



# TEST REPORT

**APPLICANT** : Nubia Technology Co., Ltd.  
**PRODUCT NAME** : 5G Digital Mobile Phone  
**MODEL NAME** : NX659J  
**BRAND NAME** : REDMAGIC  
**FCC ID** : 2AHJO-NX659J  
**STANDARD(S)** : 47 CFR Part 15 Subpart C  
**RECEIPT DATE** : 2020-01-17  
**TEST DATE** : 2020-03-22 to 2020-03-27  
**ISSUE DATE** : 2020-04-01

Edited by: Peng Mi  
Peng Mi (Rapporteur)  
Approved by: Peng Huarui  
Peng Huarui( Supervisor )

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<b>Change History</b>		
<b>Version</b>	<b>Date</b>	<b>Reason for change</b>
1.0	2020-04-01	First edition



# 1. Technical Information

Note: Provide by applicant.

## 1.1. Applicant and Manufacturer Information

<b>Applicant:</b>	Nubia Technology Co., Ltd.
<b>Applicant Address:</b>	16/F, Building 2, chongwen Park, Nanshan zhiyuan, 3370 Liuxian Road, Nanshan District, Shenzhen, China.
<b>Manufacturer:</b>	Nubia Technology Co., Ltd.
<b>Manufacturer Address:</b>	16/F, Building 2, chongwen Park, Nanshan zhiyuan, 3370 Liuxian Road, Nanshan District, Shenzhen, China.

## 1.2. Equipment Under Test (EUT) Description

<b>Product Name:</b>	5G Digital Mobile Phone	
<b>Serial No:</b>	(N/A, marked #1 by test site)	
<b>Hardware Version:</b>	NX659J_V1AMB	
<b>Software Version:</b>	NX659J_ENCommon_V1.22	
<b>Equipment Type:</b>	WLAN2.4G	
<b>Modulation Type:</b>	DSSS, OFDM, OFDMA	
<b>Operating Frequency Range:</b>	802.11b/g/n(HT20): 2.412GHz - 2.462GHz 802.11ax(HEW20): 2.412GHz - 2.462GHz	
<b>Antenna Type:</b>	PIFA Antenna	
<b>Antenna Gain:</b>	Ant 0: 1.3 dBi; Ant 1: 1.3 dBi	
<b>Directional Gain:</b>	4.31 dBi <sub>Note 3</sub>	
<b>Accessory Information:</b>	Battery	
	<b>Brand Name:</b>	ATL
	<b>Model No.:</b>	Li3945T44P8h526391
	<b>Serial No.:</b>	(N/A, marked #1 by test site)
	<b>Capacity:</b>	4400mAh
	<b>Rated Voltage:</b>	3.87V
	<b>Charge Limit:</b>	4.45 V



<b>Accessory Information:</b>	AC Adapter	
	Brand Name:	N/A
	Model No.:	CYNBY090200-A00
	Serial No.:	(N/A, marked #1 by test site)
	Rated Output:	12V=1.5A or 9V=2.0A or 5V=3A
	Rated Input:	100-240V~50/60Hz 0.5A

**Note 1:** We use the dedicated software to control the EUT continuous transmission.

**Note 2:** The EUT has two antennas, only 802.11n/ax modulation mode supports a MIMO function.

Modulation Mode:	TX Function	Relationship between the two output signals
802.11b	1TX	Uncorrelated
802.11g	1TX	Uncorrelated
802.11n	2TX	Correlated
802.11ax	2TX	Correlated

**Note 3:** 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 4:** For conducted test item Peak 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 5:** All radiation test items for 802.11n/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 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 Test Mode of EUT

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

**Note1:** The Lowest Channel (1), Middle Channel (6) and Highest Channel (11) was selected test for 802.11b/g/n(HT20)/ax(HEW20) mode;



## 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 22, 2020	Tu Yanan	PASS	No deviation
3	15.247(b)	Maximum Peak and Average Conducted Output Power	Mar 22, 2020	Tu Yanan	PASS	No deviation
4	15.247(a)	Bandwidth	Mar 22, 2020	Tu Yanan	PASS	No deviation
5	15.247(d)	Conducted Spurious Emission and Band Edge	Mar 22, 2020	Tu Yanan	PASS	No deviation
6	15.247(e)	Power spectral density (PSD)	Mar 22, 2020	Tu Yanan	PASS	No deviation
7	15.207	Conducted Emission	Mar 27, 2020	Huang Zhiye	PASS	No deviation
8	15.247(d)	Restricted Frequency Bands	Mar 27, 2020	Li Zihao	PASS	No deviation
9	15.209, 15.247(d)	Radiated Emission	Mar 27, 2020	Li Zihao	PASS	No deviation

**Note1:** The tests were performed according to the method of measurements prescribed in ANSIC63.10-2013, KDB558074 D01 v05r02.

**Note2:** 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.

## 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. Result: Compliant

The EUT has a permanently and irreplaceable attached antenna. Please refer to the EUT internal photos.

## 2.2. Duty Cycle of Test Signal

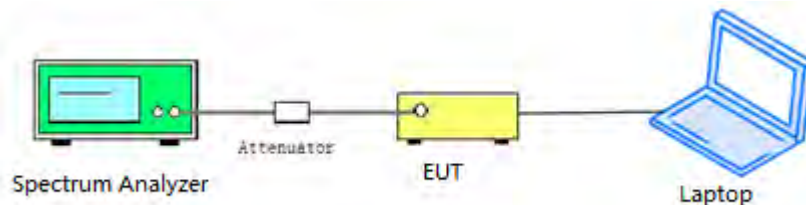
### 2.2.1. Requirement

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.

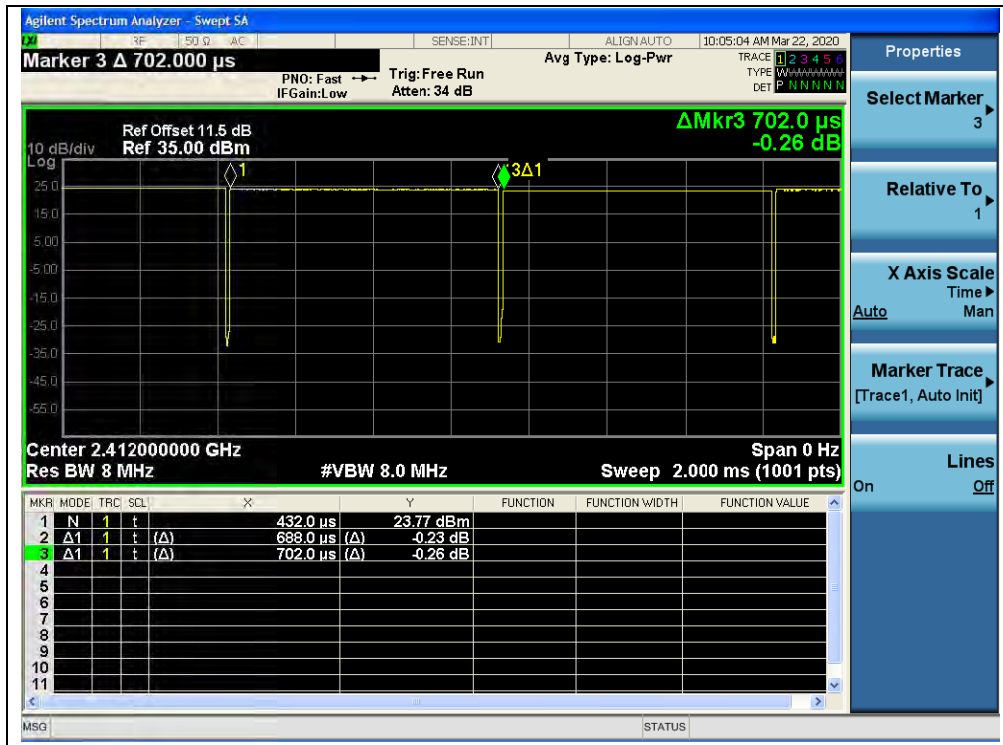


2.2.3. Test Result

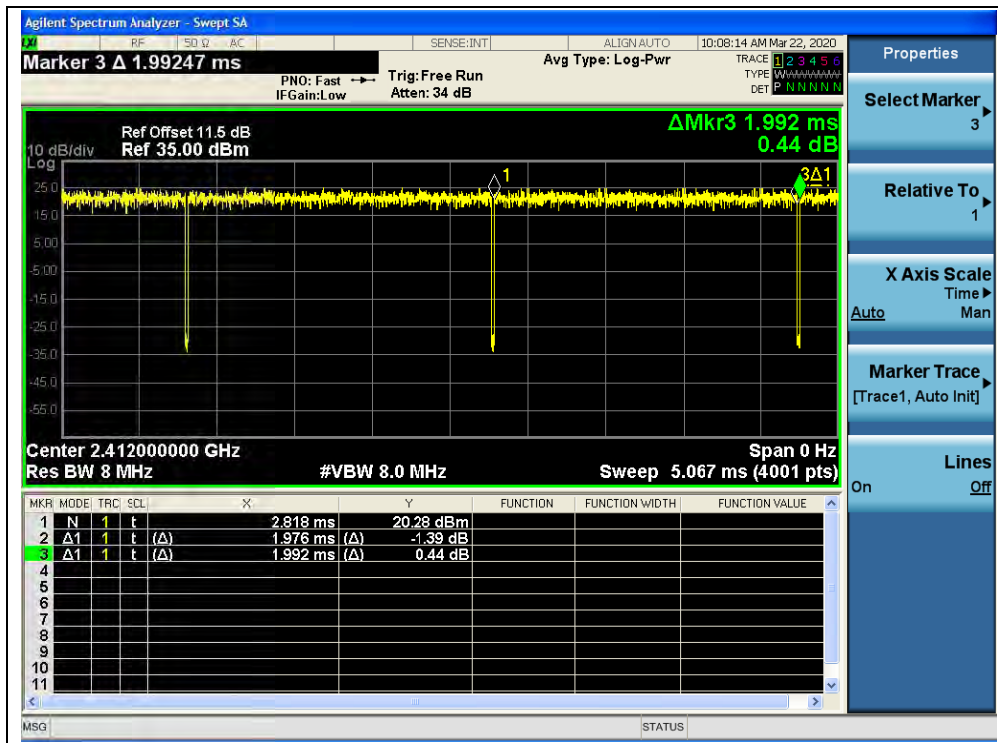
A. Test Verdict:

Test Mode	Duty Cycle (%) (D)	Duty Factor (10*log[1/D])
802.11b	98.01	0.09
802.11g	99.20	0.03
802.11n(HT20)	99.72	0.01
802.11ax(HEW20)	99.73	0.01

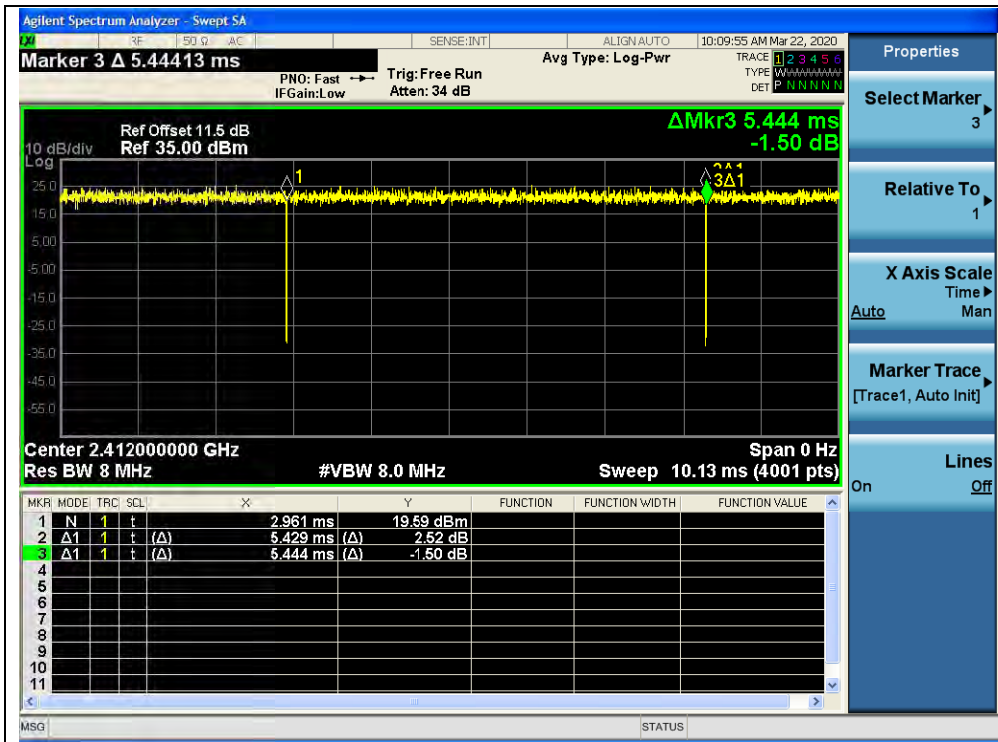
B. Test Plots



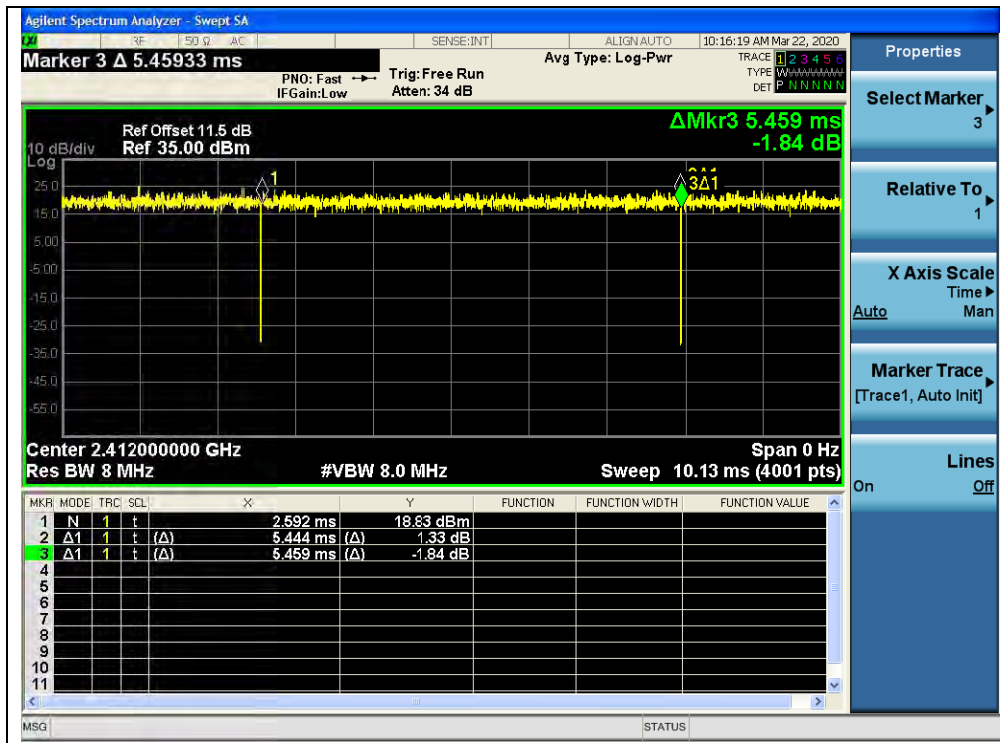
(Channel 1, 2412MHz, 802.11b)



(Channel 1, 2412MHz, 802.11g)



(Channel 1, 2412MHz, 802.11n(HT20))



(Channel 1, 2412MHz, 802.11ax (HEW20))

## 2.3. Maximum Peak and Average Conducted Output Power

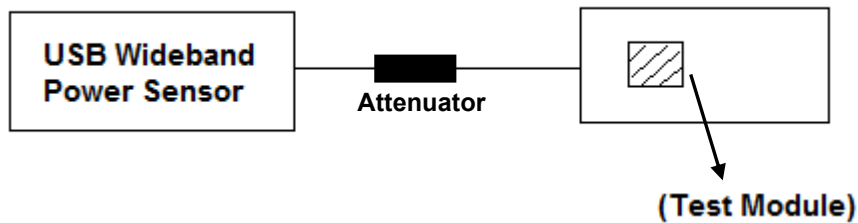
### 2.3.1. Requirement

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 peak 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 Test Mode

Channel	Frequency (MHz)	Measured Peak Power				Limit (dBm)		Verdict
		ANT 0		ANT 1		dBm	W	
		dBm	W	dBm	W			
1	2412	18.11	0.065	21.92	0.156	30	1	PASS
6	2437	18.16	0.065	21.93	0.156			PASS
11	2462	18.15	0.065	21.95	0.157			PASS

802.11g Test mode

Channel	Frequency (MHz)	Measured Peak Power				Limit (dBm)		Verdict
		ANT 0		ANT 1		dBm	W	
		dBm	W	dBm	W			
1	2412	22.62	0.183	25.19	0.330	30	1	PASS
6	2437	22.50	0.178	25.21	0.332			PASS
11	2462	22.46	0.176	25.01	0.317			PASS

802.11n(HT20) Test mode

Channel	Frequency (MHz)	Measured Peak Power (dBm)		Total Power (dBm)	Total Power (W)	Limit		Verdict
		ANT 0	ANT 1			dBm	W	
1	2412	22.68	24.82	26.89	0.489	30	1	PASS
6	2437	22.93	24.78	26.96	0.497			PASS
11	2462	22.99	24.97	27.10	0.513			PASS

**Note:** Directional gain = 1.3dBi +10log(2) = 4.31dBi < 6dBi, so the power limit is 1W(30dBm).

802.11ax(HEW20)(RU26) Test mode

Channel	Frequency (MHz)	Measured Peak Power (dBm)		Total Power (dBm)	Total Power (W)	Limit		Verdict
		ANT 0	ANT 1			dBm	W	
1	2412	24.15	24.40	27.28	0.535	30	1	PASS
6	2437	23.48	24.26	26.90	0.490			PASS
11	2462	23.34	23.56	26.46	0.443			PASS

**Note:** Directional gain = 1.3dBi +10log(2) = 4.31dBi < 6dBi, so the power limit is 1W(30dBm).





**802.11ax(HEW20)(RU52) Test mode**

Channel	Frequency (MHz)	Measured Peak Power (dBm)		Total Power (dBm)	Total Power (W)	Limit		Verdict
		ANT 0	ANT 1			dBm	W	
1	2412	24.06	24.13	27.11	0.514	30	1	PASS
6	2437	23.33	24.05	26.71	0.469			PASS
11	2462	23.25	23.41	26.34	0.431			PASS

**Note:** Directional gain = 1.3dBi +10log(2) = 4.31dBi<6dBi, so the power limit is 1W(30dBm).

**802.11ax(HEW20)(RU106) Test mode**

Channel	Frequency (MHz)	Measured Peak Power (dBm)		Total Power (dBm)	Total Power (W)	Limit		Verdict
		ANT 0	ANT 1			dBm	W	
1	2412	23.70	24.08	26.90	0.490	30	1	PASS
6	2437	23.11	23.55	26.34	0.431			PASS
11	2462	23.06	23.62	26.35	0.432			PASS

**Note:** Directional gain = 1.3dBi +10log(2) = 4.31dBi<6dBi, so the power limit is 1W(30dBm).

**802.11ax(HEW20)(RU242) Test mode**

Channel	Frequency (MHz)	Measured Peak Power (dBm)		Total Power (dBm)	Total Power (W)	Limit		Verdict
		ANT 0	ANT 1			dBm	W	
1	2412	24.01	24.50	27.28	0.535	30	1	PASS
6	2437	23.77	24.38	27.09	0.512			PASS
11	2462	23.98	24.64	27.33	0.541			PASS

**Note:** Directional gain = 1.3dBi +10log(2) = 4.31dBi<6dBi, so the power limit is 1W(30dBm).

**Maximum Average Conducted Output Power**

**802.11b Test Mode**

Frequency (MHz)	Average Power							Limit		Verdict
	Measured		Duty Factor	Duty factor Calculated						
	ANT0	ANT1		ANT0		ANT1				
	dBm	dBm		dBm	W	dBm	W			
2412	15.42	19.04	0.09	15.51	0.036	19.13	0.082	30	1	PASS
2437	15.51	19.12		15.60	0.036	19.21	0.083			PASS
2462	15.53	19.12		15.62	0.036	19.21	0.083			PASS

**802.11g Test Mode**



Frequency (MHz)	Average Power							Limit		Verdict
	Measured		Duty Factor	Duty factor Calculated						
	ANT0	ANT1		ANT0		ANT1				
	dBm	dBm		dBm	W	dBm	W	dBm	W	
2412	15.12	18.64	0.03	15.15	0.033	18.67	0.074	30	1	PASS
2437	15.14	18.78		15.17	0.033	18.81	0.076			PASS
2462	15.12	18.67		15.15	0.033	18.70	0.074			PASS

**802.11n(HT20) Test Mode**

Frequency (MHz)	Average Power					Limit		Verdict
	Measured		Duty Factor	Total Power with Duty Factor				
	ANT0	ANT1		Total Power with Duty Factor				
	dBm	dBm		dBm	W	dBm	W	
2412	14.89	17.46	0.01	19.40	0.087	30	1	PASS
2437	14.99	17.64		19.54	0.090			PASS
2462	15.01	17.74		19.59	0.091			PASS

**Note:** Directional gain = 1.2dBi + 10log(2) = 4.31dBi < 6dBi, so the power limit is 1W(30dBm).

**802.11ax(HEW20) (RU26)Test Mode**

Frequency (MHz)	Average Power					Limit		Verdict
	Measured		Duty Factor	Total Power with Duty Factor				
	ANT0	ANT1		Total Power with Duty Factor				
	dBm	dBm		dBm	W	dBm	W	
2412	15.36	15.74	0.01	18.57	0.072	30	1	PASS
2437	15.35	15.58		18.51	0.071			PASS
2462	15.32	15.72		18.57	0.072			PASS

**Note:** Directional gain = 1.2dBi + 10log(2) = 4.31dBi < 6dBi, so the power limit is 1W(30dBm).

**802.11ax(HEW20) (RU52)Test Mode**

Frequency (MHz)	Average Power					Limit		Verdict
	Measured		Duty Factor	Total Power with Duty Factor				
	ANT0	ANT1		Total Power with Duty Factor				
	dBm	dBm		dBm	W	dBm	W	
2412	15.18	15.42	0.01	18.33	0.068	30	1	PASS
2437	15.11	15.36		18.26	0.067			PASS
2462	15.13	15.27		18.20	0.066			PASS

**Note:** Directional gain = 1.2dBi + 10log(2) = 4.31dBi < 6dBi, so the power limit is 1W(30dBm).



**802.11ax(HEW20) (RU106)Test Mode**

Frequency (MHz)	Average Power				Limit		Verdict	
	Measured		Duty Factor	Total Power with Duty Factor		dBm		W
	ANT0	ANT1		dBm	W			
2412	15.14	15.20	0.01	18.20	0.066	30	1	PASS
2437	15.08	15.15		18.13	0.065			PASS
2462	15.10	15.16		18.13	0.065			PASS

**Note:** Directional gain = 1.2dBi +10log(2) = 4.31dBi < 6dBi, so the power limit is 1W(30dBm).

**802.11ax(HEW20) (RU242)Test Mode**

Frequency (MHz)	Average Power				Limit		Verdict	
	Measured		Duty Factor	Total Power with Duty Factor		dBm		W
	ANT0	ANT1		dBm	W			
2412	15.04	15.73	0.01	18.39	0.069	30	1	PASS
2437	15.08	15.84		18.51	0.071			PASS
2462	15.06	15.75		18.45	0.070			PASS

**Note:** Directional gain = 1.2dBi +10log(2) = 4.31dBi < 6dBi, so the power limit is 1W(30dBm).

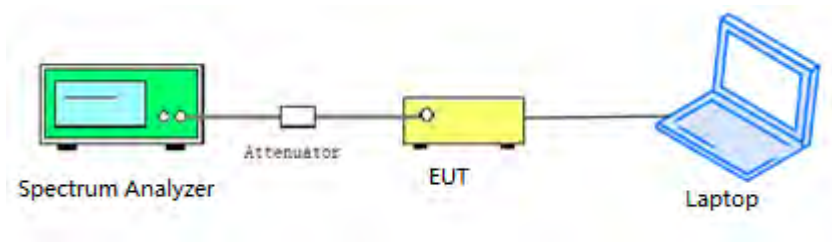
## 2.4. Bandwidth

### 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 Test mode

A. Test Verdict:

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limits(kHz)	Result
1	2412	8.11	≥500	PASS
6	2437	8.11	≥500	PASS
11	2462	8.09	≥500	PASS

B. Test Plots



(Channel 1, 802.11b)



(Channel 6, 802.11b)



(Channel 11, 802.11b)

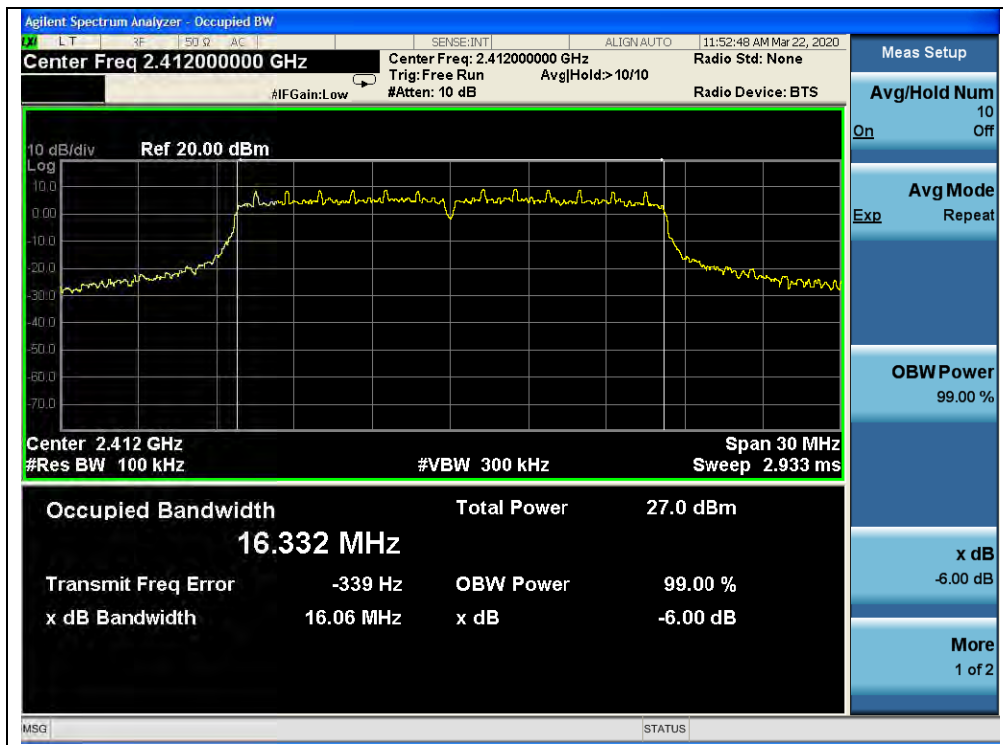


**802.11g Test mode**

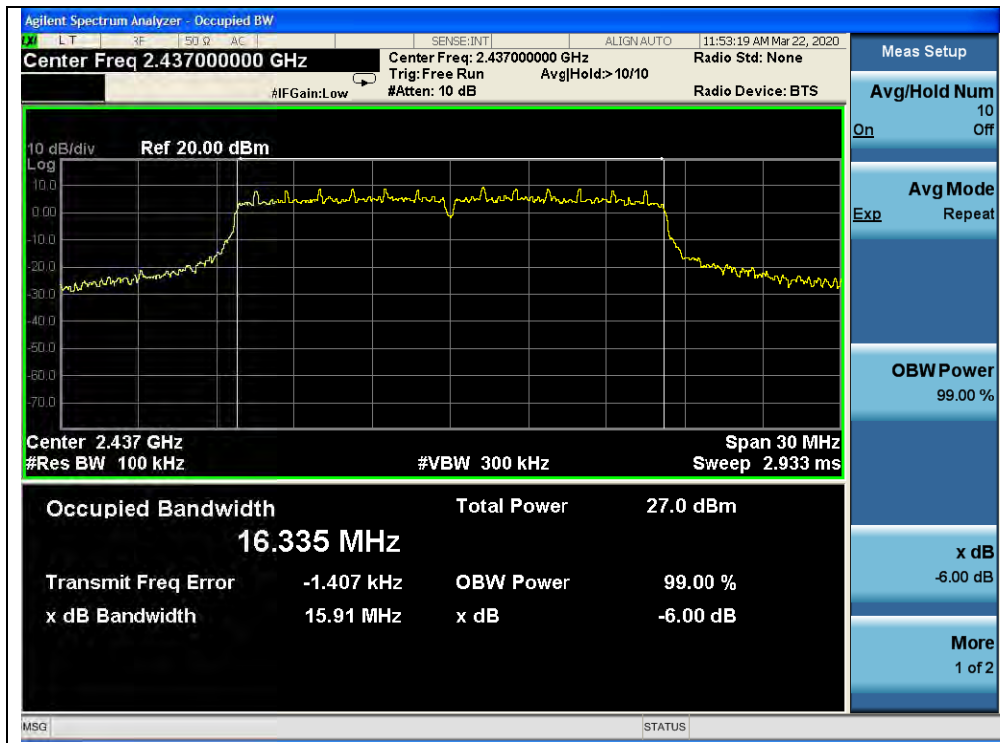
**A. Test Verdict:**

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limits (kHz)	Result
1	2412	16.06	≥500	PASS
6	2437	15.91	≥500	PASS
11	2462	15.92	≥500	PASS

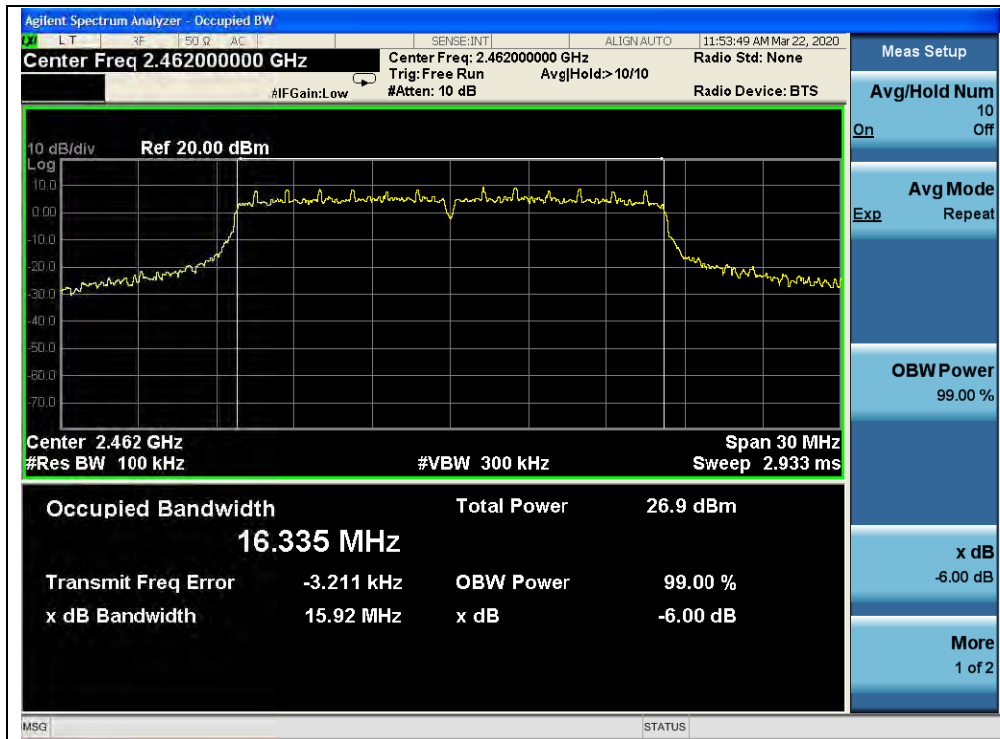
**B. Test Plots:**



(Channel 1, 802.11g)



(Channel 6, 802.11g)



(Channel 11, 802.11g)



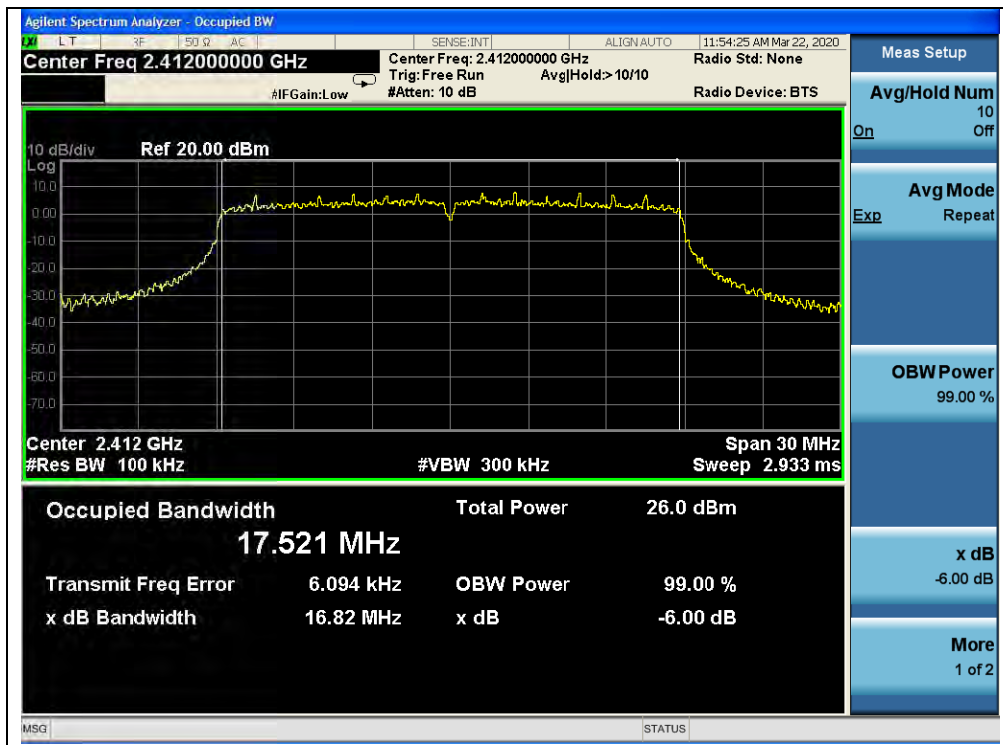


802.11n(HT20) Test mode

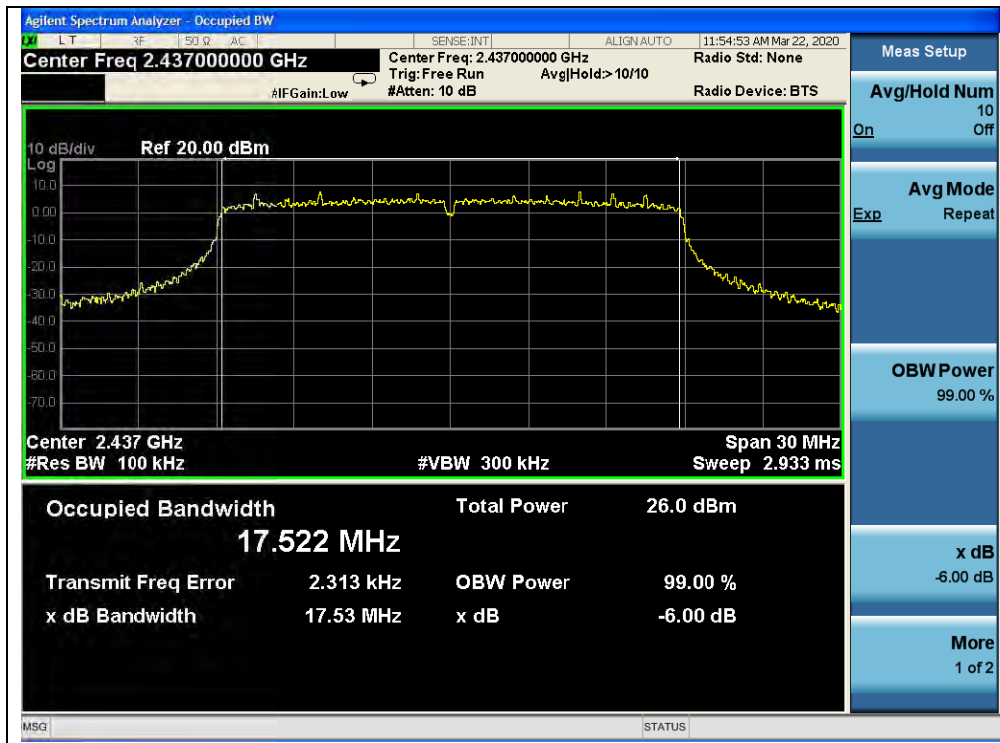
A. Test Verdict:

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limits (kHz)	Result
1	2412	16.82	≥500	PASS
6	2437	17.53	≥500	PASS
11	2462	16.95	≥500	PASS

