



TEST REPORT

APPLICANT : Nubia Technology Co., Ltd.
PRODUCT NAME : 5G Mobile Phone
MODEL NAME : NX666J
BRAND NAME : REDMAGIC
FCC ID : 2AHJO-NX666J
STANDARD(S) : 47 CFR Part 15 Subpart C
RECEIPT DATE : 2021-03-15
TEST DATE : 2021-03-18 to 2021-04-28
ISSUE DATE : 2021-05-07

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Change History		
Version	Date	Reason for change
1.0	2021-05-07	First edition



1. Technical Information

Note: Provide by applicant.

1.1. Applicant and Manufacturer Information

Applicant:	Nubia Technology Co.,Ltd.
Applicant Address:	Room 1801, Building 2, Chongwen Park, Nanshan Zhiyuan, No.3370, Liuxian Rd, Nanshan District, Shenzhen City, Guangdong Province, P. R. China
Manufacturer:	Nubia Technology Co.,Ltd.
Manufacturer Address:	Room 1801, Building 2, Chongwen Park, Nanshan Zhiyuan, No.3370, Liuxian Rd, Nanshan District, Shenzhen City, Guangdong Province, P. R. China

1.2. Equipment Under Test (EUT) Description

Product Name:	5G Mobile Phone	
Serial No:	(N/A, marked #1 by test site)	
Hardware Version:	NX666J_EUHW1.0	
Software Version:	NX666J_ENCommon_V2.06	
Modulation Technology:	DSSS, OFDM	
Modulation Type:	Refer to section1.3	
Operating Frequency Range:	802.11b/g/n (HT20): 2412MHz–2462MHz 802.11ax(HEW20): 2412MHz–2462MHz	
Antenna Type:	PIFA Antenna	
Antenna Gain:	ANT 0: -6.5dBi; ANT 1:-7.0dBi	
Directional Gain:	-3.49dBi ^{Note 2}	
Accessory Information:	Battery	
	Brand Name:	nubia
	Model No.:	Li3941T44PGh836548
	Serial No.:	(N/A, marked #1 by test site)
	Capacity:	4100mAh
	Rated Voltage:	3.87V
	Charge Limit:	4.45V
	Manufacturer:	Dongguan Amperex Technology Limited



Accessory Information:	AC Adapter	
	Brand Name:	NUBIA
	Model No.:	STC-A5101230A-Z
	Serial No.:	(N/A, marked #1 by test site)
	Rated Output:	5.0V=3.0A, 10.0V=3.0A, 12.0V=2.5A, 20.0V=1.5A
	Rated Input:	100-240V~50/60Hz, 0.7A
	Manufacturer:	Shenzhen Ruijing Industrial 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
802.11n	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 1) 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 1) 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	6/9/12/18/24/36/48/54Mbps	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	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)
802.11n (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	Mar 26, 2021	Liu Bo	PASS	No deviation
3	15.247(b)	Maximum Conducted Output Power	Apr 04, 2021	Liu Bo	PASS	No deviation
4	15.247(a)	Bandwidth	Apr 01, 2021	Liu Bo	PASS	No deviation
5	15.247(d)	Conducted Spurious Emission and Band Edge	Apr 01, 2021	Liu Bo	PASS	No deviation
6	15.247(e)	Power Spectral Density (PSD)	Apr 01, 2021	Liu Bo	PASS	No deviation
7	15.207	Conducted Emission	Mar 18, 2021	Wu Runfeng	PASS	No deviation
8	15.247(d)	Restricted Frequency Bands	Apr 14&28, 2021	Gao Jianrou	PASS	No deviation
9	15.209, 15.247(d)	Radiated Emission	Apr 14&28, 2021	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 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% risk level.

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 internal photos.

2.2. Duty Cycle of Test Signal

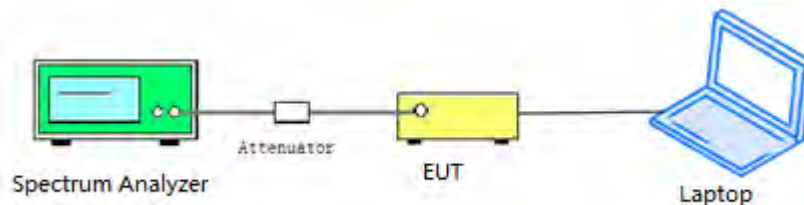
2.2.1. Requirement

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.

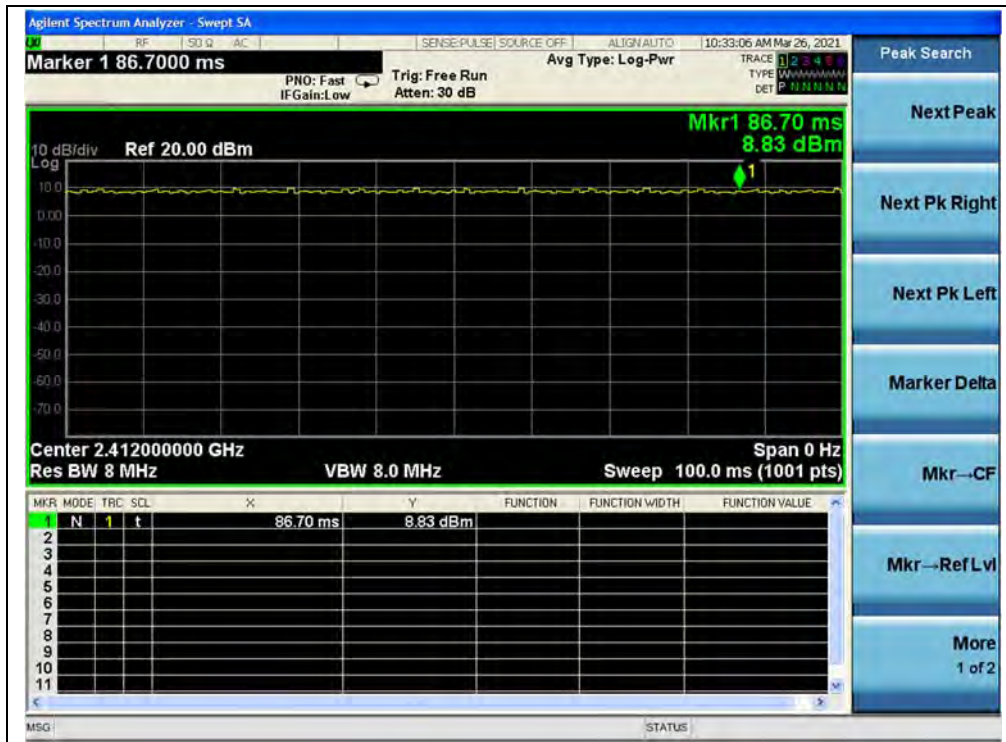


2.2.3. Test Result

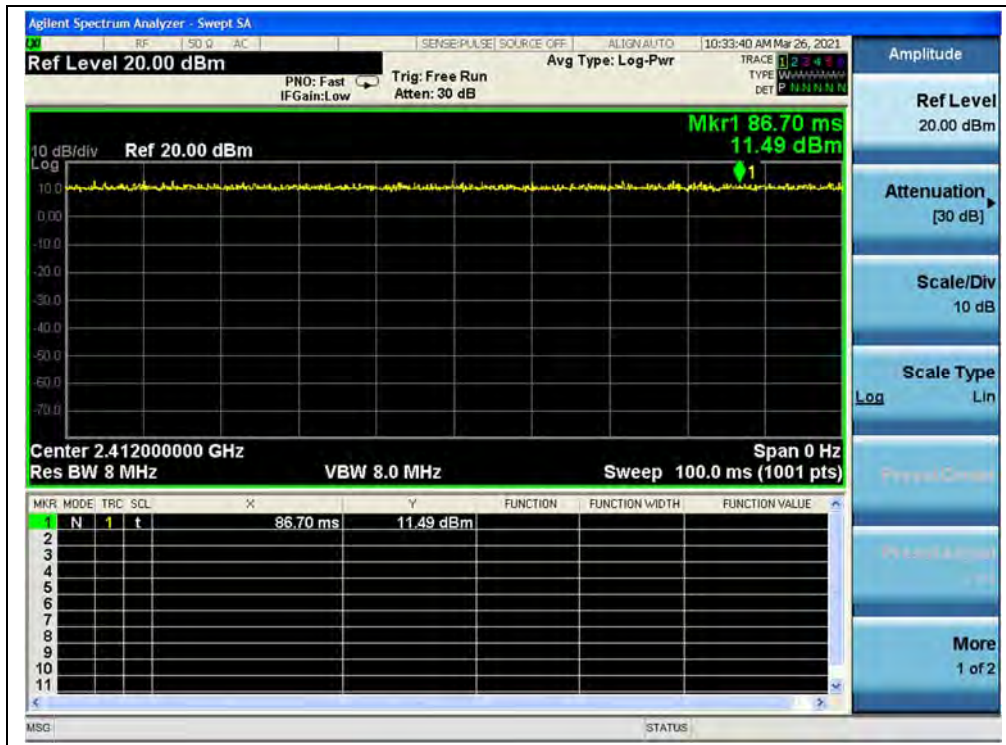
A. Test Verdict:

Test Mode	Duty Cycle (%) (D)	Duty Factor (10*Ig[1/D])
802.11b	100.00	0.00
802.11g	100.00	0.00
802.11n (HT20)	99.09	0.04
802.11n (HT40)	99.16	0.04
802.11ax (HEW20)	99.09	0.04
802.11ax (HEW20) RU26	100.00	0.00
802.11ax (HEW20) RU52	100.00	0.00
802.11ax (HEW20) RU106	100.00	0.00
802.11ax (HEW40)	99.09	0.04

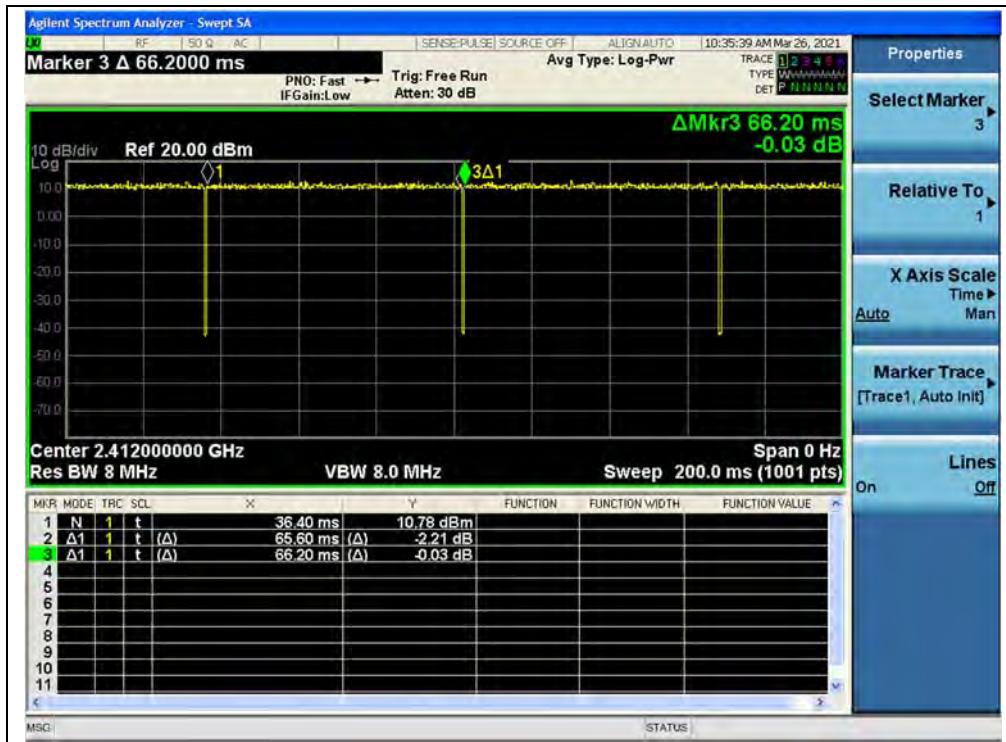
B. Test Plot:



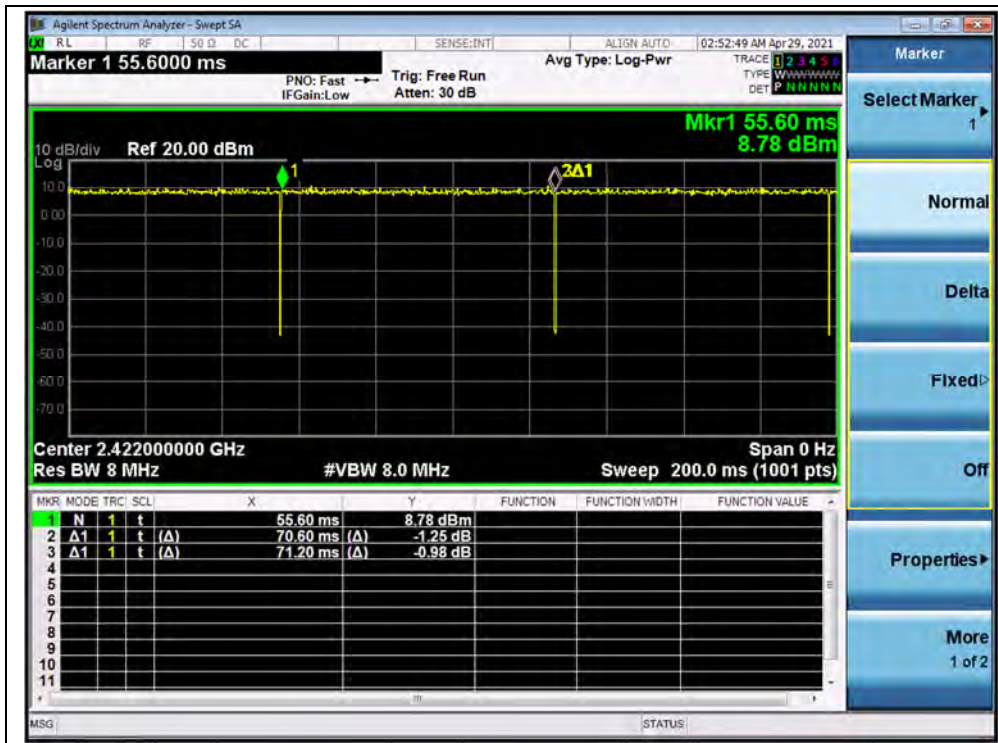
(Channel 1, 802.11b)



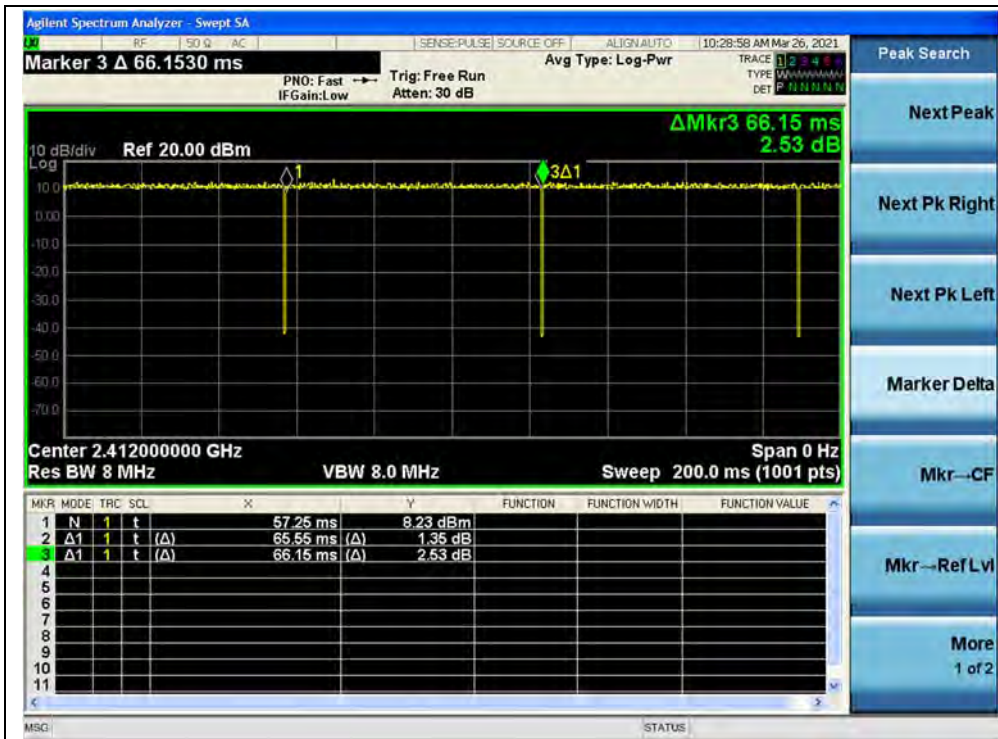
(Channel 1, 802.11g)



