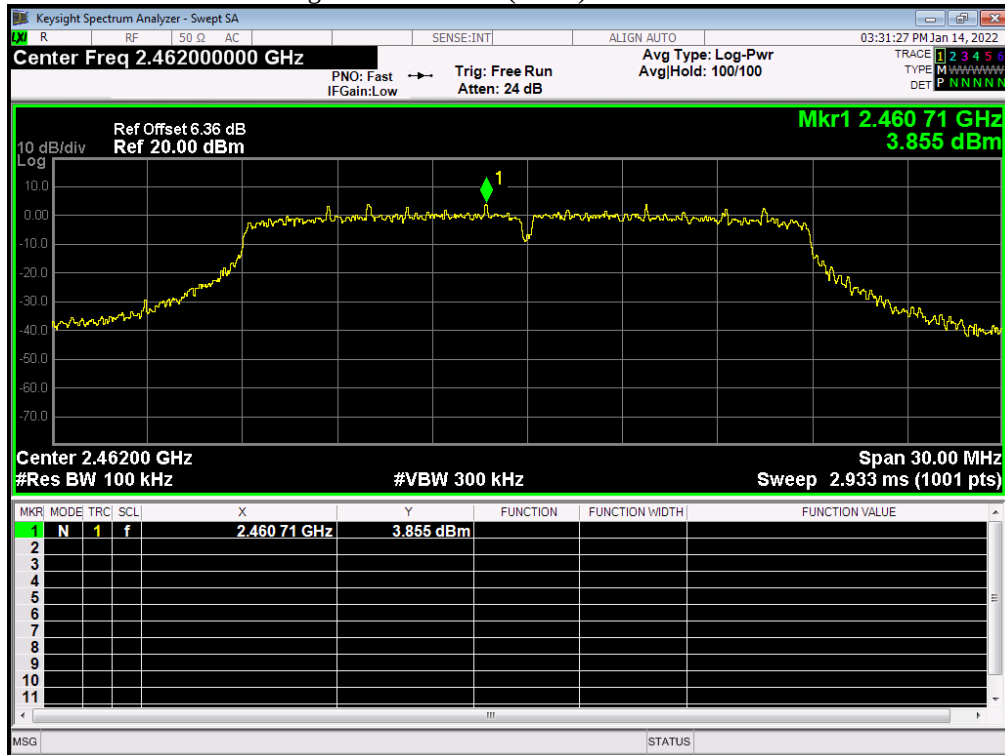
Band Edge NVNT 802.11n(HT20) 2412MHz Ant1 Ref



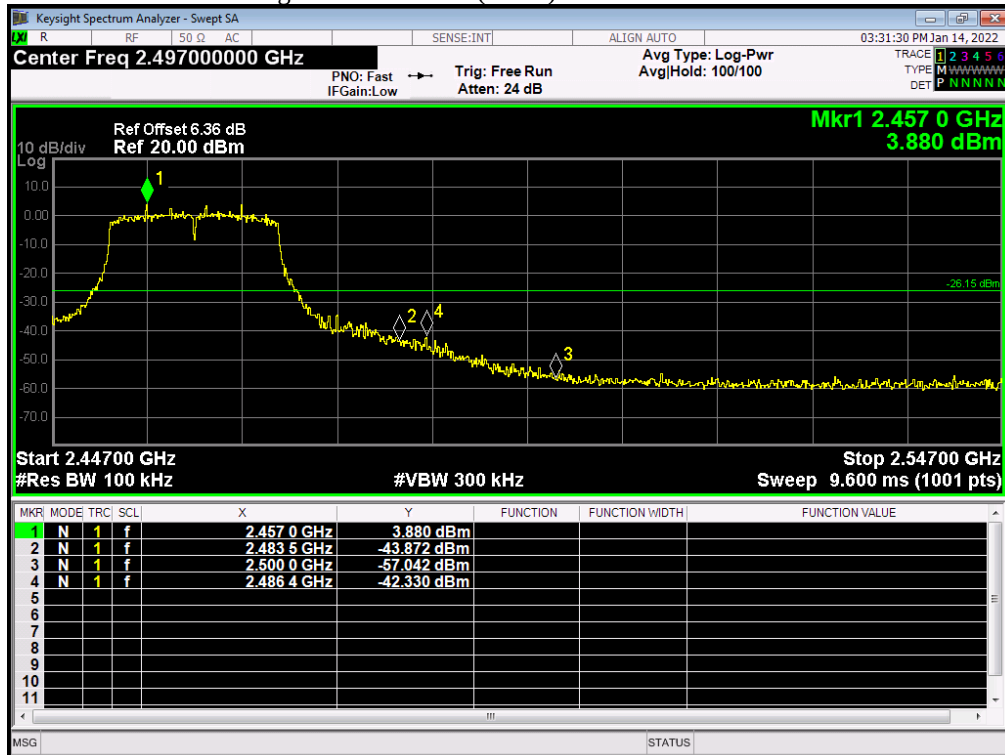
Band Edge NVNT 802.11n(HT20) 2412MHz Ant1 Emission



Band Edge NVNT 802.11n(HT20) 2462MHz Ant1 Ref

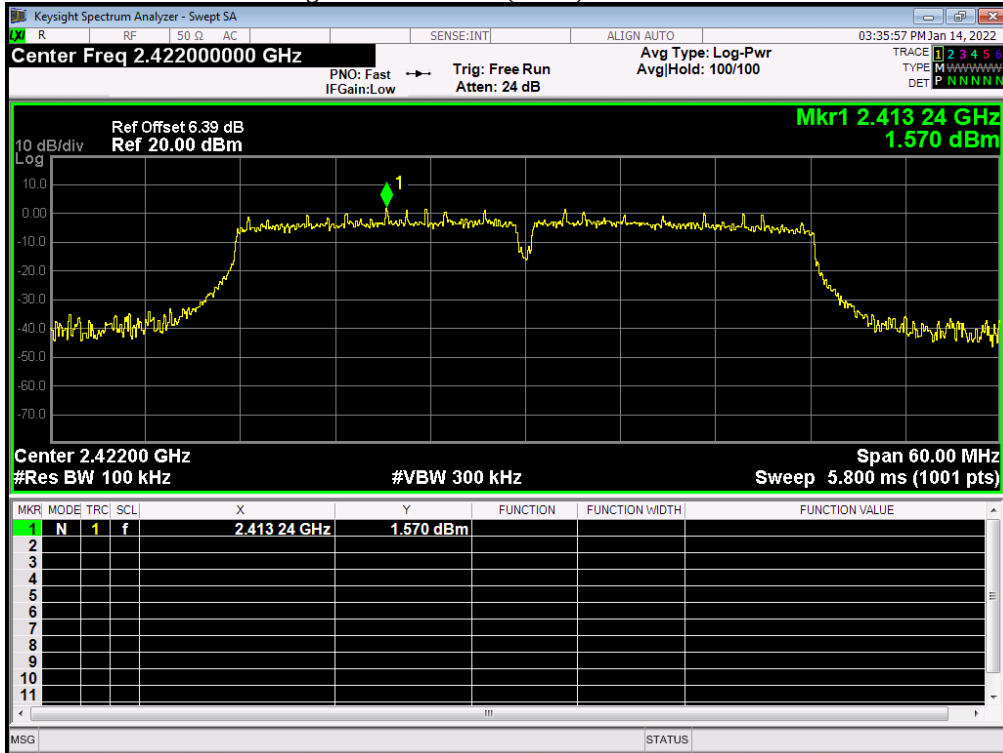


Band Edge NVNT 802.11n(HT20) 2462MHz Ant1 Emission

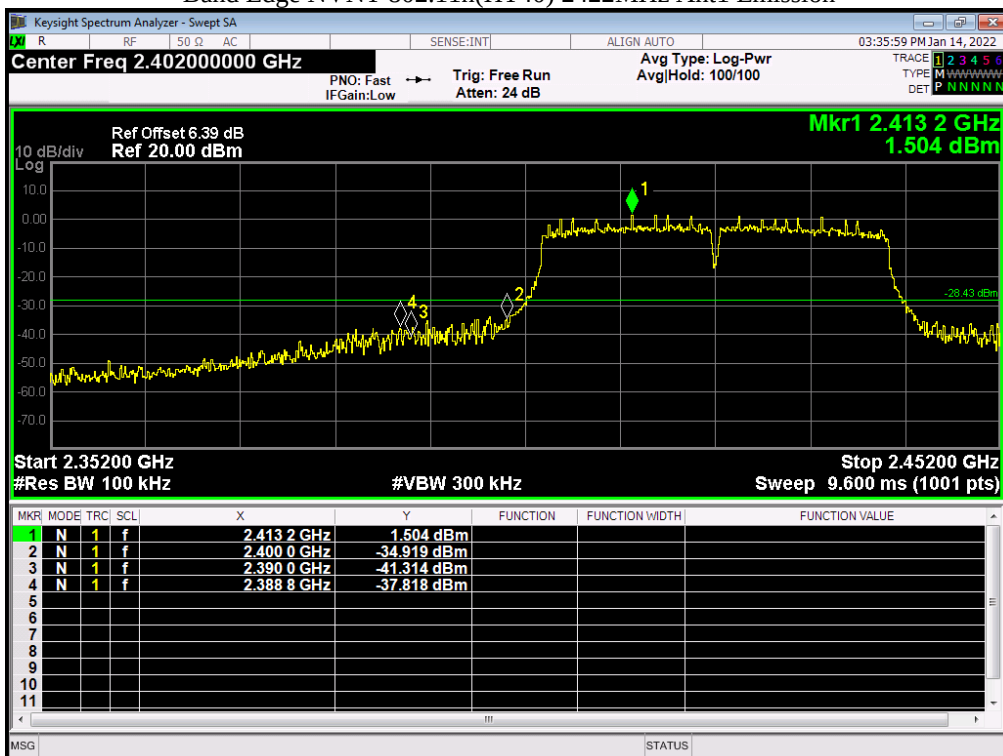


Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	802.11n(HT40)	2422	Ant 1	-39.38	-30	Pass
NVNT	802.11n(HT40)	2452	Ant 1	-39.33	-30	Pass

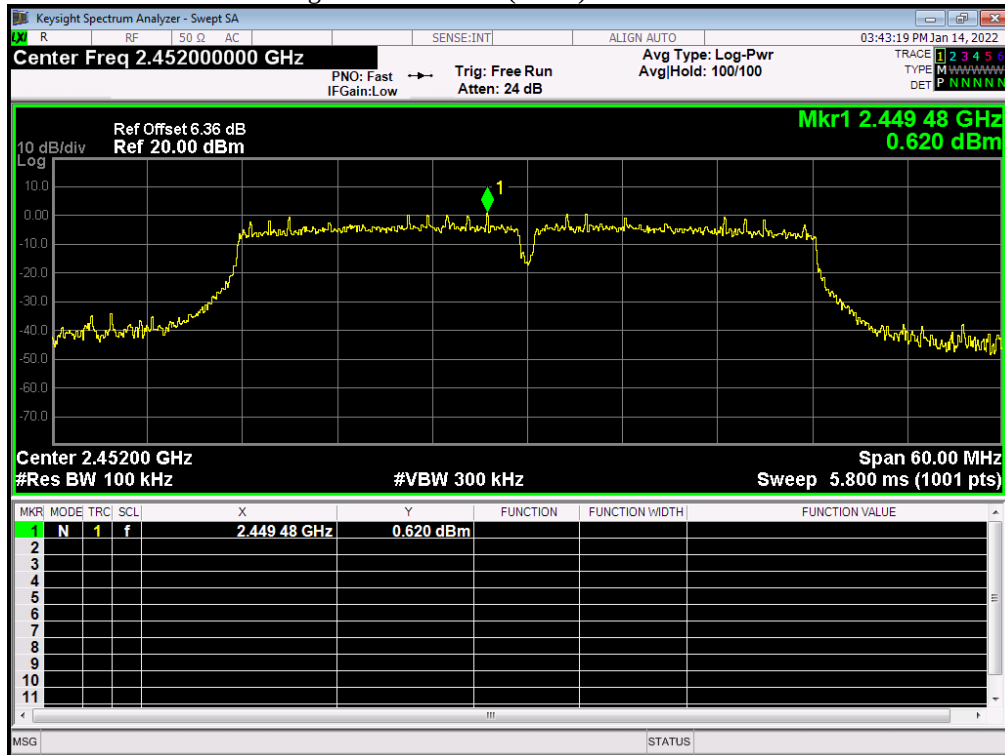
Band Edge NVNT 802.11n(HT40) 2422MHz Ant1 Ref



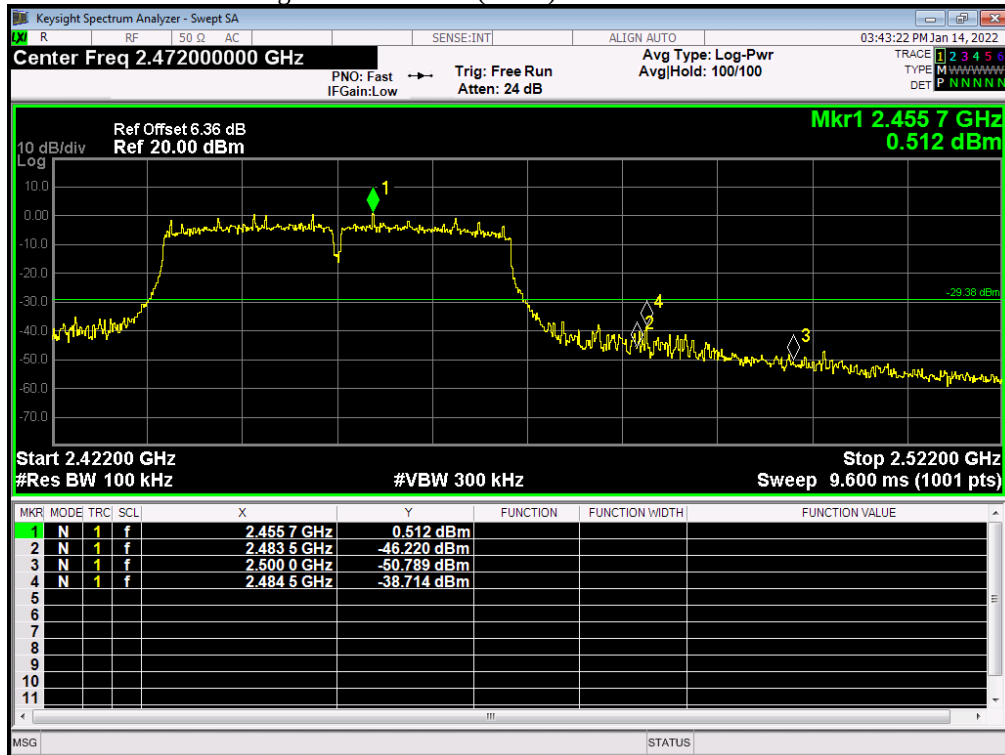
Band Edge NVNT 802.11n(HT40) 2422MHz Ant1 Emission



