



TEST REPORT

APPLICANT : Justice Tech Solutions, LLC

PRODUCT NAME : Securebook

MODEL NAME : securebook 6

BRAND NAME : Justice Tech Solutions

FCC ID : 2AS4KJTS-SEBOOK6

STANDARD(S) : 47 CFR Part 15 Subpart C

RECEIPT DATE : 2022-10-11

TEST DATE : 2022-10-15 to 2022-10-31

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DIRECTORY

- 1. Technical Information** 3
- 1.1. Applicant and Manufacturer Information** 3
- 1.2. Equipment Under Test (EUT) Description** 3
- 1.3. Modulation Type and Data Rate of EUT** 5
- 1.4. 802.11ax RU Allocation** 6
- 1.5. The Channel Number and Frequency** 7
- 1.6. Test Standards and Results** 8
- 1.7. Environmental Conditions** 9
- 2. 47 CFR Part 15C Requirements** 10
- 2.1. Antenna Requirement** 10
- 2.2. Duty Cycle of Test Signal** 11
- 2.3. Maximum Conducted Output Power** 17
- 2.4. Bandwidth** 24
- 2.5. Conducted Spurious Emissions and Band Edge** 43
- 2.6. Power Spectral Density** 71
- 2.7. Conducted Emission** 108
- 2.8. Restricted Frequency Bands** 112
- 2.9. Radiated Emission** 140
- Annex A Test Uncertainty** 171
- Annex B Testing Laboratory Information** 172

Change History		
Version	Date	Reason for change
1.0	2022-11-30	First edition



1. Technical Information

Note: Provide by applicant.

1.1. Applicant and Manufacturer Information

Applicant:	Justice Tech Solutions, LLC
Applicant Address:	13530 Fifth Street , Chino , CA
Manufacturer:	Justice Tech Solutions, LLC
Manufacturer Address:	13530 Fifth Street , Chino , CA

1.2. Equipment Under Test (EUT) Description

Product Name:	Securebook	
Sample No.:	2#	
Hardware Version:	N116FJL01	
Software Version:	Windows 11	
Modulation Technology:	DSSS, OFDM	
Modulation Type:	Refer to section1.3	
Wireless Technology:	802.11b, 802.11g, 802.11n (HT20), 802.11n (HT40) 802.11ax (HEW20), 802.11ax (HEW40)	
Operating Frequency Range:	2412MHz–2472MHz	
Antenna Type:	FPC Antenna	
Antenna Gain:	ANT 0: 4.73dBi; ANT 1: 3.99dBi	
Directional Gain:	7.74dBi _{Note 2}	
Accessory Information:	Battery	
	Brand Name:	N/A
	Model No.:	SHT648262-3SR
	Serial No.:	N/A
	Capacity:	5000mAh
	Rated Voltage:	11.4V
	Charge Limit:	13.50V
	Manufacturer:	Shenzhen Sen HongTai New Energy Technology co., LTD



Accessory Information:	AC Adapter	
	Brand Name:	N/A
	Model No.:	SOY48W-1900210
	Serial No.:	N/A
	Rated Output:	19V $\overline{=}$ 2.1A
	Rated Input:	100-130V \sim 50/60Hz, 1.2A
	Manufacturer:	SHENZHEN SOY TECHNOLOGY CO., LTD.

Note 1: The EUT supports a MIMO function. Physically, the EUT provides two completed transmitters and two receivers for 802.11n and 802.11ax modulation mode.

Modulation Mode:	TX Function
802.11b/g	1TX
802.11n	2TX
802.11ax	2TX

Note 2: According to KDB 662911 D01, the directional gain = $G_{ANT} + 10\log(N_{ANT})$ dBi, where G_{ANT} is the maximum antenna gain in dBi, N_{ANT} is the number of outputs.

Note 3: For conducted test item Conducted Output Power and Power Spectral Density of each modulation mode, we recorded the test result of two antennas separately, for other conducted test items both of the two antennas were tested separately, we only recorded the worst test result (ANT 0) in this report.

Note 4: All radiation test items for 802.11n and 802.11 ax modulation mode operate at MIMO mode during the test. Other modulation mode operate at SISO mode, both of the two antennas were tested separately, we only recorded the worst test result(ANT 0) in this report.

Note 5: We use the dedicated software to control the EUT continuous transmission.

Note 6: For a more detailed description, please refer to Specification or User's Manual supplied by the applicant and/or manufacturer.

1.3. Modulation Type and Data Rate of EUT

Mode	Bandwidth (MHz)	Modulation Technology	Modulation Type	Data Rate	RU Size
802.11b	20	DSSS	DBPSK	1/2/5.5/11Mbps	N/A
			DQPSK		
			CCK		
802.11g	20	OFDM	BPSK	6/9/12/18/24/36/48/54 Mbps	N/A
			QPSK		
			16QAM		
			64QAM		
802.11n	20/40 (HT20/40)	OFDM	BPSK	MCS0~MCS7	N/A
			QPSK		
			16QAM		
			64QAM		
802.11ax	20/40 (HEW20/40)	OFDMA	BPSK	MCS0~MCS11	26/52/106/242/484
			QPSK		
			16QAM		
			64QAM		
			256QAM		
			1024QAM		

Note1: The worst-case mode (bold face) in all data rates has been determined during the pre-scan, only the test data of the worst-case were recorded in this report.



1.4. 802.11ax RU Allocation

Bandwidth (MHz)	RU Size		User	RU Offset	Power Setting	
	Full (Tone)	Partial				
		(Tone)				Bandwidth (MHz)
20	242	26	2	9	@0/1/2/3/4/5/6/7/8 Ant0:CH1=9, CH7/13=10; Ant1:CH1=7, CH7=10,CH13=8	
		52	4	4	@37/38/39/40 Ant0:10; Ant1:CH1=9, CH7/13=10.	
		106	8	2	@53/54 10	
		242	20	1	@61 -	
40	484	26	2	18	@0/1/2.....16/17 Ant0:CH1=9, CH7/13=10; Ant1:CH1=7, CH7=10,CH13=8	
		52	4	8	@37/38.....43/44 Ant0:10; Ant1:CH1=9, CH7/13=10.	
		106	8	4	@53/54/55/56 10	
		242	20	2	@61/62 -	
		484	40	1	@65	

Note 1: The black bold modes were selected for test.

Note 2: The worst case in Partial RU mode has been verified in the pre-scan phase before the test is at 20MHz bandwidth not at higher bandwidth, the test data of Full RU mode at lower bandwidth can cover the test data of Partial RU mode at higher bandwidth.



1.5. The Channel Number and Frequency

Test Mode	Channel	Frequency (MHz)	Channel	Frequency (MHz)
802.11b/g/n(HT20)/ ax(HEW20)	1	2412	8	2447
	2	2417	9	2452
	3	2422	10	2457
	4	2427	11	2462
	5	2432	12	2467
	6	2437	13	2472
	7	2442		
Test Mode	Channel	Frequency (MHz)	Channel	Frequency (MHz)
802.11n (HT40)/ ax(HEW40)	3	2422	8	2447
	4	2427	9	2452
	5	2432	10	2457
	6	2437	11	2462
	7	2442		

Note 1: The black bold channels were selected for test.



1.6. Test Standards and Results

The objective of the report is to perform testing according to 47 CFR Part 15 Subpart C for the EUT FCC ID Certification:

No.	Identity	Document Title
1	47 CFR Part 15	Radio Frequency Devices

Test detailed items/section required by FCC rules and results are as below:

No.	Section	Description	Test Date	Test Engineer	Result	Method determination /Remark
1	15.203	Antenna Requirement	N/A	N/A	PASS	No deviation
2	N/A	Duty Cycle of Test Signal	Oct. 15, 2022	He Yuyang	PASS	No deviation
3	15.247(b)	Maximum Conducted Output Power	Oct. 31, 2022	He Yuyang	PASS	No deviation
4	15.247(a)	Bandwidth	Oct. 26, 2022	He Yuyang	PASS	No deviation
5	15.247(d)	Conducted Spurious Emission and Band Edge	Oct. 25&26, 2022	He Yuyang	PASS	No deviation
6	15.247(e)	Power Spectral Density (PSD)	Oct. 26&27, 2022	He Yuyang	PASS	No deviation
7	15.207	Conducted Emission	Oct. 21, 2022	Fan Zehang	PASS	No deviation
8	15.247(d)	Restricted Frequency Bands	Oct. 25&26, 2022	Lin Jiayong	PASS	No deviation
9	15.209, 15.247(d)	Radiated Emission	Oct. 30, 2022	Lin Jiayong	PASS	No deviation

Note 1: The tests were performed according to the method of measurements prescribed in ANSIC63.10-2013, KDB558074 D01 v05r02 and KDB662911 D01 v02r01.

Note 2: The path loss during the RF test is calibrated to correct the results by the offset setting in the test equipments. The ref offset 11.5dB contains two parts that cable loss 1.5dB and Attenuator 10dB.



Note 3: Additions to, deviation, or exclusions from the method shall be judged in the "method determination" column of add, deviate or exclude from the specific method shall be explained in the "Remark" of the above table.

Note 4: When the test result is a critical value, we will use the measurement uncertainty give the judgment result based on the 95% confidence intervals.

1.7. Environmental Conditions

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

Temperature (°C):	15-35
Relative Humidity (%):	30-60
Atmospheric Pressure (kPa):	86-106



2. 47 CFR Part 15C Requirements

2.1. Antenna Requirement

2.1.1. Applicable Standard

According to FCC 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

2.1.2. Test Result: Compliant

Inside of the EUT has a FPC antenna coupled with the I-PEX connector. Please refer to the EUT internal photos.

2.2. Duty Cycle of Test Signal

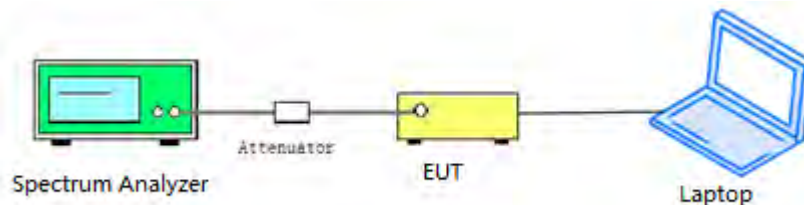
2.2.1. Requirement

Preferably, all measurements of maximum conducted (average) output power will be performed with the EUT transmitting continuously (i.e., with a duty cycle of greater than or equal to 98%). When continuous operation cannot be realized, then the use of sweep triggering/signal gating techniques can be used to ensure that measurements are made only during transmissions at the maximum power control level. Such sweep triggering/signal gating techniques will require knowledge of the minimum transmission duration (T) over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation. Sweep triggering/signal gating techniques can then be used if the measurement/sweep time of the analyzer can be set such that it does not exceed T at any time that data are being acquired (i.e., no transmitter OFF-time is to be considered).

When continuous transmission cannot be achieved and sweep triggering/signal gating cannot be implemented, alternative procedures are provided that can be used to measure the average power; however, they will require an additional measurement of the transmitter duty cycle (D). Within this subclause, the duty cycle refers to the fraction of time over which the transmitter is ON and is transmitting at its maximum power control level. The duty cycle is considered to be constant if variations are less than $\pm 2\%$; otherwise, the duty cycle is considered to be nonconstant.

2.2.2. Test Description

Test Setup:



ANSI C63.10 2013 Clause 11.6 was used in order to prove compliance.

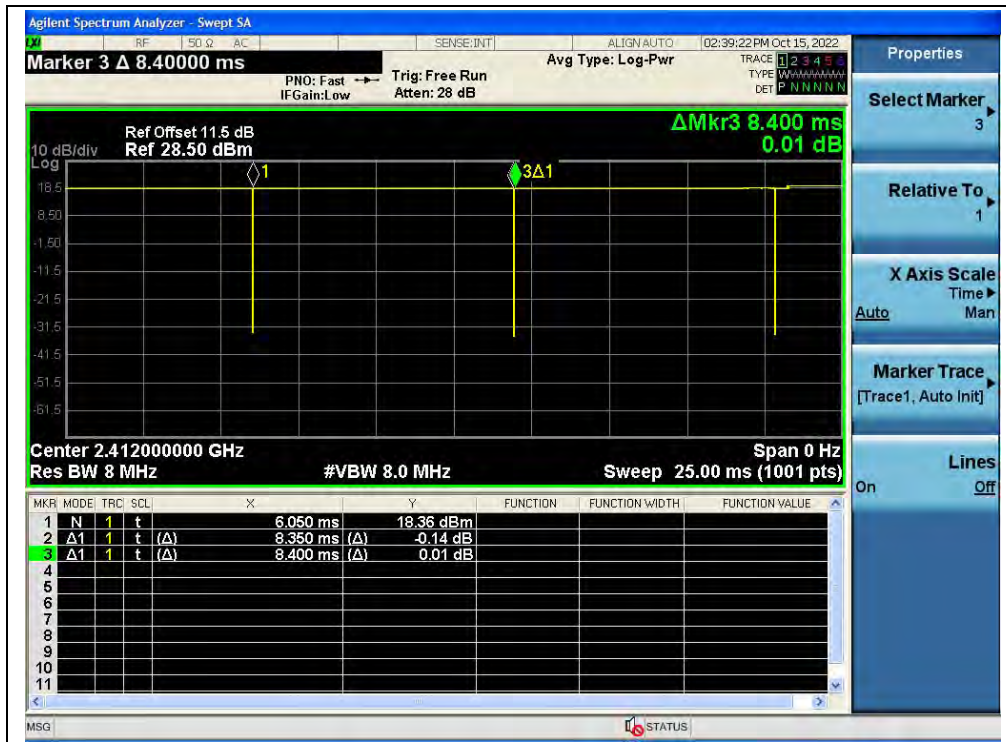


2.2.3. Test Result

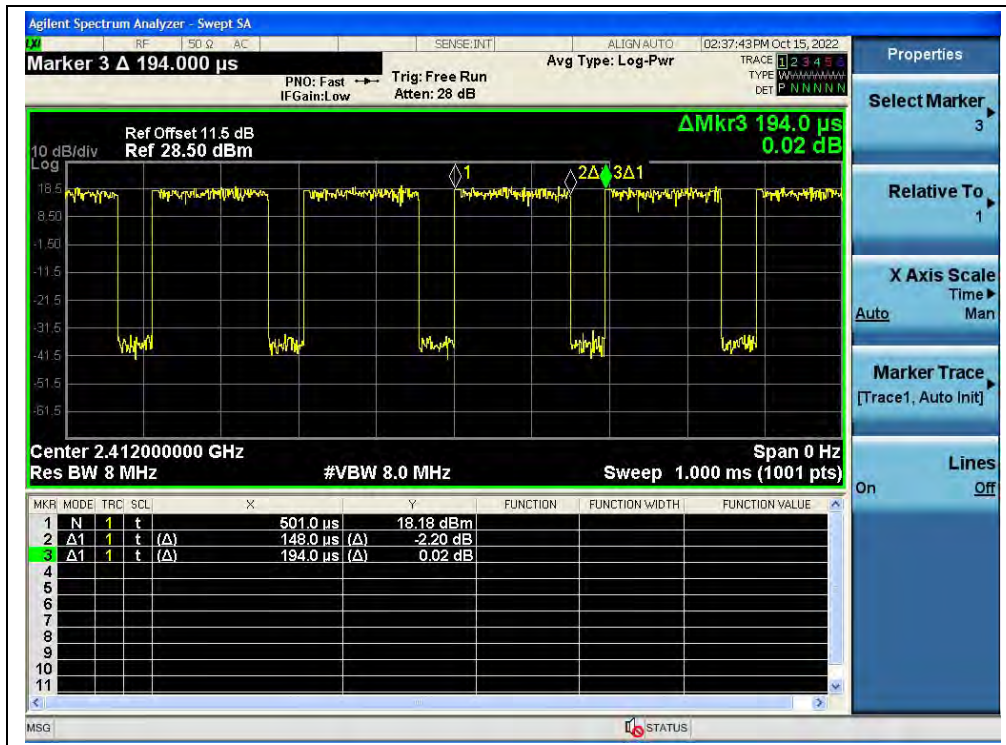
A. Test Verdict:

Test Mode	Duty Cycle (%) (D)	Duty Factor (10*Ig[1/D])
802.11b	99.40	0.03
802.11g	76.29	1.18
802.11n (HT20)	78.92	1.03
802.11n (HT40)	79.65	0.99
802.11ax (HEW20)	84.87	0.71
802.11ax (HEW40)	78.57	1.05
802.11ax (HEW20) RU26	88.83	0.51
802.11ax (HEW20) RU52	81.64	0.88
802.11ax (HEW20) RU106	81.92	0.87

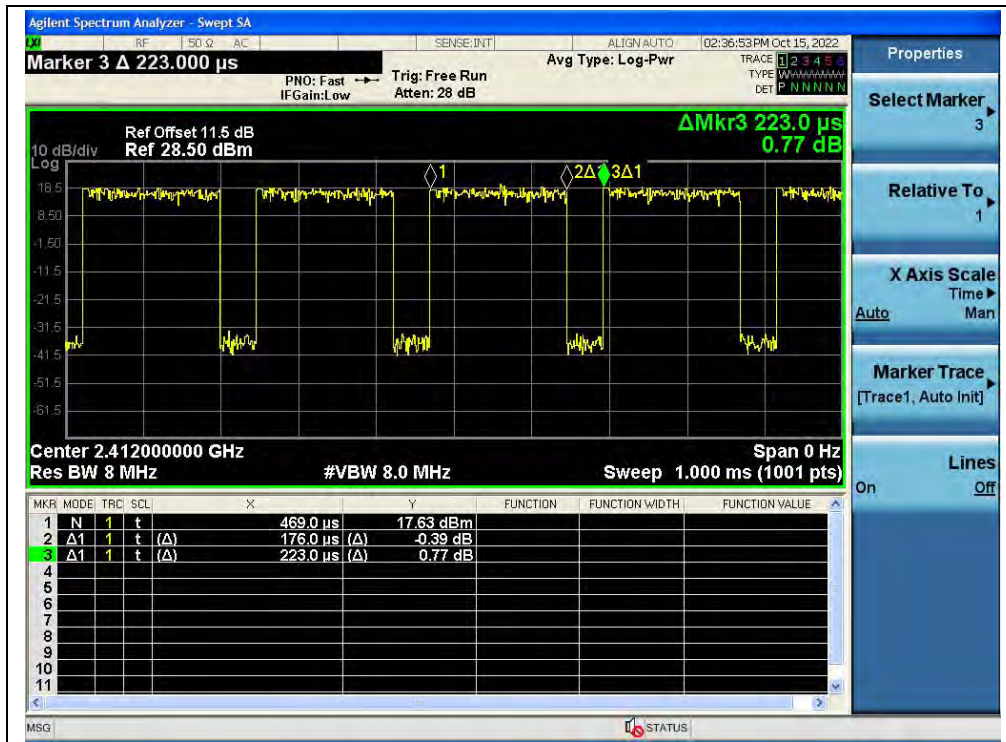
B. Test Plot:



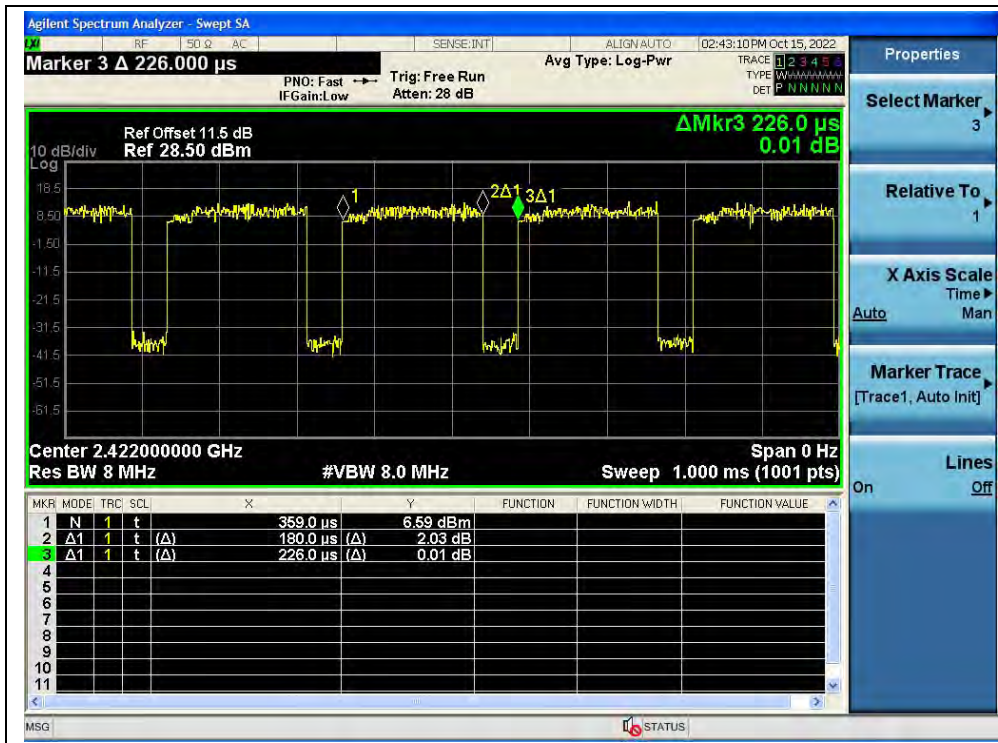
(Channel 1, 802.11b)



