TEST REPORT

APPLICANT	:	Acer Incorporated
PRODUCT NAME	:	Acer Connect
MODEL NAME	:	M3
BRAND NAME	:	Acer
FCC ID	:	HLZM3
STANDARD(S)	:	47 CFR Part 15 Subpart C
RECEIPT DATE	:	2022-11-10
TEST DATE	:	2022-11-14 to 2022-11-30
ISSUE DATE	:	2023-02-21

Edited by: Peng Mi (Rapporteur)

Approved by: Shen Junsheng (Supervisor)

NOTE: This document is issued by Shenzhen Morlab Communications Technology Co., Ltd., the test report shall not be reproduced except in full without prior written permission of the company. The test results apply only to the particular sample(s) tested and to the specific tests carried out which is available on request for validation and information confirmed at our website.

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. The Channel Number and Frequency ····· 6
1.5. Test Standards and Results ····· 7
1.6. Environmental Conditions ····· 8
2. 47 CFR Part 15C Requirements ····· 9
2.1. Antenna Requirement ····· 9
2.2. Duty Cycle of Test Signal ····· 10
2.3. Maximum Conducted Output Power ····· 16
2.4. Bandwidth ····· 23
2.5. Conducted Spurious Emissions and Band Edge ····· 42
2.6. Power Spectral Density ····· 70
2.7. Conducted Emission ····· 107
2.8. Restricted Frequency Bands ····· 111
2.9. Radiated Emission ····· 130
Annex A Test Uncertainty ····· 152
Annex B Testing Laboratory Information ····· 153

Change History		
Version	Date	Reason for change
1.0	2023-02-21	First edition

1. Technical Information

Note: Provide by applicant.

1.1. Applicant and Manufacturer Information

Applicant:	Acer Incorporated
Applicant Address:	8F, 88, Sec. 1, Xintai 5th Rd. Xizhi, New Taipei City 221 Taiwan
Manufacturer:	Acer Incorporated
Manufacturer Address:	8F, 88, Sec. 1, Xintai 5th Rd. Xizhi, New Taipei City 221 Taiwan

1.2. Equipment Under Test (EUT) Description

Product Name:	Acer Connect	
Sample No.:	8#	
Hardware Version:	L30-MB-V1.1	
Software Version:	ASW2106_UN_1201_T0054	
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–2462MHz	
Antenna Type:	PIFA Antenna	
Antenna Gain:	ANT0: 2.79dBi; ANT1: 2.33dBi	
Directional Gain:	5.80dBi$_{\text{Note 3}}$	
Accessory Information:	Battery	
	Brand Name:	N/A
	Model No.:	765395
	Serial No.:	N/A
	Capacity:	6500mAh
	Rated Voltage:	3.85V
	Charge Limit:	4.4V
	Manufacturer:	Huizhou Highpower Technology Co., Ltd.

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

Modulation Mode:	**TX Function**
802.11b	1TX
802.11n	2TX
802.11ax	2TX

Note 2: According to KDB 662911 D01, the directional gain = G_{ANT} + 10log(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 (ANT0) 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(ANT0) 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 (HT20/ HT40)	OFDM	**BPSK**	**MCS0**~MCS7	N/A
			QPSK		
			16QAM		
			64QAM		
802.11ax	20/40 (HEW20/40)	OFDMA	**BPSK**	**MSC0**~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. 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		
	6	**2437**		
	7	2442		
Test Mode	**Channel**	**Frequency (MHz)**	**Channel**	**Frequency (MHz)**
802.11 n(HT40) /ax(HEW40)	**3**	**2422**	8	2447
	4	2427	**9**	**2452**
	5	2432		
	6	**2437**		
	7	2442		

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

1.5. 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	Nov. 14, 2022	He Yuyang	PASS	No deviation
3	15.247(b)	Maximum Peak and Average Conducted Output Power	Nov. 14, 2022	He Yuyang	PASS	No deviation
4	15.247(a)	Bandwidth	Nov. 25, 2022	He Yuyang	PASS	No deviation
5	15.247(d)	Conducted Spurious Emission and Band Edge	Nov. 25, 2022	He Yuyang	PASS	No deviation
6	15.247(e)	Power Spectral Density (PSD)	Nov. 25, 2022	He Yuyang	PASS	No deviation
7	15.207	Conducted Emission	Nov. 15, 2022	Fan Zehang	PASS	No deviation
8	15.247(d)	Restricted Frequency Bands	Nov. 21, 2022	Gao Jianrou	PASS	No deviation
9	15.209, 15.247(d)	Radiated Emission	Nov. 16, 2022	Gao Jianrou	PASS	No deviation

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

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.

1.6. 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 PIFA antenna coupled with the I-PEX connector. Please refer to the EUT photos.

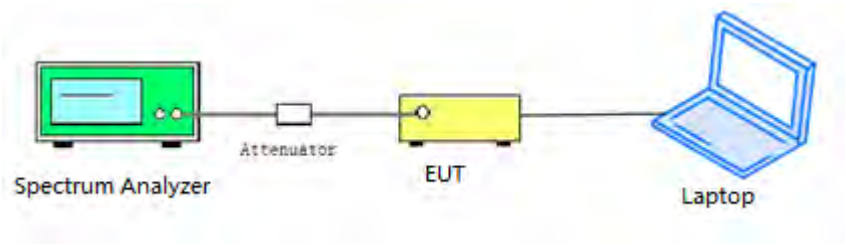
2.2. Duty Cycle of Test Signal

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 ±2%; otherwise, the duty cycle is considered to be nonconstant.

2.2.2.Test Description

Test Setup:



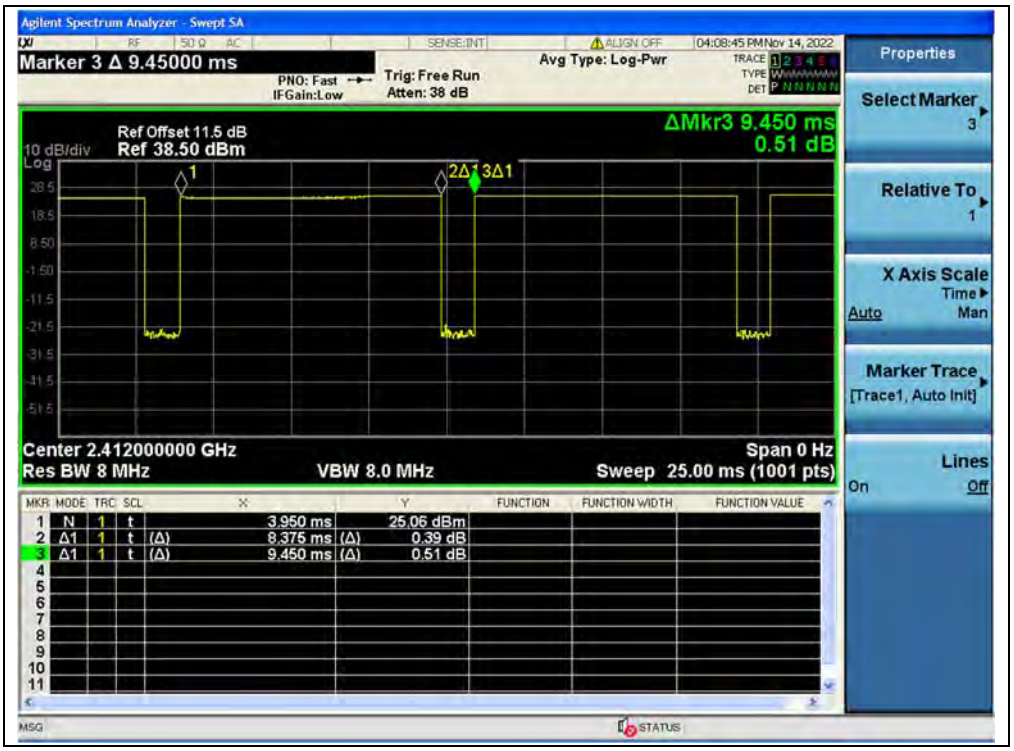
ANSI C63.10 2013 Clause 11.6 was used in order to prove compliance.

2.2.3.Test Result

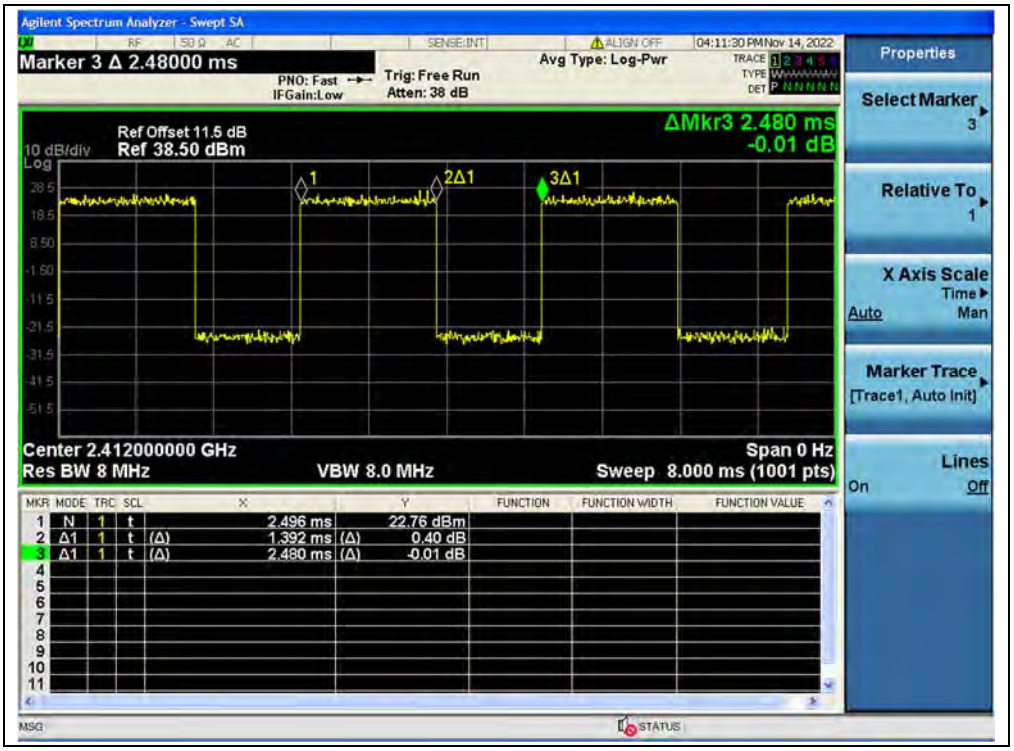
A.Test Verdict:

Test Mode	Duty Cycle (%) (D)	Duty Factor (10*lg[1/D])
802.11b	88.62	0.52
802.11g	56.13	2.51
802.11n (HT20)	52.94	2.76
802.11n (HT40)	35.87	4.45
802.11ax (HEW20)	46.67	3.31
802.11ax (HEW40)	31.43	5.03
802.11ax (HEW20) RU26	81.35	0.90
802.11ax (HEW20) RU52	80.25	0.96
802.11ax (HEW20) RU106	67.51	1.71

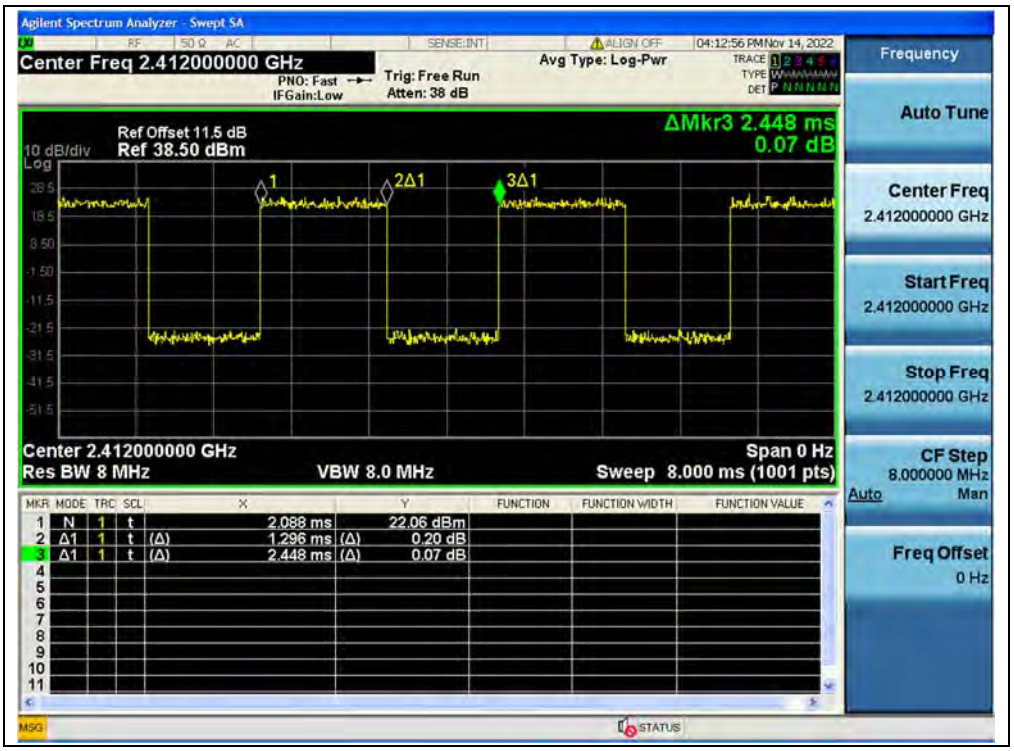
B.Test Plot:



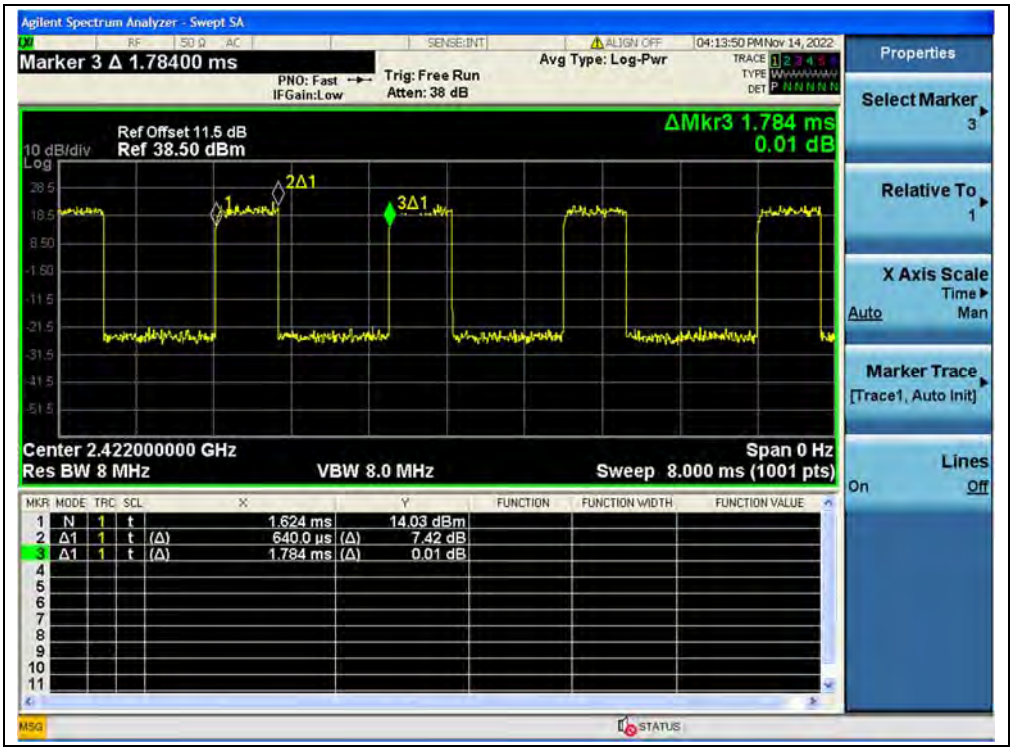
(Channel 1, 802.11b)