Band Edge NVNT 802.11n(HT40) 2452MHz Ant1 Ref

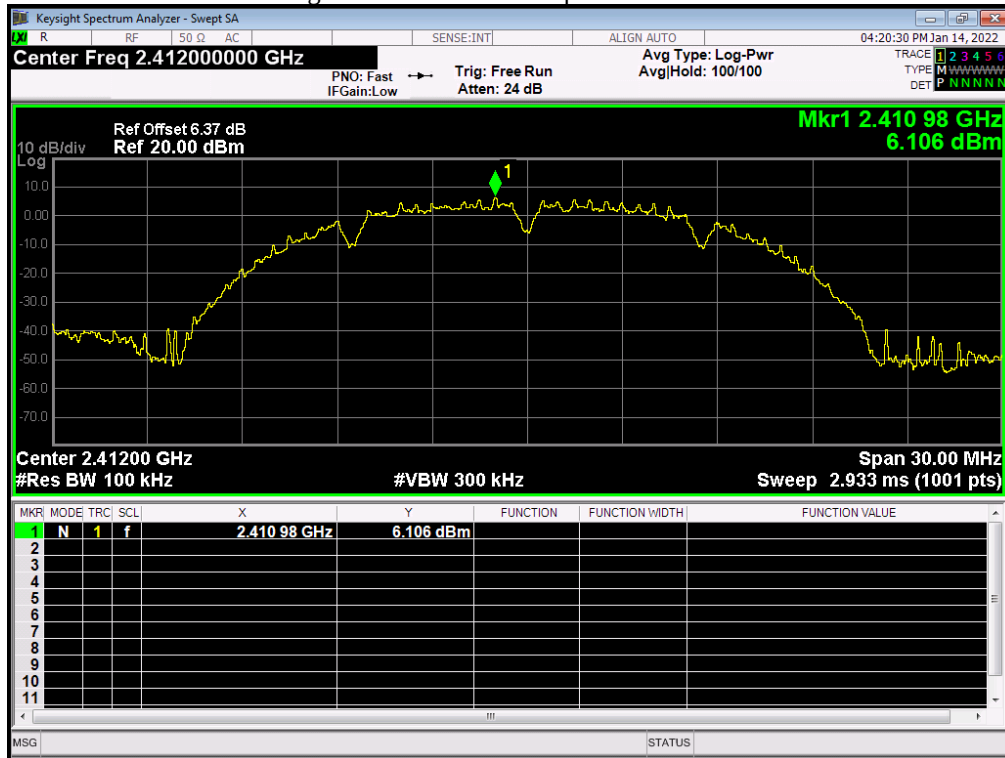


Band Edge NVNT 802.11n(HT40) 2452MHz Ant1 Emission

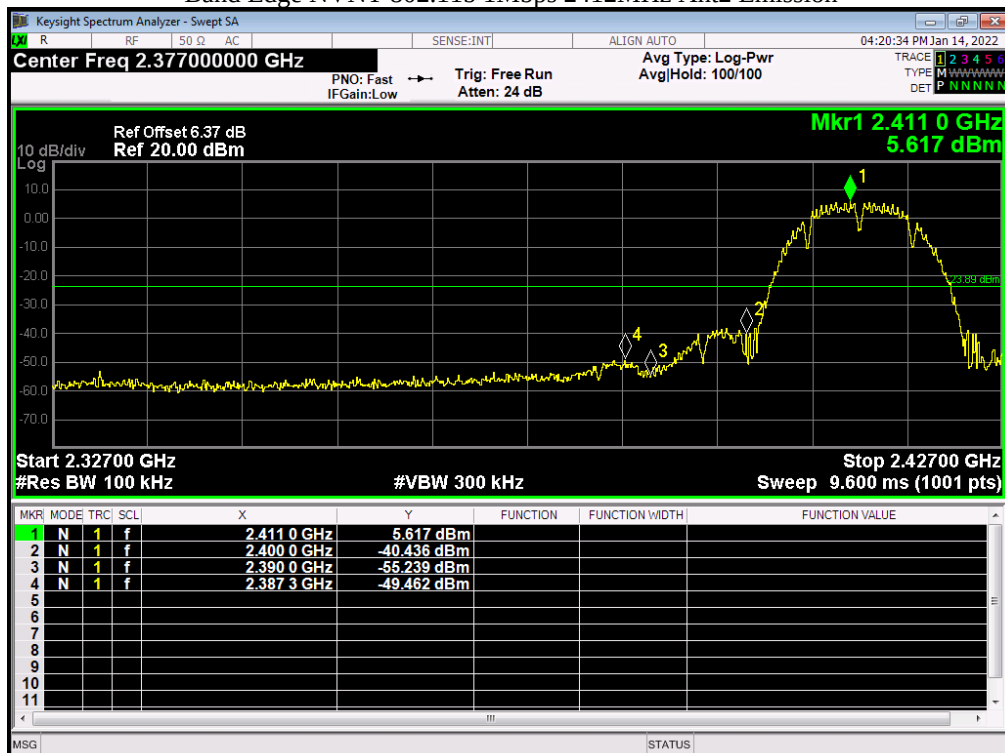


Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	802.11b 1Mbps	2412	Ant 2	-55.566	-30	Pass
NVNT	802.11b 1Mbps	2462	Ant 2	-56.071	-30	Pass

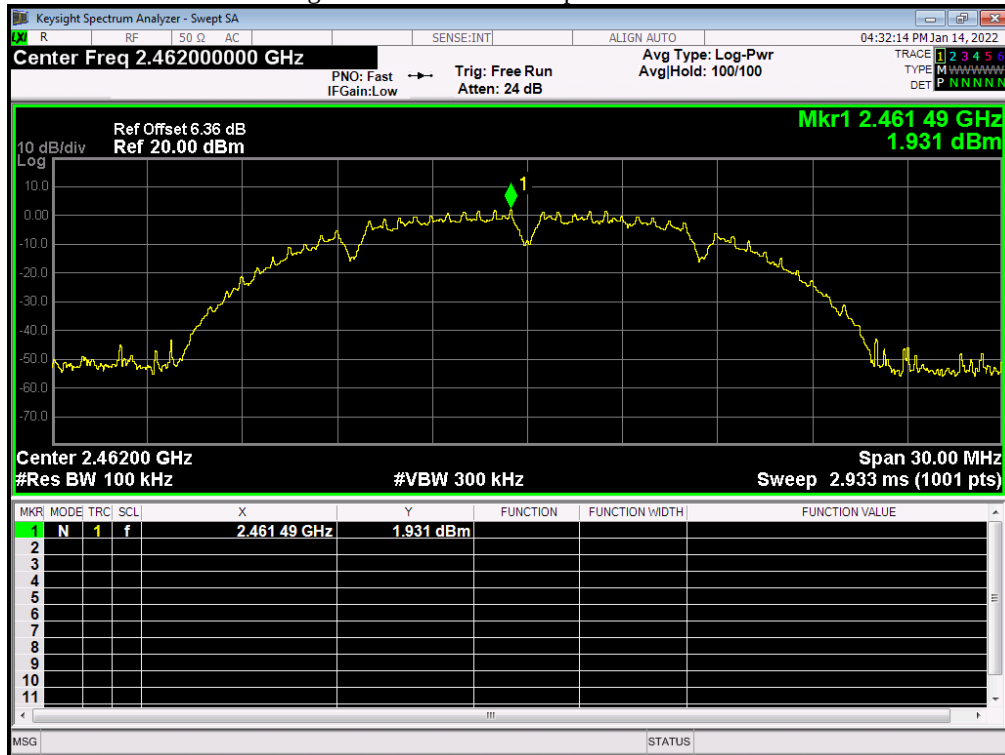
Band Edge NVNT 802.11b 1Mbps 2412MHz Ant2 Ref



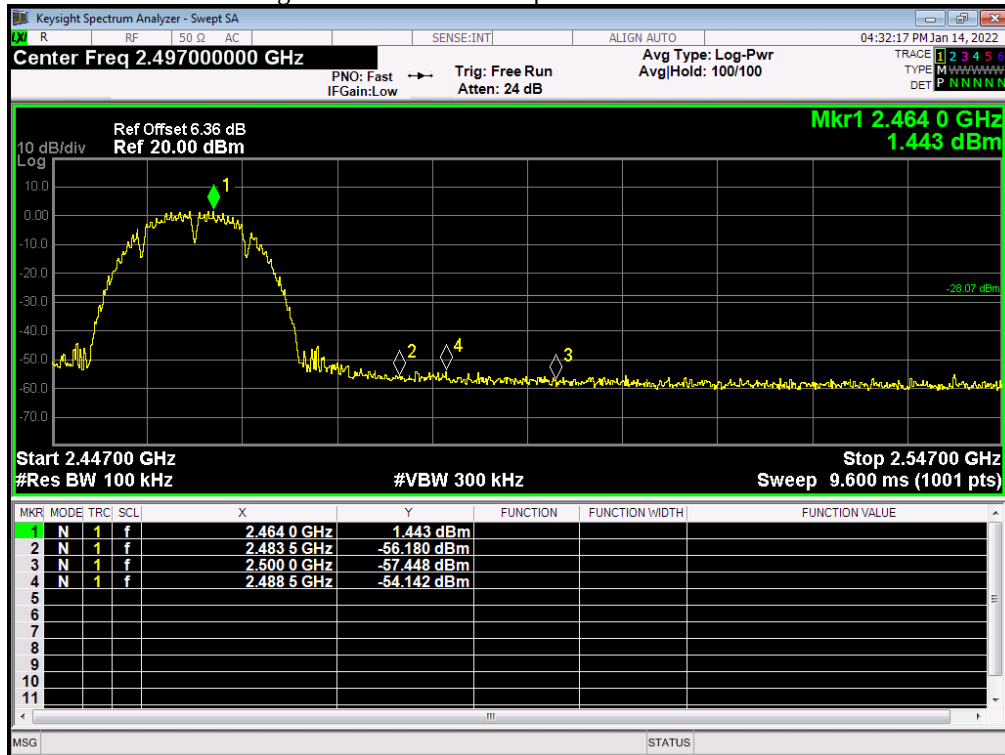
Band Edge NVNT 802.11b 1Mbps 2412MHz Ant2 Emission



Band Edge NVNT 802.11b 1Mbps 2462MHz Ant2 Ref

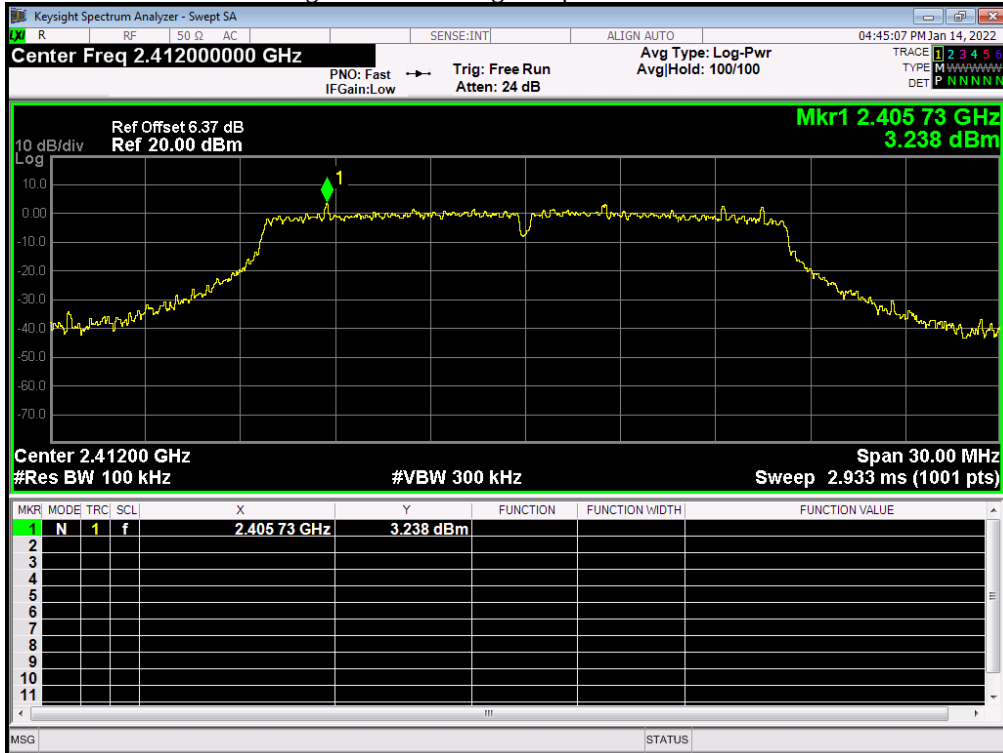


Band Edge NVNT 802.11b 1Mbps 2462MHz Ant2 Emission

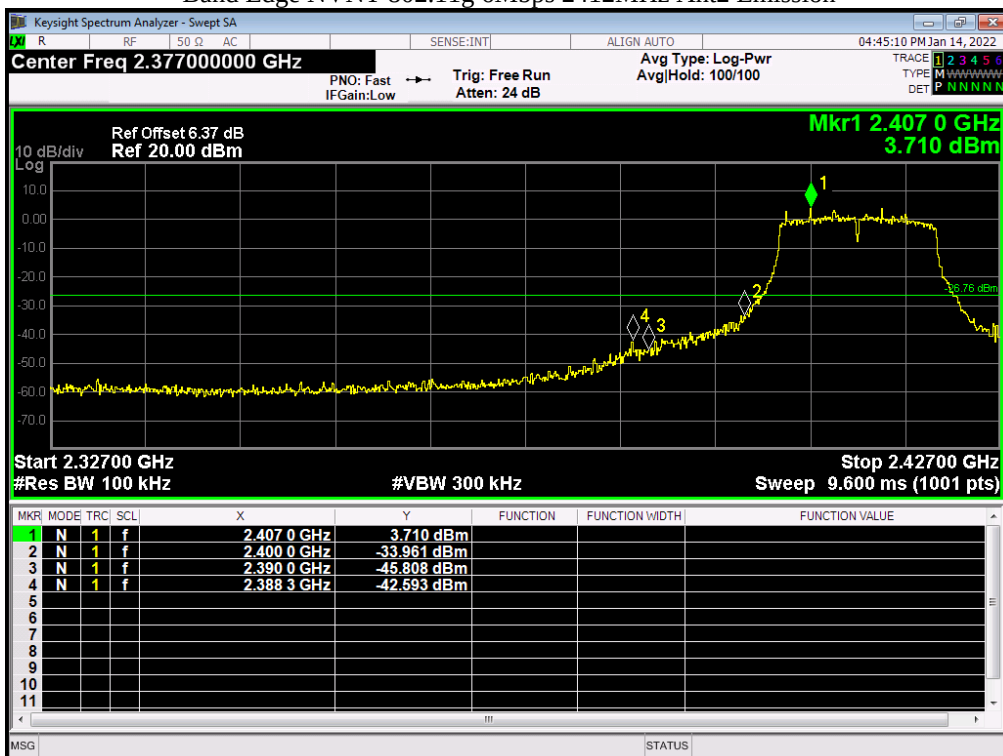


Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	802.11g 6Mbps	2412	Ant 2	-45.828	-30	Pass
NVNT	802.11g 6Mbps	2462	Ant 2	-50.915	-30	Pass

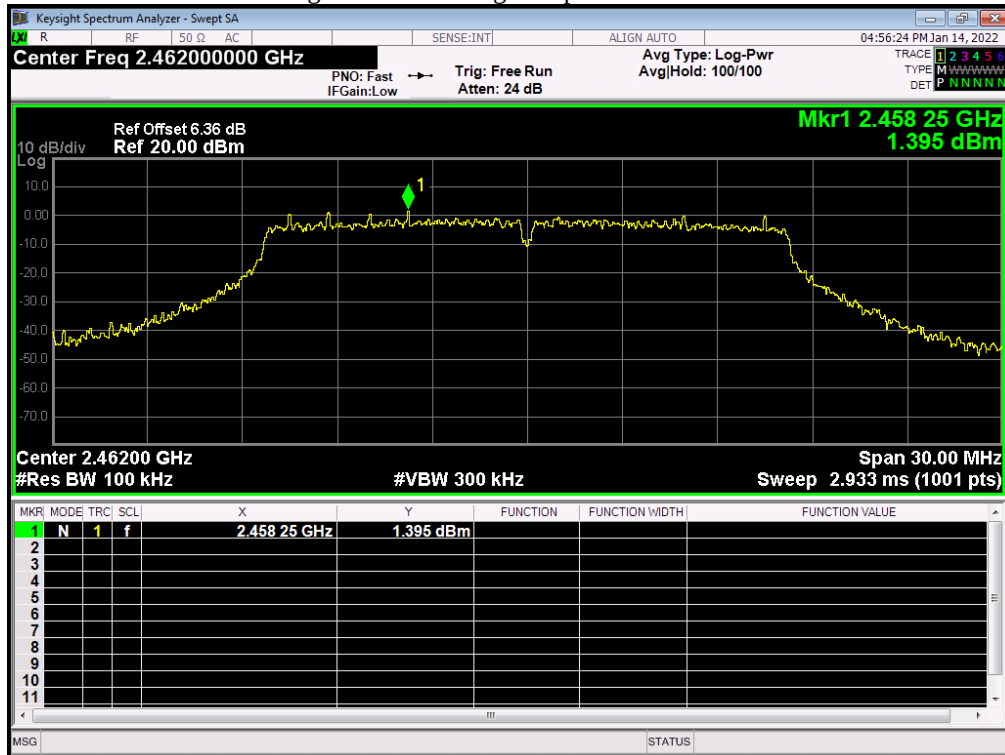
Band Edge NVNT 802.11g 6Mbps 2412MHz Ant1 Ref



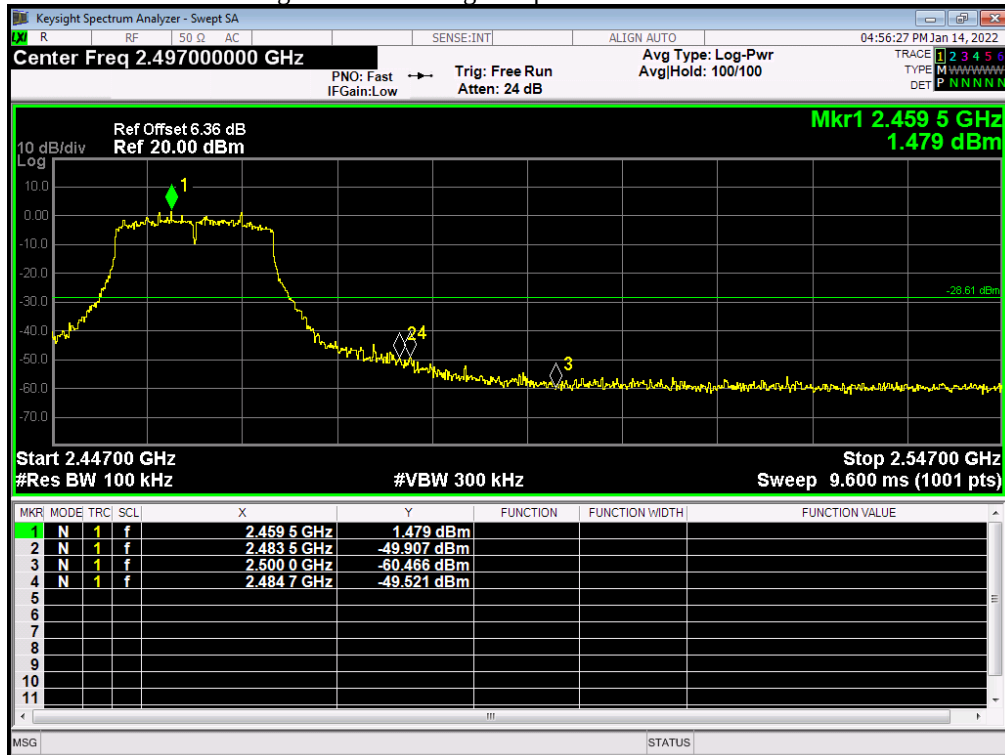
Band Edge NVNT 802.11g 6Mbps 2412MHz Ant2 Emission