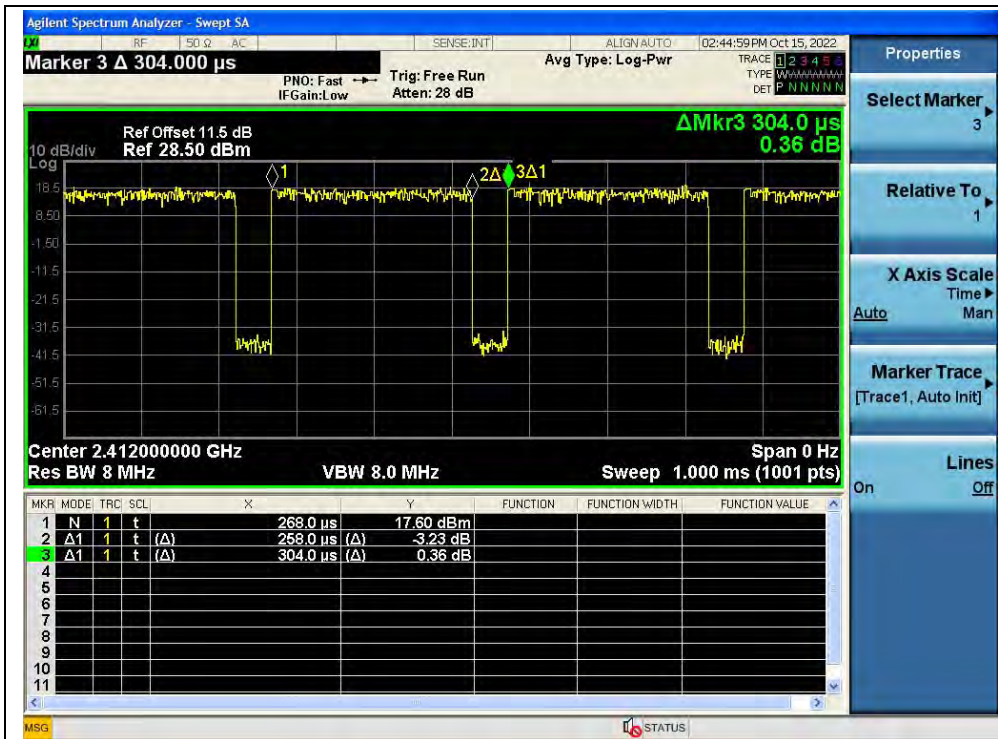
(Channel 1, 802.11g)



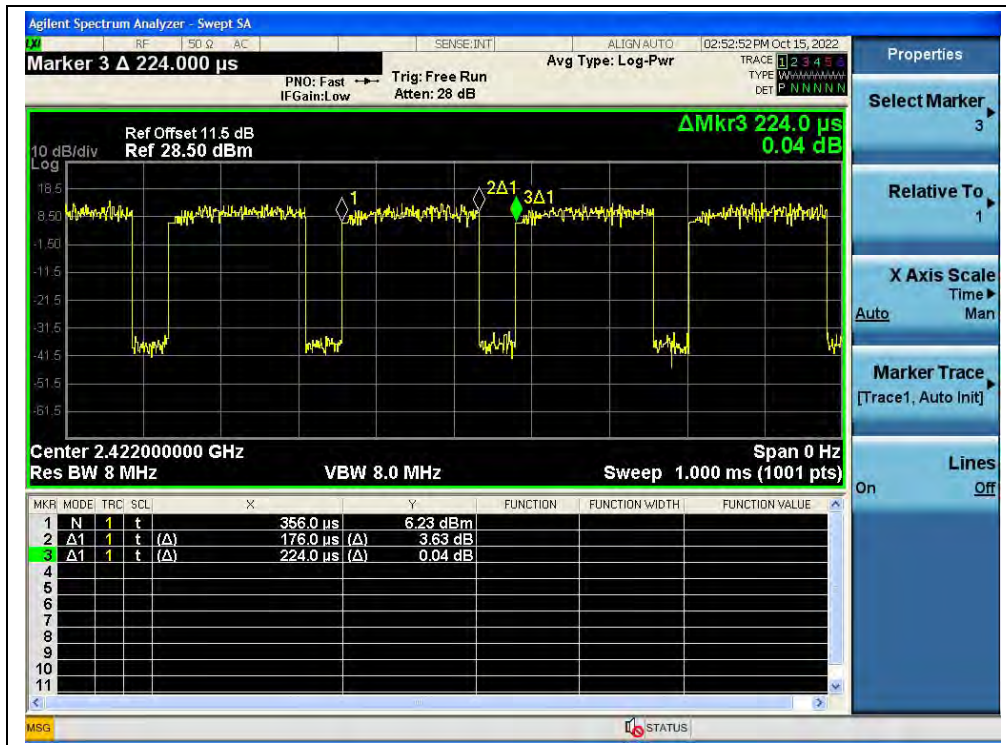
(Channel 1, 802.11n (HT20))



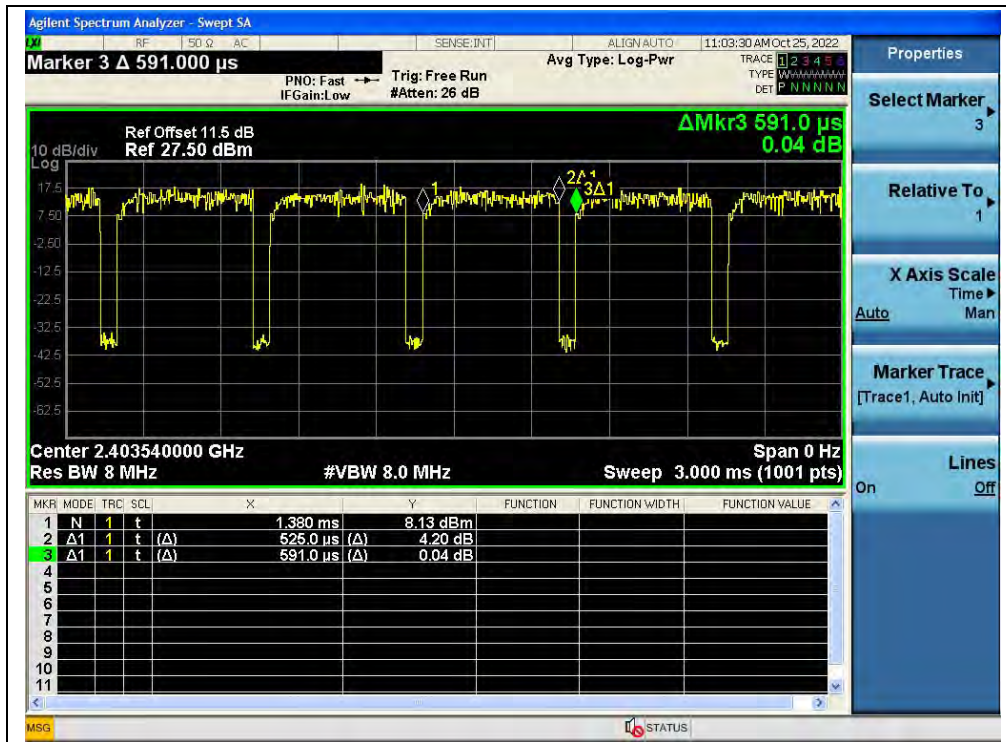
(Channel 3, 802.11n (HT40))



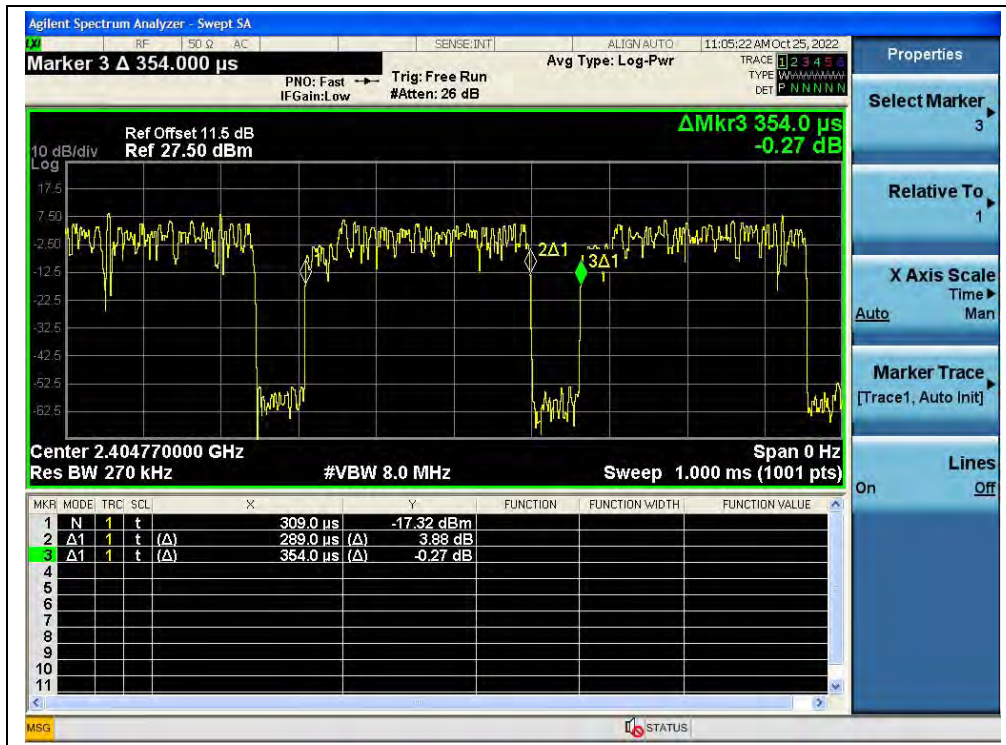
(Channel 1, 802.11ax (HEW20))



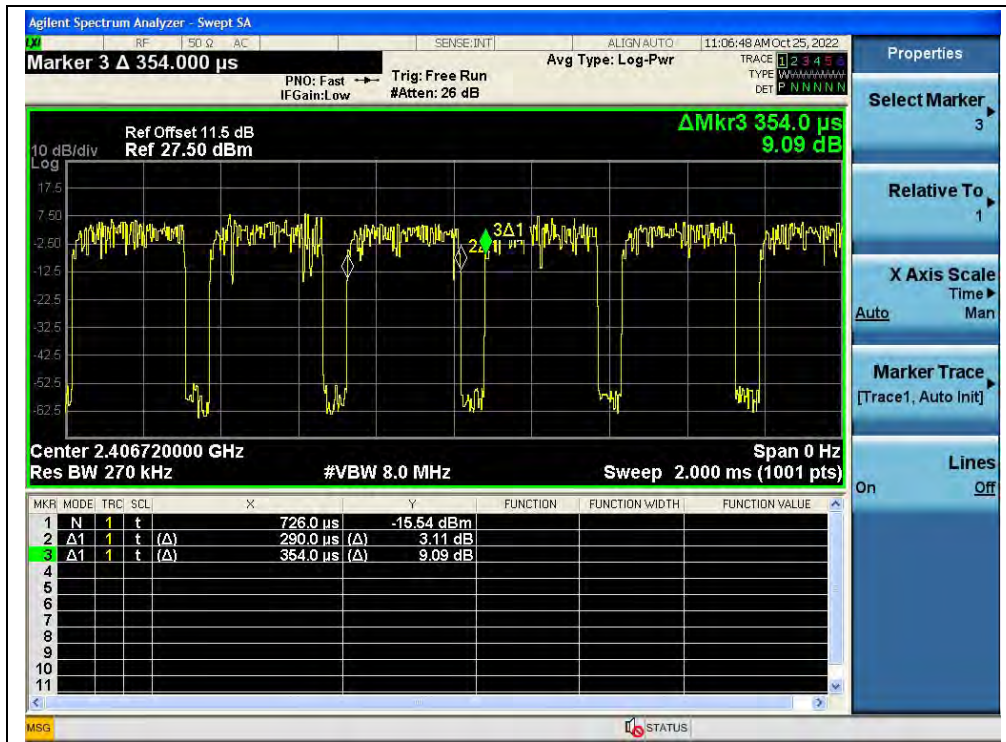
(Channel 3, 802.11ax (HEW40))



(Channel 1, 802.11ax (HEW20) RU26)



(Channel 1, 802.11ax (HEW20) RU52)



(Channel 1, 802.11ax (HEW20) RU106)

2.3. Maximum Conducted Output Power

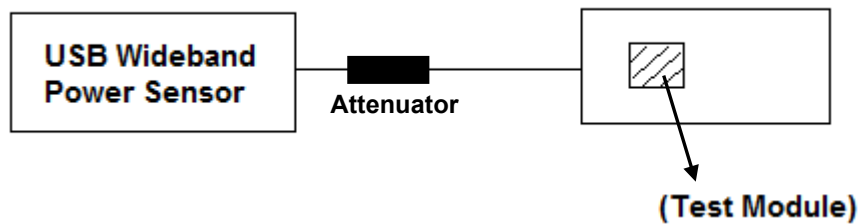
2.3.1. Requirement

According to FCC section 15.247(b)(3), For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: The maximum conducted output power of the intentional radiator shall not exceed 1 Watt.

2.3.2. Test Description

The measured output power was calculated by the reading of the USB Wideband Power Sensor and calibration.

Test Setup:



The EUT (Equipment under the test) which is coupled to the USB Wideband Power Sensor; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading.



2.3.3. Test Result

Maximum Peak Conducted Output Power

802.11b Mode

Channel	Frequency (MHz)	Measured Peak Power				Limit (dBm)		Verdict
		ANT 0		ANT 1		dBm	W	
		dBm	W	dBm	W			
1	2412	17.66	0.058	17.59	0.057	30	1	PASS
7	2442	17.74	0.059	17.69	0.059			PASS
13	2472	17.77	0.060	17.57	0.057			PASS

802.11g Mode

Channel	Frequency (MHz)	Measured Peak Power				Limit (dBm)		Verdict
		ANT 0		ANT 1		dBm	W	
		dBm	W	dBm	W			
1	2412	18.29	0.067	18.16	0.065	30	1	PASS
7	2442	18.86	0.077	18.79	0.076			PASS
13	2472	19.98	0.100	19.58	0.091			PASS

802.11n (HT20) Mode

Channel	Frequency (MHz)	Measured Peak Power (dBm)		Total Power (dBm)	Total Power (W)	Limit		Verdict
		ANT 0	ANT 1			dBm	W	
1	2412	18.52	18.32	21.43	0.139	28.26	0.67	PASS
7	2442	18.92	18.22	21.58	0.144			PASS
13	2472	20.35	19.86	23.12	0.205			PASS

Note: Directional gain = 4.73dBi + 10log(2) = 7.74dBi > 6dBi, so the power limit shall be reduced to 30-(7.74-6) = 28.26dBm

802.11n (HT40) Mode

Channel	Frequency (MHz)	Measured Peak Power (dBm)		Total Power (dBm)	Total Power (W)	Limit		Verdict
		ANT 0	ANT 1			dBm	W	
3	2422	15.68	15.72	18.69	0.074	28.26	0.67	PASS
7	2442	18.66	18.34	21.52	0.142			PASS
11	2462	17.09	17.65	20.37	0.109			PASS

Note: Directional gain = 4.73dBi + 10log(2) = 7.74dBi > 6dBi, so the power limit shall be reduced to 30-(7.74-6) = 28.26dBm

**802.11ax (HEW20) Mode**

Channel	Frequency (MHz)	Measured Peak Power (dBm)		Total Power (dBm)	Total Power (W)	Limit		Verdict
		ANT 0	ANT 1			dBm	W	
1	2412	18.46	18.41	21.43	0.139	28.26	0.67	PASS
7	2442	18.81	18.69	21.76	0.150			PASS
13	2472	20.62	20.12	23.38	0.218			PASS

Note: Directional gain = $4.73\text{dBi} + 10\log(2) = 7.74\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $30 - (7.74 - 6) = 28.26\text{dBm}$

802.11ax (HEW20) RU26 Mode

Channel	Frequency (MHz)	Measured Peak Power (dBm)		Total Power (dBm)	Total Power (W)	Limit		Verdict
		ANT 0	ANT 1			dBm	W	
1	2412	19.41	19.31	22.38	0.173	28.26	0.67	PASS
7	2442	19.34	19.55	22.46	0.176			PASS
13	2472	14.18	14.43	17.32	0.054			PASS

Note: Directional gain = $4.73\text{dBi} + 10\log(2) = 7.74\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $30 - (7.74 - 6) = 28.26\text{dBm}$

802.11ax (HEW20) RU52 Mode

Channel	Frequency (MHz)	Measured Peak Power (dBm)		Total Power (dBm)	Total Power (W)	Limit		Verdict
		ANT 0	ANT 1			dBm	W	
1	2412	15.49	15.78	18.63	0.073	28.26	0.67	PASS
7	2442	15.73	15.45	18.57	0.072			PASS
13	2472	14.31	14.33	17.32	0.054			PASS

Note: Directional gain = $4.73\text{dBi} + 10\log(2) = 7.74\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $30 - (7.74 - 6) = 28.26\text{dBm}$

**802.11ax (HEW20) RU106 Mode**

Channel	Frequency (MHz)	Measured Peak Power (dBm)		Total Power (dBm)	Total Power (W)	Limit		Verdict
		ANT 0	ANT 1			dBm	W	
1	2412	18.37	18.54	21.46	0.140	28.26	0.67	PASS
7	2442	18.57	18.34	21.46	0.140			PASS
13	2472	14.32	14.76	17.56	0.057			PASS

Note: Directional gain = $4.73\text{dBi} + 10\log(2) = 7.74\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $30 - (7.74 - 6) = 28.26\text{dBm}$

802.11ax (HEW40) Mode

Channel	Frequency (MHz)	Measured Peak Power (dBm)		Total Power (dBm)	Total Power (W)	Limit		Verdict
		ANT 0	ANT 1			dBm	W	
3	2422	15.31	15.43	18.39	0.069	28.26	0.67	PASS
7	2442	18.42	18.31	21.37	0.137			PASS
11	2462	17.33	17.69	20.53	0.113			PASS

Note: Directional gain = $4.73\text{dBi} + 10\log(2) = 7.74\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $30 - (7.74 - 6) = 28.26\text{dBm}$



Maximum Average Conducted Output Power

802.11b Mode

Frequency (MHz)	Average Power						Limit		Verdict	
	Measured		Duty Factor	Duty factor Calculated						
	ANT 0	ANT 1		ANT 0		ANT 1				
	dBm	dBm		dBm	W	dBm	W	dBm		W
2412	15.69	15.67	0.03	15.72	0.037	15.70	0.037	30	1	PASS
2442	15.94	15.83		15.97	0.040	15.86	0.039			PASS
2472	15.80	15.61		15.83	0.038	15.64	0.037			PASS

802.11g Mode

Frequency (MHz)	Average Power						Limit		Verdict	
	Measured		Duty Factor	Duty factor Calculated						
	ANT 0	ANT 1		ANT 0		ANT 1				
	dBm	dBm		dBm	W	dBm	W	dBm		W
2412	14.00	13.95	1.18	15.18	0.033	15.13	0.033	30	1	PASS
2442	14.36	14.35		15.54	0.036	15.53	0.036			PASS
2472	10.16	9.38		11.34	0.014	10.56	0.011			PASS