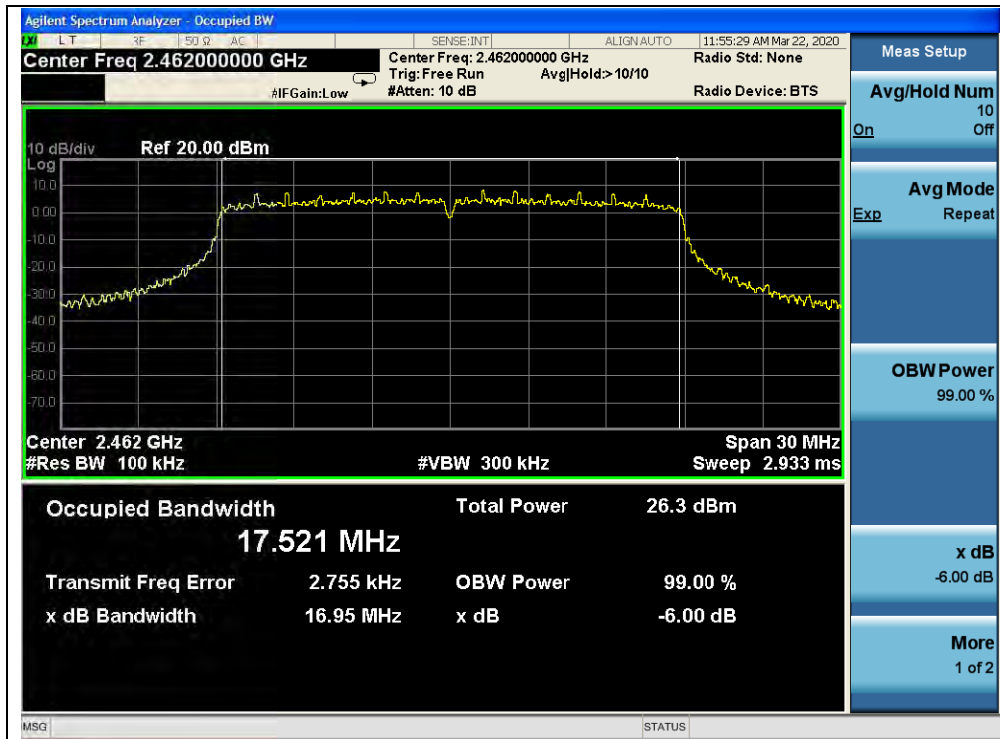
B. Test Plots:



(Channel 1, 802.11n(HT20))



(Channel 6, 802.11n(HT20))



(Channel 11, 802.11n(HT20))

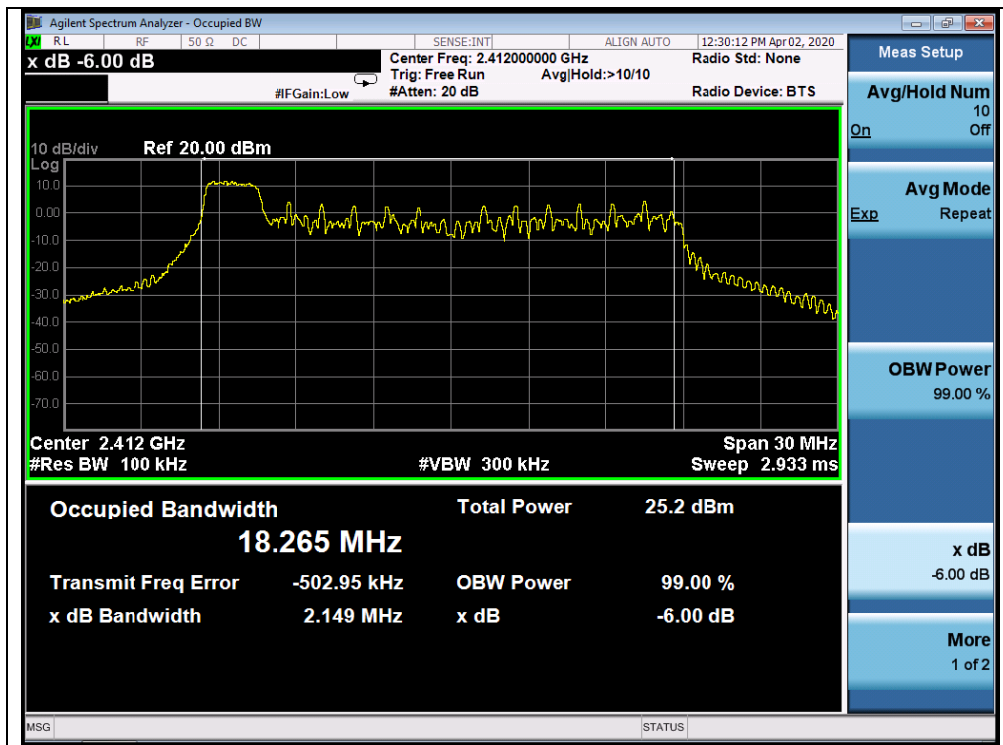


**802.11ax (HEW20)(RU26) Test mode**

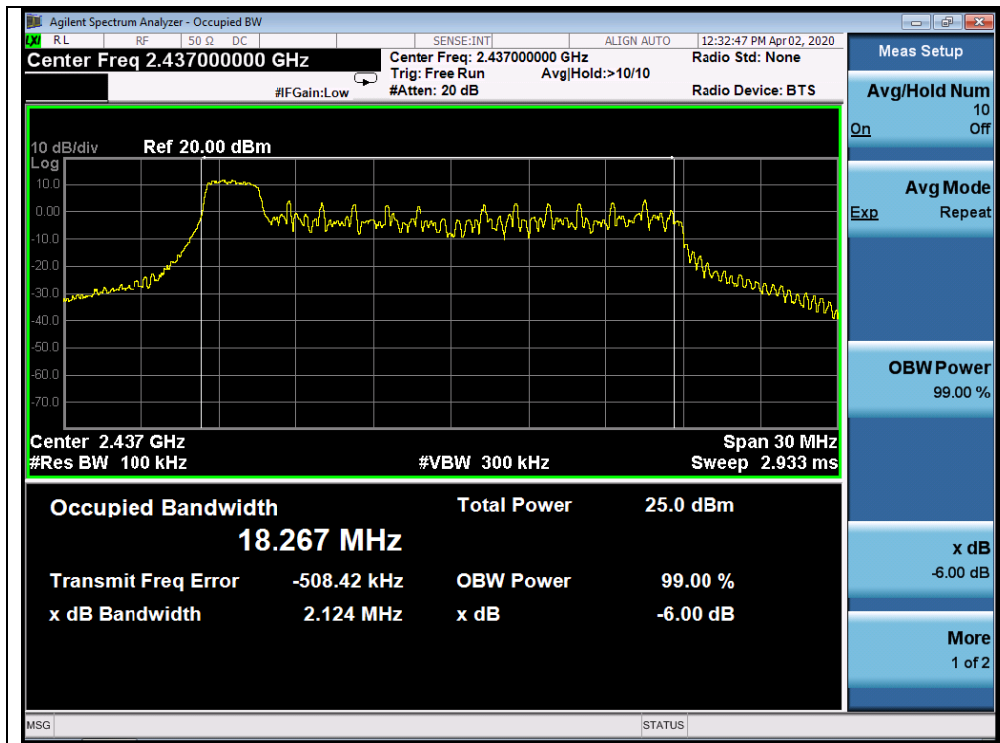
**A. Test Verdict:**

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limits (kHz)	Result
1	2412	2.15	≥500	PASS
6	2437	2.12	≥500	PASS
11	2462	2.14	≥500	PASS

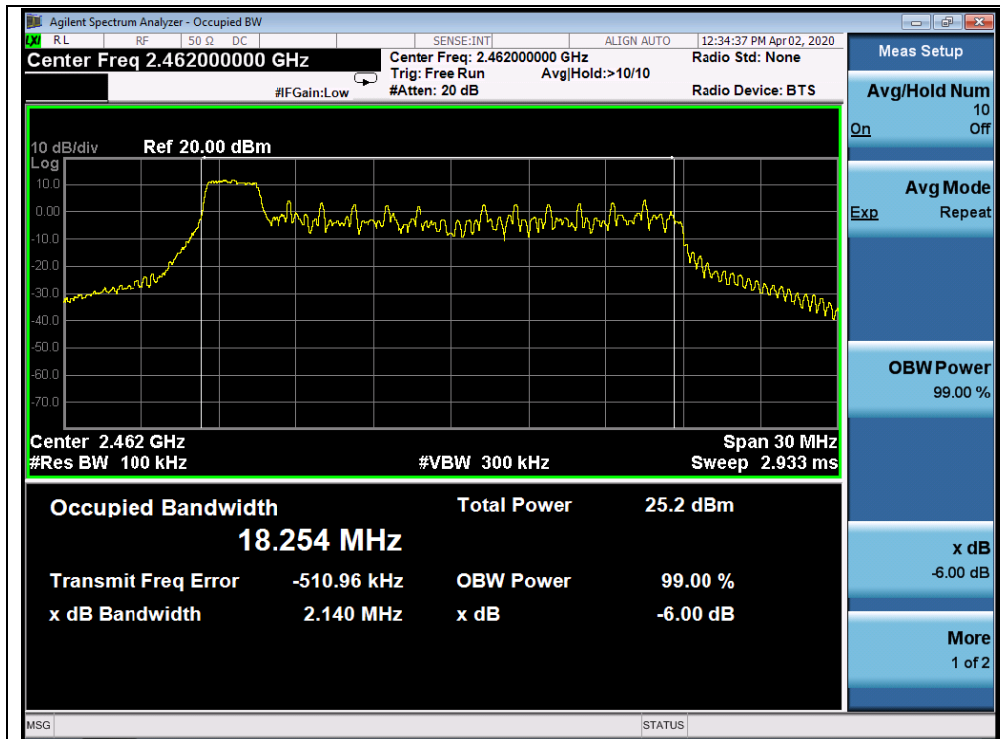
**B. Test Plots:**



(Channel 1, 802.11ax(HEW20))



(Channel 6, 802.11ax(HEW20))



(Channel 11, 802.11ax(HEW20))

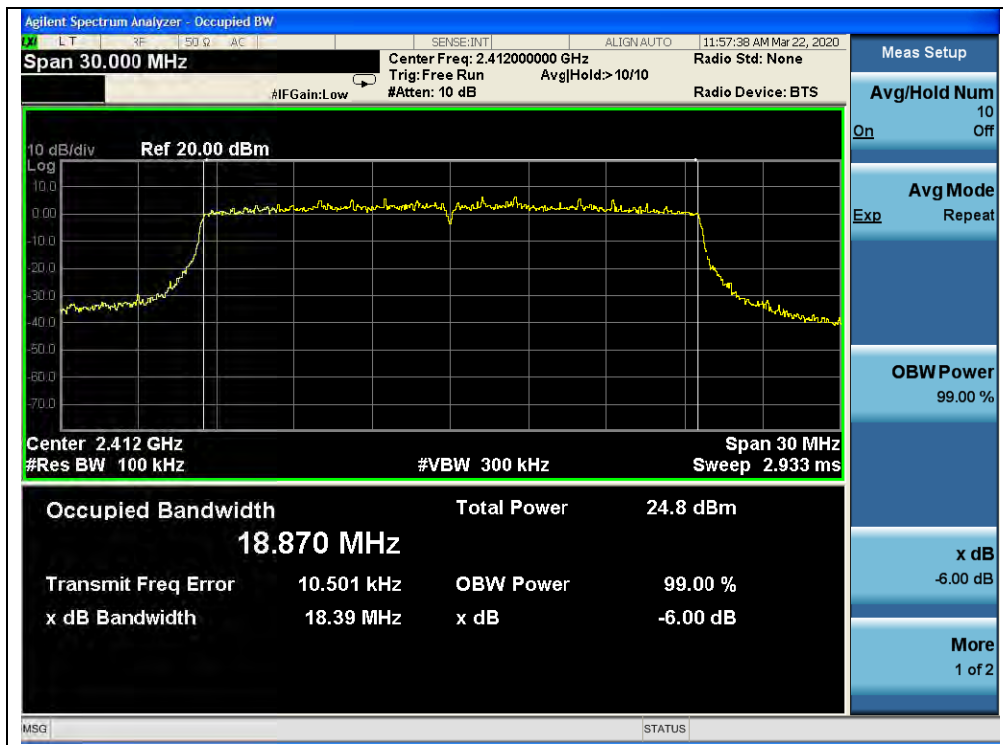


802.11ax (HEW20)(RU242) Test mode

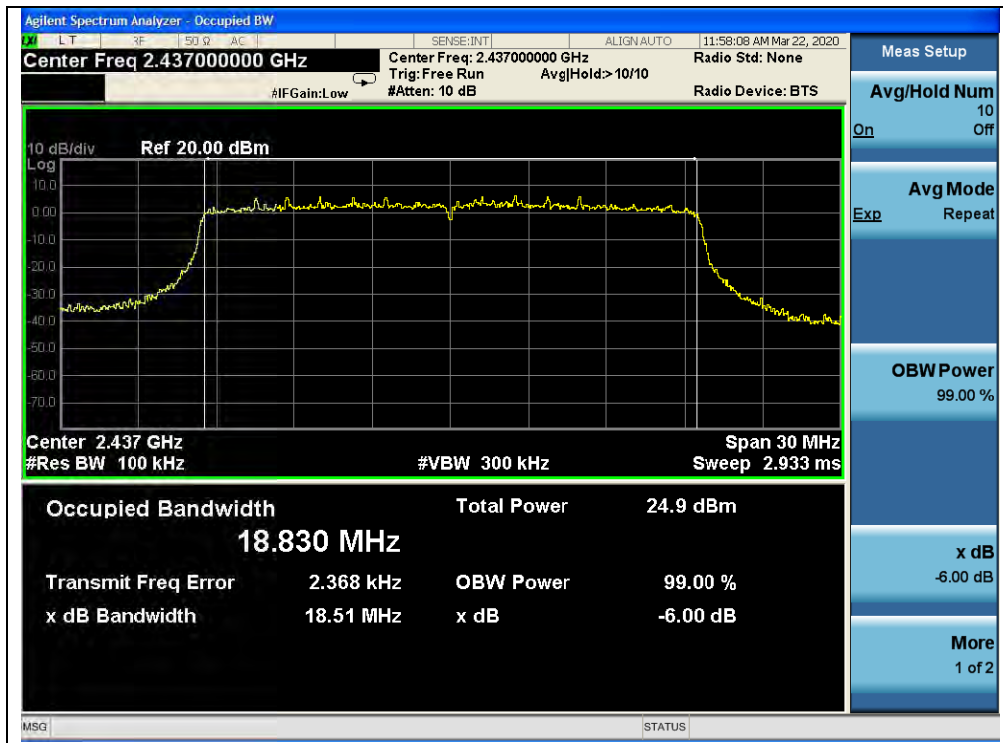
A. Test Verdict:

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limits (kHz)	Result
1	2412	18.39	≥500	PASS
6	2437	18.51	≥500	PASS
11	2462	18.79	≥500	PASS

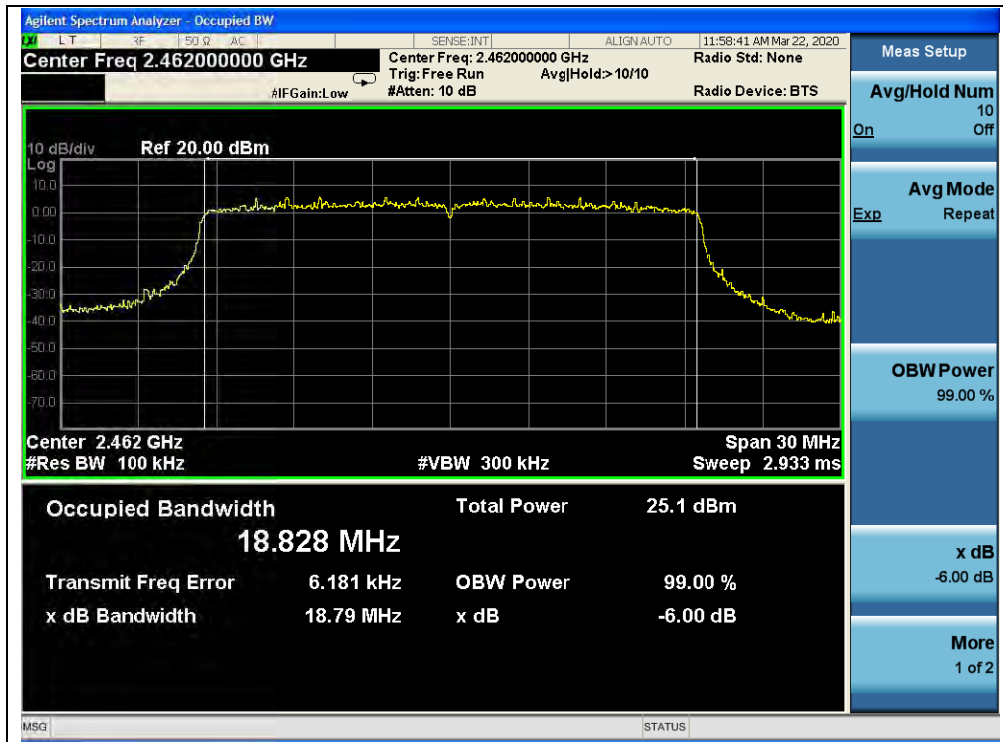
B. Test Plots:



(Channel 1, 802.11ax(HEW20))



(Channel 6, 802.11ax(HEW20))



(Channel 11, 802.11ax(HEW20))

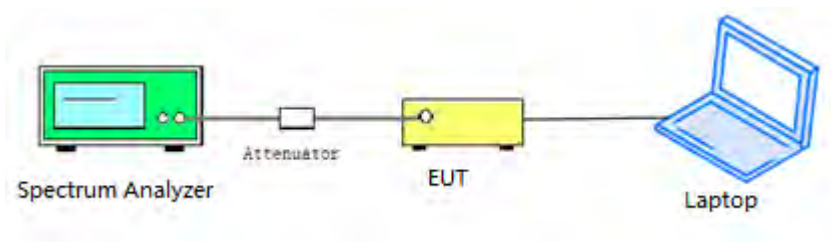
## 2.5. Conducted Spurious Emissions and Band Edge

### 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.



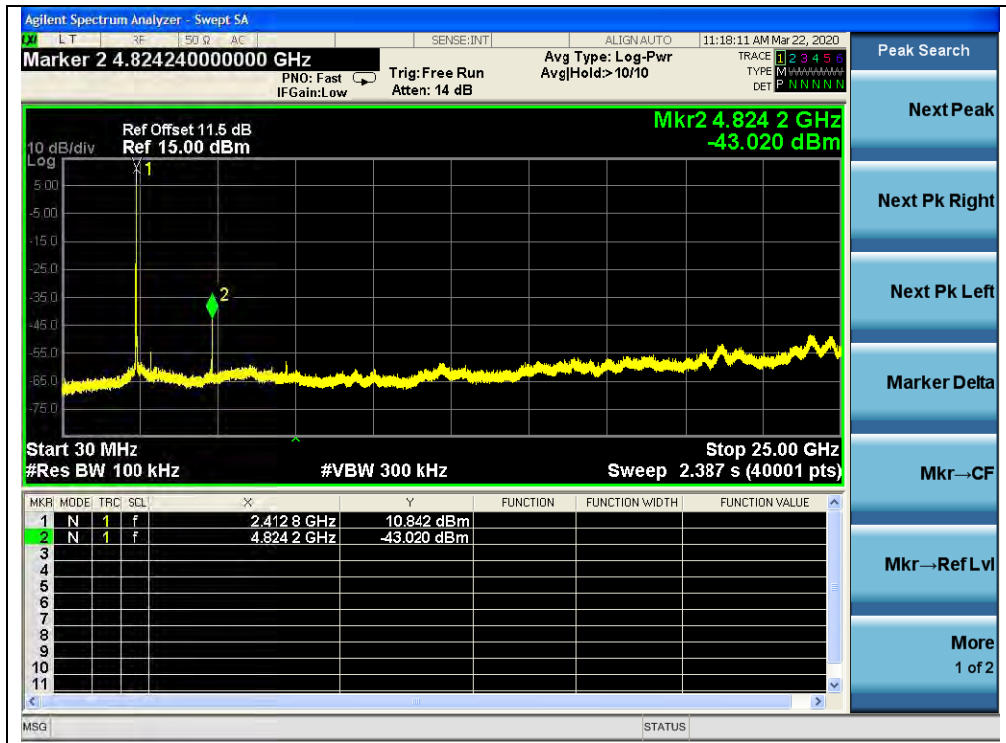
2.5.4. Test Result

802.11b Test mode

A. Test Verdict:

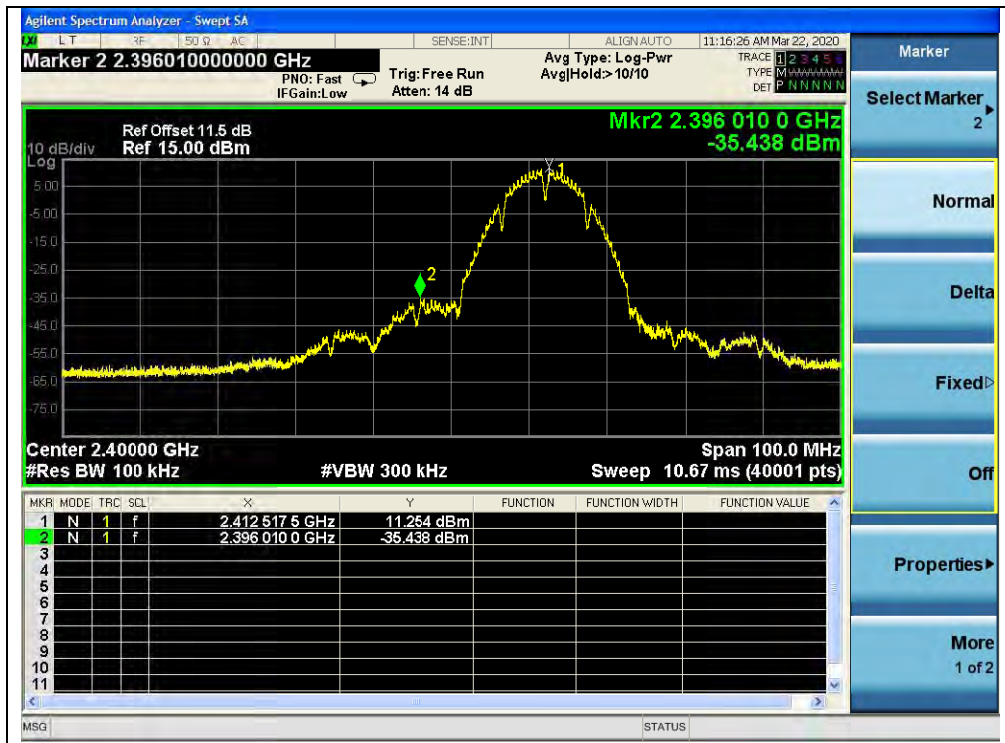
Channel	Frequency (MHz)	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
			Carrier Level	Calculated -20dBc Limit	
1	2412	-43.02	10.84	-9.16	PASS
6	2437	-43.26	10.18	-9.82	PASS
11	2462	-43.18	11.10	-8.90	PASS

B. Test Plots:

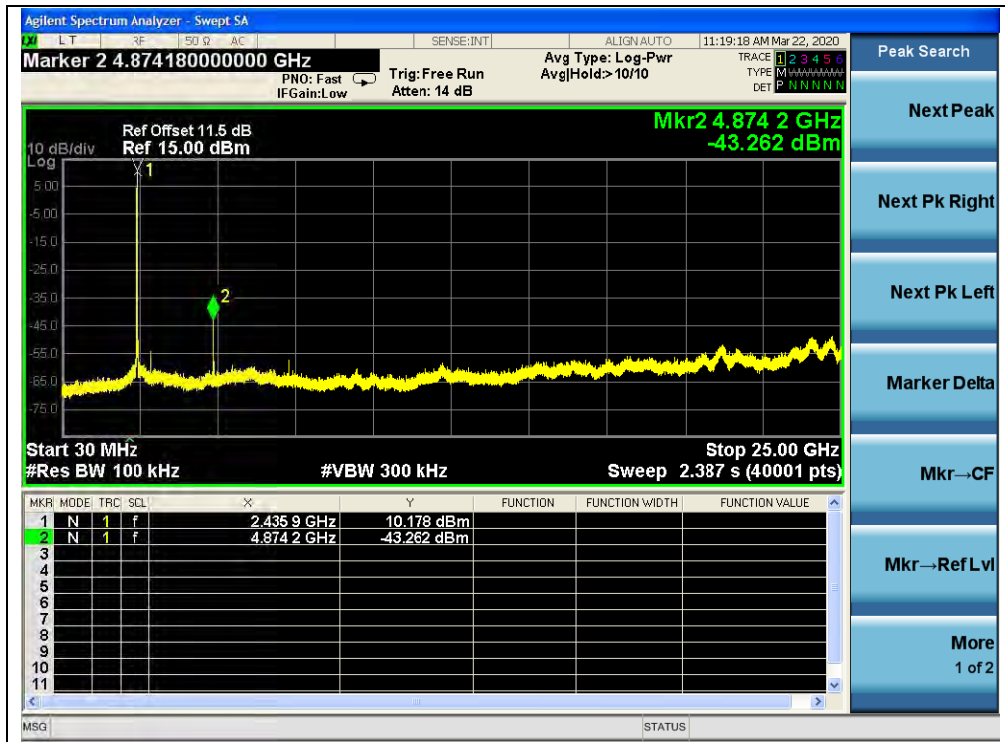


(Channel = 1, 30MHz to 25GHz)

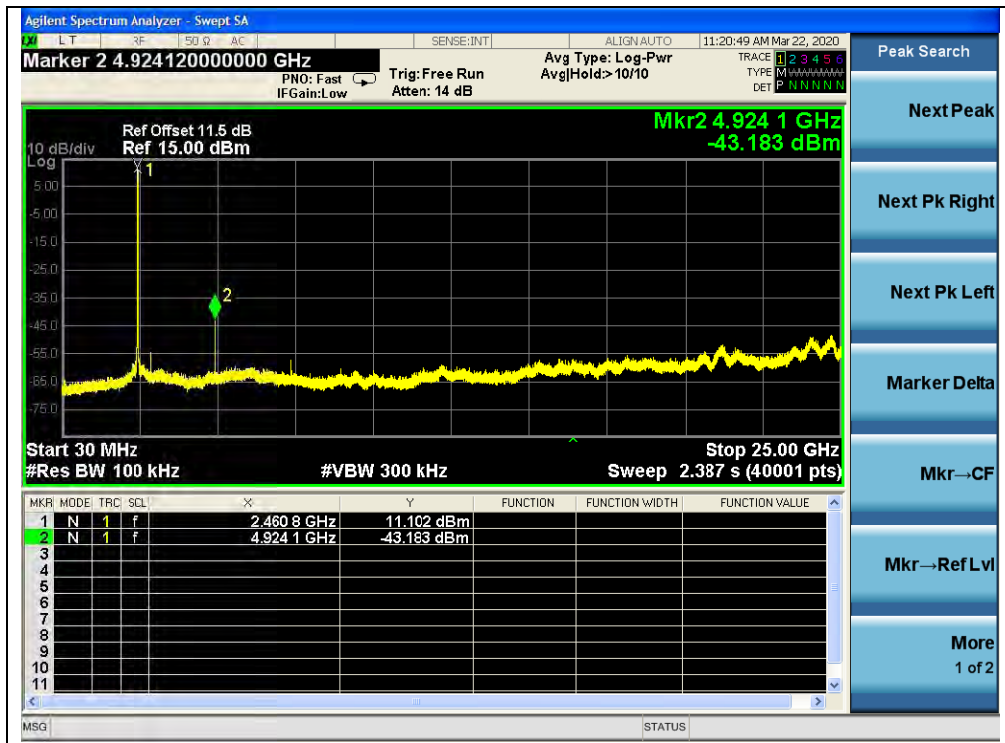




(Band Edge, Channel = 1)



(Channel = 6, 30MHz to 25GHz)



(Channel = 11, 30MHz to 25GHz)



(Band Edge, Channel = 11)

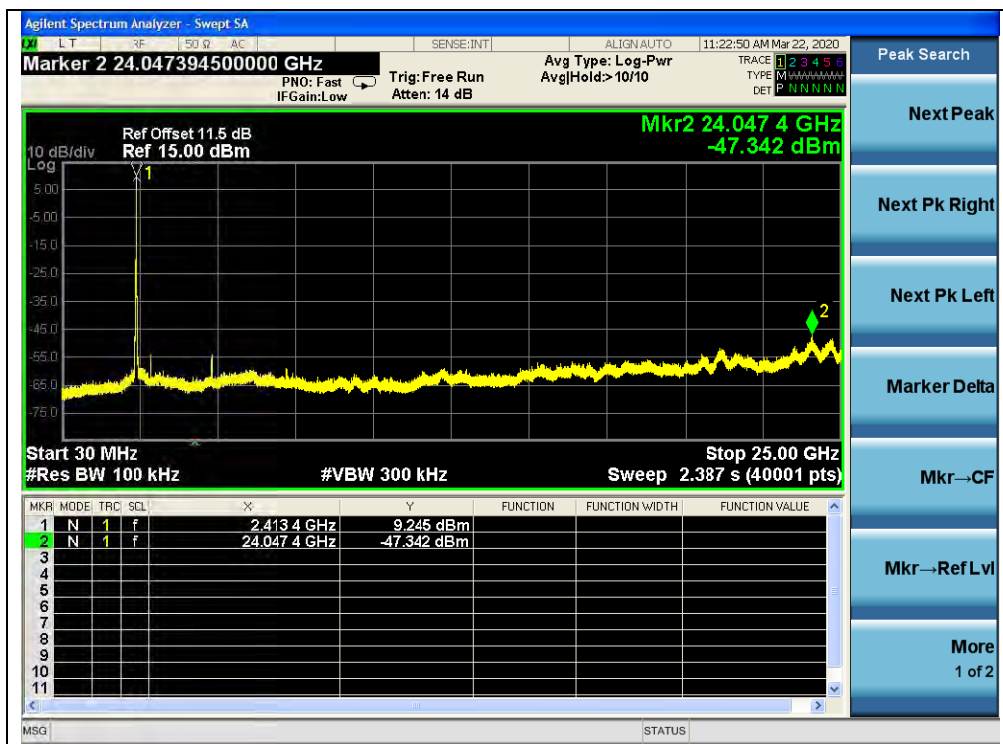


802.11g Test mode

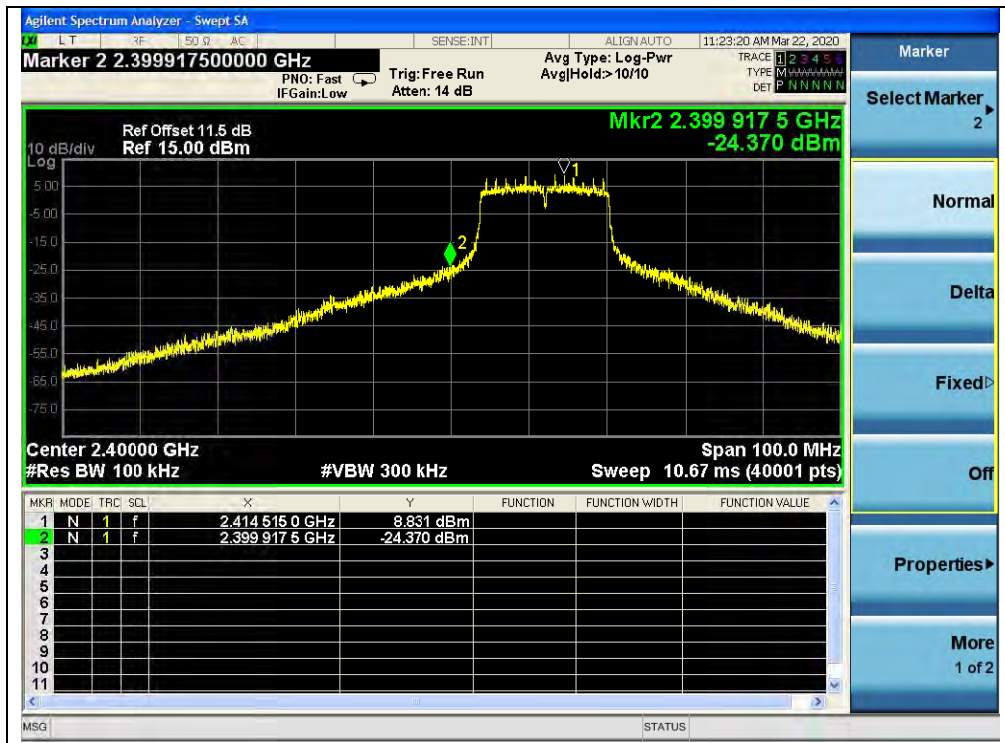
A. Test Verdict:

Channel	Frequency (MHz)	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
			Carrier Level	Calculated -20dBc Limit	
1	2412	-47.34	9.25	-10.75	PASS
6	2437	-49.27	7.70	-12.30	PASS
11	2462	-48.87	8.45	-11.55	PASS

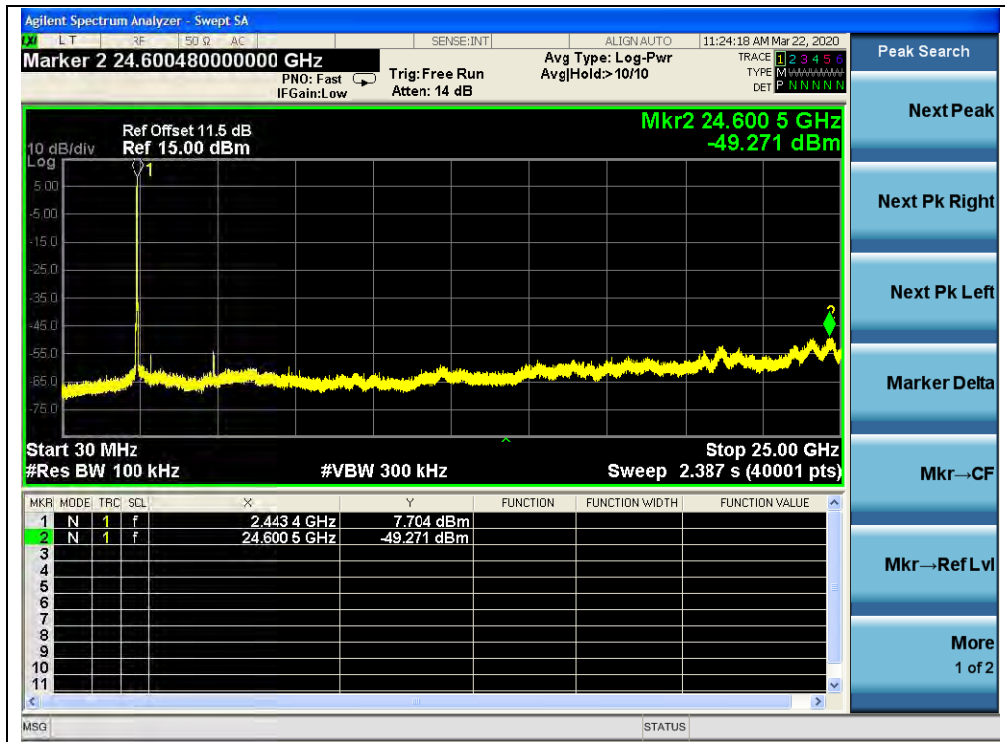
B. Test Plots:



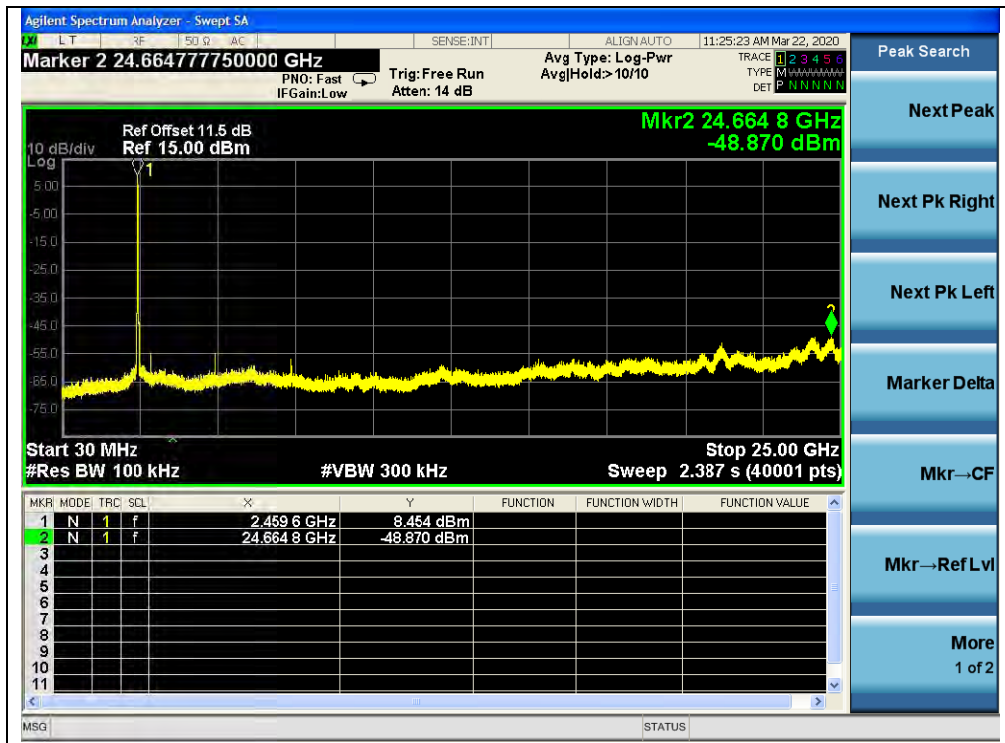
(Channel = 1, 30MHz to 25GHz)



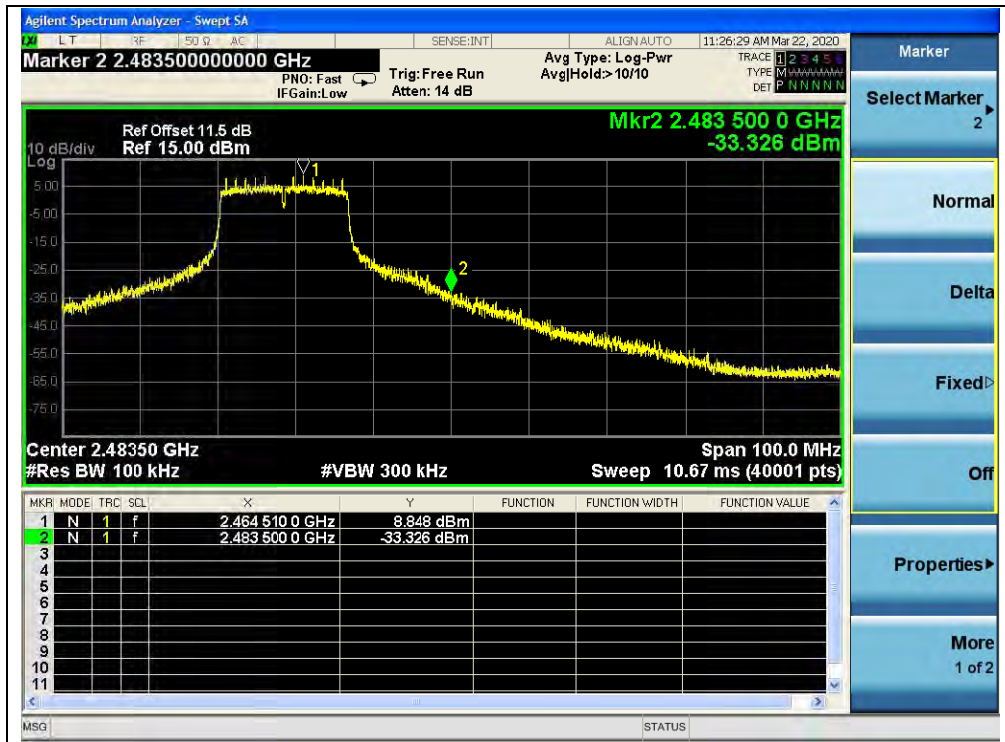
(Band Edge, Channel = 1)