Band Edge NVNT 802.11g 6Mbps 2462MHz Ant2 Ref

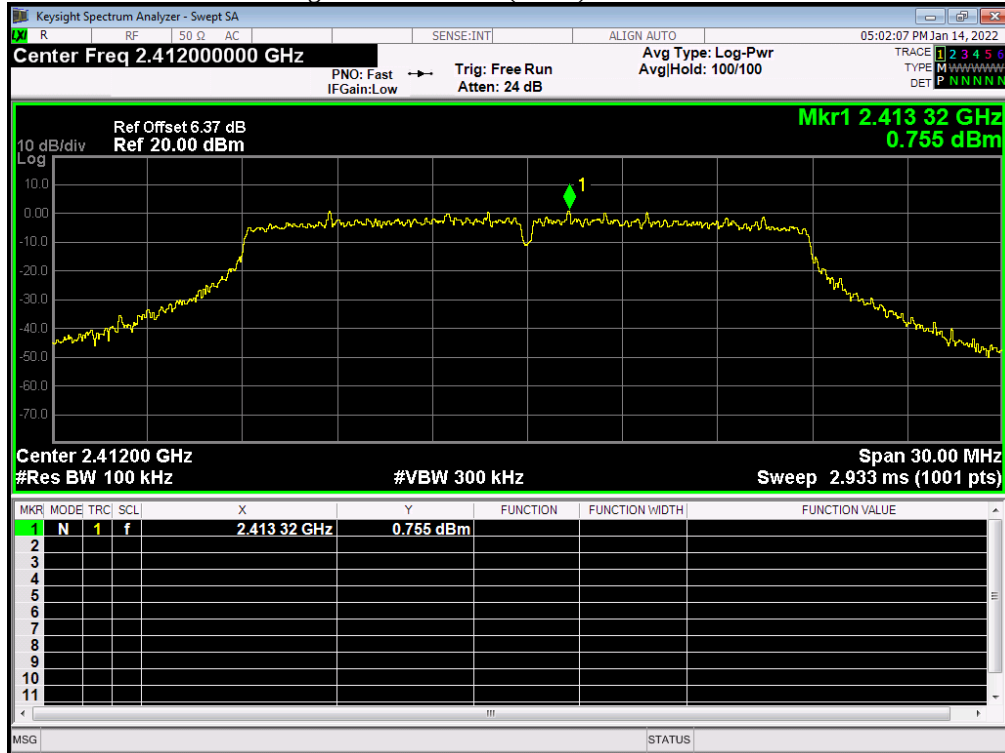


Band Edge NVNT 802.11g 6Mbps 2462MHz Ant2 Emission

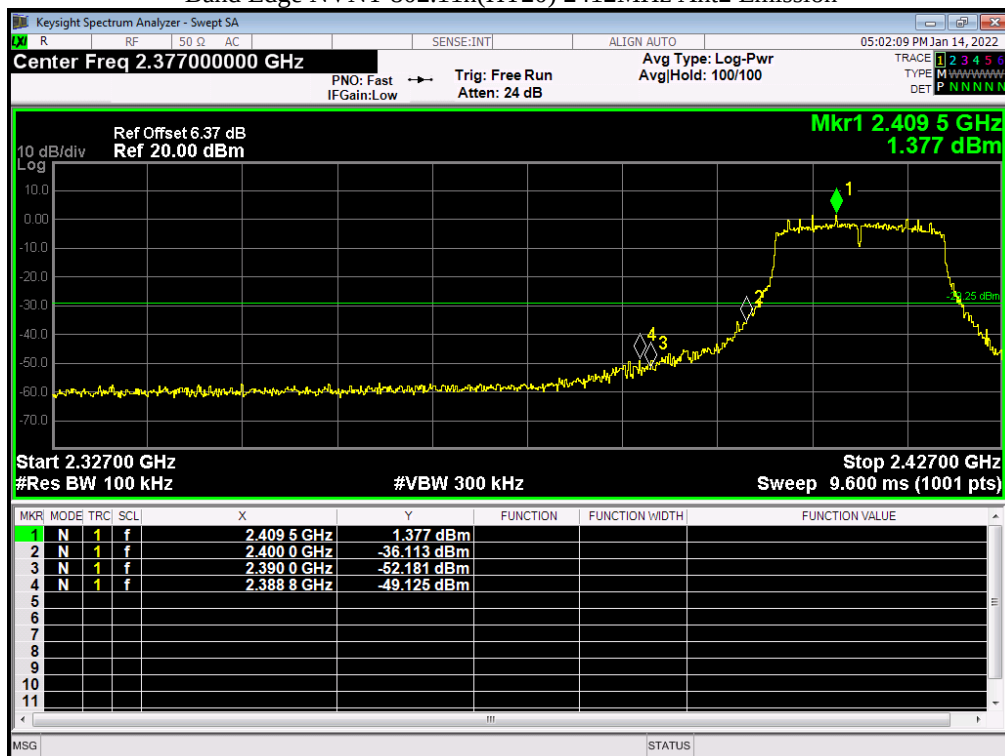


Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	802.11n(HT20)	2412	Ant 2	-49.875	-30	Pass
NVNT	802.11n(HT20)	2462	Ant 2	-53.992	-30	Pass

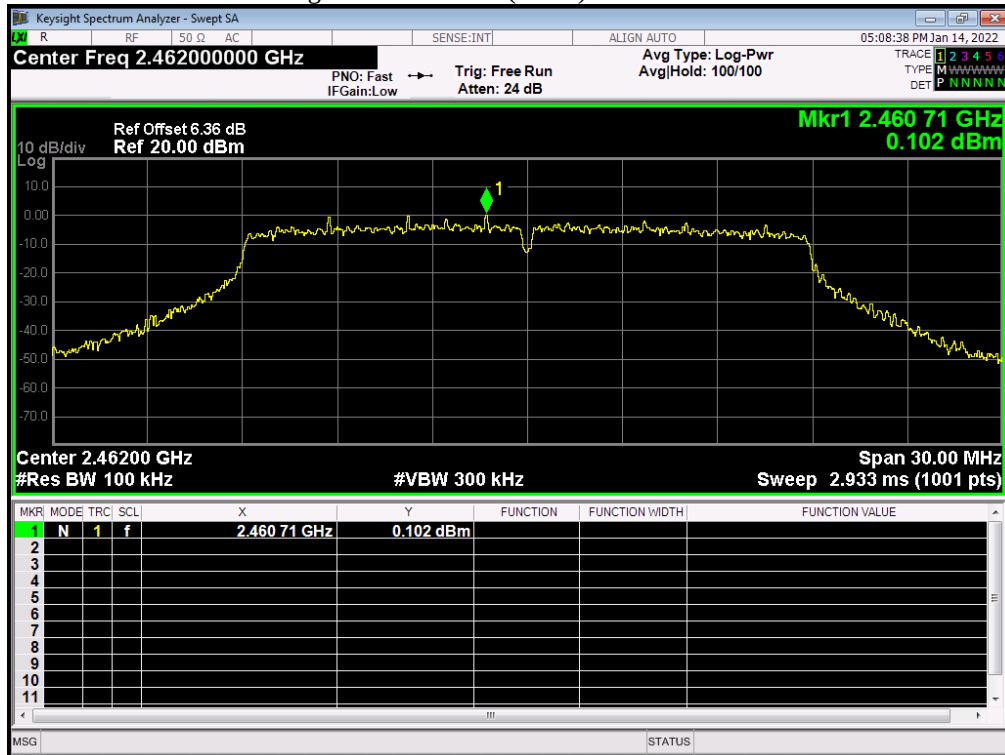
Band Edge NVNT 802.11n(HT20) 2412MHz Ant1 Ref



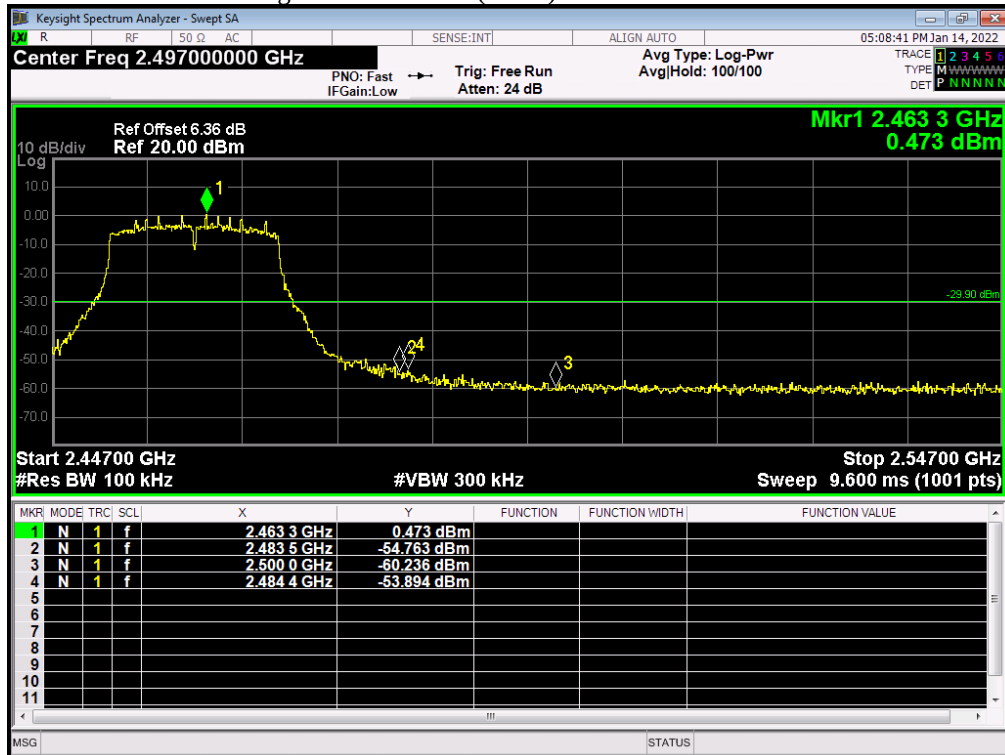
Band Edge NVNT 802.11n(HT20) 2412MHz Ant2 Emission



Band Edge NVNT 802.11n(HT20) 2462MHz Ant2 Ref

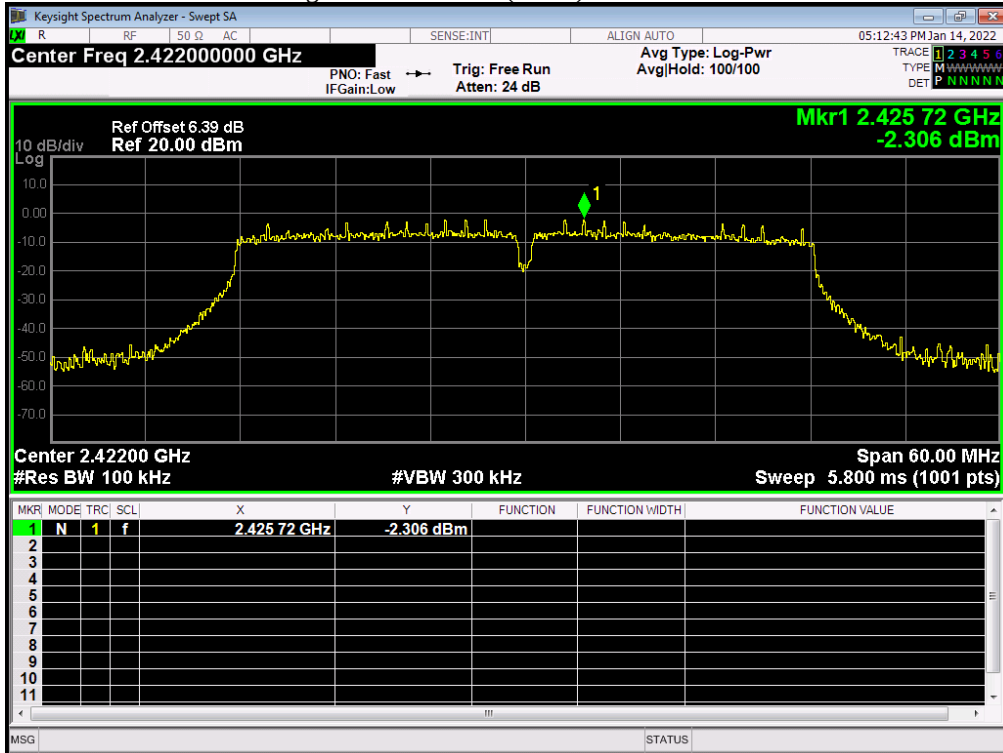


Band Edge NVNT 802.11n(HT20) 2462MHz Ant2 Emission

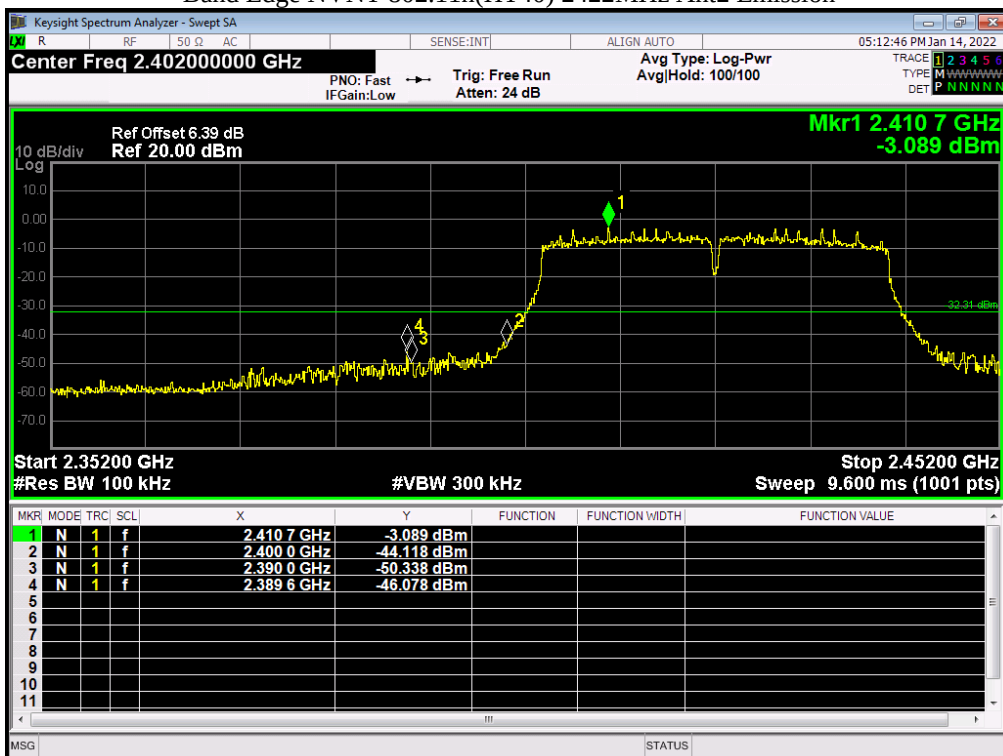


Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	802.11n(HT40)	2422	Ant 2	-43.764	-30	Pass
NVNT	802.11n(HT40)	2452	Ant 2	-47.106	-30	Pass