802.11n (HT20) Mode

Frequency (MHz)	Average Power				Limit		Verdict	
	Measured		Duty Factor	Total Power with Duty				
	ANT 0	ANT 1		Factor				
	dBm	dBm		dBm	W	dBm		W
2412	14.00	13.99	1.03	18.06	0.064	28.26	0.67	PASS
2442	14.35	14.30		18.39	0.069			PASS
2472	10.10	9.65		13.98	0.025			PASS

Note: Directional gain = 4.73dBi +10log(2) =7.74dBi > 6dBi, so the power limit shall be reduced to 30-(7.74-6) = 28.26dBm



802.11n (HT40) Mode

Frequency (MHz)	Average Power					Limit		Verdict
	Measured		Duty Factor	Total Power with Duty Factor				
	ANT 0	ANT 1		dBm	W			
	dBm	dBm						
2422	11.00	11.07	0.99	15.05	0.032	28.26	0.67	PASS
2442	14.01	14.08		18.06	0.064			PASS
2462	8.82	8.41		12.55	0.018			PASS

Note: Directional gain = 4.73dBi +10log(2) =7.74dBi > 6dBi, so the power limit shall be reduced to 30-(7.74-6) = 28.26dBm

802.11ax (HEW20) Mode

Frequency (MHz)	Average Power					Limit		Verdict
	Measured		Duty Factor	Total Power with Duty Factor				
	ANT 0	ANT 1		dBm	W			
	dBm	dBm						
2412	13.90	14.11	0.71	17.71	0.059	28.26	0.67	PASS
2442	14.35	14.38		18.06	0.064			PASS
2472	10.01	9.76		13.62	0.023			PASS

Note: Directional gain = 4.73dBi +10log(2) =7.74dBi > 6dBi, so the power limit shall be reduced to 30-(7.74-6) = 28.26dBm

802.11ax (HEW20) RU26 Mode

Frequency (MHz)	Average Power					Limit		Verdict
	Measured		Duty Factor	Total Power with Duty Factor				
	ANT 0	ANT 1		dBm	W			
	dBm	dBm						
2412	8.52	8.94	0.51	12.30	0.017	28.26	0.67	PASS
2442	8.80	8.84		12.30	0.017			PASS
2472	3.15	3.03		6.99	0.005			PASS

Note: Directional gain = 4.73dBi +10log(2) =7.74dBi > 6dBi, so the power limit shall be reduced to 30-(7.74-6) = 28.26dBm



802.11ax (HEW20) RU52 Mode

Frequency (MHz)	Average Power					Limit		Verdict
	Measured		Duty Factor	Total Power with Duty Factor				
	ANT 0	ANT 1		dBm	W			
	dBm	dBm						
2412	10.95	10.86	0.88	14.77	0.030	28.26	0.67	PASS
2442	11.06	10.94		14.91	0.031			PASS
2472	2.70	2.71		6.99	0.005			PASS

Note: Directional gain = 4.73dBi +10log(2) =7.74dBi > 6dBi, so the power limit shall be reduced to 30-(7.74-6) = 28.26dBm

802.11ax (HEW20) RU106 Mode

Frequency (MHz)	Average Power					Limit		Verdict
	Measured		Duty Factor	Total Power with Duty Factor				
	ANT 0	ANT 1		dBm	W			
	dBm	dBm						
2412	13.95	14.01	0.87	17.85	0.061	28.26	0.67	PASS
2442	14.18	14.22		18.06	0.064			PASS
2472	2.74	2.63		6.99	0.005			PASS

Note: Directional gain = 4.73dBi +10log(2) =7.74dBi > 6dBi, so the power limit shall be reduced to 30-(7.74-6) = 28.26dBm

802.11ax (HEW40) Mode

Frequency (MHz)	Average Power					Limit		Verdict
	Measured		Duty Factor	Total Power with Duty Factor				
	ANT 0	ANT 1		dBm	W			
	dBm	dBm						
2422	11.30	10.65	1.05	15.05	0.032	28.26	0.67	PASS
2442	14.35	13.74		18.13	0.065			PASS
2462	9.24	8.19		12.79	0.019			PASS

Note: Directional gain = 4.73dBi +10log(2) =7.74dBi > 6dBi, so the power limit shall be reduced to 30-(7.74-6) = 28.26dBm

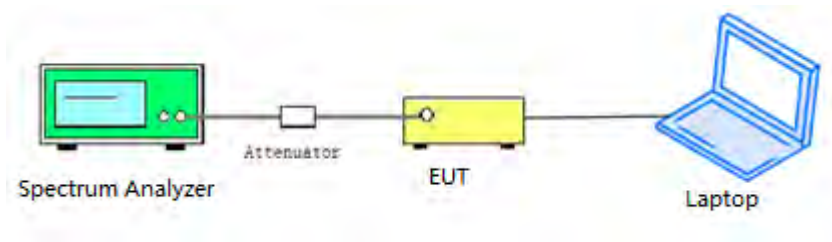
2.4. Bandwidth

2.4.1. Requirement

According to FCC section 15.247(a) (2), 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.

2.4.2. Test Description

Test Setup:



The EUT is coupled to the Spectrum Analyzer; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading.

Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. In order to make an accurate measurement, set the span greater than RBW.

2.4.3. Test Procedure

KDB 558074 Section 8.2 was used in order to prove compliance.



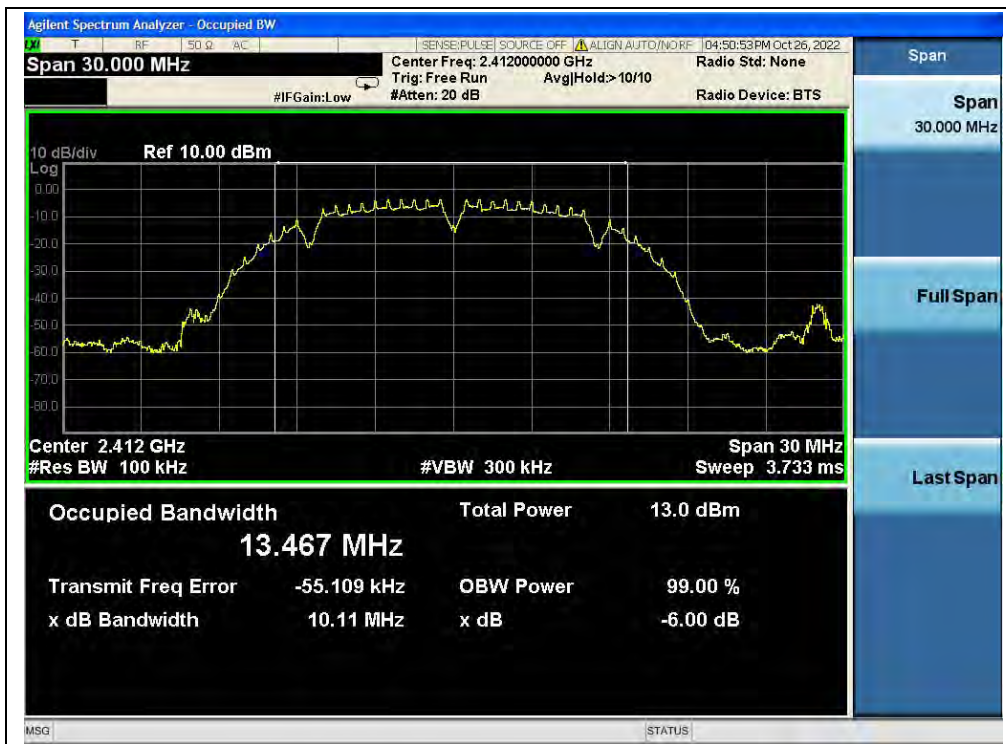
2.4.4. Test Result

802.11b Mode

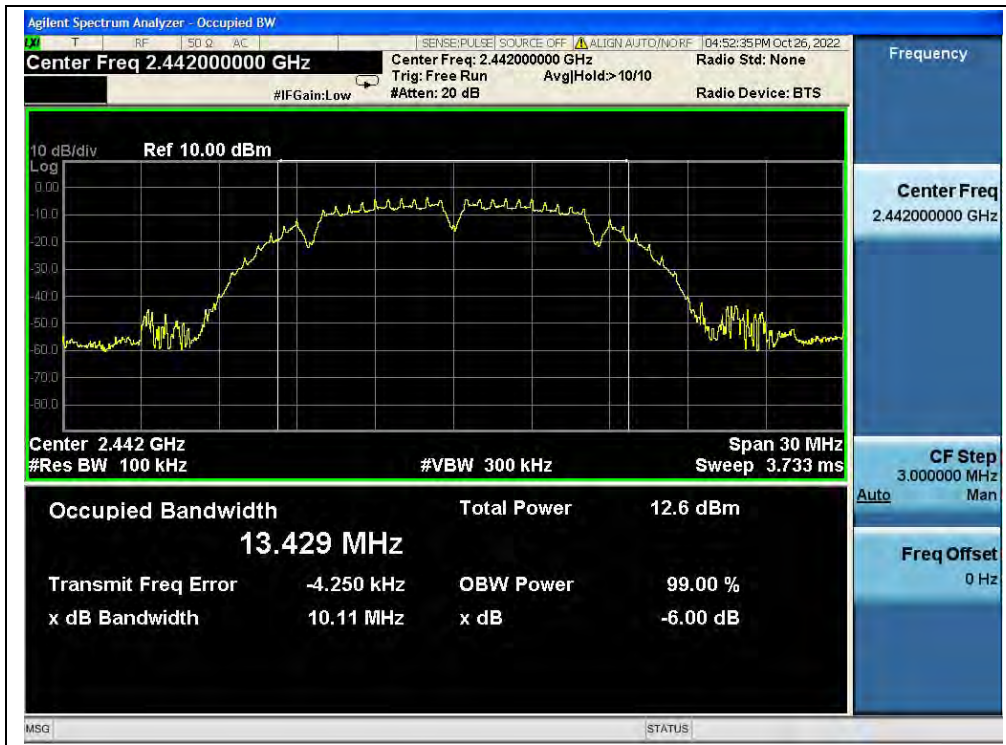
A. Test Verdict:

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limits(kHz)	Result
1	2412	10.11	≥500	PASS
7	2442	10.11	≥500	PASS
13	2472	10.11	≥500	PASS

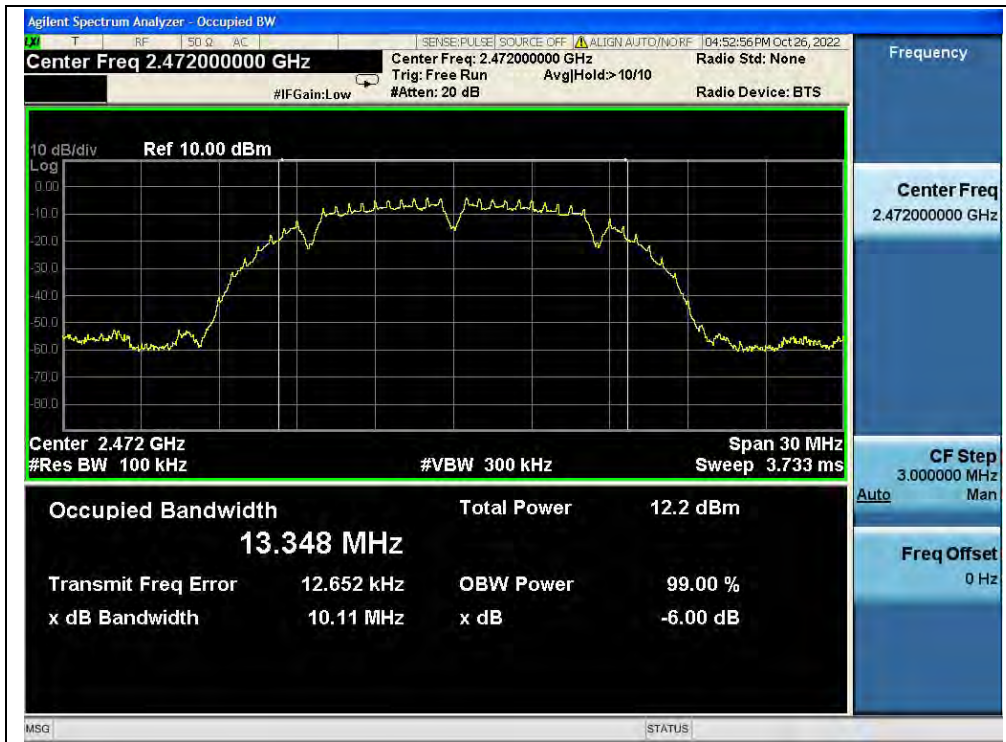
B. Test Plot:



(Channel 1, 802.11b)



(Channel 7, 802.11b)



(Channel 13, 802.11b)



802.11g Mode

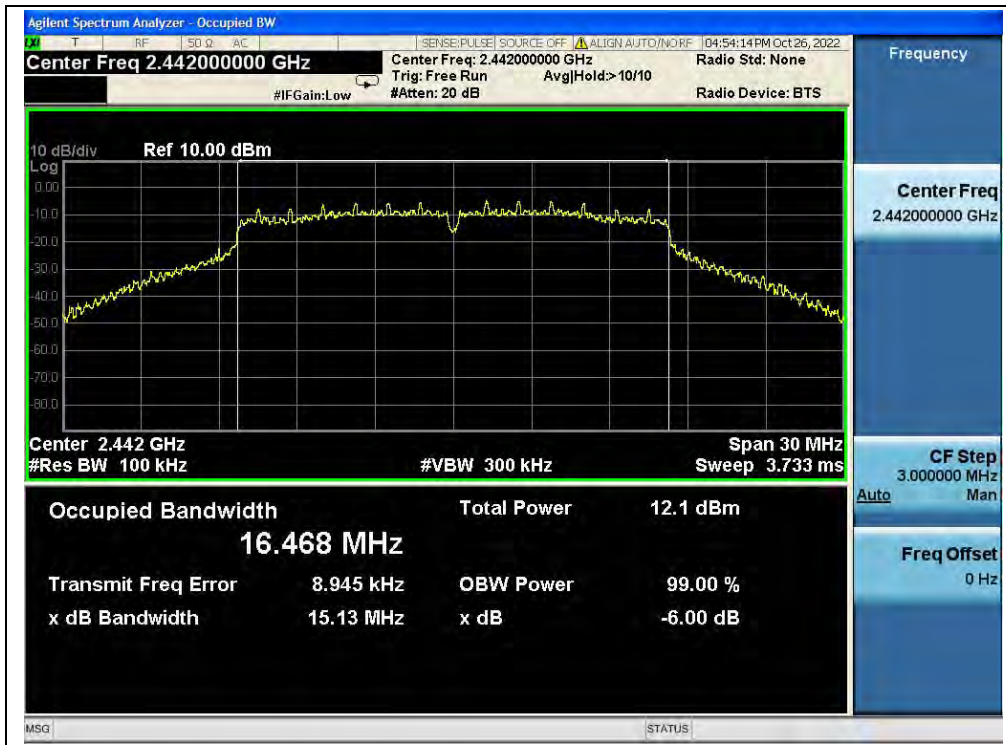
A. Test Verdict:

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limits(kHz)	Result
1	2412	15.12	≥500	PASS
7	2442	15.13	≥500	PASS
13	2472	16.36	≥500	PASS

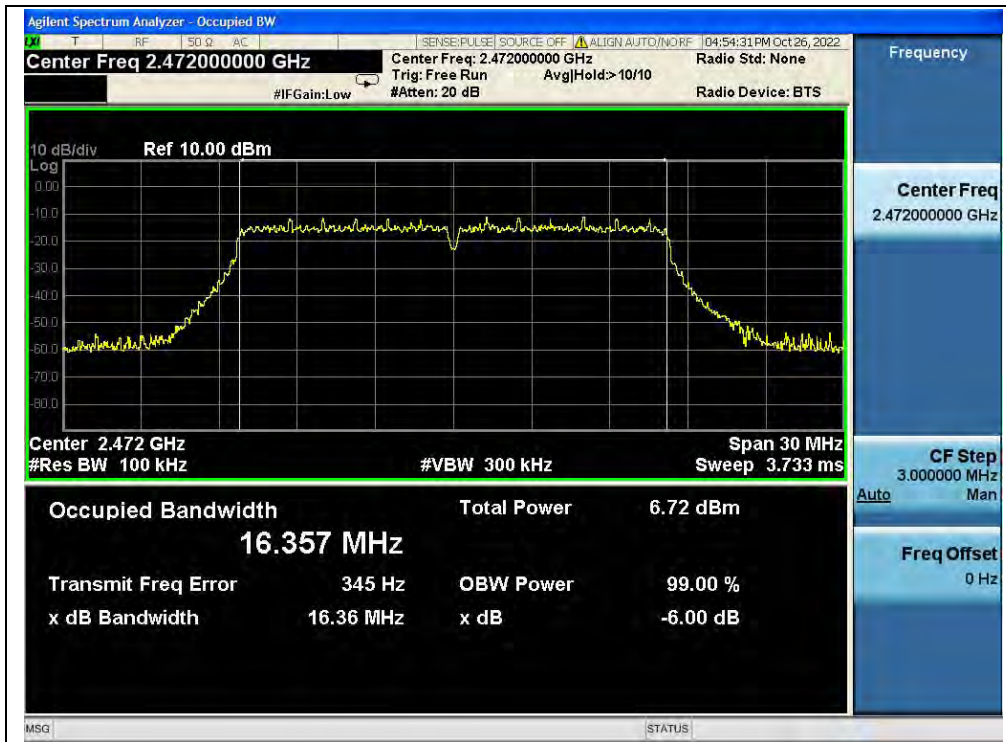
B. Test Plot:



(Channel 1, 802.11g)



(Channel 7, 802.11g)



(Channel 13, 802.11g)

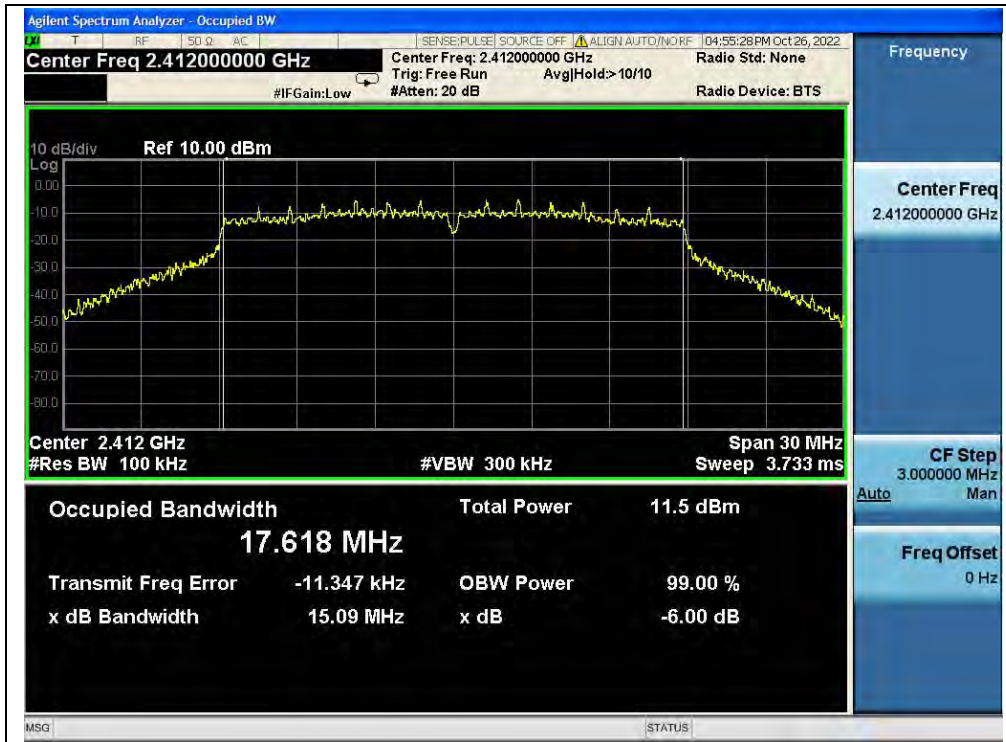


802.11n (HT20) Mode

A.Test Verdict:

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limits(kHz)	Result
1	2412	15.09	≥500	PASS
7	2442	15.13	≥500	PASS
13	2472	17.59	≥500	PASS