(Channel = 6, 30MHz to 25GHz)



(Channel = 11, 30MHz to 25GHz)



(Band Edge, Channel = 11)

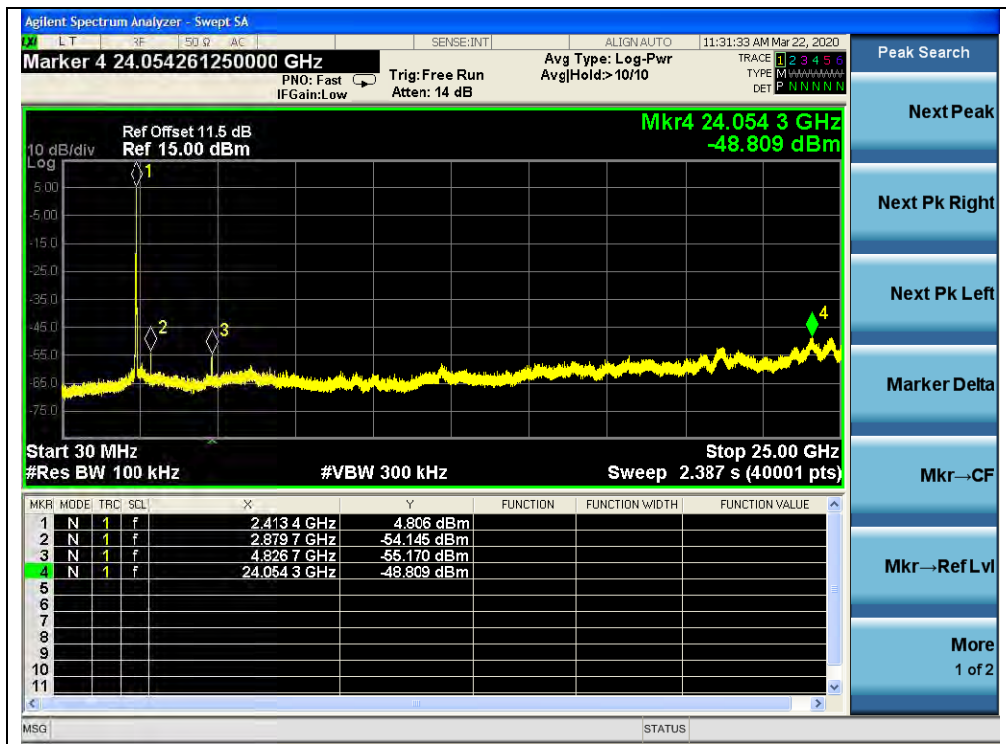


802.11n (HT20) Test mode

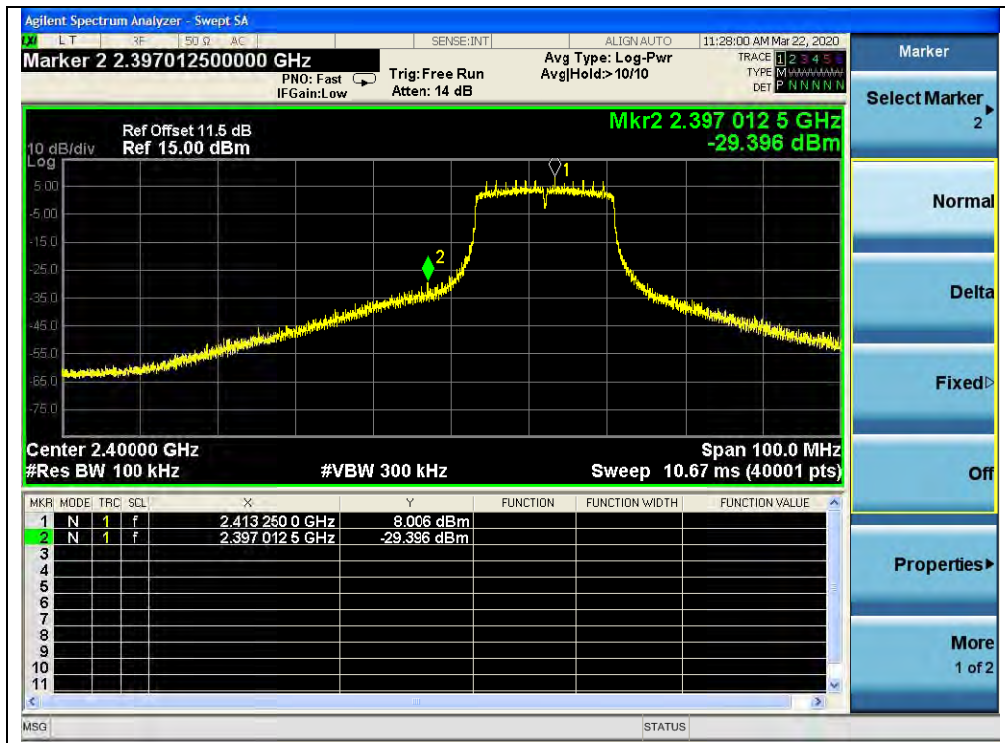
A. Test Verdict:

Channel	Frequency (MHz)	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
			Carrier Level	Calculated -20dBc Limit	
1	2412	-31.03	4.81	-15.19	PASS
6	2437	-32.03	4.69	-15.31	PASS
11	2462	-33.24	5.15	-14.85	PASS

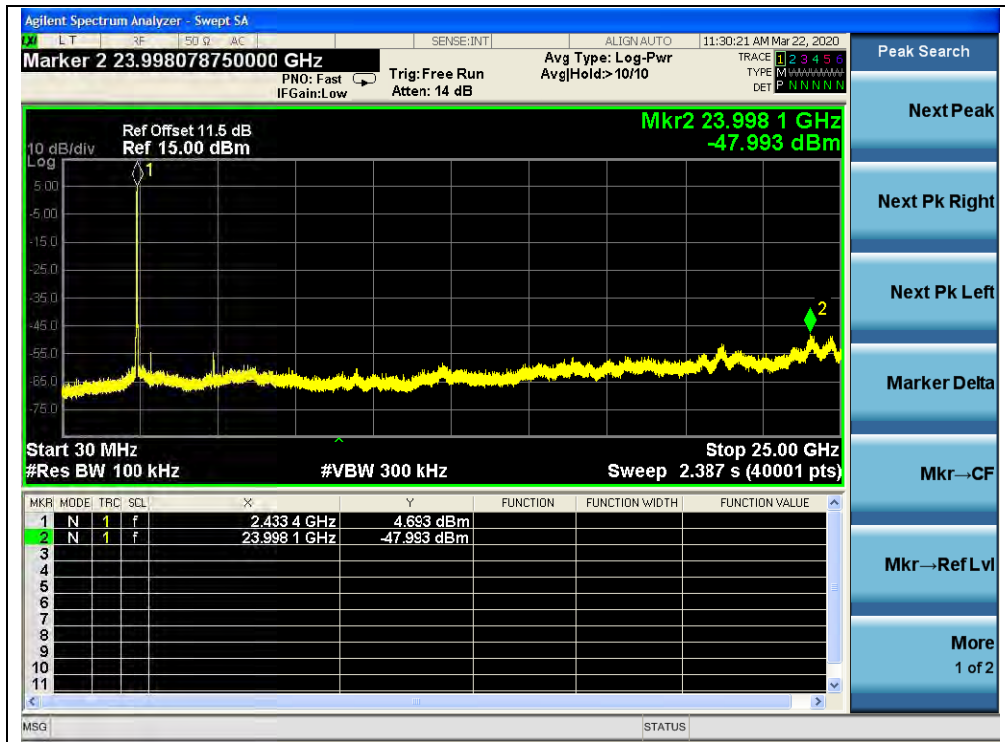
B. Test Plots:



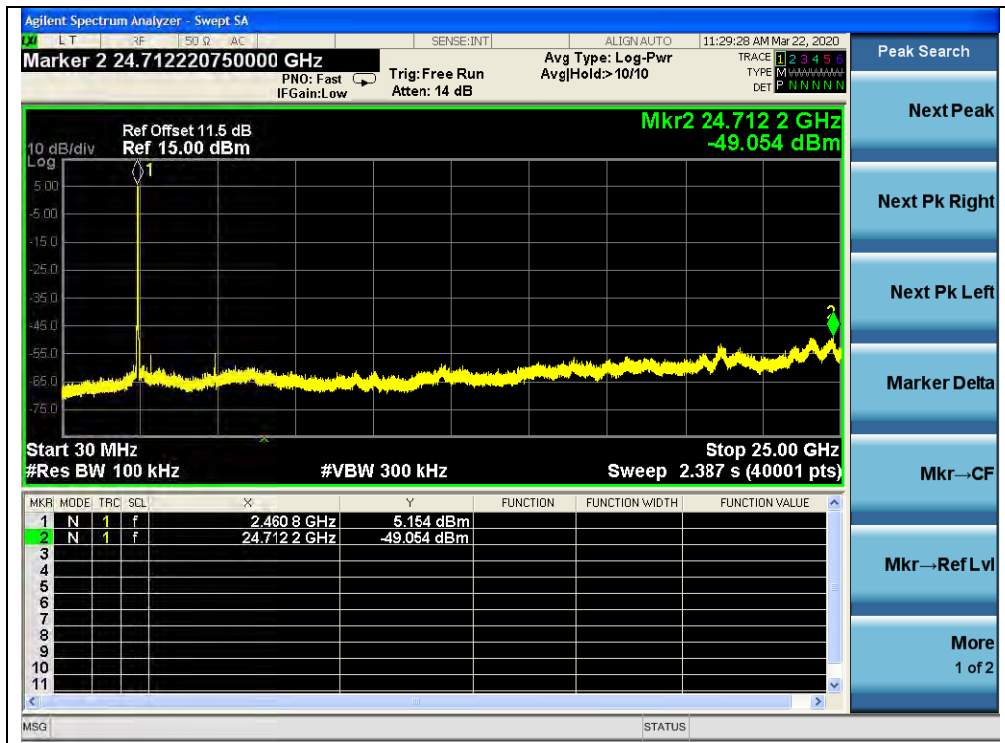
(Channel = 1, 30MHz to 25GHz)



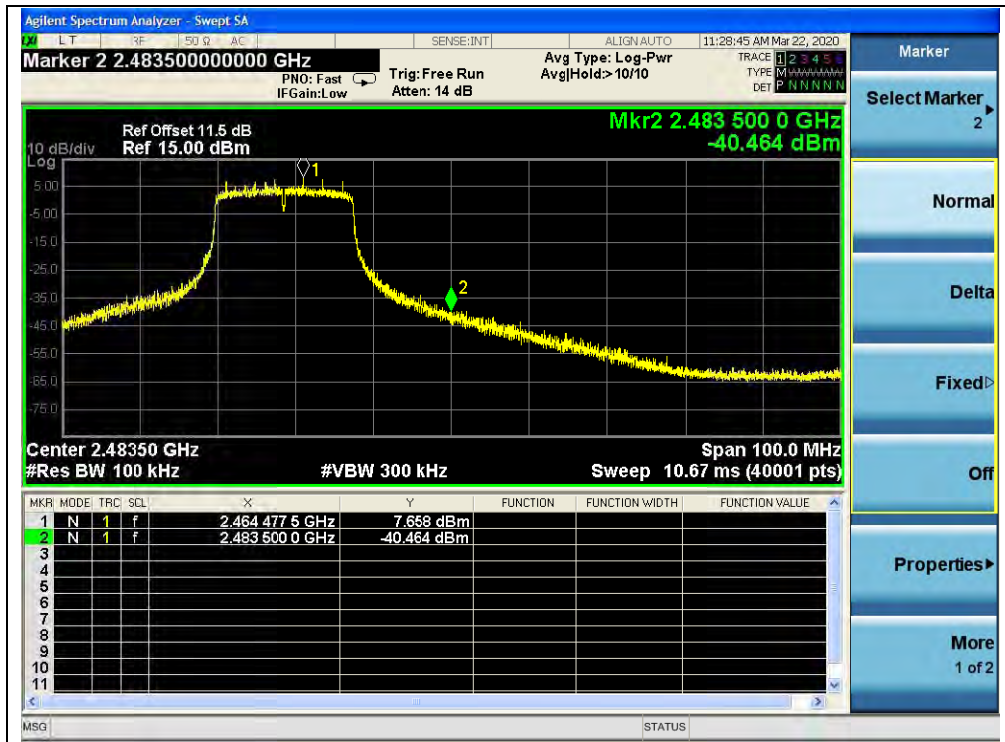
(Band Edge, Channel = 1)



(Channel = 6, 30MHz to 25GHz)



(Channel = 11, 30MHz to 25GHz)



(Band Edge, Channel = 11)



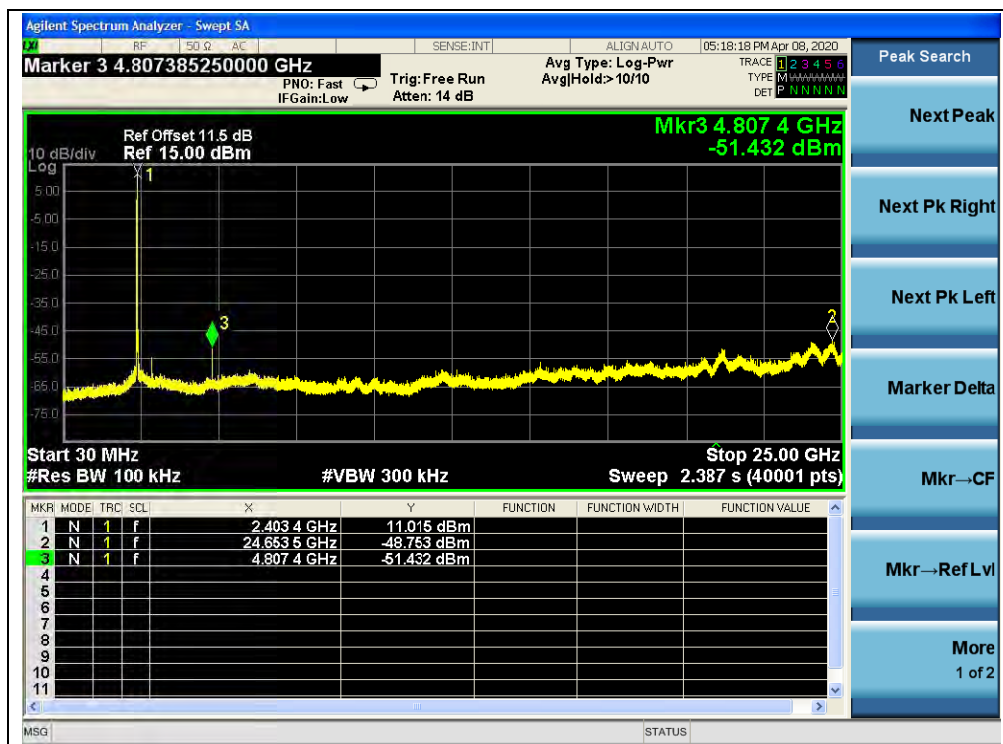


802.11ax (HEW20)(RU26) Test mode

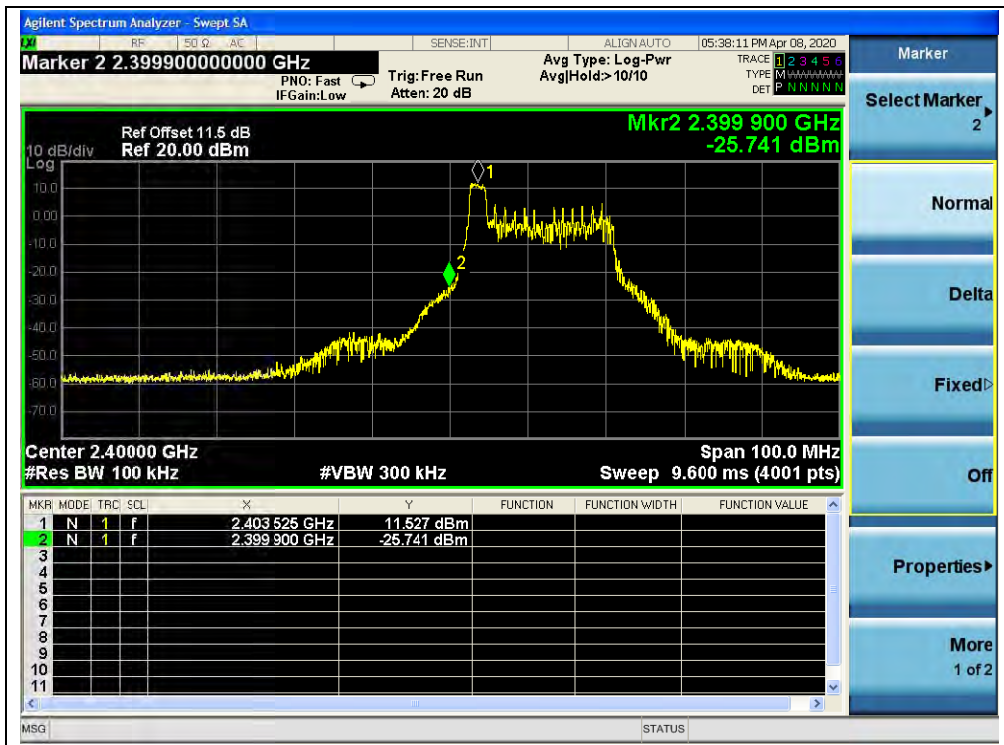
A. Test Verdict:

Channel	Frequency (MHz)	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
			Carrier Level	Calculated -20dBc Limit	
1	2412	-48.75	11.02	-8.98	PASS
6	2437	-48.62	9.87	-11.13	PASS
11	2462	-48.75	10.57	-9.43	PASS

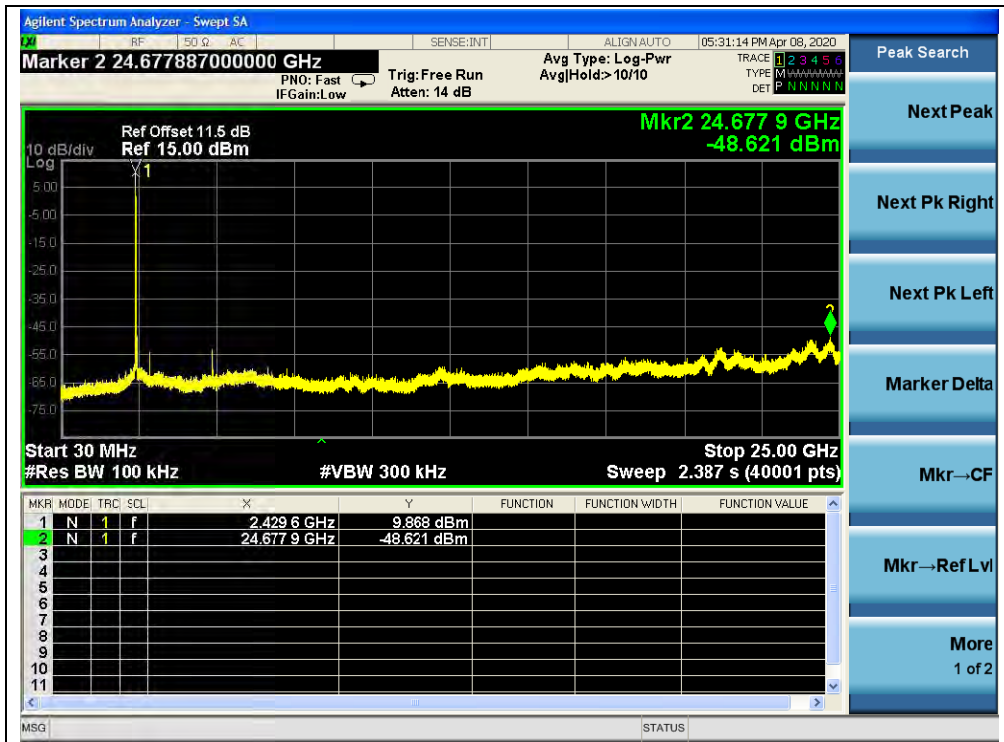
B. Test Plots:



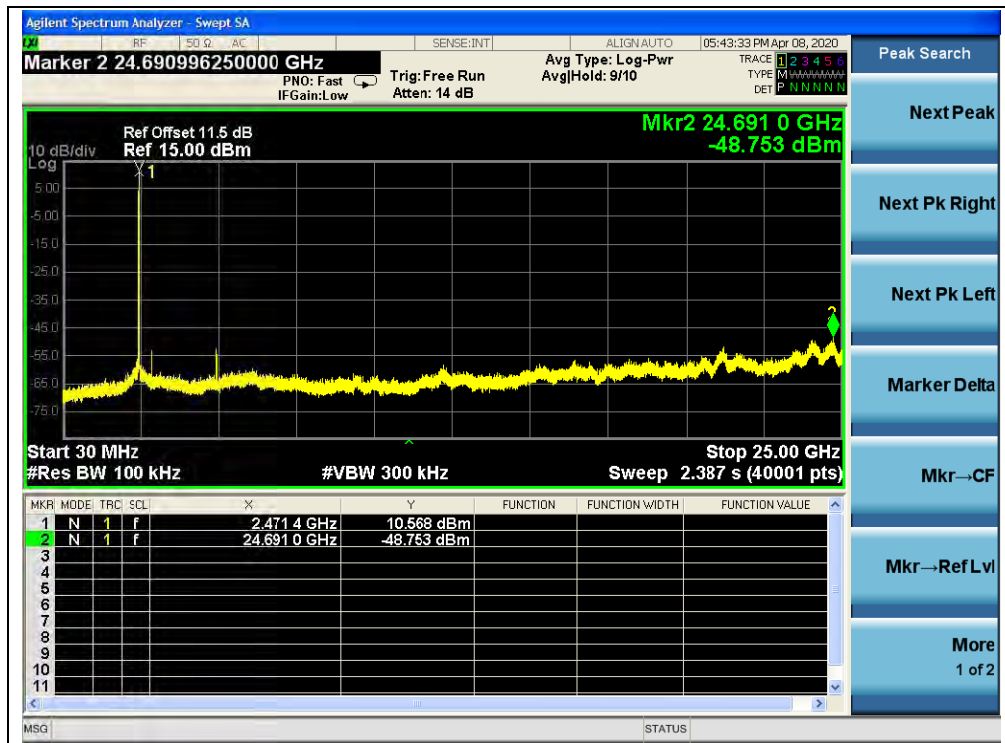
(Channel = 1, 30MHz to 25GHz)



(Band Edge, Channel = 1)



(Channel = 6, 30MHz to 25GHz)



(Channel = 11, 30MHz to 25GHz)



(Band Edge, Channel = 11)

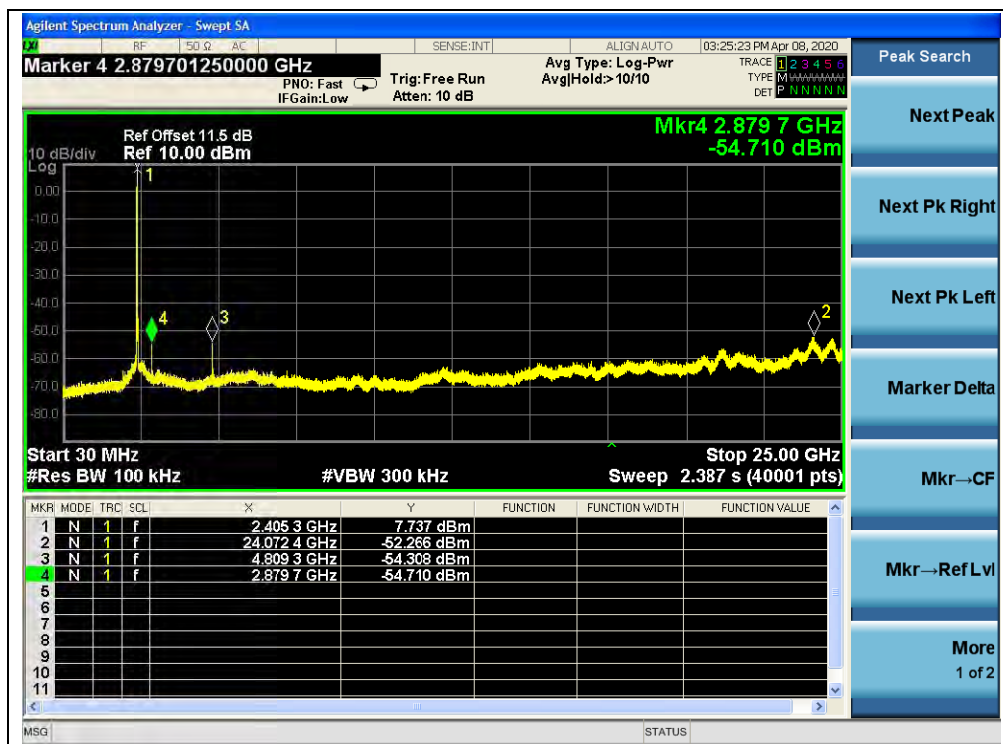


802.11ax (HEW20)(RU52) Test mode

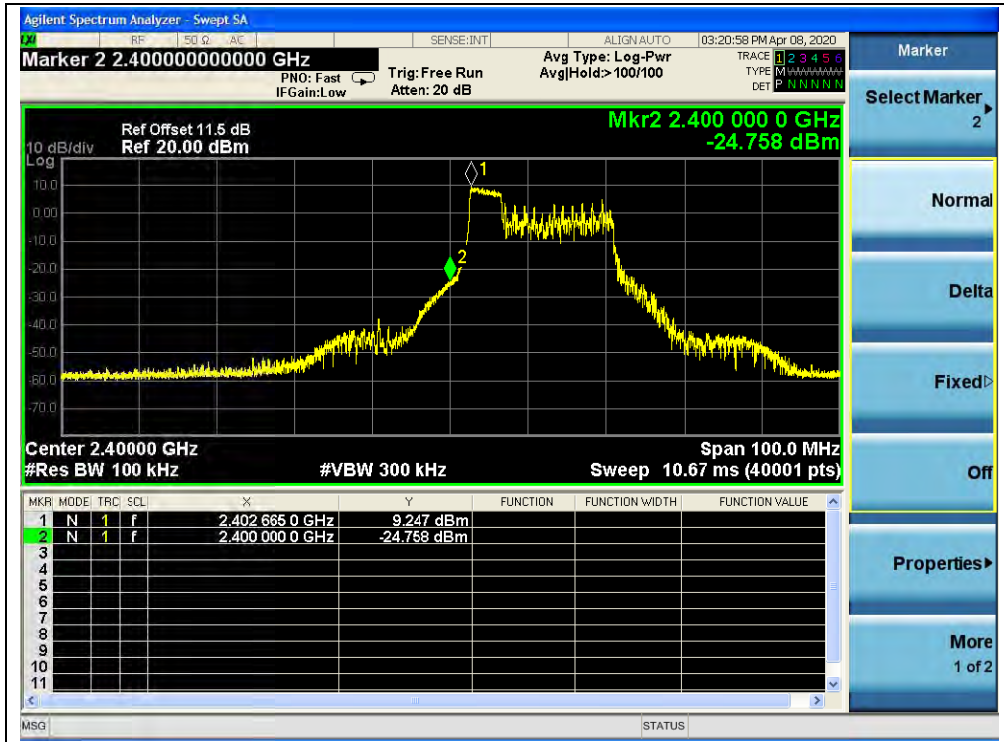
A. Test Verdict:

Channel	Frequency (MHz)	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
			Carrier Level	Calculated -20dBc Limit	
1	2412	-52.27	7.74	-12.26	PASS
6	2437	-53.21	8.13	-11.87	PASS
11	2462	-53.39	8.59	-11.41	PASS

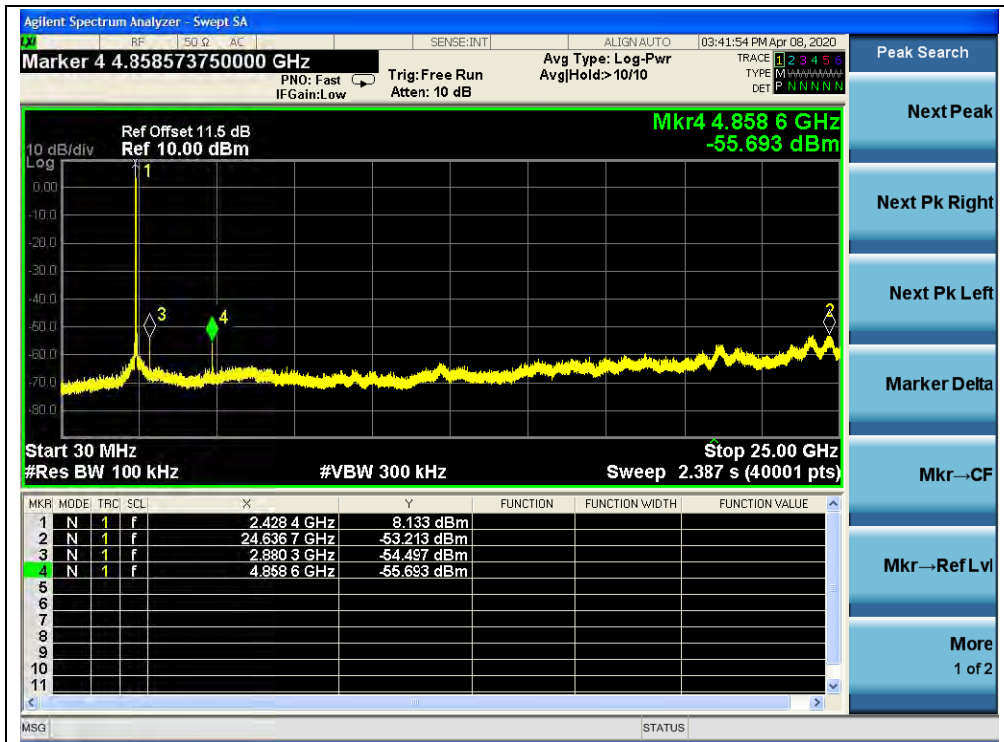
B. Test Plots:



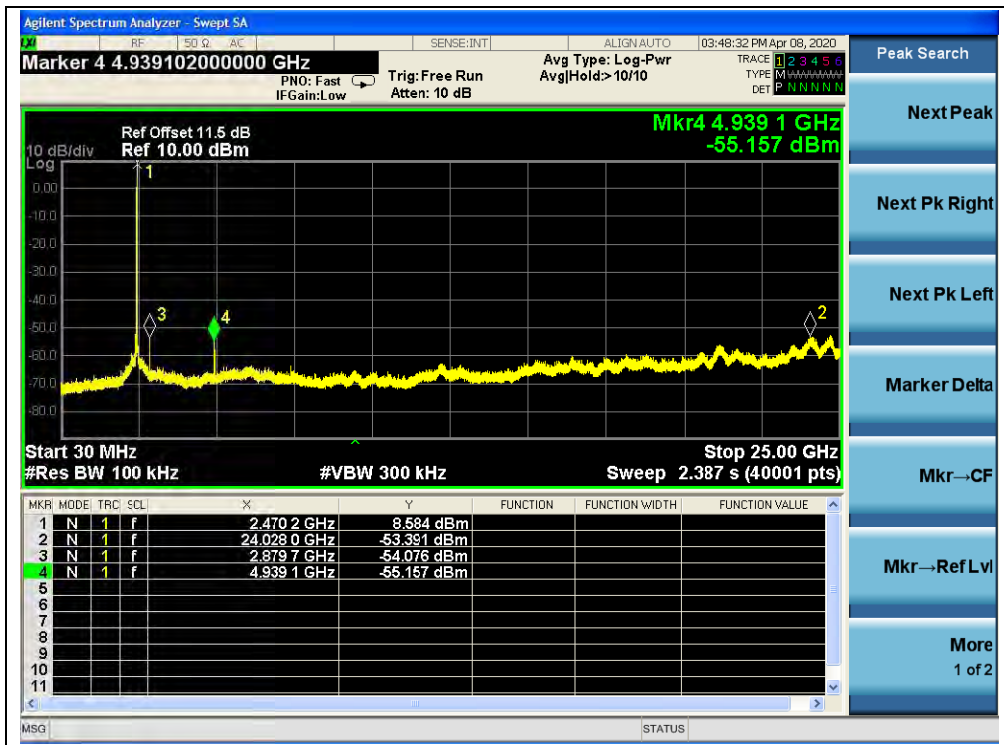
(Channel = 1, 30MHz to 25GHz)



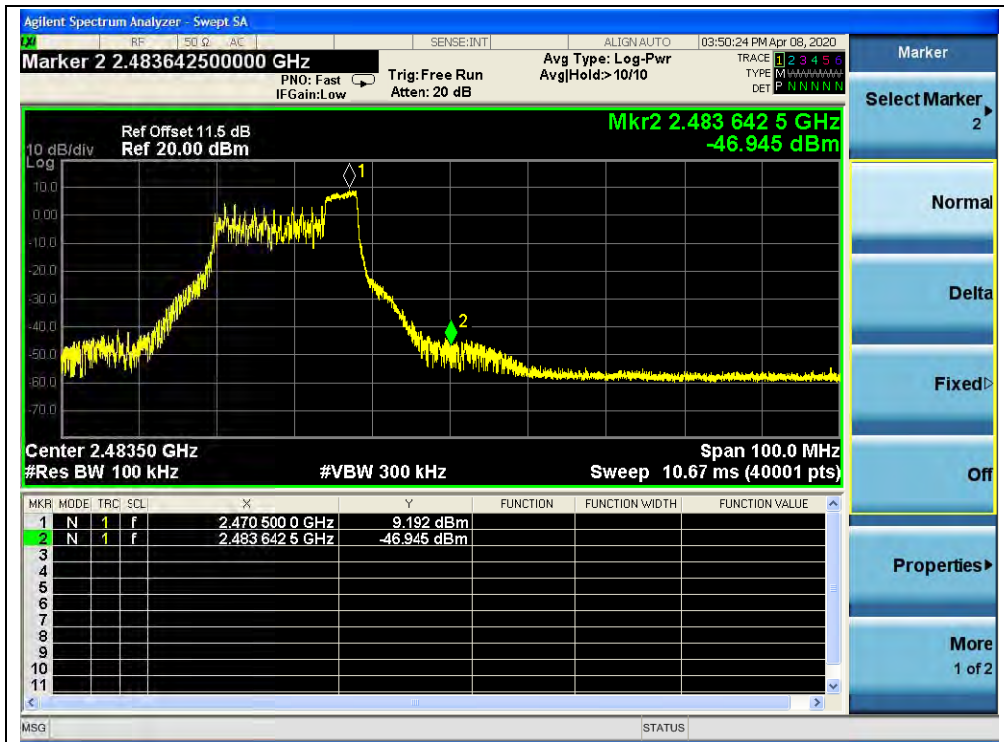
(Band Edge, Channel = 1)



(Channel = 6, 30MHz to 25GHz)



(Channel = 11, 30MHz to 25GHz)



(Band Edge, Channel = 11)