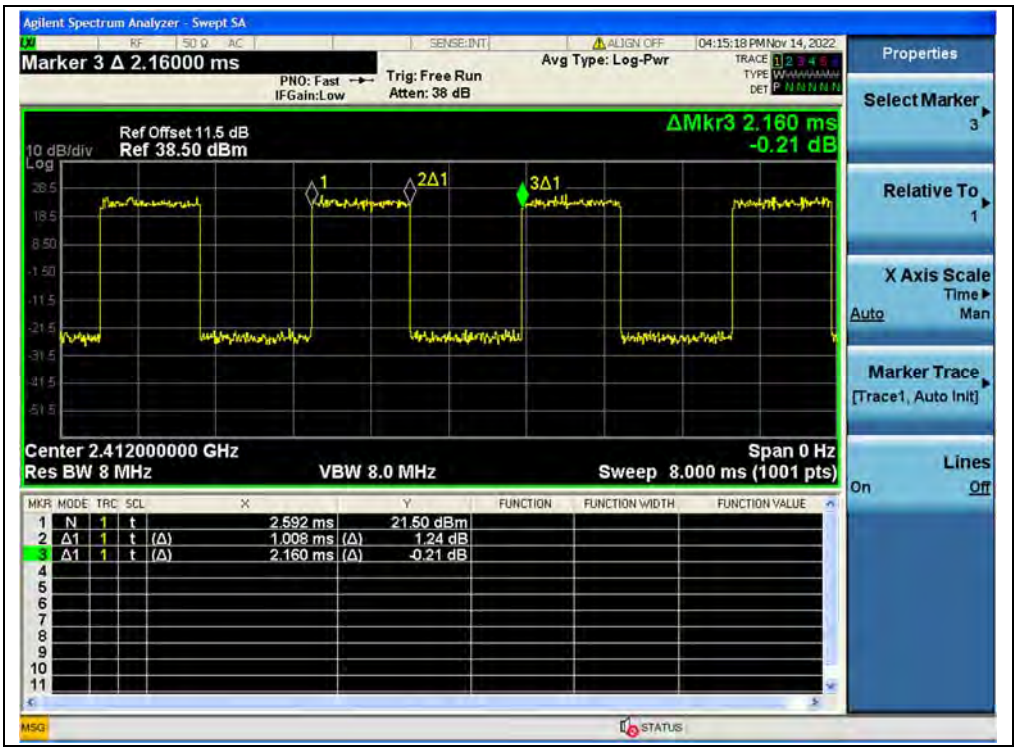
(Channel 1, 802.11g)



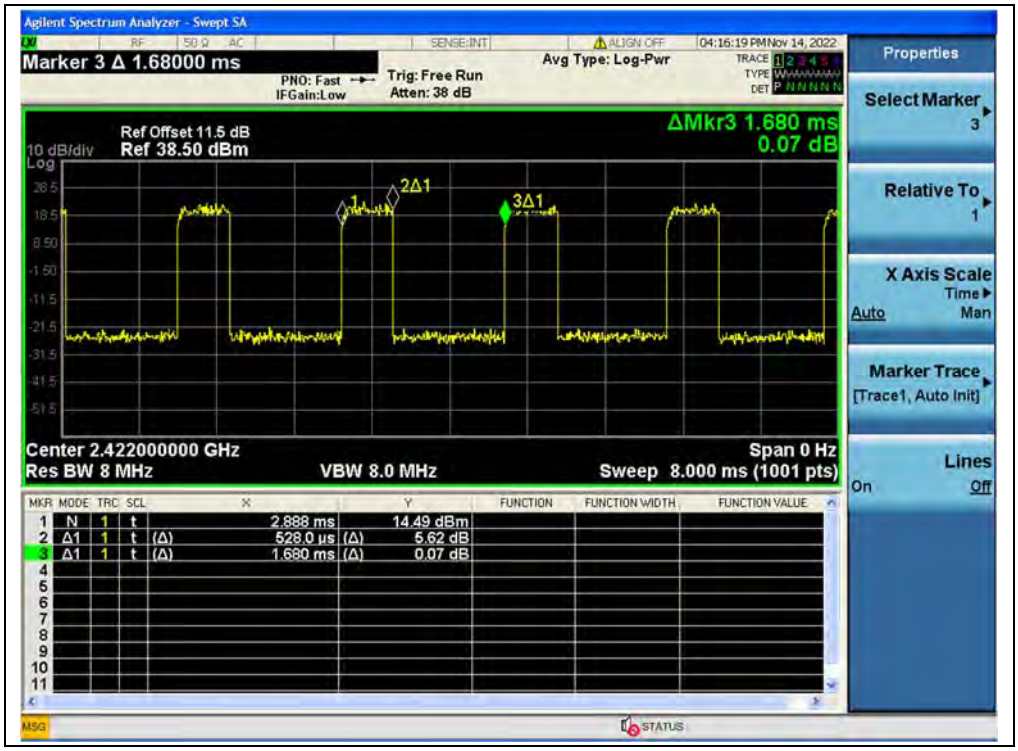
(Channel 1, 802.11n (HT20))



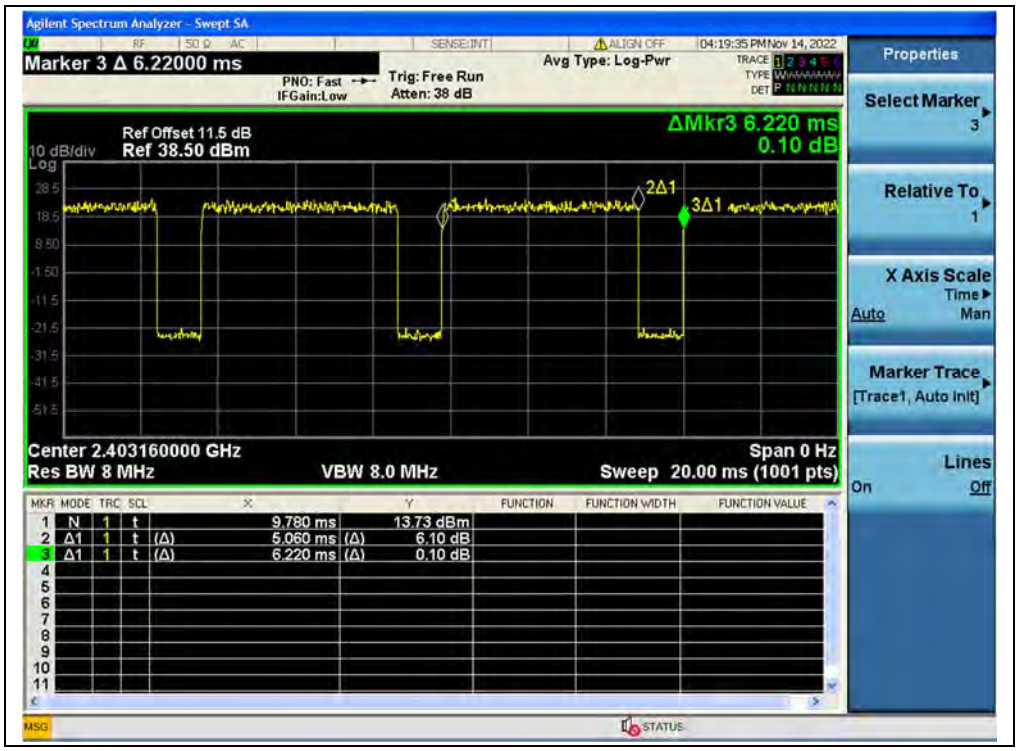
(Channel 3, 802.11n (HT40))



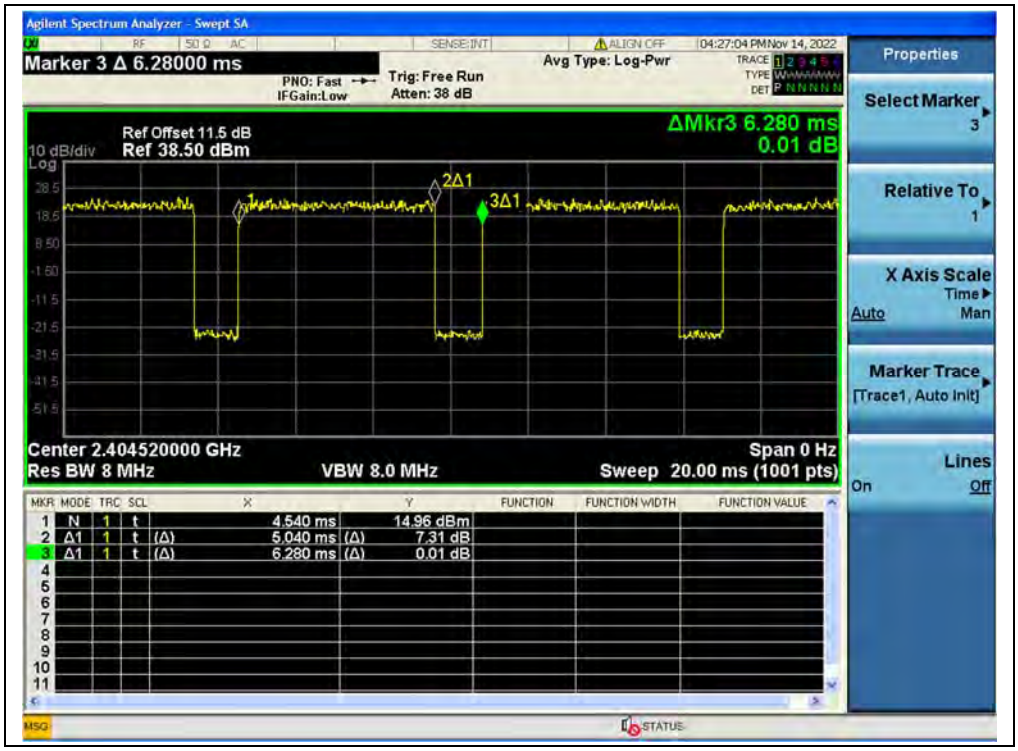
(Channel 1, 802.11ax (HEW20))



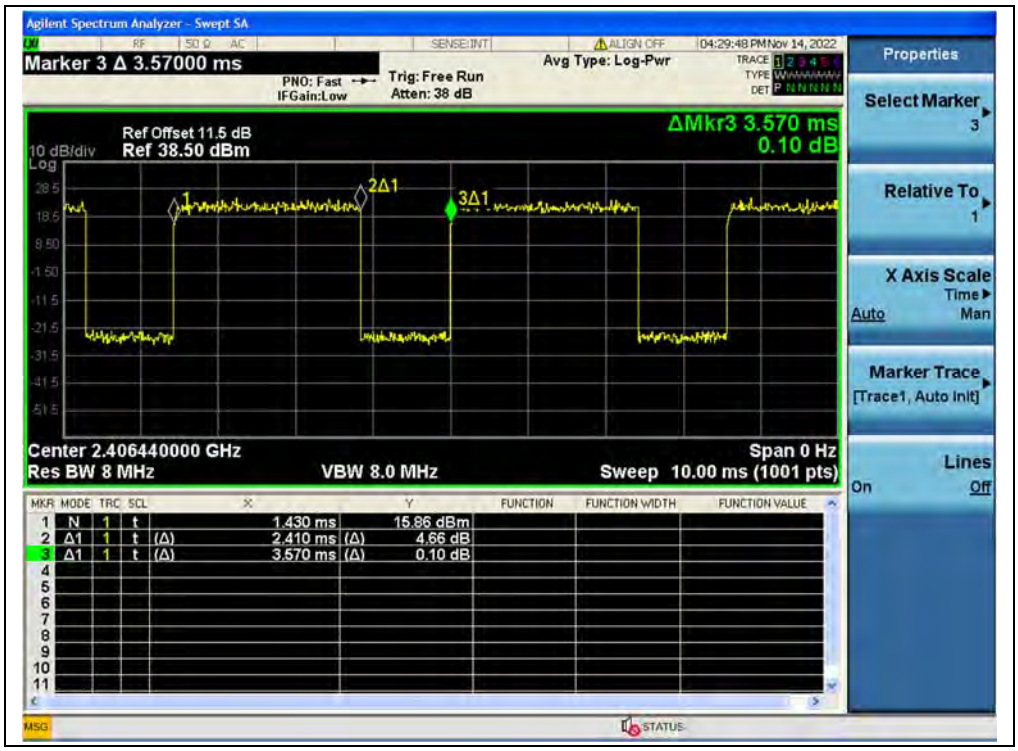
(Channel 3, 802.11ax (HEW40))



(Channel 1, 802.11ax (HEW20) RU26)



(Channel 1, 802.11ax (HEW20) RU52)



(Channel 1, 802.11ax (HEW20) RU106)

2.3. Maximum Conducted Output Power

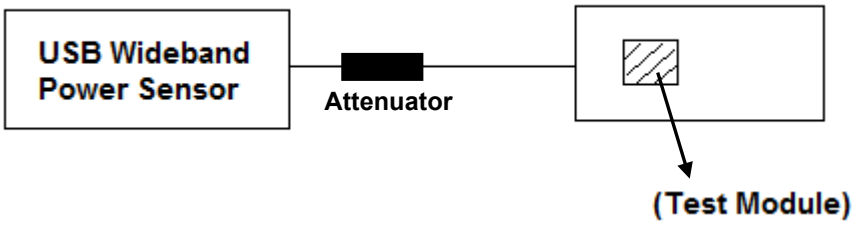
2.3.1.Requirement

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 exceed1 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	19.63	0.092	18.43	0.070	30	1	PASS
6	2437	19.37	0.086	18.82	0.076			PASS
11	2462	19.50	0.089	18.35	0.068			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	25.62	0.365	24.71	0.296	30	1	PASS
6	2437	25.86	0.385	25.37	0.344			PASS
11	2462	25.72	0.373	24.71	0.296			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	25.44	24.73	28.11	0.647	30	1	PASS
6	2437	26.13	25.32	28.76	0.751			PASS
11	2462	25.76	24.62	28.23	0.666			PASS
Note: Directional gain = 2.79dBi +10log(2) = 5.80dBi＜6dBi, so the power limit is 1W(30dBm).								

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	21.37	21.44	24.41	0.276	30	1	PASS
6	2437	21.74	21.09	24.44	0.278			PASS
9	2452	21.99	20.88	24.49	0.281			PASS
Note: Directional gain = 2.79dBi +10log(2) = 5.80dBi＜6dBi, so the power limit is 1W(30dBm).								

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	22.89	22.56	25.74	0.375	30	1	PASS
6	2437	23.15	22.37	25.79	0.379			PASS
11	2462	22.52	23.24	25.91	0.390			PASS
Note: Directional gain = 2.79dBi +10log(2) = 5.80dBi＜6dBi, so the power limit is 1W(30dBm).								

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	25.07	23.22	27.25	0.531	30	1	PASS
6	2437	24.73	23.90	27.35	0.543			PASS
11	2462	25.02	24.01	27.55	0.569			PASS
Note: Directional gain = 2.79dBi +10log(2) = 5.80dBi＜6dBi, so the power limit is 1W(30dBm).								

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	25.13	23.41	27.36	0.545	30	1	PASS
6	2437	25.26	24.03	27.70	0.589			PASS
11	2462	25.46	24.26	27.91	0.618			PASS
Note: Directional gain = 2.79dBi +10log(2) = 5.80dBi＜6dBi, so the power limit is 1W(30dBm).								

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	25.09	23.12	27.23	0.528	30	1	PASS
6	2437	25.21	24.46	27.86	0.611			PASS
11	2462	25.33	24.38	27.89	0.615			PASS
Note: Directional gain = 2.79dBi +10log(2) = 5.80dBi＜6dBi, so the power limit is 1W(30dBm).								

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	23.01	22.88	25.95	0.394	30	1	PASS
6	2437	22.84	22.59	25.73	0.374			PASS
9	2452	23.12	22.14	25.67	0.369			PASS
Note: Directional gain = 2.79dBi +10log(2) = 5.80dBi＜6dBi, so the power limit is 1W(30dBm).								

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	16.72	15.63	0.52	17.24	0.053	16.15	0.041	30	1	PASS
2437	16.30	15.96		16.82	0.048	16.48	0.044			PASS
2462	16.53	15.53		17.05	0.051	16.05	0.040			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	16.02	14.99	2.76	18.78	0.076	17.75	0.060	30	1	PASS
2437	15.83	15.31		18.59	0.072	18.07	0.064			PASS
2462	15.99	14.93		18.75	0.075	17.69	0.059			PASS

802.11n (HT20) Mode

Frequency (MHz)	Average Power					Limit		Verdict
	Measured		Duty Factor	Total Power with Duty Factor				
	ANT 0	ANT 1						
	dBm	dBm		dBm	W	dBm	W	
2412	15.75	14.59	2.76	20.97	0.125	30	1	PASS
2437	15.62	14.99		21.07	0.128			PASS
2462	15.67	14.51		20.90	0.123			PASS
Note: Directional gain = 2.79dBi +10log(2) = 5.80dBi＜6dBi, so the power limit is 1W(30dBm).								