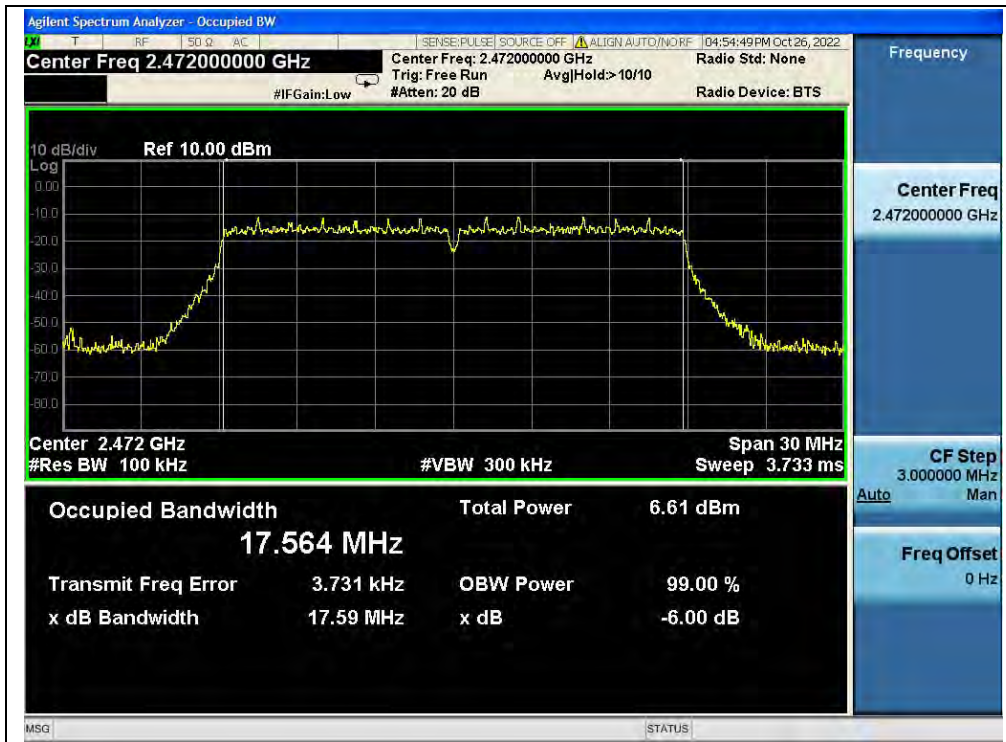
B.Test Plot:



(Channel 1, 802.11n (HT20))



(Channel 7, 802.11n (HT20))



(Channel 13, 802.11n (HT20))

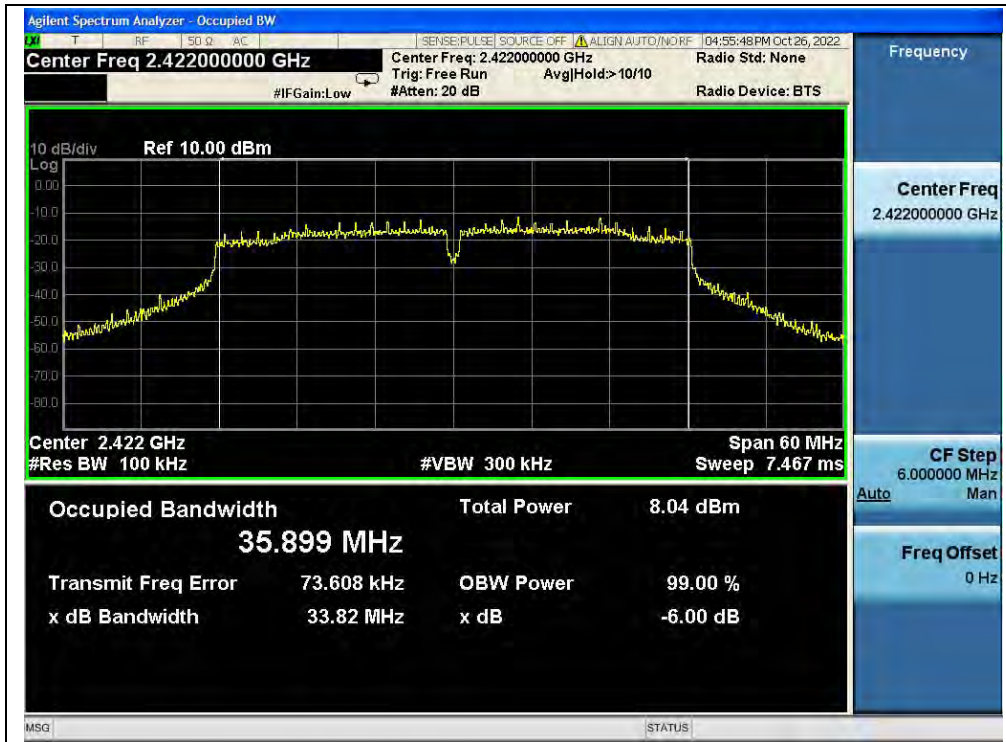


802.11n (HT40) Mode

A. Test Verdict:

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limits(kHz)	Result
3	2422	33.82	≥500	PASS
7	2442	33.82	≥500	PASS
11	2462	36.10	≥500	PASS

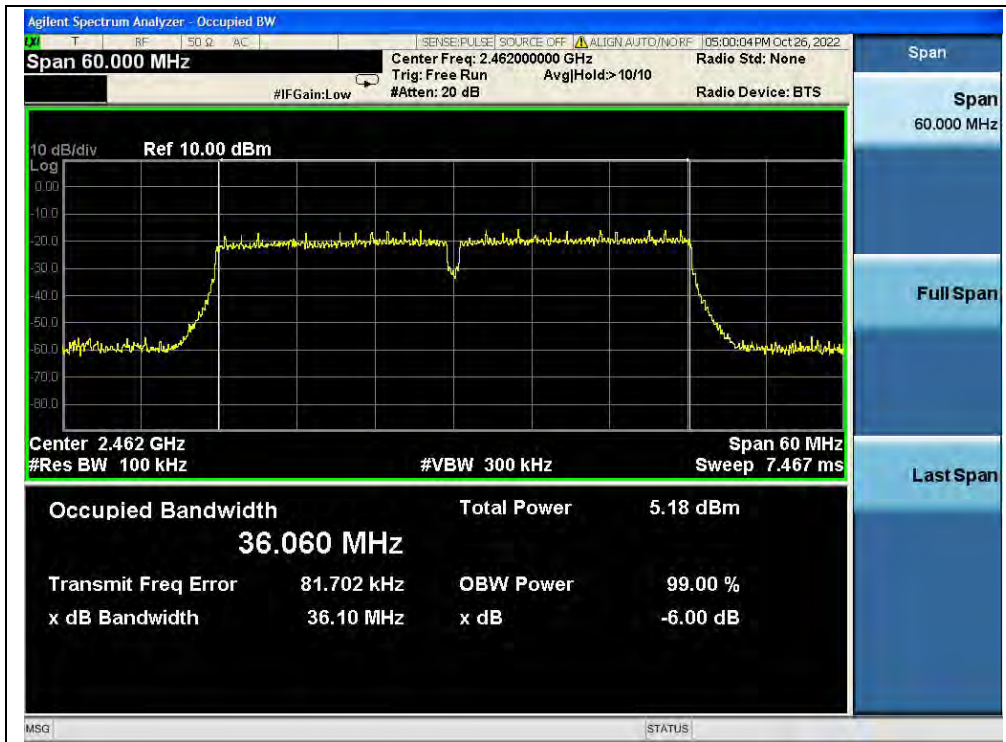
B. Test Plot:



(Channel 3, 802.11n (HT40))



(Channel 7, 802.11n (HT40))



(Channel 11, 802.11n (HT40))

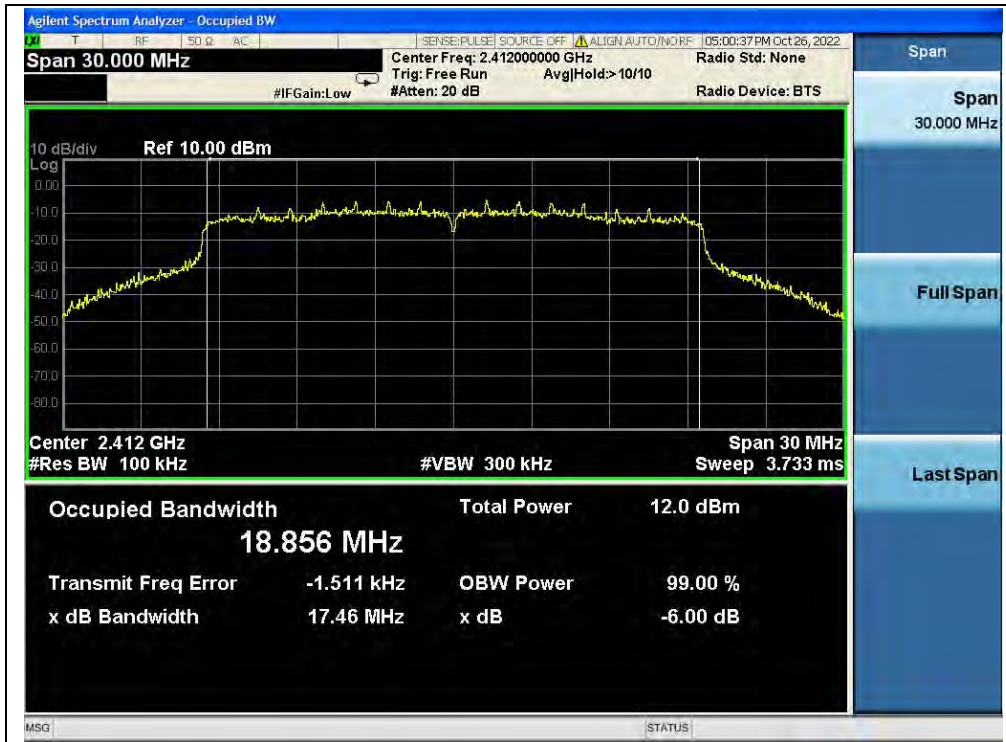


802.11ax (HEW20) Mode

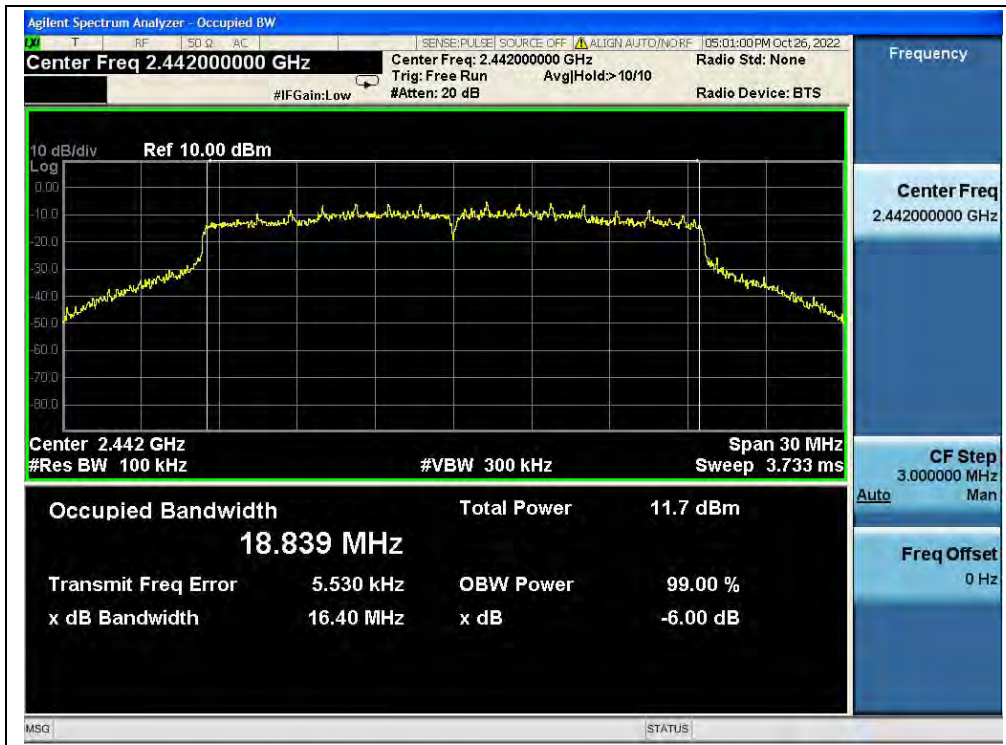
A. Test Verdict:

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limits(kHz)	Result
1	2412	17.46	≥500	PASS
7	2442	16.40	≥500	PASS
13	2472	18.55	≥500	PASS

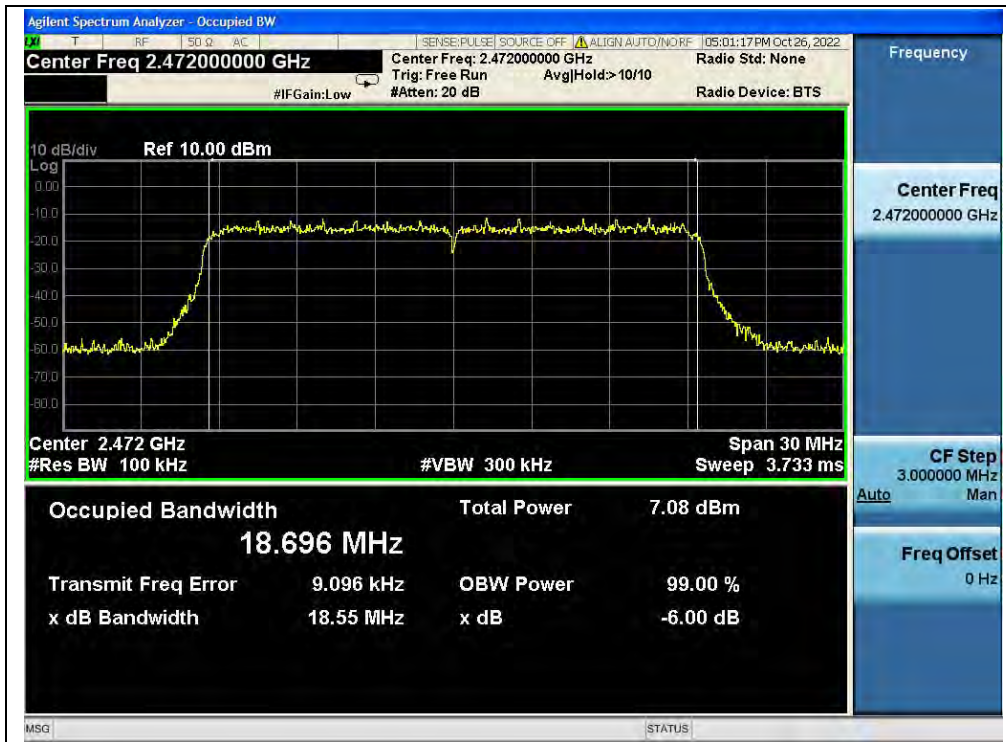
B. Test Plot:



(Channel 3, 802.11ax (HEW20))



(Channel 7, 802.11ax (HEW20))



(Channel 11, 802.11ax (HEW20))



802.11ax (HEW20) RU26 Mode

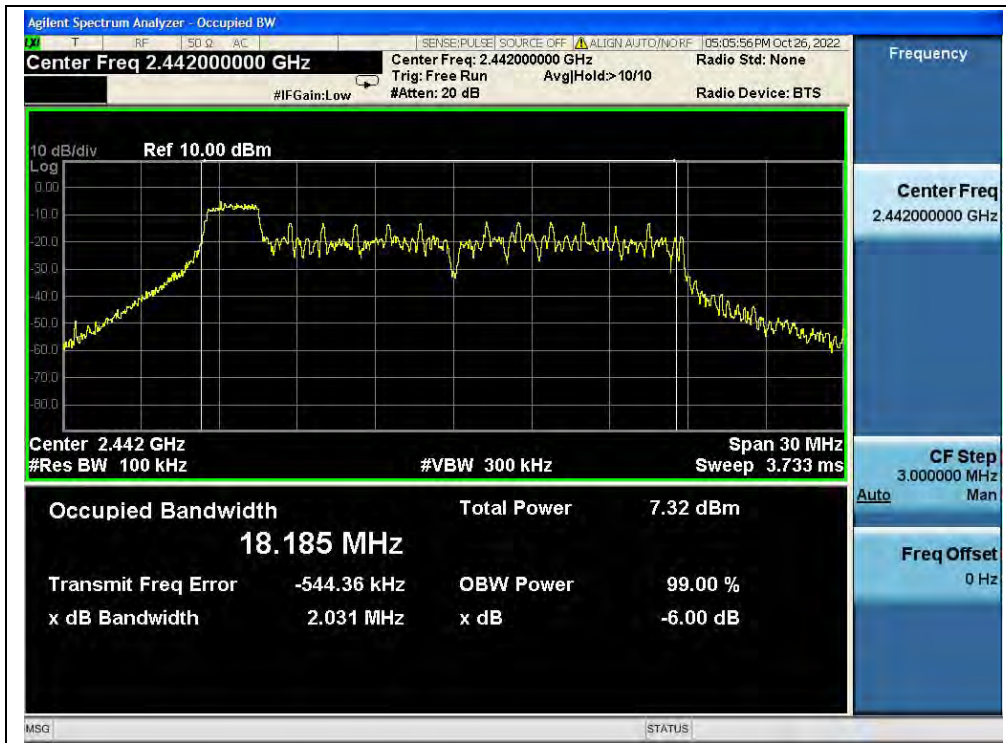
A.Test Verdict:

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limits(kHz)	Result
1	2412	2.051	≥500	PASS
7	2442	2.031	≥500	PASS
13	2472	1.974	≥500	PASS

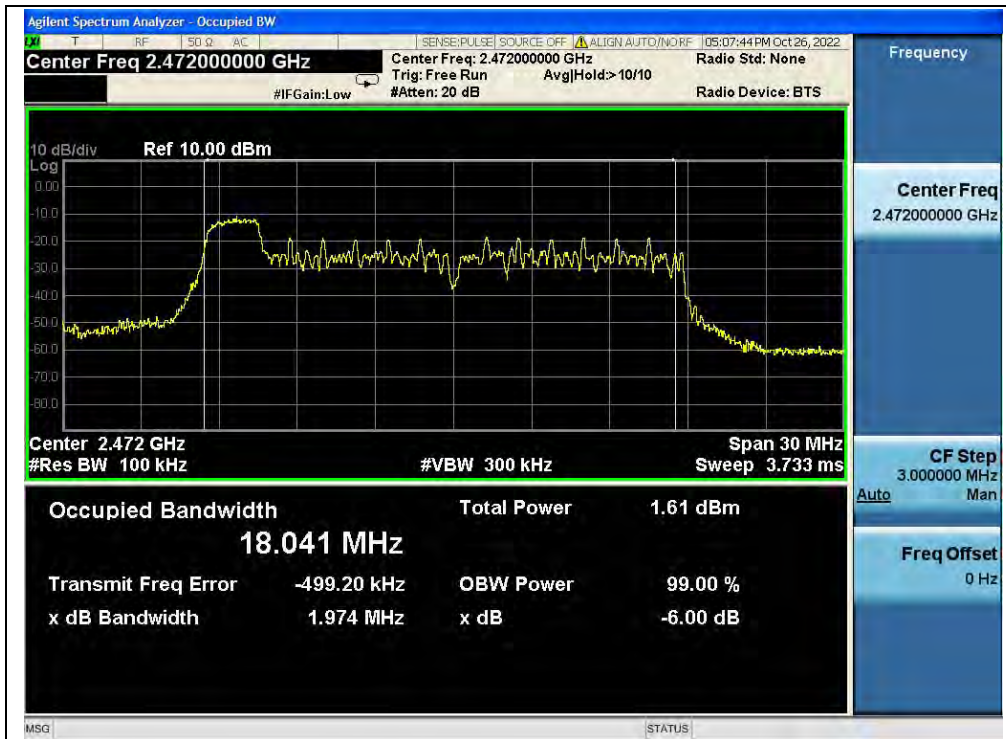
B.Test Plot:



(Channel 1, 802.11ax (HEW20) RU26)



(Channel 7, 802.11ax (HEW20) RU26)



(Channel 13, 802.11ax (HEW20) RU26)