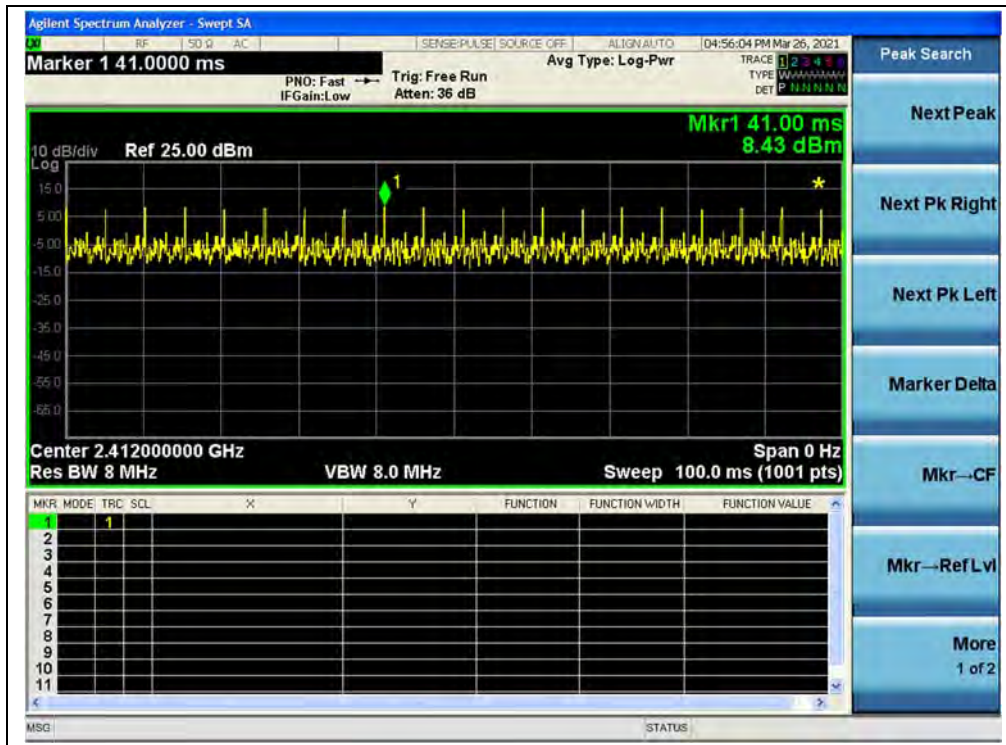
(Channel 1, 802.11n (HT20))



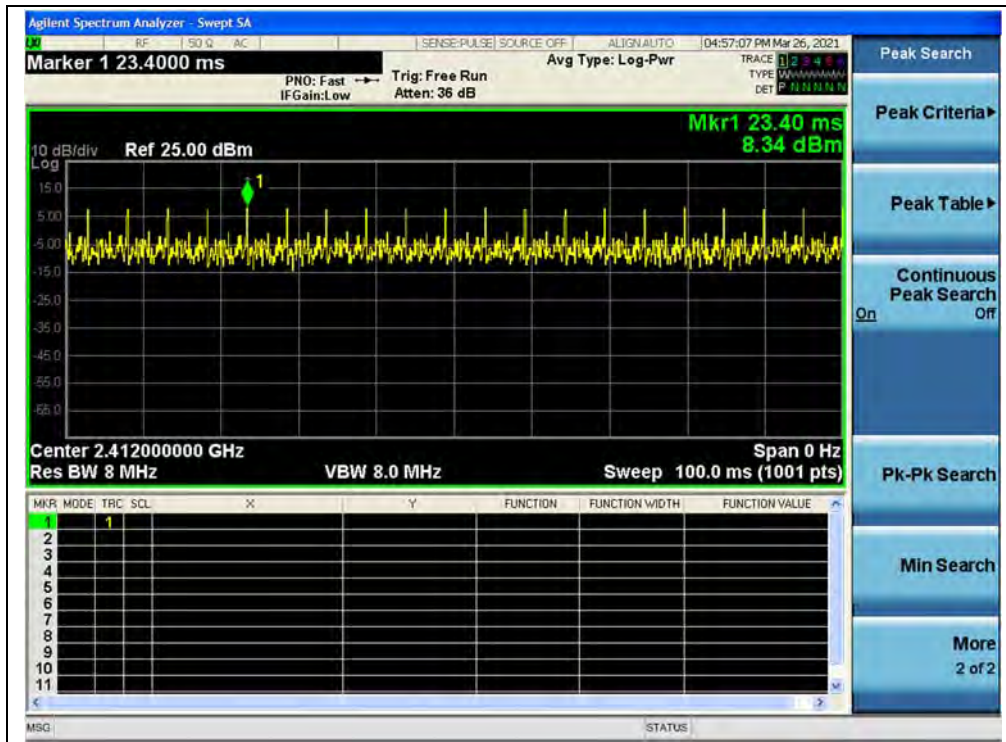
(Channel 3, 802.11n (HT40))



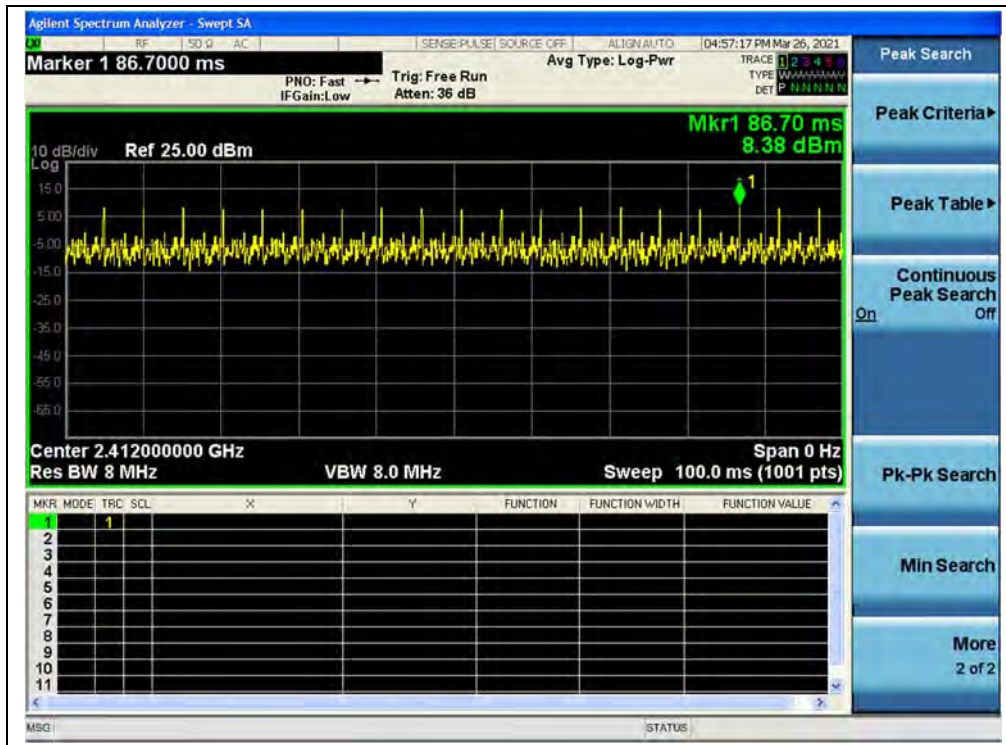
(Channel 1, 802.11ax (HEW20))



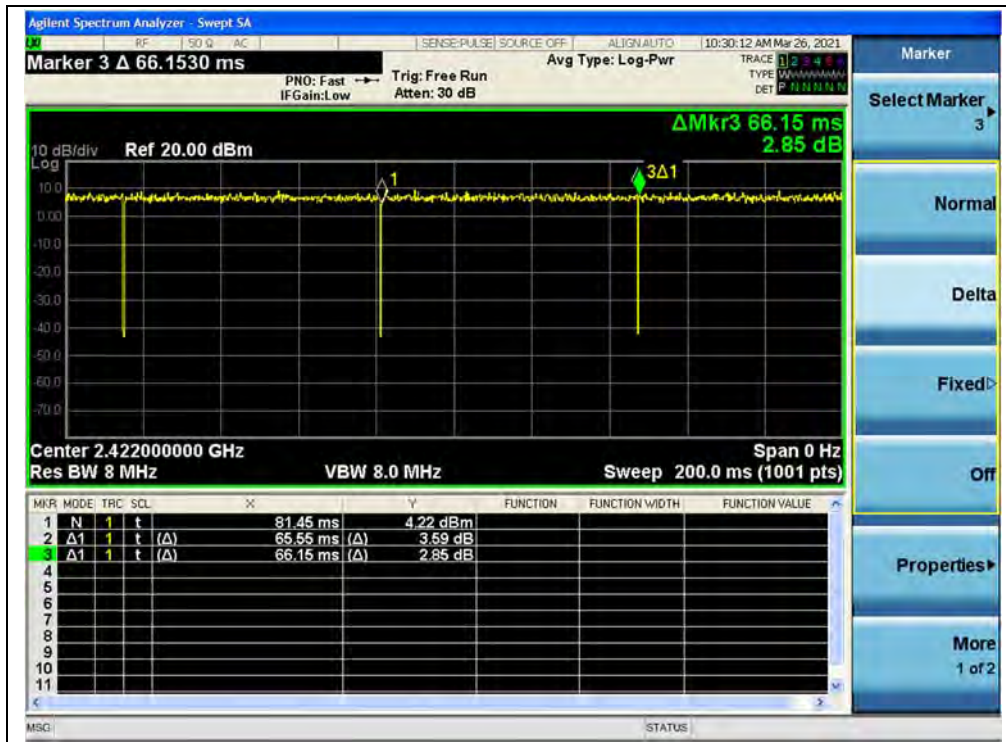
(Channel 1, 802.11ax (HEW20) RU26)



(Channel 1, 802.11ax (HEW20) RU52)



(Channel 1, 802.11ax (HEW20) RU106)



(Channel 3, 802.11ax (HEW40))

2.3. Maximum Conducted Output Power

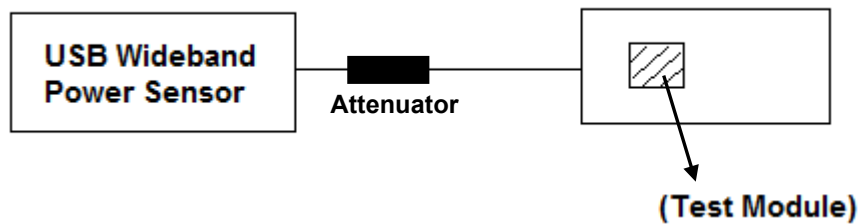
2.3.1. Requirement

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	18.08	0.064	16.97	0.050	30	1	PASS
6	2437	18.00	0.063	17.00	0.050			PASS
11	2462	17.96	0.063	16.95	0.050			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	22.17	0.165	21.22	0.132	30	1	PASS
6	2437	22.11	0.163	21.04	0.127			PASS
11	2462	22.15	0.164	21.11	0.129			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	21.96	21.06	24.55	0.285	30	1	PASS
6	2437	22.11	21.04	24.62	0.290			PASS
11	2462	21.94	20.89	24.46	0.279			PASS

Note: Directional gain = $-6.5\text{dBi} + 10\log(2) = -3.49\text{dBi} < 6\text{dBi}$, 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	20.44	19.43	22.97	0.198	30	1	PASS
6	2437	20.60	19.55	23.12	0.205			PASS
9	2452	20.34	19.20	22.81	0.191			PASS

Note: Directional gain = $-6.5\text{dBi} + 10\log(2) = -3.49\text{dBi} < 6\text{dBi}$, 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	23.11	22.22	25.69	0.371	30	1	PASS
6	2437	22.94	21.97	25.49	0.354			PASS
11	2462	23.12	22.01	25.61	0.364			PASS

Note: Directional gain = $-6.5\text{dBi} + 10\log(2) = -3.49\text{dBi} < 6\text{dBi}$, 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	20.68	19.55	23.16	0.207	30	1	PASS
6	2437	20.73	19.41	23.14	0.206			PASS
11	2462	20.58	19.37	23.03	0.201			PASS

Note: Directional gain = $-6.5\text{dBi} + 10\log(2) = -3.49\text{dBi} < 6\text{dBi}$, 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	20.44	19.85	23.16	0.207	30	1	PASS
6	2437	20.11	19.77	22.94	0.197			PASS
11	2462	20.52	19.86	23.22	0.210			PASS

Note: Directional gain = $-6.5\text{dBi} + 10\log(2) = -3.49\text{dBi} < 6\text{dBi}$, 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	20.88	19.97	23.46	0.222	30	1	PASS
6	2437	20.75	19.95	23.38	0.218			PASS
11	2462	20.86	19.76	23.36	0.217			PASS

Note: Directional gain = $-6.5\text{dBi} + 10\log(2) = -3.49\text{dBi} < 6\text{dBi}$, 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	20.90	19.73	23.36	0.217	30	1	PASS
6	2437	20.95	19.53	23.30	0.214			PASS
9	2452	20.96	19.76	23.40	0.219			PASS

Note: Directional gain = $-6.5\text{dBi} + 10\log(2) = -3.49\text{dBi} < 6\text{dBi}$, 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	15.25	15.95	0.00	15.25	0.033	15.95	0.039	30	1	PASS
2437	15.66	15.91		15.66	0.037	15.91	0.039			PASS
2462	15.69	15.64		15.69	0.037	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	15.53	15.77	0.00	15.53	0.036	15.77	0.038	30	1	PASS
2437	15.68	17.81		15.68	0.037	17.81	0.060			PASS
2462	15.93	15.49		15.93	0.039	15.49	0.035			PASS

802.11n (HT20) Mode

Frequency (MHz)	Average Power				Limit		Verdict	
	Measured		Duty Factor	Total Power with Duty Factor				
	ANT 0	ANT 1		dBm	W			
	dBm	dBm		dBm	W			
2412	15.45	15.01	0.04	18.26	0.067	30	1	PASS
2437	15.71	15.04		18.45	0.070			PASS
2462	15.83	16.75		19.34	0.086			PASS

Note: Directional gain = $-6.5\text{dBi} + 10\log(2) = -3.49\text{dBi} < 6\text{dBi}$, 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		dBm		W
	ANT 0	ANT 1		dBm	W			
2422	15.22	15.55	0.04	18.45	0.070	30	1	PASS
2437	15.66	15.24		18.51	0.071			PASS
2452	15.76	15.30		18.57	0.072			PASS

Note: Directional gain = $-6.5\text{dBi} + 10\log(2) = -3.49\text{dBi} < 6\text{dBi}$, 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		dBm		W
	ANT 0	ANT 1		dBm	W			
2412	15.44	15.53	0.04	18.51	0.071	30	1	PASS
2437	15.30	15.44		18.45	0.070			PASS
2462	15.29	15.48		18.45	0.070			PASS

Note: Directional gain = $-6.5\text{dBi} + 10\log(2) = -3.49\text{dBi} < 6\text{dBi}$, 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		dBm		W
	ANT 0	ANT 1		dBm	W			
2412	15.31	15.41	0.00	18.39	0.069	30	1	PASS
2437	15.28	16.29		18.81	0.076			PASS
2462	15.41	15.29		18.39	0.069			PASS

Note: Directional gain = $-6.5\text{dBi} + 10\log(2) = -3.49\text{dBi} < 6\text{dBi}$, 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	W	dBm		W
2412	15.11	15.22	0.00	18.20	0.066	30	1	PASS
2437	15.97	16.18		19.08	0.081			PASS
2462	15.01	15.08		18.06	0.064			PASS

Note: Directional gain = $-6.5\text{dBi} + 10\log(2) = -3.49\text{dBi} < 6\text{dBi}$, 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	W	dBm		W
2412	15.03	15.19	0.00	18.13	0.065	30	1	PASS
2437	15.88	15.99		18.92	0.078			PASS
2462	15.01	15.03		18.06	0.064			PASS

Note: Directional gain = $-6.5\text{dBi} + 10\log(2) = -3.49\text{dBi} < 6\text{dBi}$, 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	W	dBm		W
2422	14.72	14.29	0.04	17.56	0.057	30	1	PASS
2437	14.84	15.13		18.06	0.064			PASS
2452	14.65	15.00		17.85	0.061			PASS

Note: Directional gain = $-6.5\text{dBi} + 10\log(2) = -3.49\text{dBi} < 6\text{dBi}$, so the power limit is 1W(30dBm).