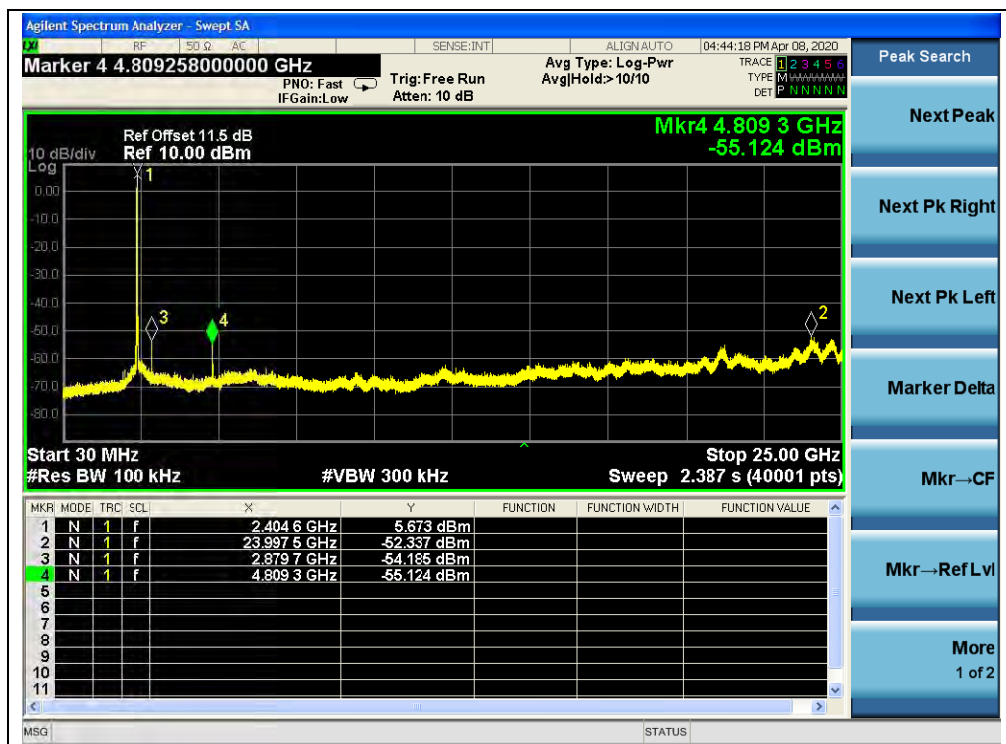


802.11ax (HEW20)(RU106) Test mode

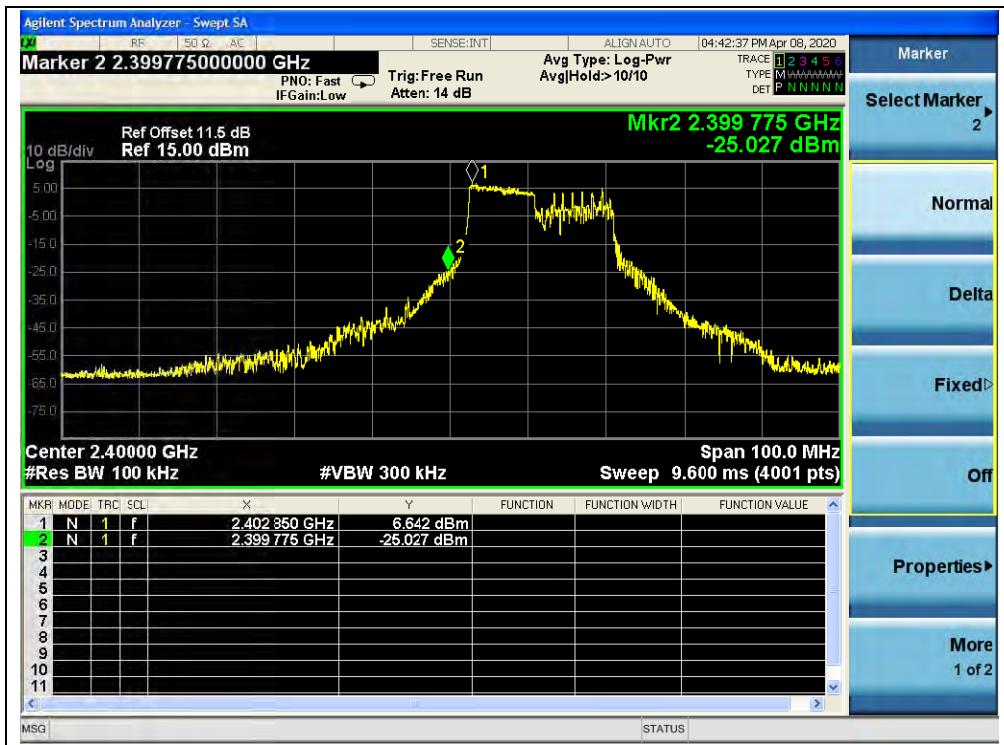
A. Test Verdict:

Channel	Frequency (MHz)	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
			Carrier Level	Calculated -20dBc Limit	
1	2412	-52.34	5.67	-14.33	PASS
6	2437	-52.35	5.43	-14.57	PASS
11	2462	-52.55	6.91	-13.09	PASS

B. Test Plots:



(Channel = 1, 30MHz to 25GHz)



(Band Edge, Channel = 1)



(Channel = 6, 30MHz to 25GHz)





(Channel = 11, 30MHz to 25GHz)



(Band Edge, Channel = 11)

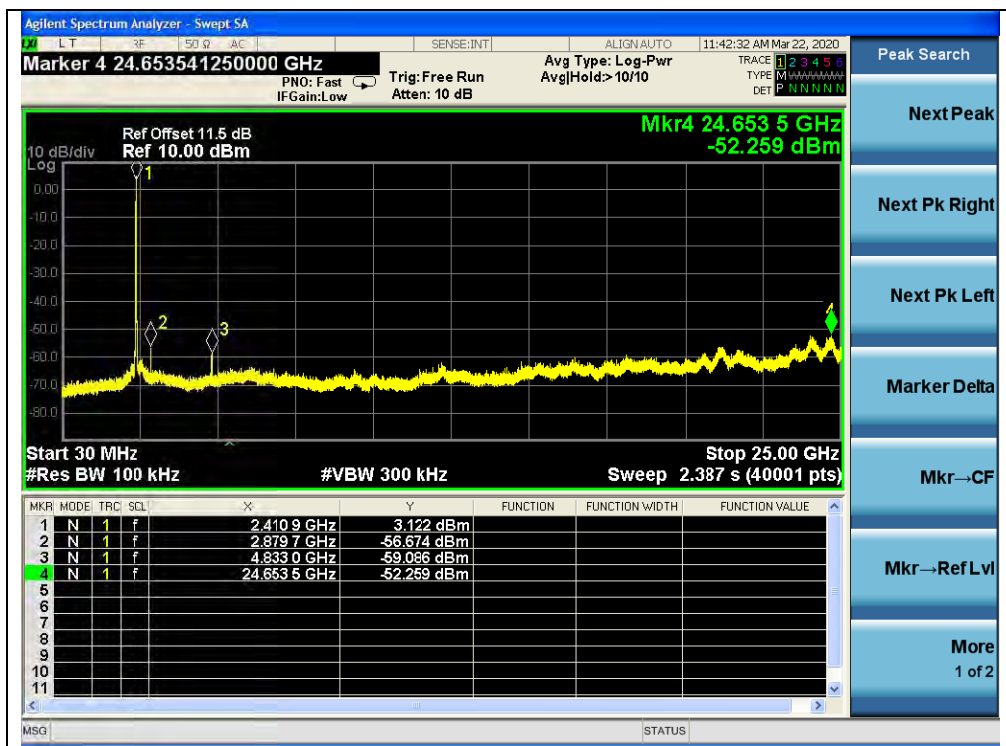


802.11ax (HEW20)(RU242) Test mode

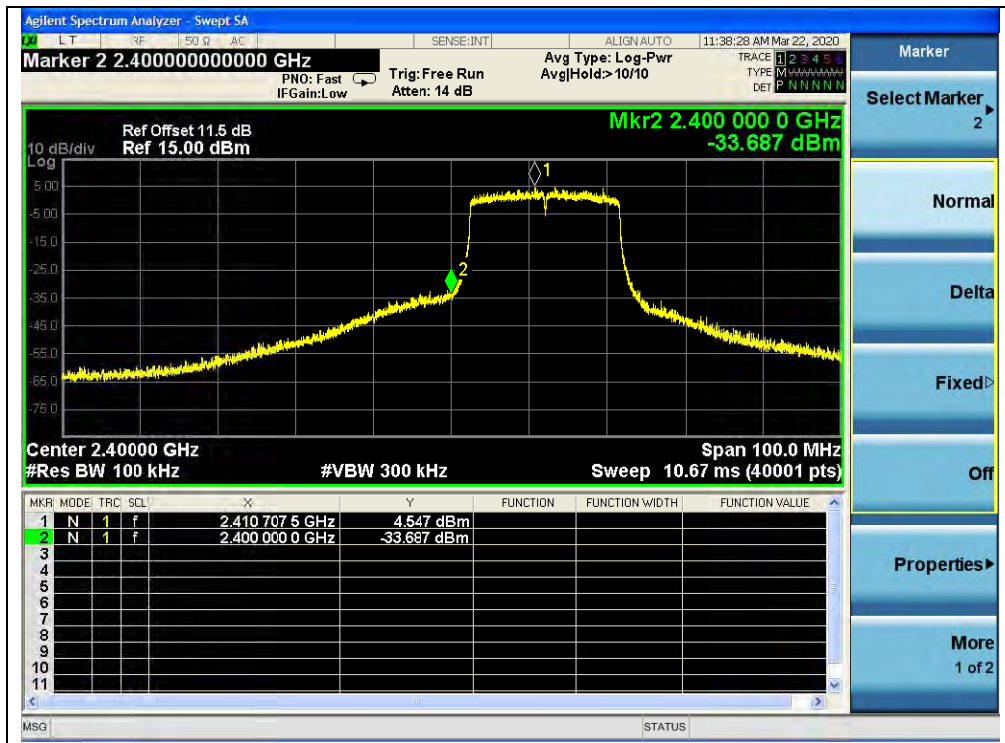
A. Test Verdict:

Channel	Frequency (MHz)	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
			Carrier Level	Calculated -20dBc Limit	
1	2412	-52.26	3.12	-16.88	PASS
6	2437	-56.79	3.16	-16.84	PASS
11	2462	-55.67	5.86	-14.14	PASS

B. Test Plots:



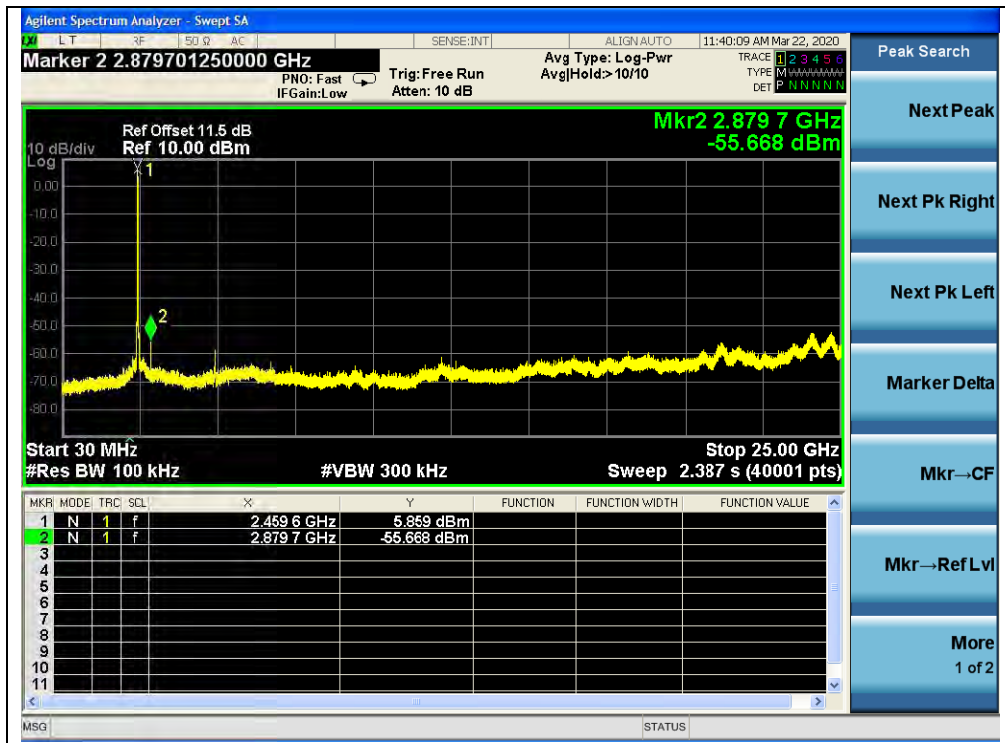
(Channel = 1, 30MHz to 25GHz)



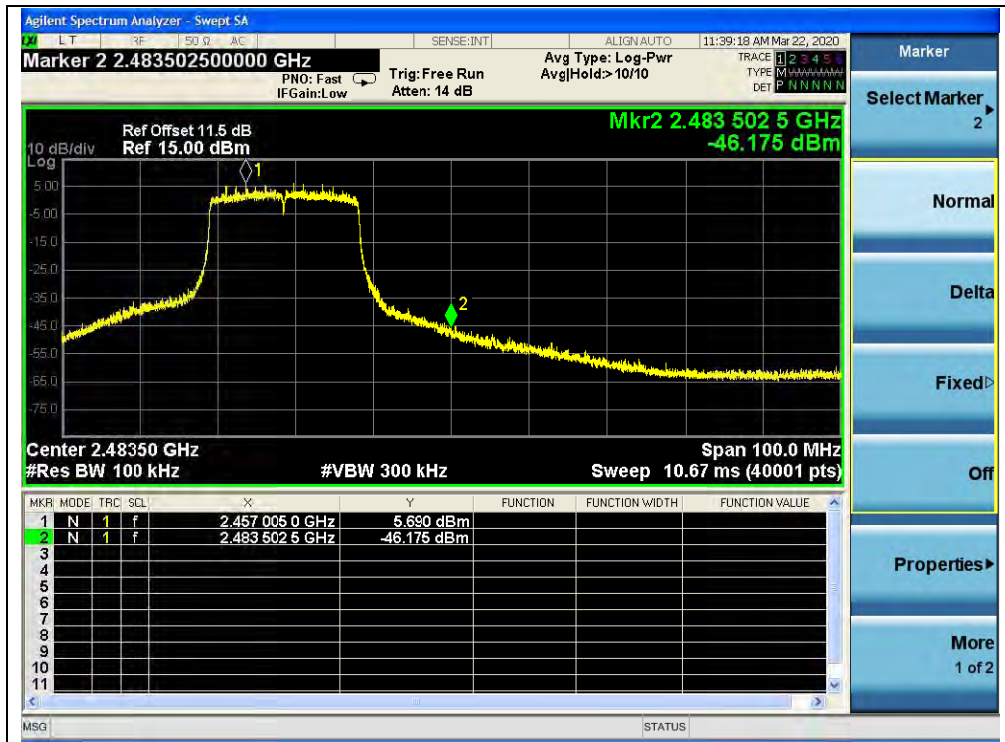
(Band Edge, Channel = 1)



(Channel = 6, 30MHz to 25GHz)



(Channel = 11, 30MHz to 25GHz)



(Band Edge, Channel = 11)

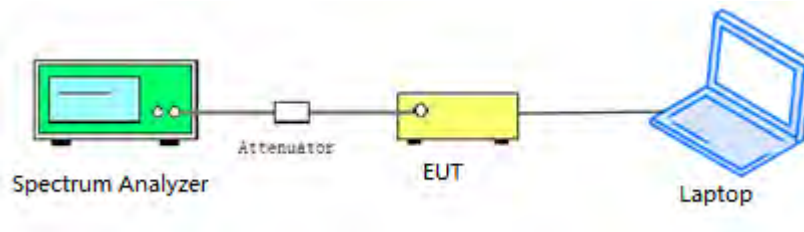
## 2.6. Power Spectral Density (PSD)

### 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 Test mode

A. Test Verdict:

Channel	Frequency (MHz)	Measured PSD (dBm/3kHz)		Limit (dBm/3kHz)	Verdict
		ANT 1	ANT 0		
1	2412	-3.57	-4.85	8	PASS
6	2437	-3.58	-4.64	8	PASS
11	2462	-2.99	-4.18	8	PASS

B. Test Plots:



(Channel = 1, 802.11b, ANT 1)



(Channel = 6, 802.11b, ANT 1)



(Channel = 11, 802.11b, ANT 1)

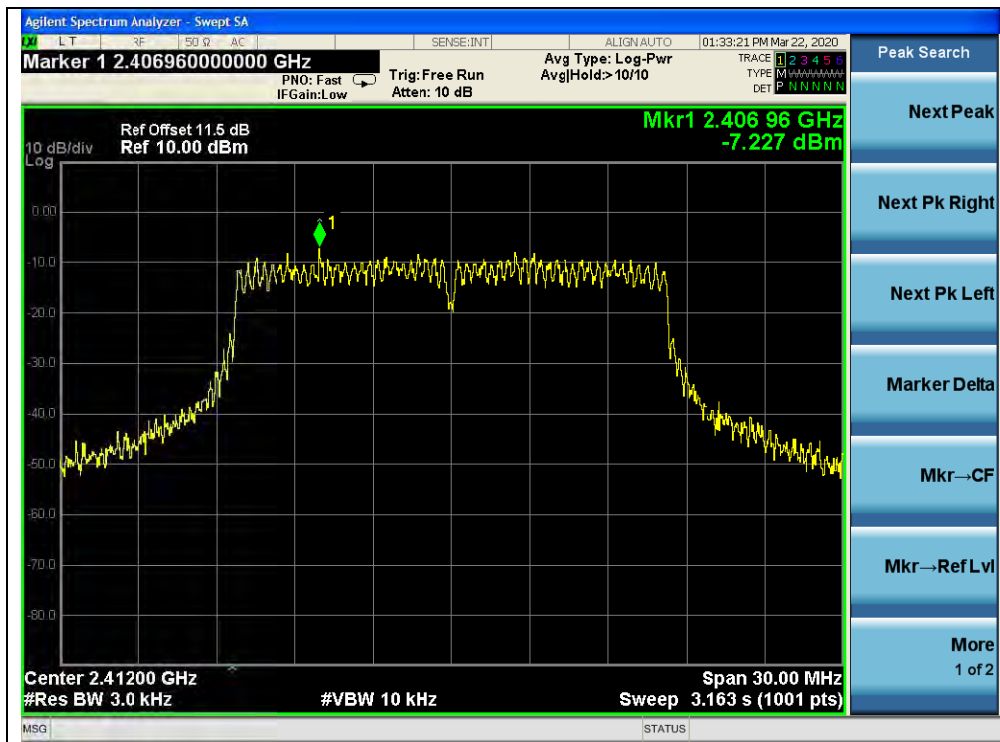


802.11g Test mode

A. Test Verdict:

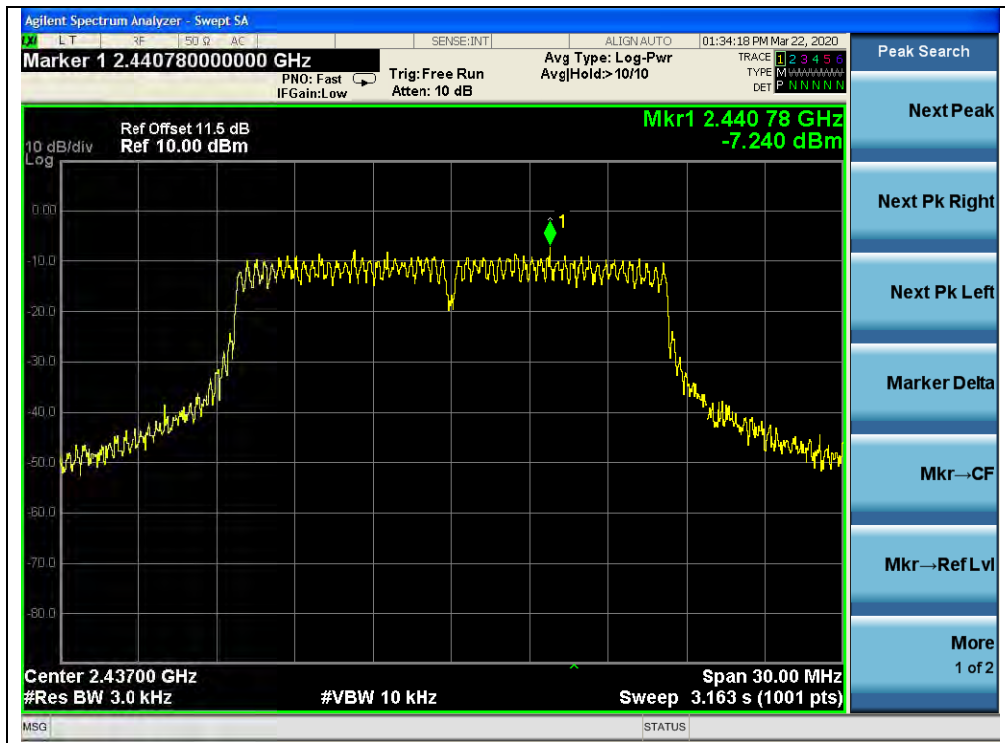
Channel	Frequency (MHz)	Measured PSD (dBm/3kHz)		Limit (dBm/3kHz)	Verdict
		ANT 1	ANT 0		
1	2412	-7.23	-7.39	8	PASS
6	2437	-7.24	-7.09	8	PASS
11	2462	-5.65	-6.59	8	PASS

B. Test Plots:

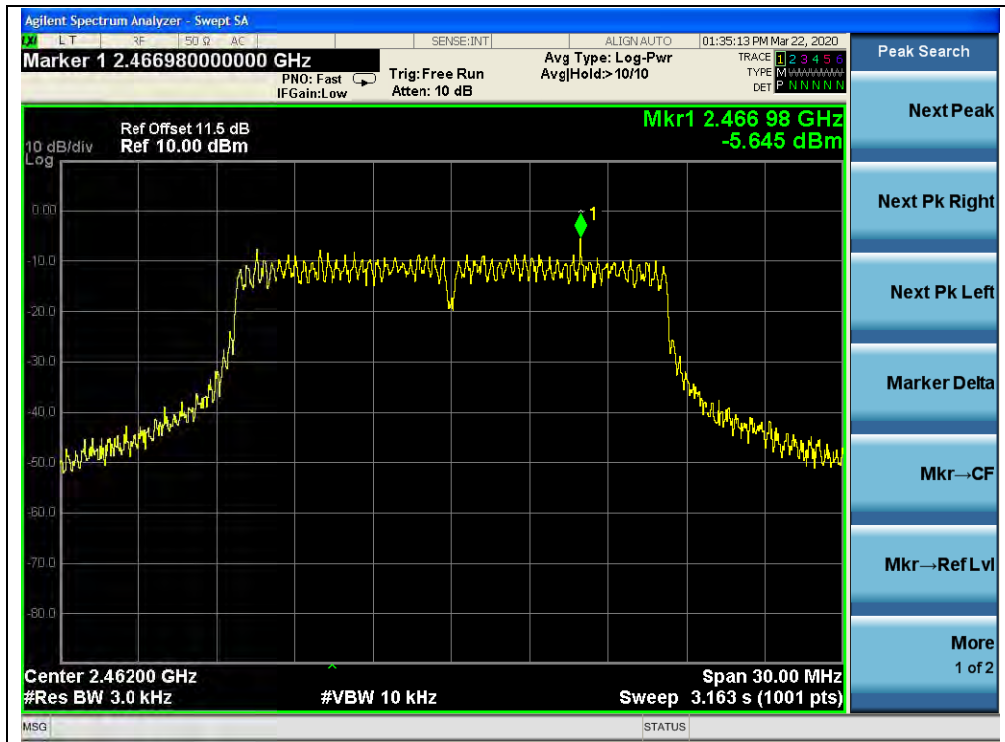


(Channel = 1, 802.11g, ANT 1)





(Channel = 6, 802.11g, ANT 1)



(Channel = 11, 802.11g, ANT 1)



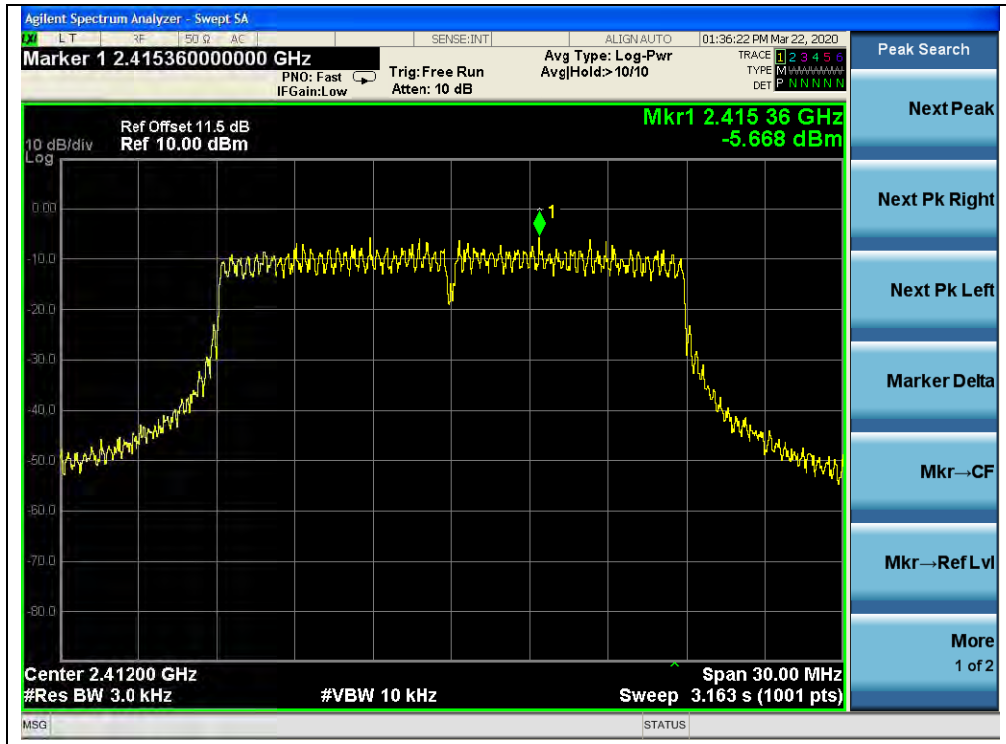
802.11n(HT20) Test mode

A. Test Verdict:

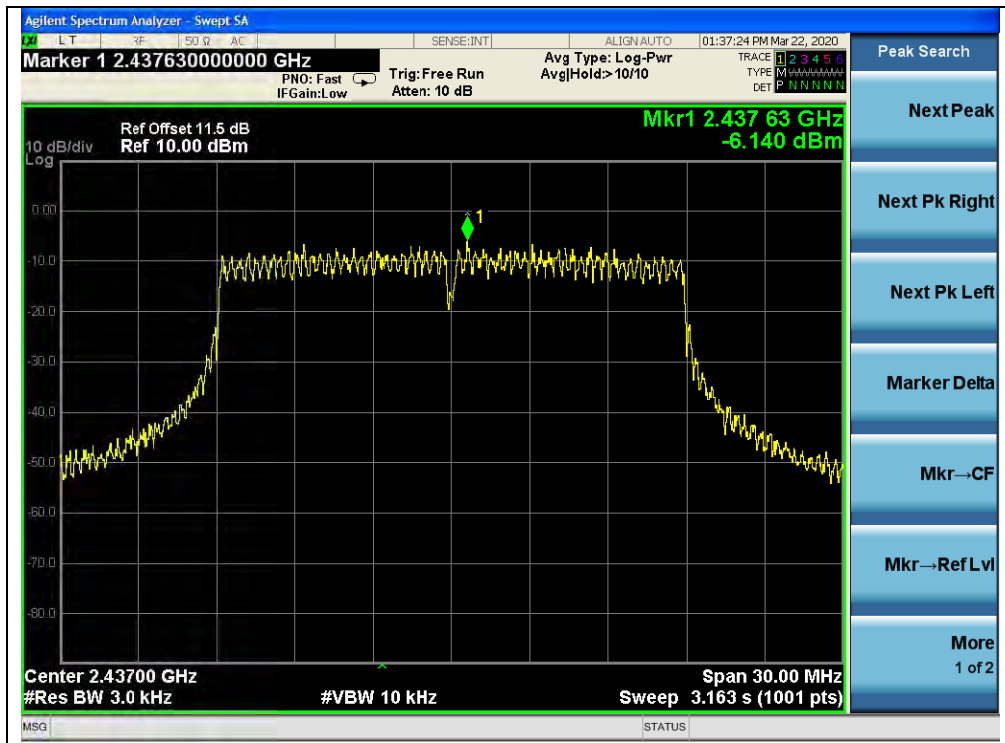
Channel	Frequency (MHz)	Measured PSD (dBm/3kHz)		Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
		ANT 1	ANT 0			
1	2412	-5.67	-6.74	-2.18	8	PASS
6	2437	-6.14	-6.51	-2.30	8	PASS
11	2462	-6.50	-5.72	-2.13	8	PASS

**Note:** Directional gain = 1.3dBi +10log(2) = 4.31dBi < 6dBi, so the power limit is 8 dBm/3kHz.

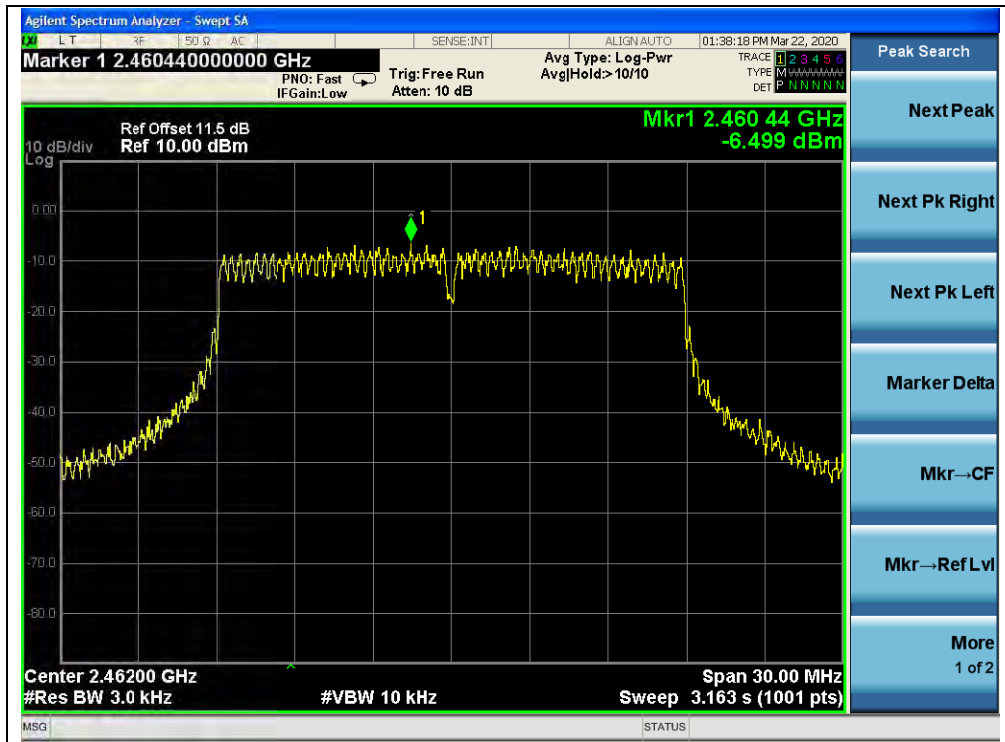
B. Test Plots:



(Channel = 1, 802.11n(HT20), ANT1)



(Channel = 6, 802.11n(HT20), ANT1)



(Channel = 11, 802.11n(HT20), ANT1)



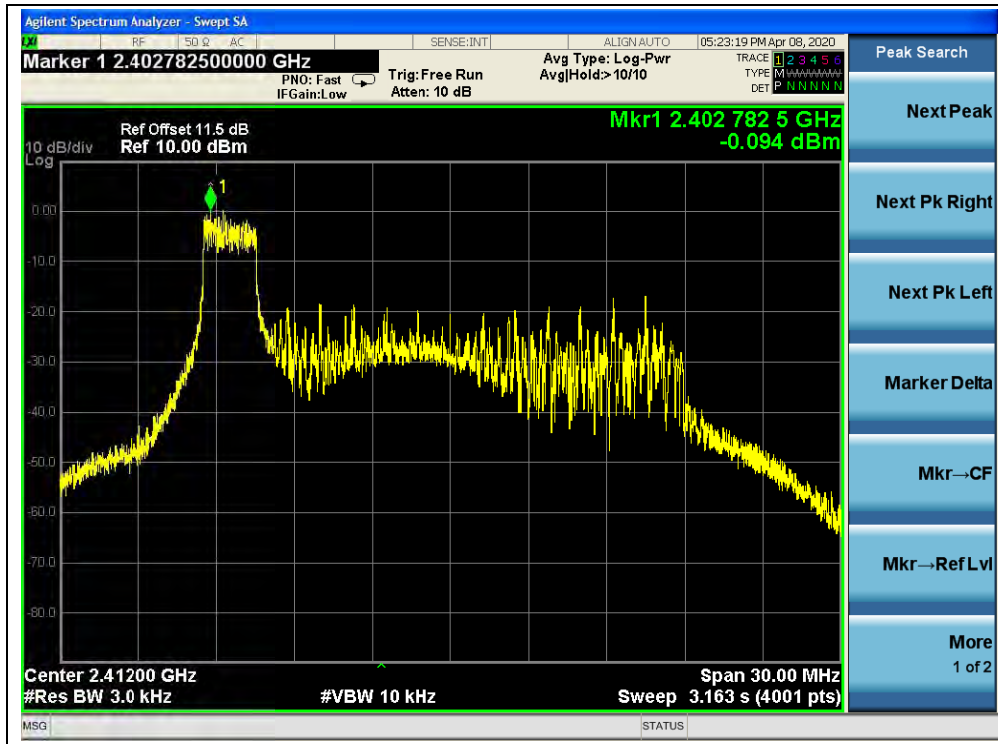
802.11ax(HEW20)(RU26) Test mode

A. Test Verdict:

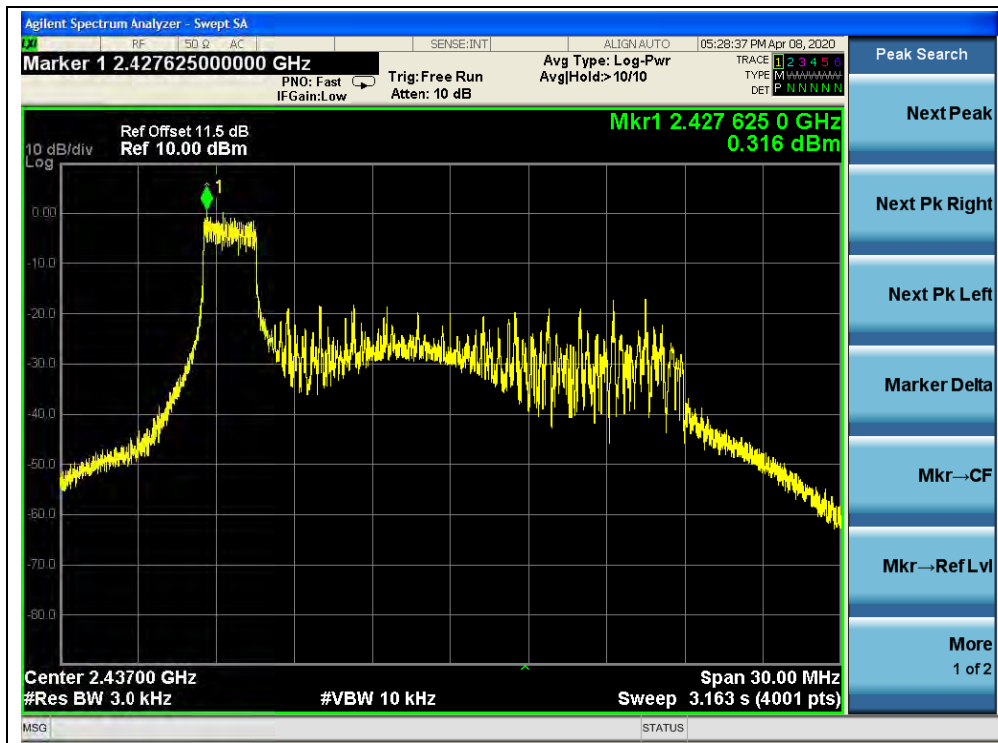
Channel	Frequency (MHz)	Measured PSD (dBm/3kHz)		Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
		ANT 0	ANT 1			
1	2412	-0.09	4.07	6.02	8	PASS
6	2437	0.32	3.13	4.77	8	PASS
11	2462	-0.11	2.93	4.77	8	PASS

**Note:** Directional gain = 1.3dBi +10log(2) = 4.31dBi < 6dBi, so the power limit is 8 dBm/3kHz.

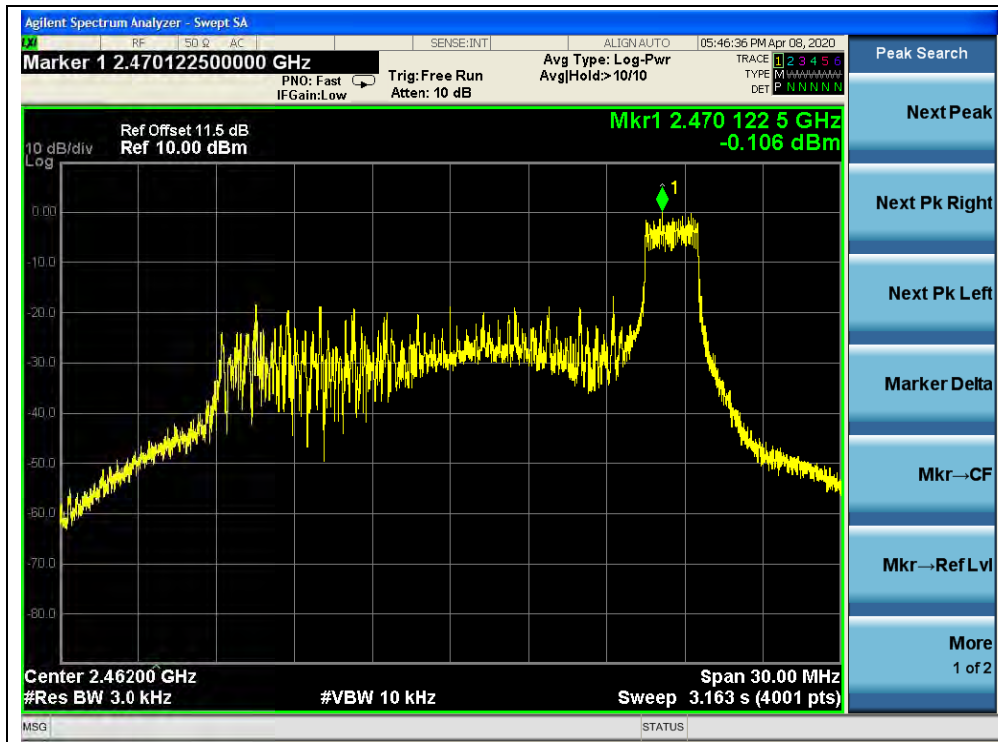
B. Test Plots:



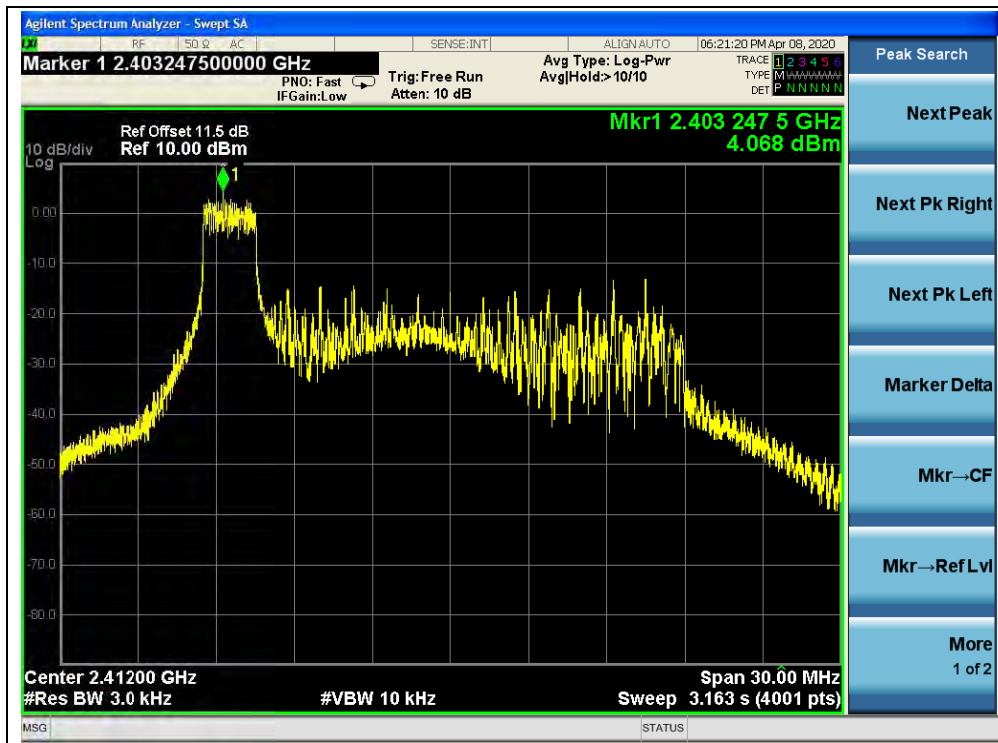
(Channel = 1, 802.11ax(HEW20)(RU26), ANT0)



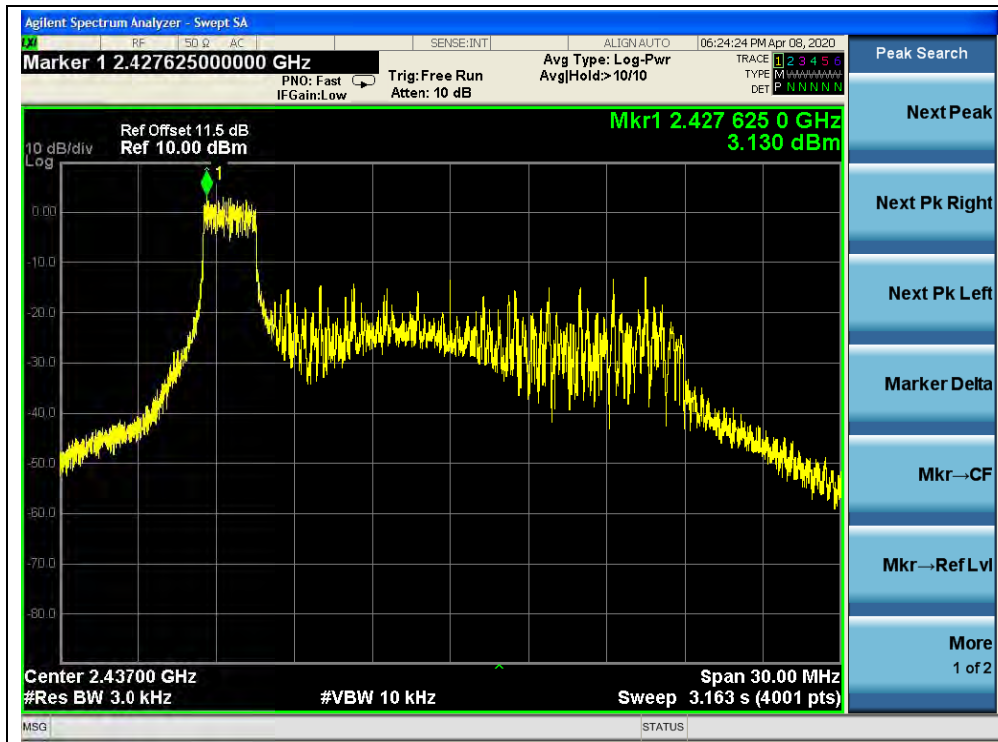
(Channel = 6, 802.11ax(HEW20)(RU26), ANT0)



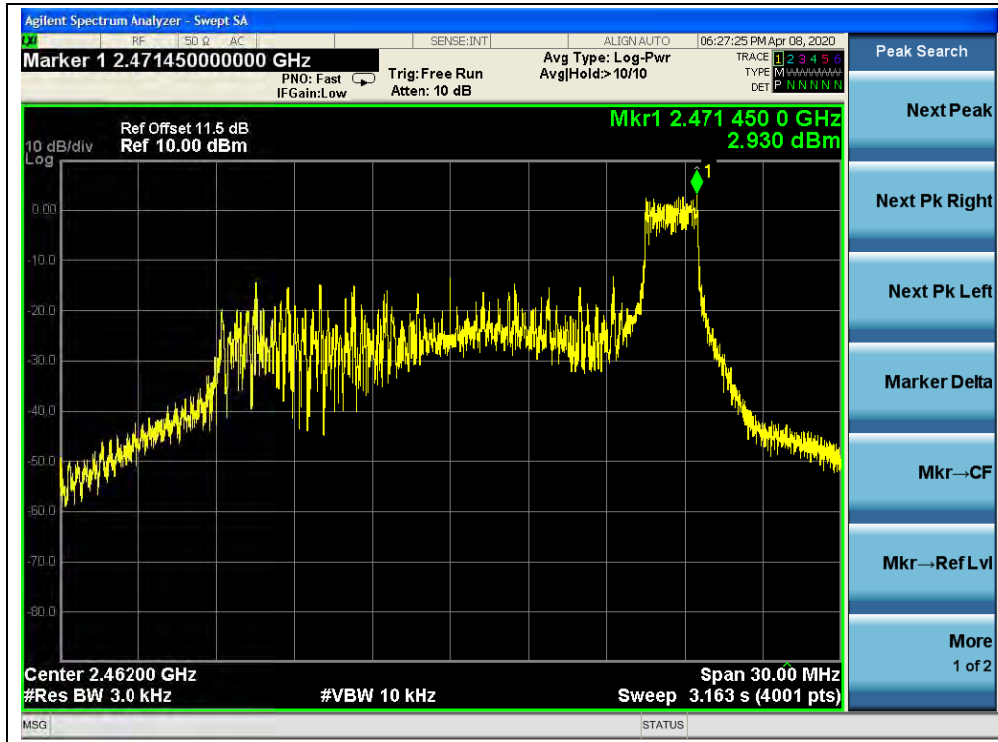
(Channel = 11, 802.11ax(HEW20)(RU26), ANT0)



(Channel = 1, 802.11ax(HEW20)(RU26), ANT1)



(Channel = 6, 802.11ax(HEW20)(RU26), ANT1)



(Channel = 11, 802.11ax(HEW20)(RU26), ANT1)

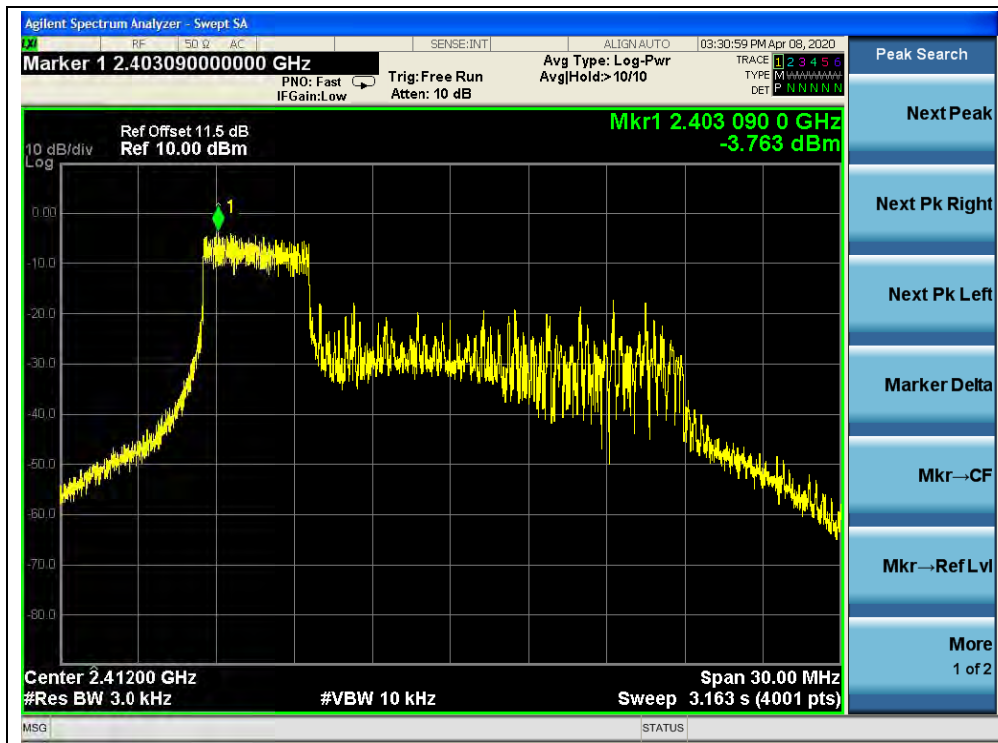
**802.11ax(HEW20)(RU52) Test mode**

**A. Test Verdict:**

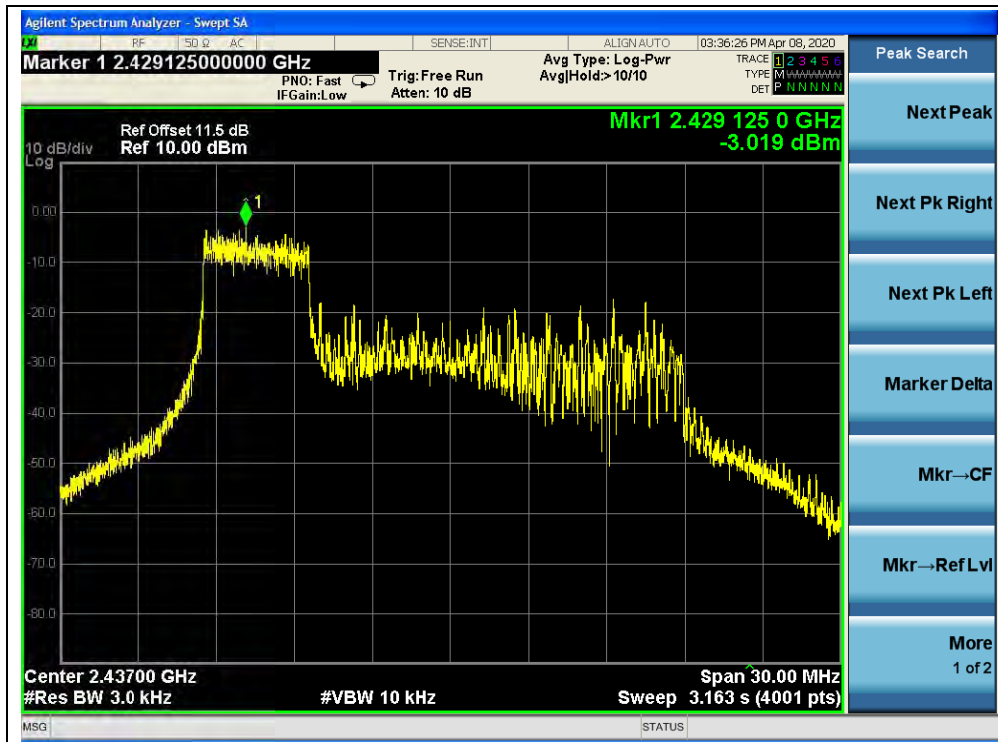
Channel	Frequency (MHz)	Measured PSD (dBm/3kHz)		Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
		ANT 0	ANT 1			
1	2412	-3.76	0.64	2.04	8	PASS
6	2437	-3.02	1.17	2.55	8	PASS
11	2462	-2.90	1.44	2.79	8	PASS

**Note:** Directional gain = 1.3dBi + 10log(2) = 4.31dBi < 6dBi, so the power limit is 8 dBm/3kHz.

**B. Test Plots:**

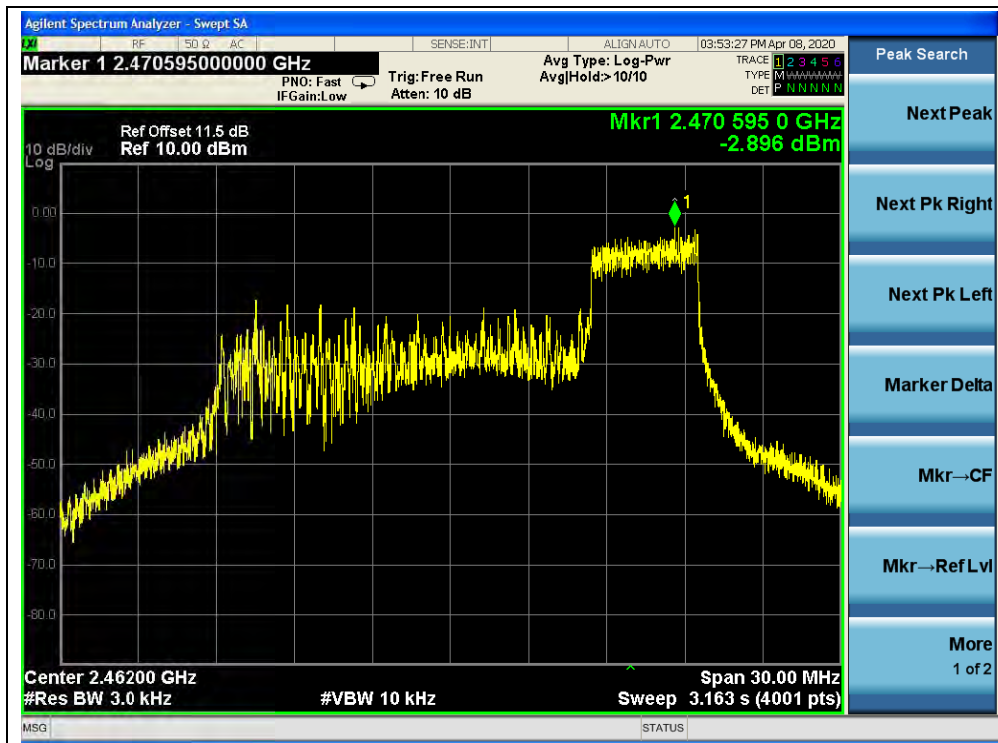


(Channel = 1, 802.11ax(HEW20)(RU52), ANT0)

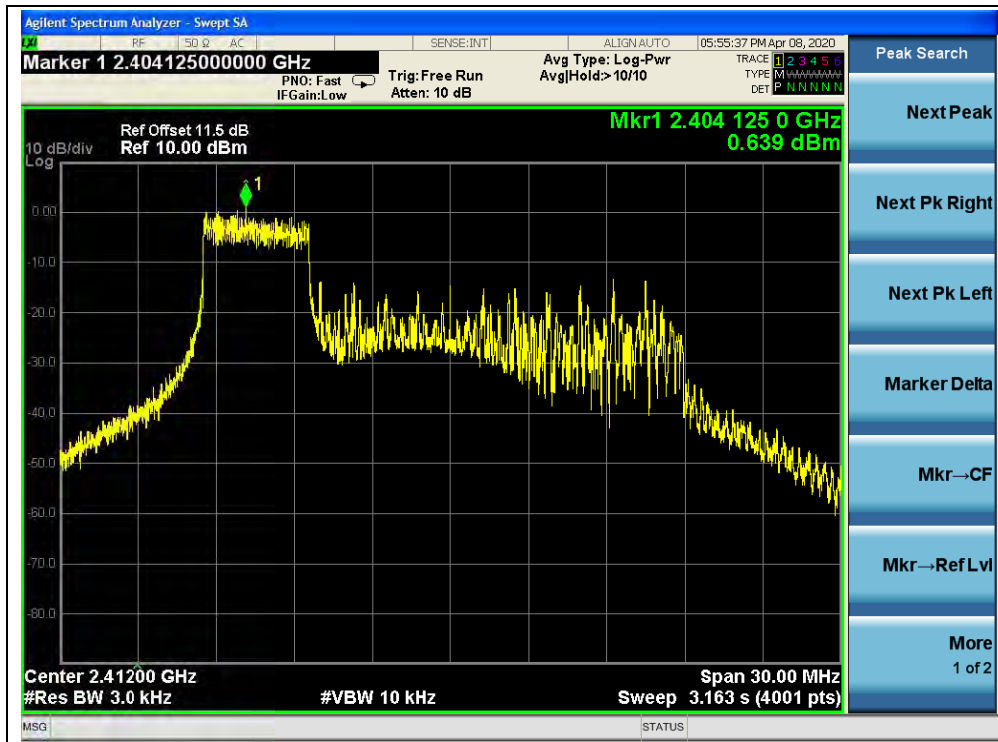


(Channel = 6, 802.11ax(HEW20)(RU52), ANT0)

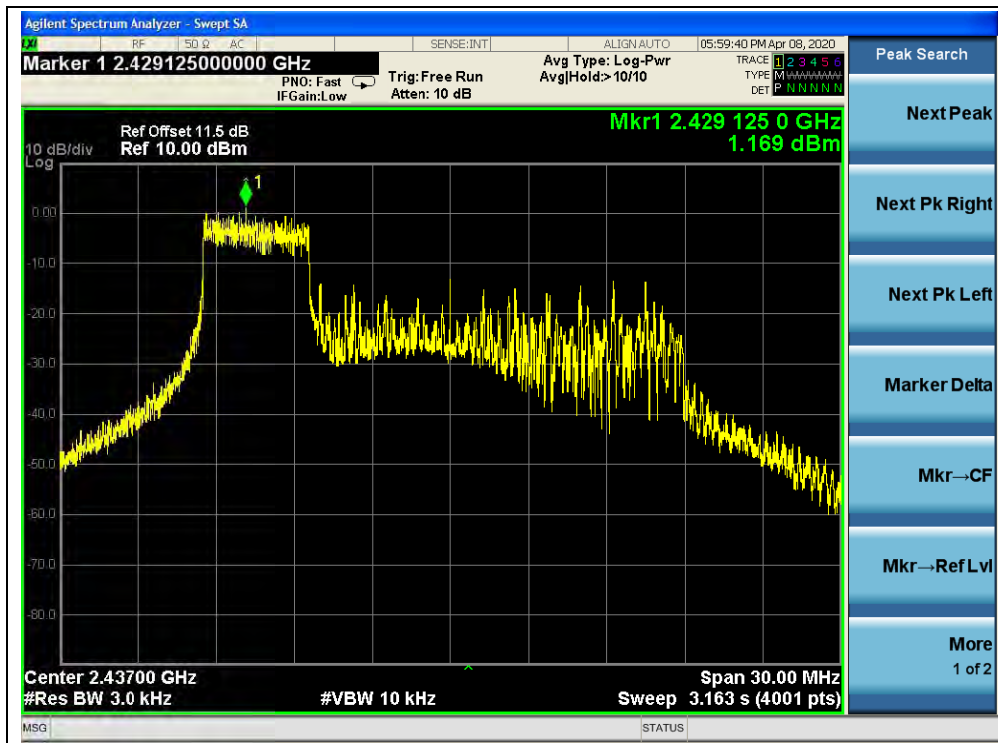




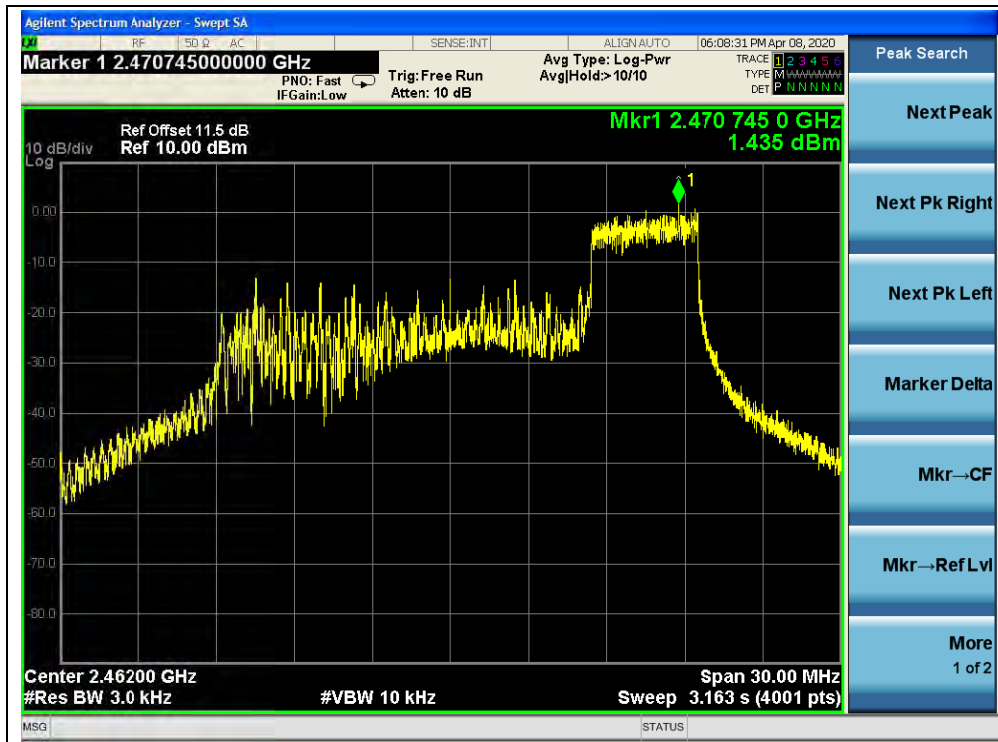
(Channel = 11, 802.11ax(HEW20)(RU52), ANT0)



(Channel = 1, 802.11ax(HEW20)(RU52), ANT1)



(Channel = 6, 802.11ax(HEW20)(RU52), ANT1)



(Channel = 11, 802.11ax(HEW20)(RU52), ANT1)



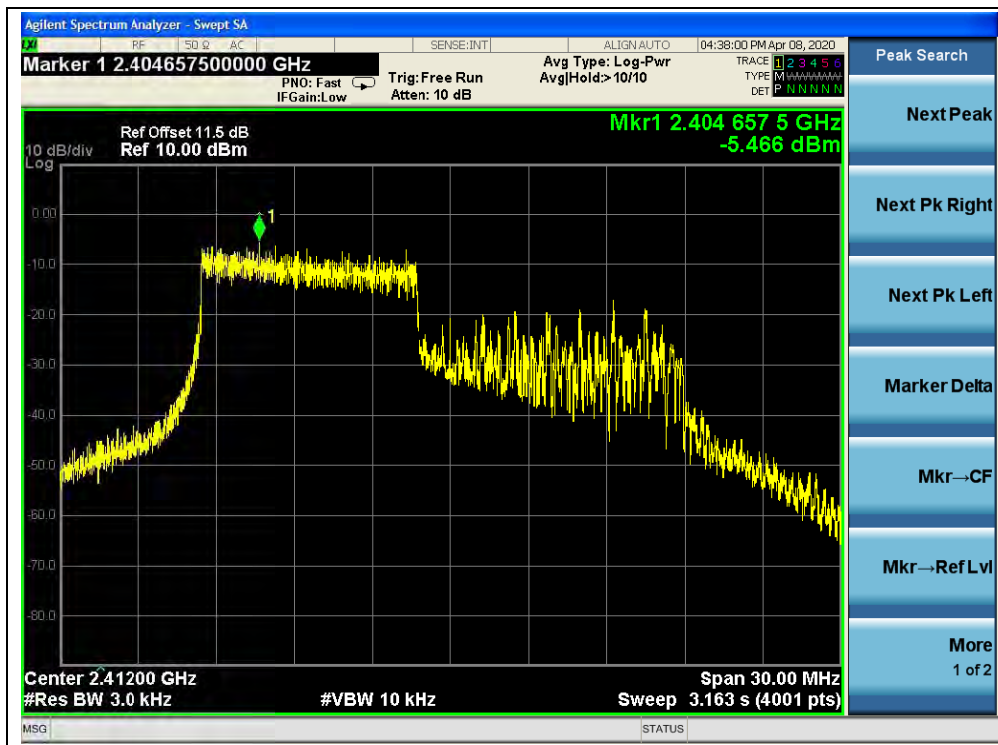
802.11ax(HEW20)(RU106) Test mode

A. Test Verdict:

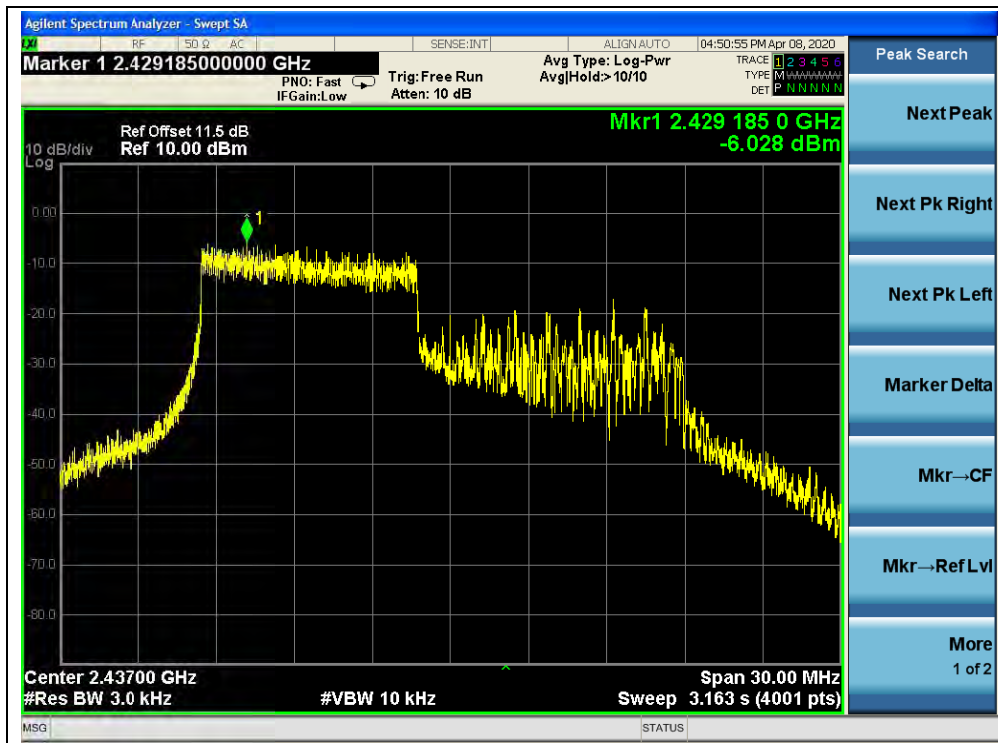
Channel	Frequency (MHz)	Measured PSD (dBm/3kHz)		Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
		ANT 0	ANT 1			
1	2412	-5.47	-2.52	-0.97	8	PASS
6	2437	-6.03	-1.97	-0.46	8	PASS
11	2462	-5.80	-1.99	-0.46	8	PASS

**Note:** Directional gain = 1.3dBi +10log(2) = 4.31dBi < 6dBi, so the power limit is 8 dBm/3kHz.

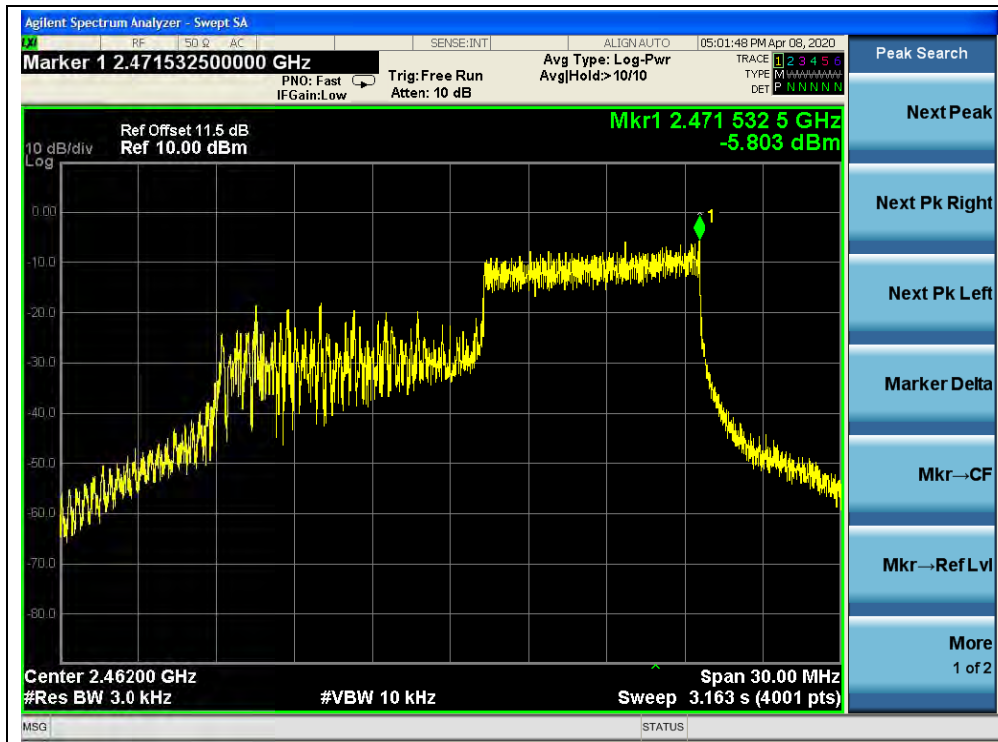
B. Test Plots:



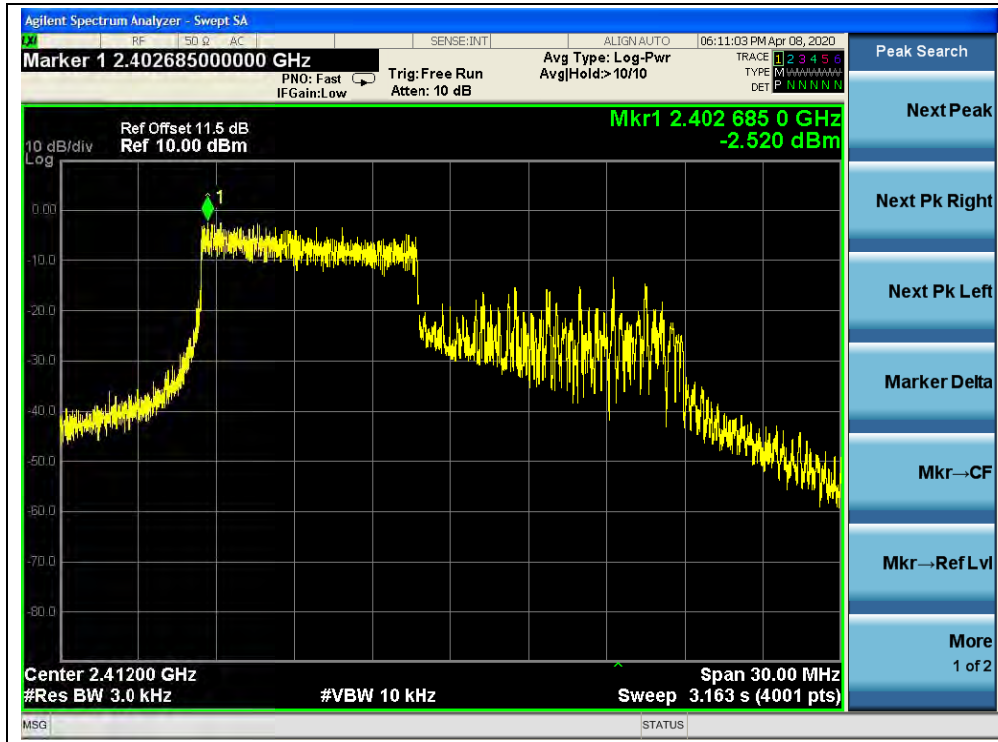
(Channel = 1, 802.11ax(HEW20)(RU106), ANT0)



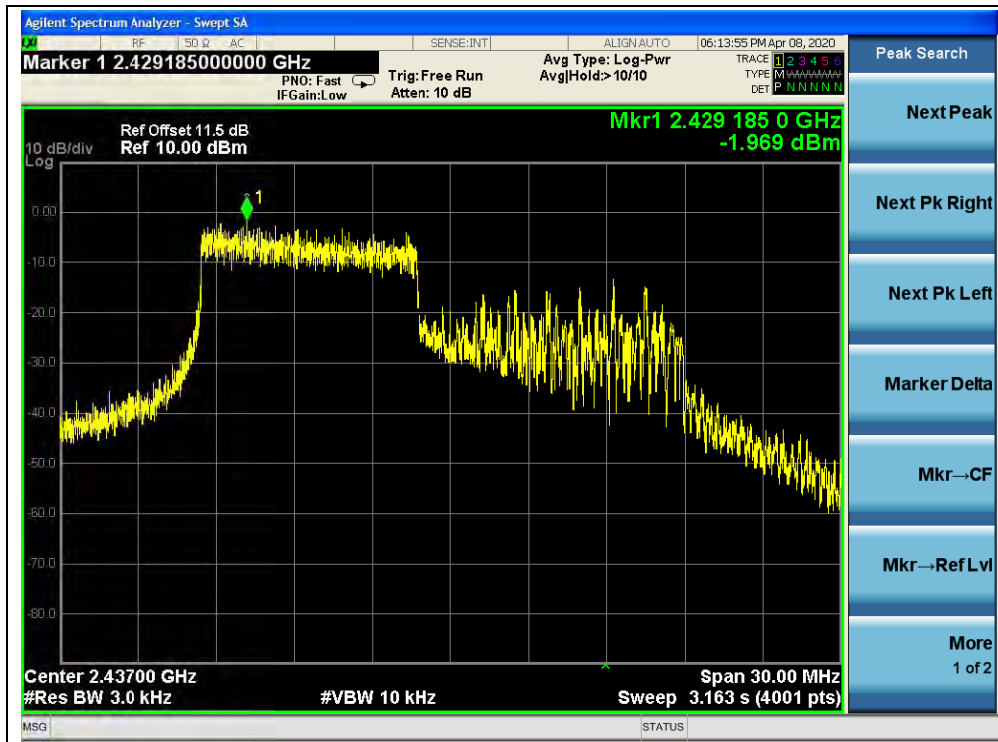
(Channel = 6, 802.11ax(HEW20)(RU106), ANT0)



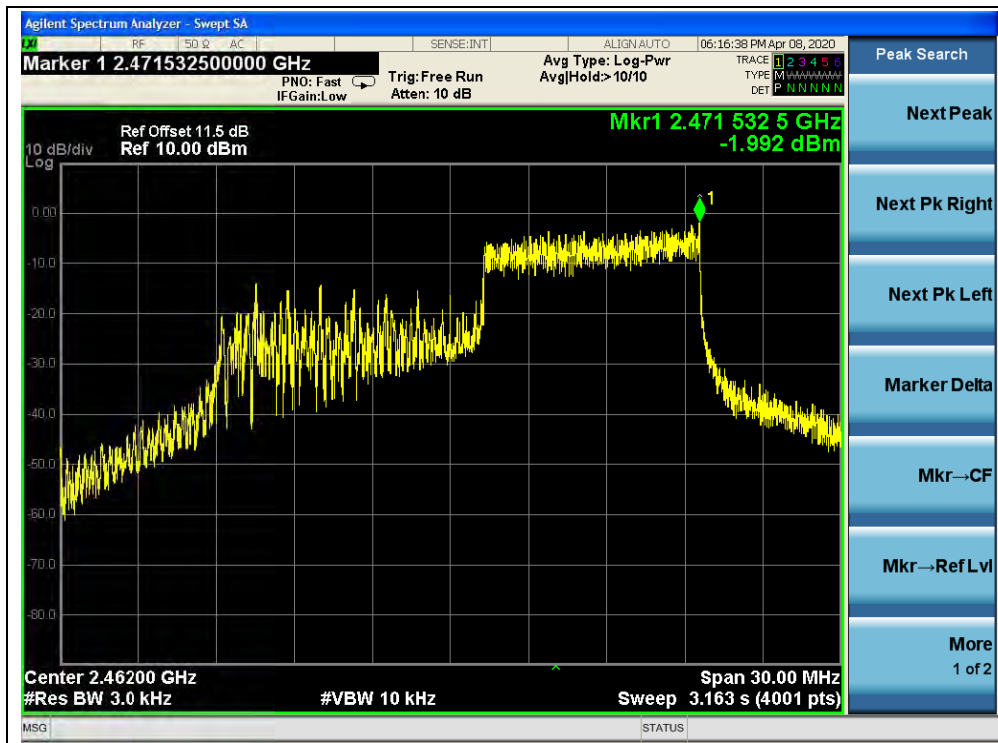
(Channel = 11, 802.11ax(HEW20)(RU106), ANT0)



(Channel = 1, 802.11ax(HEW20)(RU106), ANT1)



(Channel = 6, 802.11ax(HEW20)(RU106), ANT1)



(Channel = 11, 802.11ax(HEW20)(RU106), ANT1)