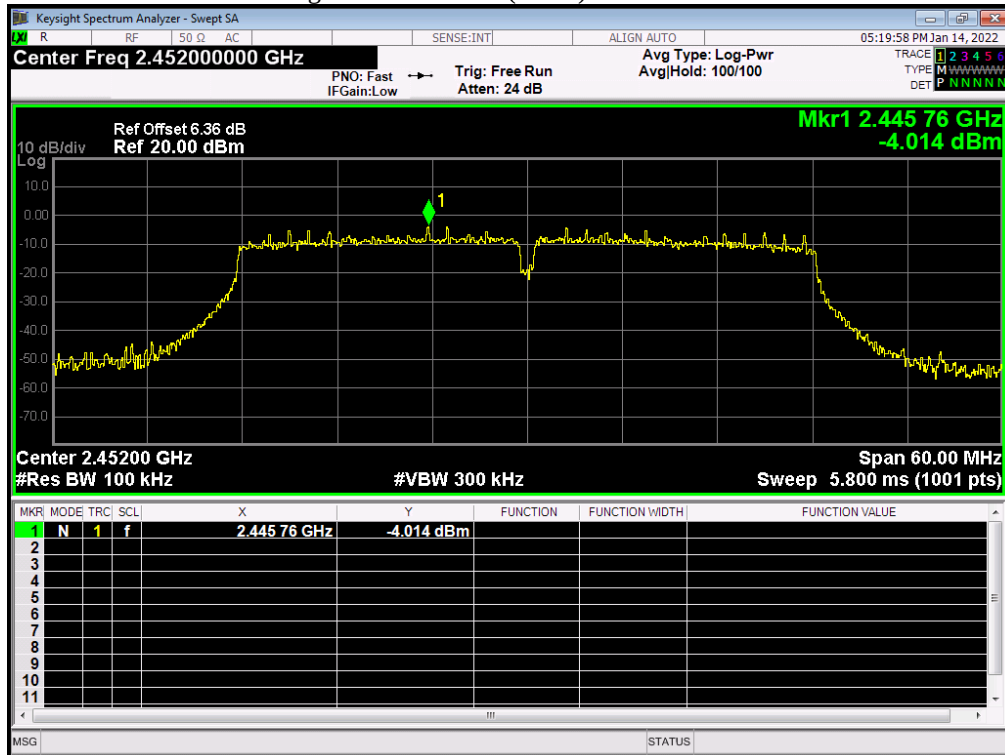
Band Edge NVNT 802.11n(HT40) 2422MHz Ant2 Ref



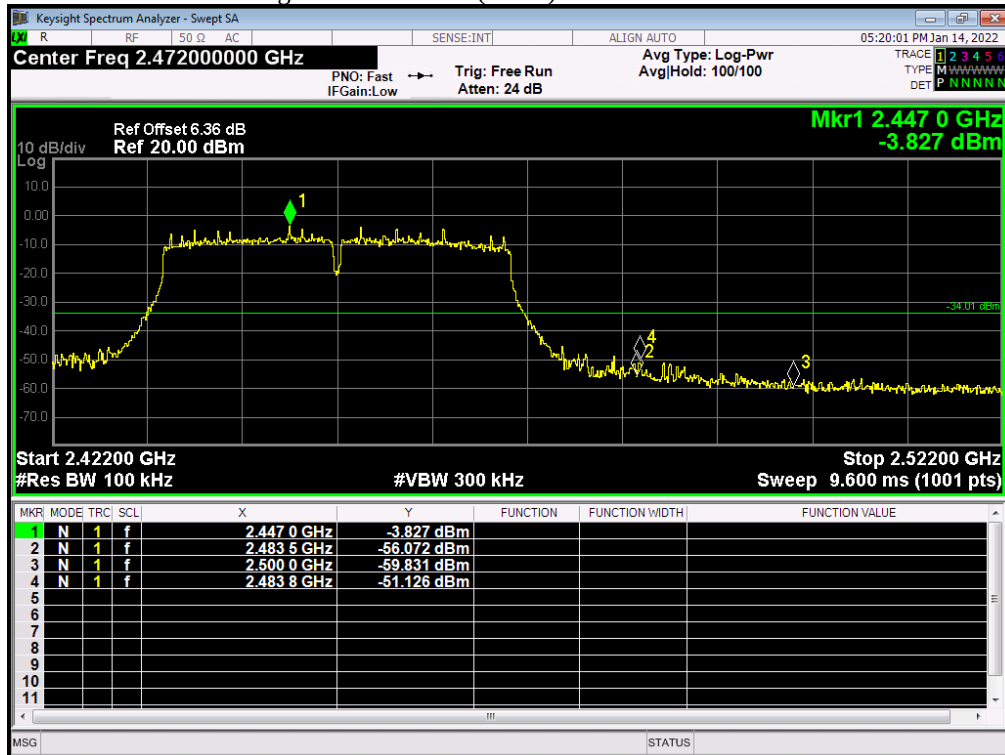
Band Edge NVNT 802.11n(HT40) 2422MHz Ant2 Emission



Band Edge NVNT 802.11n(HT40) 2452MHz Ant2 Ref



Band Edge NVNT 802.11n(HT40) 2452MHz Ant2 Emission

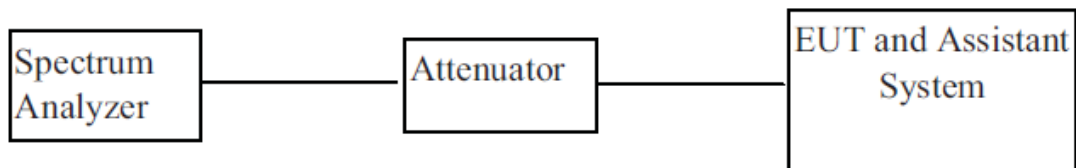


8. Conducted Spurious Emission

8.1. Test equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	MXA Signal Analyzer	KEYSIGHT	N9020A	MY5451047 6	2021/06/23	1 Year

8.2. BLOCK DIAGRAM OF TEST SETUP



8.3. Limit

In any 100 KHz Bandwidth Outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produce by the intentional radiator shall be at least 20 dB below that in 100KHz bandwidth within the band that contains the highest level of the desired power.

In addition, radiation 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)

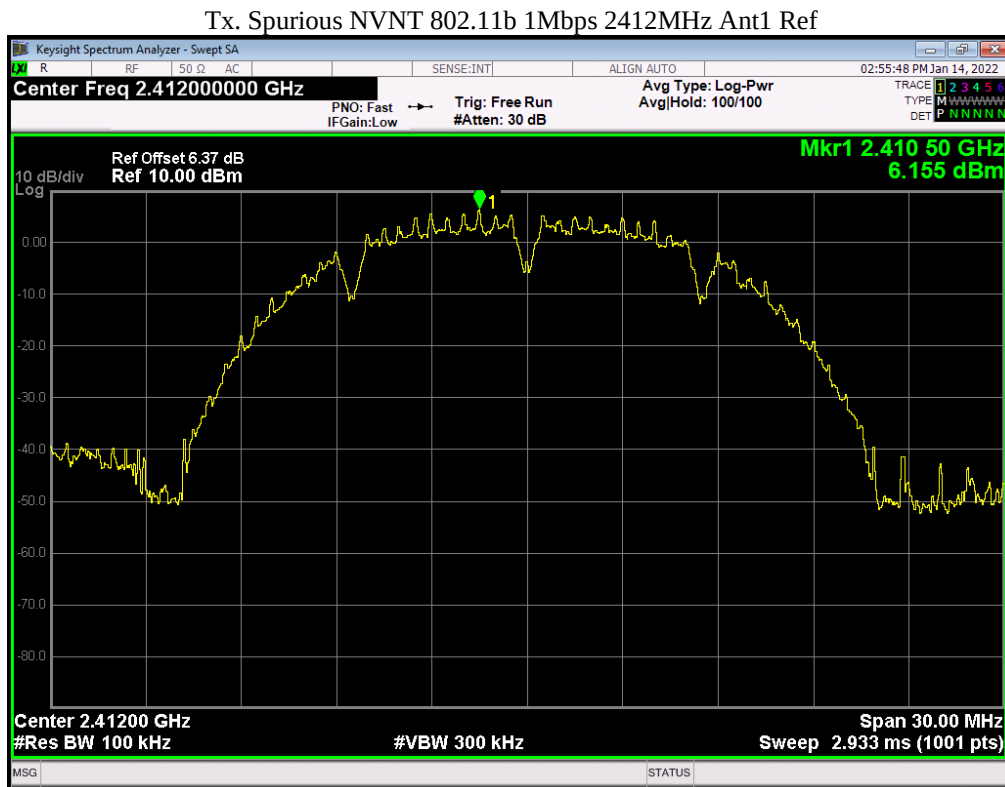
8.4. Test Procedure

1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- 2, Set the EUT Work on the top, the middle and the bottom operation frequency individually.
3. Set SPA Trace 1 Max hold, then View.

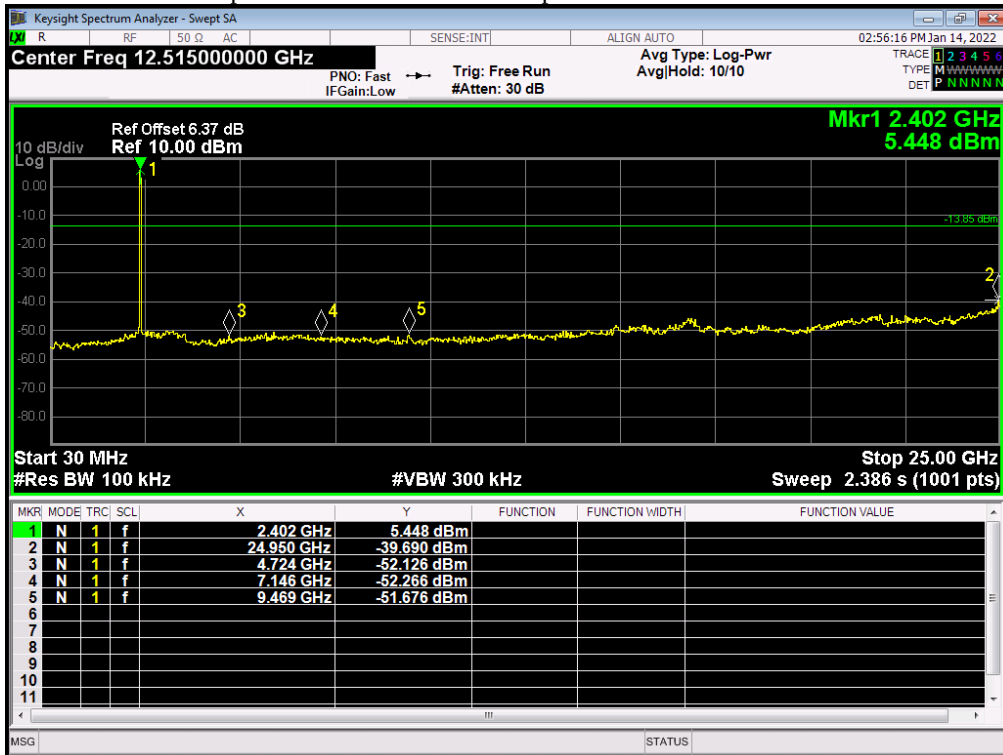
Note: The EUT was tested according to KDB 558074 for compliance to FCC 47CFR 15.247 requirements. Owing to satisfy the requirements of the number of measurement points, we set the RBW=1MHz, VBW > RBW, scan up through 10th harmonic, and consider the tested results as the worst case, if the tested results conform to the requirement, we can deem that the real tested results(set the RBW=100KHz, VBW > RBW) are conform to the requirement.

8.5. Test result

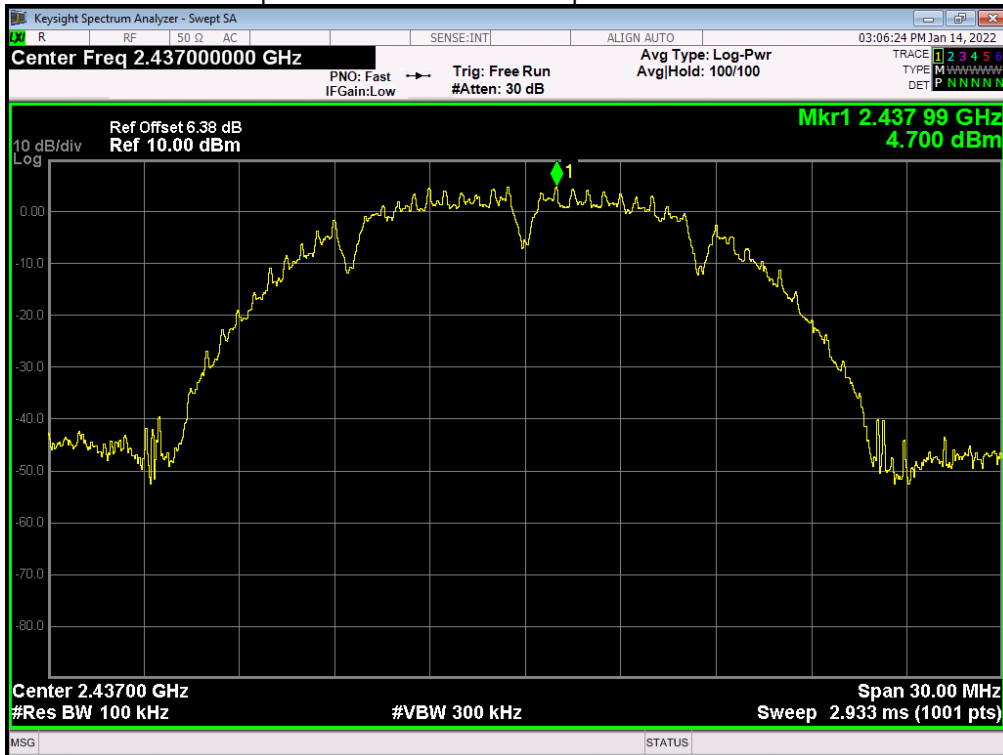
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	802.11b 1Mbps	2412	Ant 1	-45.835	-20	Pass
NVNT	802.11b 1Mbps	2437	Ant 1	-45.04	-20	Pass
NVNT	802.11b 1Mbps	2462	Ant 1	-46.722	-20	Pass



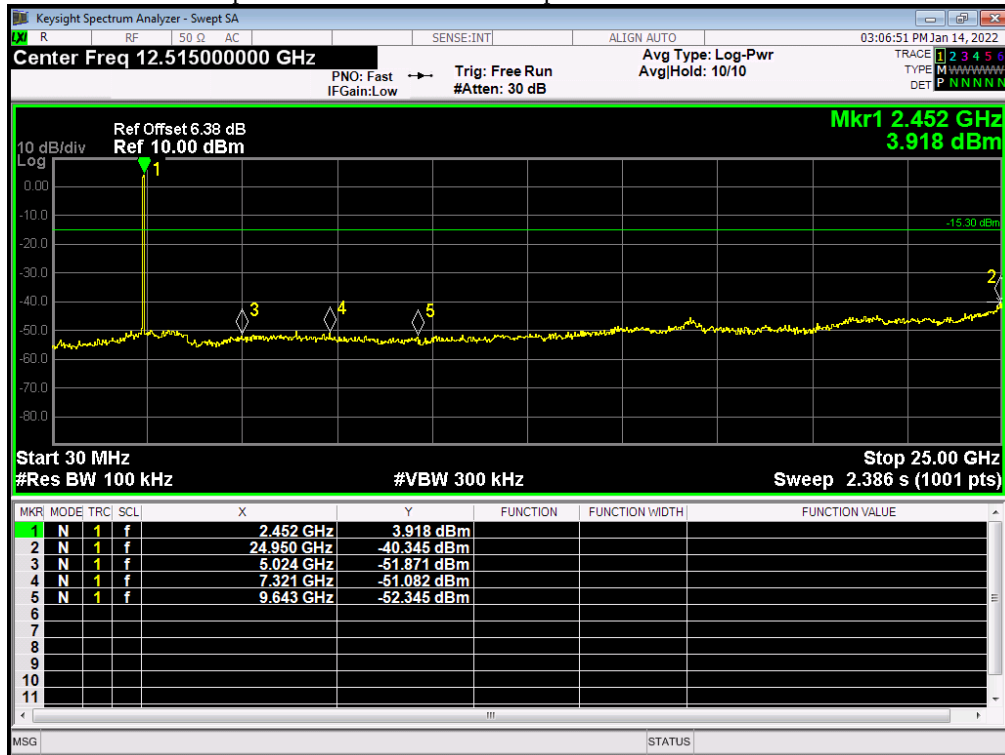
Tx. Spurious NVNT 802.11b 1Mbps 2412MHz Ant1 Emission



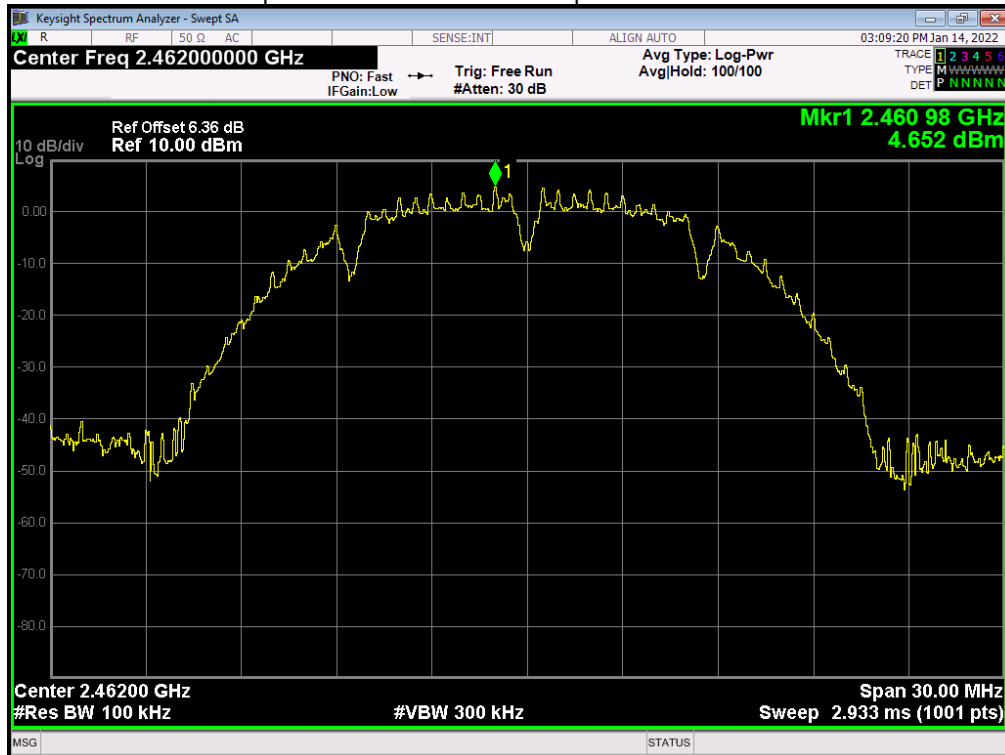
Tx. Spurious NVNT 802.11b 1Mbps 2437MHz Ant1 Ref