802.11n (HT40) Mode

Frequency (MHz)	Average Power					Limit		Verdict
	Measured		Duty Factor	Total Power with Duty Factor				
	ANT 0	ANT 1						
	dBm	dBm		dBm	W	dBm	W	
2422	9.18	8.21	4.45	16.23	0.042	30	1	PASS
2437	9.30	8.42		16.33	0.043			PASS
2452	9.65	8.31		16.53	0.045			PASS
Note: Directional gain = 2.79dBi +10log(2) = 5.80dBi＜6dBi, so the power limit is 1W(30dBm).								

802.11ax (HEW20) Mode

Frequency (MHz)	Average Power					Limit		Verdict
	Measured		Duty Factor	Total Power with Duty Factor				
	ANT 0	ANT 1						
	dBm	dBm		dBm	W	dBm	W	
2412	12.76	11.15	3.31	18.33	0.068	30	1	PASS
2437	12.47	11.92		18.51	0.071			PASS
2462	12.59	11.67		18.45	0.070			PASS
Note: Directional gain = 2.79dBi +10log(2) = 5.80dBi＜6dBi, so the power limit is 1W(30dBm).								

802.11ax (HEW20) RU26 Mode

Frequency (MHz)	Average Power					Limit		Verdict
	Measured		Duty Factor	Total Power with Duty Factor				
	ANT 0	ANT 1						
	dBm	dBm		dBm	W	dBm	W	
2412	14.30	12.74	0.90	17.48	0.056	30	1	PASS
2437	14.29	13.64		17.85	0.061			PASS
2462	14.65	13.40		17.99	0.063			PASS
Note: Directional gain = 2.79dBi +10log(2) = 5.80dBi＜6dBi, so the power limit is 1W(30dBm).								

802.11ax (HEW20) RU52 Mode

Frequency (MHz)	Average Power					Limit		Verdict
	Measured		Duty Factor	Total Power with Duty Factor				
	ANT 0	ANT 1						
	dBm	dBm		dBm	W	dBm	W	
2412	14.54	12.88	0.96	17.78	0.060	30	1	PASS
2437	14.33	13.76		17.99	0.063			PASS
2462	14.82	13.56		18.20	0.066			PASS
Note: Directional gain = 2.79dBi +10log(2) = 5.80dBi＜6dBi, so the power limit is 1W(30dBm).								

802.11ax (HEW20) RU106 Mode

Frequency (MHz)	Average Power					Limit		Verdict
	Measured		Duty Factor	Total Power with Duty Factor				
	ANT 0	ANT 1						
	dBm	dBm		dBm	W	dBm	W	
2412	13.95	12.52	1.71	17.99	0.063	30	1	PASS
2437	13.72	13.15		18.20	0.066			PASS
2462	14.01	12.92		18.20	0.066			PASS
Note: Directional gain = 2.79dBi +10log(2) = 5.80dBi＜6dBi, so the power limit is 1W(30dBm).								

802.11ax (HEW40) Mode

Frequency (MHz)	Average Power					Limit		Verdict
	Measured		Duty Factor	Total Power with Duty Factor				
	ANT 0	ANT 1						
	dBm	dBm		dBm	W	dBm	W	
2422	9.01	8.13	5.03	16.63	0.046	30	1	PASS
2437	9.06	8.41		16.81	0.048			PASS
2452	9.45	8.45		16.99	0.050			PASS
Note: Directional gain = 2.79dBi +10log(2) = 5.80dBi＜6dBi, so the power limit is 1W(30dBm).								

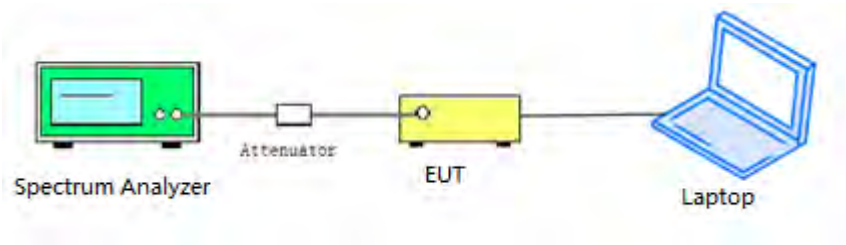
2.4. Bandwidth

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	8.058	≥500	PASS
6	2437	8.044	≥500	PASS
11	2462	8.532	≥500	PASS

B.Test Plot:

(Channel 1, 802.11b)

(Channel 6, 802.11b)

(Channel 11, 802.11b)

802.11g Mode

A.Test Verdict:

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limits(kHz)	Result
1	2412	15.10	≥500	PASS
6	2437	15.12	≥500	PASS
11	2462	15.11	≥500	PASS

B.Test Plot:

(Channel 1, 802.11g)

(Channel 6, 802.11g)

(Channel 11, 802.11g)

802.11n (HT20) Mode

A.Test Verdict:

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limits(kHz)	Result
1	2412	15.08	≥500	PASS
6	2437	15.11	≥500	PASS
11	2462	15.04	≥500	PASS

B.Test Plot:

(Channel 1, 802.11n (HT20))

(Channel 6, 802.11n (HT20))

(Channel 11, 802.11n (HT20))

802.11n (HT40) Mode

A.Test Verdict:

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limits(kHz)	Result
3	2422	35.10	≥500	PASS
6	2437	33.91	≥500	PASS
9	2452	35.10	≥500	PASS

B.Test Plot:

(Channel 3, 802.11n (HT40))

(Channel 6, 802.11n (HT40))

(Channel 9, 802.11n (HT40))

802.11ax (HEW20) Mode

A.Test Verdict:

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limits(kHz)	Result
1	2412	16.72	≥500	PASS
6	2437	17.63	≥500	PASS
11	2462	18.25	≥500	PASS

B.Test Plot:

(Channel 1, 802.11ax (HEW20))

(Channel 6, 802.11ax (HEW20))

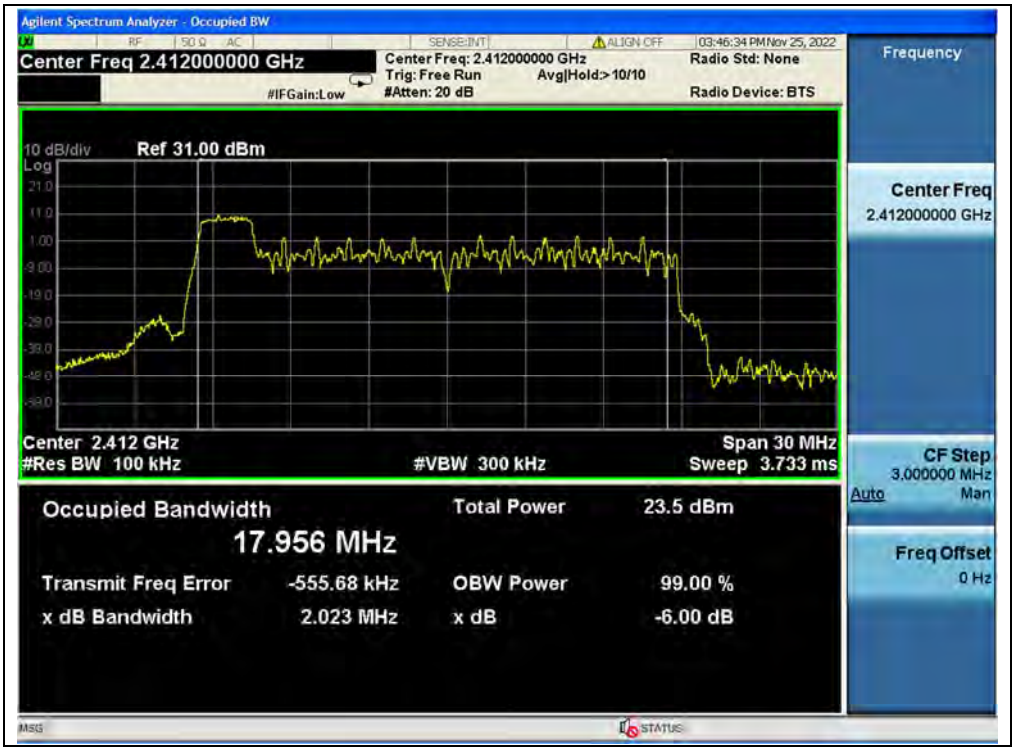
(Channel 11, 802.11ax (HEW20))

802.11ax (HEW20) RU26 Mode

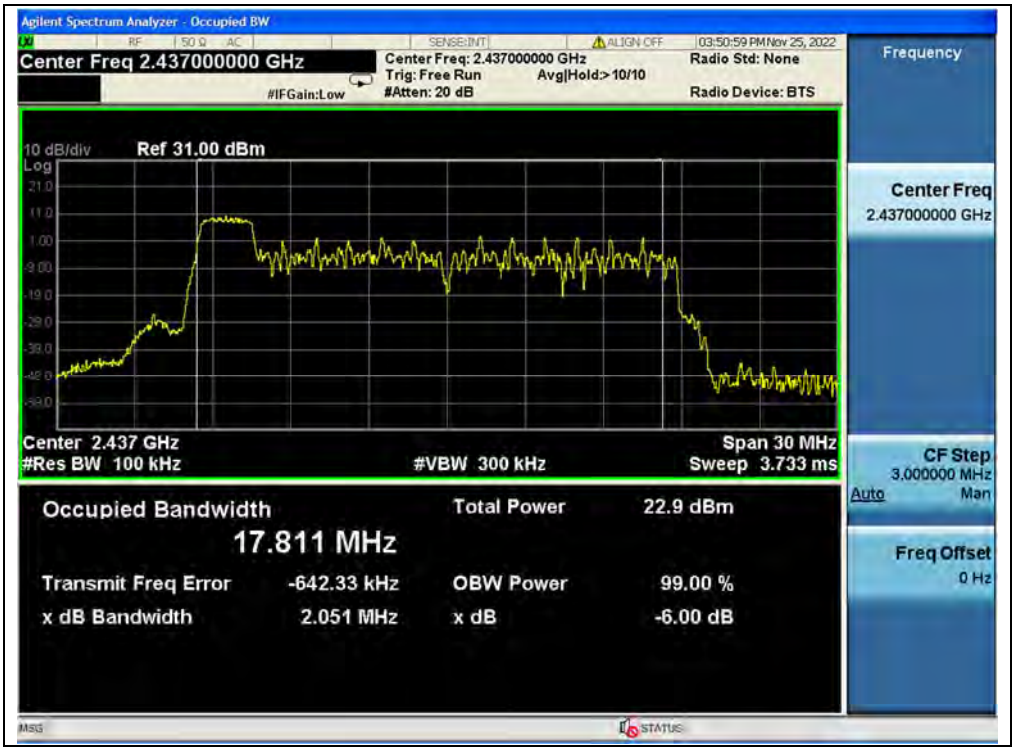
A.Test Verdict:

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limits(kHz)	Result
1	2412	2.023	≥500	PASS
6	2437	2.051	≥500	PASS
11	2462	2.040	≥500	PASS

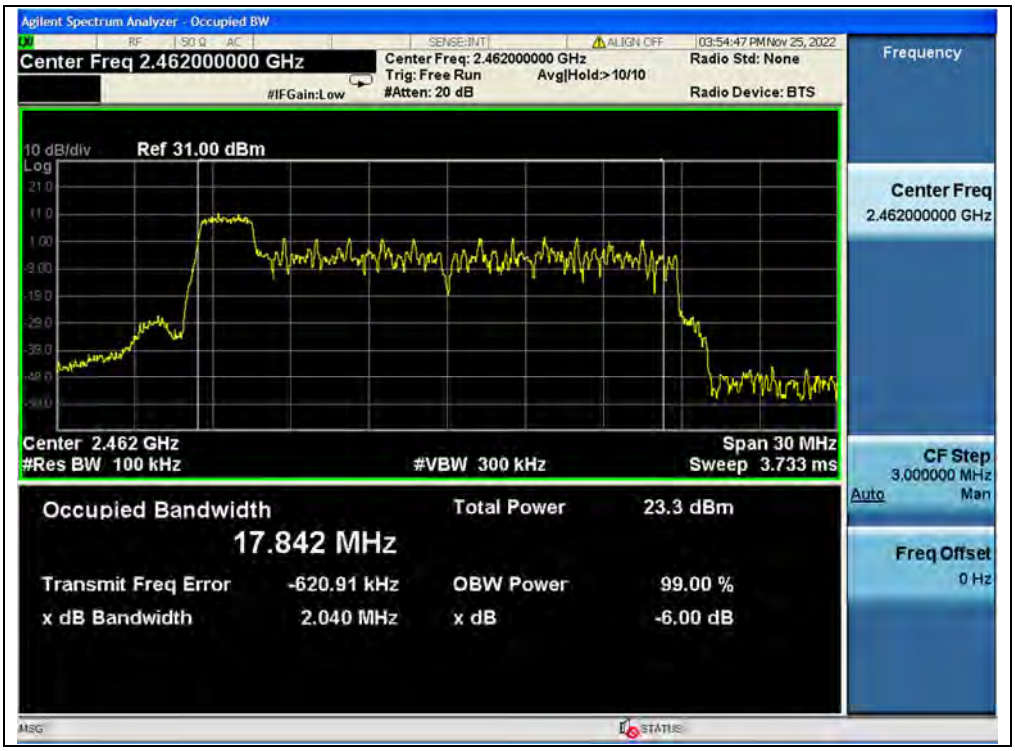
B.Test Plot:



(Channel 1, 802.11ax (HEW20) RU26)



(Channel 6, 802.11ax (HEW20) RU26)



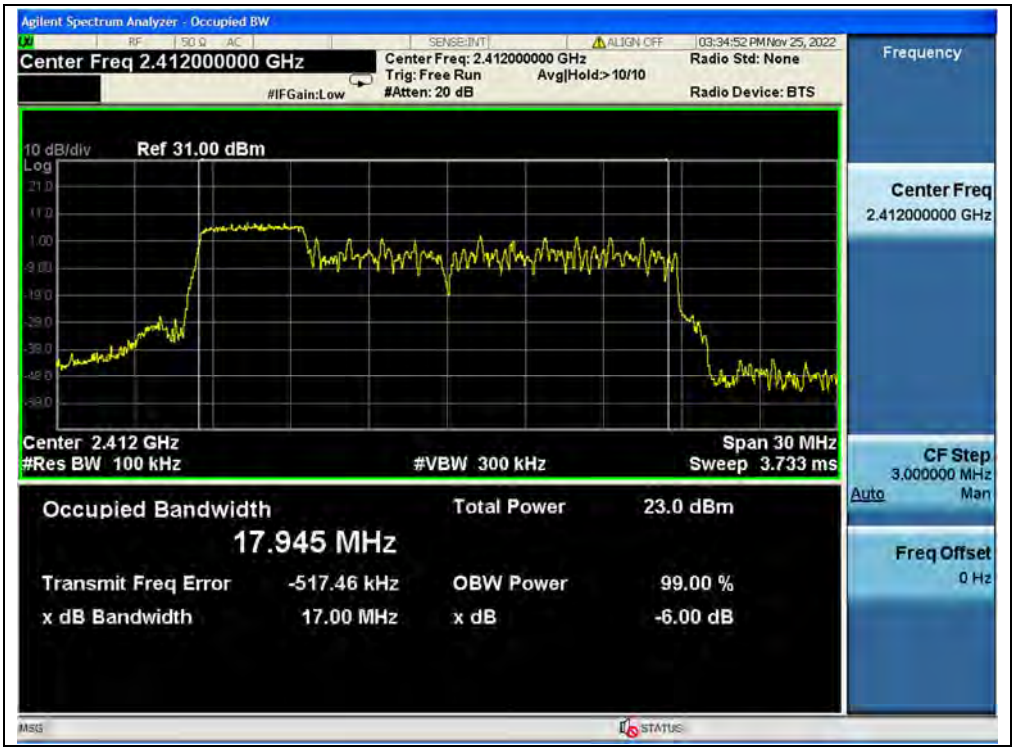
(Channel 11, 802.11ax (HEW20) RU26)