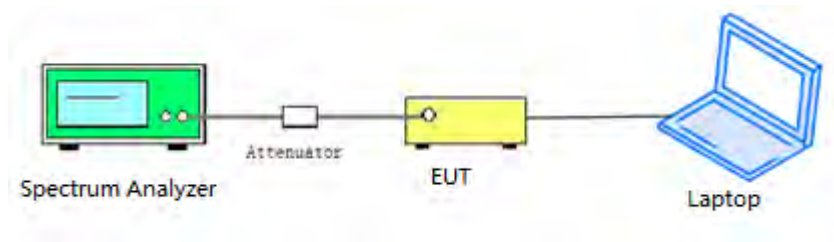
2.4. Bandwidth

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	8.034	≥500	PASS
6	2437	7.112	≥500	PASS
11	2462	8.068	≥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	15.12	≥500	PASS
6	2437	15.70	≥500	PASS
11	2462	15.07	≥500	PASS

B.Test Plot:



(Channel 1, 802.11g)



(Channel 6, 802.11g)



(Channel 11, 802.11g)



802.11n (HT20) Mode

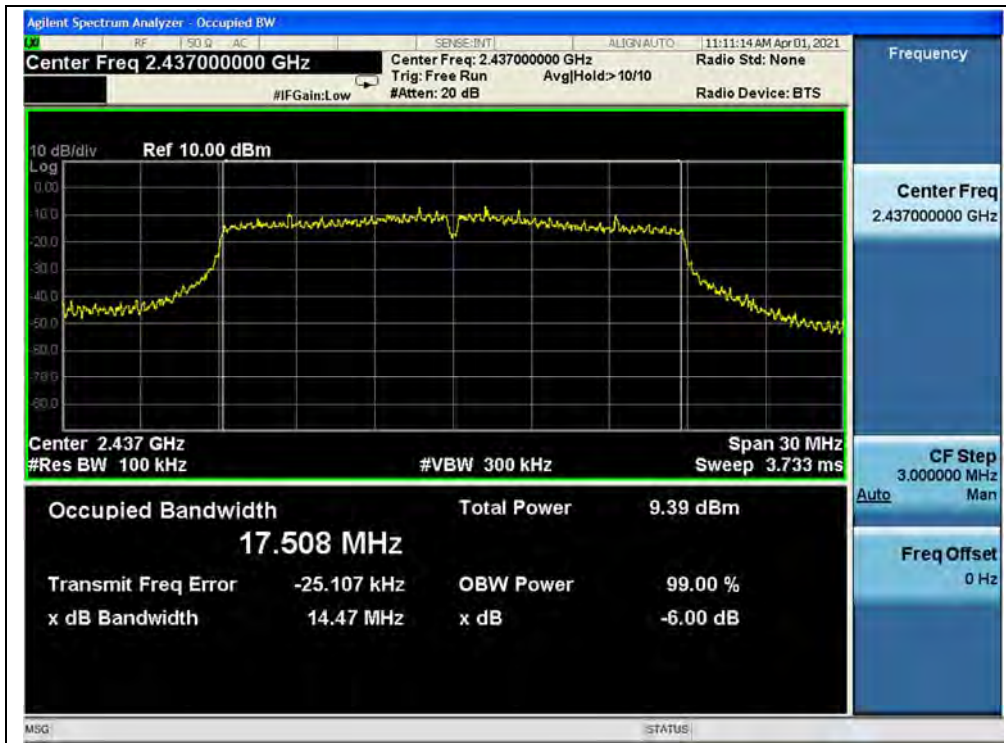
A.Test Verdict:

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limits(kHz)	Result
1	2412	15.05	≥500	PASS
6	2437	14.47	≥500	PASS
11	2462	16.88	≥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	32.58	≥500	PASS
6	2437	35.66	≥500	PASS
9	2452	36.27	≥500	PASS

B.Test Plot:



(Channel 3, 802.11n (HT40))



(Channel 6, 802.11n (HT40))



(Channel 9, 802.11n (HT40))

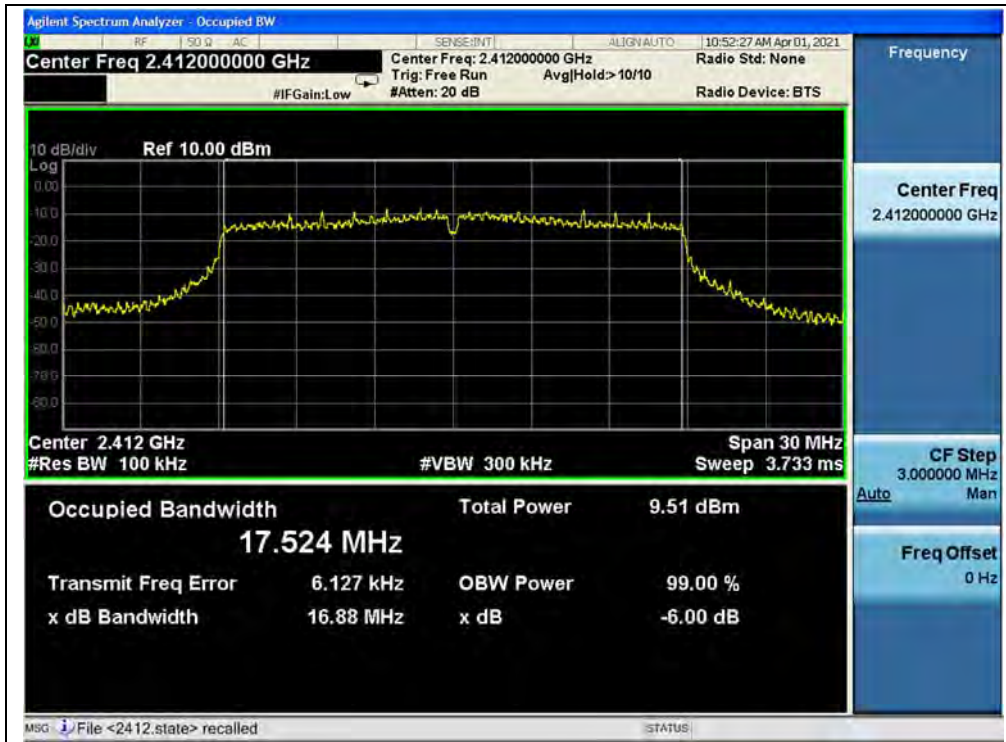


802.11ax (HEW20) Mode

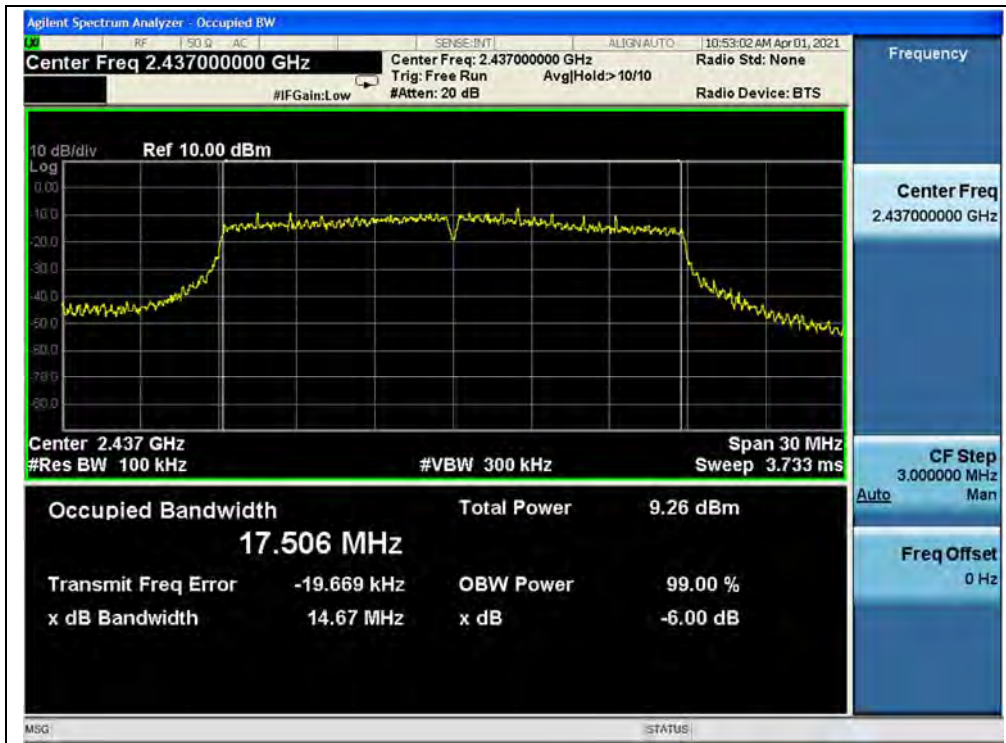
A.Test Verdict:

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limits(kHz)	Result
1	2412	16.88	≥500	PASS
6	2437	14.67	≥500	PASS
11	2462	16.55	≥500	PASS

B.Test Plot:



(Channel 3, 802.11ax (HEW20))



(Channel 6, 802.11ax (HEW20))



(Channel 9, 802.11ax (HEW20))



802.11ax (HEW20) RU26 Mode

A.Test Verdict:

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limits(kHz)	Result
1	2412	2.106	≥500	PASS
6	2437	2.099	≥500	PASS
11	2462	2.101	≥500	PASS

B.Test Plot:



(Channel 3, 802.11ax (HEW20) RU26)



(Channel 6, 802.11ax (HEW20) RU26)



(Channel 9, 802.11ax (HEW20) RU26)

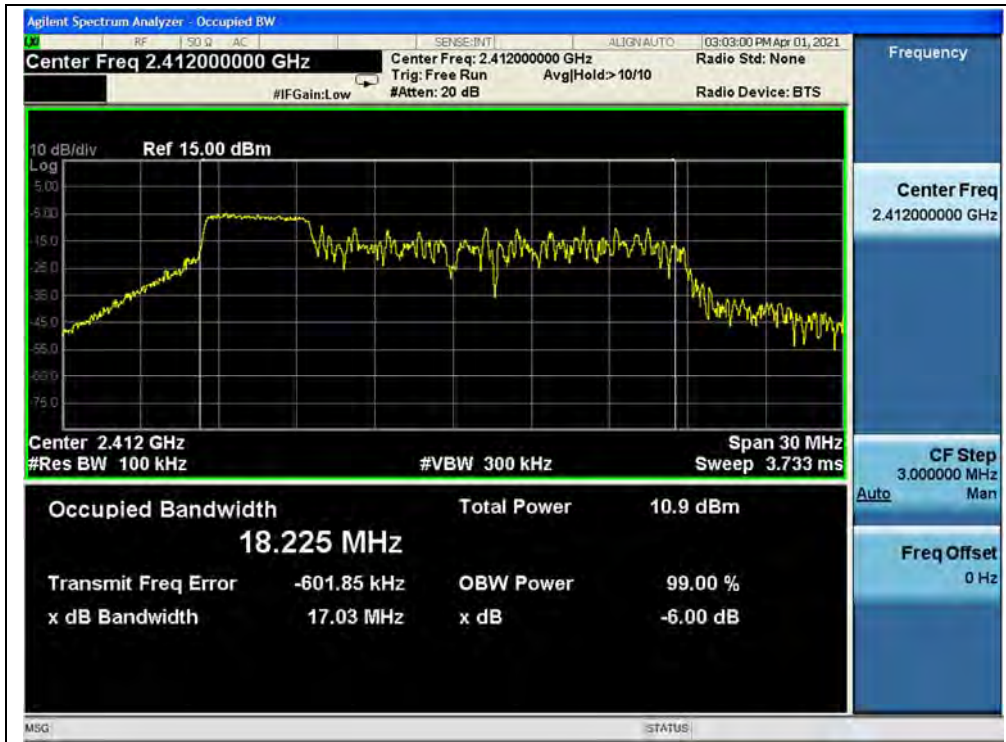


802.11ax (HEW20)(RU52) Mode

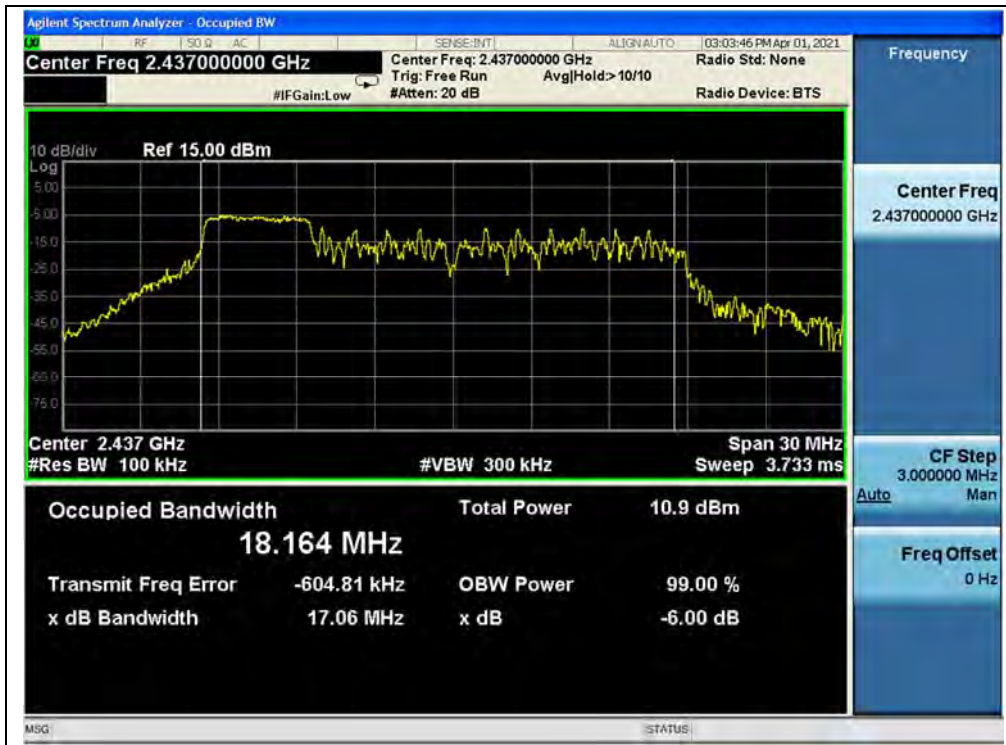
A.Test Verdict:

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limits(kHz)	Result
1	2412	17.03	≥500	PASS
6	2437	17.06	≥500	PASS
11	2462	14.56	≥500	PASS

B.Test Plot:



(Channel 3, 802.11ax (HEW20) RU52)



(Channel 6, 802.11ax (HEW20) RU52)



(Channel 9, 802.11ax (HEW20) RU52)

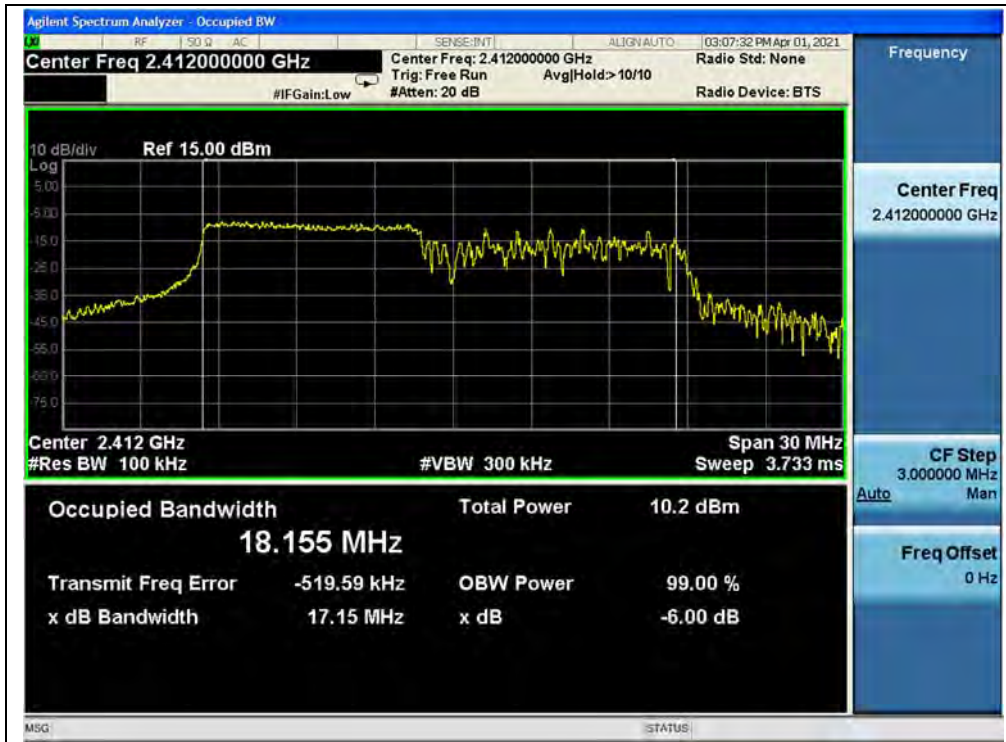


802.11ax (HEW20) RU106 Mode

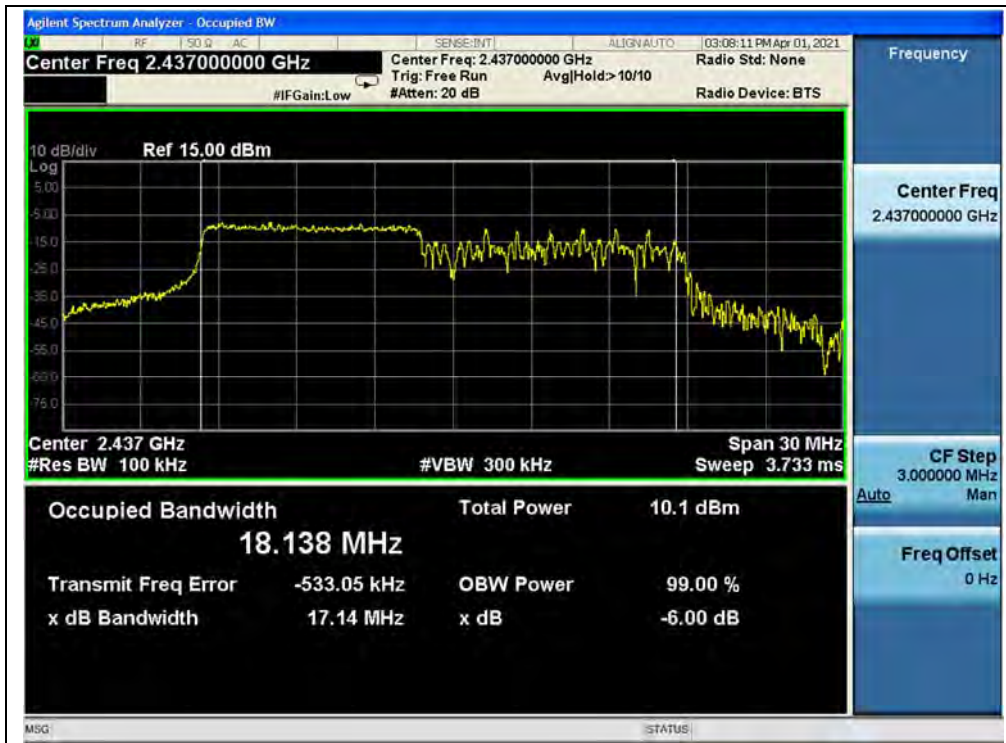
A.Test Verdict:

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limits(kHz)	Result
1	2412	17.15	≥500	PASS
6	2437	17.14	≥500	PASS
11	2462	17.13	≥500	PASS

