



REPORT No. : SZ22010020W03

TEST REPORT

APPLICANT : Realme Chongqing Mobile
Telecommunications Corp., Ltd.

PRODUCT NAME : Mobile Phone

MODEL NAME : RMX3521

BRAND NAME : realme

FCC ID : 2AUYFRMX3521

STANDARD(S) : 47 CFR Part 15 Subpart C

RECEIPT DATE : 2022-01-07

TEST DATE : 2022-01-14 to 2022-02-14

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Edited by:

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Shen Junsheng (Supervisor)

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Change History		
Version	Date	Reason for change
1.0	2022-02-23	First edition



1. Technical Information

Note: Provide by applicant.

1.1. Applicant and Manufacturer Information

Applicant:	Realme Chongqing Mobile Telecommunications Corp., Ltd.
Applicant Address:	No.178 Yulong Avenue, Yufengshan, Yubei District, Chongqing, China
Manufacturer:	Realme Chongqing Mobile Telecommunications Corp., Ltd.
Manufacturer Address:	No.178 Yulong Avenue, Yufengshan, Yubei District, Chongqing, China

1.2. Equipment Under Test (EUT) Description

Product Name:	Mobile Phone	
Sample No.:	11#	
Hardware Version:	11	
Software Version:	realme UI V3.0	
Modulation Technology:	DSSS, OFDM	
Modulation Type:	Refer to section1.3	
Wireless Technology:	802.11b, 802.11g, 802.11n (HT20), 802.11n (HT40) 802.11ac (VHT20), 802.11ac (VHT40)	
Operating Frequency Range:	2412MHz–2462MHz	
Antenna Type:	PIFA Antenna	
Antenna Gain:	0.64dBi	
Accessory Information:	Battery 1	
	Brand Name:	realme
	Model No.:	BLP883
	Serial No.:	N/A
	Capacity:	Typical: 5000mAh, Rated: 4880mAh
	Rated Voltage:	3.87V
	Charge Limit:	4.45V
	Manufacturer:	SUNWODA Electronic Co., Ltd.



Accessory Information:	Battery 2	
	Brand Name:	realme
	Model No.:	BLP883
	Serial No.:	N/A
	Capacity:	Typical: 5000mAh, Rated: 4880mAh
	Rated Voltage:	3.87V
	Charge Limit:	4.45V
	Manufacturer:	TWS Technology (Guangzhou) Limited
	AC Adapter 1	
	Brand Name:	realme
	Model No.:	VCB3HDUH
	Serial No.:	N/A
	Rated Output:	5V $\Rightarrow$ 2A or 11V $\Rightarrow$ 3A Max
	Rated Input:	100-240V $\sim$ 50/60Hz, 1.2A
	Manufacturer:	SHENZHEN HUNTKEY ELECTRIC CO LTD
	AC Adapter 2	
	Brand Name:	realme
	Model No.:	VCB3HDUH
	Serial No.:	N/A
	Rated Output:	5V $\Rightarrow$ 2A or 11V $\Rightarrow$ 3A Max
	Rated Input:	100-240V $\sim$ 50/60Hz, 1.2A
	Manufacturer:	Huizhou Golden Lake Industrial Co.,Ltd.
	AC Adapter 3	
	Brand Name:	realme
	Model No.:	VCB3HDUH
	Serial No.:	N/A
	Rated Output:	5V $\Rightarrow$ 2A or 11V $\Rightarrow$ 3A Max
	Rated Input:	100-240V $\sim$ 50/60Hz, 1.2A
	Manufacturer:	Dongguan YOHOO Electronic Technology Co., Ltd.



Accessory Information:	USB Cable 1	
	Model No.:	DL143
	USB Cable 2	
	Model No.:	DL150
	Earphone	
	Model No.:	MH156
	Length:	1.2m

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

Note 2: For a more detailed description, please refer to Specification or User's Manual supplied by the applicant and/or manufacturer.

1.3. Modulation Type and Data Rate of EUT

Mode	Bandwidth (MHz)	Modulation Technology	Modulation Type	Data Rate	RU Size
802.11b	20	DSSS	DBPSK	1/2/5.5/11Mbps	N/A
			DQPSK		
			CCK		
802.11g	20	OFDM	BPSK	6/9/12/18/24/36/48/54 Mbps	N/A
			QPSK		
			16QAM		
			64QAM		
802.11n	20/40 (HT20/40)	OFDM	BPSK	MCS0~MCS7	N/A
			QPSK		
			16QAM		
			64QAM		
802.11ac	20/40 (VHT20/40)	OFDM	BPSK	MCS0~MCS9	NA
			QPSK		
			16QAM		
			64QAM		
			256QAM		