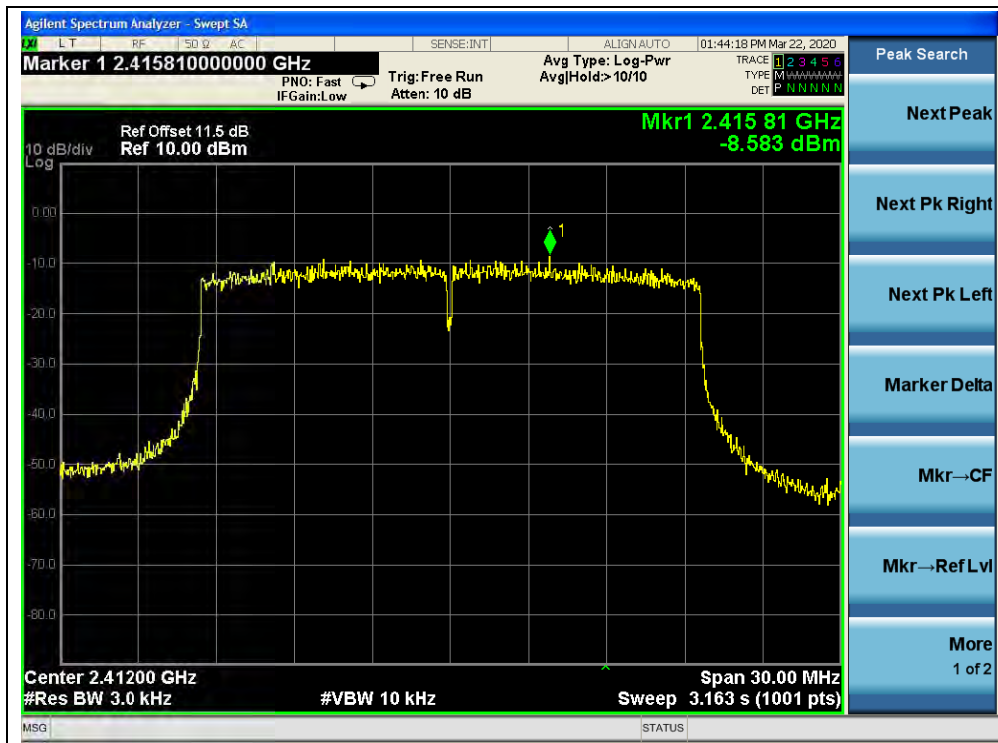
**802.11ax(HEW20)(RU242) Test mode**

**A. Test Verdict:**

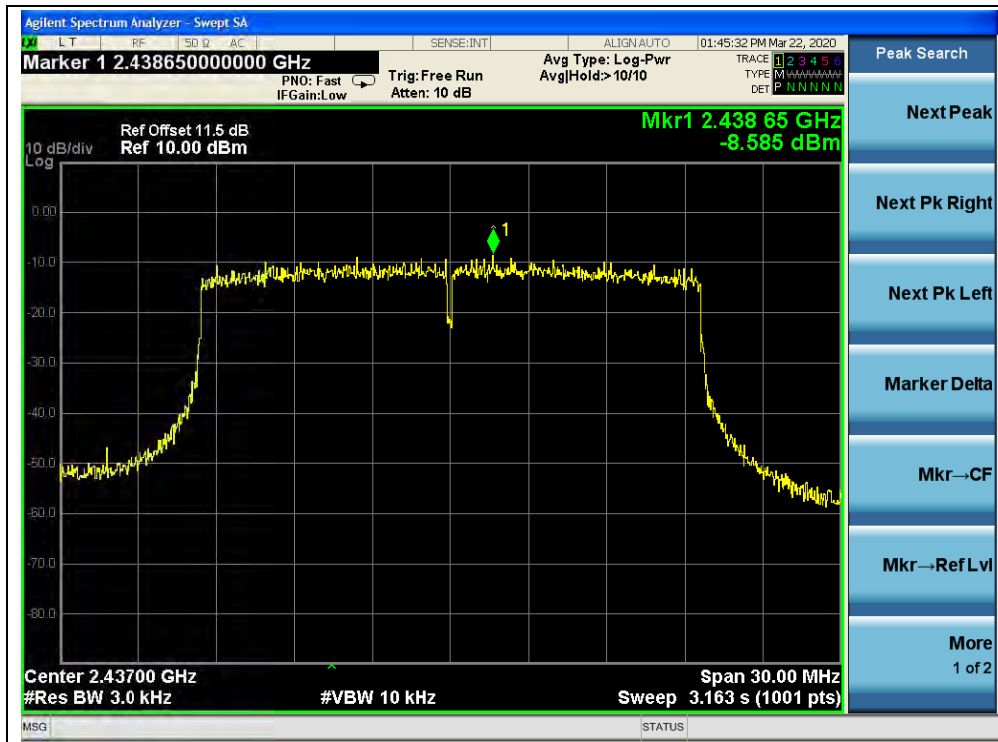
Channel	Frequency (MHz)	Measured PSD (dBm/3kHz)		Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
		ANT 0	ANT 1			
1	2412	-9.41	-8.58	-5.23	8	PASS
6	2437	-9.24	-8.59	-5.23	8	PASS
11	2462	-9.70	-8.68	-6.99	8	PASS

**Note:** Directional gain = 1.3dBi + 10log(2) = 4.31dBi < 6dBi, so the power limit is 8 dBm/3kHz.

**B. Test Plots:**



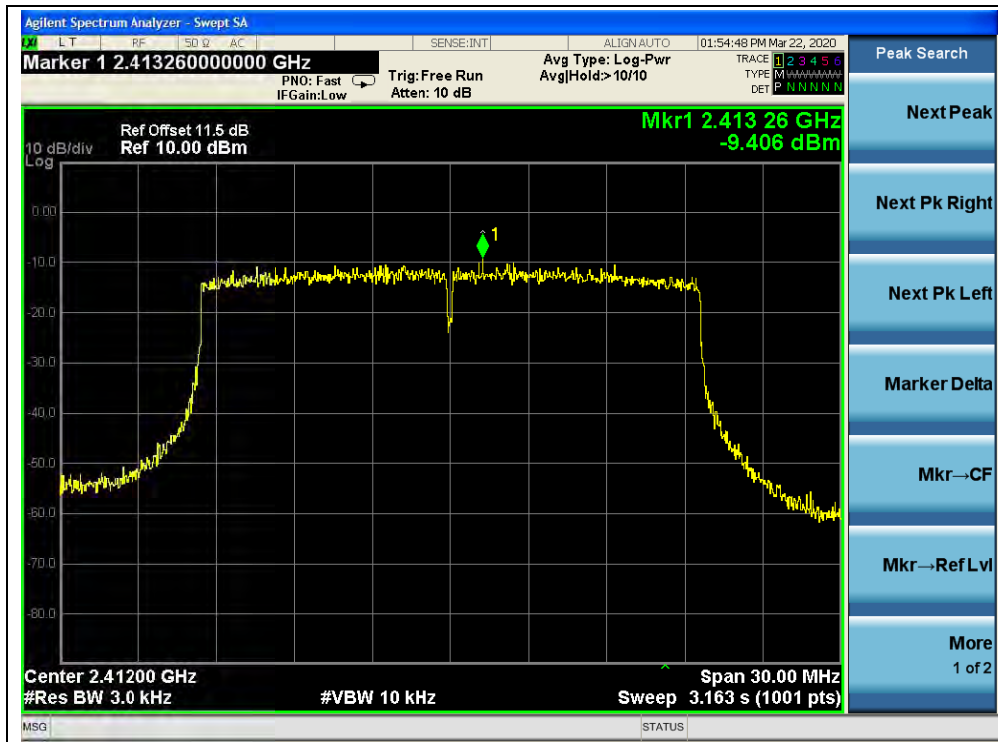
(Channel = 1, 802.11ax(HEW20)(RU242), ANT0)



(Channel = 6, 802.11ax(HEW20)(RU242), ANT0)

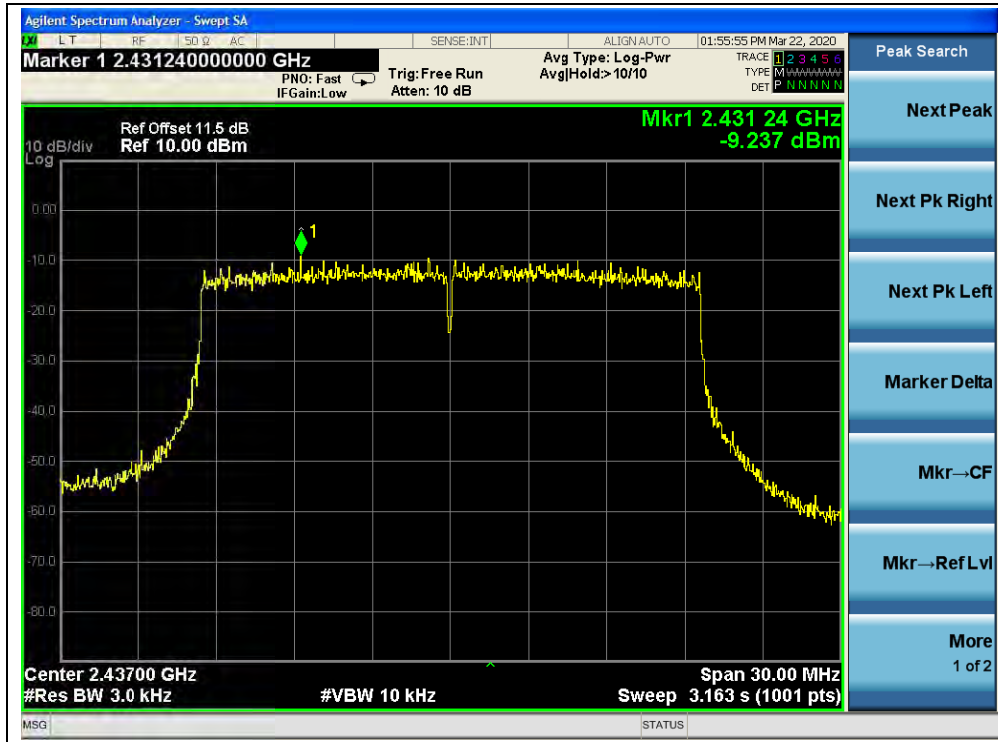


(Channel = 11, 802.11ax(HEW20)(RU242), ANT0)

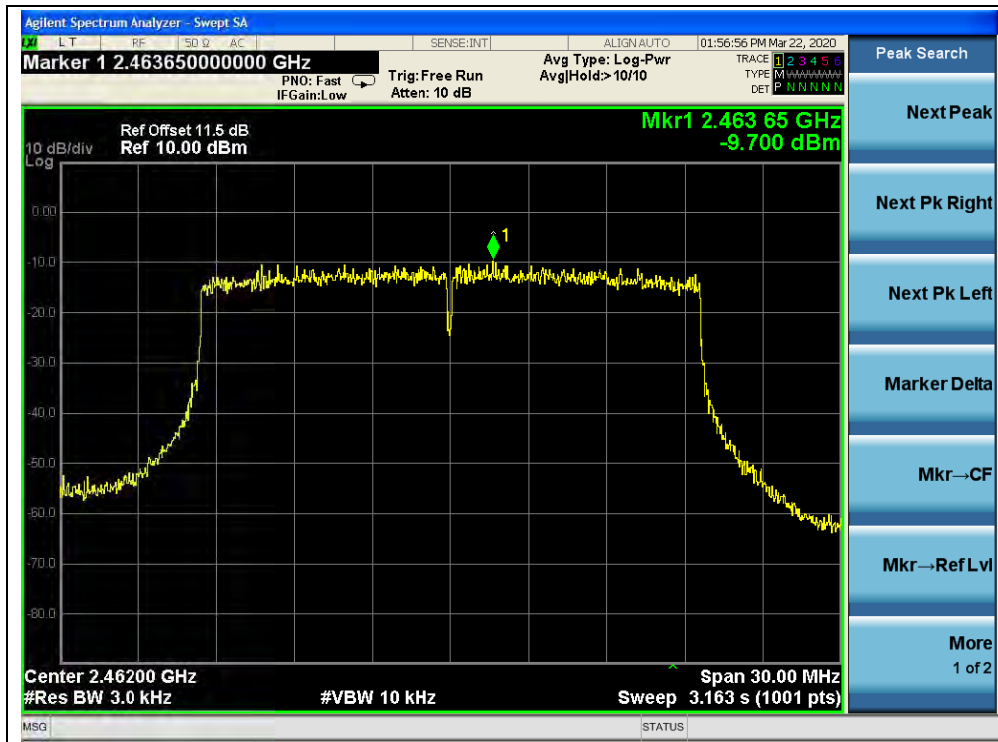


(Channel = 1, 802.11ax(HEW20)(RU242), ANT1)





(Channel = 6, 802.11ax(HEW20)(RU242), ANT1)



(Channel = 11, 802.11ax(HEW20)(RU242), ANT1)

## 2.7. Conducted Emission

### 2.7.1. Requirement

According to FCC section 15.207, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency within the band 150kHz to 30MHz shall not exceed the limits in the following table, as measured using a 50μH/50Ω line impedance stabilization network (LISN).

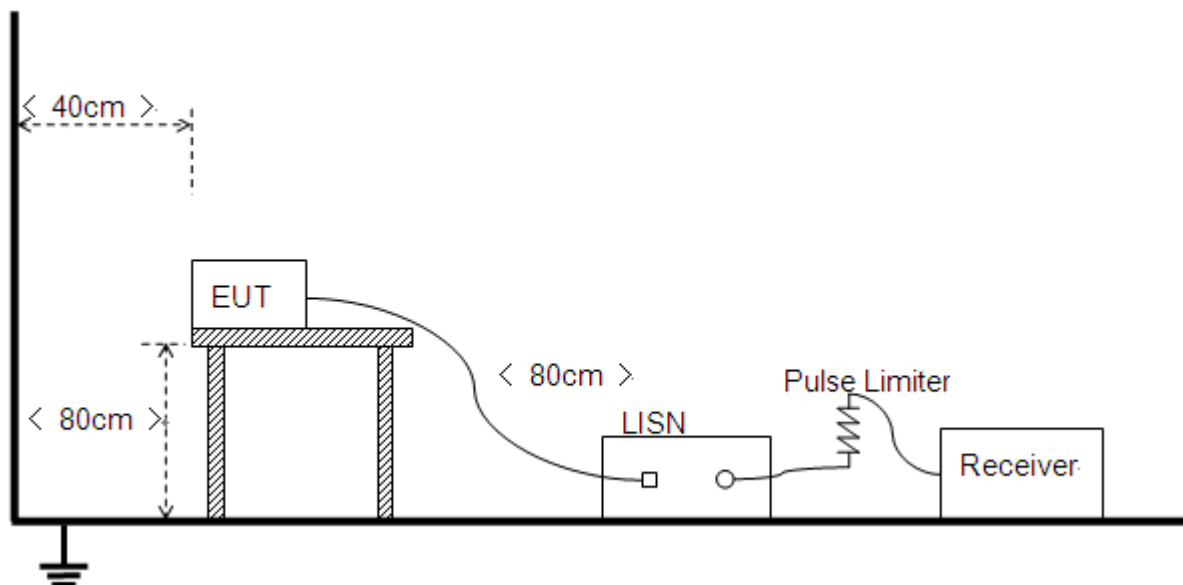
Frequency range (MHz)	Conducted Limit (dBμV)	
	Quai-peak	Average
0.15 - 0.50	66 to 56	56 to 46
0.50 - 5	56	46
5 - 30	60	50

**NOTE:**

- (a) The lower limit shall apply at the band edges.
- (b) The limit decreases linearly with the logarithm of the frequency in the range 0.15 - 0.50MHz.

### 2.7.2. Test Description

**Test Setup:**



The Table-top EUT was placed upon a non-metallic table 0.8m above the horizontal metal reference ground plane. EUT was connected to LISN and LISN was connected to reference Ground Plane. EUT was 80cm from LISN. The set-up and test methods were according to ANSI C63.10 2013.



### 2.7.3. Test Result

The maximum conducted interference is searched using Peak (PK), if the emission levels more than the AV and QP limits, and that have narrow margins from the AV and QP limits will be re-measured with AV and QP detectors. Tests for both L phase and N phase lines of the power mains connected to the EUT are performed. Refer to recorded points and plots below.

**Note:** Both of the test voltage AC 120V/60Hz and AC 230V/50Hz were considered and tested respectively, only the results of the worst case AC 120V/60Hz were recorded in this report.

#### A. Test Setup:

Test Mode1: EUT+ADAPTER+ WIFI TX

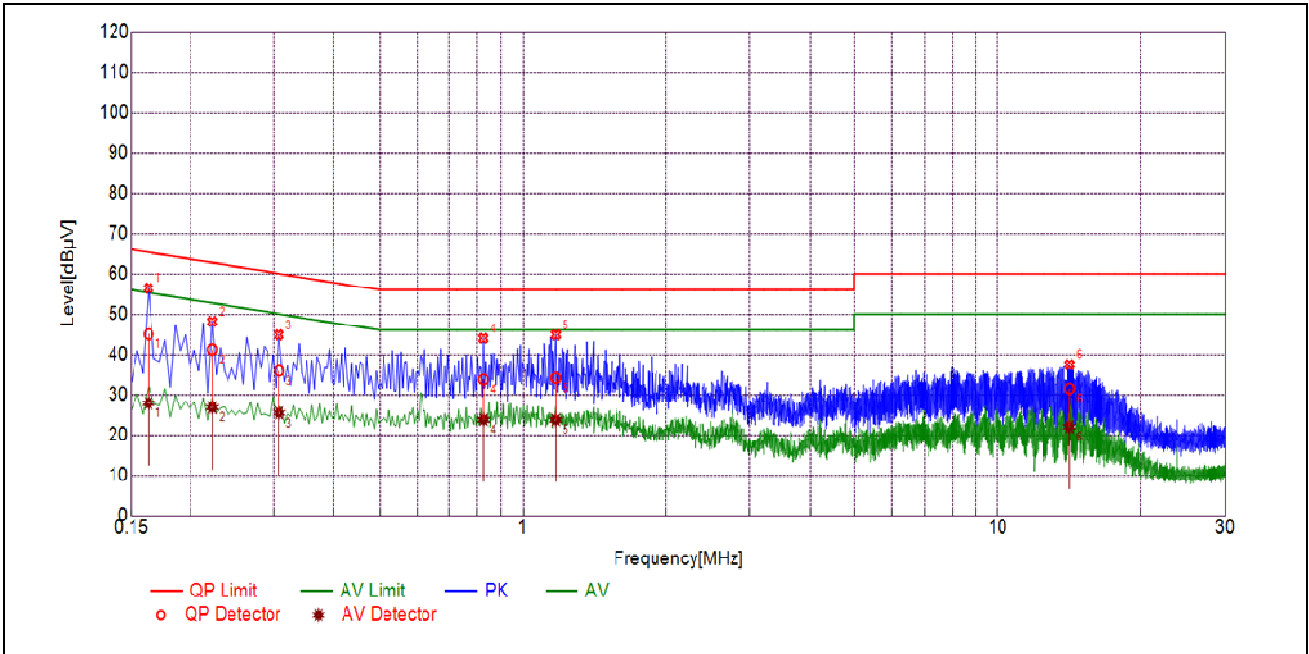
Test Voltage: AC 120V/60Hz

The measurement results are obtained as below:

$$E \text{ [dB}\mu\text{V]} = U_R + L_{\text{Cable loss}} \text{ [dB]} + A_{\text{Factor}}$$

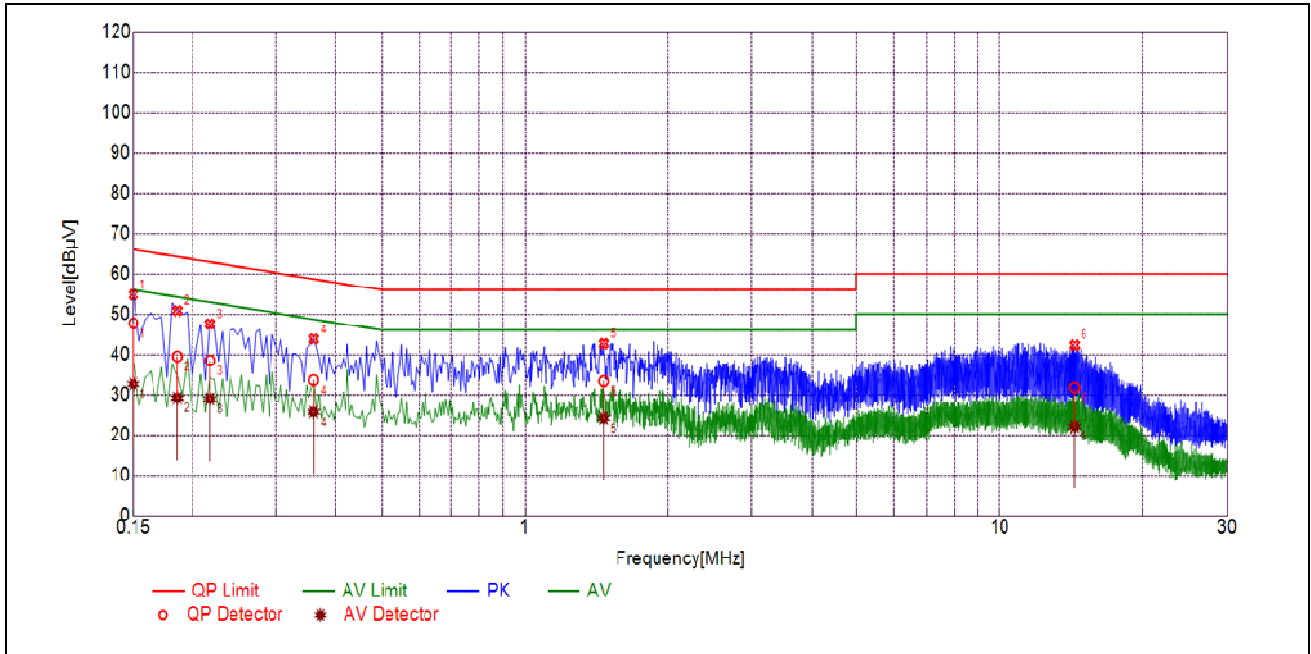
$U_R$ : Receiver Reading

$A_{\text{Factor}}$ : Voltage division factor of LISN



(L Phase)

NO.	Fre. (MHz)	Emission Level (dBμV)		Limit (dBμV)		Power-line	Verdict
		Quai-peak	Average	Quai-peak	Average		
1	0.1635	45.00	27.89	65.28	55.28	Line	PASS
2	0.2220	41.22	26.81	62.74	52.74		PASS
3	0.3078	35.91	25.46	60.03	50.03		PASS
4	0.8256	33.75	23.76	56.00	46.00		PASS
5	1.1705	34.14	23.72	56.00	46.00		PASS
6	14.1027	31.49	22.00	60.00	50.00		PASS



(N Phase)

NO.	Fre. (MHz)	Emission Level (dBμV)		Limit (dBμV)		Power-line	Verdict
		Quai-peak	Average	Quai-peak	Average		
1	0.1500	47.73	32.65	66.00	56.00	Neutral	PASS
2	0.1859	39.51	29.18	64.22	54.22		PASS
3	0.2176	38.46	28.96	62.91	52.91		PASS
4	0.3611	33.63	25.67	58.70	48.70		PASS
5	1.4673	33.37	24.14	56.00	46.00		PASS
6	14.3157	31.80	22.06	60.00	50.00		PASS

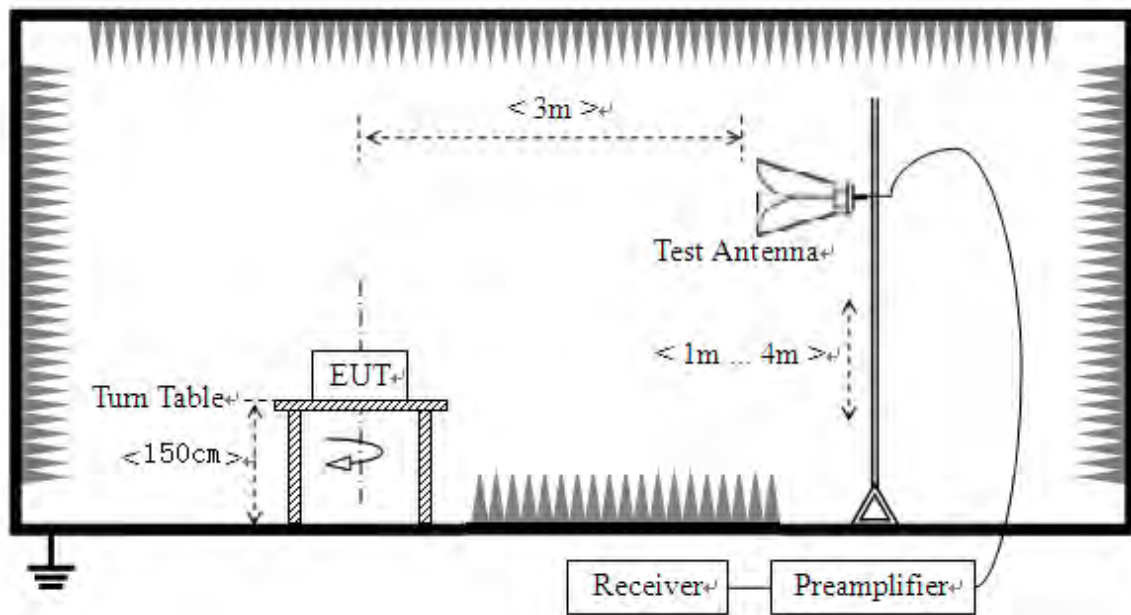
## 2.8. Restricted Frequency Bands

### 2.8.1. Requirement

According to FCC section 15.247(d), 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, In addition, radiated emissions which fall in the restricted bands, as defined in 15.205(a), must also comply with the radiated emission limits specified in 15.209(a).

### 2.8.2. Test Description

#### Test Setup



The EUT is located in a 3m Semi-Anechoic Chamber; the antenna factors, cable loss and so on of the site as factors are calculated to correct the reading.

For the Test Antenna:

Test Antenna is 3m away from the EUT. Test Antenna height is varied from 1m to 4m above the ground to determine the maximum value of the field strength.



### 2.8.3. Test Procedure

KDB 558074 Section 8.6 and 8.7 was used in order to prove compliance.

### 2.8.4. Test Result

The lowest and highest channels are tested to verify Restricted Frequency Bands.

The measurement results are obtained as below:

$$E \text{ [dB}\mu\text{V/m]} = U_R + A_T + A_{\text{Factor}} \text{ [dB]}; A_T = L_{\text{Cable loss}} \text{ [dB]} - G_{\text{preamp}} \text{ [dB]}$$

$A_T$ : Total correction Factor except Antenna

$U_R$ : Receiver Reading

$G_{\text{preamp}}$ : Preamplifier Gain

$A_{\text{Factor}}$ : Antenna Factor at 3m

**Note:** Restricted Frequency Bands were performed when antenna was at vertical and horizontal polarity, and only the worse test condition (vertical) was recorded in this test report.

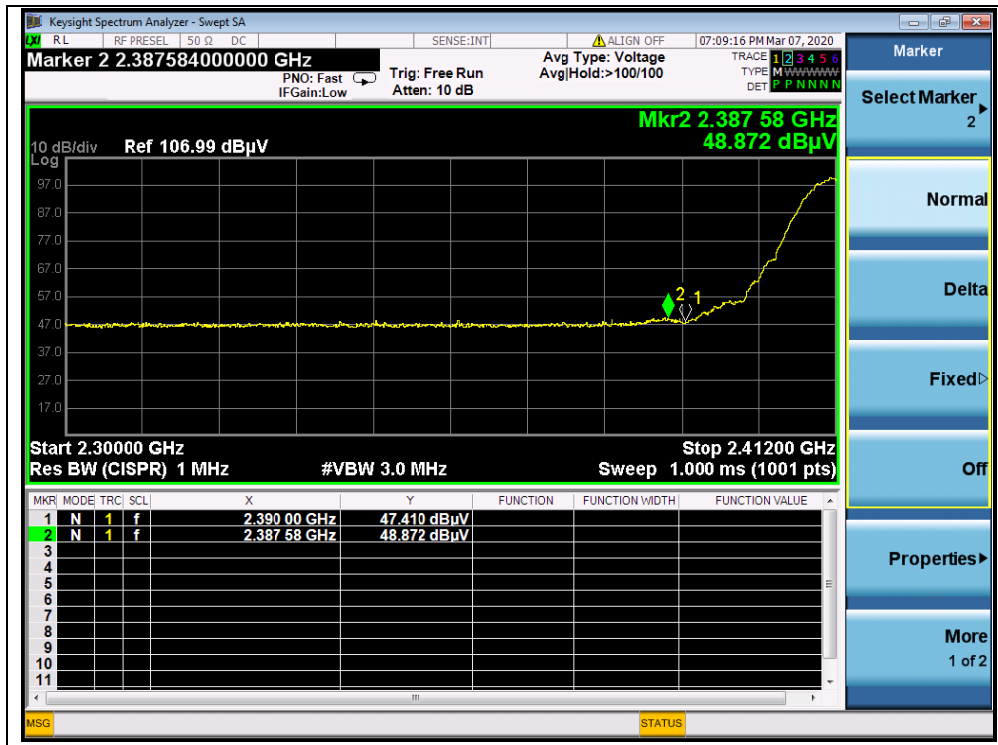
#### 802.11b Test mode

##### A. Test Verdict:

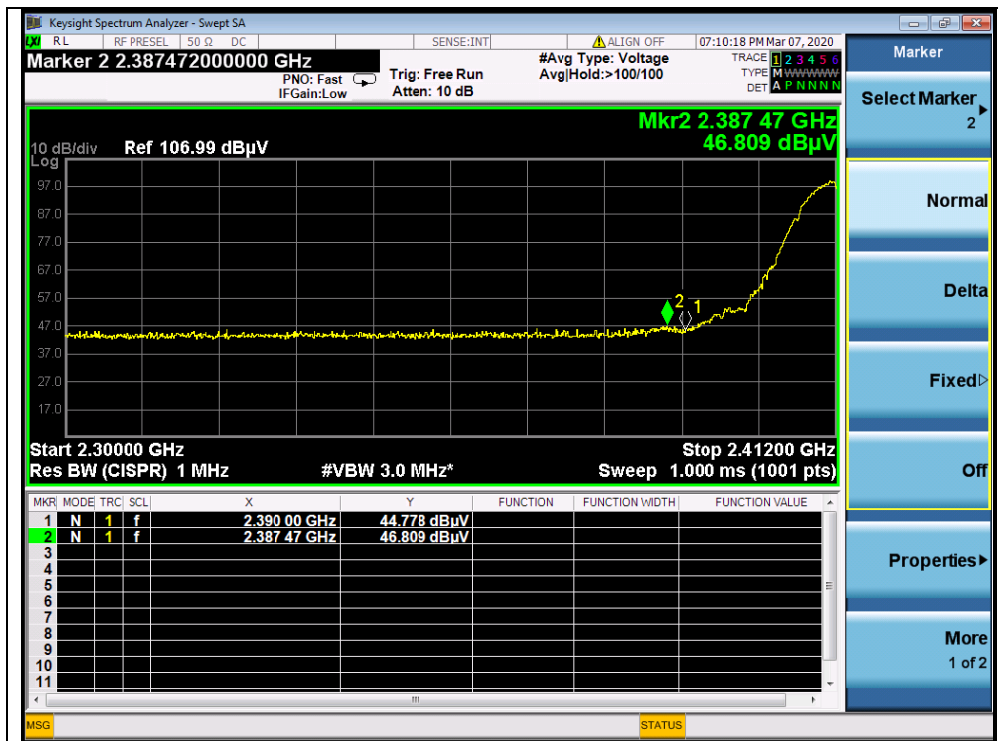
Channel	Frequency (MHz)	Detector	Receiver Reading $U_R$ (dBuV)	$A_T$ (dB)	$A_{\text{Factor}}$ (dB@3m)	Max. Emission E (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Verdict
		PK/ AV						
1	2386.35	PK	48.87	-29.67	32.56	51.76	74	PASS
1	2353.31	AV	46.81	-29.67	32.56	49.70	54	PASS
11	2483.50	PK	48.57	-29.67	32.56	51.46	74	PASS
11	2486.97	AV	45.61	-29.67	32.56	48.50	54	PASS



B. Test Plots:



(PEAK, Channel = 1, 802.11b)

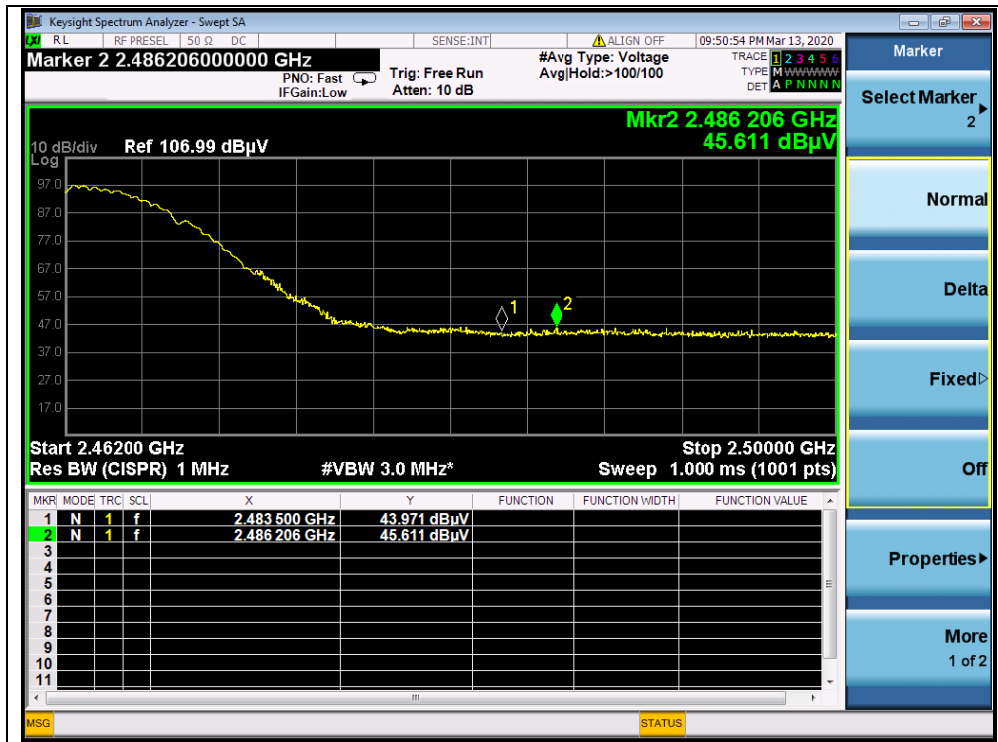


(AVG, Channel = 1, 802.11b)





(PEAK, Channel = 11, 802.11b)



(AVG, Channel = 11, 802.11b)

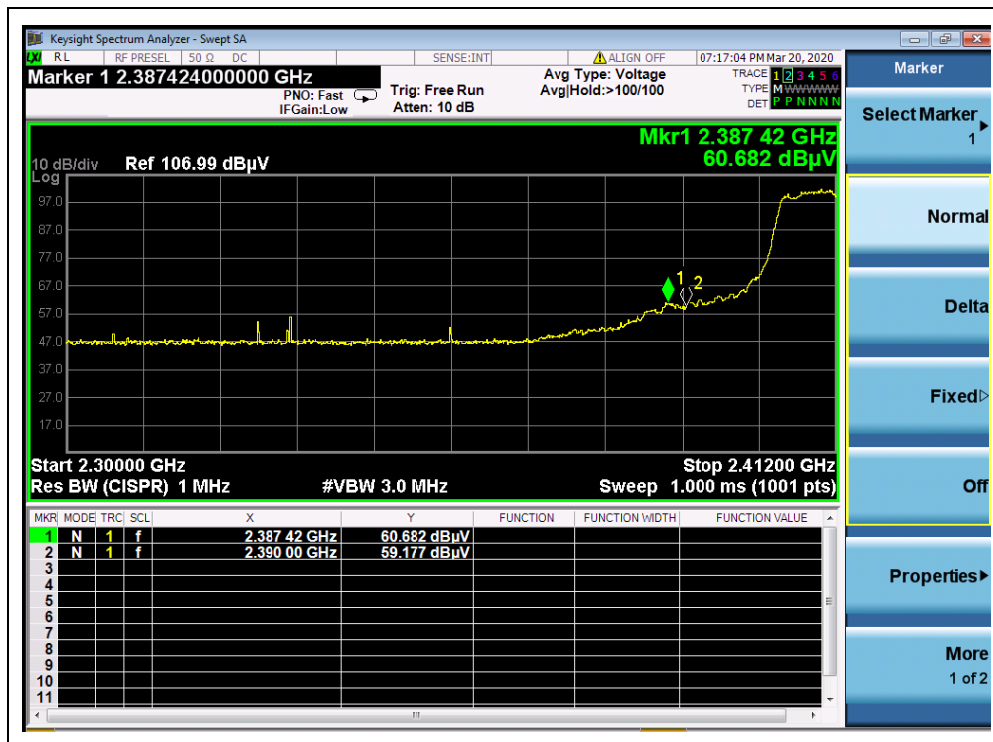


802.11g Test mode

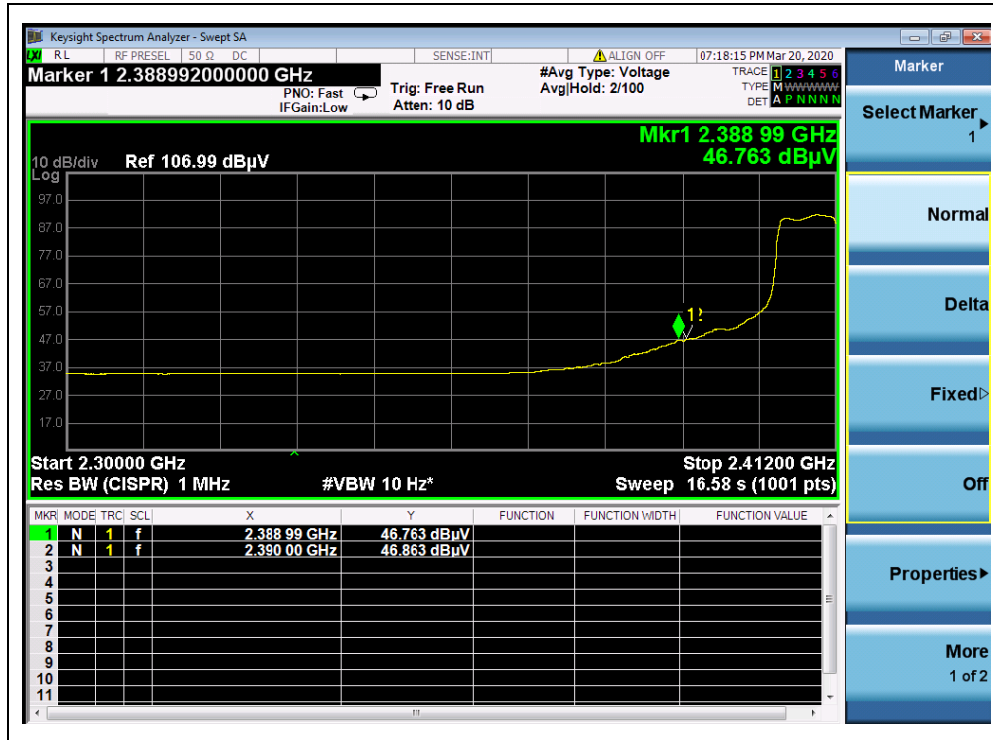
A. Test Verdict:

Channel	Frequency (MHz)	Detector	Receiver Reading $U_R$ (dBuV)	$A_T$ (dB)	$A_{Factor}$ (dB@3m)	Max. Emission $E$ (dBuV/m)	Limit (dBuV/m)	Verdict
		PK/ AV						
1	2386.69	PK	60.68	-29.67	32.56	63.57	74	PASS
1	2360.82	AV	46.76	-29.67	32.56	49.65	54	PASS
11	2487.88	PK	57.81	-29.67	32.56	60.70	74	PASS
11	2488.41	AV	44.79	-29.67	32.56	47.68	54	PASS

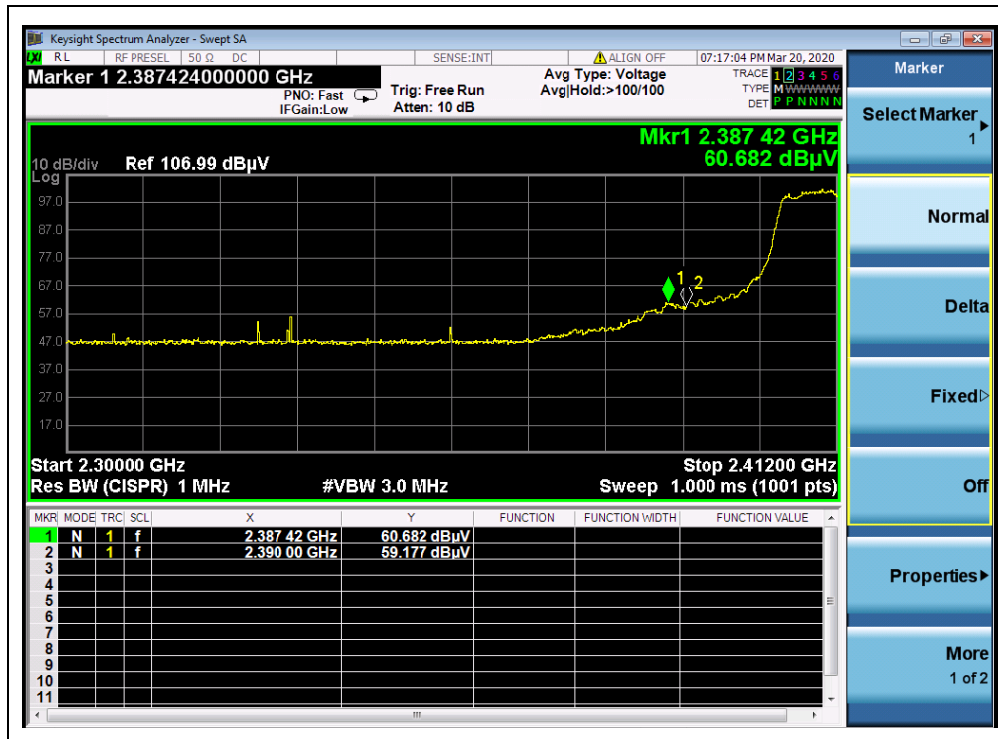
B. Test Plots:



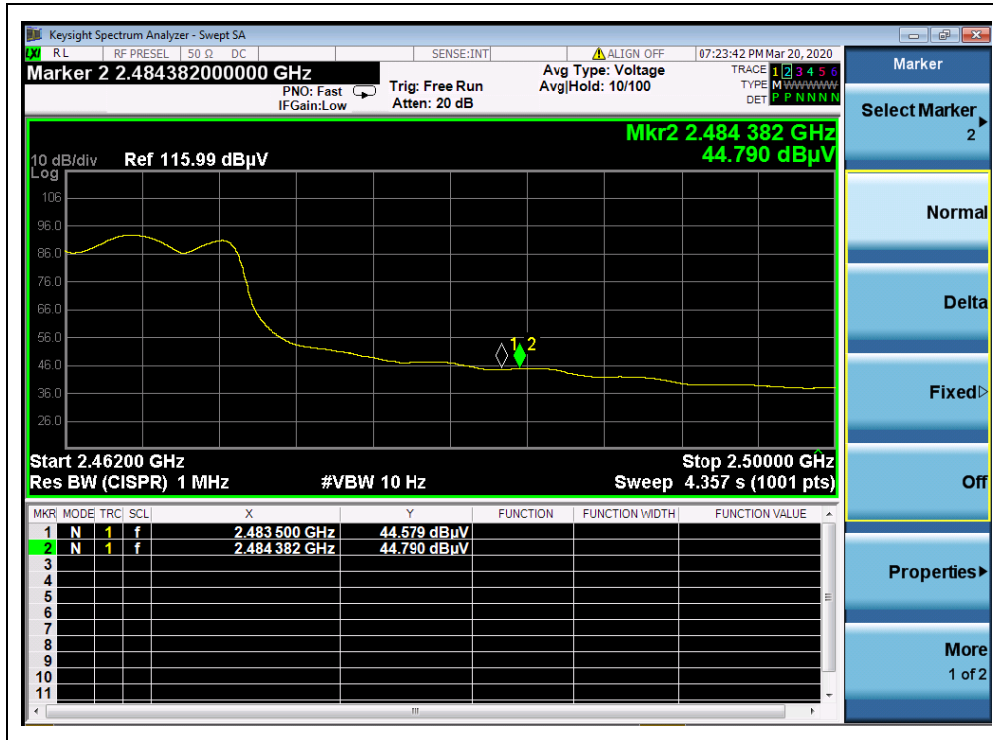
(PEAK, Channel = 1, 802.11g)



(AVG, Channel = 1, 802.11g)



(PEAK, Channel = 11, 802.11g)



(AVG, Channel = 11,802.11g)

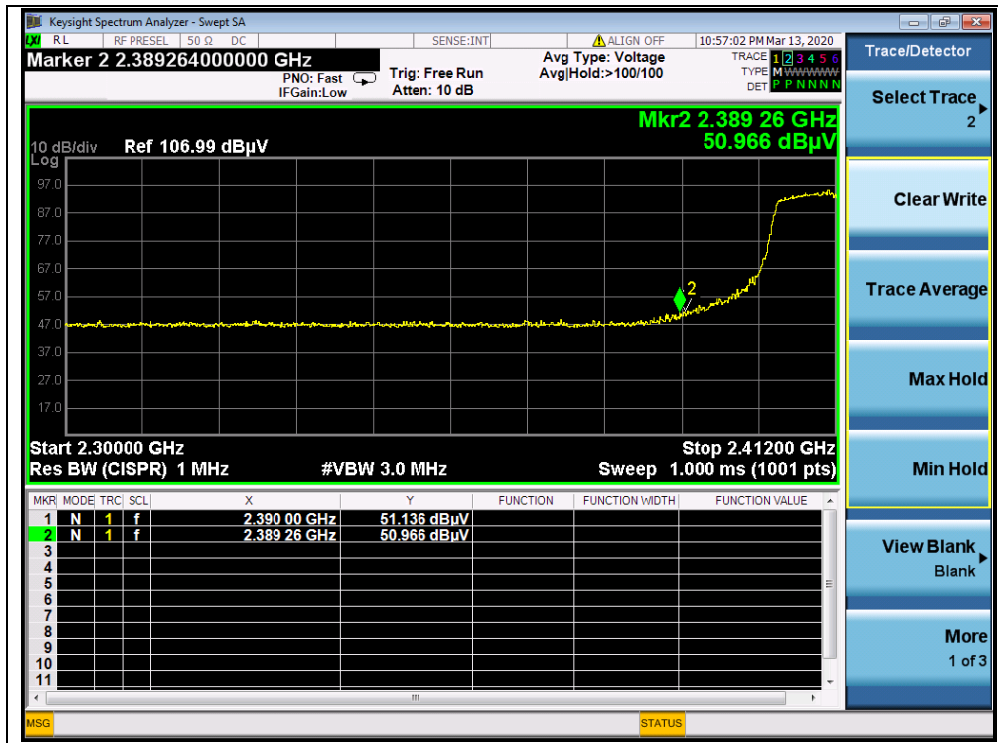


**802.11n(HT20) Test mode**

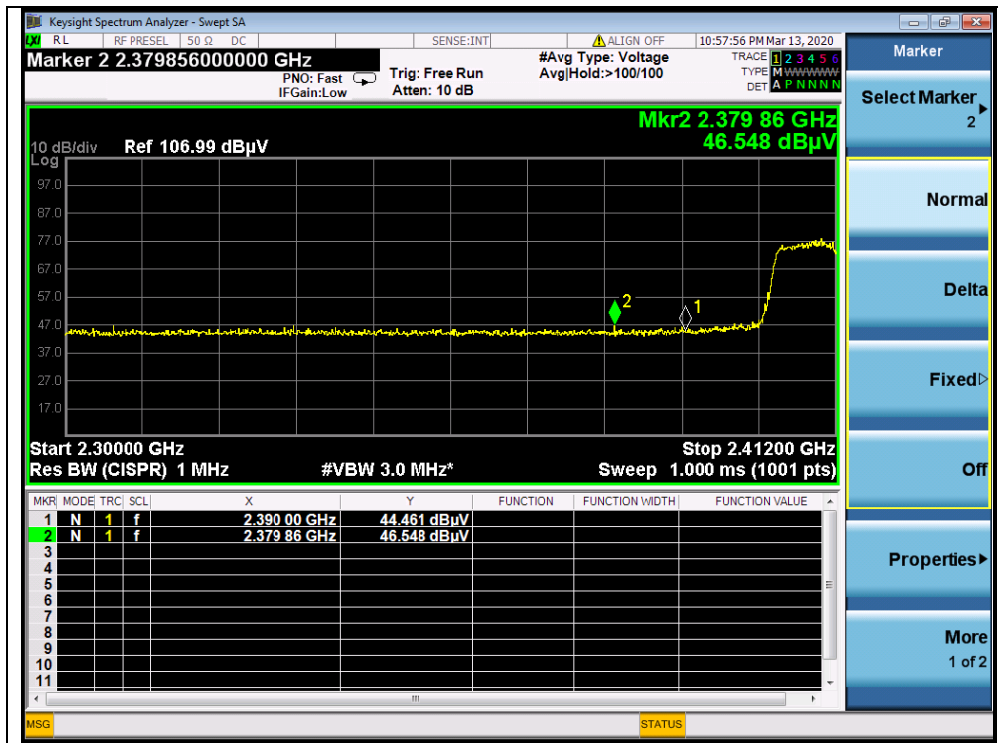
**A. Test Verdict:**

Channel	Frequency (MHz)	Detector	Receiver Reading	$A_T$	$A_{Factor}$	Max. Emission	Limit (dB $\mu$ V/m)	Verdict
		PK/ AV	$U_R$ (dBuV)	(dB)	(dB@3m)	E (dB $\mu$ V/m)		
1	2373.25	PK	50.97	-29.67	32.56	53.86	74	PASS
1	2389.82	AV	46.55	-29.67	32.56	49.44	54	PASS
11	2494.83	PK	55.08	-29.67	32.56	57.97	74	PASS
11	2493.12	AV	41.28	-29.67	32.56	44.17	54	PASS

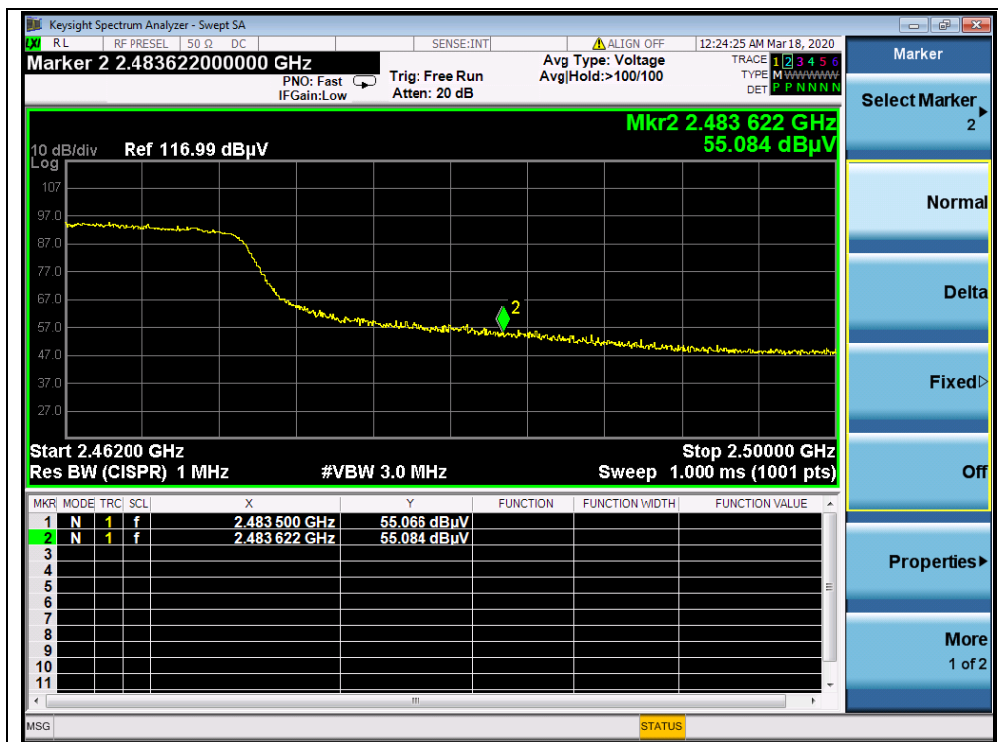
**B. Test Plots:**



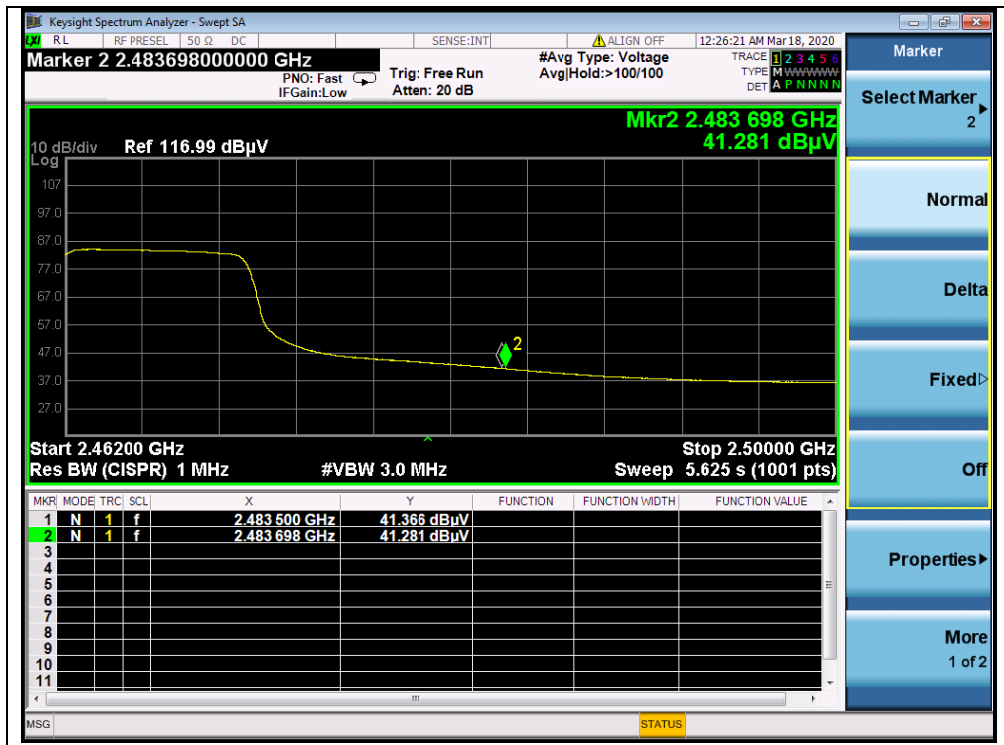
(PEAK, Channel = 1, 802.11n(HT20))



(AVG, Channel = 1, 802.11n(HT20))



(PEAK, Channel = 11, 802.11n(HT20))



(AVG, Channel = 11, 802.11n(HT20))

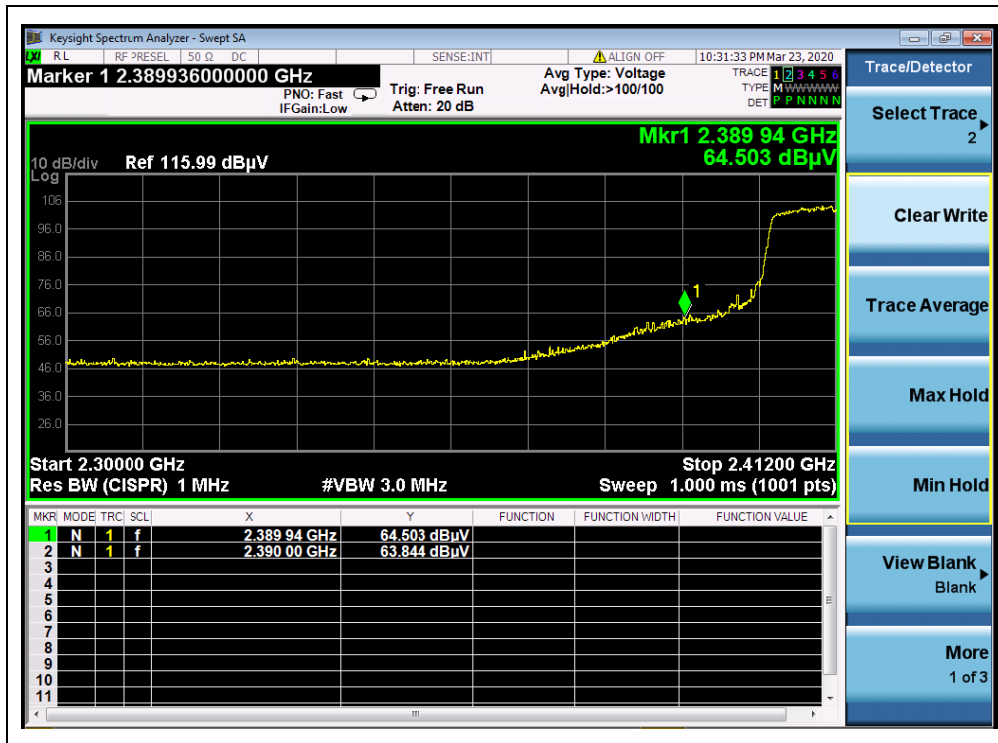


802.11ax (HEW20) (RU26)Test mode

C. Test Verdict:

Channel	Frequency (MHz)	Detector	Receiver Reading	$A_T$	$A_{Factor}$	Max. Emission	Limit	Verdict
		PK/ AV	$U_R$ (dBuV)	(dB)	(dB@3m)	E (dBμV/m)	(dBμV/m)	
1	2373.25	PK	64.50	-29.67	32.56	67.39	74	PASS
1	2389.82	AV	49.30	-29.67	32.56	52.19	54	PASS
11	2494.83	PK	60.27	-29.67	32.56	63.16	74	PASS
11	2493.12	AV	42.99	-29.67	32.56	45.88	54	PASS

D. Test Plots:

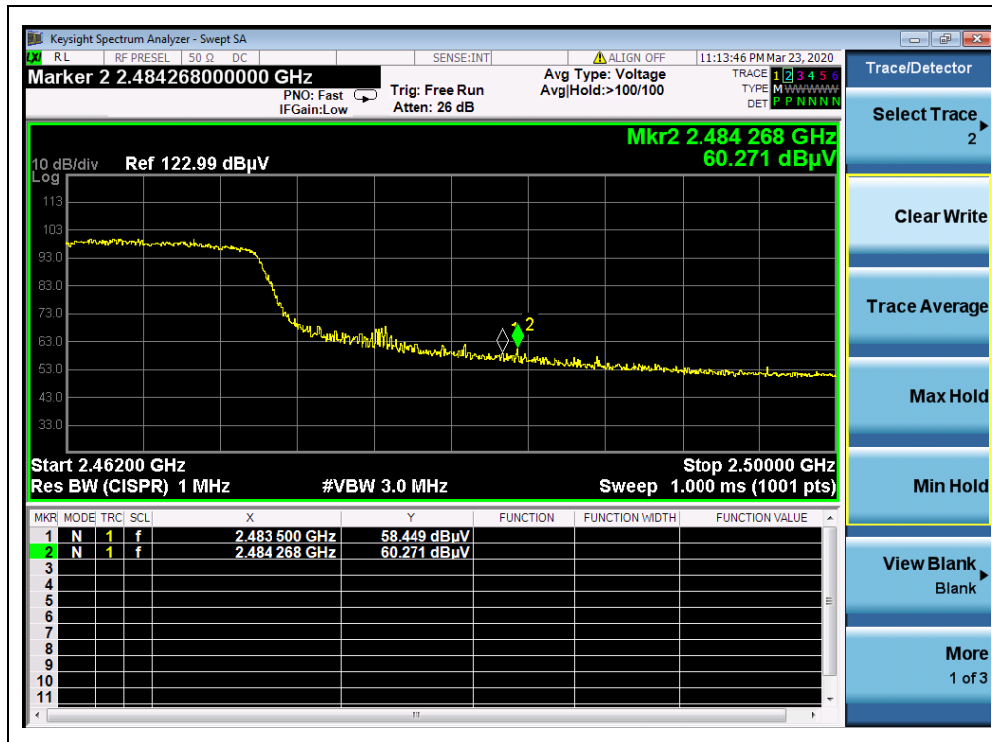


(PEAK, Channel = 1, 802.11ax(HEW20)(RU26))

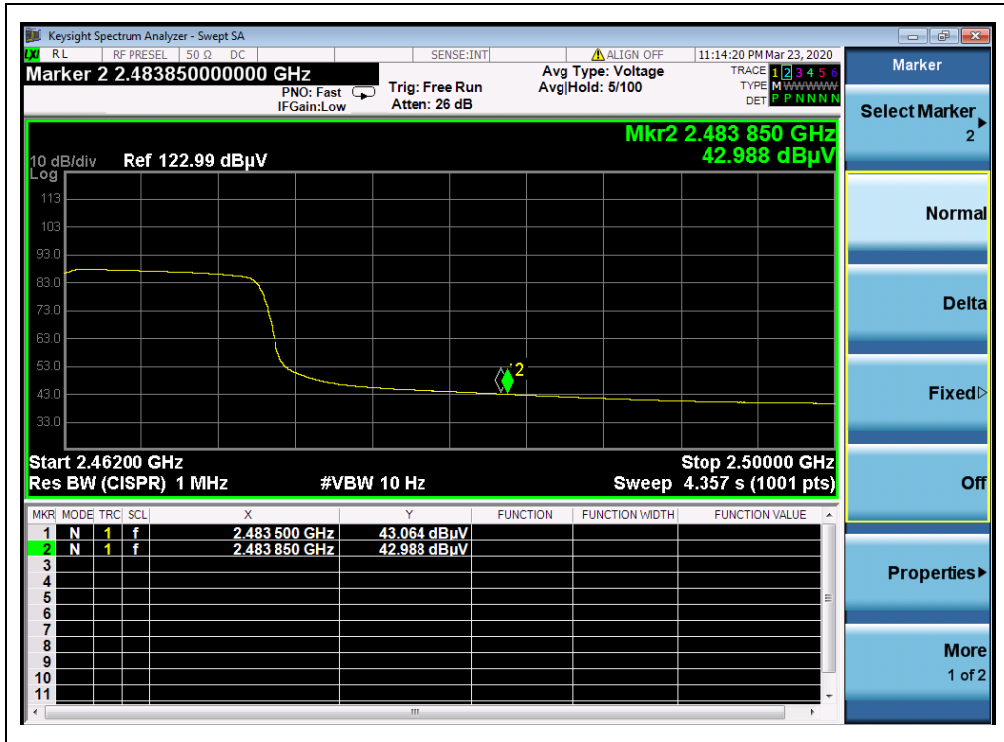




(AVG, Channel = 1, 802.11ax(HEW20)(RU26))



(PEAK, Channel = 11, 802.11ax(HEW20)(RU26))



(AVG, Channel = 11, 802.11ax(HEW20)(RU26))



## 2.9. Radiated Emission

### 2.9.1. Requirement

According to FCC section 15.247(d), radiated emission outside the frequency band attenuation below the general limits specified in FCC section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in FCC section 15.205(a), must also comply with the radiated emission limits specified in FCC section 15.209(a).

According to FCC section 15.209 (a), except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength ( $\mu\text{V}/\text{m}$ )	Measurement Distance (m)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 - 30.0	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

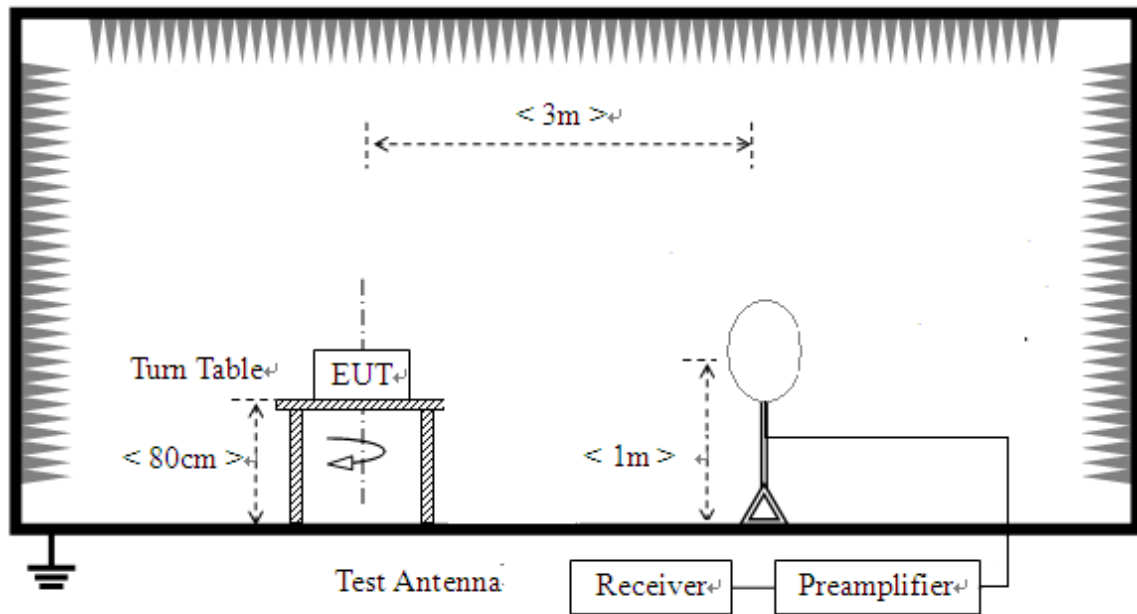
**Note1:** For above 1000MHz, the emission limit in this paragraph is based on measurement instrumentation employing an average detector, measurement using instrumentation with a peak detector function, corresponding to 20dB above the maximum permitted average limit.

**Note2:** For above 1000MHz, limit field strength of harmonics: 54dBuV/m@3m (AV) and 74dBuV/m@3m (PK). In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), also should comply with the radiated emission limits specified in Section 15.209(a)(above table).

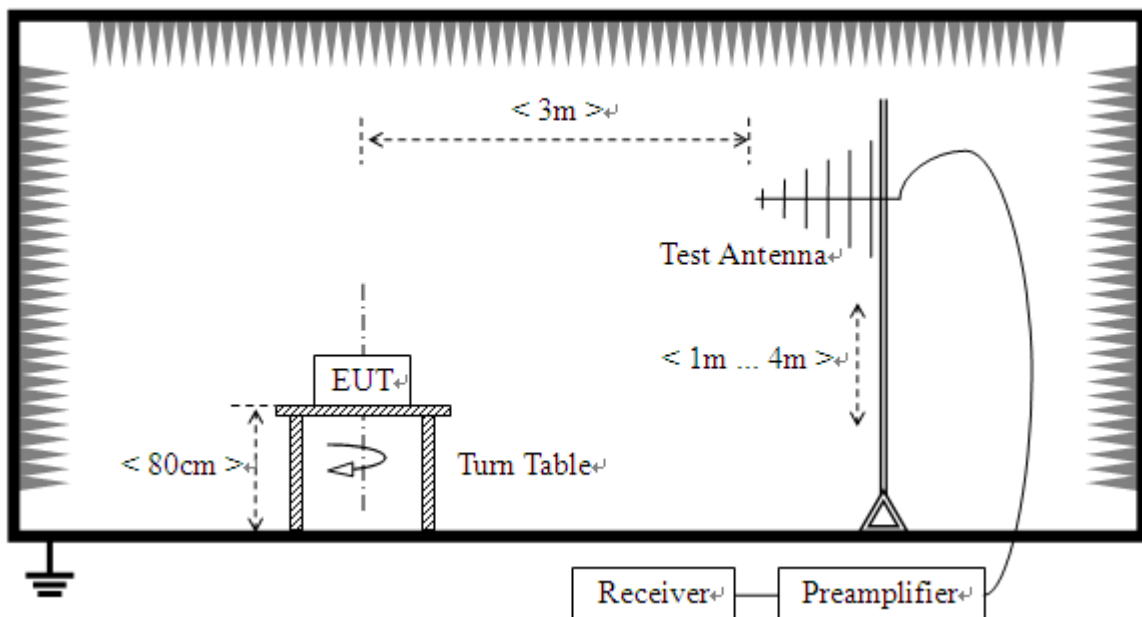
### 2.9.2. Test Description

#### Test Setup:

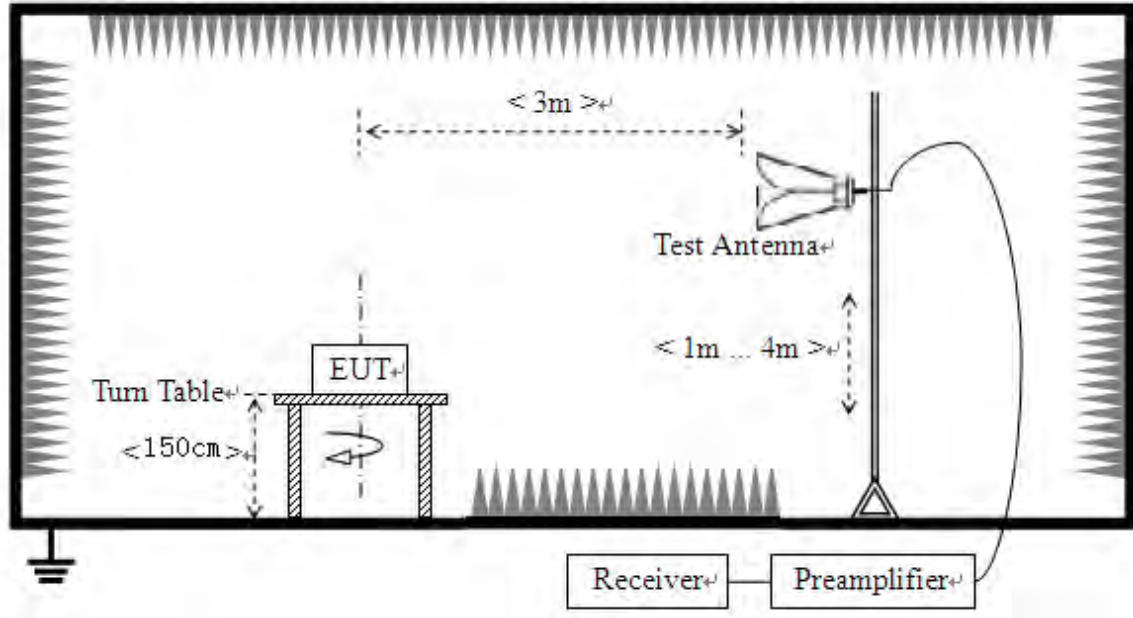
- 1) For radiated emissions from 9kHz to 30MHz



- 2) For radiated emissions from 30MHz to 1GHz



3) For radiated emissions above 1GHz



The RF absorbing material used on the reference ground plane and on the turntable have a maximum height (thickness) of 30 cm (12 in) and have a minimum-rated attenuation of 20 dB at all frequencies from 1 GHz to 18 GHz. Test site have a minimum area of the ground plane covered with RF absorbing material as specified in Figure 6 of ANSI C63.4: 2014.

The test site semi-anechoic chamber has met the requirement of NSA tolerance 4dB according to the standards: ANSI C63.10 (2013). For radiated emissions below or equal to 1GHz, The EUT was set-up on insulator 80cm above the Ground Plane, For radiated emissions above 1GHz, The EUT was set-up on insulator 150cm above the Ground Plane. The set-up and test methods were according to ANSI C63.10

For the radiated emission test above 1GHz:

Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane. The EUT is located in a 3m Semi-Anechoic Chamber; the antenna factors, cable loss and so on of the site as factors are calculated to correct the reading



For the Test Antenna:

(a) In the frequency range of 9kHz to 30MHz, magnetic field is measured with Loop Test Antenna. The Test Antenna is positioned with its plane vertical at 1m distance from the EUT. The center of the Loop Test Antenna is 1m above the ground. During the measurement the Loop Test Antenna rotates about its vertical axis for maximum response at each azimuth about the EUT.

(b) In the frequency range above 30MHz, Bi-Log Test Antenna (30MHz to 1GHz) and Horn Test Antenna (above 1GHz) are used. Place the test antenna at 3m away from area of the EUT, while keeping the test antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The test antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final test antenna elevation shall be that which maximizes the emissions. The test antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane. The emission levels at both horizontal and vertical polarizations should be tested.

### 2.9.3. Test Result

According to ANSI C63.10, because of peak detection will yield amplitudes equal to or greater than amplitudes measured with the quasi-peak (or average) detector, the measurement data from a spectrum analyzer peak detector will represent the worst-case results, if the peak measured value complies with the quasi-peak limit, it is unnecessary to perform an quasi-peak measurement.

The measurement results are obtained as below:

$$E \text{ [dB}\mu\text{V/m]} = U_R + A_T + A_{\text{Factor}} \text{ [dB]}; A_T = L_{\text{Cable loss}} \text{ [dB]} - G_{\text{preamp}} \text{ [dB]}$$

$A_T$ : Total correction Factor except Antenna

$U_R$ : Receiver Reading

$G_{\text{preamp}}$ : Preamplifier Gain

$A_{\text{Factor}}$ : Antenna Factor at 3m

During the test, the total correction Factor  $A_T$  and  $A_{\text{Factor}}$  were built in test software.

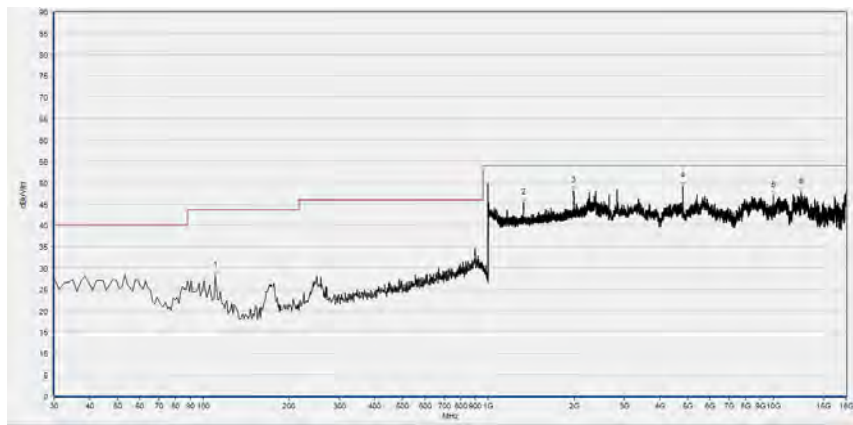
**Note1:** All radiated emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.

**Note2:** For the frequency, which started from 9kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit was not recorded.

**Note3:** For the frequency, which started from 18GHz to 40GHz, was pre-scanned and the result which was 20dB lower than the limit was not recorded.