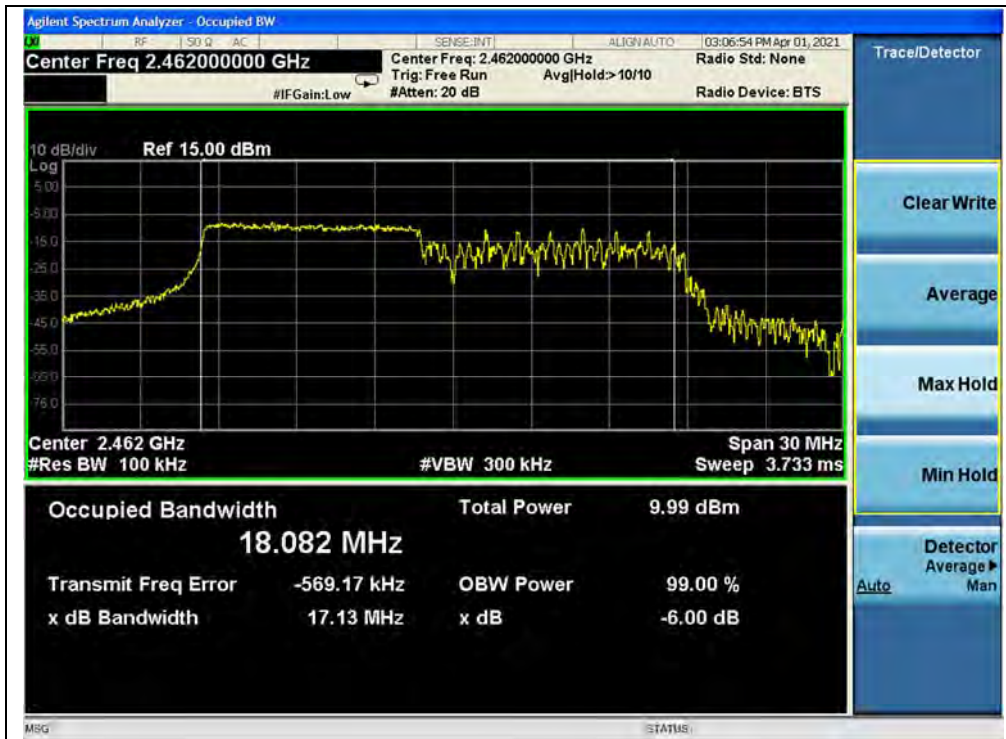
B.Test Plot:



(Channel 3, 802.11ax (HEW20) RU106)



(Channel 6, 802.11ax (HEW20) RU106)



(Channel 9, 802.11ax (HEW20) RU106)



802.11ax (HEW40) Mode

A.Test Verdict:

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limits(kHz)	Result
3	2422	32.61	≥500	PASS
6	2437	34.04	≥500	PASS
9	2452	34.65	≥500	PASS

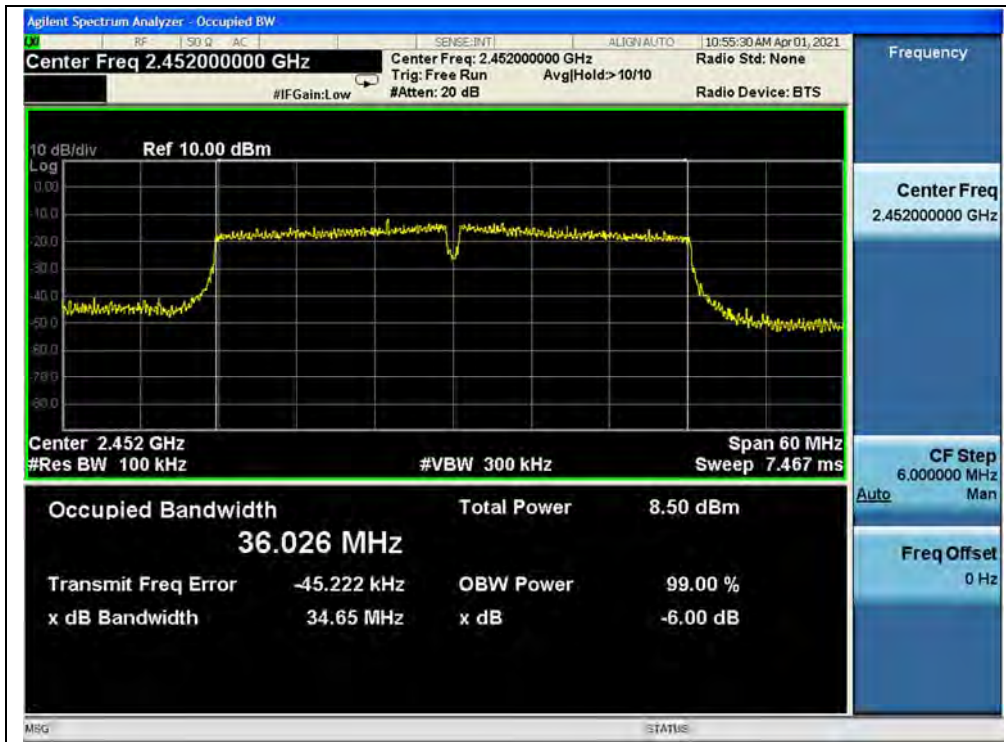
B.Test Plot:



(Channel 3, 802.11ax (HEW40))



(Channel 6, 802.11ax (HEW40))



(Channel 9, 802.11ax (HEW40))

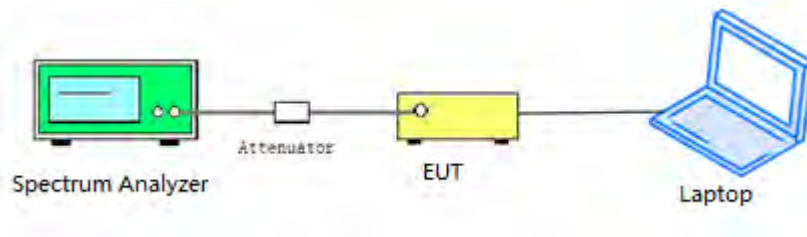
2.5. Conducted Spurious Emissions and Band Edge

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.



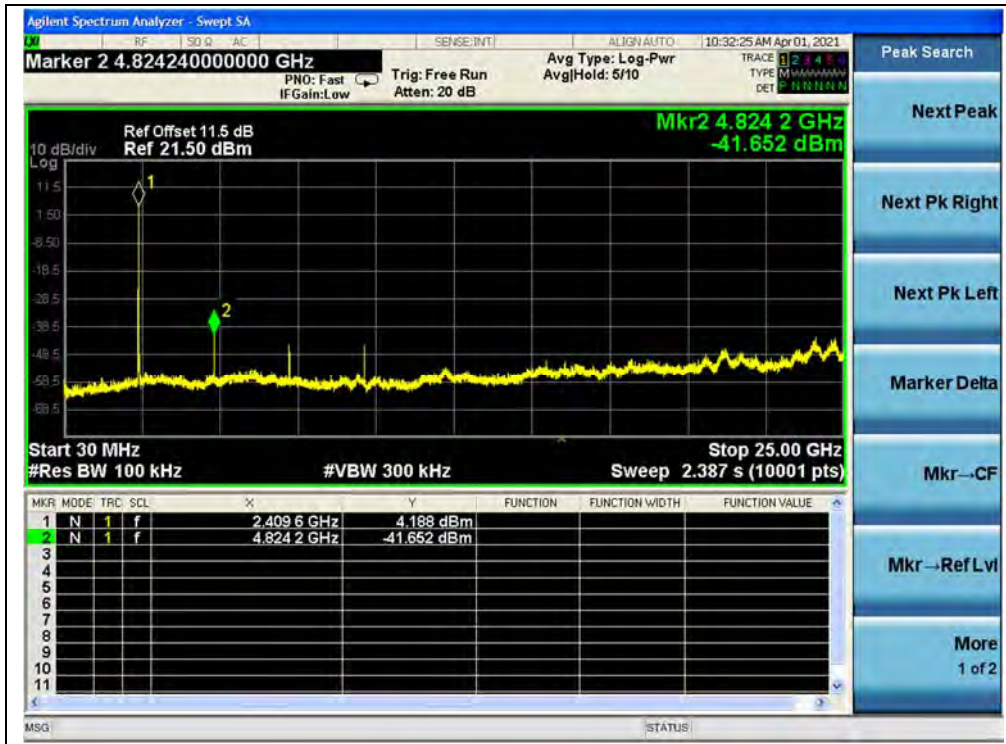
2.5.4. Test Result

802.11b Mode

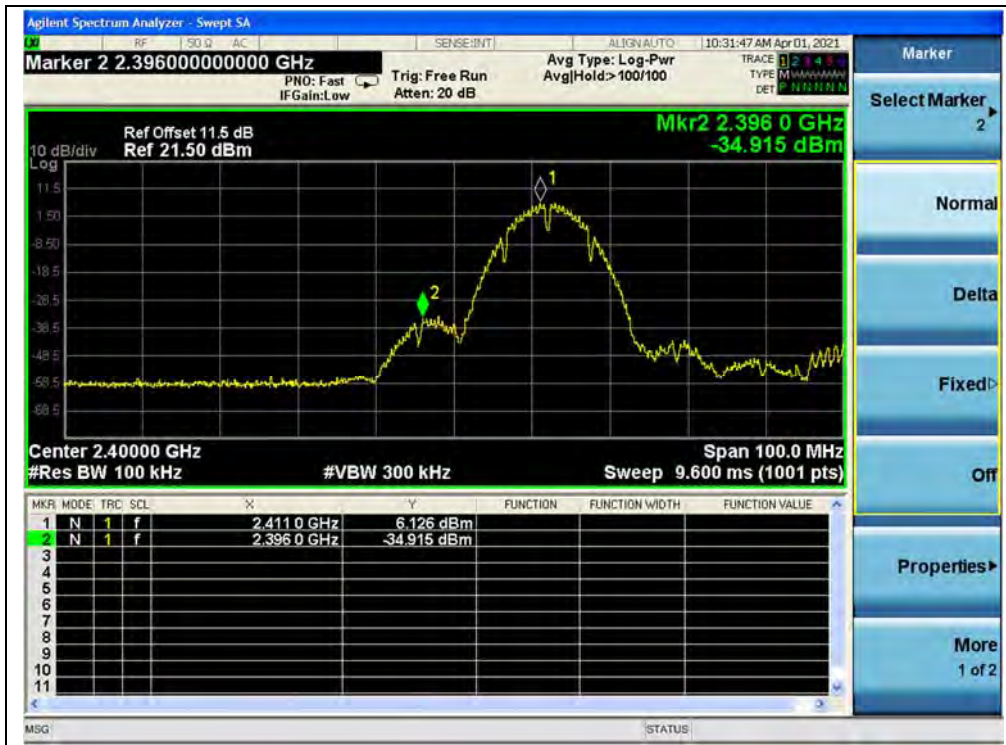
A. Test Verdict:

Channel	Frequency (MHz)	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
			Carrier Level	Calculated -20dBc Limit	
1	2412	-41.65	4.19	-15.81	PASS
6	2437	-42.81	4.83	-15.17	PASS
11	2462	-43.53	4.46	-15.54	PASS

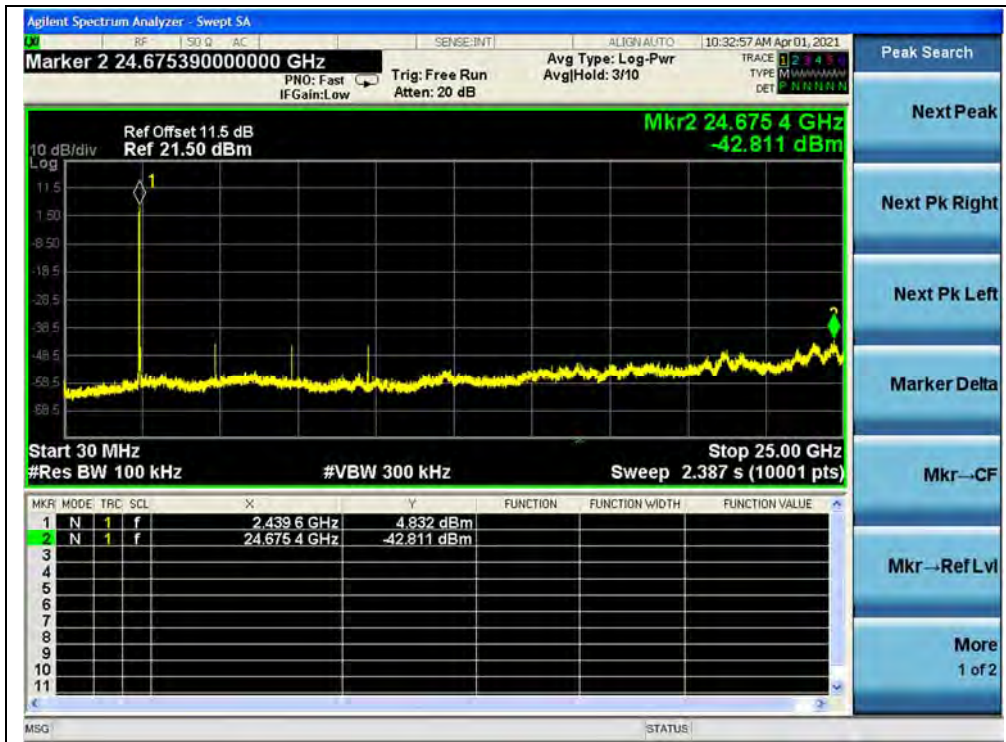
B. Test Plot:



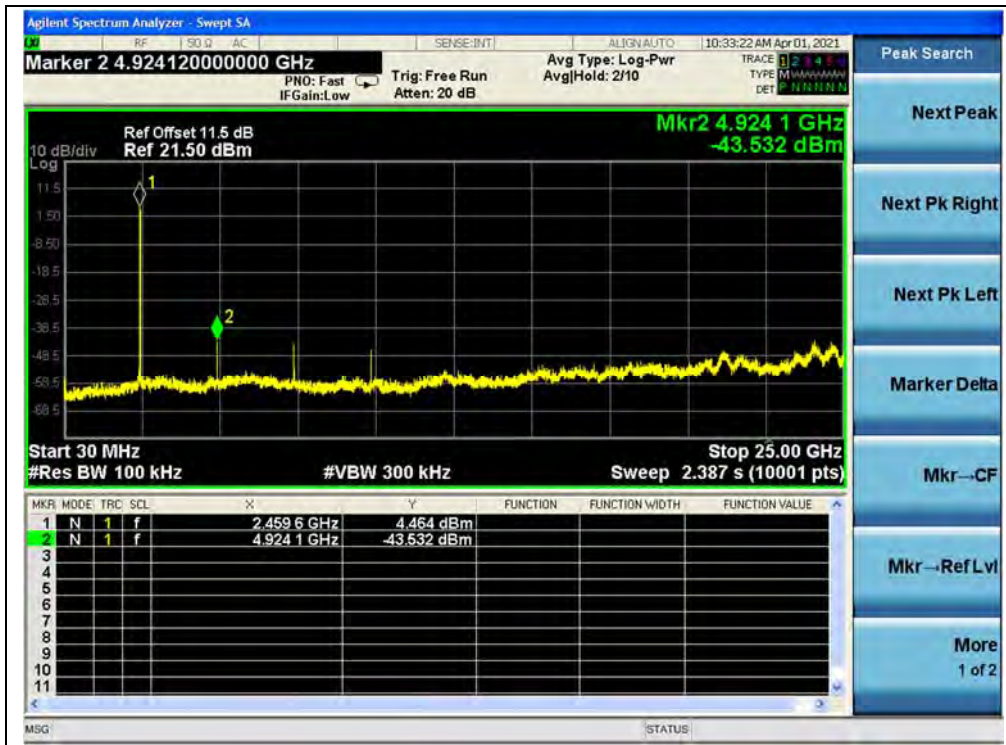
(30MHz to 25GHz, Channel 1, 802.11b)



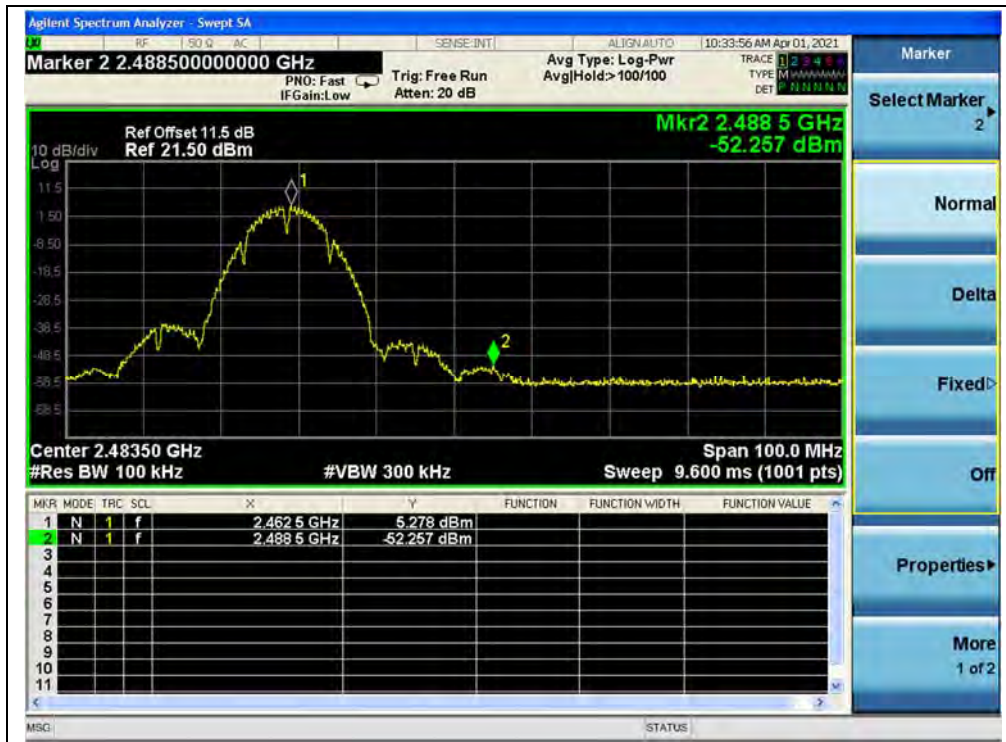
(Band Edge, Channel 1, 802.11b)