802.11ax (HEW20) RU52 Mode

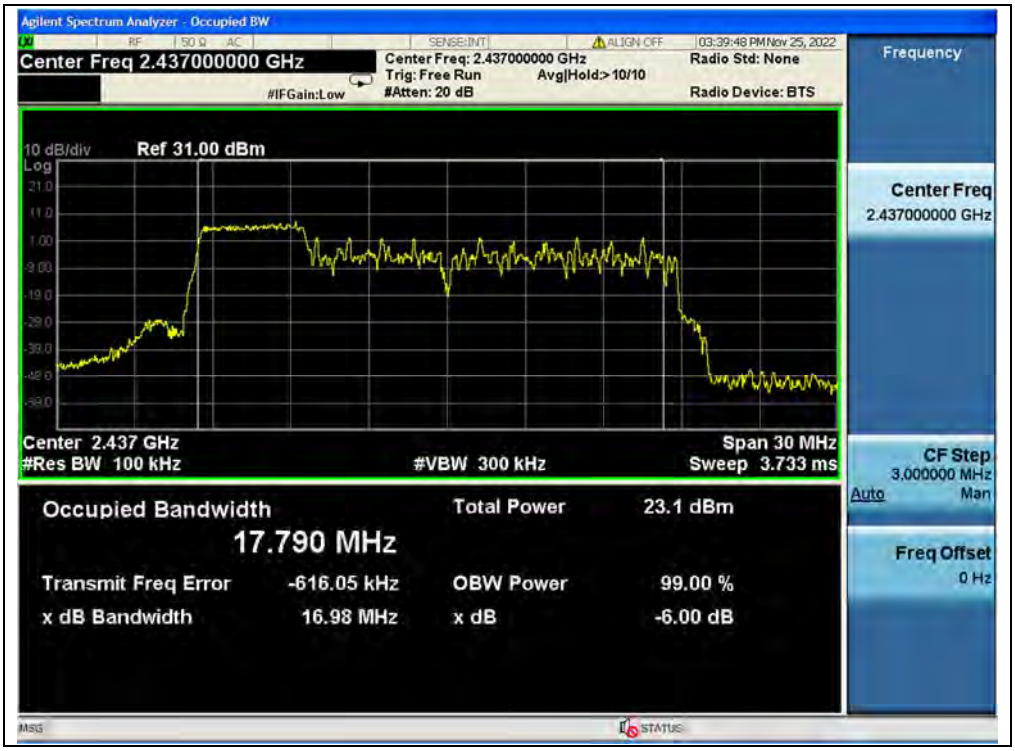
A.Test Verdict:

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limits(kHz)	Result
1	2412	17.00	≥500	PASS
6	2437	16.98	≥500	PASS
11	2462	14.46	≥500	PASS

B.Test Plot:



(Channel 1, 802.11ax (HEW20) RU52)



(Channel 6, 802.11ax (HEW20) RU52)

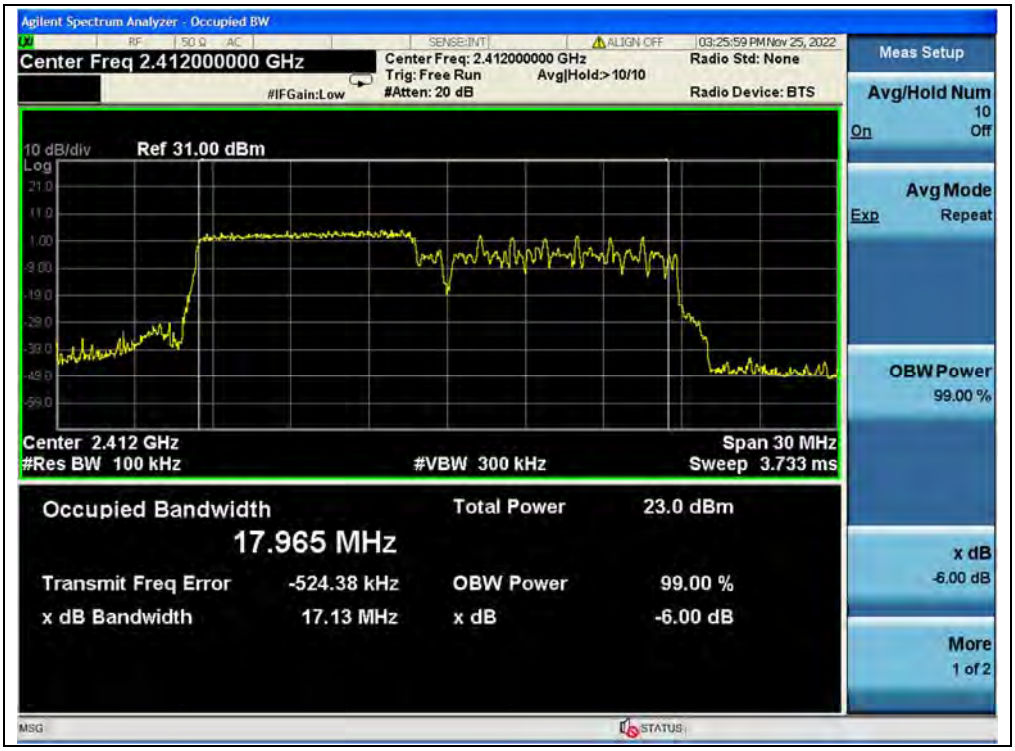
(Channel 11, 802.11ax (HEW20) RU52)

802.11ax (HEW20) RU106 Mode

A.Test Verdict:

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limits(kHz)	Result
1	2412	17.13	≥500	PASS
6	2437	17.11	≥500	PASS
11	2462	17.12	≥500	PASS

B.Test Plot:



(Channel 1, 802.11ax (HEW20) RU106)

(Channel 6, 802.11ax (HEW20) RU106)

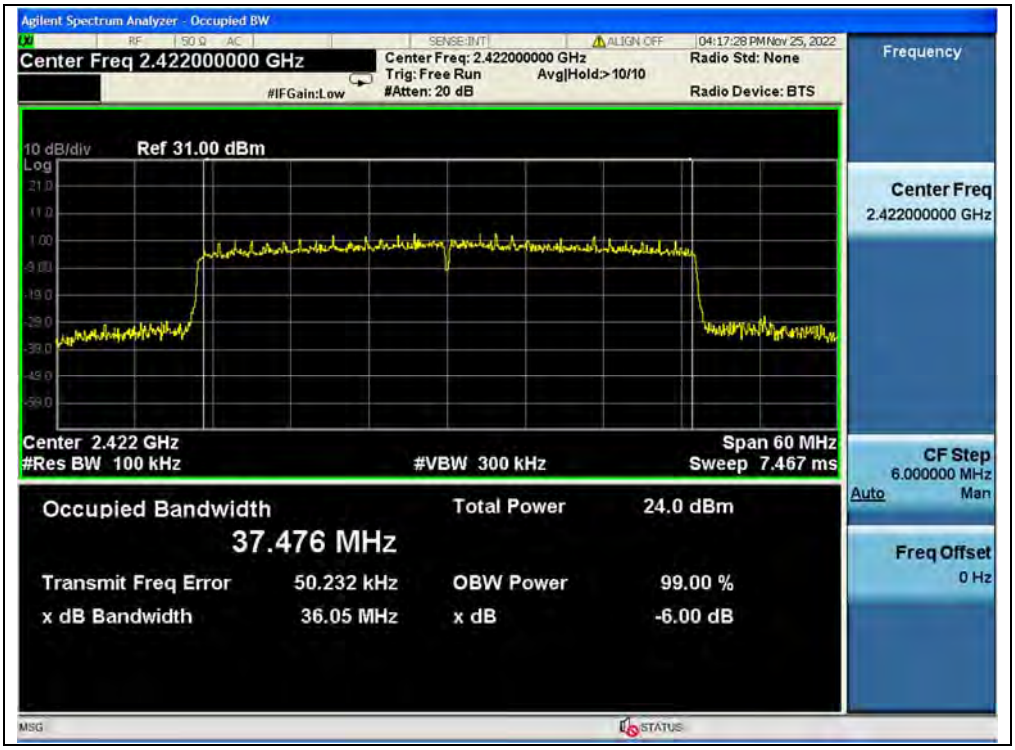
(Channel 11, 802.11ax (HEW20) RU106)

802.11ax (HEW40) Mode

A.Test Verdict:

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limits(kHz)	Result
3	2422	36.05	≥500	PASS
6	2437	35.29	≥500	PASS
9	2452	37.08	≥500	PASS

B.Test Plot:



(Channel 3, 802.11ax (HEW40))

(Channel 6, 802.11ax (HEW40))

(Channel 9, 802.11ax (HEW40))

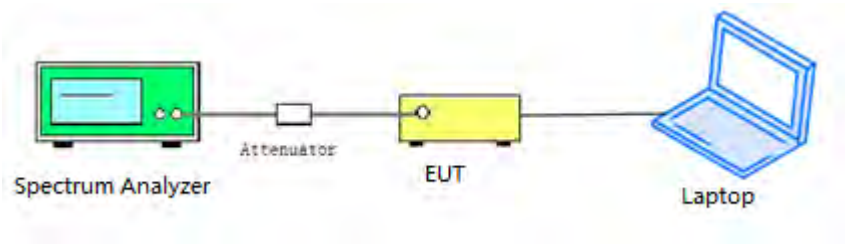
2.5. Conducted Spurious Emissions and Band Edge

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.

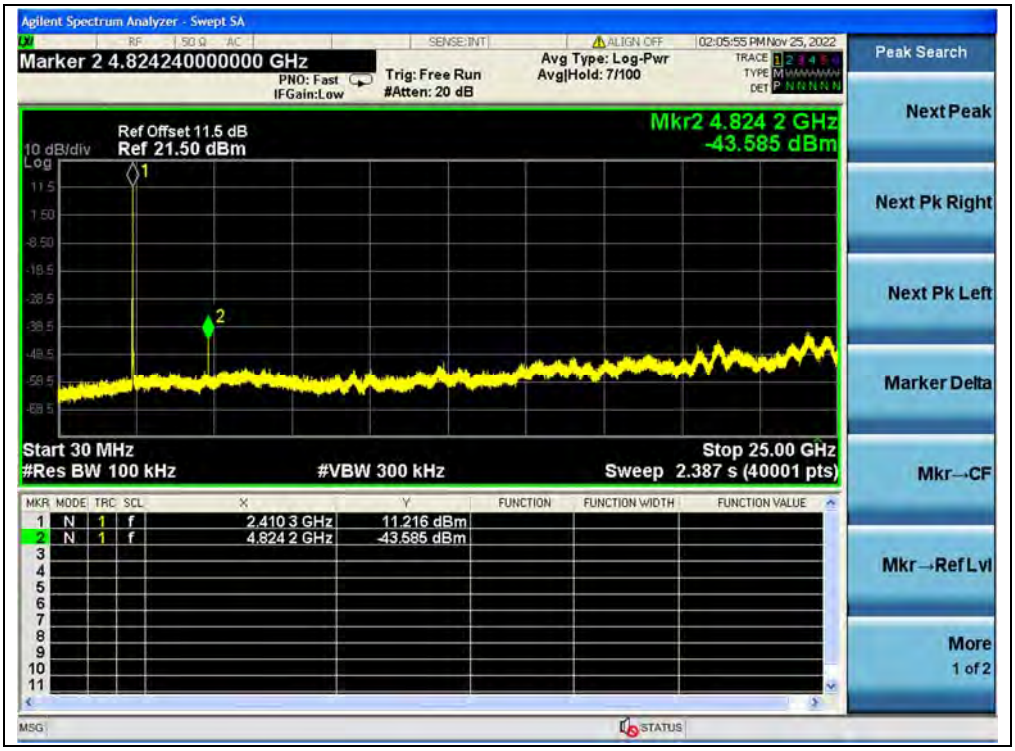
2.5.4.Test Result

802.11b Mode

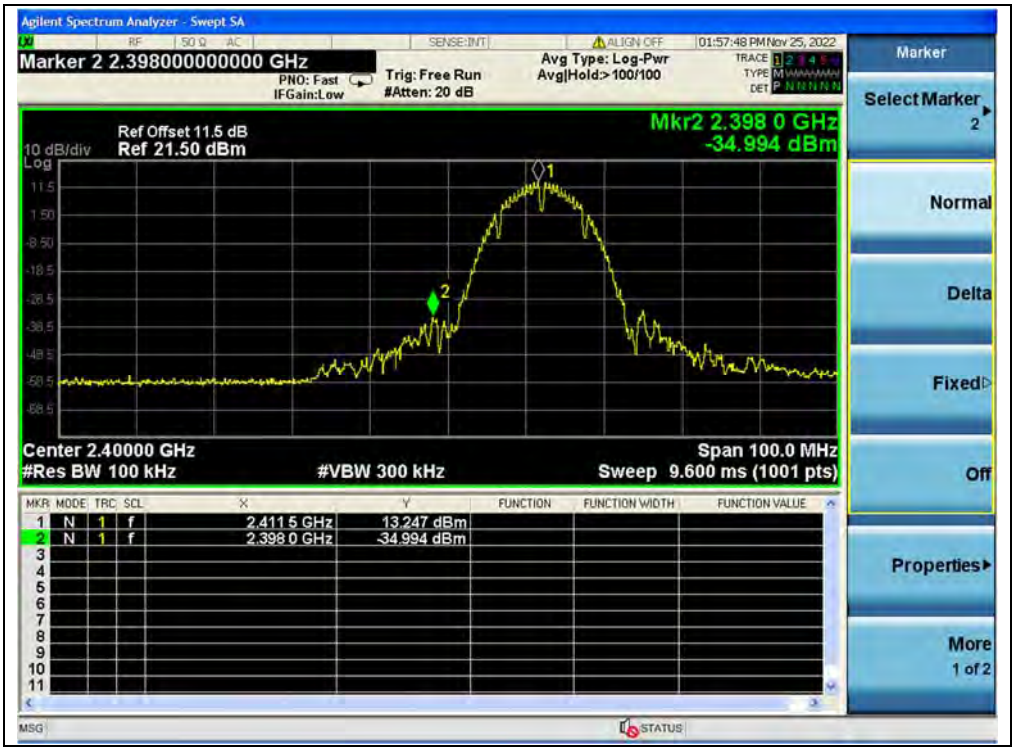
A.Test Verdict:

Channel	Frequency (MHz)	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
			Carrier Level	Calculated -20dBc Limit	
1	2412	-43.59	11.22	-8.78	PASS
6	2437	-40.71	11.98	-8.02	PASS
11	2462	-41.10	13.05	-6.95	PASS

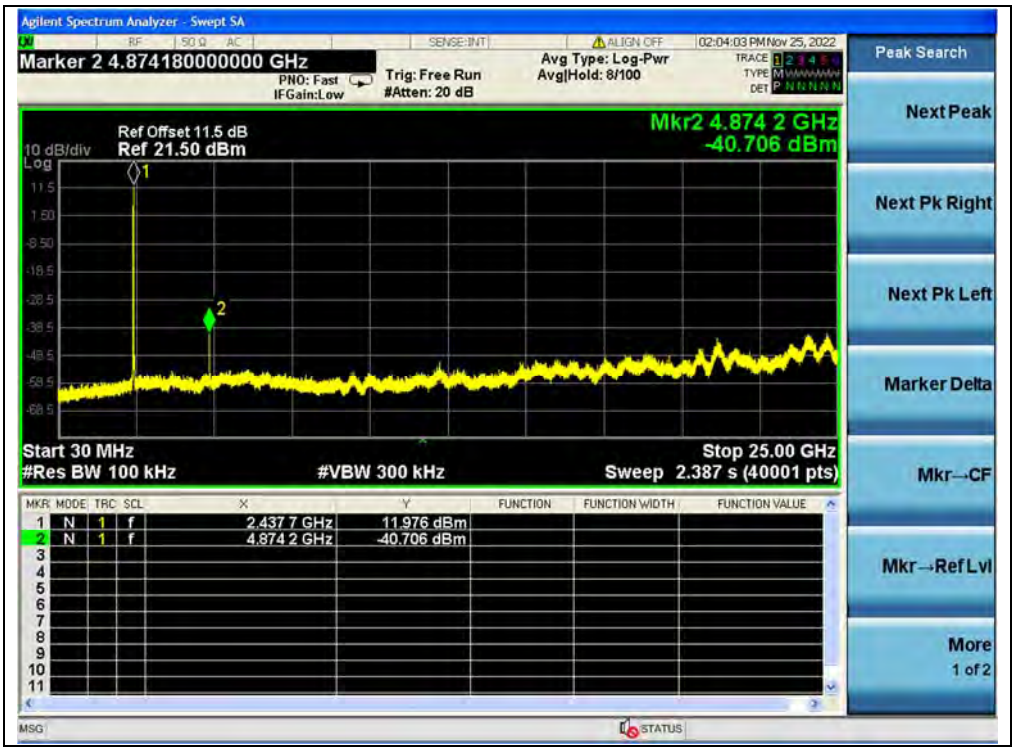
B.Test Plot:



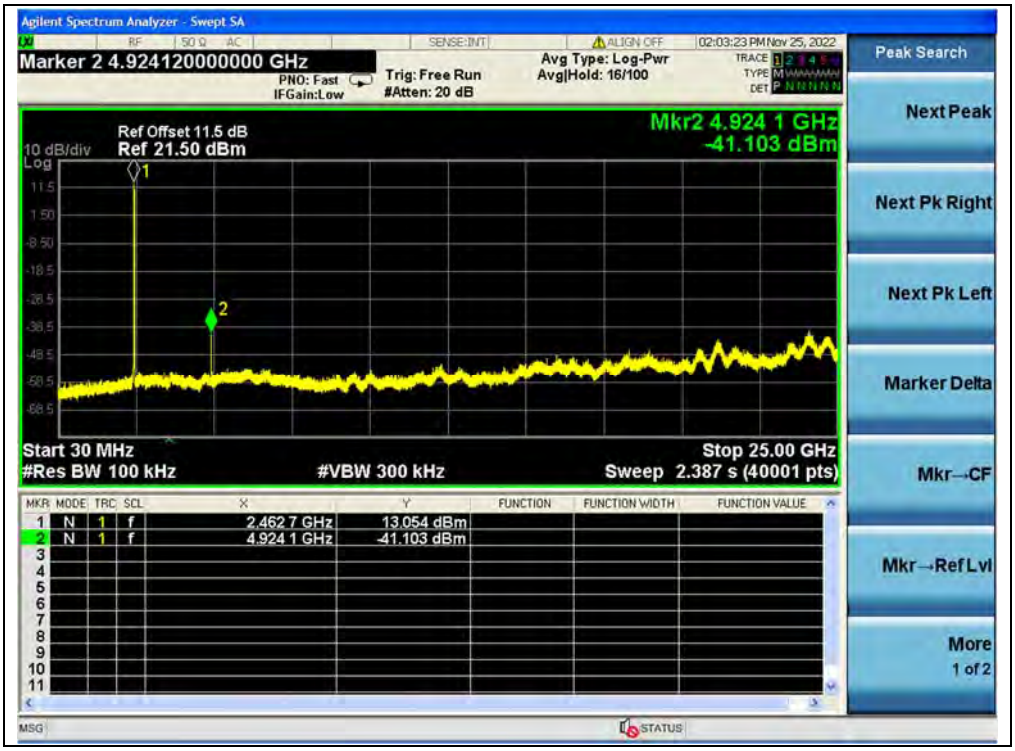
(30MHz to 25GHz, Channel 1, 802.11b)



(Band Edge, Channel 1, 802.11b)



(30MHz to 25GHz, Channel 6, 802.11b)



(30MHz to 25GHz, Channel 11, 802.11b)

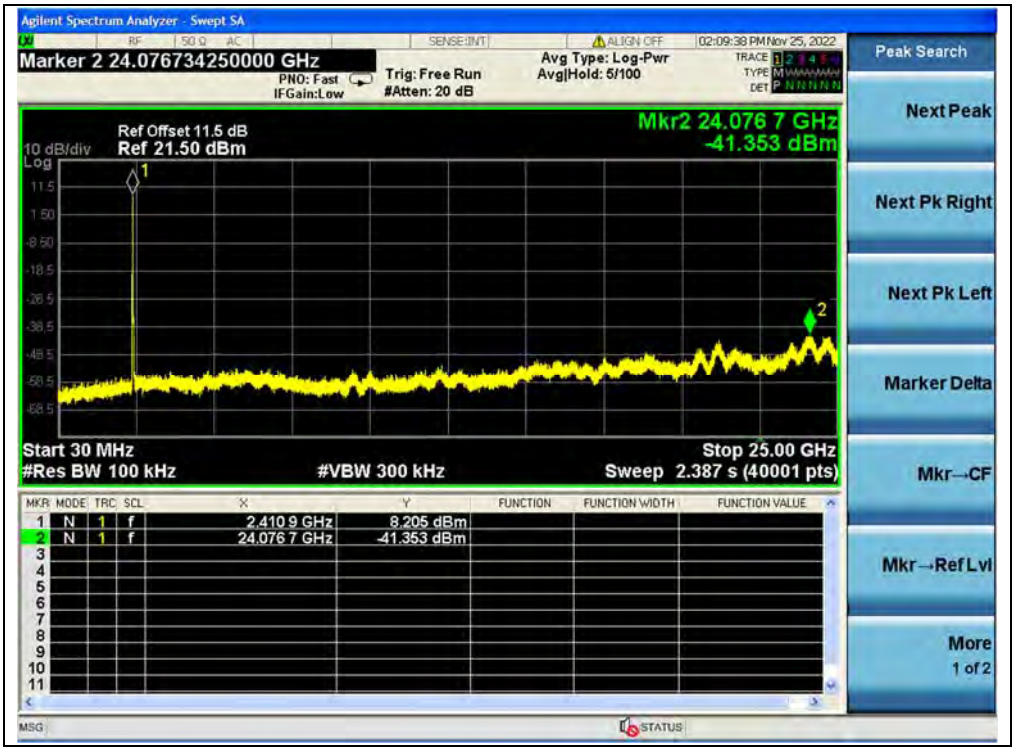
(Band Edge, Channel 11, 802.11b)

802.11g Mode

A.Test Verdict:

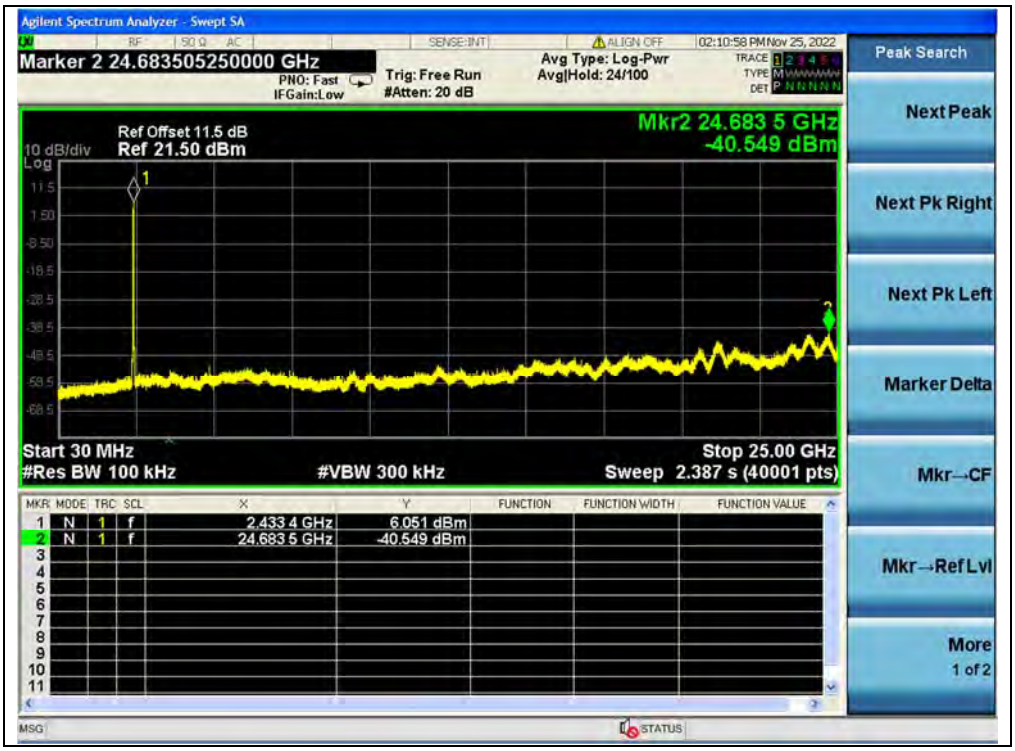
Channel	Frequency (MHz)	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
			Carrier Level	Calculated -20dBc Limit	
1	2412	-41.35	8.21	-11.79	PASS
6	2437	-40.55	6.05	-13.95	PASS
11	2462	-40.71	5.79	-14.21	PASS

B.Test Plot:

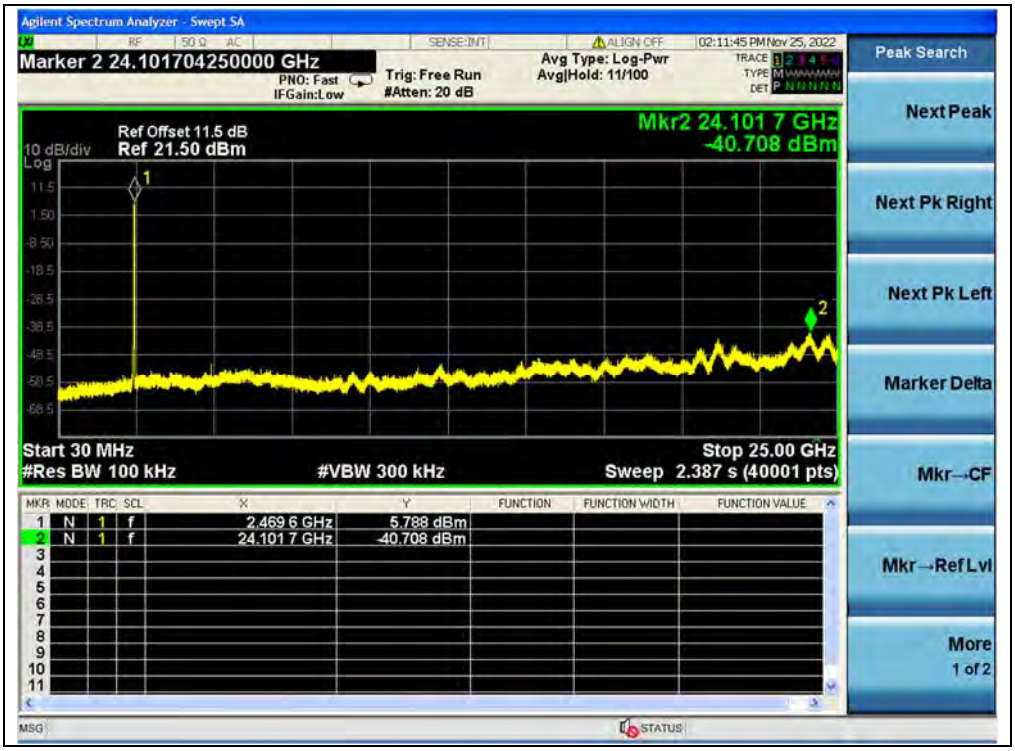


(30MHz to 25GHz, Channel 1, 802.11g)

(Band Edge, Channel 1, 802.11g)



(30MHz to 25GHz, Channel 6, 802.11g)



(30MHz to 25GHz, Channel 11, 802.11g)

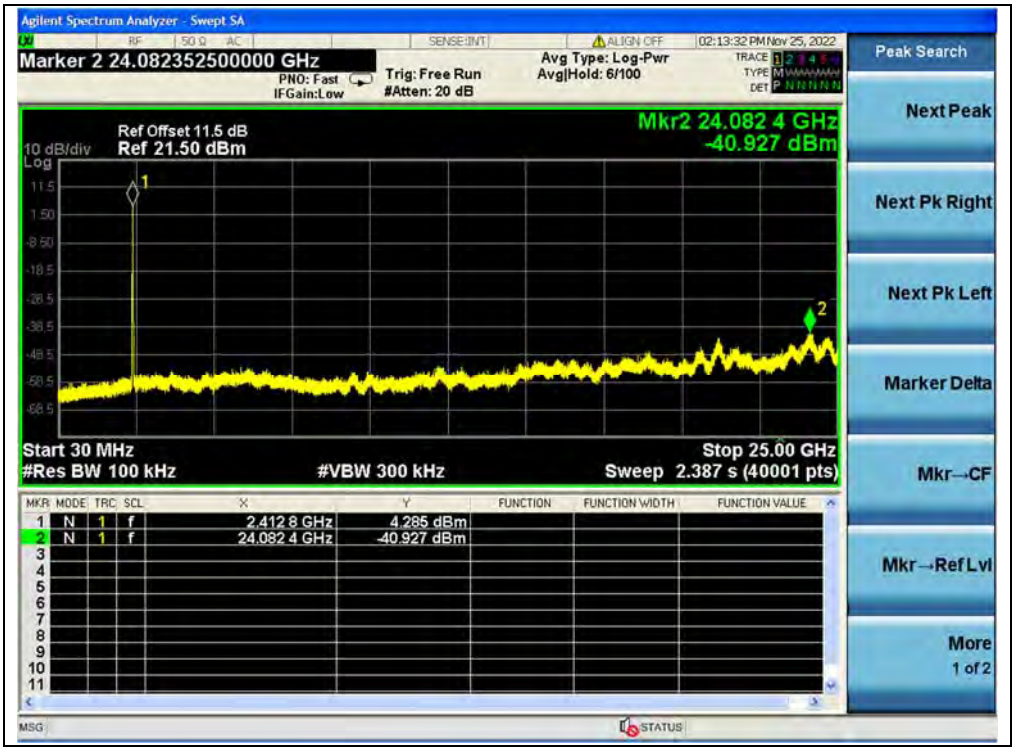
(Band Edge, Channel 11, 802.11g)

802.11n (HT20) Mode

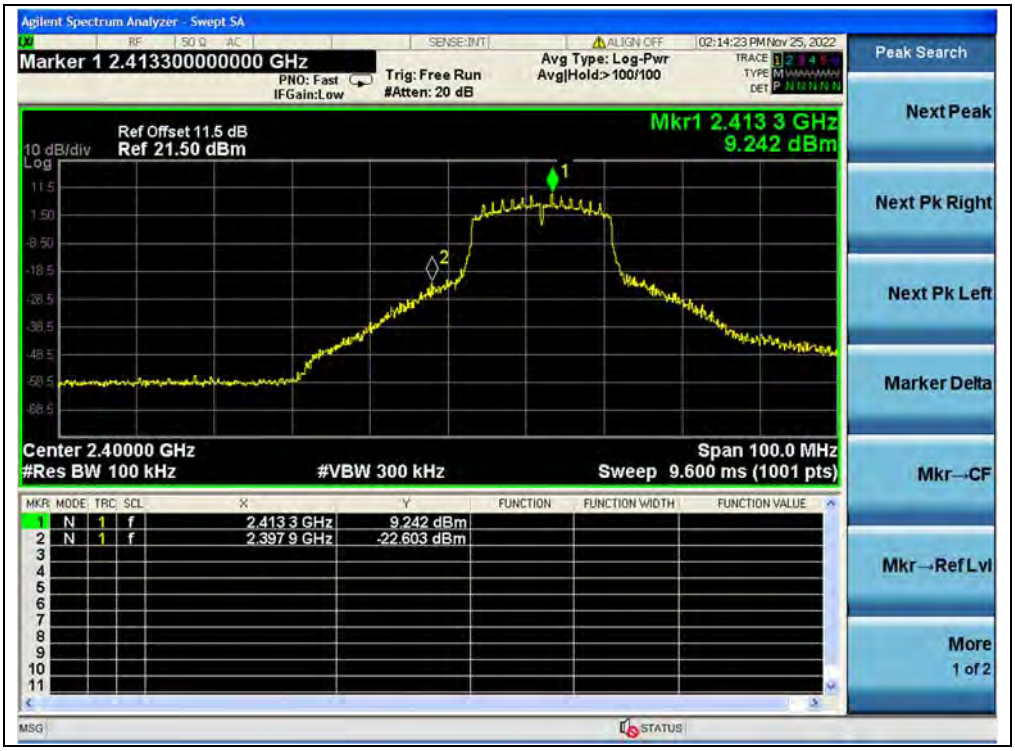
A.Test Verdict:

Channel	Frequency (MHz)	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
			Carrier Level	Calculated -20dBc Limit	
1	2412	-40.93	4.29	-15.71	PASS
6	2437	-40.91	7.64	-12.36	PASS
11	2462	-41.19	4.67	-15.33	PASS

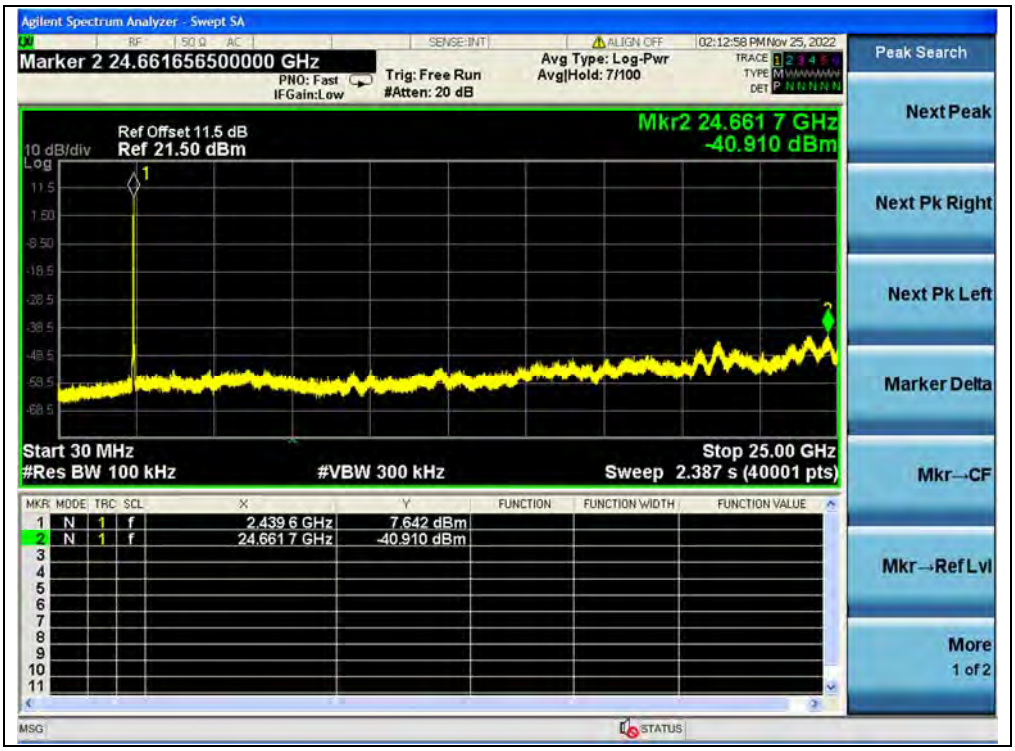
B.Test Plot:



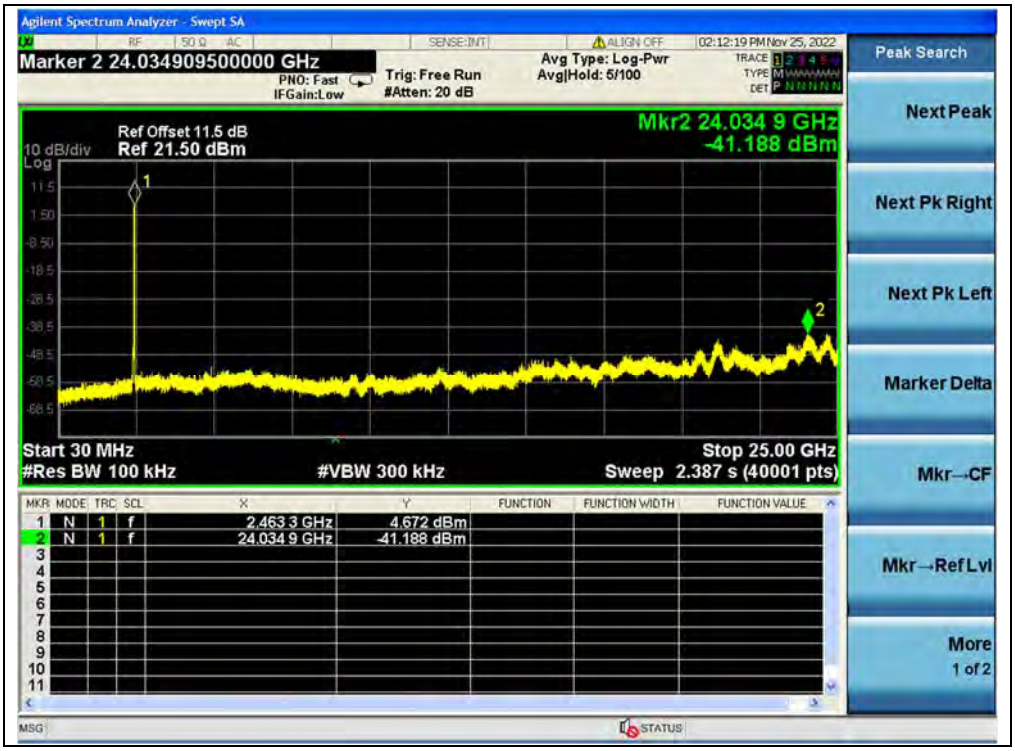
(30MHz to 25GHz, Channel 1, 802.11n (HT20))



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



(30MHz to 25GHz, Channel 6, 802.11n (HT20))



(30MHz to 25GHz, Channel 11, 802.11n (HT20))

(Band Edge, Channel 11, 802.11n (HT20))

802.11n (HT40) Mode

A.Test Verdict:

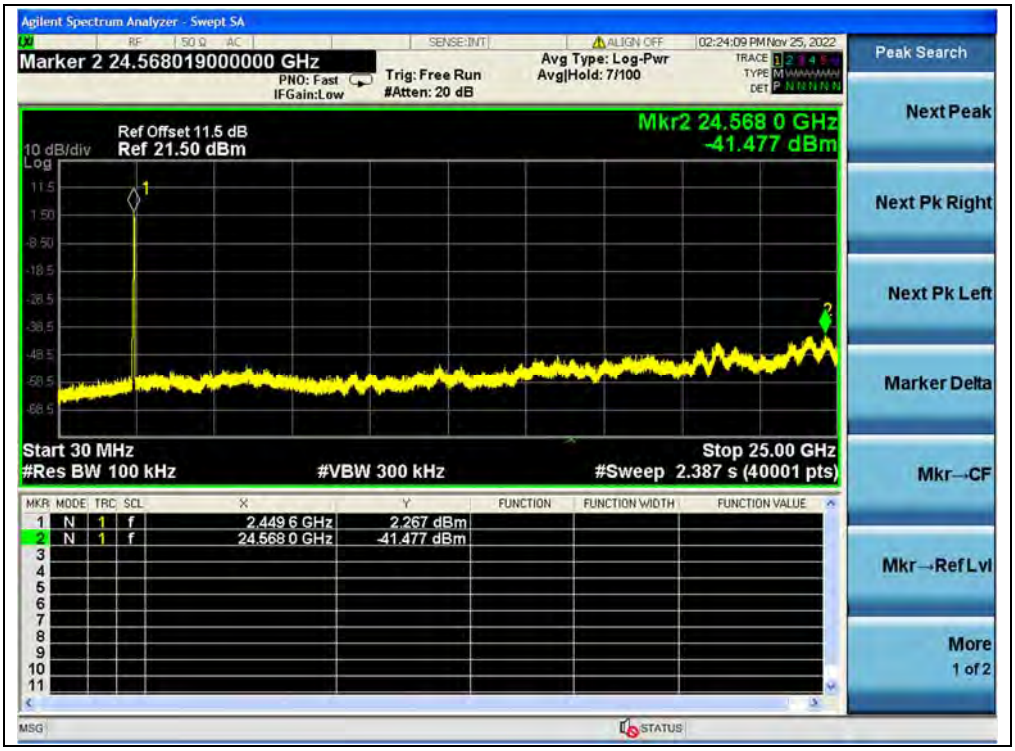
Channel	Frequency (MHz)	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
			Carrier Level	Calculated -20dBc Limit	
3	2422	-40.80	4.65	-15.35	PASS
6	2437	-39.28	5.53	-14.47	PASS
9	2452	-41.48	2.27	-17.73	PASS

B.Test Plot:

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

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

(30MHz to 25GHz, Channel 6, 802.11n (HT40))



(30MHz to 25GHz, Channel 9, 802.11n (HT40))

(Band Edge, Channel 9, 802.11n (HT40))

802.11ax (HEW20) Mode

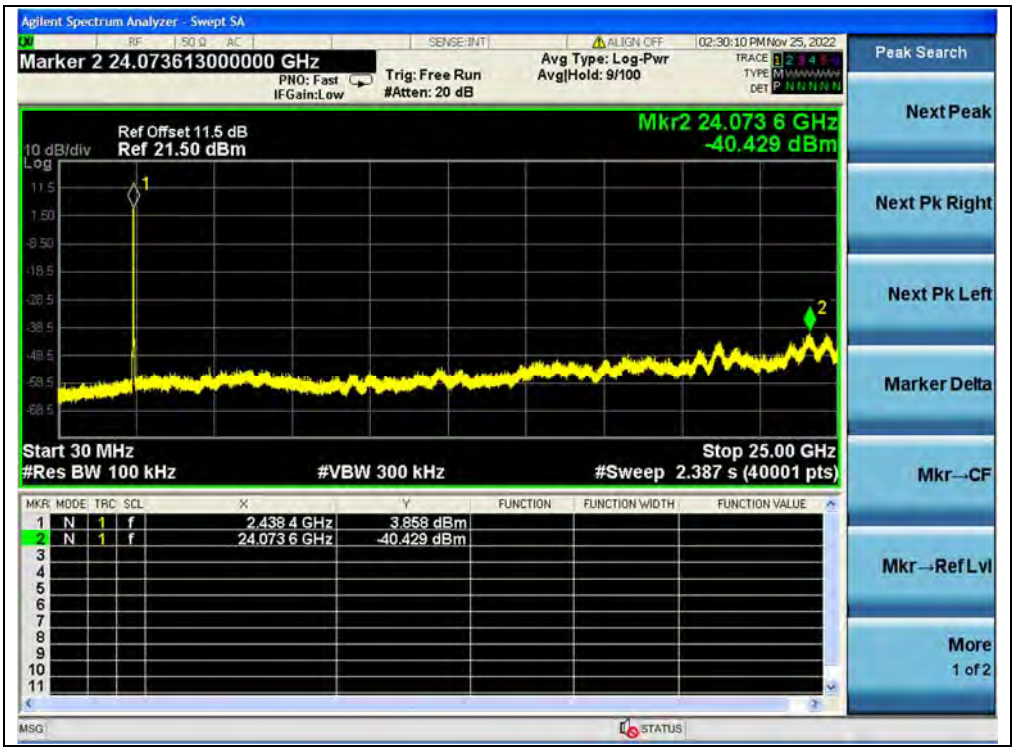
A.Test Verdict:

Channel	Frequency (MHz)	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
			Carrier Level	Calculated -20dBc Limit	
1	2412	-40.79	5.91	-14.09	PASS
6	2437	-40.43	3.86	-16.14	PASS
11	2462	-39.37	6.41	-13.59	PASS

B.Test Plot:

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

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



(30MHz to 25GHz, Channel 6, 802.11ax (HEW20))

(30MHz to 25GHz, Channel 11, 802.11ax (HEW20))

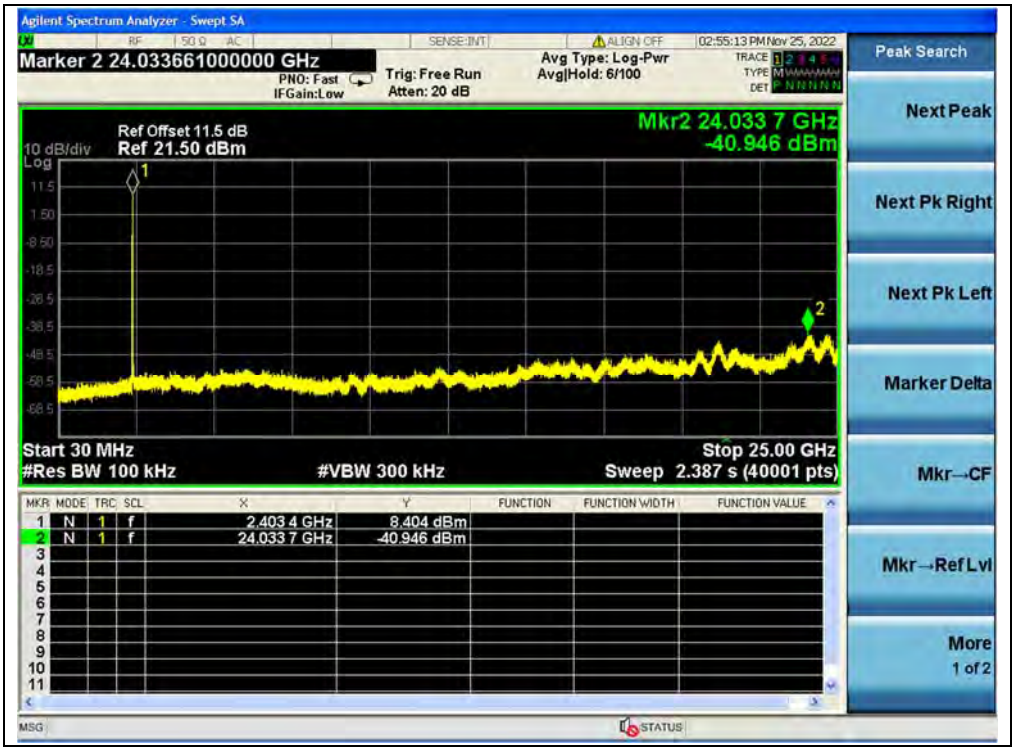
(Band Edge, Channel 11, 802.11ax (HEW20))

802.11ax (HEW20) RU26 Mode

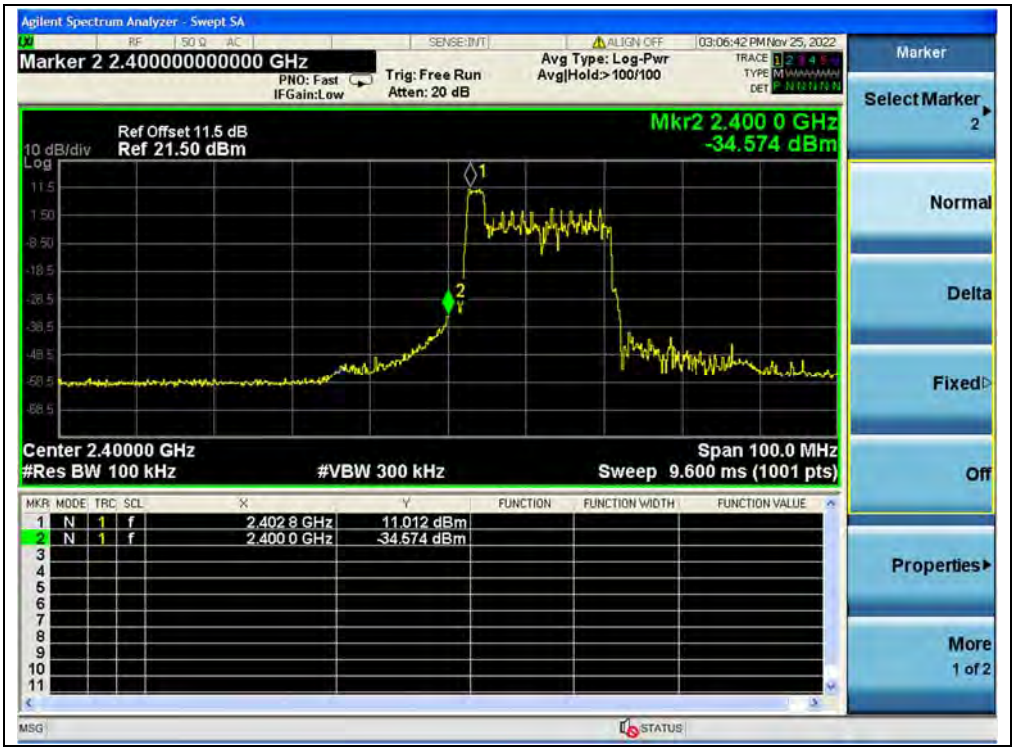
A.Test Verdict:

Channel	Frequency (MHz)	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
			Carrier Level	Calculated -20dBc Limit	
1	2412	-40.95	8.40	-11.60	PASS
6	2437	-41.22	9.40	-10.60	PASS
11	2462	-41.88	9.62	-10.38	PASS

B.Test Plot:

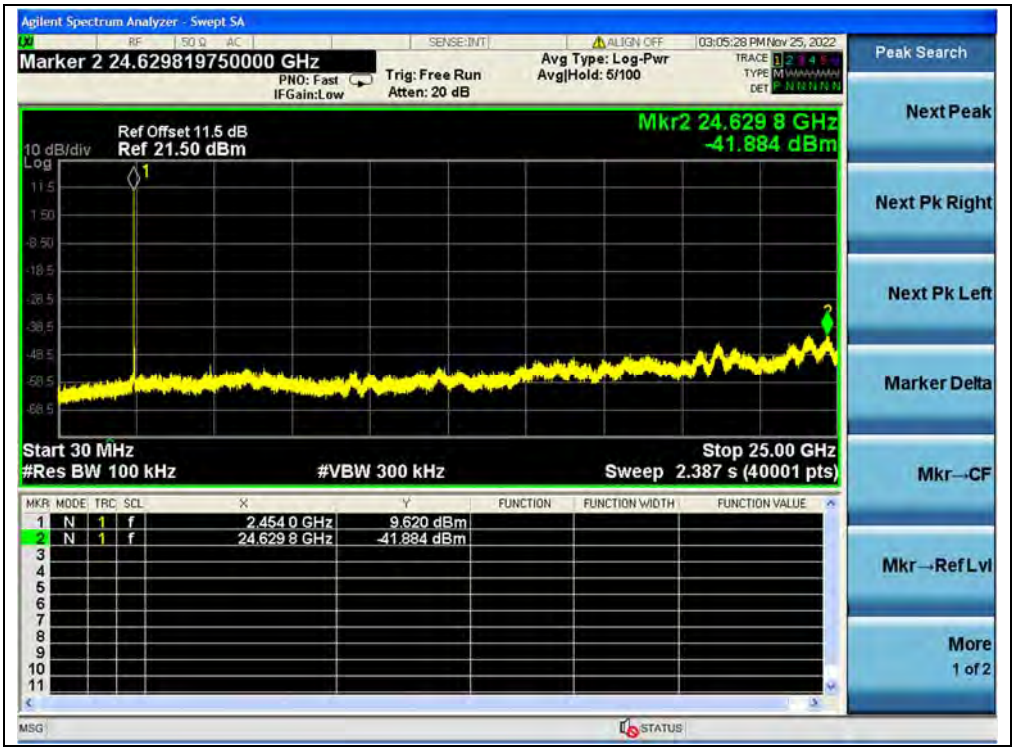


(30MHz to 25GHz, Channel 1, 802.11ax (HEW20) RU26)



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

(30MHz to 25GHz, Channel 6, 802.11ax (HEW20) RU26)



(30MHz to 25GHz, Channel 11, 802.11ax (HEW20) RU26)

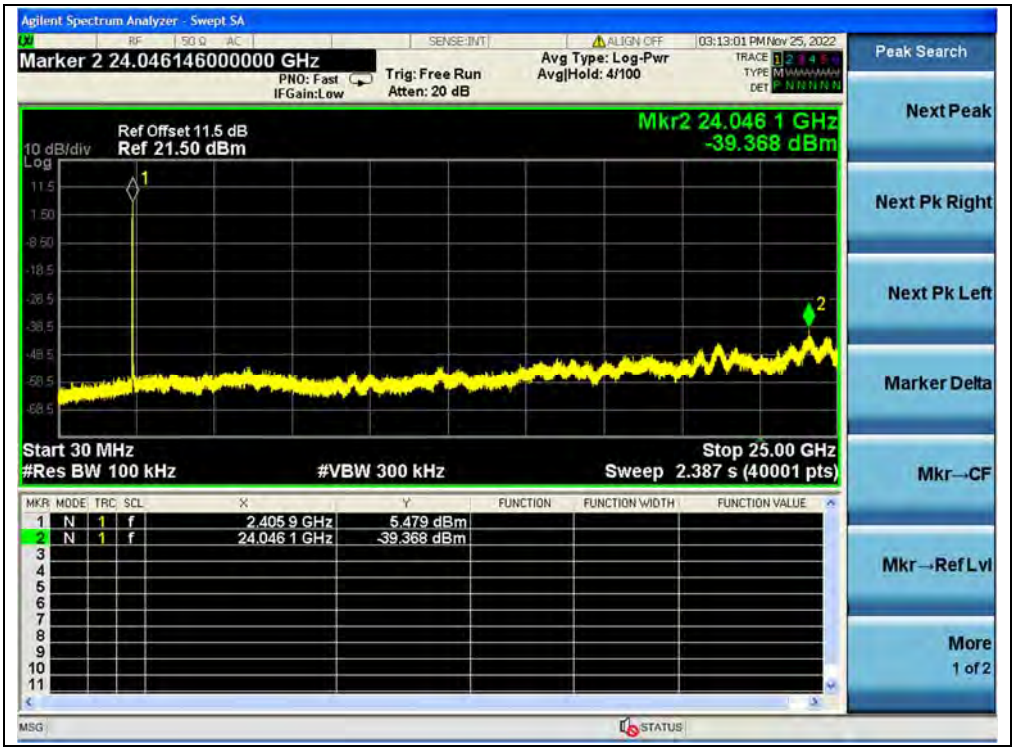
(Band Edge, Channel 11, 802.11ax (HEW20) RU26)

802.11ax (HEW20) RU52 Mode

A.Test Verdict:

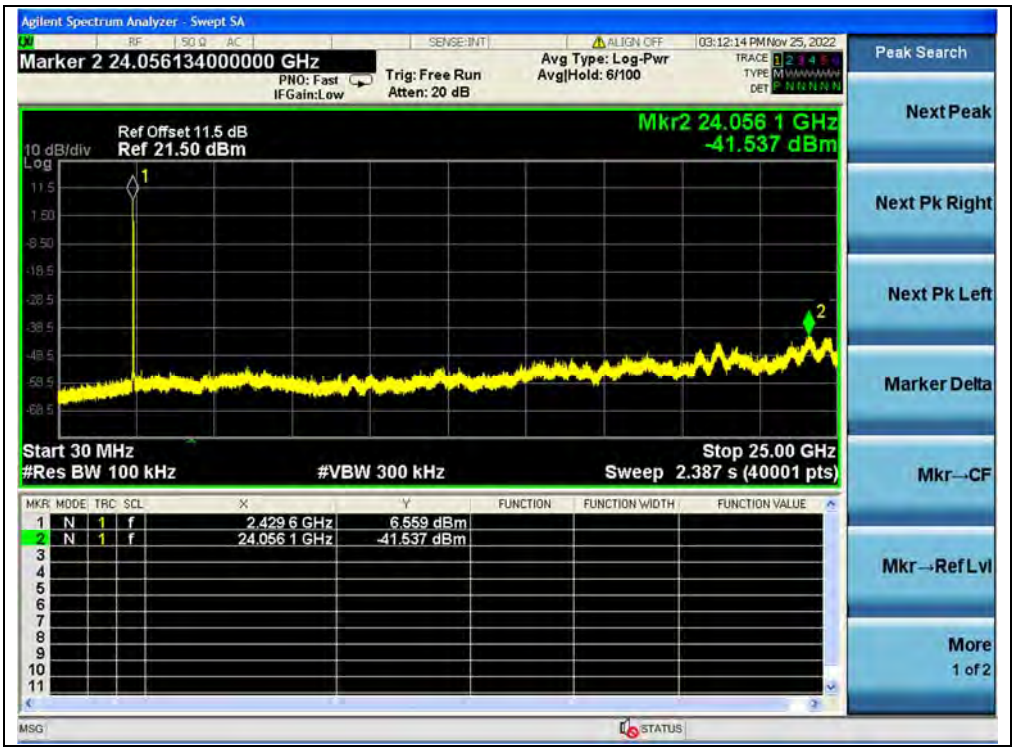
Channel	Frequency (MHz)	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
			Carrier Level	Calculated -20dBc Limit	
1	2412	-39.37	5.48	-14.52	PASS
6	2437	-41.54	6.56	-13.44	PASS
11	2462	-42.02	11.51	-8.49	PASS

B.Test Plot:

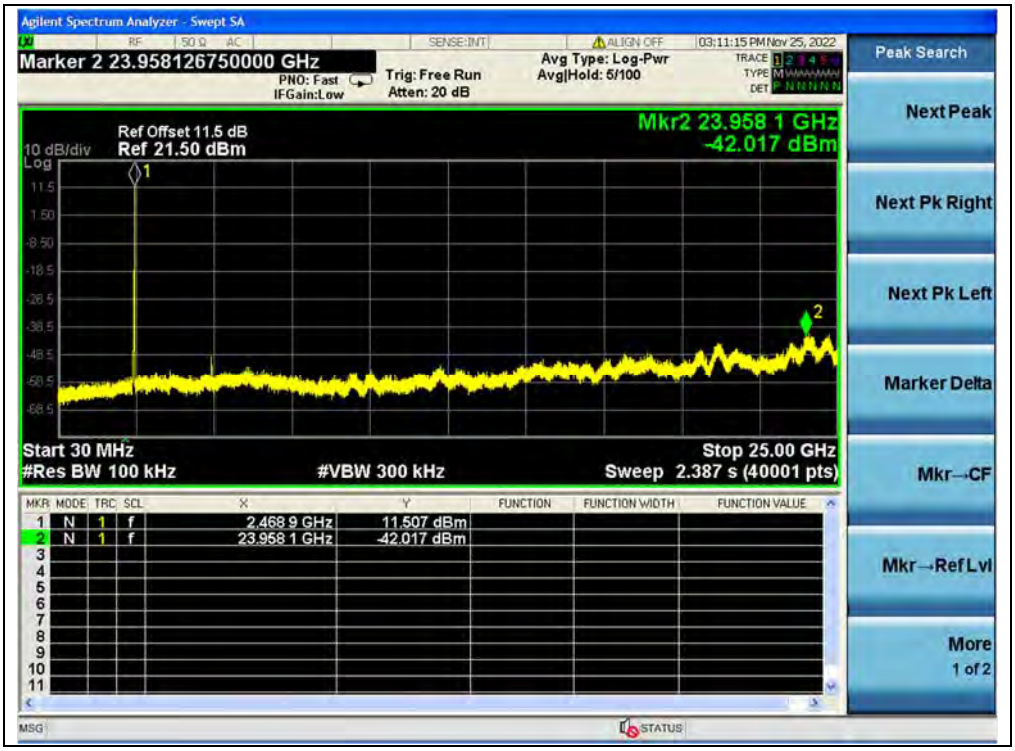


(30MHz to 25GHz, Channel 1, 802.11ax (HEW20) RU52)

(Band Edge, Channel 1, 802.11ax (HEW20) RU52)



(30MHz to 25GHz, Channel 6, 802.11ax (HEW20) RU52)



(30MHz to 25GHz, Channel 11, 802.11ax (HEW20) RU52)

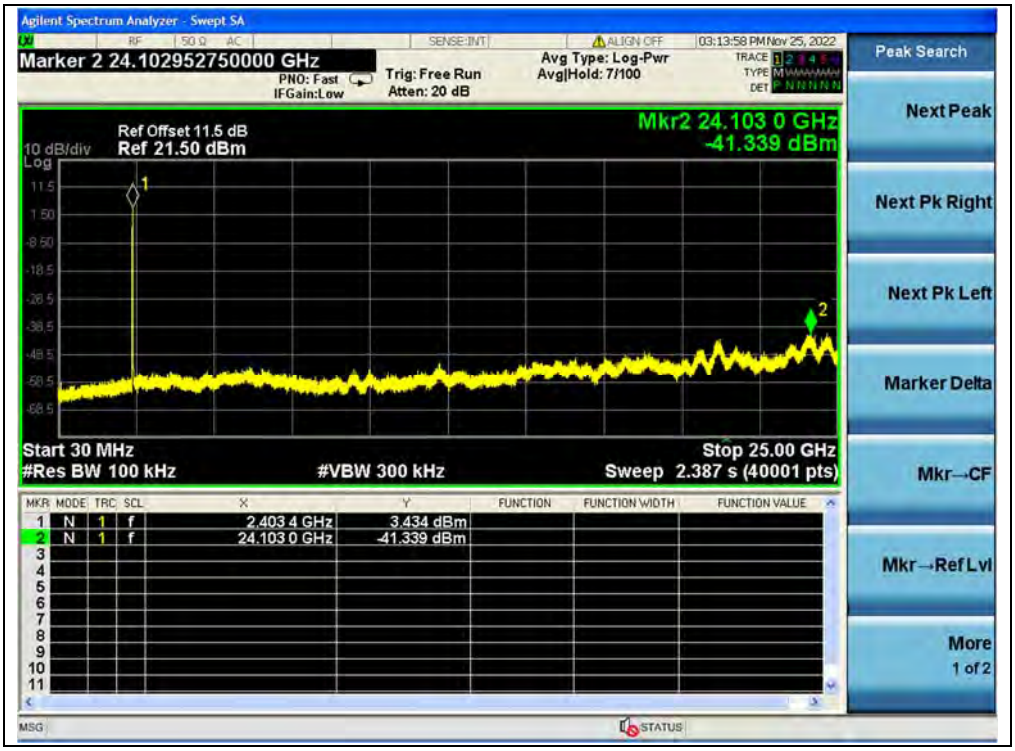
(Band Edge, Channel 11, 802.11ax (HEW20) RU52)

802.11ax (HEW20) RU106 Mode

A.Test Verdict:

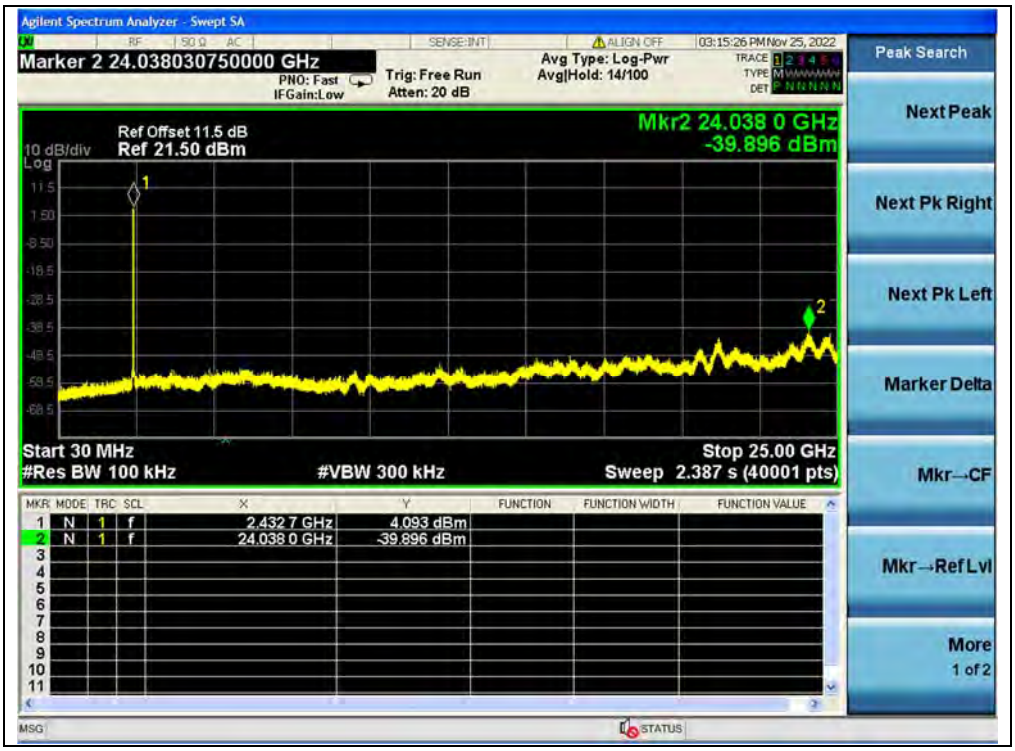
Channel	Frequency (MHz)	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
			Carrier Level	Calculated -20dBc Limit	
1	2412	-41.34	3.43	-16.57	PASS
6	2437	-39.90	4.09	-15.91	PASS
11	2462	-41.73	4.99	-15.01	PASS