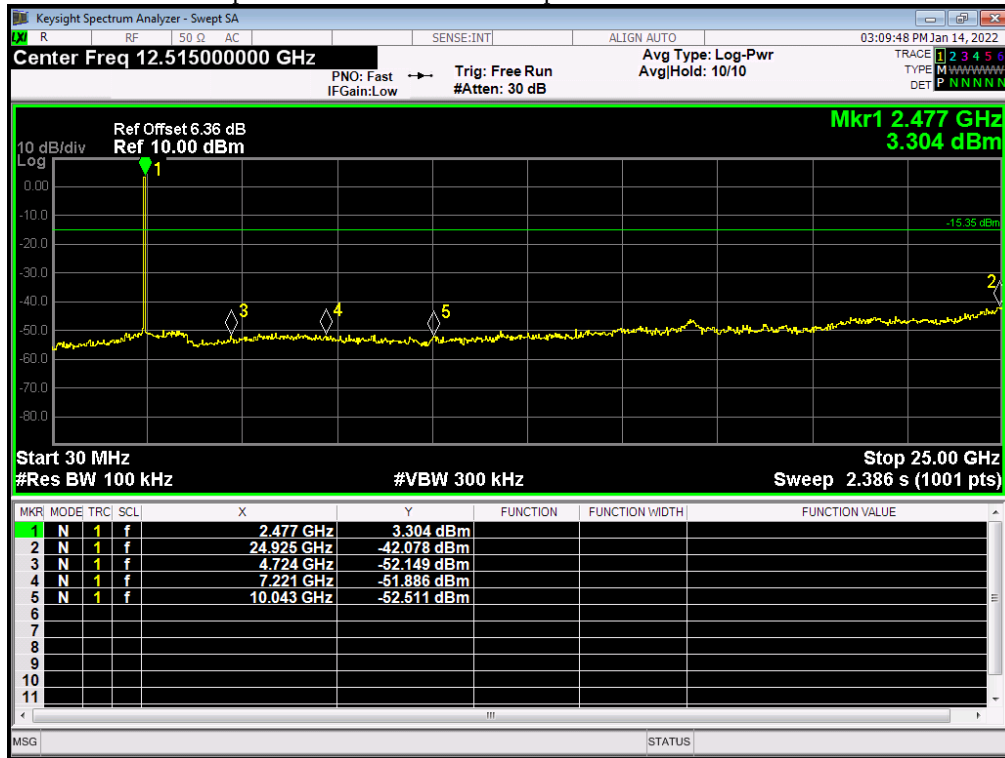
Tx. Spurious NVNT 802.11b 1Mbps 2437MHz Ant1 Emission



Tx. Spurious NVNT 802.11b 1Mbps 2462MHz Ant1 Ref

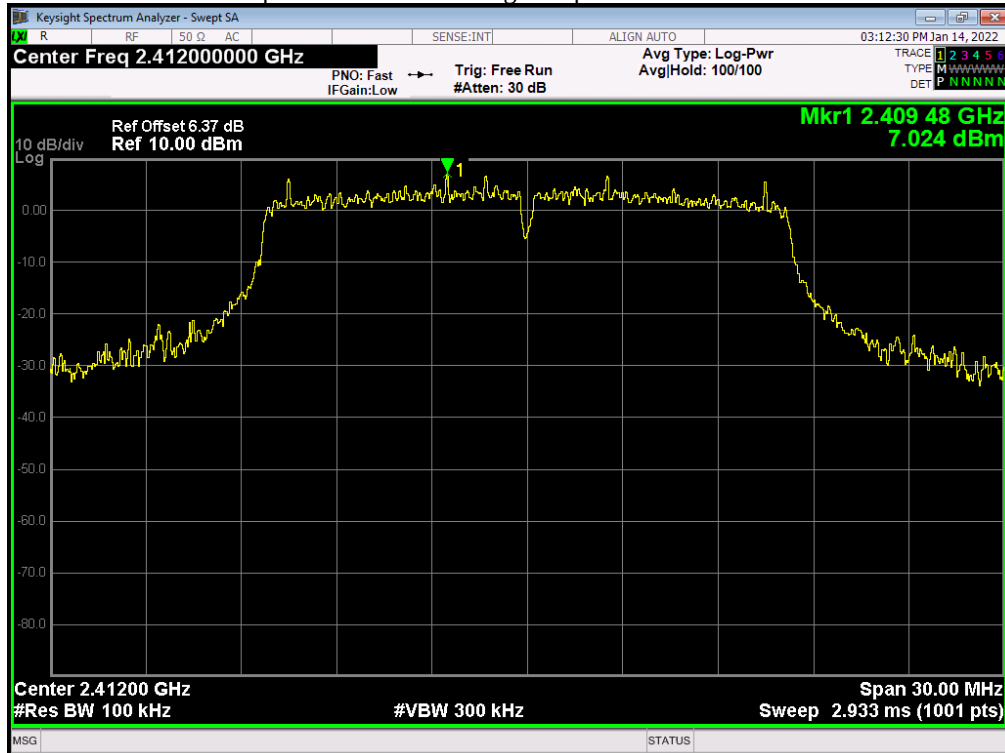


Tx. Spurious NVNT 802.11b 1Mbps 2462MHz Ant1 Emission

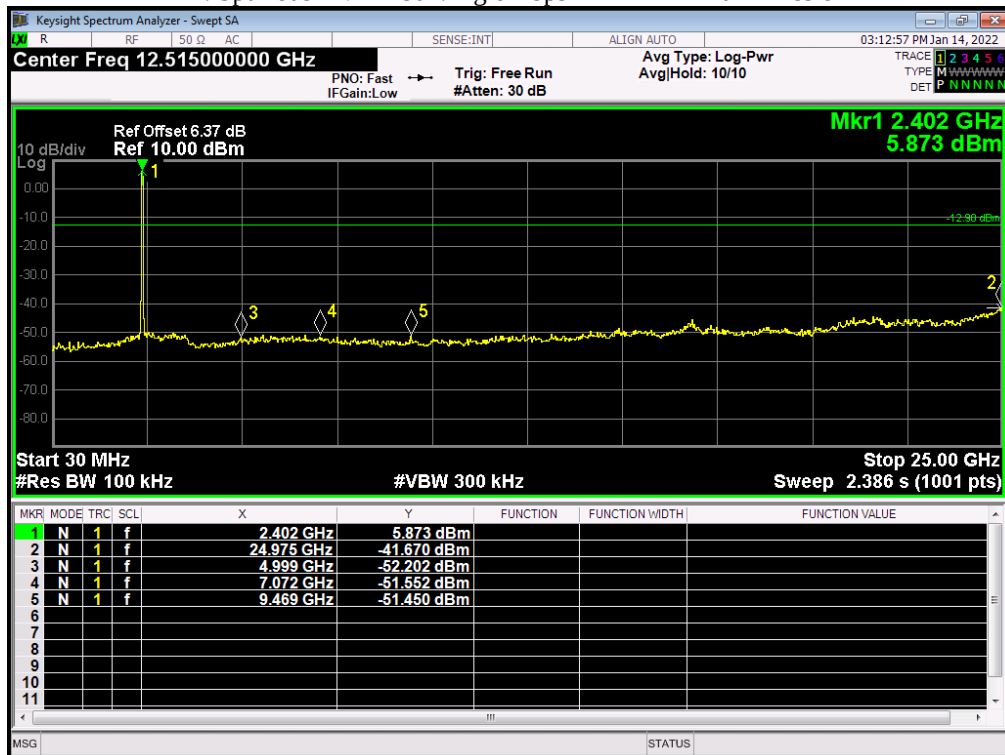


Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	802.11g 6Mbps	2412	Ant 1	-48.684	-20	Pass
NVNT	802.11g 6Mbps	2437	Ant 1	-47.538	-20	Pass
NVNT	802.11g 6Mbps	2462	Ant 1	-46.441	-20	Pass

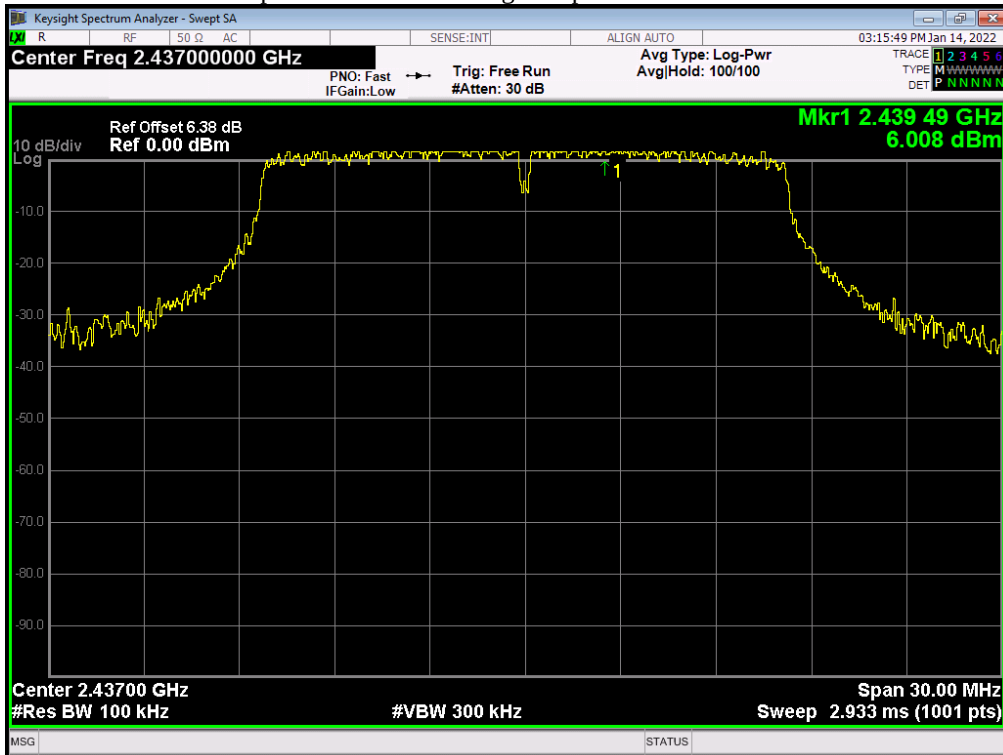
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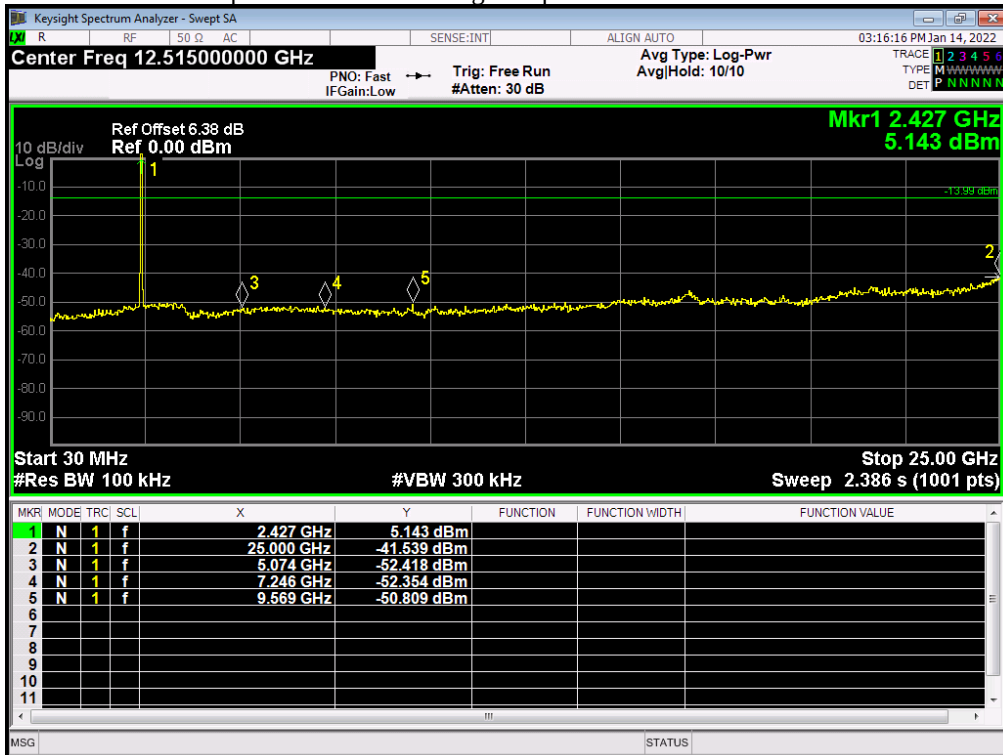
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Tx. Spurious NVNT 802.11g 6Mbps 2437MHz Ant1 Ref



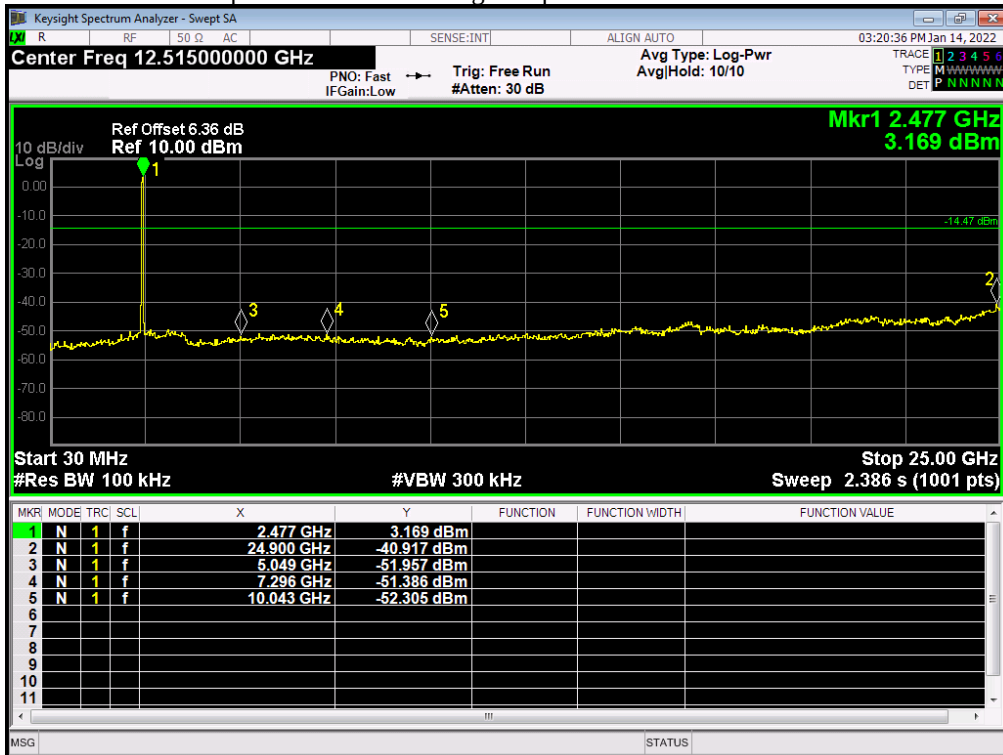
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Tx. Spurious NVNT 802.11g 6Mbps 2462MHz Ant1 Ref