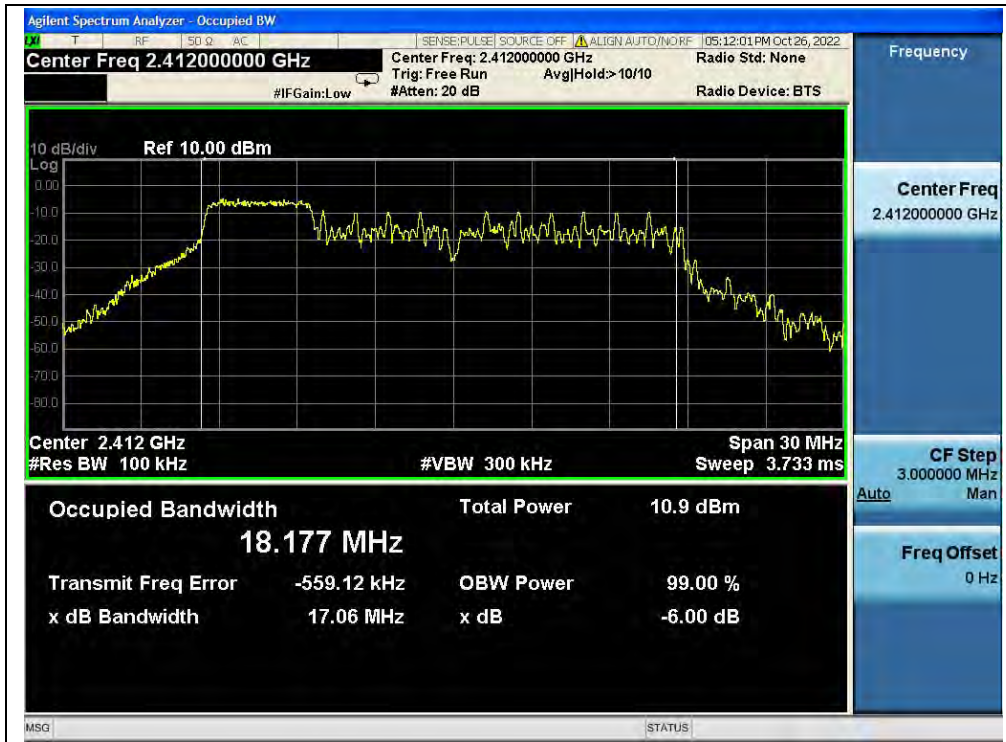


802.11ax (HEW20)(RU52) Mode

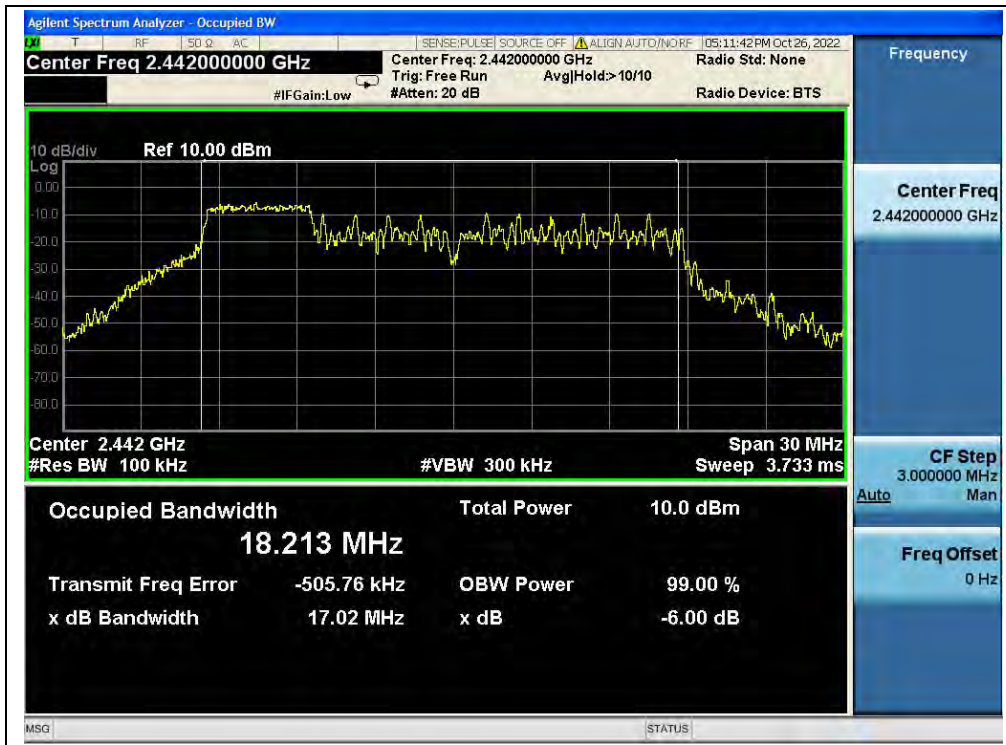
A.Test Verdict:

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limits(kHz)	Result
1	2412	17.06	≥500	PASS
7	2442	17.02	≥500	PASS
13	2472	16.98	≥500	PASS

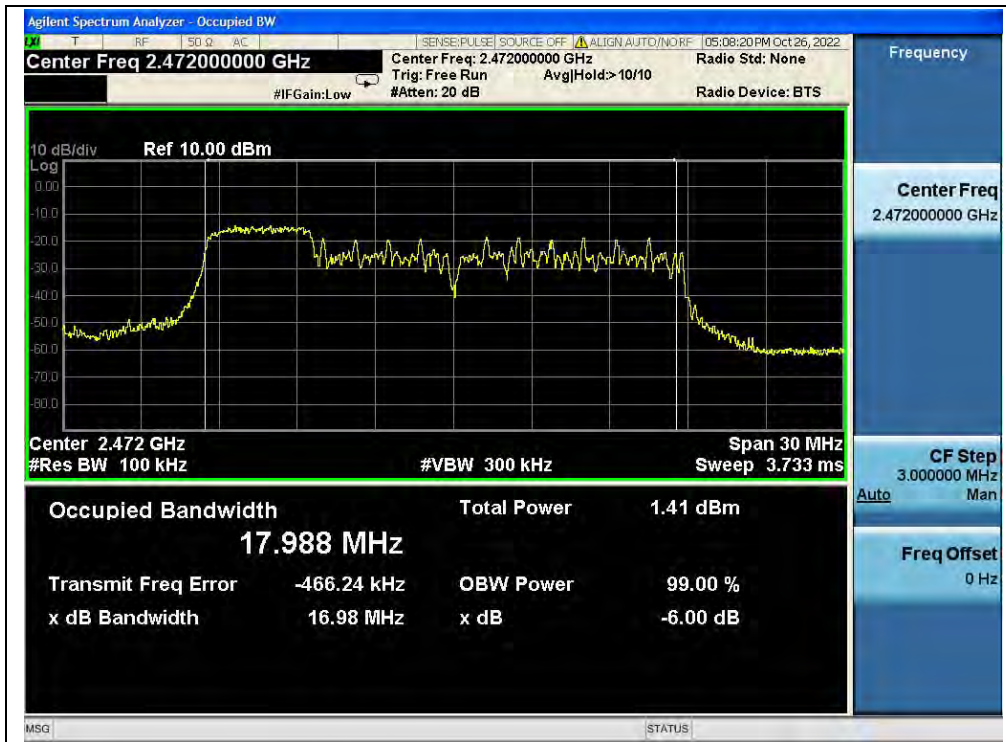
B.Test Plot:



(Channel 1, 802.11ax (HEW20) RU52)



(Channel 7, 802.11ax (HEW20) RU52)



(Channel 13, 802.11ax (HEW20) RU52)

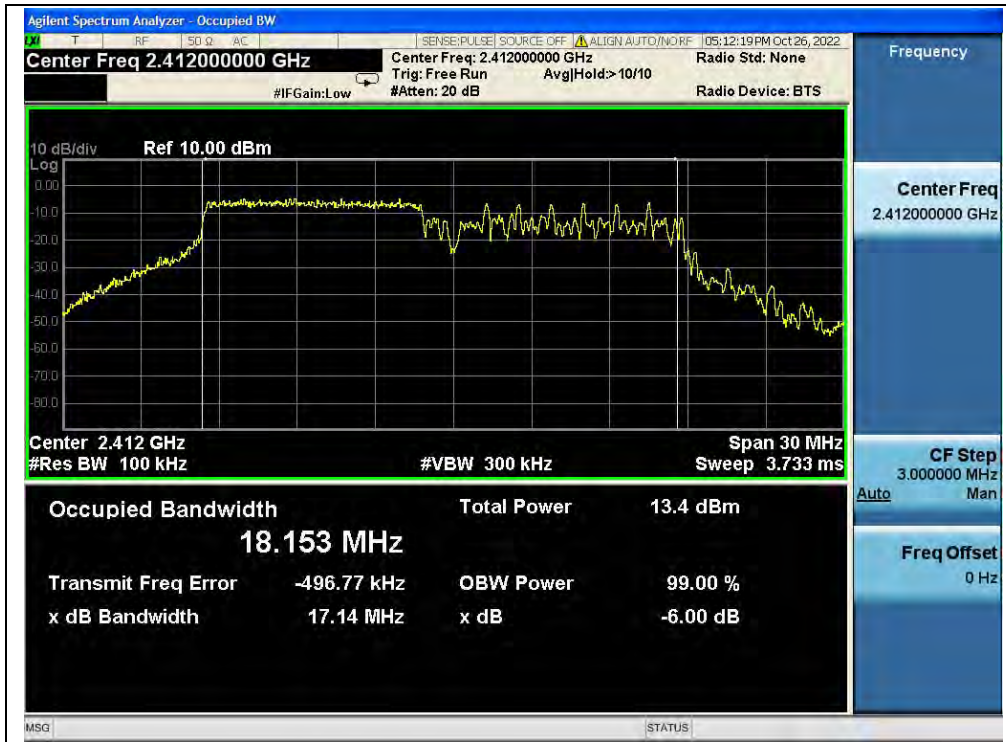


802.11ax (HEW20) RU106 Mode

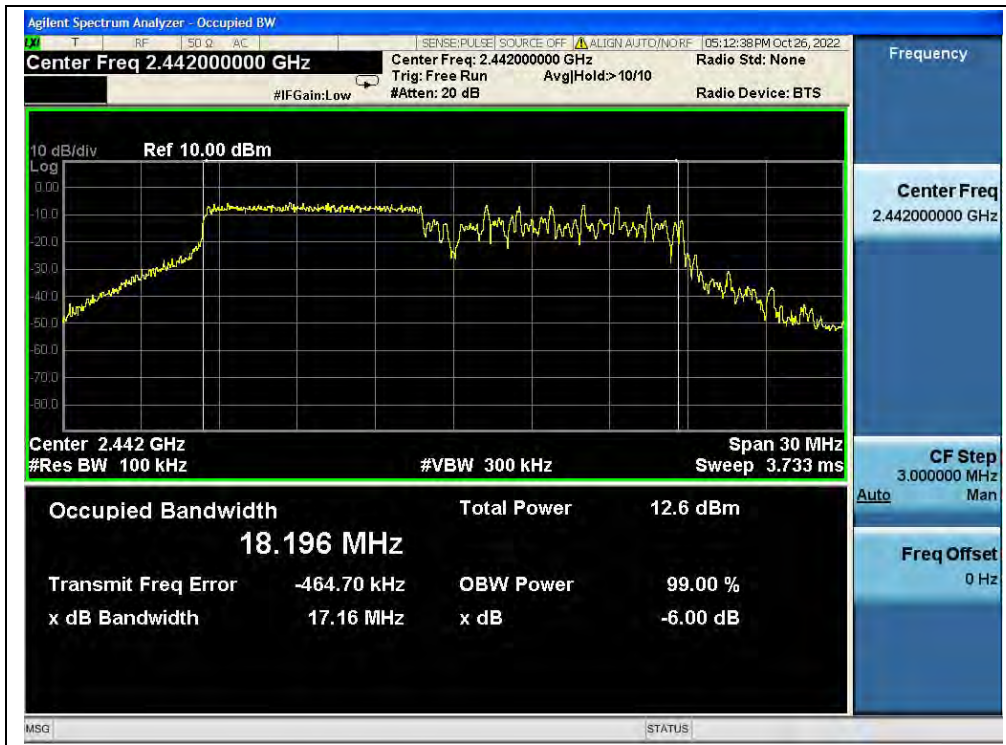
A.Test Verdict:

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limits(kHz)	Result
1	2412	17.14	≥500	PASS
7	2442	17.16	≥500	PASS
13	2472	17.06	≥500	PASS

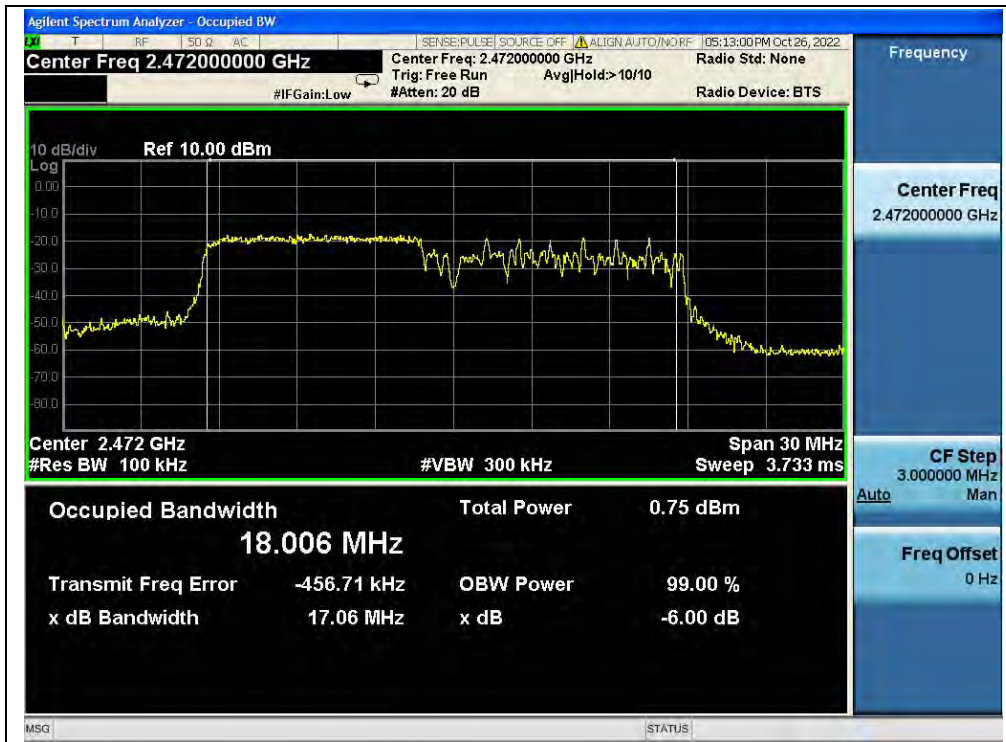
B.Test Plot:



(Channel 1, 802.11ax (HEW20) RU106)



(Channel 7, 802.11ax (HEW20) RU106)



(Channel 13, 802.11ax (HEW20) RU106)

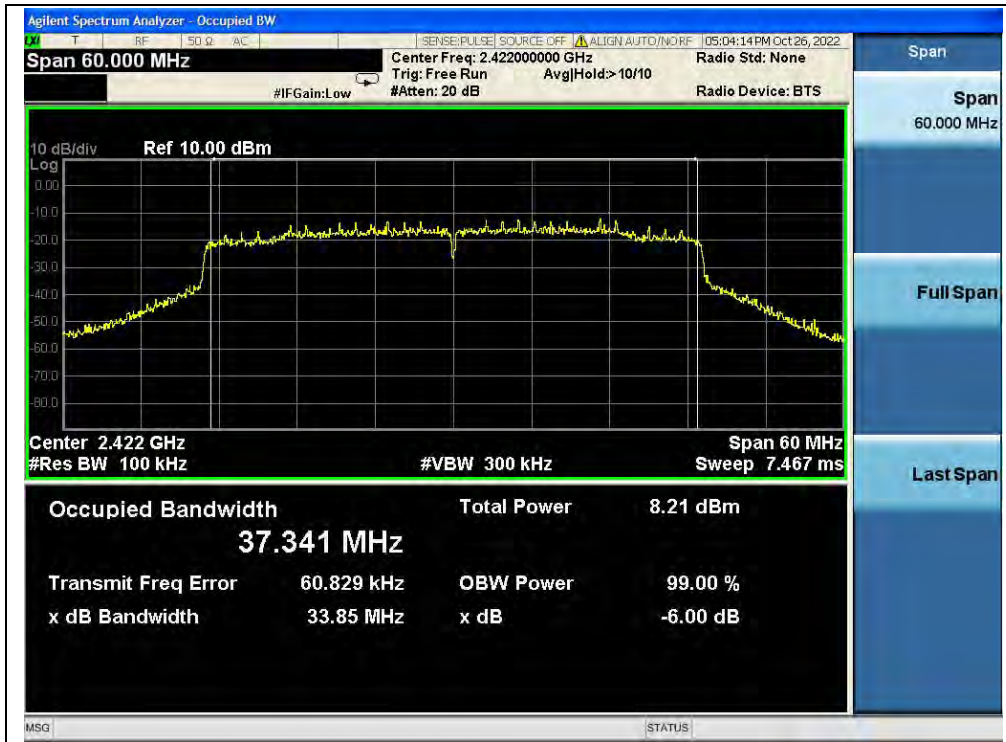


802.11ax (HEW40) Mode

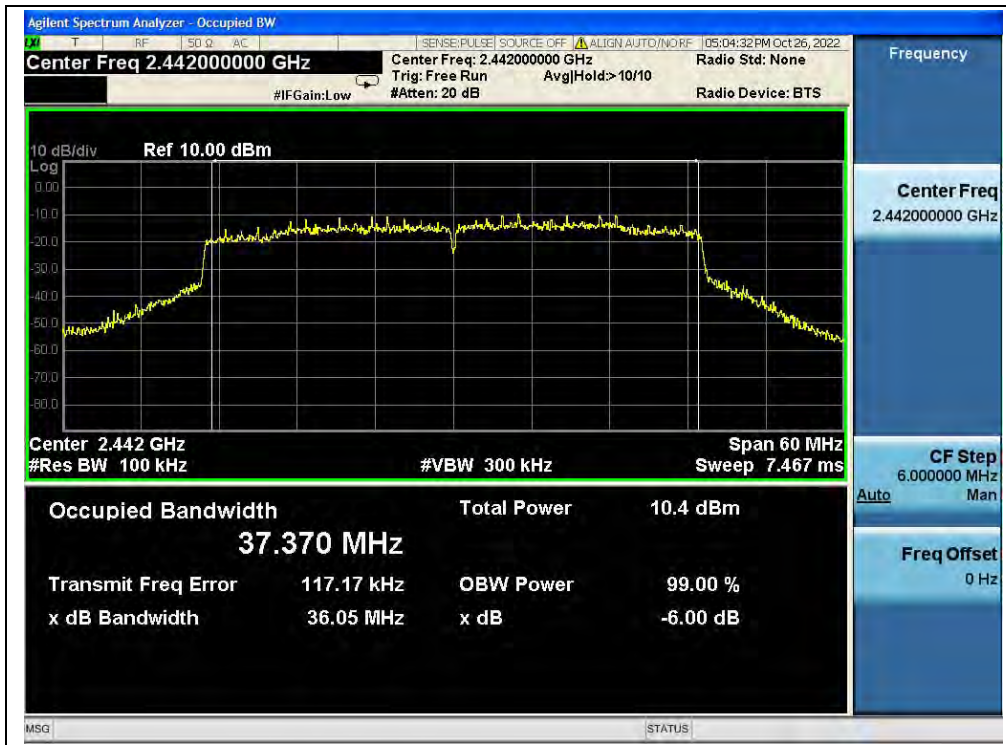
A.Test Verdict:

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limits(kHz)	Result
3	2422	33.85	≥500	PASS
7	2442	36.05	≥500	PASS
11	2462	37.08	≥500	PASS

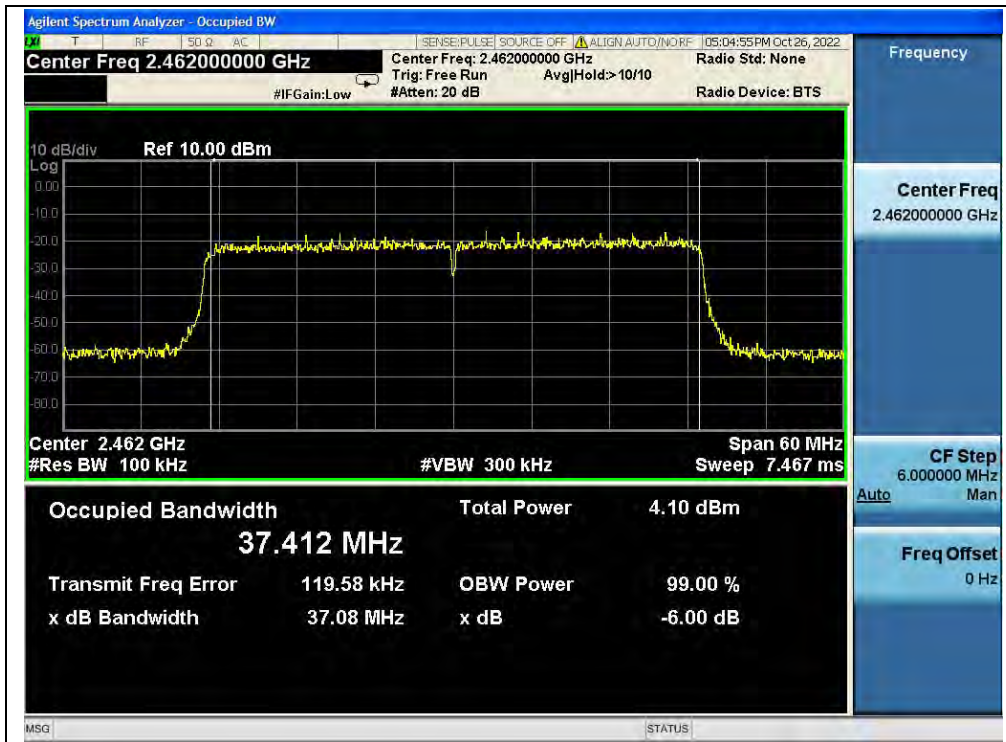
B.Test Plot:



(Channel 3, 802.11ax (HEW40))



(Channel 7, 802.11ax (HEW40))



(Channel 11, 802.11ax (HEW40))

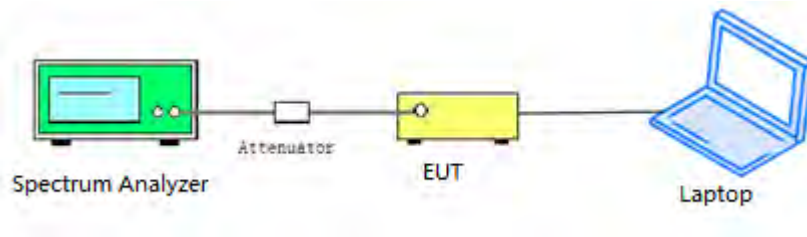
2.5. Conducted Spurious Emissions and Band Edge

2.5.1. Requirement

According to FCC section 15.247(c), in any 100kHz 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 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.