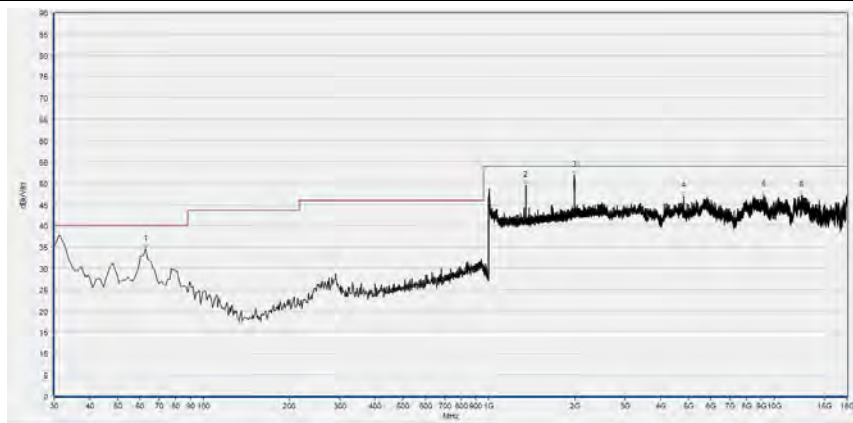
**802.11b Test mode**

Plots for Channel = 1



Fre. (MHz)	Pk (dBµV/m)	QP (dBµV/m)	AV (dBµV/m)	Limit-PK (dBµV/m)	Limit-QP (dBµV/m)	Limit-AV (dBµV/m)	Antenna	Verdict
110.125	28.08	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1327.811	45.31	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
1995.598	48.03	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
4823.604	49.18	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
9984.943	46.88	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12485.797	47.79	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

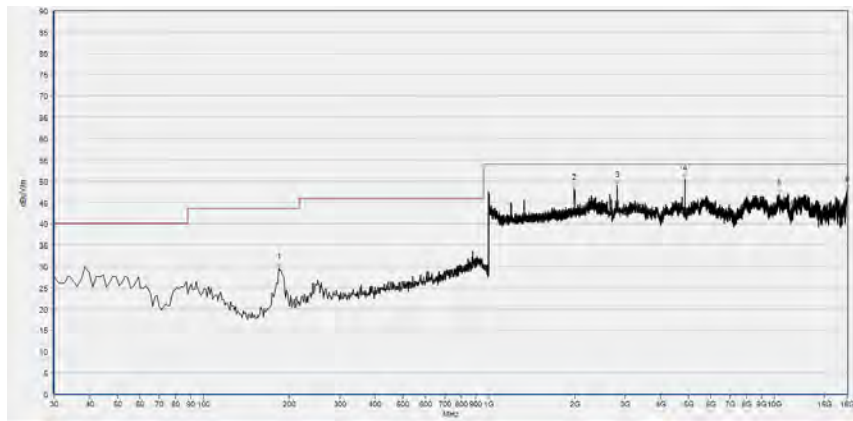
(Antenna Horizontal, 30MHz to 18GHz)



Fre. (MHz)	Pk (dBµV/m)	QP (dBµV/m)	AV (dBµV/m)	Limit-PK (dBµV/m)	Limit-QP (dBµV/m)	Limit-AV (dBµV/m)	Antenna	Verdict
62.778	34.59	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1349.580	49.49	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
1994.700	51.84	N/A	42.75	74.00	N/A	54.00	Vertical	PASS
4823.604	46.89	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
9153.191	47.05	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12482.997	47.12	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

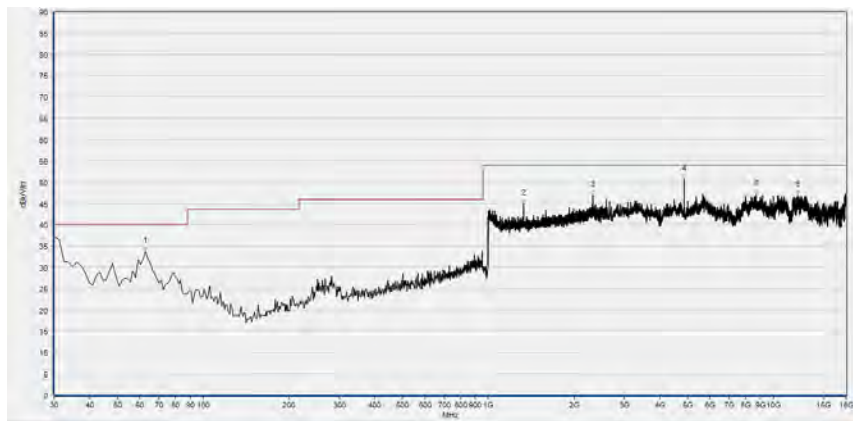
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel = 6



Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
184.180	29.59	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1996.238	48.21	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
2821.240	49.00	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
4874.013	50.43	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
10424.623	46.97	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
17991.598	47.95	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

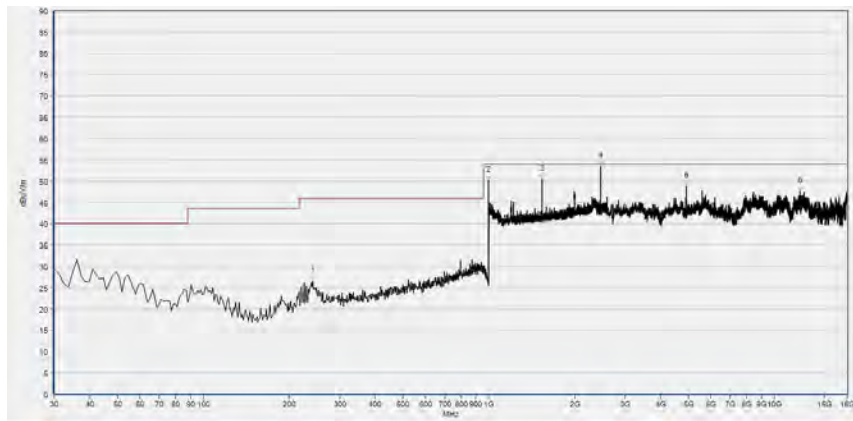


Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
62.778	33.75	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1330.372	44.93	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
2326.611	46.86	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
4874.013	50.55	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
8727.514	47.04	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12152.537	46.95	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

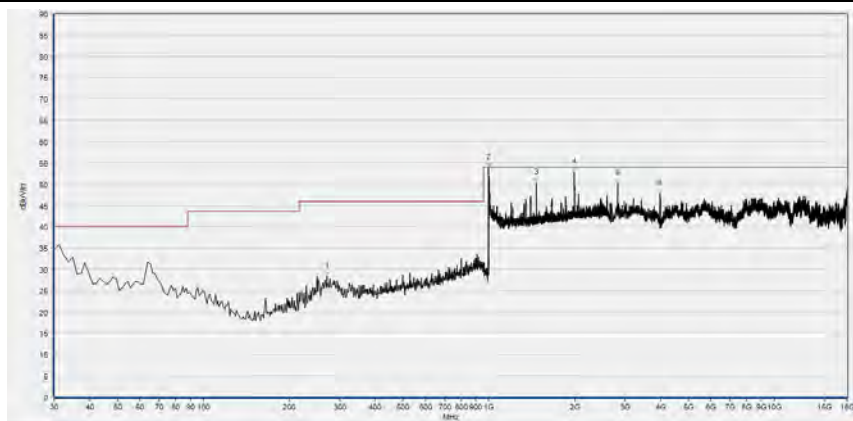


Plot for Channel = 11



Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
241.239	26.43	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
991.800	26.13	23.11	N/A	N/A	54.00	N/A	Horizontal	PASS
1535.300	50.94	N/A	29.97	74.00	N/A	54.00	Horizontal	PASS
2462.985	53.46	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
4924.423	48.82	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12281.360	47.59	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

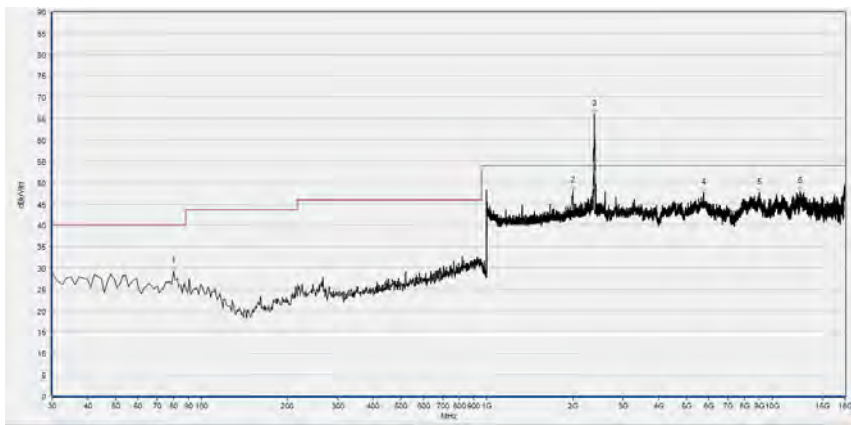


Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
270.375	28.28	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
999.910	29.31	23.54	N/A	N/A	54.00	N/A	Vertical	PASS
1467.100	50.33	N/A	29.81	74.00	N/A	54.00	Vertical	PASS
1994.900	51.27	N/A	31.41	74.00	N/A	54.00	Vertical	PASS
2821.600	50.11	N/A	33.04	74.00	N/A	54.00	Vertical	PASS
3983.452	47.74	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

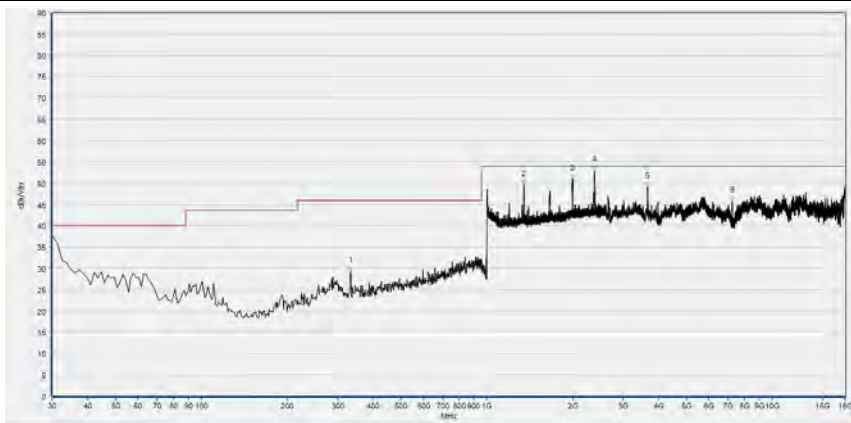
**802.11g Test mode**

Plots for Channel = 1



Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
79.775	29.11	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1998.159	48.07	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
2384.700	66.39	N/A	50.84	74.00	N/A	54.00	Horizontal	PASS
5756.174	47.68	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
9027.169	47.65	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12516.603	47.98	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

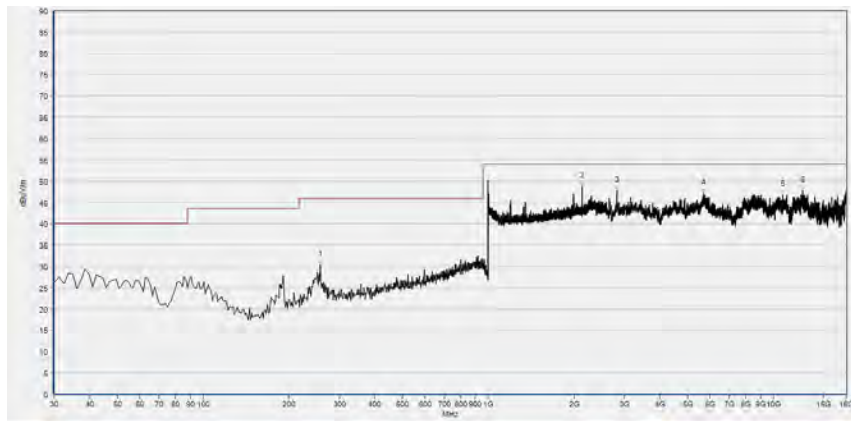
(Antenna Horizontal, 30MHz to 18GHz)



Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
333.504	29.34	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
1349.900	49.54	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
1991.100	51.03	N/A	31.56	74.00	N/A	54.00	Vertical	PASS
2384.000	52.27	N/A	37.33	74.00	N/A	54.00	Vertical	PASS
3655.792	49.09	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
7229.242	45.80	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

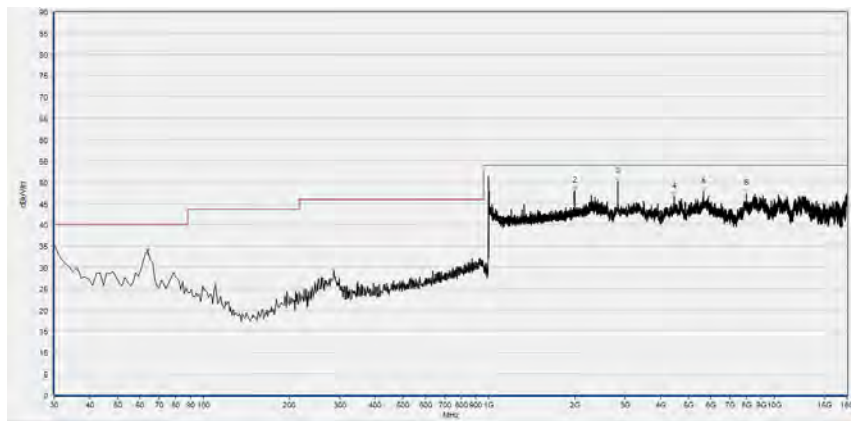
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel = 6



Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
257.021	30.33	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
2137.095	48.77	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
2824.041	47.69	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5680.560	47.17	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
10771.886	46.77	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12679.033	47.84	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

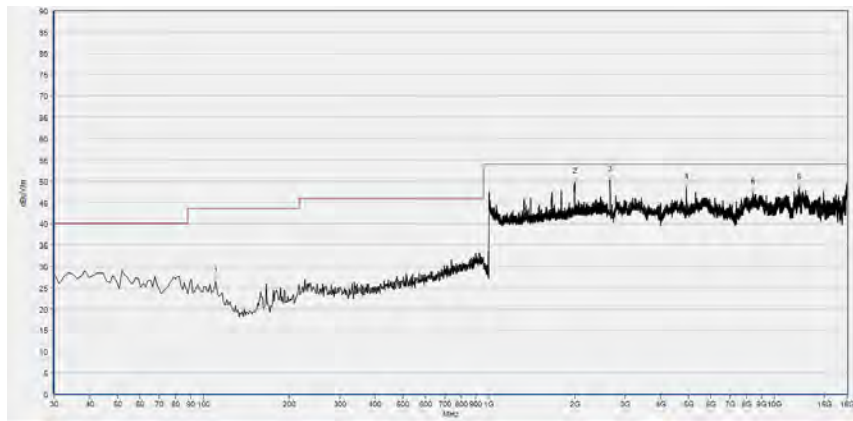
(Antenna Horizontal, 30MHz to 18GHz)



Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
63.992	33.29	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1997.519	47.85	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
2829.642	50.06	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
4470.740	46.65	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
5655.356	47.71	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
7976.978	47.22	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

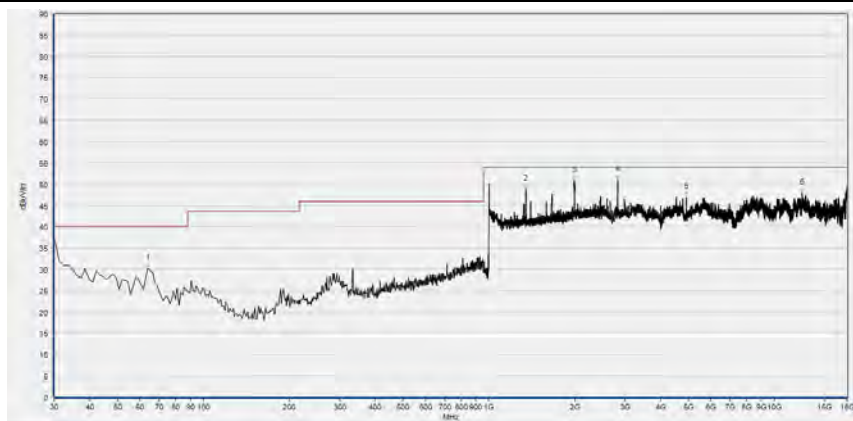
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel = 11



Fre. (MHz)	Pk (dBµV/m)	QP (dBµV/m)	AV (dBµV/m)	Limit-PK (dBµV/m)	Limit-QP (dBµV/m)	Limit-AV (dBµV/m)	Antenna	Verdict
110.125	26.47	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1998.159	49.73	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
2658.811	50.32	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
4927.223	48.42	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
8425.059	47.31	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12202.946	48.38	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

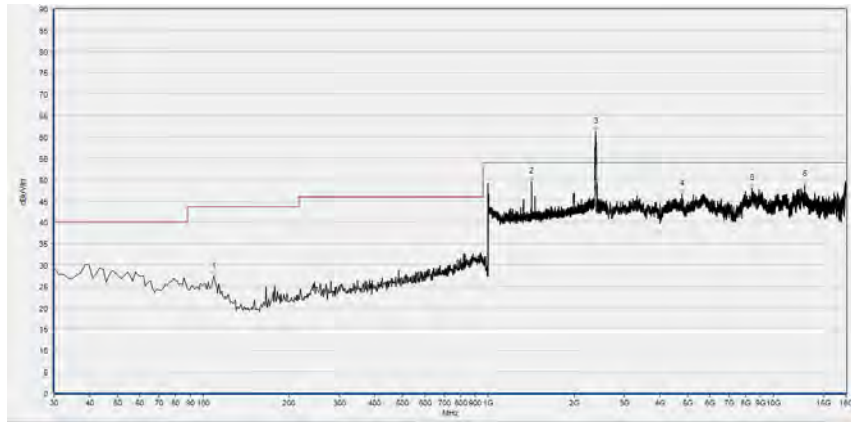


Fre. (MHz)	Pk (dBµV/m)	QP (dBµV/m)	AV (dBµV/m)	Limit-PK (dBµV/m)	Limit-QP (dBµV/m)	Limit-AV (dBµV/m)	Antenna	Verdict
63.992	30.10	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
1349.580	48.84	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
1990.476	50.75	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
2824.041	50.93	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
4927.223	46.98	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12525.005	47.90	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

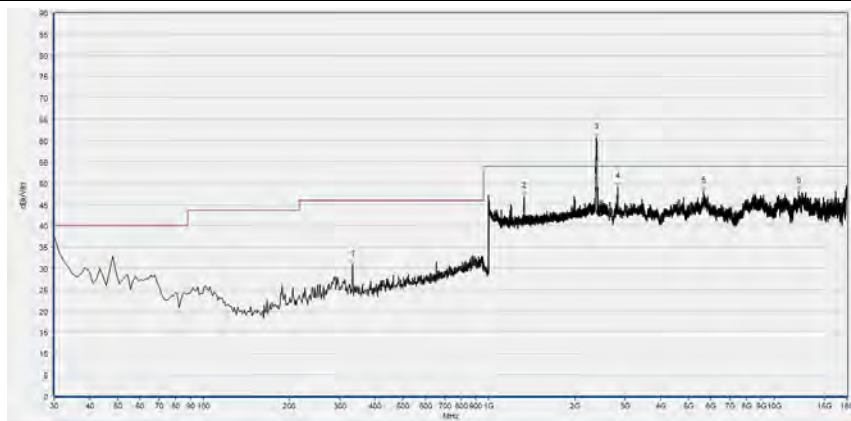
**802.11n(HT20) Test mode**

Plots for Channel = 1



Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
108.911	27.40	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
1421.289	49.39	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
2384.900	61.10	N/A	48.42	74.00	N/A	54.00	Horizontal	PASS
4778.796	46.53	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
8405.456	47.91	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12889.071	48.84	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

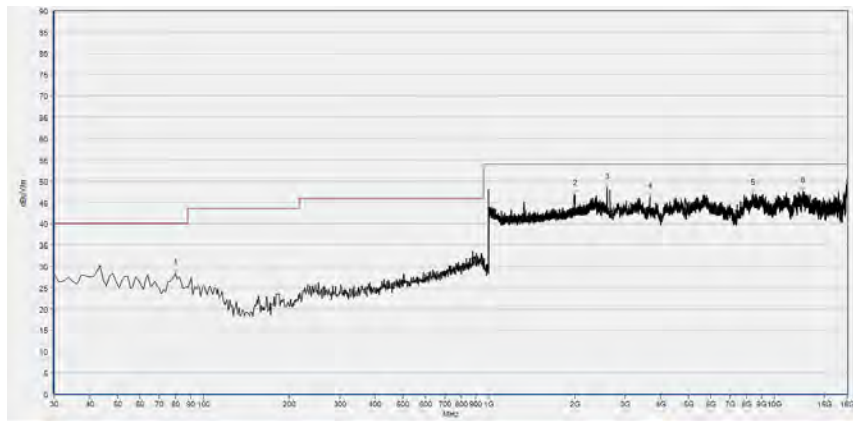
(Antenna Horizontal, 30MHz to 18GHz)



Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
333.504	30.91	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
1327.171	46.89	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
2385.400	62.91	N/A	48.00	74.00	N/A	54.00	Vertical	PASS
2829.642	49.09	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
5658.156	48.16	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12141.335	48.15	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

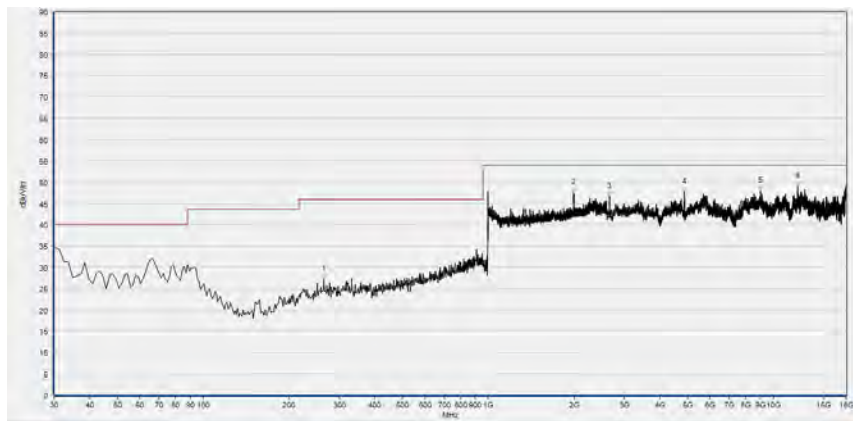
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel = 6



Fre. (MHz)	Pk (dBµV/m)	QP (dBµV/m)	AV (dBµV/m)	Limit-PK (dBµV/m)	Limit-QP (dBµV/m)	Limit-AV (dBµV/m)	Antenna	Verdict
79.775	28.31	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
1998.800	47.00	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
2598.079	48.43	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
3658.592	46.22	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
8416.658	47.08	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12589.416	47.54	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

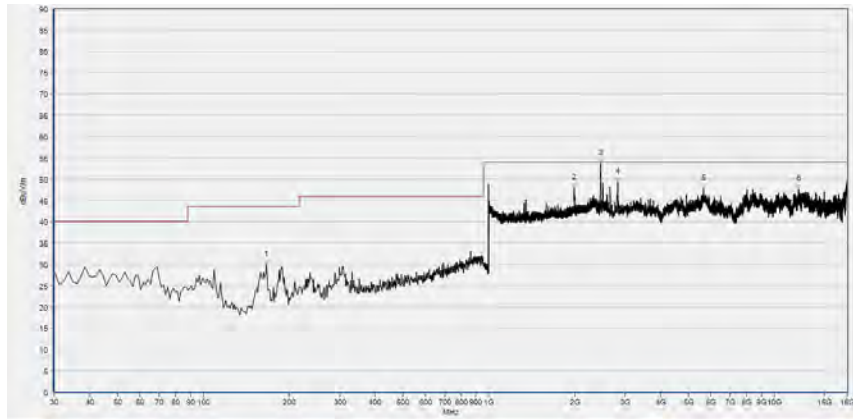
(Antenna Horizontal, 30MHz to 18GHz)



Fre. (MHz)	Pk (dBµV/m)	QP (dBµV/m)	AV (dBµV/m)	Limit-PK (dBµV/m)	Limit-QP (dBµV/m)	Limit-AV (dBµV/m)	Antenna	Verdict
265.519	27.08	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1993.037	47.47	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
2661.611	46.62	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
4876.814	47.57	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
9018.767	47.85	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12183.342	48.87	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

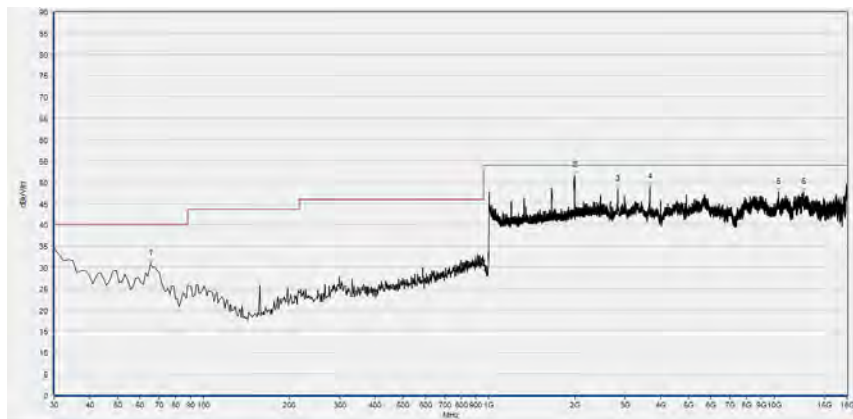
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel = 11



Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
165.970	29.76	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1993.677	47.86	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
2462.985	53.59	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
2832.442	49.34	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5652.555	47.69	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12166.539	47.58	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

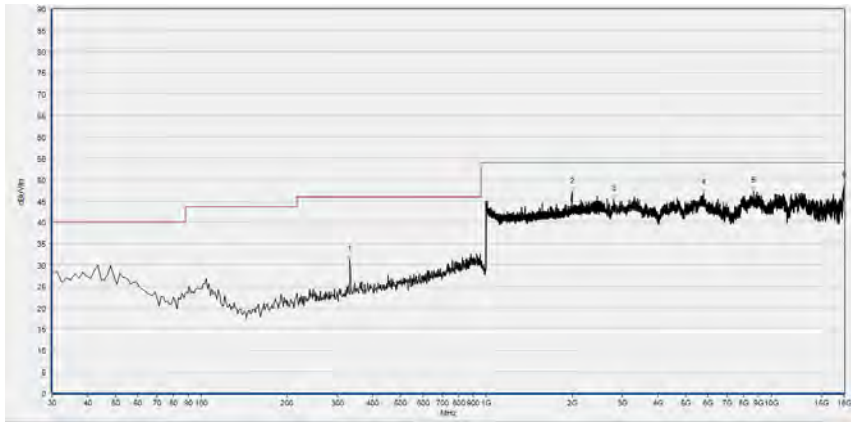


Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
65.207	30.82	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
1999.000	51.41	N/A	31.66	74.00	N/A	54.00	Vertical	PASS
2832.442	48.33	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
3658.592	48.70	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
10335.006	47.57	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12695.836	47.60	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

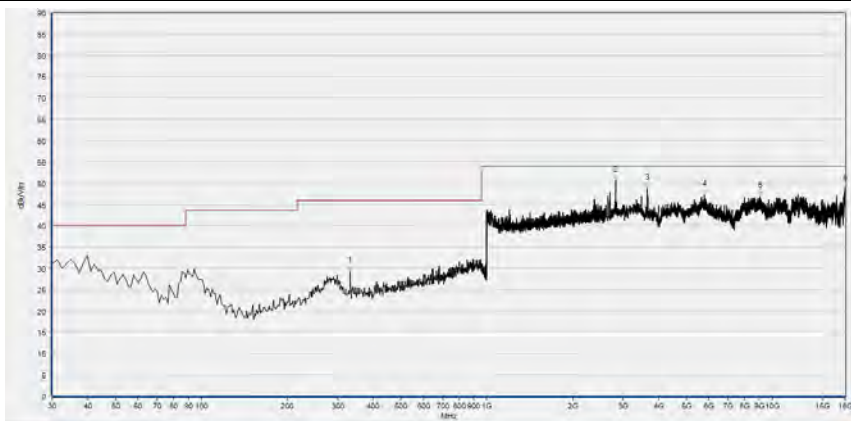
**802.11ax (HEW20)(RU26) Test mode**

Plots for Channel = 1



Fre. (MHz)	Pk (dBµV/m)	QP (dBµV/m)	AV (dBµV/m)	Limit-PK (dBµV/m)	Limit-QP (dBµV/m)	Limit-AV (dBµV/m)	Antenna	Verdict
332.290	31.20	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
1998.159	47.09	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
2804.437	45.49	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5781.378	46.72	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
8646.299	47.19	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
17957.992	48.41	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

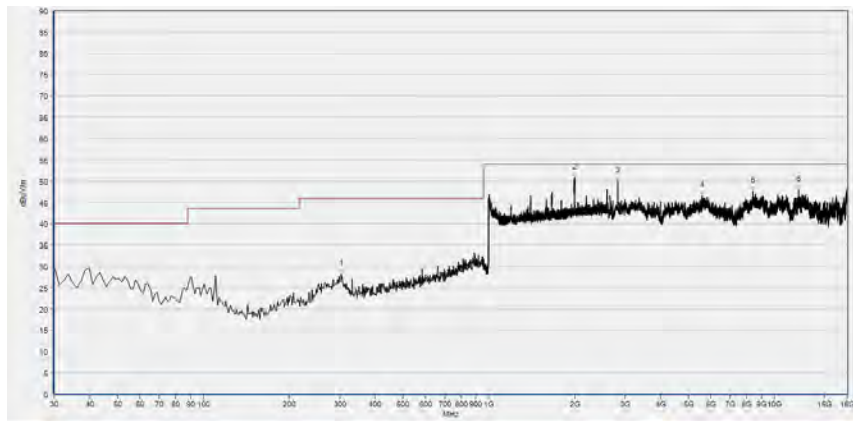


Fre. (MHz)	Pk (dBµV/m)	QP (dBµV/m)	AV (dBµV/m)	Limit-PK (dBµV/m)	Limit-QP (dBµV/m)	Limit-AV (dBµV/m)	Antenna	Verdict
332.290	29.41	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
2823.100	50.22	N/A	32.80	74.00	N/A	54.00	Vertical	PASS
3650.900	48.72	N/A	31.97	74.00	N/A	54.00	Vertical	PASS
5795.381	47.24	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
9080.378	46.97	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
17957.992	48.53	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

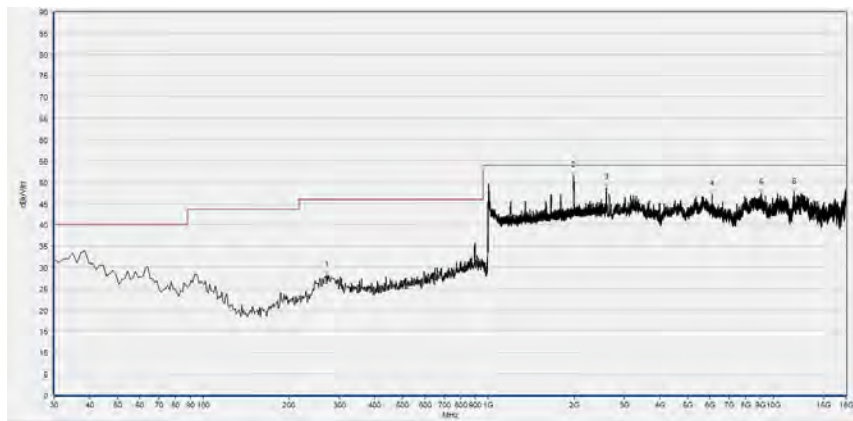


Plot for Channel = 6



Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
304.368	28.15	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
1993.100	50.75	N/A	32.21	74.00	N/A	54.00	Horizontal	PASS
2820.800	50.00	N/A	33.76	74.00	N/A	54.00	Horizontal	PASS
5590.944	46.51	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
8430.660	47.59	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12144.135	47.90	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

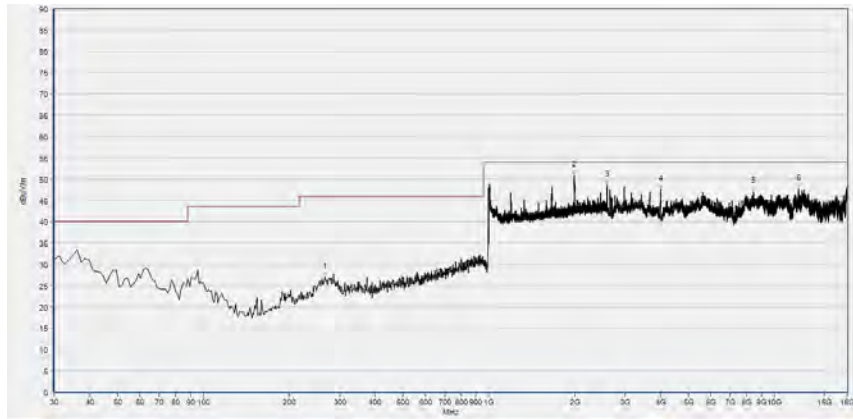
(Antenna Horizontal, 30MHz to 18GHz)



Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
271.589	28.21	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1996.600	51.48	N/A	31.67	74.00	N/A	54.00	Vertical	PASS
2594.500	48.78	N/A	32.25	74.00	N/A	54.00	Vertical	PASS
6089.434	47.05	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
9071.977	47.37	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
11796.872	47.54	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

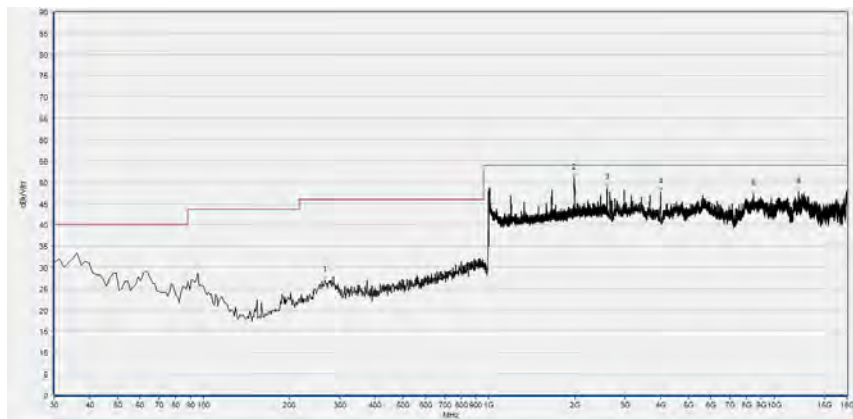
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel = 11



Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
246.095	27.27	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1198.479	45.68	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
2462.345	55.75	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
2502.700	51.28	N/A	36.00	74.00	N/A	54.00	Horizontal	PASS
4689.180	46.04	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
8595.890	47.74	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)



Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
266.733	26.91	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
1996.600	50.95	N/A	31.54	74.00	N/A	54.00	Vertical	PASS
2593.597	48.59	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
3991.853	47.64	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
8475.468	47.13	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12194.544	47.76	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

## Annex A Test Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for test performed on the EUT as specified in CISPR 16-1-2:

Test items	Uncertainty
Peak Output Power	$\pm 2.22\text{dB}$
Power spectral density (PSD)	$\pm 2.22\text{dB}$
Bandwidth	$\pm 5\%$
Conducted Spurious Emission	$\pm 2.77\text{dB}$
Restricted Frequency Bands	$\pm 5\%$
Radiated Emission	$\pm 2.95\text{dB}$
Conducted Emission	$\pm 2.44\text{dB}$

This uncertainty represent an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of  $k=2$



## Annex B Testing Laboratory Information

### 1. Identification of the Responsible Testing Laboratory

<b>Laboratory Name:</b>	Shenzhen Morlab Communications Technology Co., Ltd. Morlab Laboratory
<b>Laboratory Address:</b>	FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China
<b>Telephone:</b>	+86 755 36698555
<b>Facsimile:</b>	+86 755 36698525

### 2. Identification of the Responsible Testing Location

<b>Name:</b>	Shenzhen Morlab Communications Technology Co., Ltd. Morlab Laboratory
<b>Address:</b>	FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China

### 3. Facilities and Accreditations

All measurement facilities used to collect the measurement data are located at FL.3, Building A, FeiYang Science Park, Block 67, BaoAn District, Shenzhen, 518101 P. R. China. The test site is constructed in conformance with the requirements of ANSI C63.10-2013 and CISPR Publication 22; the FCC designation number is CN1192, the test firm registration number is 226174.



#### 4. Test Equipments Utilized

##### 4.1 Conducted Test Equipments

Equipment Name	Serial No.	Type	Manufacturer	Cal. Date	Cal. Due
Attenuator 1	(N/A.)	10dB	Resent	N/A	N/A
EXA Signal Analyzer	MY53470836	N9010A	Agilent	2019.04.09	2020.04.08
USB Wideband Power Sensor	MY54210011	U2021XA	Agilent	2019.04.16	2020.04.15
RF cable (30MHz-26GHz)	CB01	RF01	Morlab	N/A	N/A
Coaxial cable	CB02	RF02	Morlab	N/A	N/A
SMA connector	CN01	RF03	HUBER-SUHNER	N/A	N/A
Computer	T430i	Think Pad	Lenovo	N/A	N/A

##### 4.2 Conducted Emission Test Equipments

Equipment Name	Serial No.	Type	Manufacturer	Cal. Date	Cal. Due
Receiver	MY56400093	N9038A	KEYSIGHT	2019.05.08	2020.05.09
LISN	812744	NSLK 8127	Schwarzbeck	2019.05.08	2020.05.09
Pulse Limiter (20dB)	9391	VTSD 9561-D	Schwarzbeck	2019.05.08	2020.05.09
Coaxial cable(BNC) (30MHz-26GHz)	CB01	EMC01	Morlab	N/A	N/A
Adapter	NA	HA-190501 00UU	HONGGUAN GDE	N/A	N/A
Mobile phone	FFMZGMJ9J C6F	iPhone 8	Apple	N/A	N/A

##### 4.3 List of Software Used

Description	Manufacturer	Software Version
Test system	Tonsend	V2.6
Power Panel	Agilent	V3.8
MORLAB EMCR V1.2	MORLAB	V1.0

**4.4 Radiated Test Equipments**

Equipment Name	Serial No.	Type	Manufacturer	Cal. Date	Cal. Due
Receiver	MY54130016	N9038A	Agilent	2019.07.29	2020.07.28
Test Antenna - Bi-Log	9163-519	VULB 9163	Schwarzbeck	2019.08.23	2020.08.22
Test Antenna - Loop	1519-022	FMZB1519	Schwarzbeck	2019.02.14	2022.02.13
Test Antenna – Horn	01774	BBHA 9120D	Schwarzbeck	2019.05.24	2020.05.23
Test Antenna – Horn	BBHA9170 #774	BBHA9170	Schwarzbeck	2019.07.26	2020.07.25
Coaxial cable (N male) (9KHz-30MHz)	CB04	EMC04	Morlab	N/A	N/A
Coaxial cable (N male) (30MHz-26GHz)	CB02	EMC02	Morlab	N/A	N/A
Coaxial cable(N male) (30MHz-26GHz)	CB03	EMC03	Morlab	N/A	N/A
1-18GHz pre-Amplifier	MA02	TS-PR18	Rohde& Schwarz	2019.05.08	2020.05.09
18-26.5GHz pre-Amplifier	MA03	TS-PR18	Rohde& Schwarz	2019.05.08	2020.05.09
Notch Filter	N/A	WRCG-2400-2483.5-60SS	Wainwright	2019.12.01	2020.12.01
Anechoic Chamber	N/A	9m*6m*6m	CRT	2020.01.06	2023.01.05

END OF REPORT