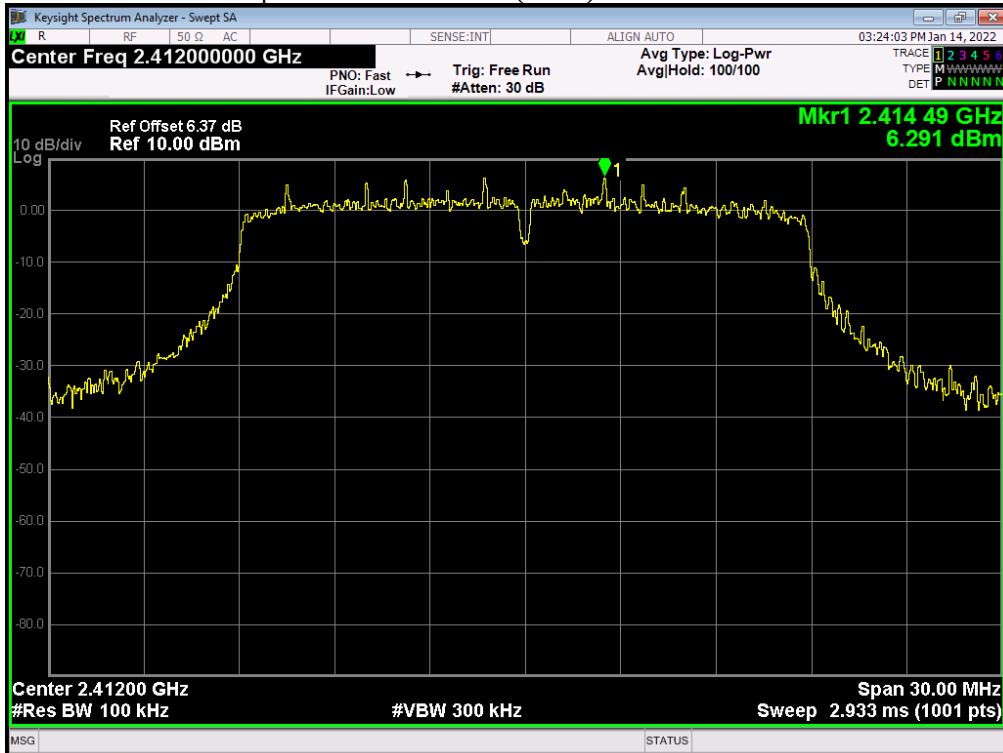


Tx. Spurious NVNT 802.11g 6Mbps 2462MHz Ant1 Emission

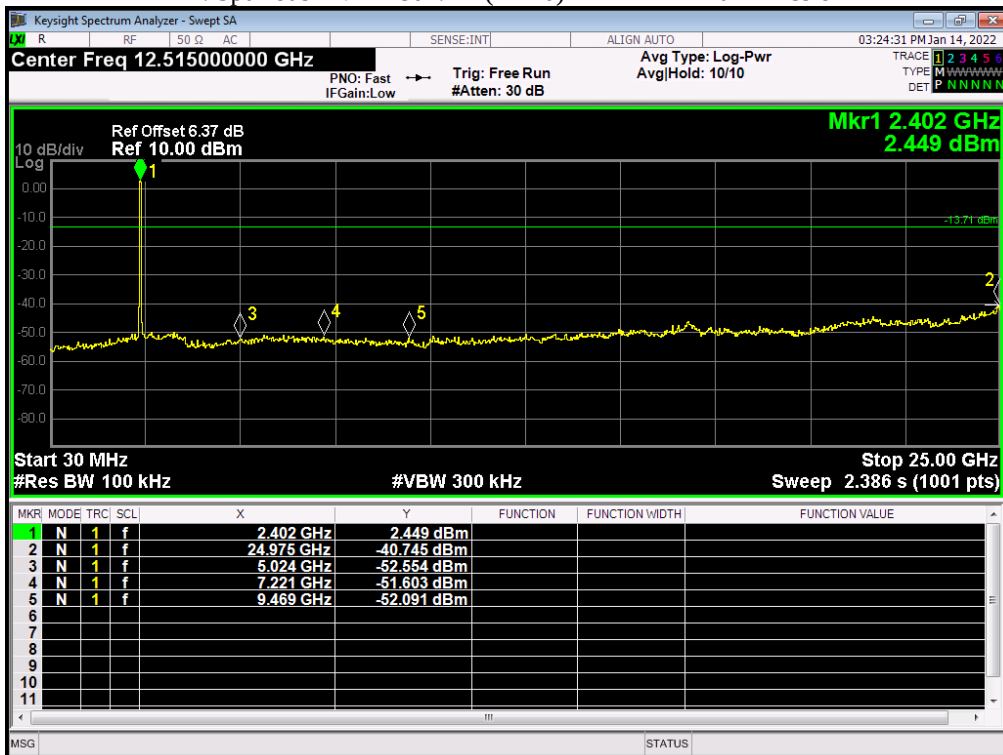


Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	802.11n(HT20)	2412	Ant 1	-47.031	-20	Pass
NVNT	802.11n(HT20)	2437	Ant 1	-44.812	-20	Pass
NVNT	802.11n(HT20)	2462	Ant 1	-46.314	-20	Pass

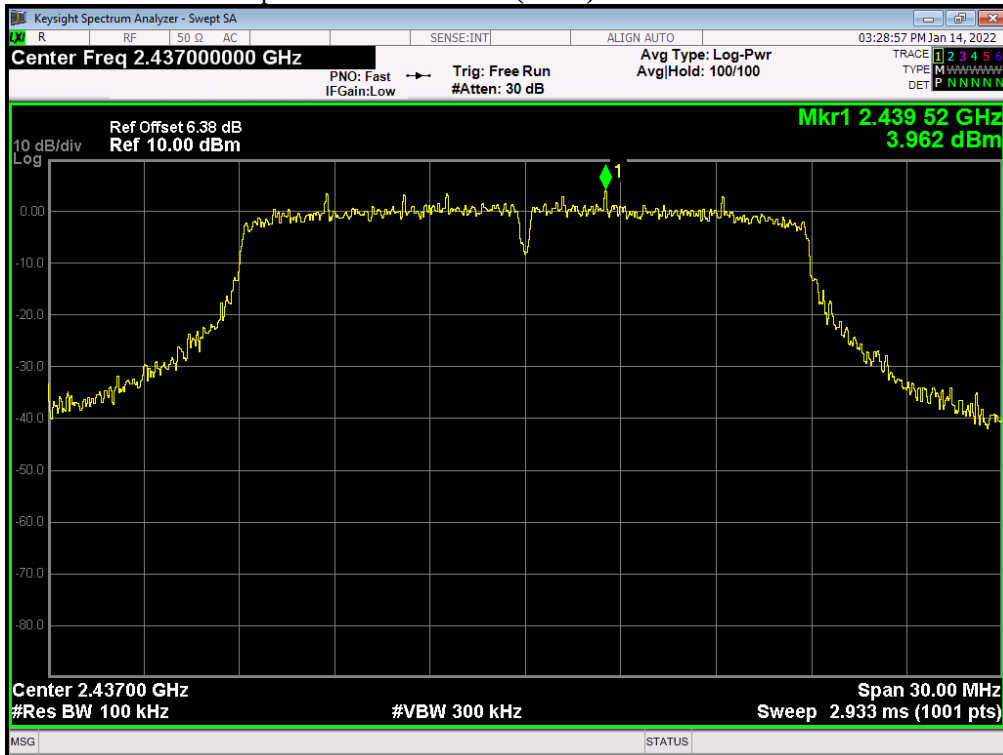
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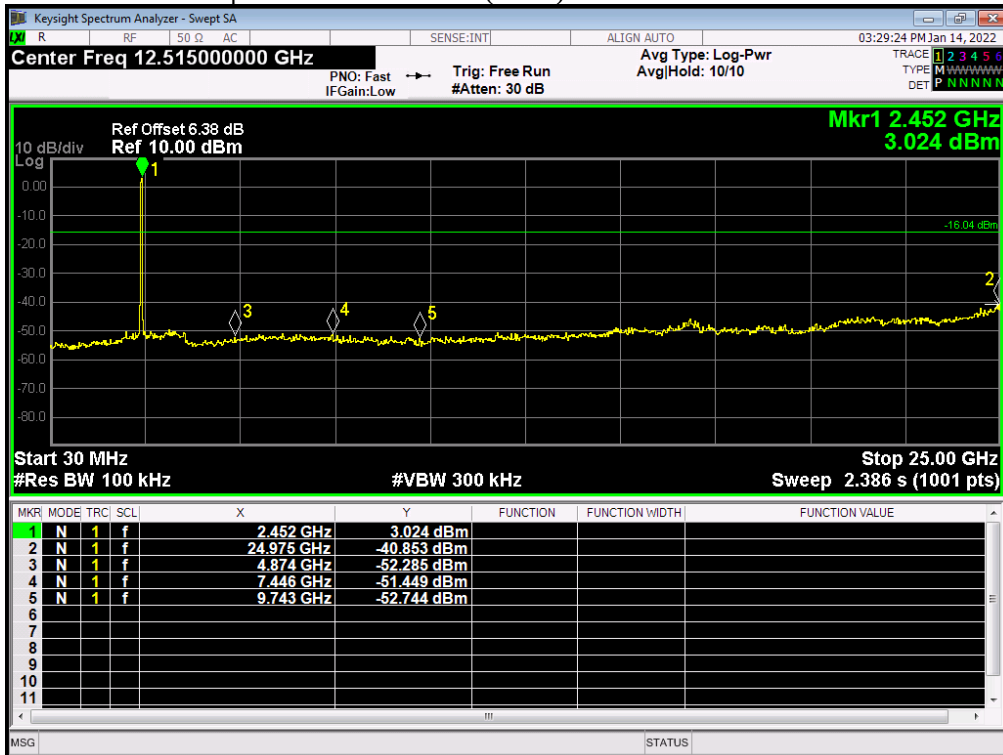
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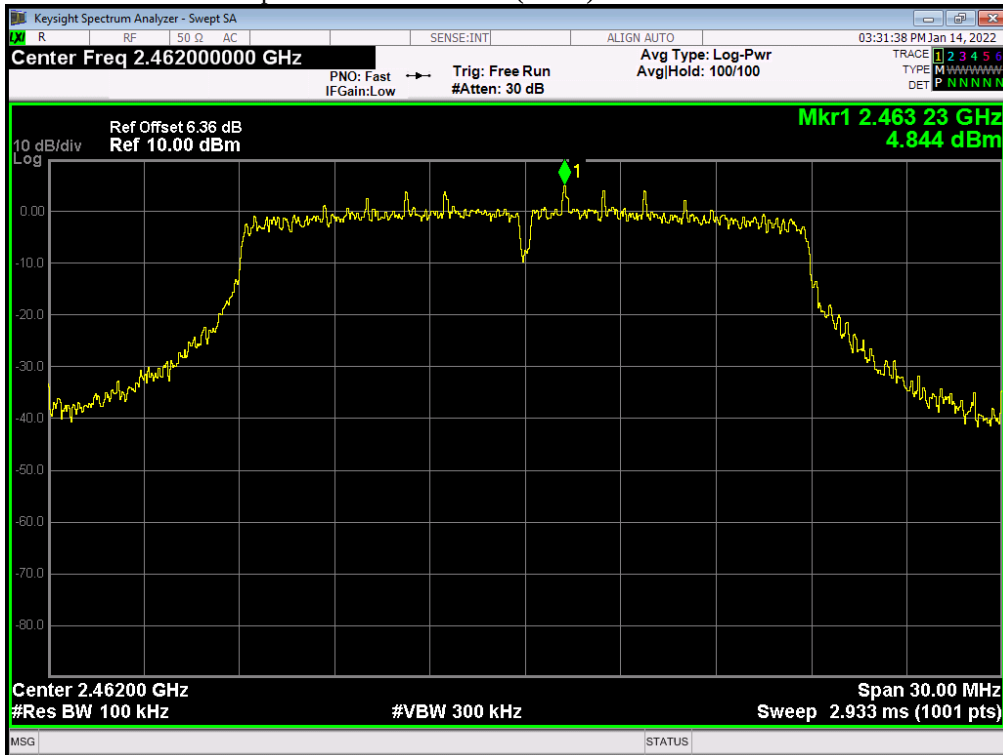
Tx. Spurious NVNT 802.11n(HT20) 2437MHz Ant1 Ref



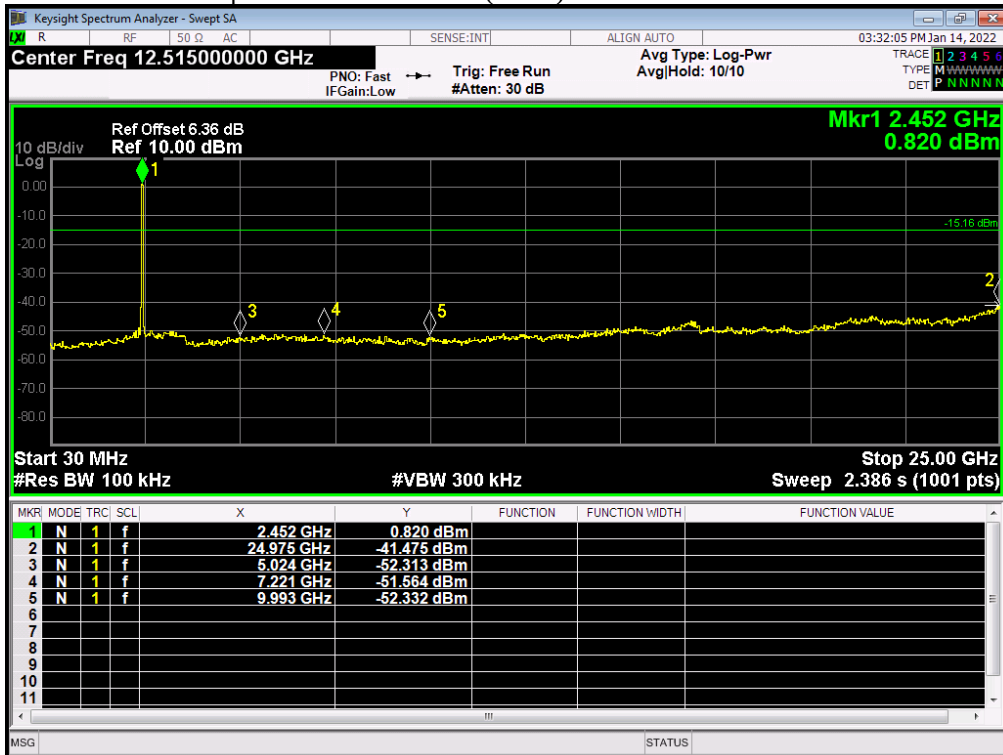
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Tx. Spurious NVNT 802.11n(HT20) 2462MHz Ant1 Ref

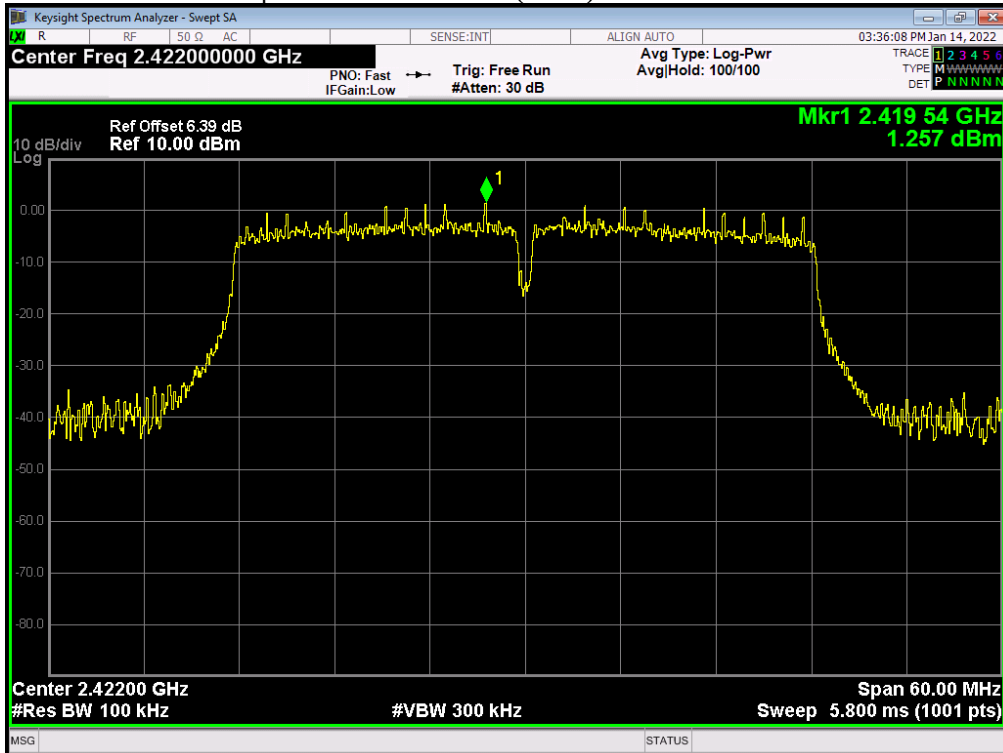


Tx. Spurious NVNT 802.11n(HT20) 2462MHz Ant1 Emission

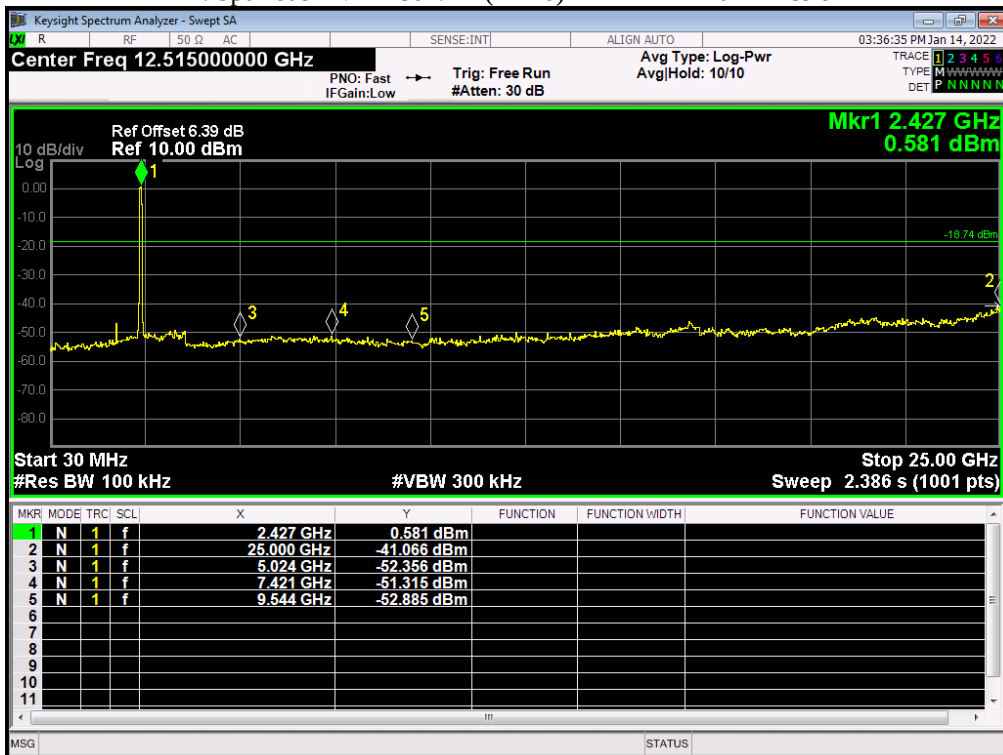


Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	802.11n(HT40)	2422	Ant 1	-42.317	-20	Pass
NVNT	802.11n(HT40)	2437	Ant 1	-42.578	-20	Pass
NVNT	802.11n(HT40)	2452	Ant 1	-41.705	-20	Pass