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



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



(Band Edge, Channel 11, 802.11b)

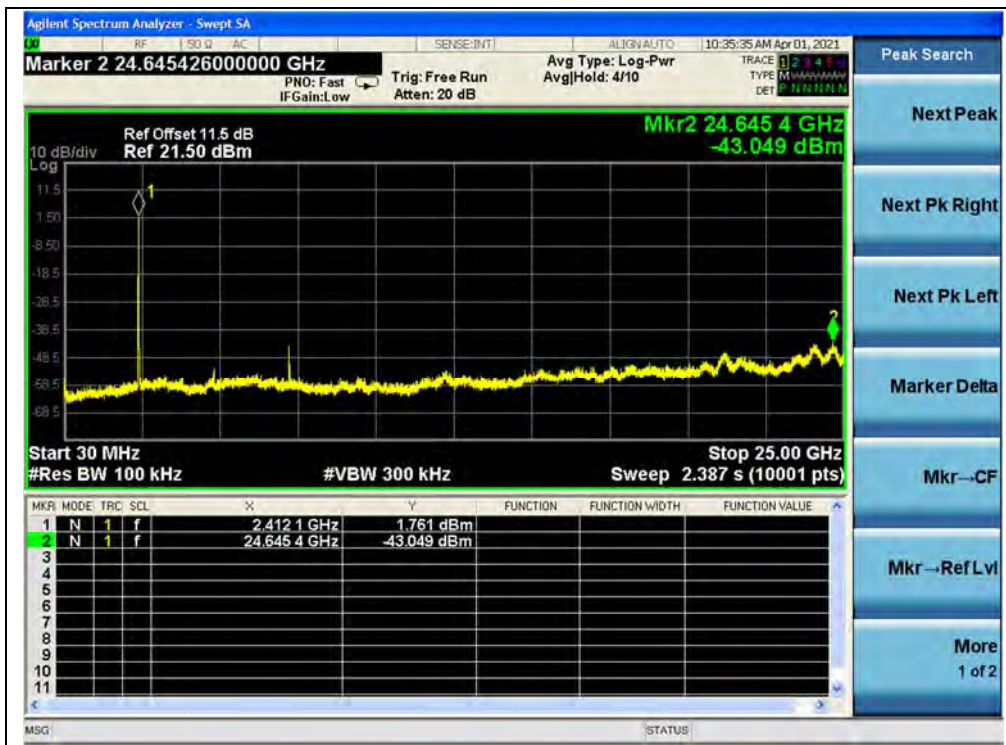


802.11g Mode

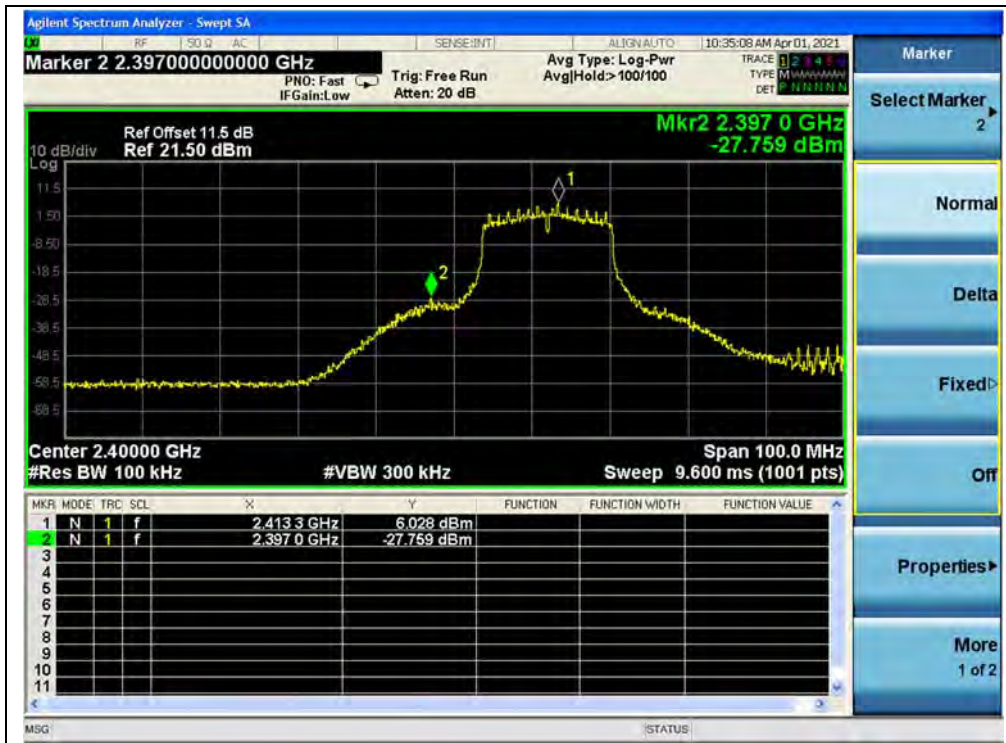
A. Test Verdict:

Channel	Frequency (MHz)	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
			Carrier Level	Calculated -20dBc Limit	
1	2412	-43.05	1.76	-18.24	PASS
6	2437	-43.70	1.74	-18.26	PASS
11	2462	-43.59	1.34	-18.66	PASS

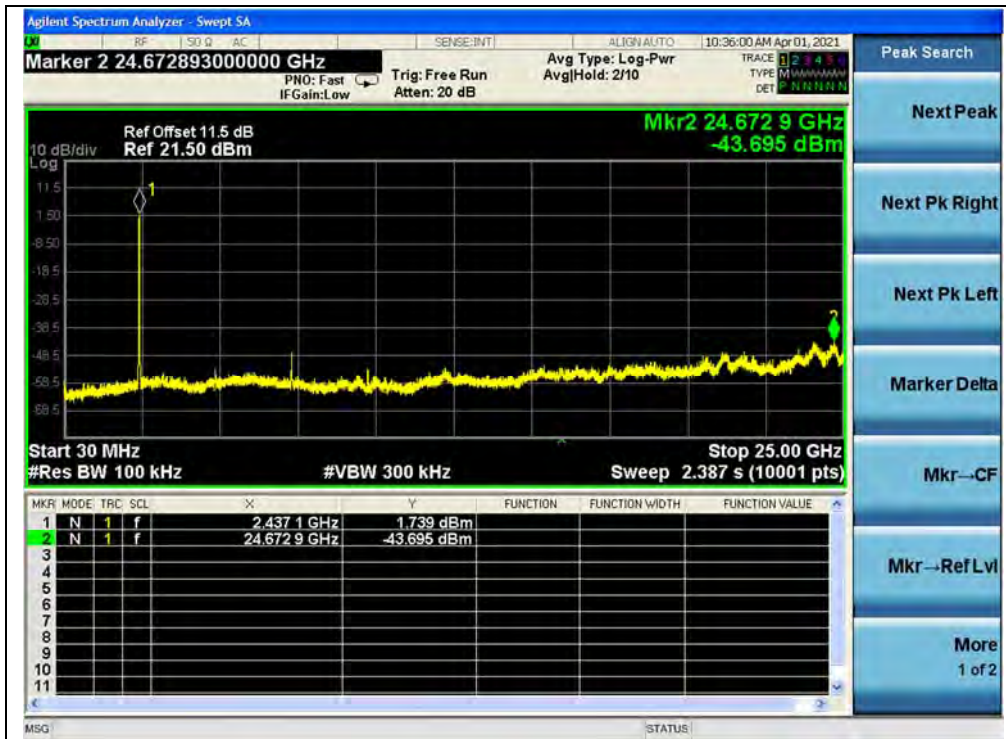
B. Test Plot:



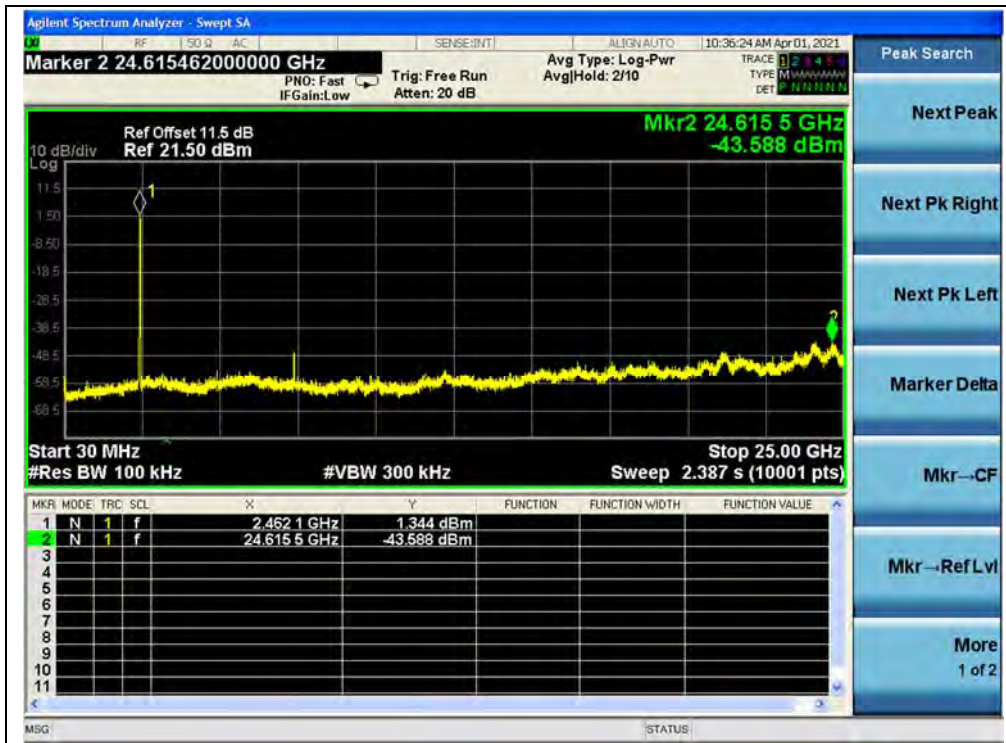
(30MHz to 25GHz, Channel 1, 802.11g)



(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)

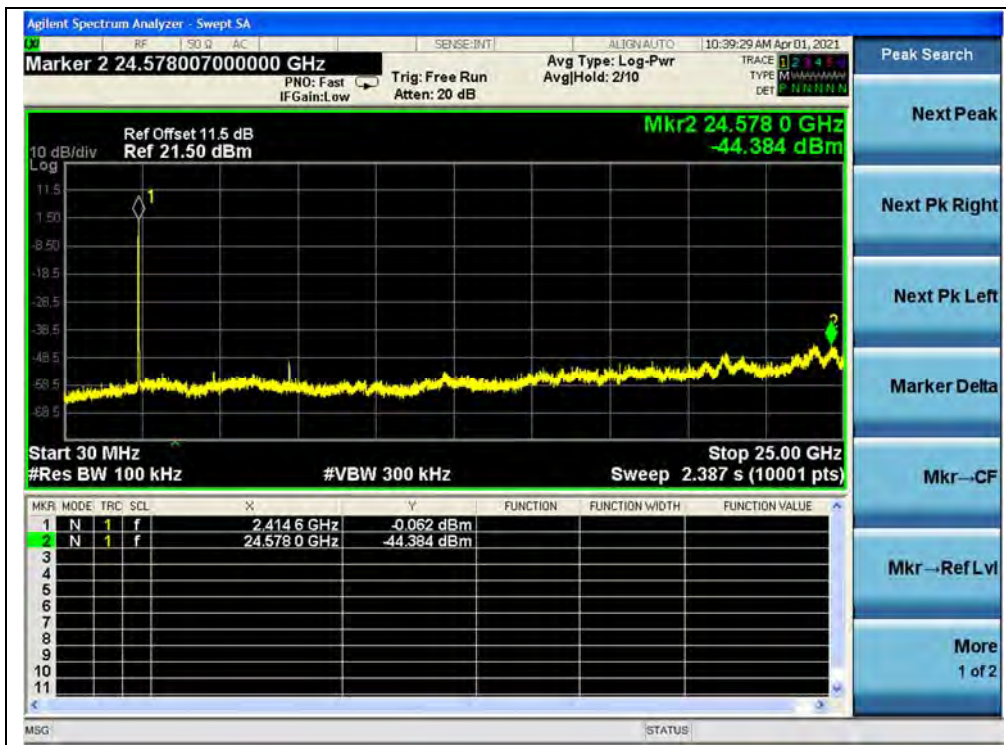


802.11n (HT20) Mode

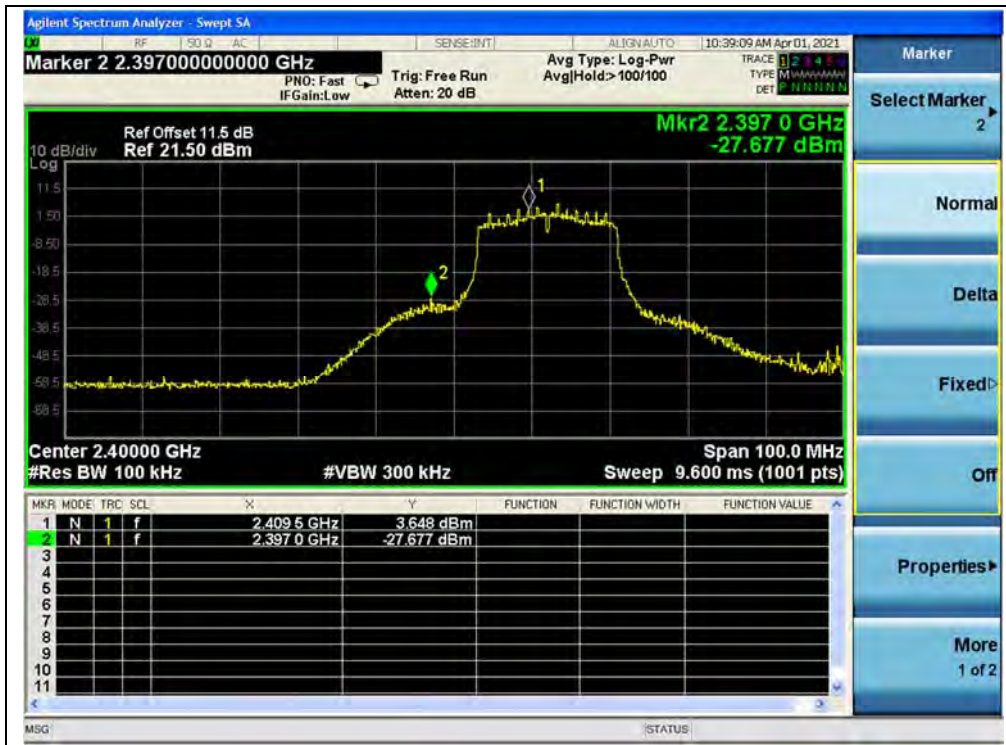
A. Test Verdict:

Channel	Frequency (MHz)	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
			Carrier Level	Calculated -20dBc Limit	
1	2412	-44.38	-0.06	-20.06	PASS
6	2437	-44.22	0.74	-19.26	PASS
11	2462	-43.95	2.31	-17.69	PASS

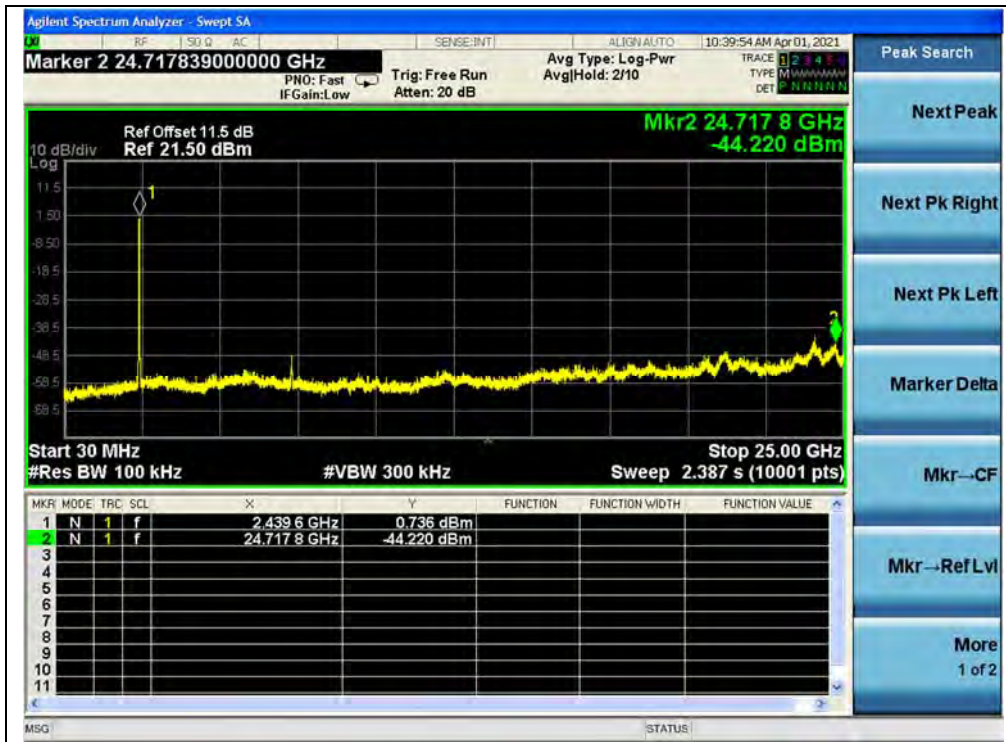
B. Test Plot:



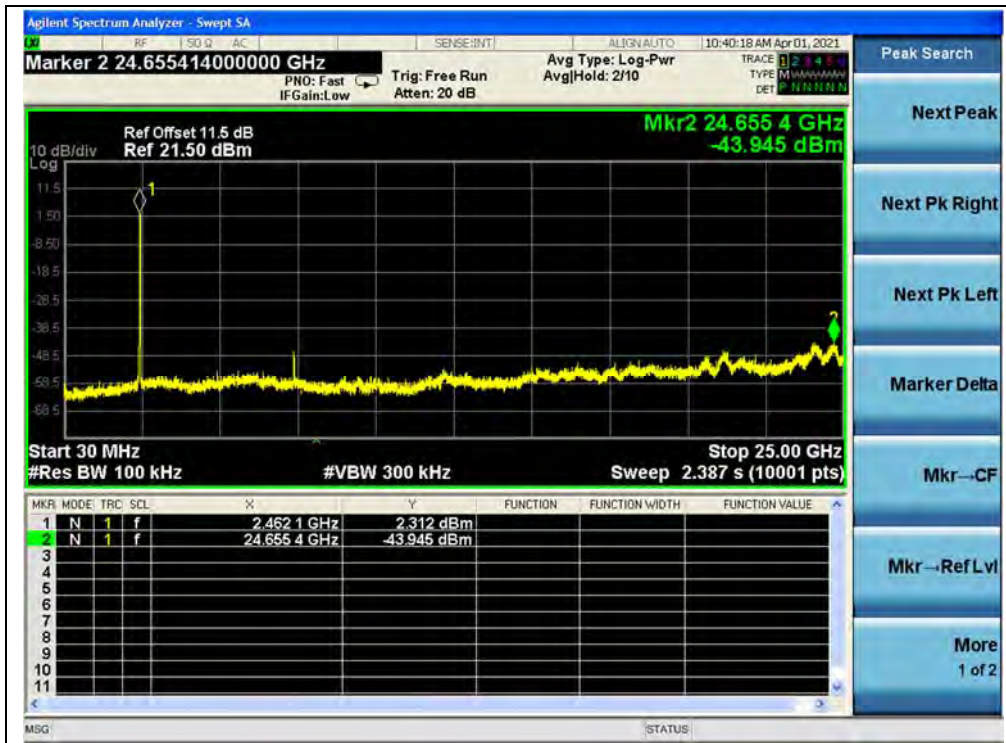
(30MHz to 25GHz, Channel 1, 802.11n (HT20))



(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))

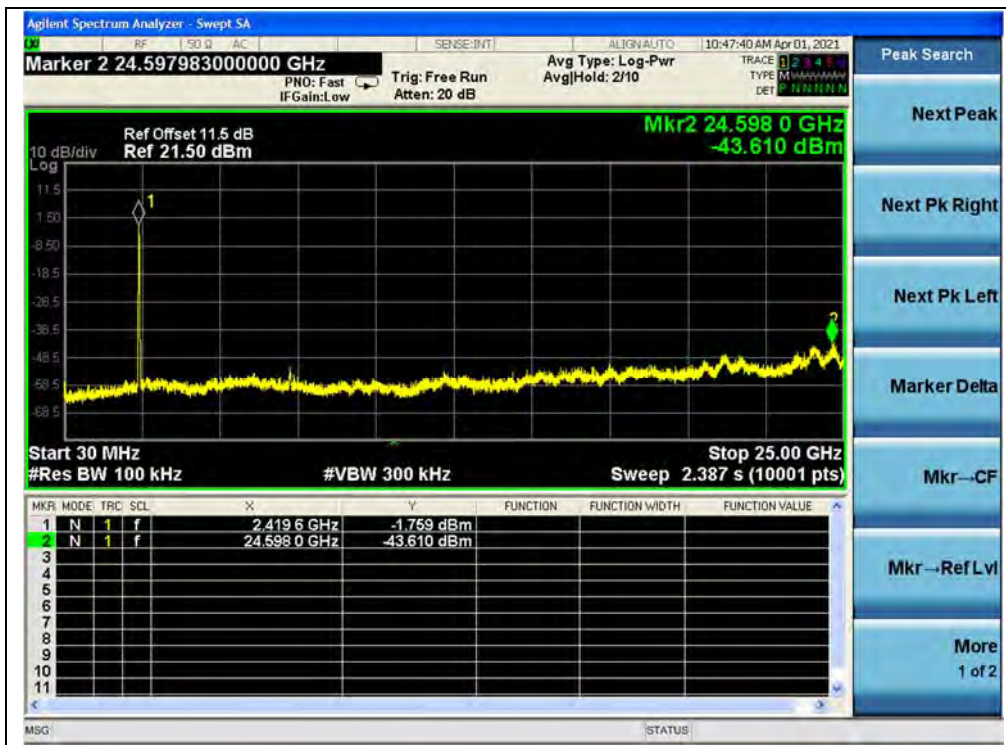


802.11n (HT40) Mode

A. Test Verdict:

Channel	Frequency (MHz)	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
			Carrier Level	Calculated -20dBc Limit	
3	2422	-43.61	-1.76	-21.76	PASS
6	2437	-43.65	-2.02	-22.02	PASS
9	2452	-44.42	-2.44	-22.44	PASS

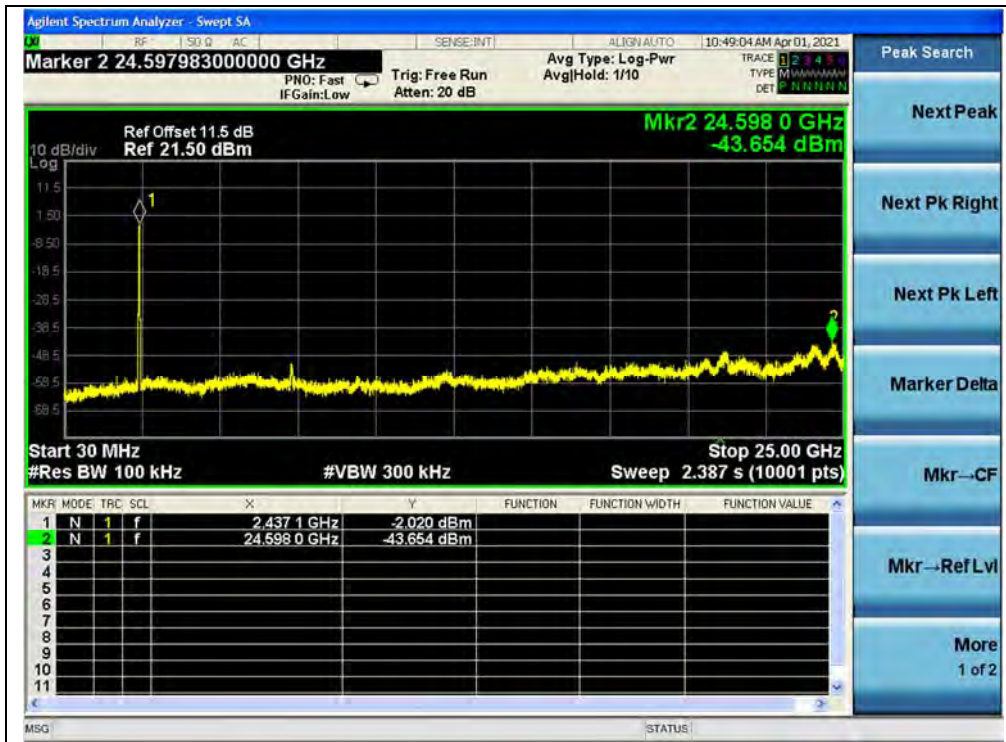
B. Test Plot:



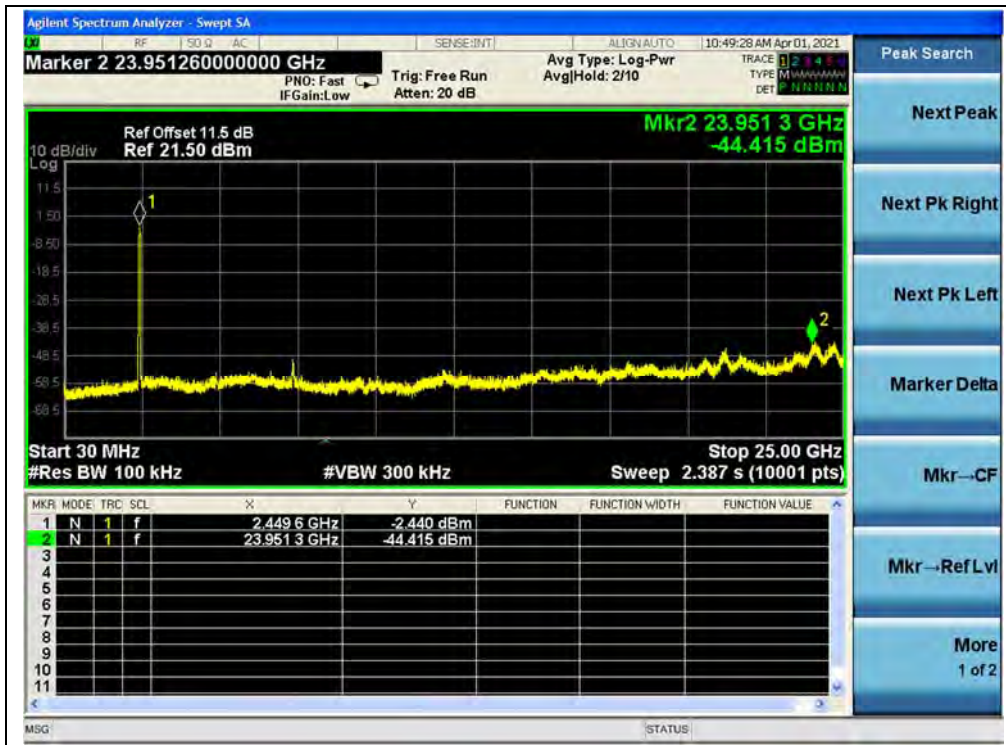
(30MHz to 25GHz, Channel 3, 802.11n (HT40))



(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 11, 802.11n (HT40))

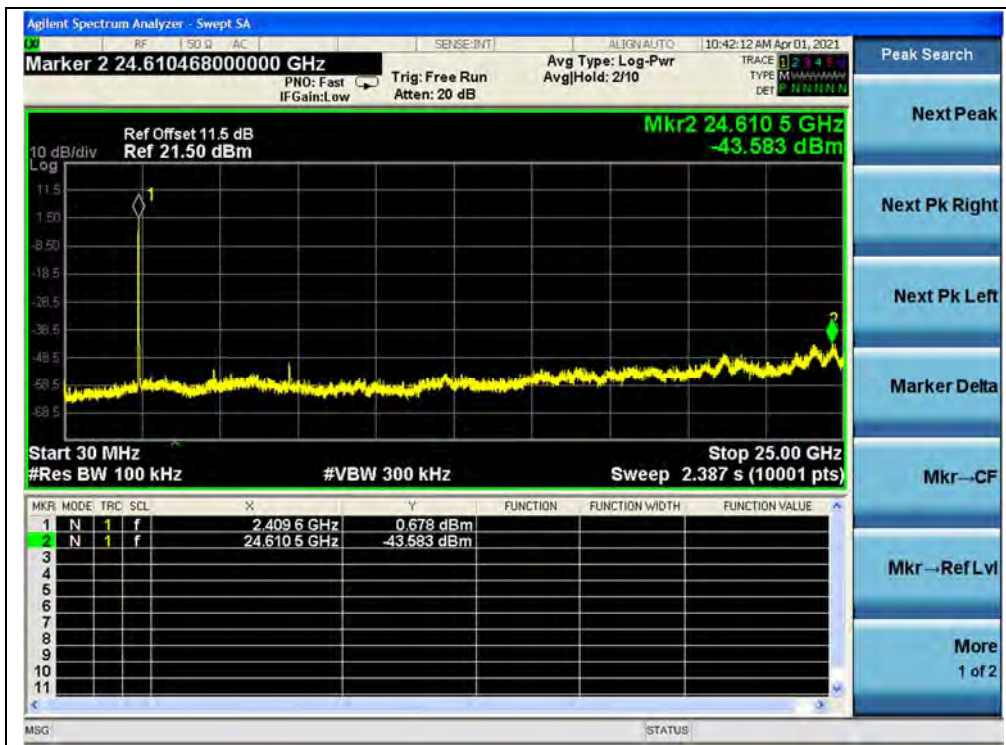


802.11ax (HEW20) Mode

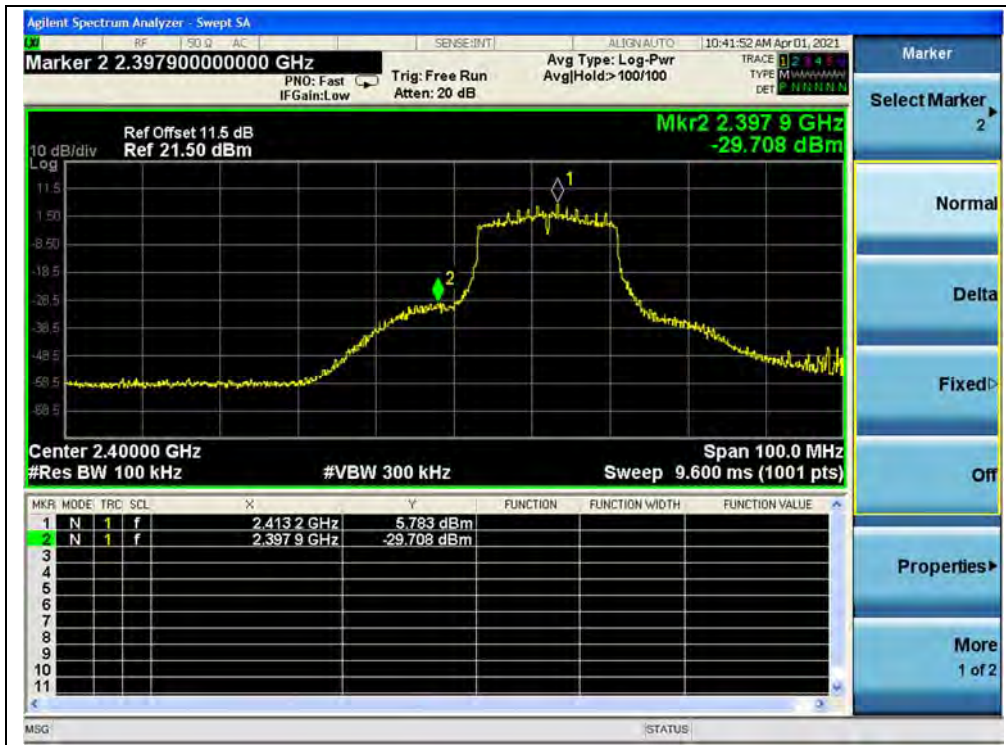
A. Test Verdict:

Channel	Frequency (MHz)	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
			Carrier Level	Calculated -20dBc Limit	
1	2412	-43.58	0.68	-19.32	PASS
6	2437	-42.72	3.40	-16.60	PASS
11	2462	-43.88	-0.28	-20.28	PASS

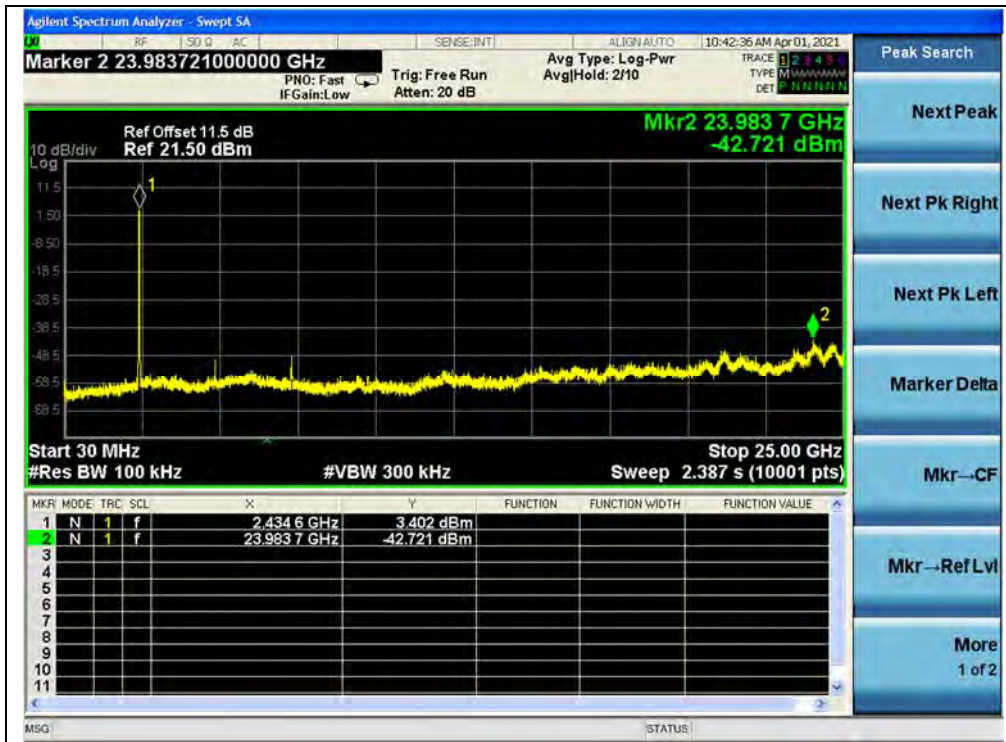
B. Test Plot:



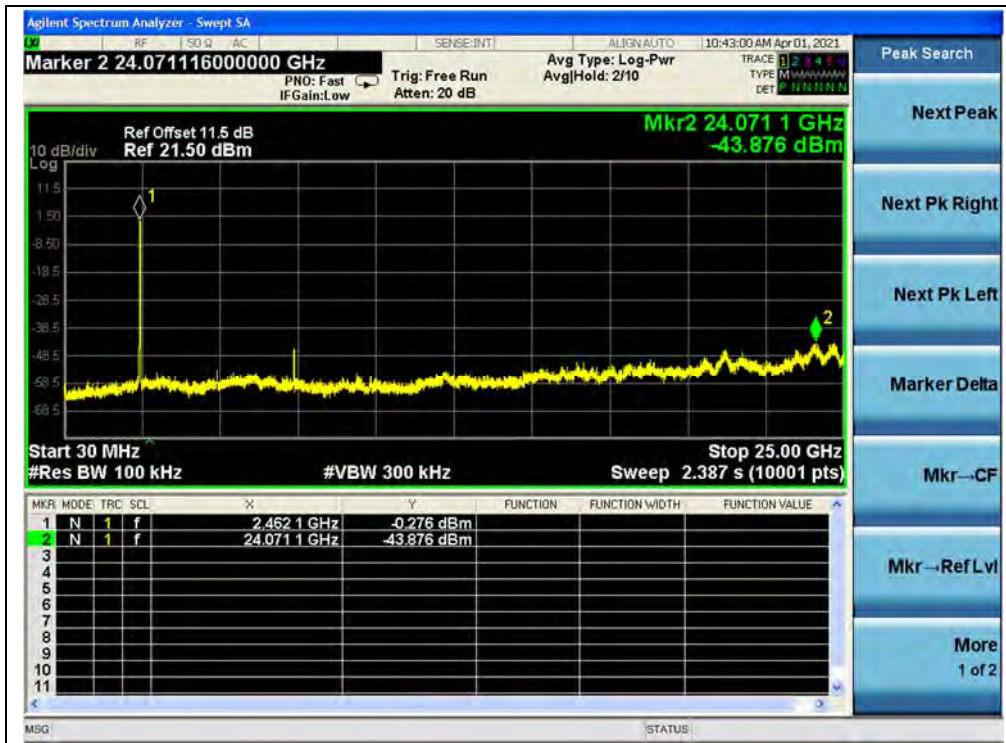
(30MHz to 25GHz, Channel 1, 802.11ax (HEW20))



(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	-44.24	3.23	-16.77	PASS
6	2437	-43.96	8.80	-11.20	PASS
11	2462	-44.05	9.07	-10.93	PASS

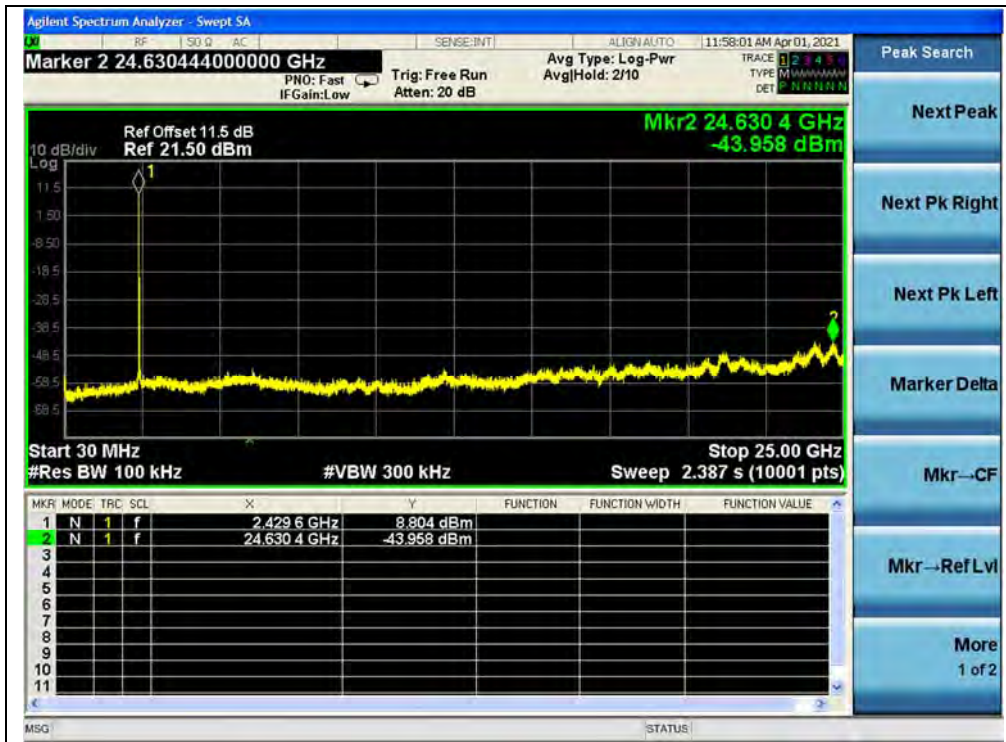
B. Test Plot:



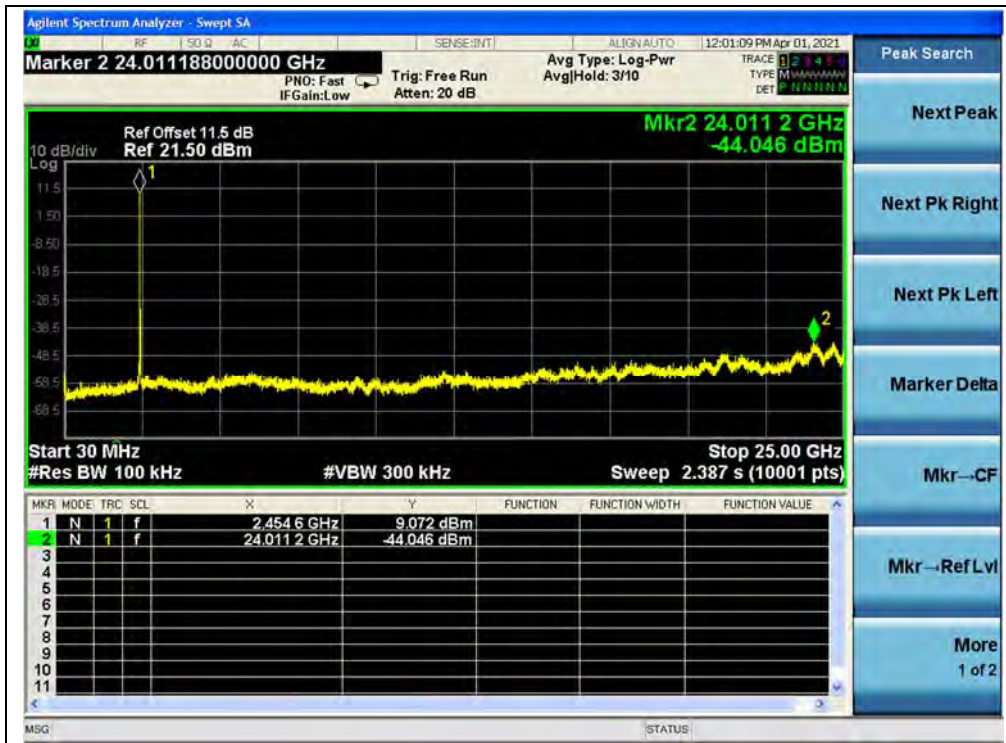
(30MHz to 25GHz, Channel 1, 802.11ax (HEW20) RU26)



(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)

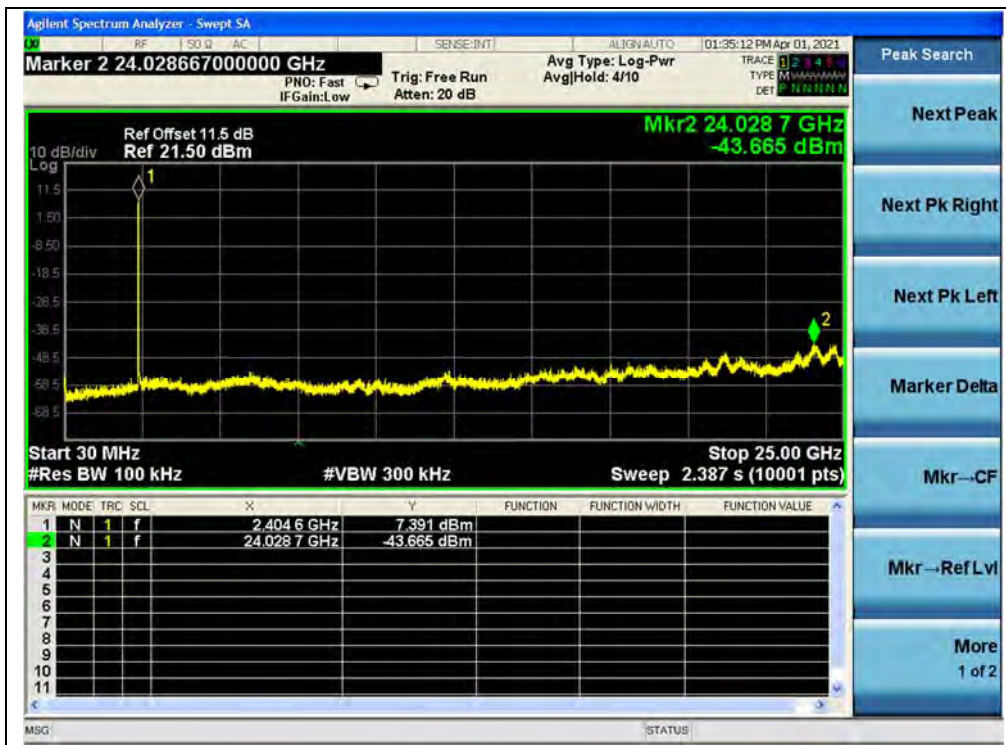


802.11ax (HEW20) RU52 Mode

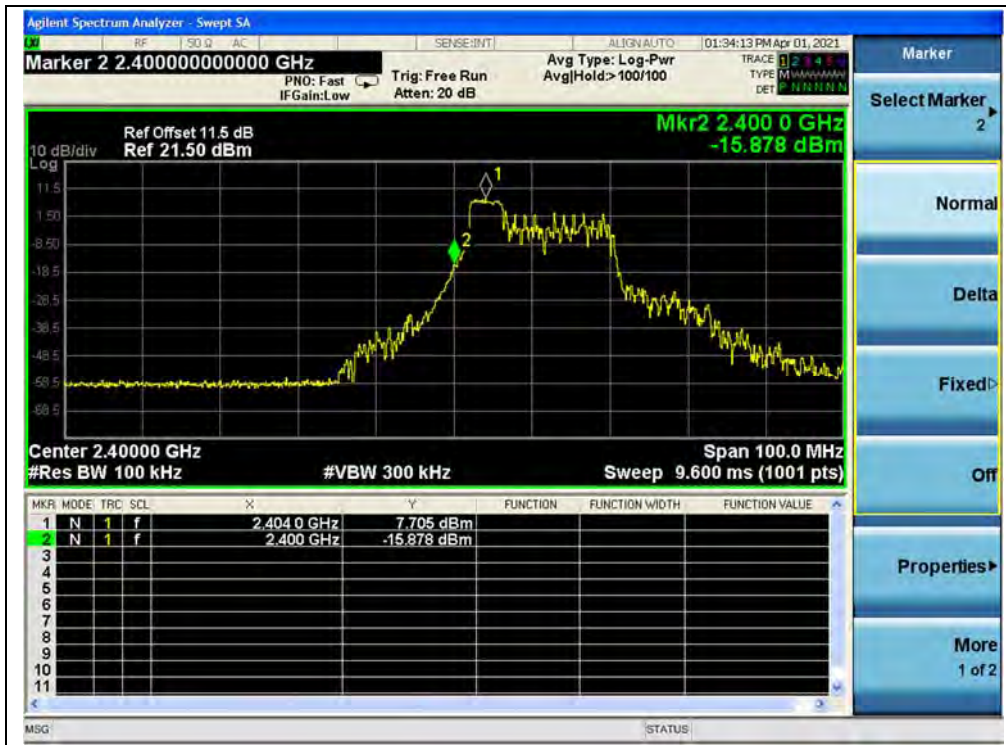
A. Test Verdict:

Channel	Frequency (MHz)	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
			Carrier Level	Calculated -20dBc Limit	
1	2412	-43.67	7.39	-12.61	PASS
6	2437	-44.80	5.16	-14.84	PASS
11	2462	-43.89	6.81	-13.19	PASS

B. Test Plot:



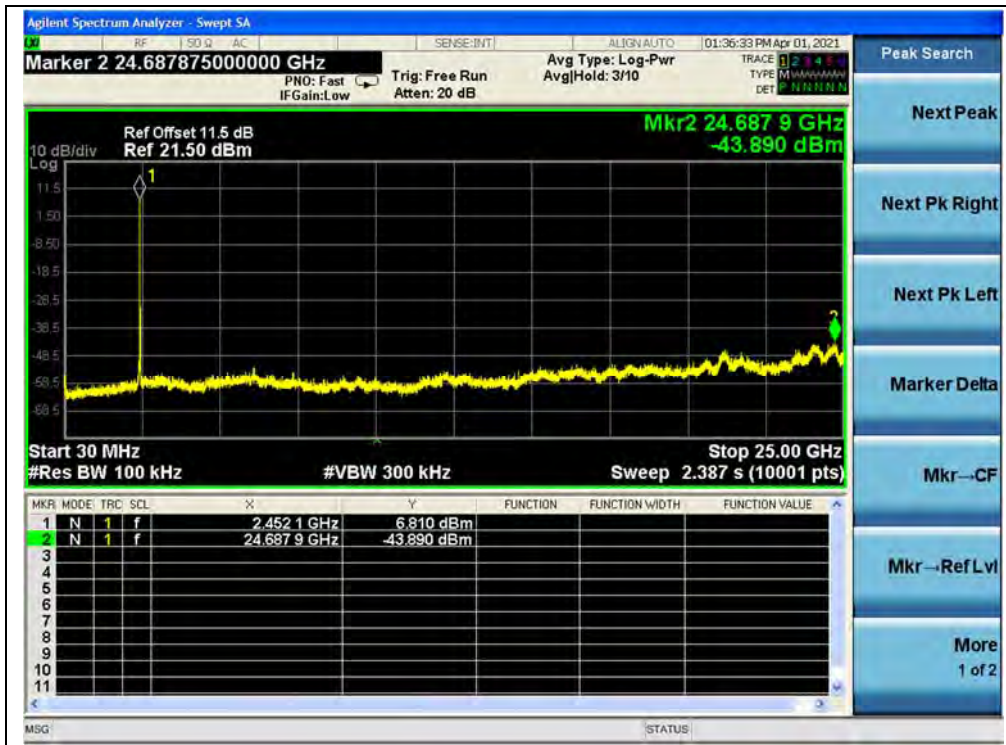
(30MHz to 25GHz, Channel 1, 802.11ax (HEW20) RU52)



(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)

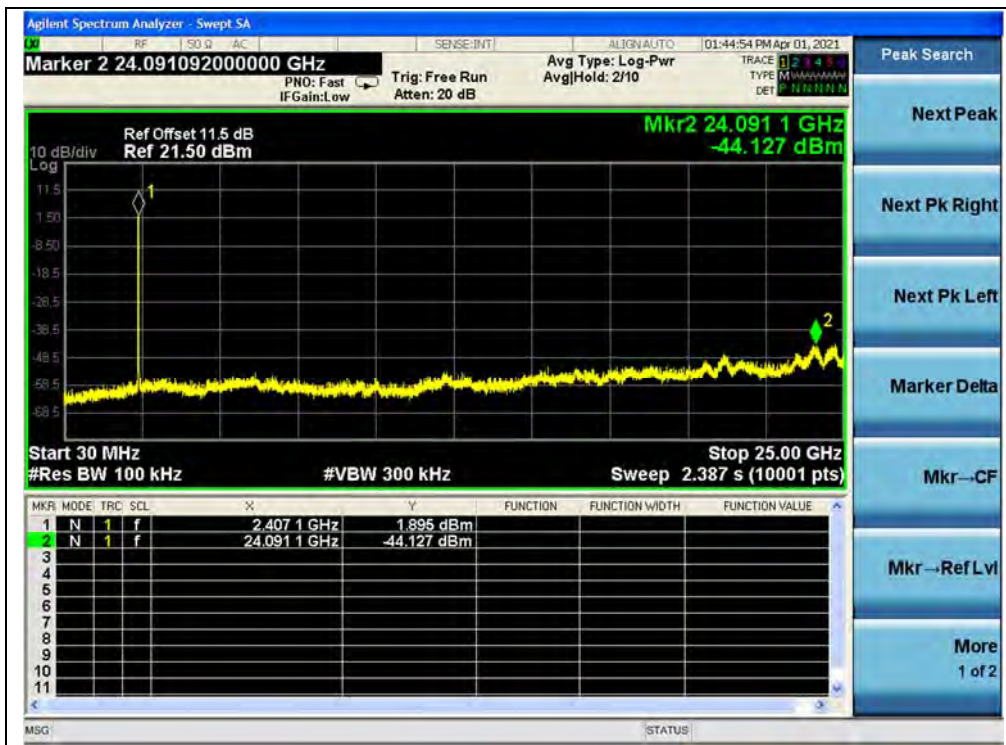


802.11ax (HEW20) RU106 Mode

A. Test Verdict:

Channel	Frequency (MHz)	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
			Carrier Level	Calculated -20dBc Limit	
1	2412	-44.13	1.90	-18.10	PASS
6	2437	-43.70	3.37	-16.63	PASS
11	2462	-43.70	2.45	-17.55	PASS