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) /ac(VHT20)	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)/ ac(VHT40)	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	Jan 27, 2022	Su Xiaoxian	PASS	No deviation
3	15.247(b)	Maximum Peak and Average Conducted Output Power	Feb 04, 2022	Su Xiaoxian	PASS	No deviation
4	15.247(a)	Bandwidth	Feb 04, 2022	Su Xiaoxian	PASS	No deviation
5	15.247(d)	Conducted Spurious Emission and Band Edge	Feb 04, 2022	Su Xiaoxian	PASS	No deviation
6	15.247(e)	Power Spectral Density	Feb 04, 2022	Su Xiaoxian	PASS	No deviation
7	15.207	Conducted Emission	Jan 14, 2022	Huang Zhiye	PASS	No deviation
8	15.247(d)	Restricted Frequency Bands	Feb 11&14, 2022	Su Zhan	PASS	No deviation
9	15.209, 15.247(d)	Radiated Emission	Feb 08, 2022	Su Zhan	PASS	No deviation

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

Note 2: The path loss during the RF test is calibrated to correct the results by the offset setting



in the test equipments. The ref offset 11.5dB contains two parts that cable loss 1.5dB and Attenuator 10dB.

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

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

1.6. Environmental Conditions

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

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



2. 47 CFR Part 15C Requirements

2.1. Antenna Requirement

2.1.1. Applicable Standard

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

2.1.2. Test Result: Compliant

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

2.2. Duty Cycle of Test Signal

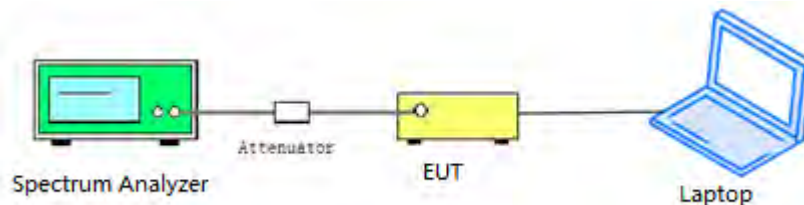
2.2.1. Requirement

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.