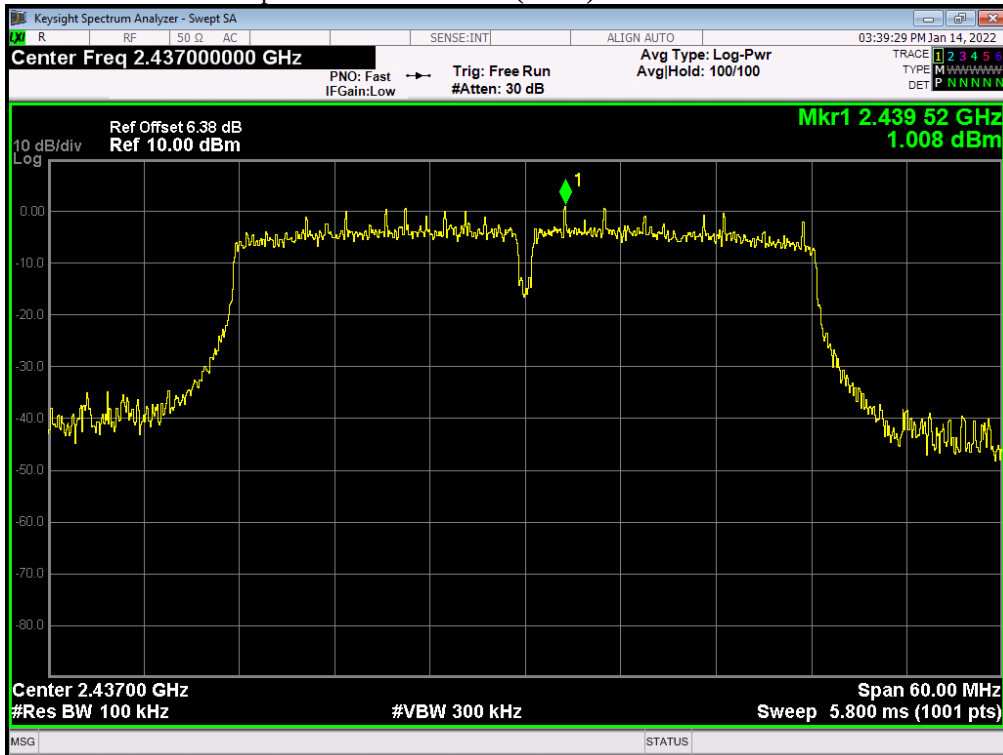
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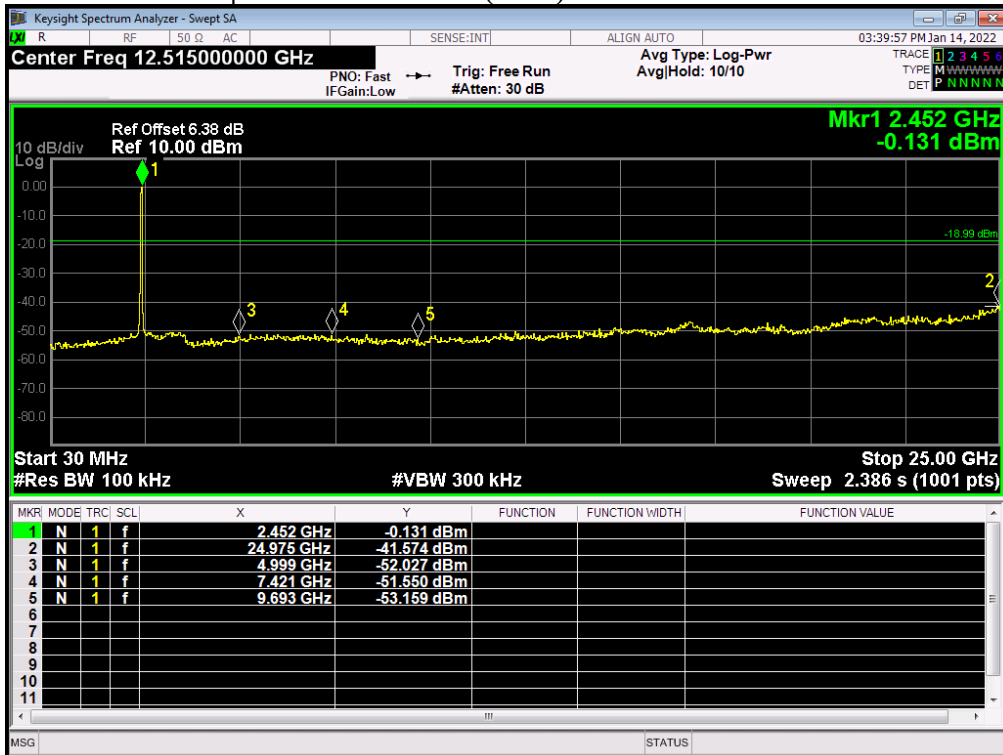
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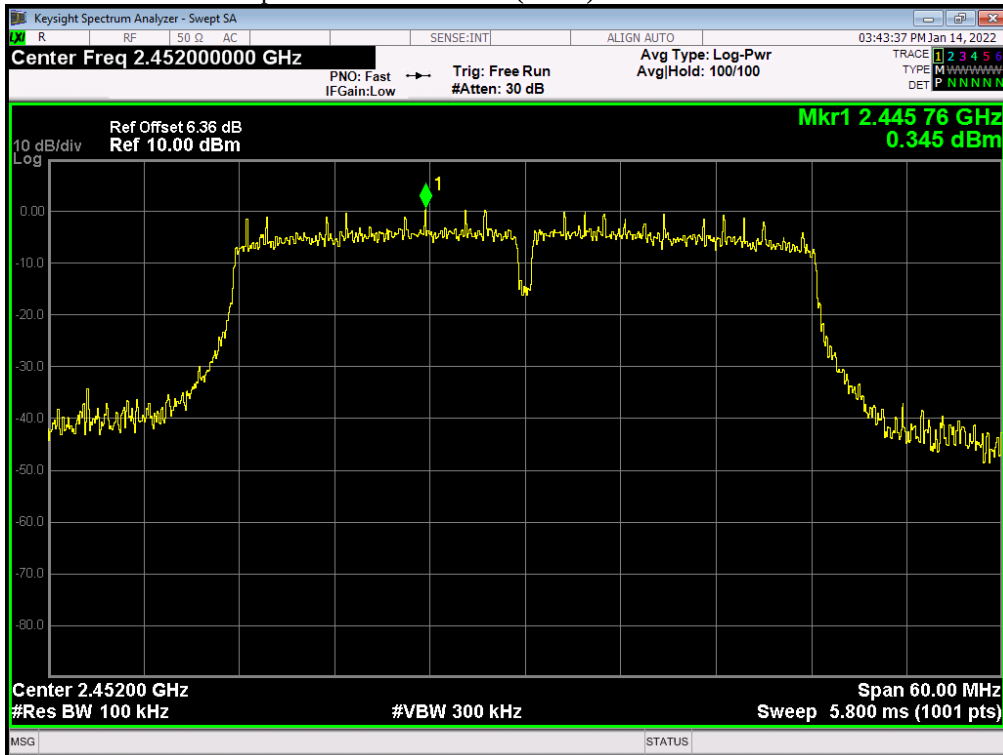
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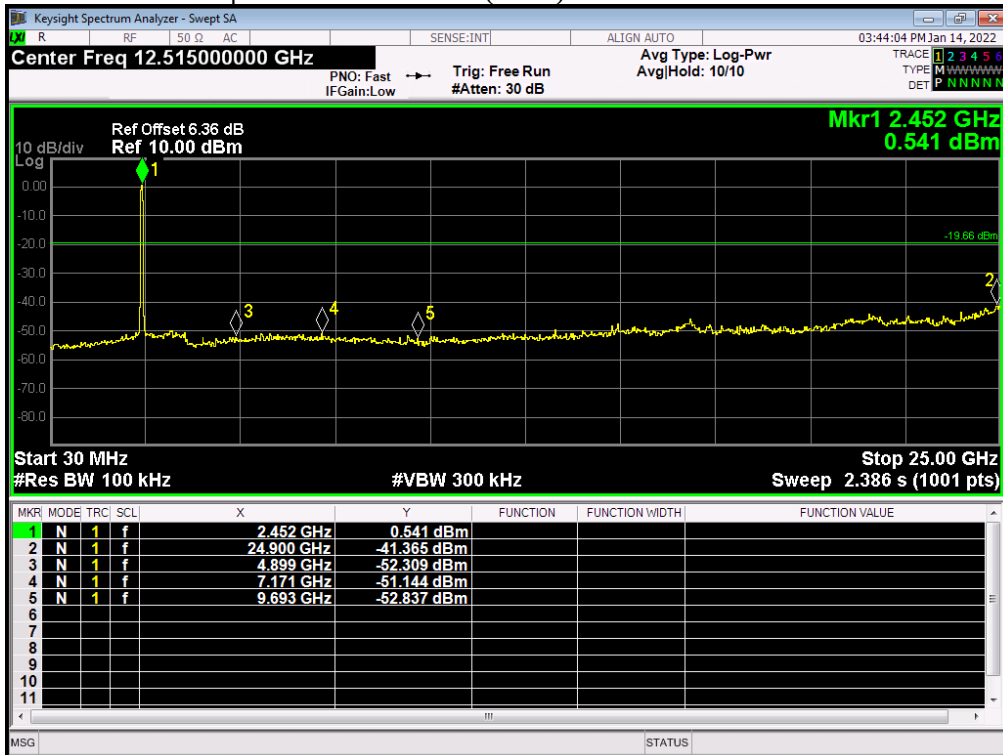
Tx. Spurious NVNT 802.11n(HT40) 2437MHz Ant1 Emission



Tx. Spurious NVNT 802.11n(HT40) 2452MHz Ant1 Ref

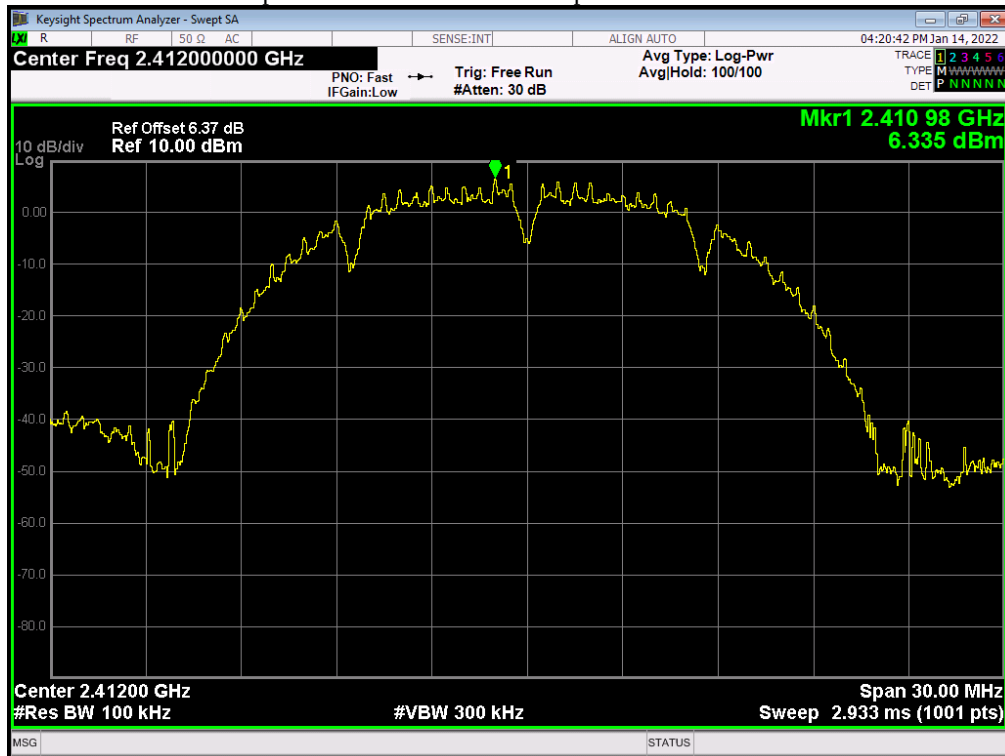


Tx. Spurious NVNT 802.11n(HT40) 2452MHz Ant1 Emission

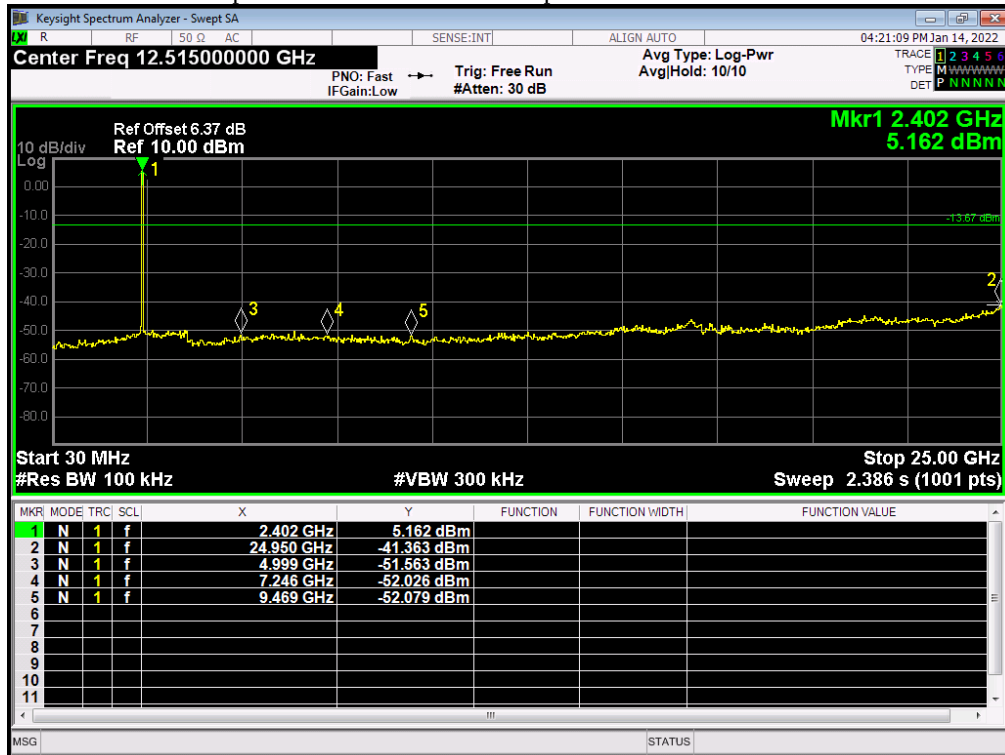


Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	802.11b 1Mbps	2412	Ant 2	-47.695	-20	Pass
NVNT	802.11b 1Mbps	2437	Ant 2	-43.645	-20	Pass
NVNT	802.11b 1Mbps	2462	Ant 2	-42.723	-20	Pass