B. Test Plot:



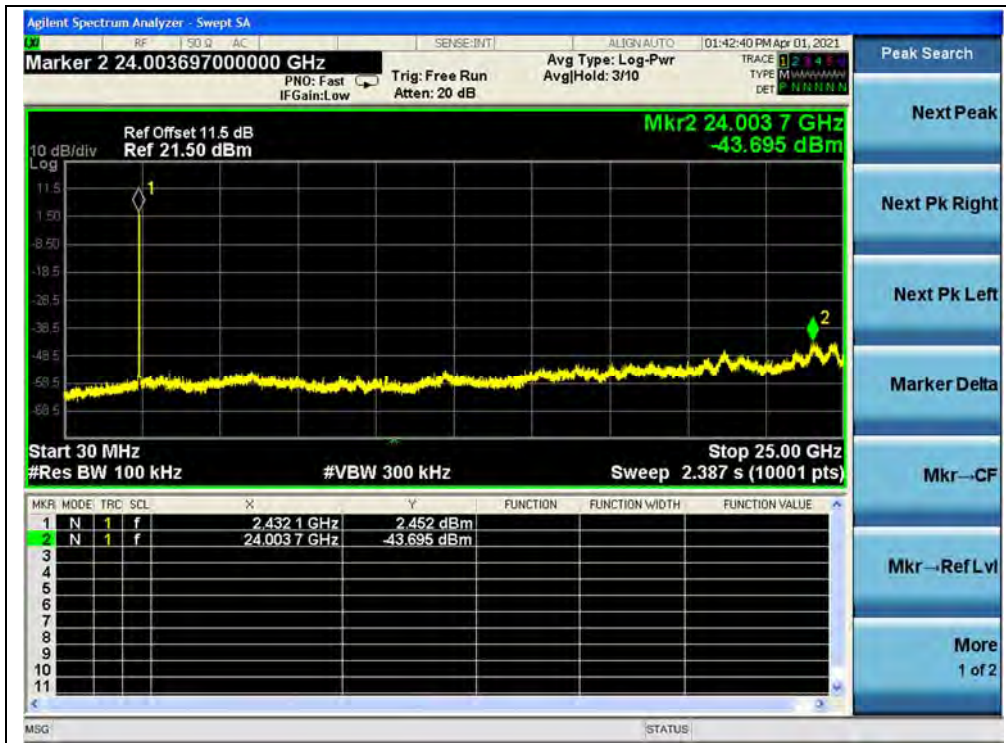
(30MHz to 25GHz, Channel 1, 802.11ax (HEW20) RU106)



(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)

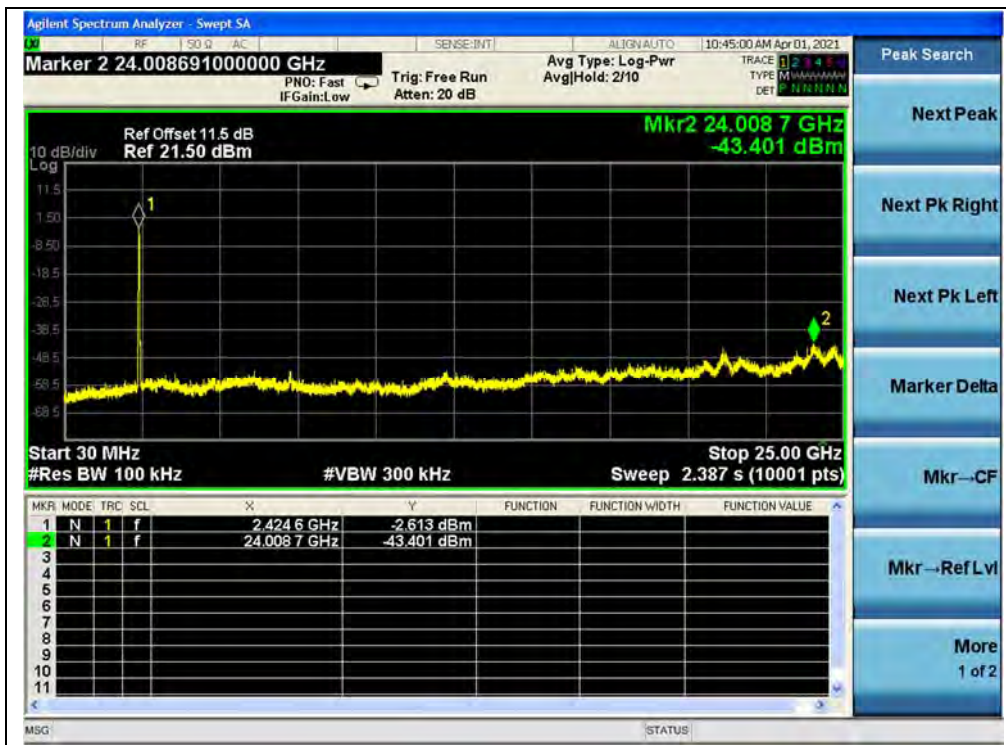


802.11ax (HEW40) Mode

A. Test Verdict:

Channel	Frequency (MHz)	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
			Carrier Level	Calculated -20dBc Limit	
3	2422	-43.40	-2.61	-22.61	PASS
6	2437	-44.10	-0.21	-20.21	PASS
9	2452	-44.11	0.16	-19.84	PASS

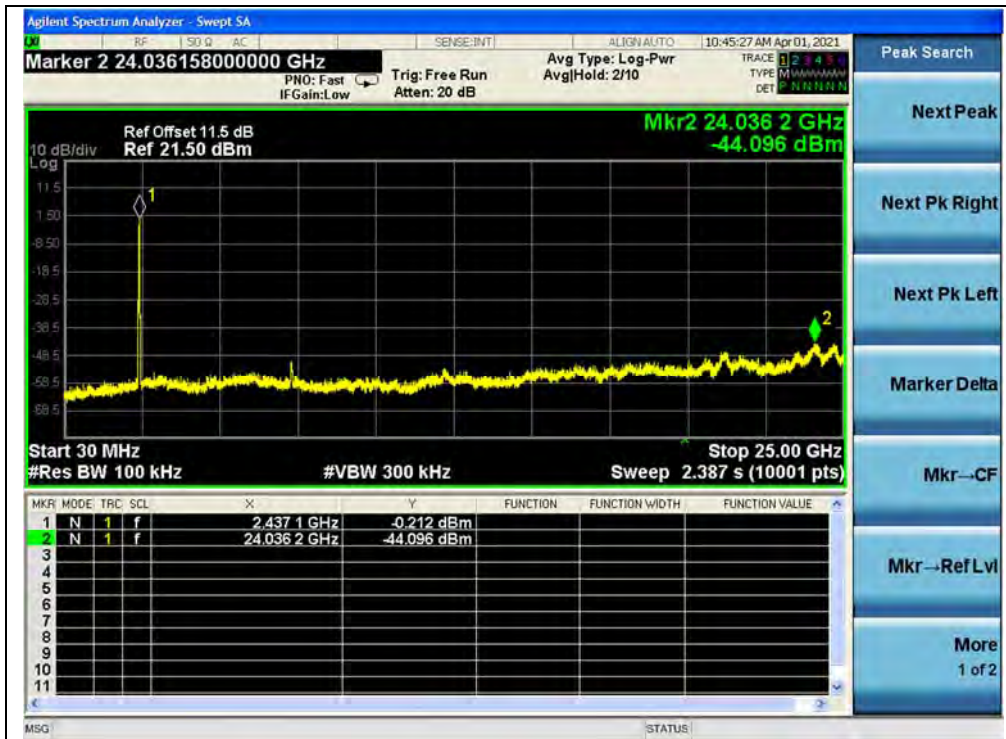
B. Test Plot:



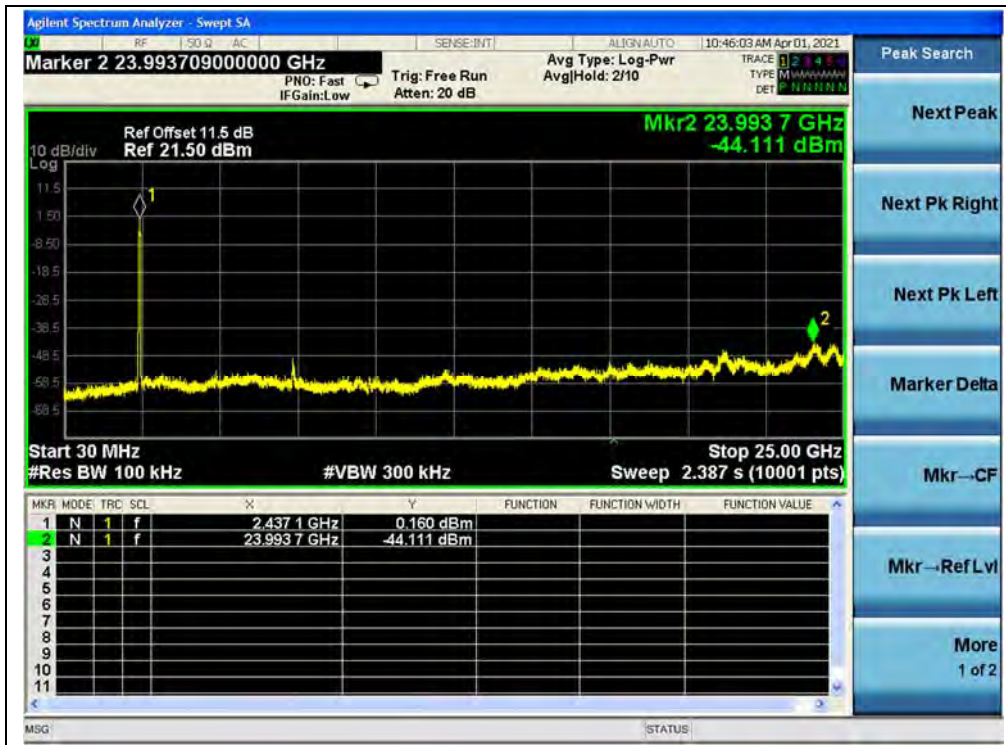
(30MHz to 25GHz, Channel 3, 802.11ax (HEW40))



(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))

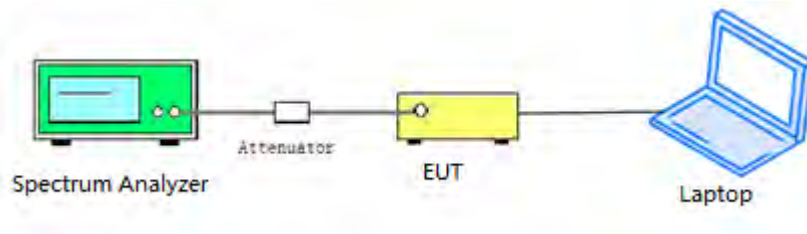
2.6. Power Spectral Density

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	-9.44	-10.10	8	PASS
6	2437	-8.73	-8.84	8	PASS
11	2462	-9.70	-10.60	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	-10.26	-9.57	8	PASS
6	2437	-9.72	-9.49	8	PASS
11	2462	-10.33	-10.66	8	PASS

B. Test Plot:



(Channel 1, 802.11g, ANT 0)



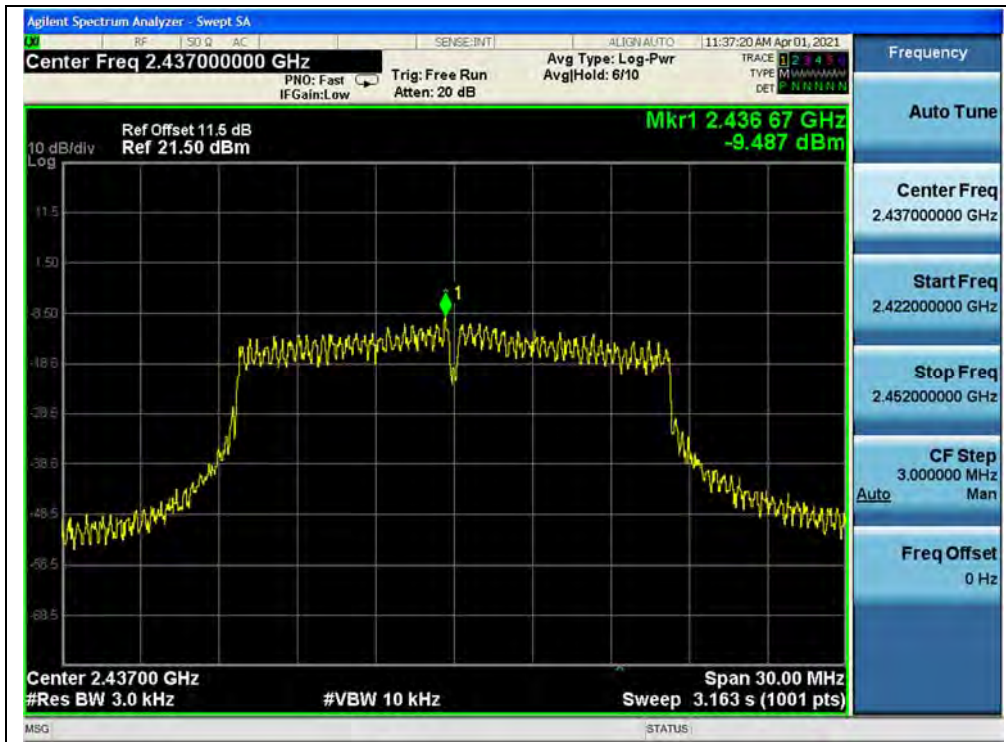
(Channel 6, 802.11g, ANT 0)



(Channel 11, 802.11g, ANT 0)



(Channel 1, 802.11g, ANT 1)



(Channel 6, 802.11g, ANT 1)



(Channel 11, 802.11g, ANT 1)



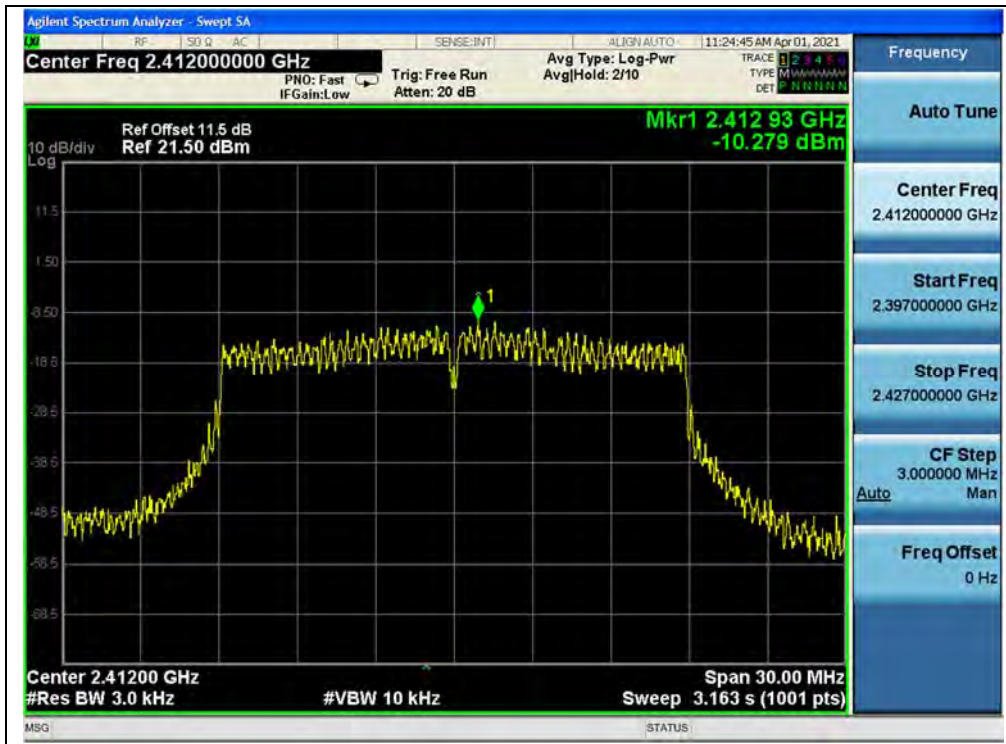
802.11n (HT20) Mode

A. Test Verdict:

Channel	Frequency (MHz)	Measured PSD (dBm/3kHz)		Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
		ANT 0	ANT 1			
1	2412	-10.28	-9.80	-7.02	8	PASS
6	2437	-8.71	-11.43	-6.85	8	PASS
11	2462	-10.20	-10.17	-7.17	8	PASS

Note: Directional gain = $-6.5\text{dBi} + 10\log(2) = -3.49\text{dBi} < 6\text{dBi}$, so the power density limit is 8 dBm/3kHz.

B. Test Plot:



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