B.Test Plot:

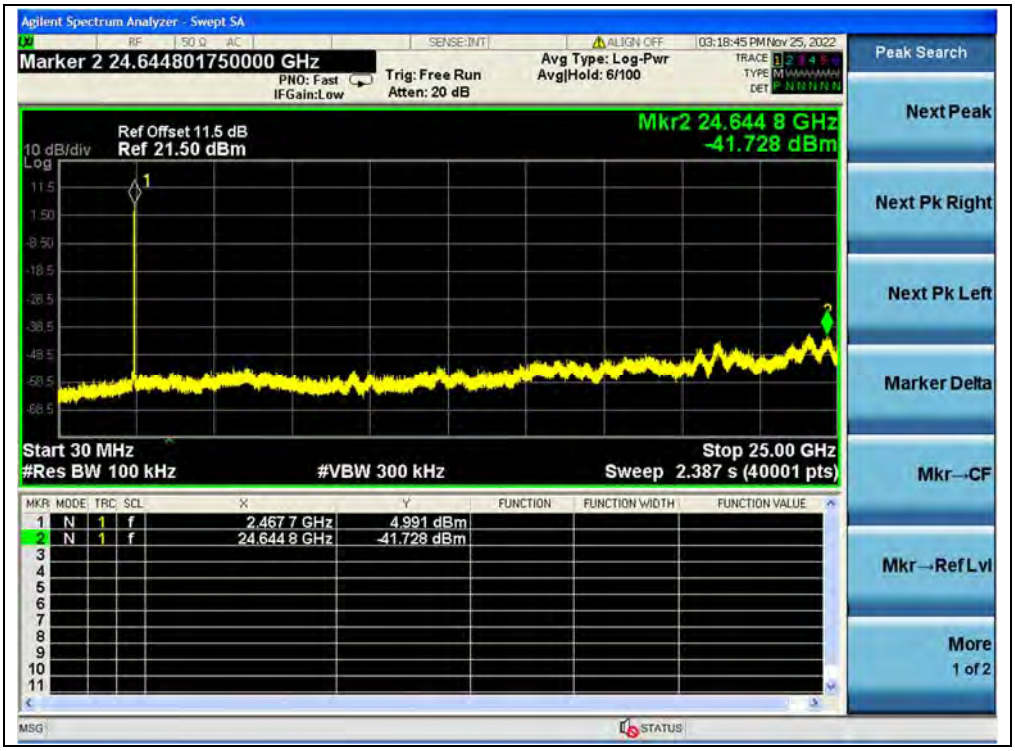


(30MHz to 25GHz, Channel 1, 802.11ax (HEW20) RU106)

(Band Edge, Channel 1, 802.11ax (HEW20) RU106)



(30MHz to 25GHz, Channel 6, 802.11ax (HEW20) RU106)



(30MHz to 25GHz, Channel 11, 802.11ax (HEW20) RU106)

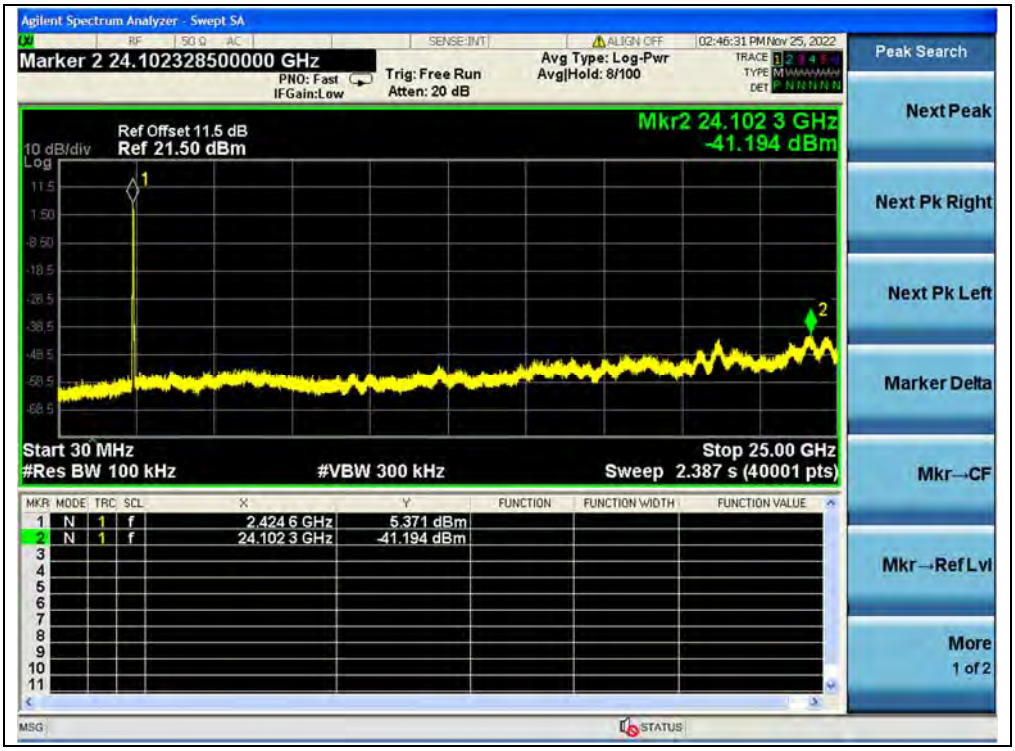
(Band Edge, Channel 11, 802.11ax (HEW20) RU106)

802.11ax (HEW40) Mode

A.Test Verdict:

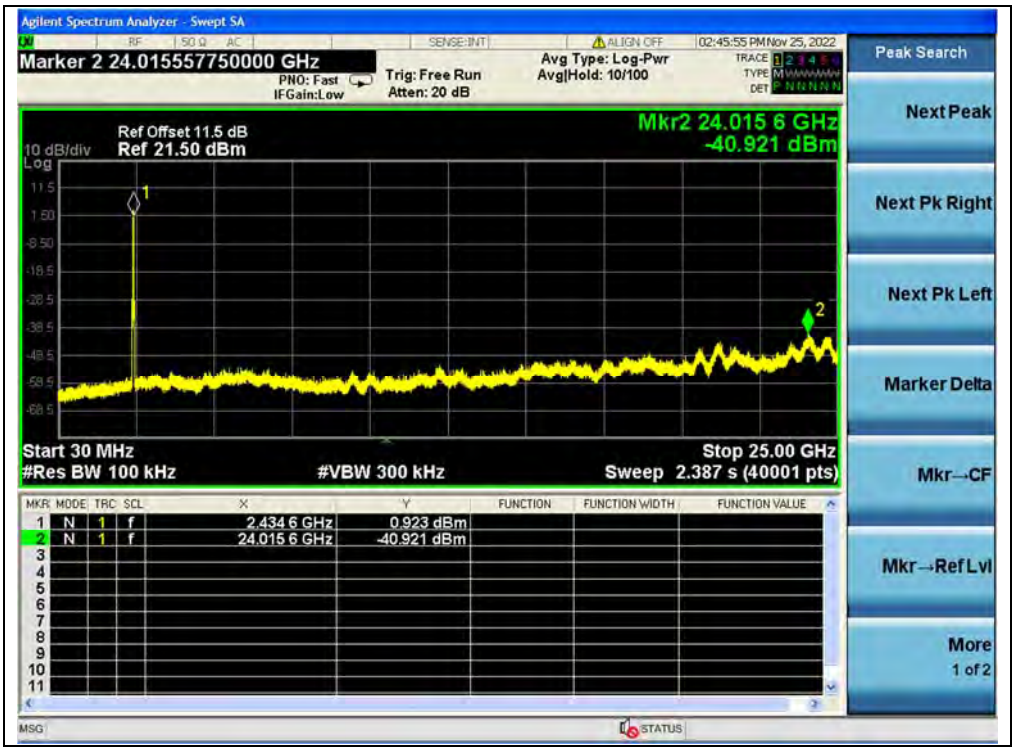
Channel	Frequency (MHz)	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
			Carrier Level	Calculated -20dBc Limit	
3	2422	-41.19	5.37	-14.63	PASS
6	2437	-40.92	0.92	-19.08	PASS
9	2452	-40.42	5.10	-14.90	PASS

B.Test Plot:

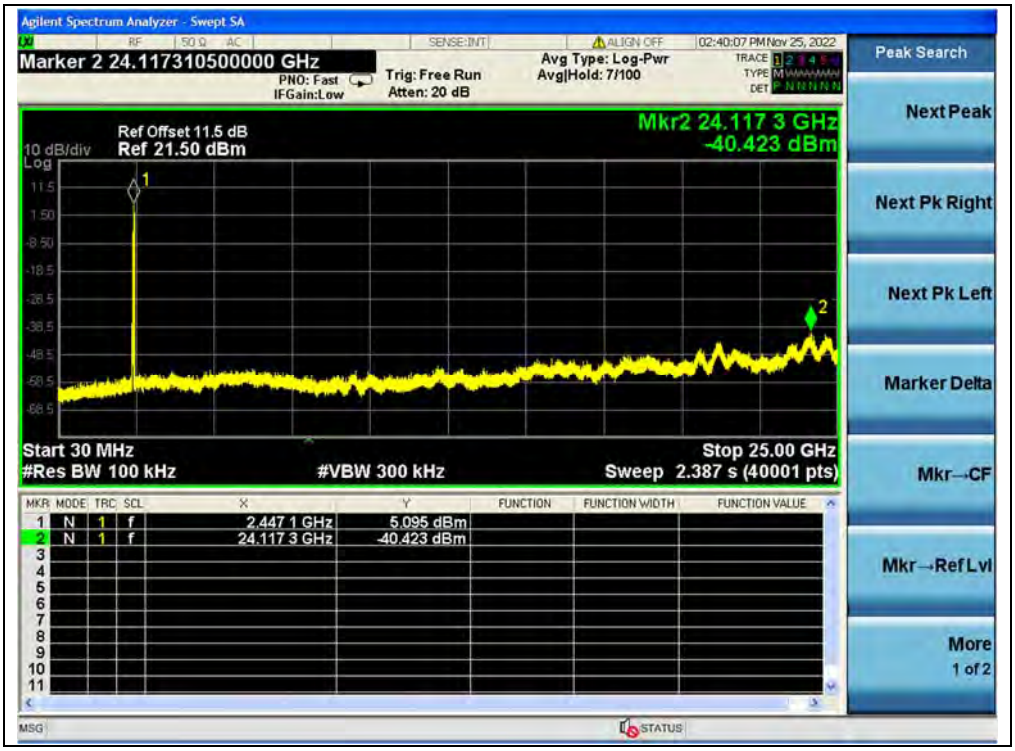


(30MHz to 25GHz, Channel 3, 802.11ax (HEW40))

(Band Edge, Channel 3, 802.11ax (HEW40))



(30MHz to 25GHz, Channel 6, 802.11ax (HEW40))



(30MHz to 25GHz, Channel 9, 802.11ax (HEW40))

(Band Edge, Channel 11, 802.11ax (HEW40))

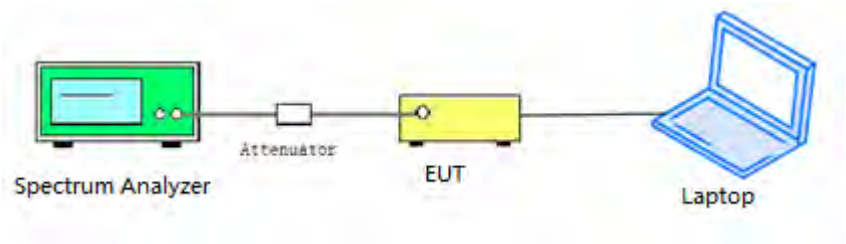
2.6. Power Spectral Density

2.6.1.Requirement

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

2.6.2.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.

2.6.3.Test Procedure

KDB 558074 Section 8.4 was used in order to prove compliance.

2.6.4.Test Result

802.11b Mode

A.Test Verdict:

Channel	Frequency (MHz)	Measured PSD (dBm/3kHz)		Limit (dBm/3kHz)	Verdict
		ANT 0	ANT 1		
1	2412	-0.20	-0.41	8	PASS
6	2437	-2.44	-1.90	8	PASS
11	2462	-1.66	-1.11	8	PASS

B.Test Plot:

(Channel 1, 802.11b, ANT 0)

(Channel 6, 802.11b, ANT 0)

(Channel 11, 802.11b, ANT 0)

(Channel 1, 802.11b, ANT 1)

(Channel 6, 802.11b, ANT 1)

(Channel 11, 802.11b, ANT 1)

802.11g Mode

A.Test Verdict:

Channel	Frequency (MHz)	Measured PSD (dBm/3kHz)		Limit (dBm/3kHz)	Verdict
		ANT 0	ANT 1		
1	2412	-5.37	-5.42	8	PASS
6	2437	-5.74	-4.67	8	PASS
11	2462	-3.38	-7.31	8	PASS

B.Test Plot:

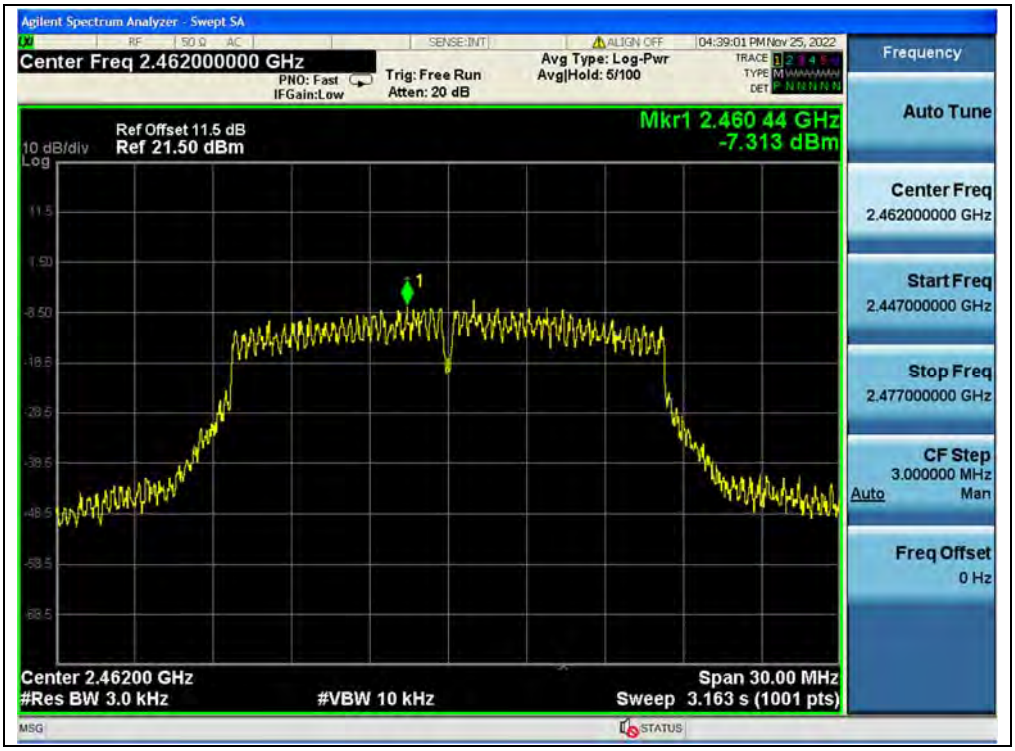
(Channel 1, 802.11g, ANT 0)

(Channel 6, 802.11g, ANT 0)

(Channel 11, 802.11g, ANT 0)

(Channel 1, 802.11g, ANT 1)

(Channel 6, 802.11g, ANT 1)



(Channel 11, 802.11g, ANT 1)

802.11n (HT20) Mode

A.Test Verdict:

Channel	Frequency (MHz)	Measured PSD (dBm/3kHz)		Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
		ANT 0	ANT 1			
1	2412	-4.82	-6.64	-2.63	8	PASS
6	2437	-6.40	-7.04	-3.70	8	PASS
11	2462	-5.02	-6.84	-2.83	8	PASS
Note: Directional gain = 2.79dBi +10log(2) = 5.80dBi＜6dBi, so the power density limit is 8 dBm/3kHz.						

B.Test Plot:

(Channel 1, 802.11n (HT20), ANT 0)