2.5.2. Test Description

Test Setup:



The EUT is coupled to the Spectrum Analyzer; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading.

Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. In order to make an accurate measurement, set the span greater than RBW.

2.5.3. Test Procedure

KDB 558074 Section 8.5 and 8.7 was used in order to prove compliance.



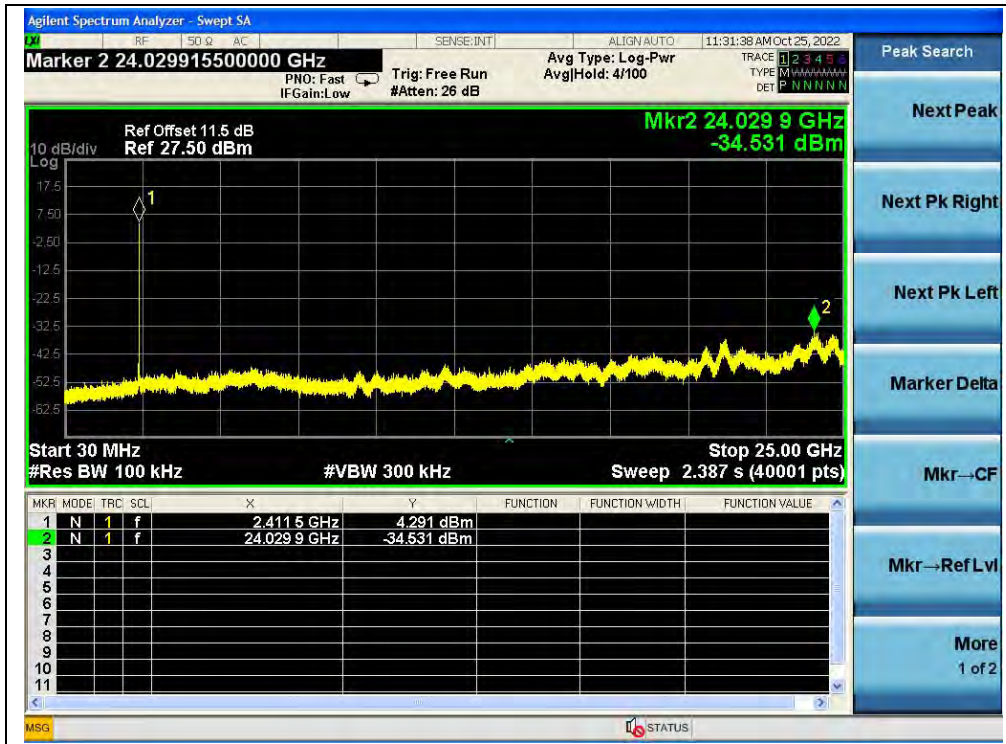
2.5.4. Test Result

802.11b Mode

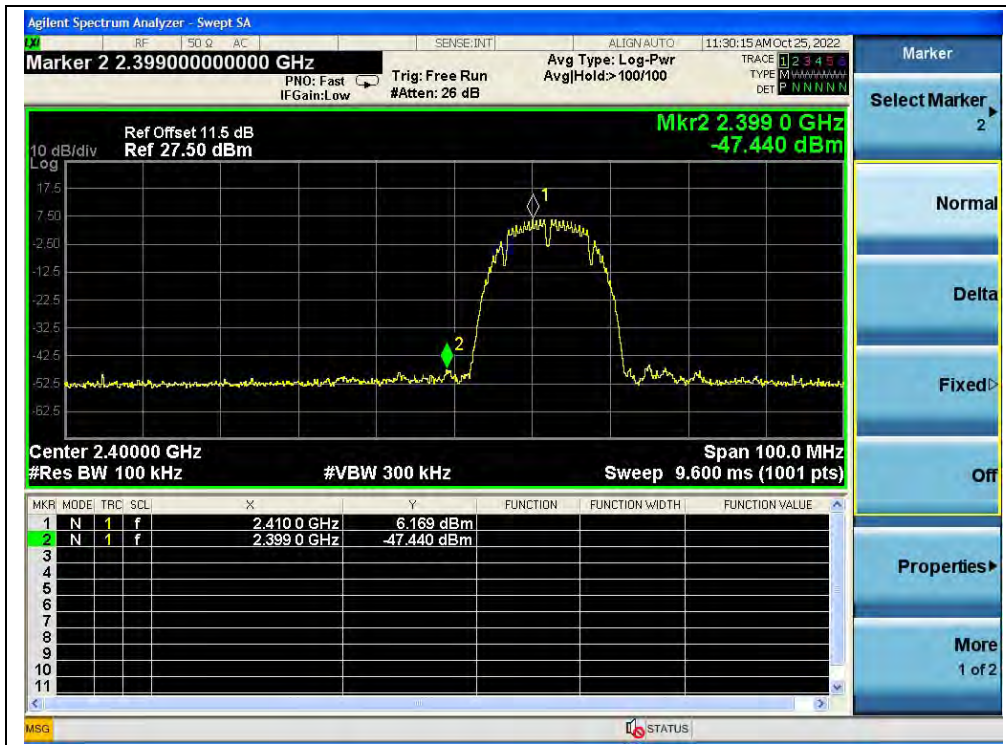
A. Test Verdict:

Channel	Frequency (MHz)	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
			Carrier Level	Calculated -20dBc Limit	
1	2412	-34.53	4.29	-15.71	PASS
7	2442	-34.31	6.07	-13.93	PASS
13	2472	34.58	4.36	-15.64	PASS

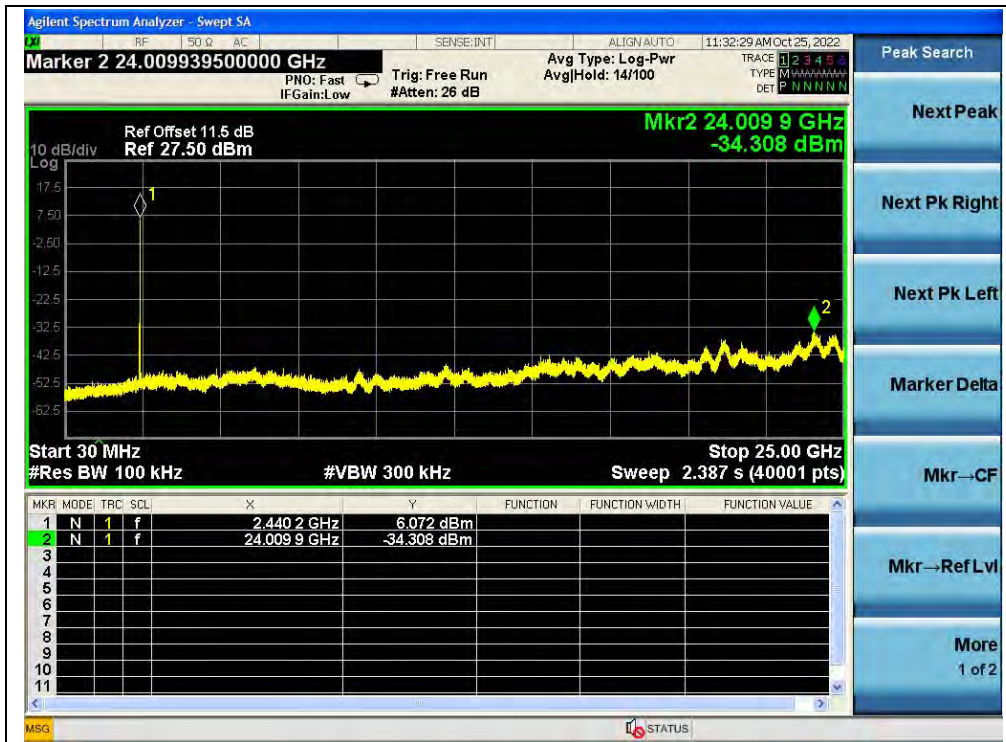
B. Test Plot:



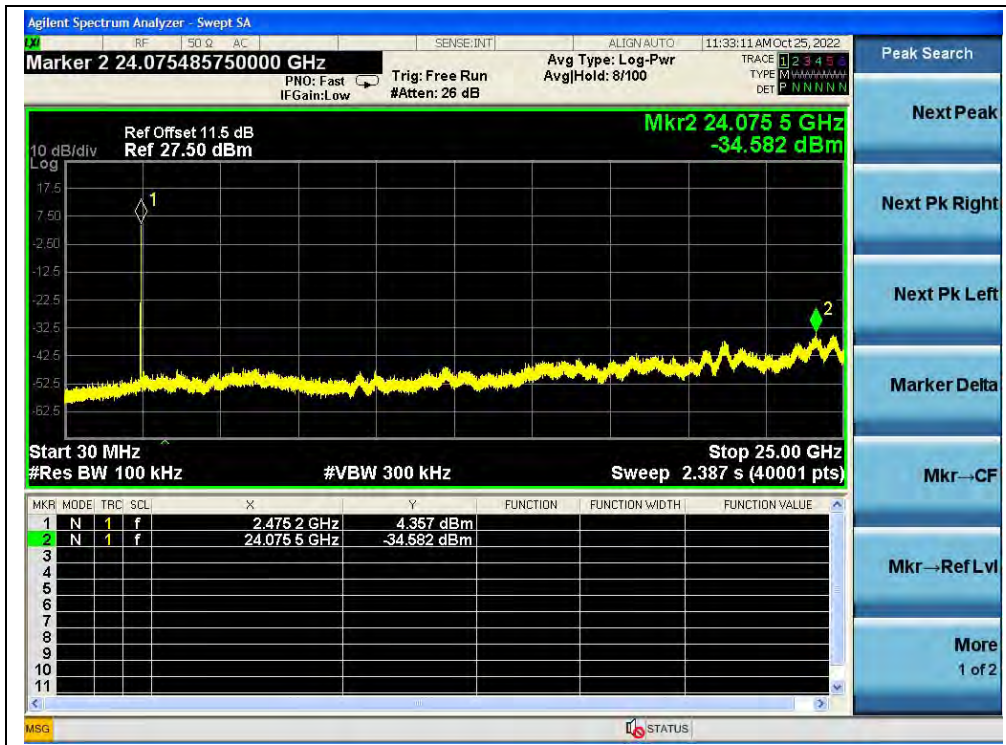
(30MHz to 25GHz, Channel 1, 802.11b)



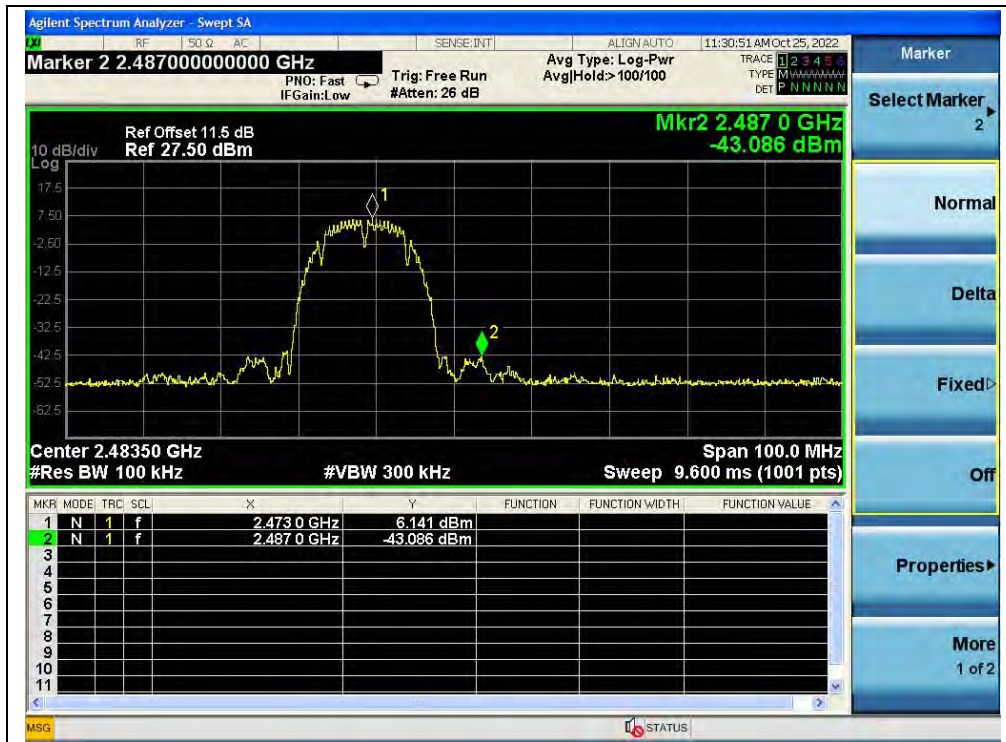
(Band Edge, Channel 1, 802.11b)



(30MHz to 25GHz, Channel 7, 802.11b)



(30MHz to 25GHz, Channel 13, 802.11b)



(Band Edge, Channel 13, 802.11b)

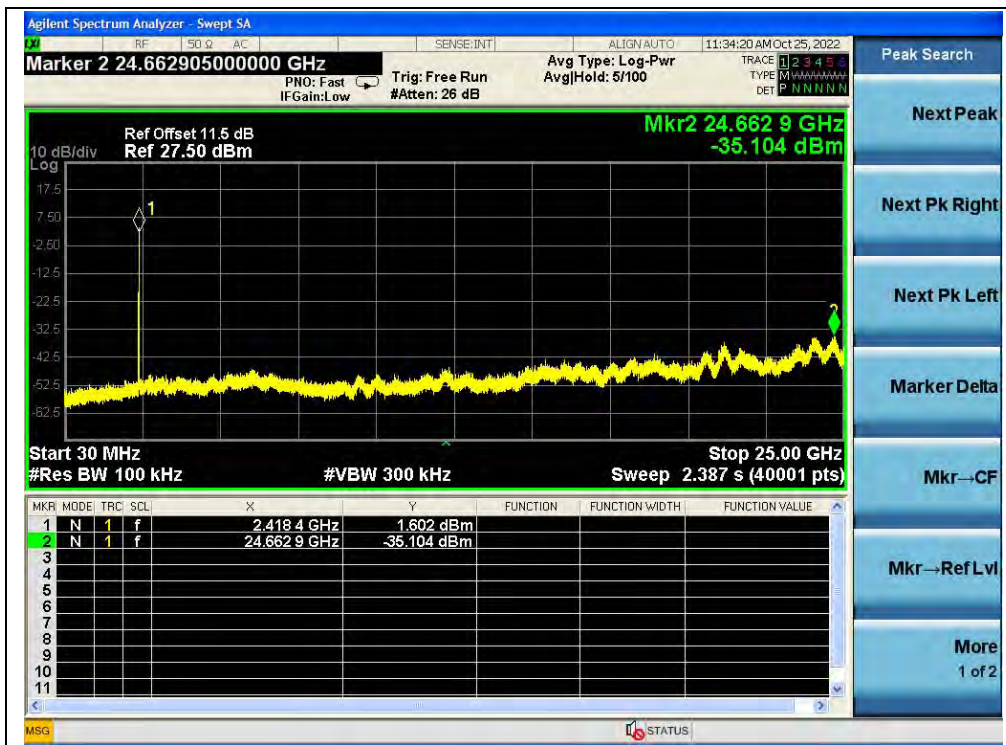


802.11g Mode

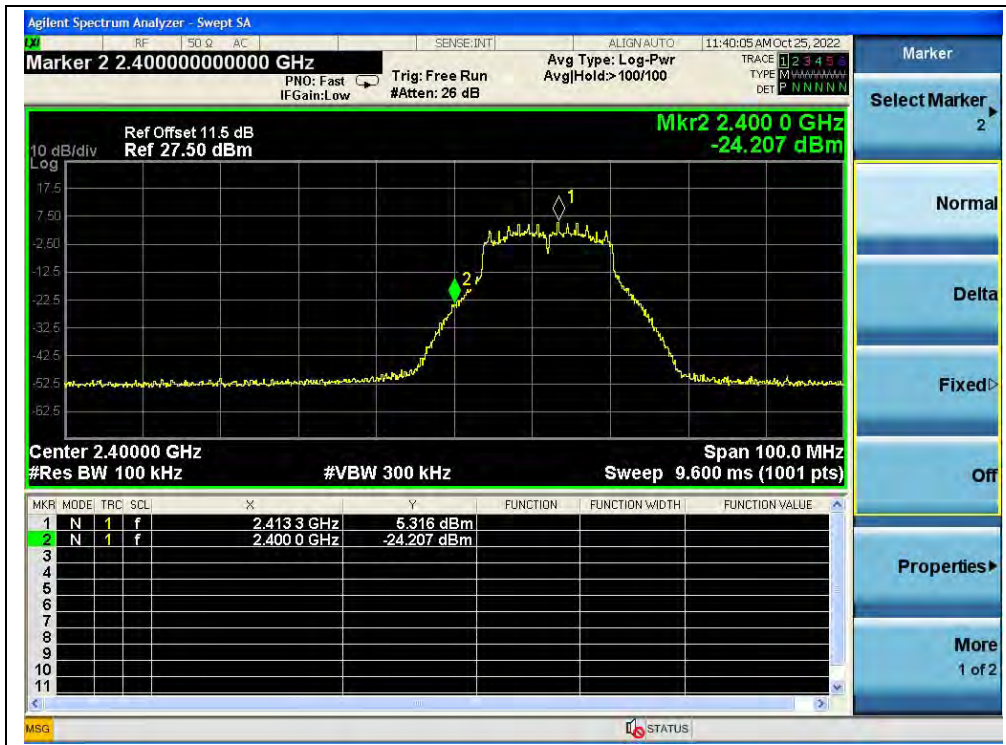
A. Test Verdict:

Channel	Frequency (MHz)	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
			Carrier Level	Calculated -20dBc Limit	
1	2412	-35.10	1.60	-18.40	PASS
7	2442	-34.17	4.48	-15.52	PASS
13	2472	-33.64	-0.18	-20.18	PASS

B. Test Plot:



(30MHz to 25GHz, Channel 1, 802.11g)