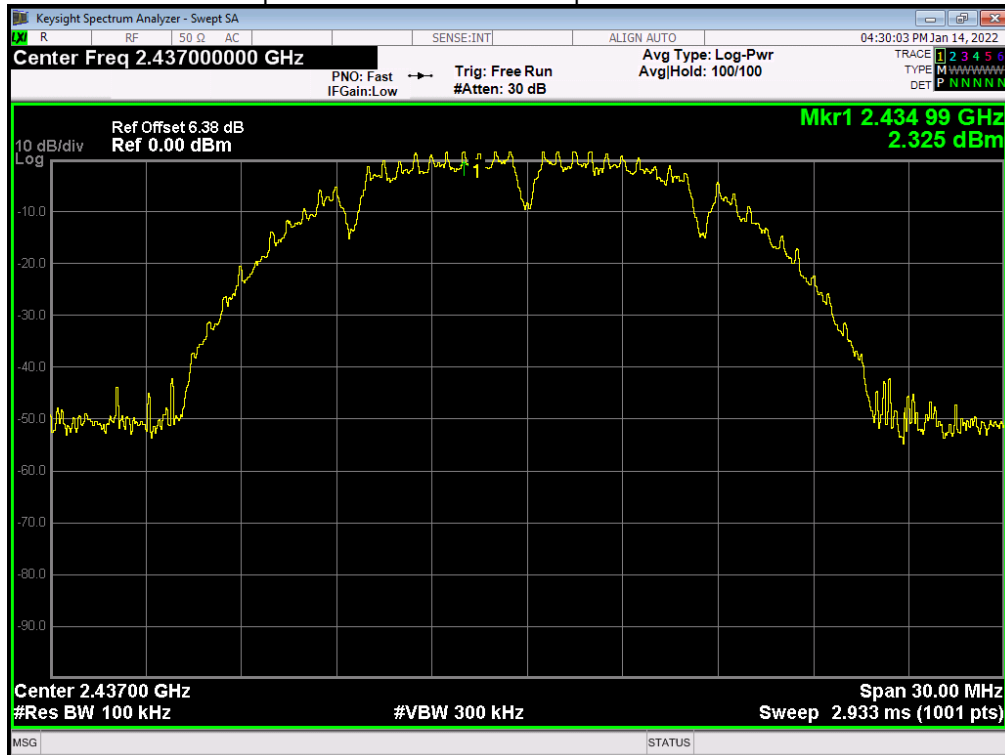
Tx. Spurious NVNT 802.11b 1Mbps 2412MHz Ant2 Ref



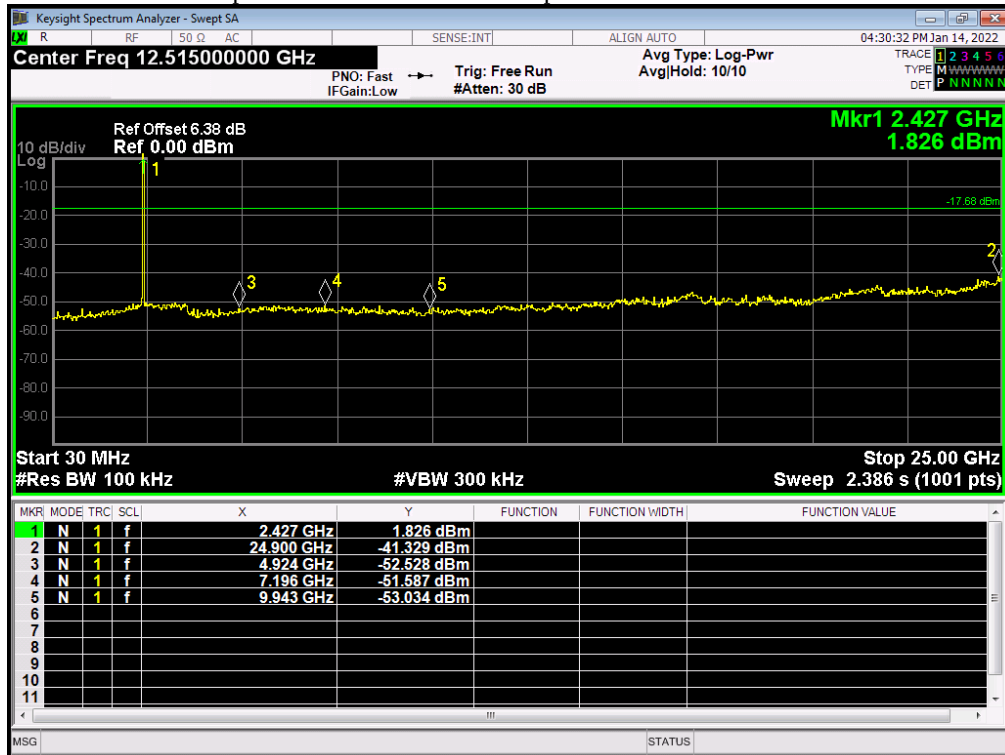
Tx. Spurious NVNT 802.11b 1Mbps 2412MHz Ant2 Emission



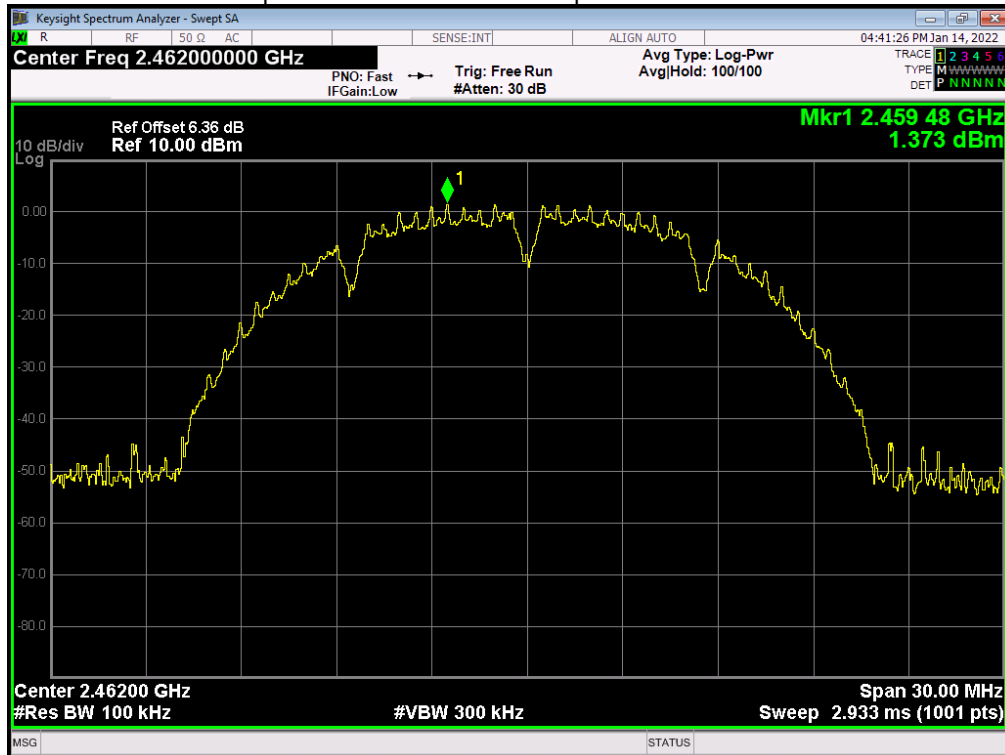
Tx. Spurious NVNT 802.11b 1Mbps 2437MHz Ant2 Ref



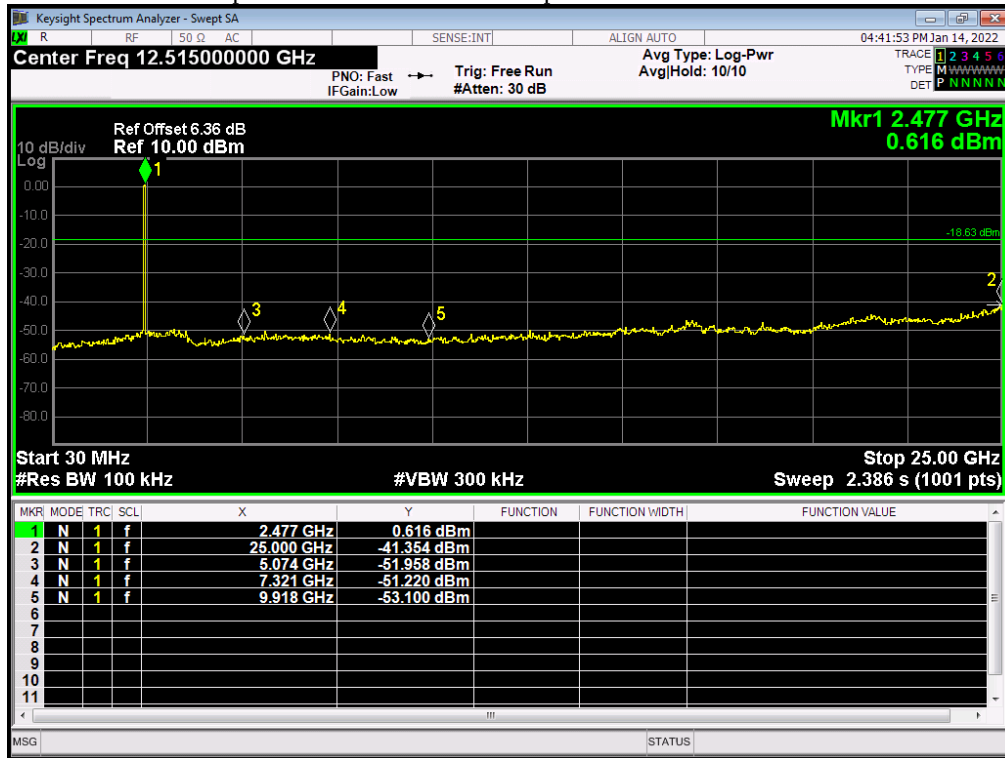
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Tx. Spurious NVNT 802.11b 1Mbps 2462MHz Ant2 Ref

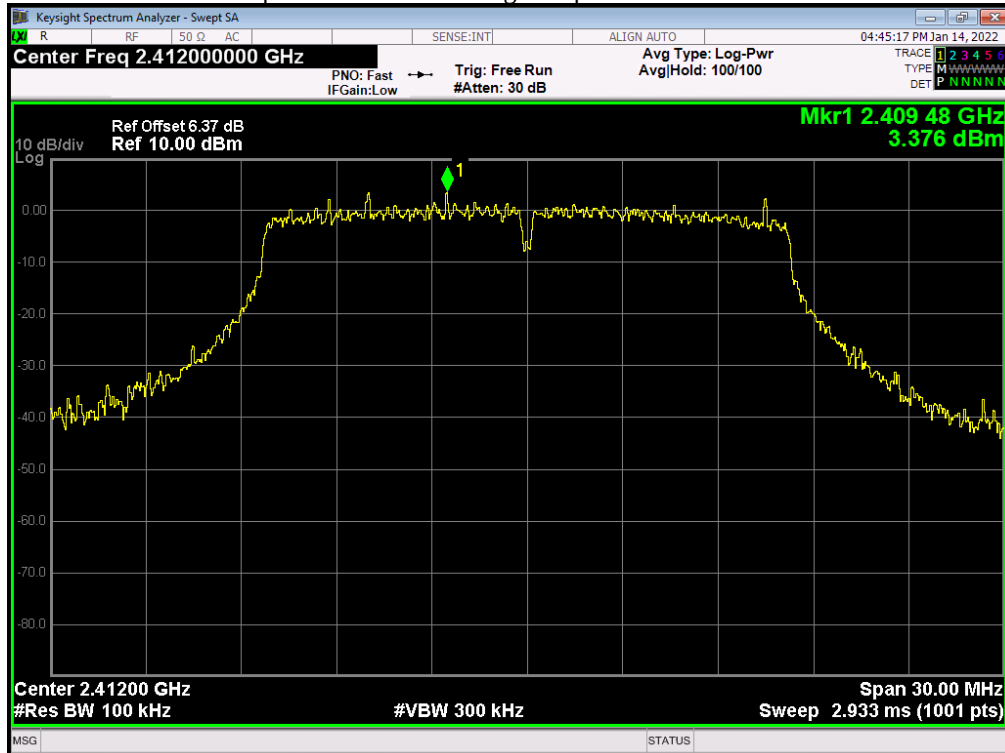


Tx. Spurious NVNT 802.11b 1Mbps 2462MHz Ant2 Emission

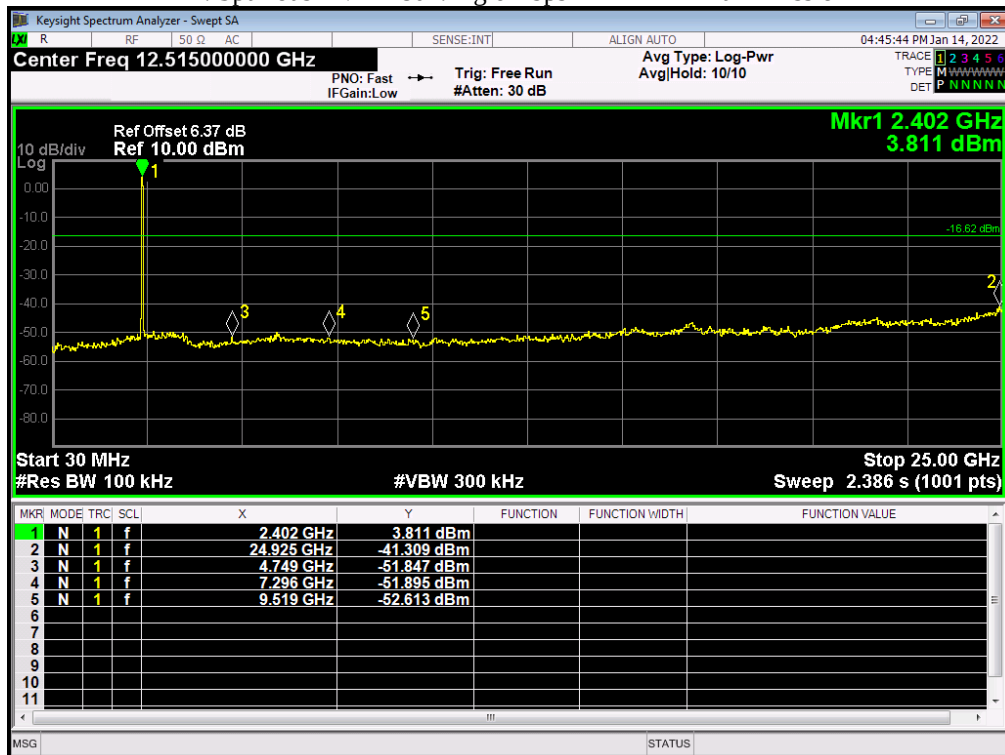


Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	802.11g 6Mbps	2412	Ant 2	-44.676	-20	Pass
NVNT	802.11g 6Mbps	2437	Ant 2	-44.037	-20	Pass
NVNT	802.11g 6Mbps	2462	Ant 2	-42.732	-20	Pass

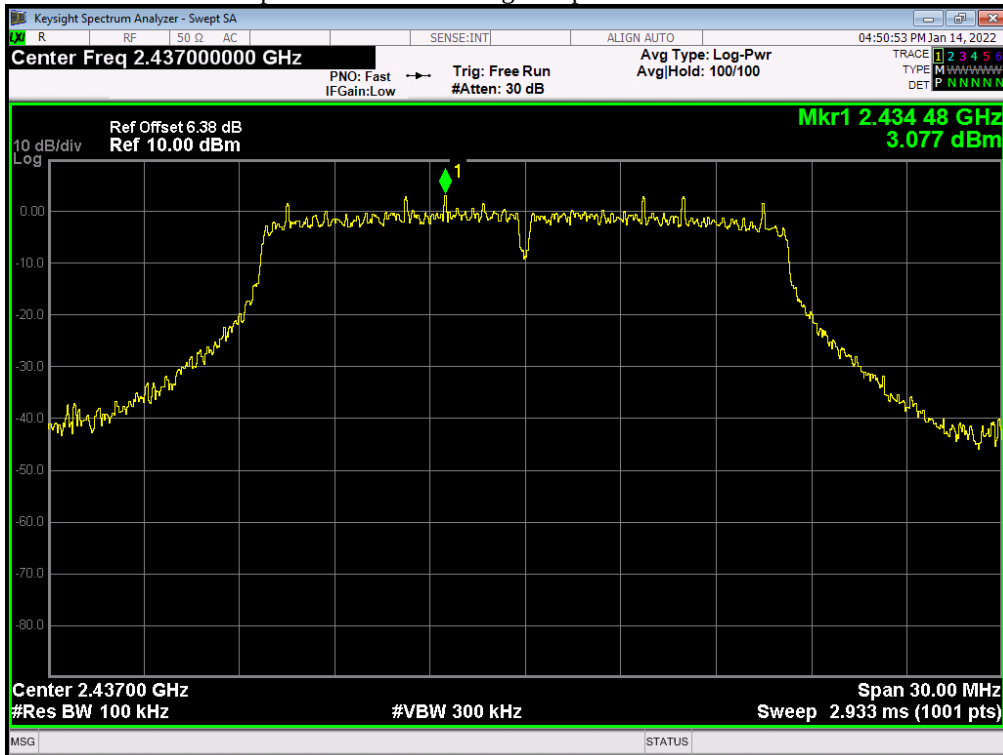
Tx. Spurious NVNT 802.11g 6Mbps 2412MHz Ant2 Ref



Tx. Spurious NVNT 802.11g 6Mbps 2412MHz Ant2 Emission



Tx. Spurious NVNT 802.11g 6Mbps 2437MHz Ant2 Ref



Tx. Spurious NVNT 802.11g 6Mbps 2437MHz Ant2 Emission