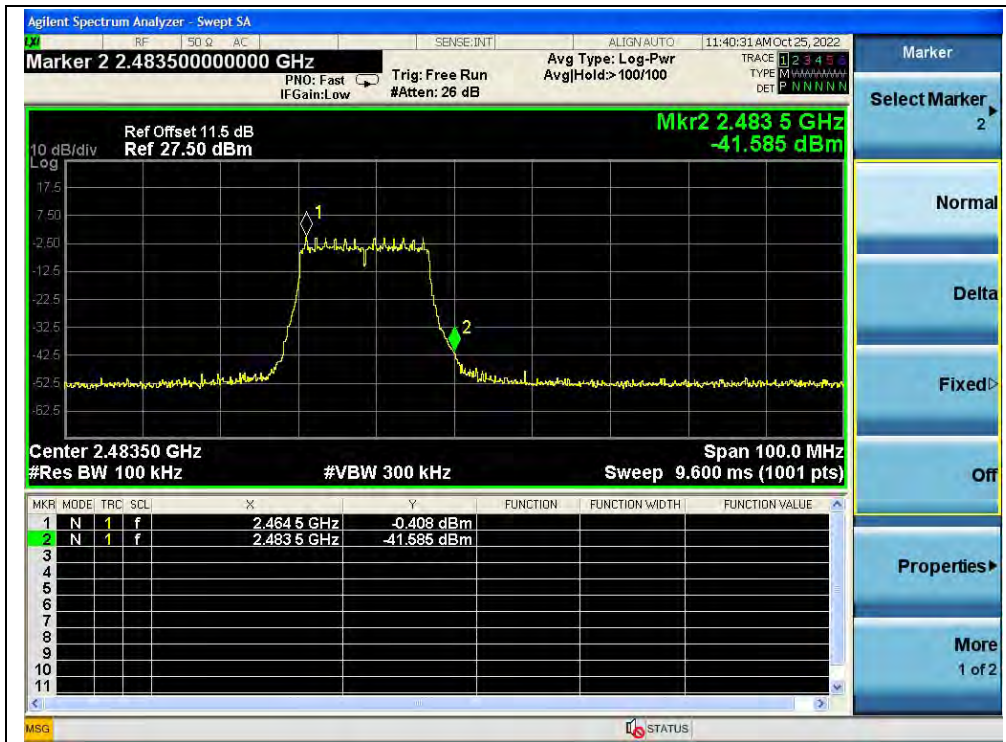
(Band Edge, Channel 1, 802.11g)



(30MHz to 25GHz, Channel 7, 802.11g)



(30MHz to 25GHz, Channel 13, 802.11g)



(Band Edge, Channel 13, 802.11g)

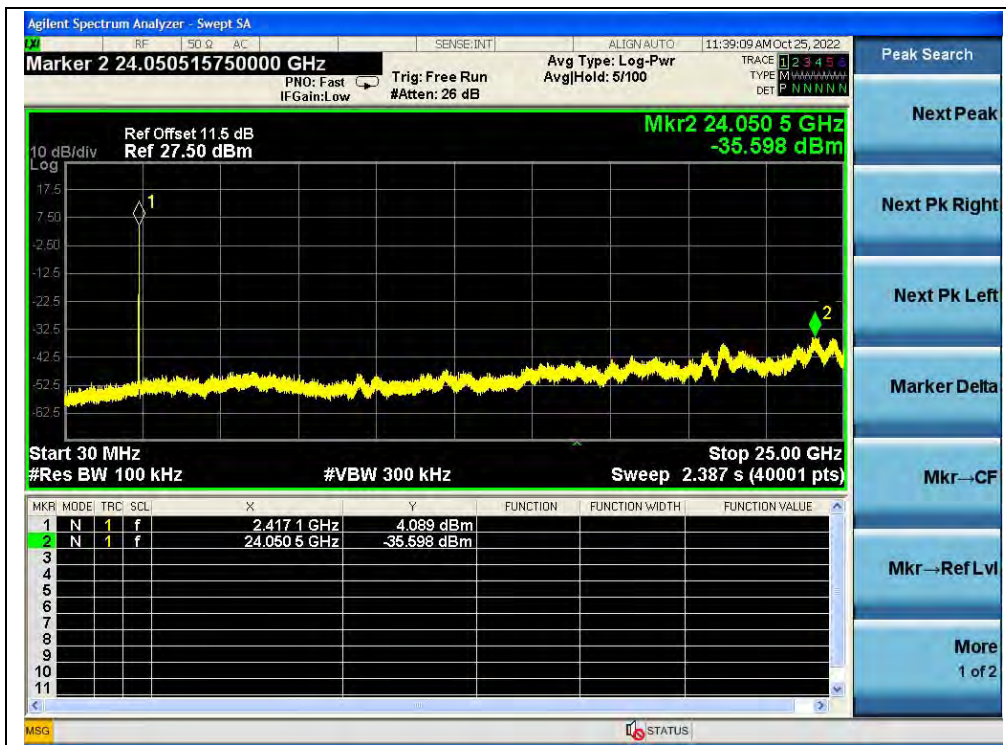


802.11n (HT20) Mode

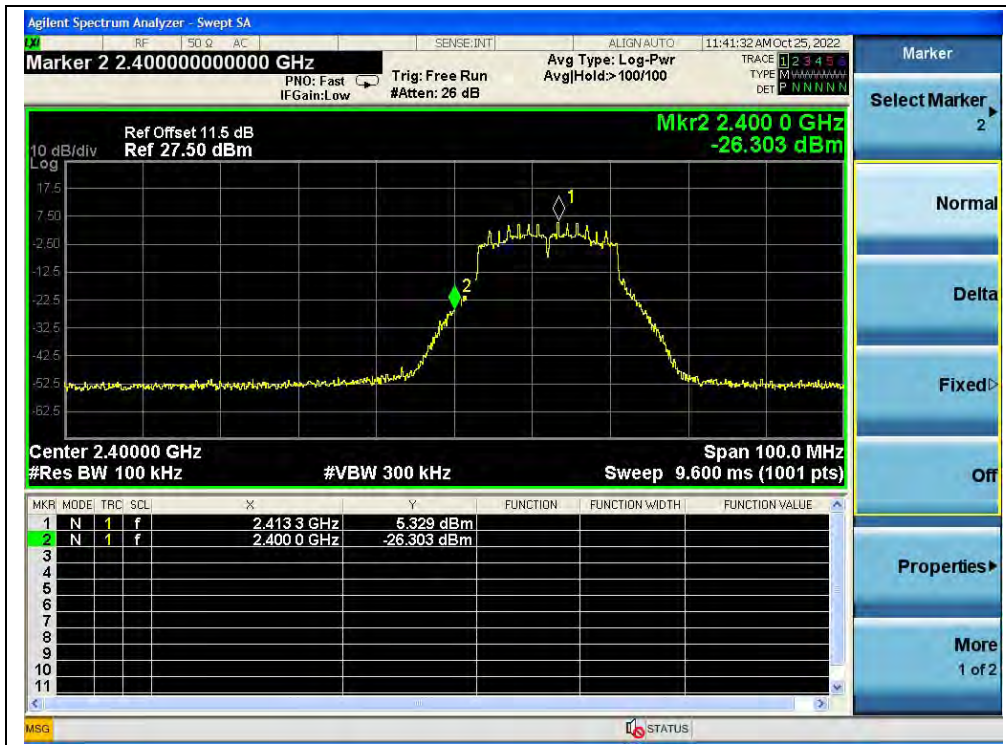
A. Test Verdict:

Channel	Frequency (MHz)	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
			Carrier Level	Calculated -20dBc Limit	
1	2412	-35.60	4.09	-15.91	PASS
7	2442	-34.07	5.30	-14.70	PASS
13	2472	-34.28	-0.46	-20.46	PASS

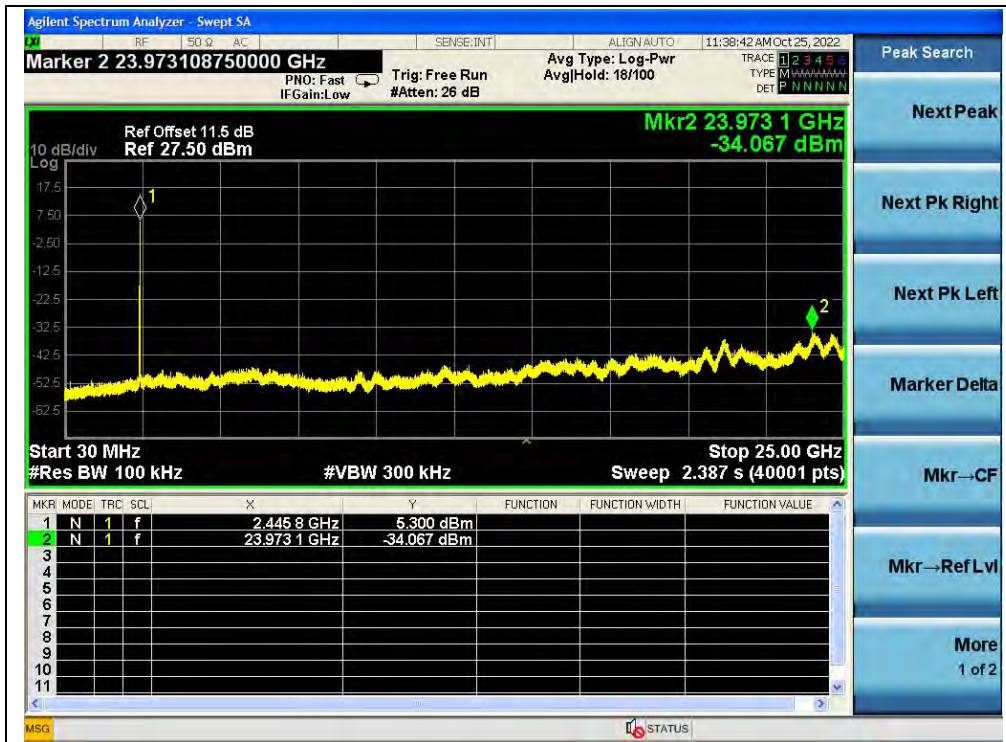
B. Test Plot:



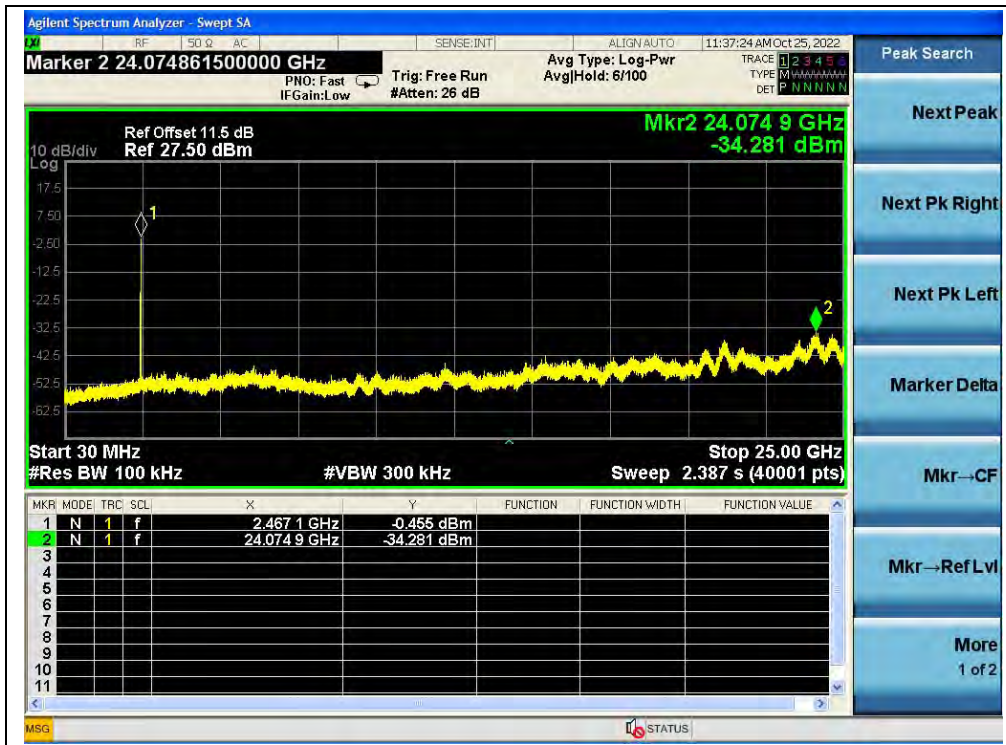
(30MHz to 25GHz, Channel 1, 802.11n (HT20))



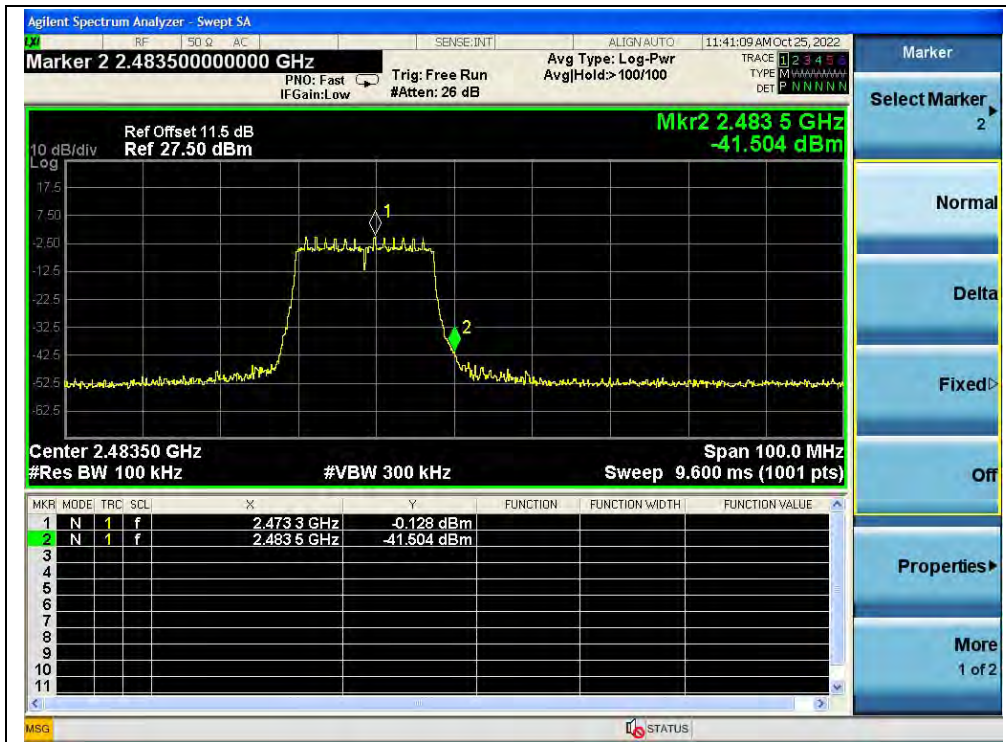
(Band Edge, Channel 1, 802.11n (HT20))



(30MHz to 25GHz, Channel 7, 802.11n (HT20))



(30MHz to 25GHz, Channel 13, 802.11n (HT20))



(Band Edge, Channel 13, 802.11n (HT20))

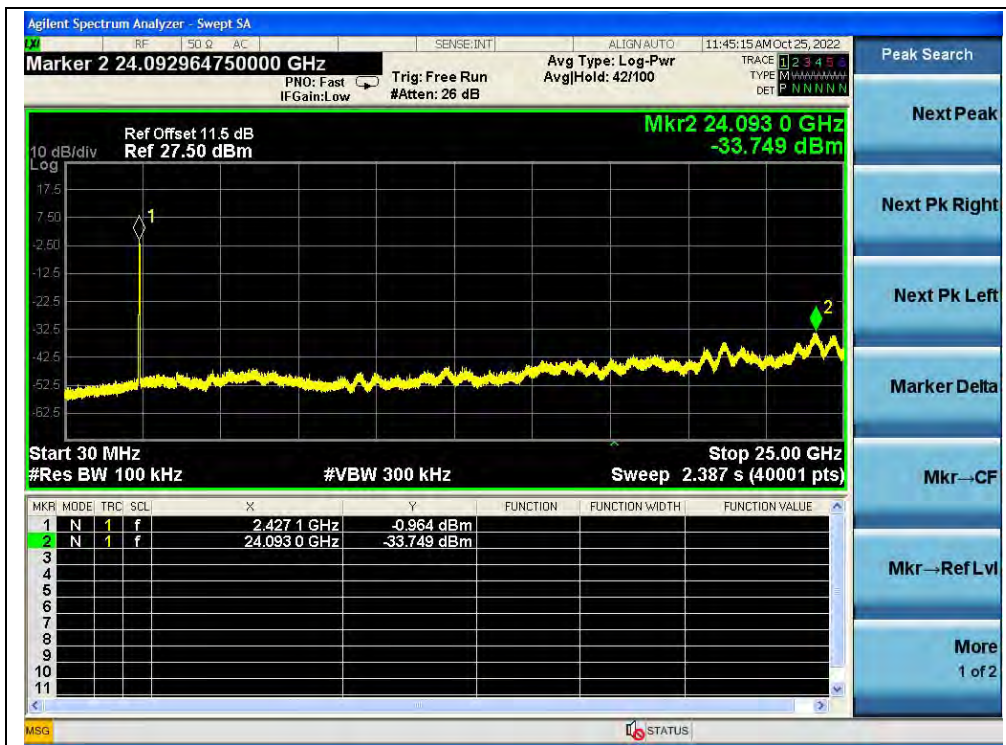


802.11n (HT40) Mode

A. Test Verdict:

Channel	Frequency (MHz)	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
			Carrier Level	Calculated -20dBc Limit	
3	2422	-33.75	-0.96	-20.96	PASS
7	2442	-34.74	1.72	-18.28	PASS
11	2462	-33.57	-4.59	-24.59	PASS

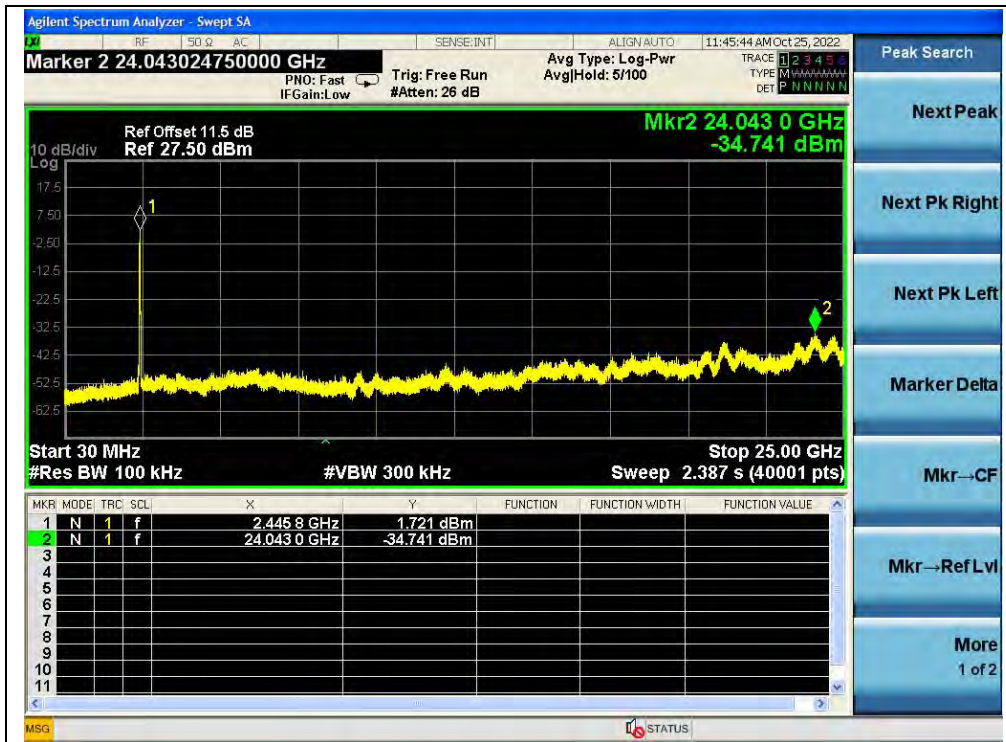
B. Test Plot:



(30MHz to 25GHz, Channel 3, 802.11n (HT40))



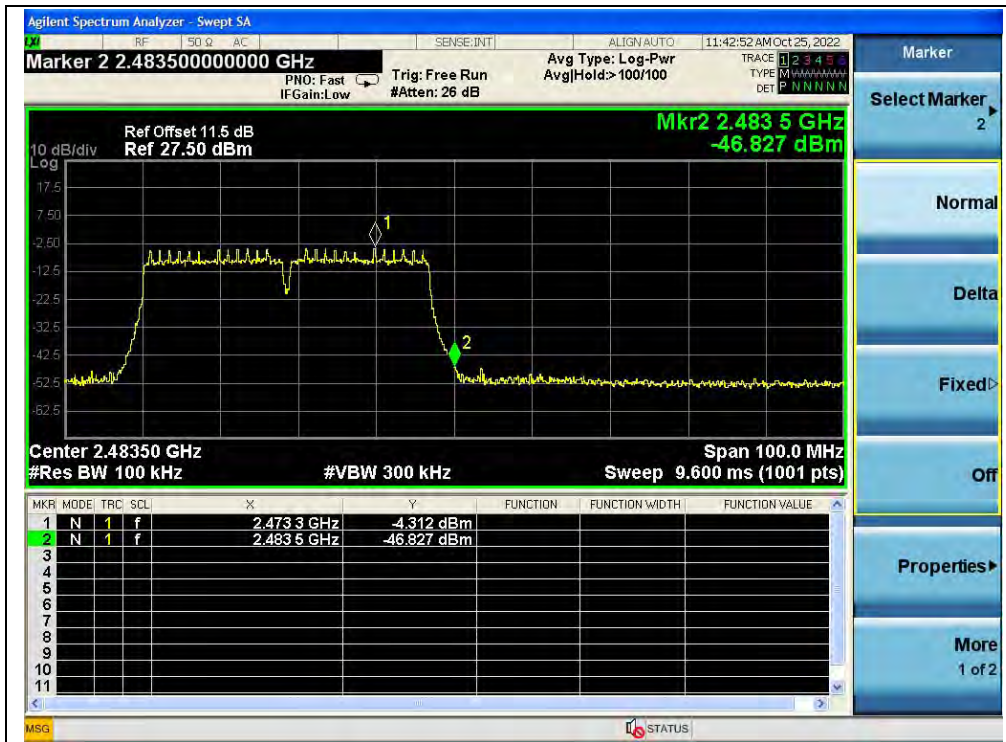
(Band Edge, Channel 3, 802.11n (HT40))



(30MHz to 25GHz, Channel 7, 802.11n (HT40))



(30MHz to 25GHz, Channel 11, 802.11n (HT40))



(Band Edge, Channel 13, 802.11n (HT40))

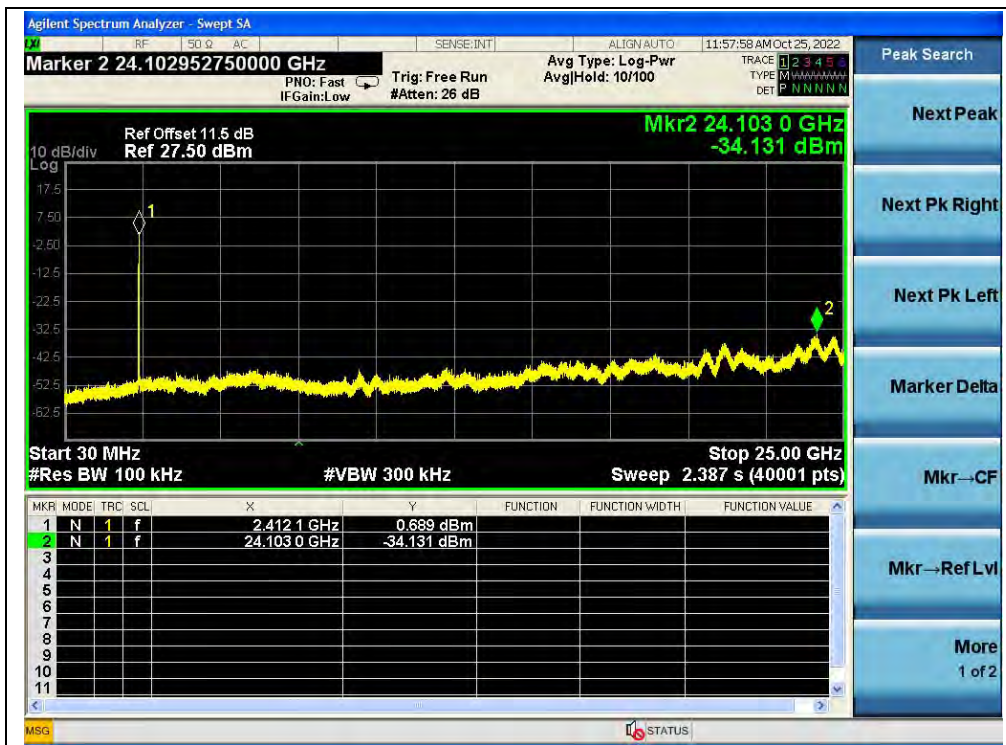


802.11ax (HEW20) Mode

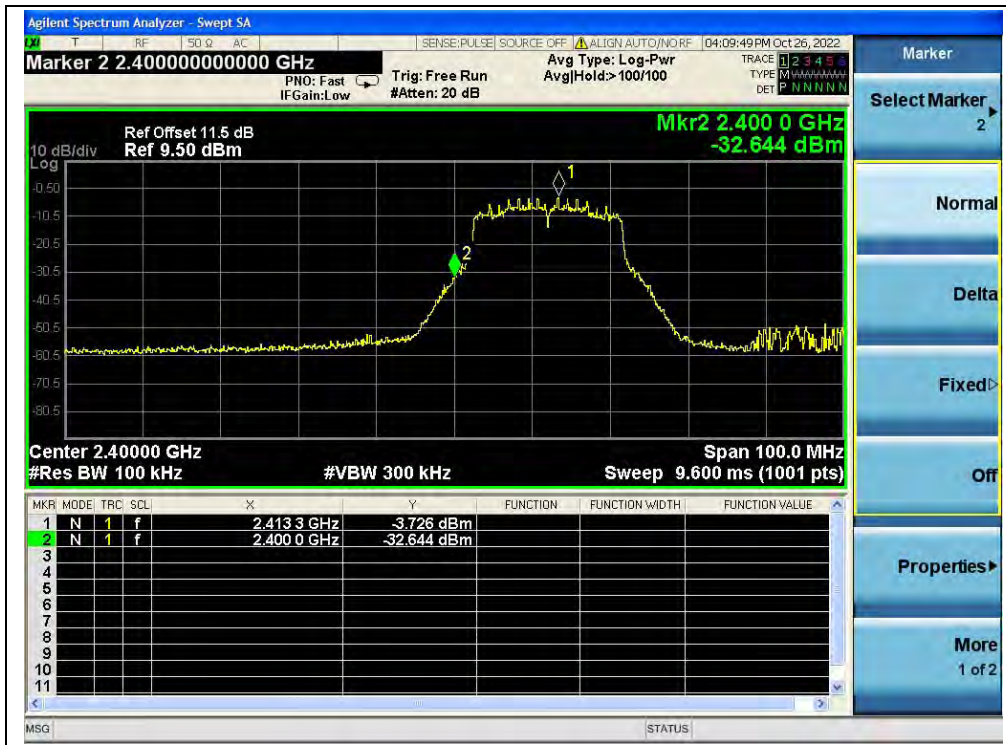
A. Test Verdict:

Channel	Frequency (MHz)	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
			Carrier Level	Calculated -20dBc Limit	
1	2412	-34.13	0.69	-19.31	PASS
7	2442	-42.55	-4.78	-24.78	PASS
13	2472	-43.38	-11.27	-31.27	PASS

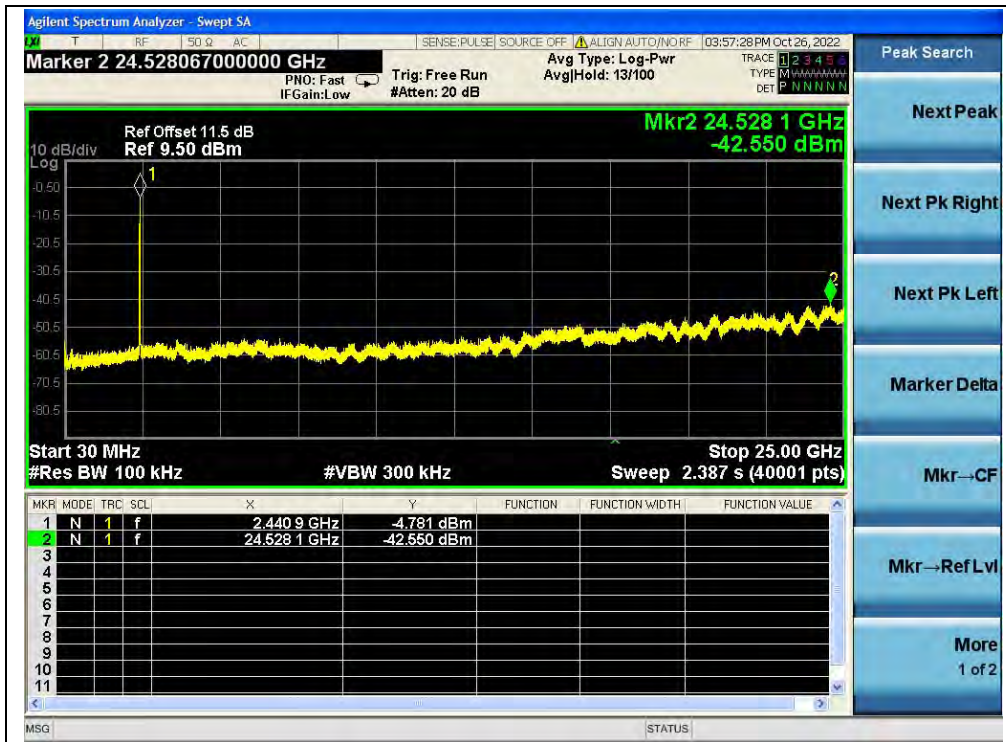
B. Test Plot:



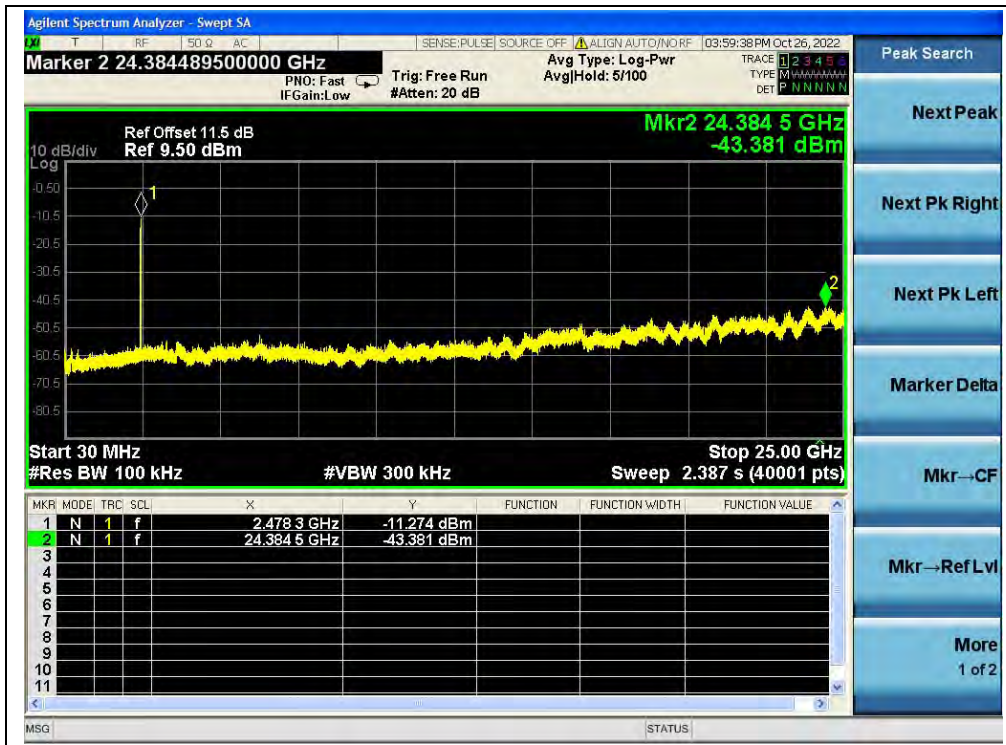
(30MHz to 25GHz, Channel 1, 802.11ax (HEW20))



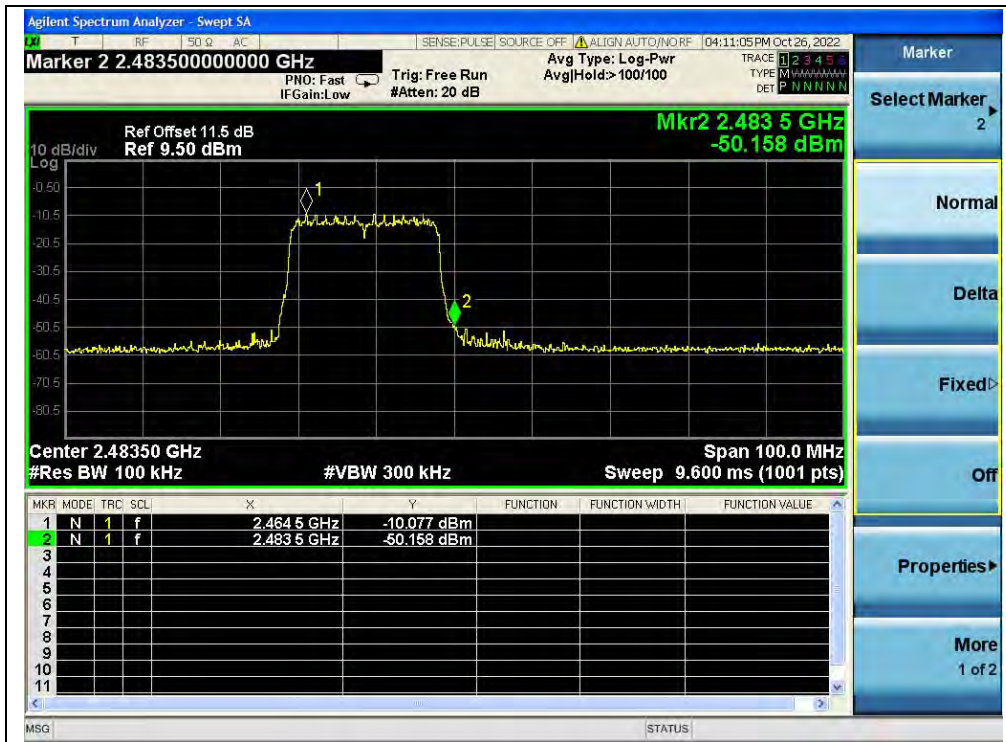
(Band Edge, Channel 1, 802.11ax (HEW20))



(30MHz to 25GHz, Channel 7, 802.11ax (HEW20))



(30MHz to 25GHz, Channel 13, 802.11ax (HEW20))



(Band Edge, Channel 13, 802.11ax (HEW20))

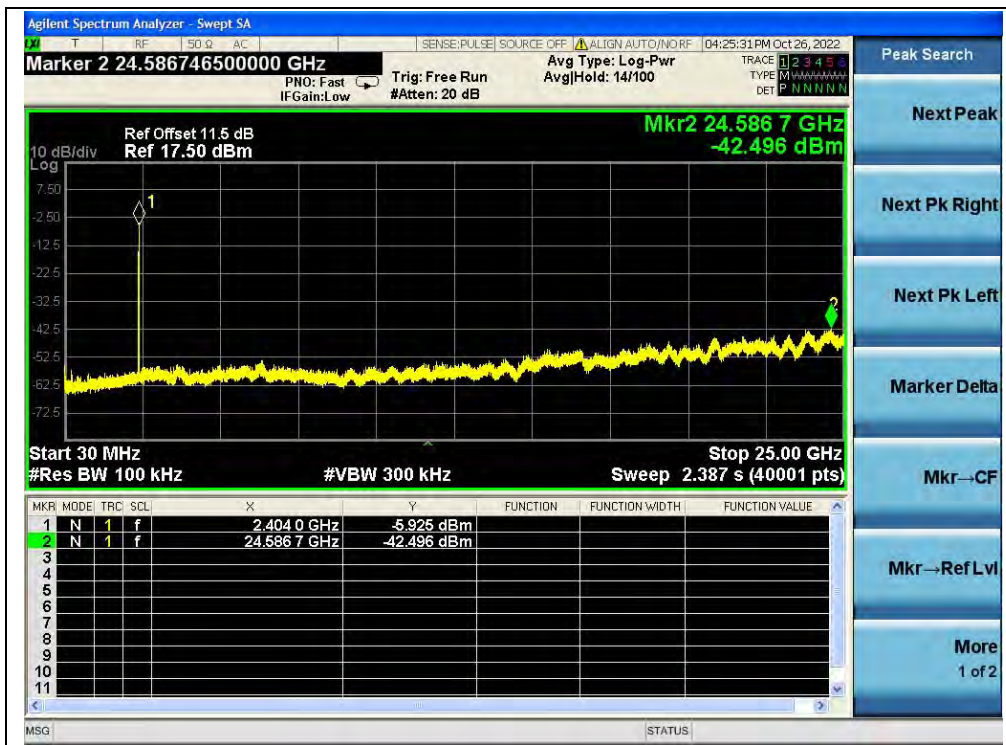


802.11ax (HEW20) RU26 Mode

A. Test Verdict:

Channel	Frequency (MHz)	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
			Carrier Level	Calculated -20dBc Limit	
1	2412	-42.50	-5.93	-25.93	PASS
7	2442	-41.87	-6.72	-26.72	PASS
13	2472	-41.43	-12.64	-32.64	PASS

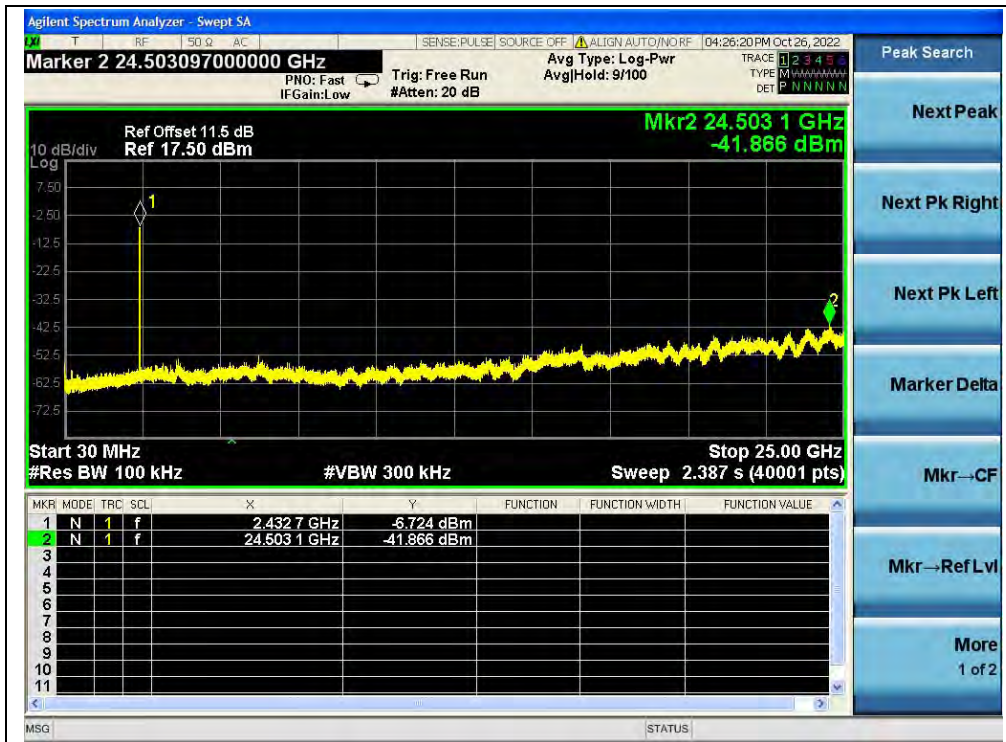
B. Test Plot:



(30MHz to 25GHz, Channel 1, 802.11ax (HEW20) RU26)



(Band Edge, Channel 1, 802.11ax (HEW20) RU26)



(30MHz to 25GHz, Channel 7, 802.11ax (HEW20) RU26)