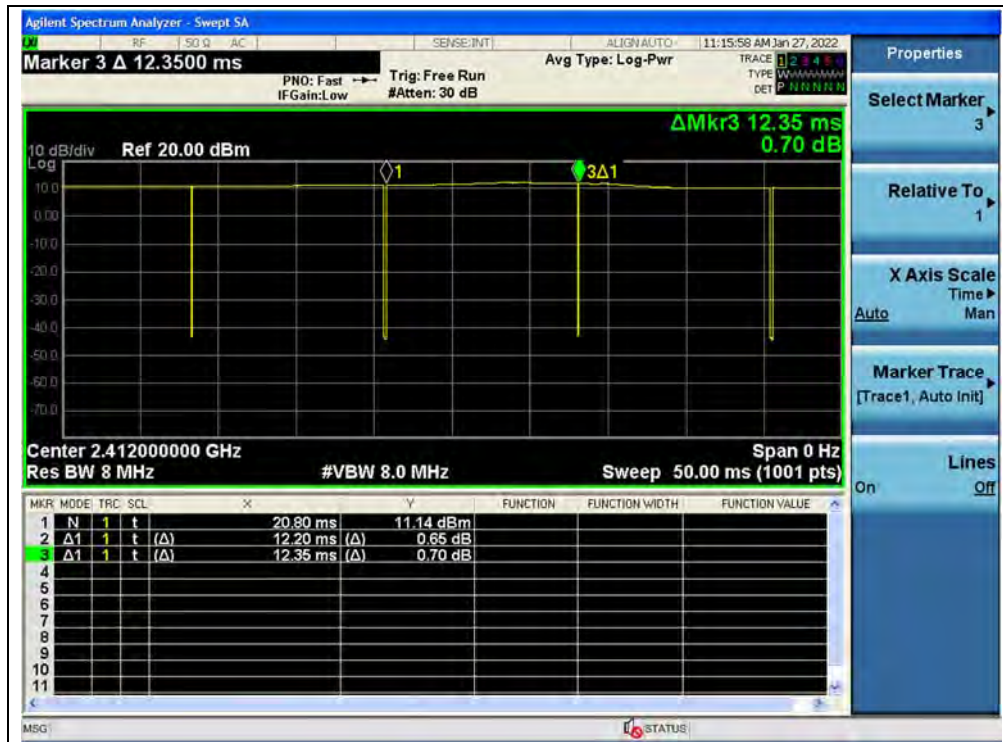


2.2.3. Test Result

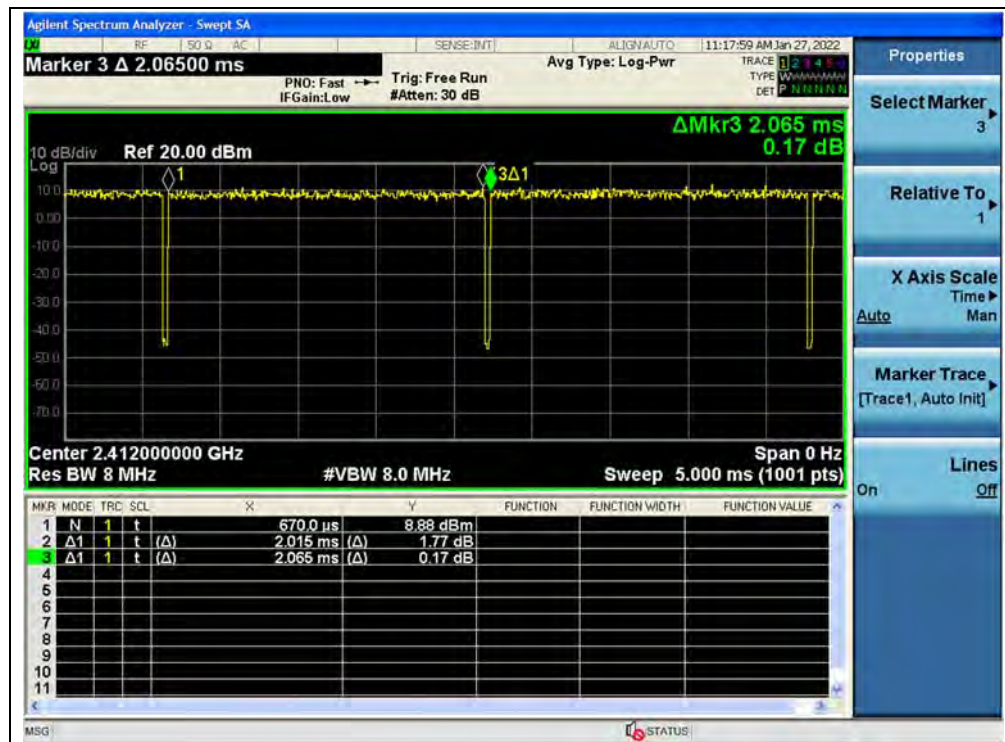
A. Test Verdict:

Test Mode	Duty Cycle (%) (D)	Duty Factor ($10 \cdot \lg[1/D]$)
802.11b	98.79	0.05
802.11g	97.58	0.11
802.11n (HT20)	97.92	0.09
802.11n (HT40)	97.66	0.10
802.11ac (VHT20)	97.68	0.10
802.11ac (VHT40)	89.50	0.48

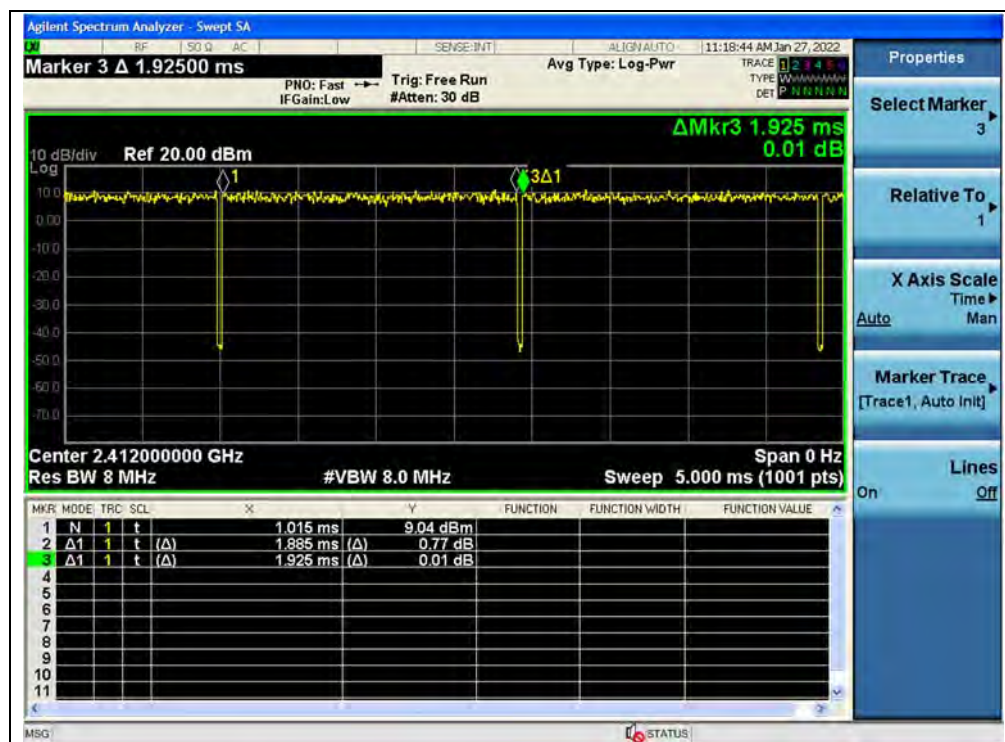
B. Test Plot:



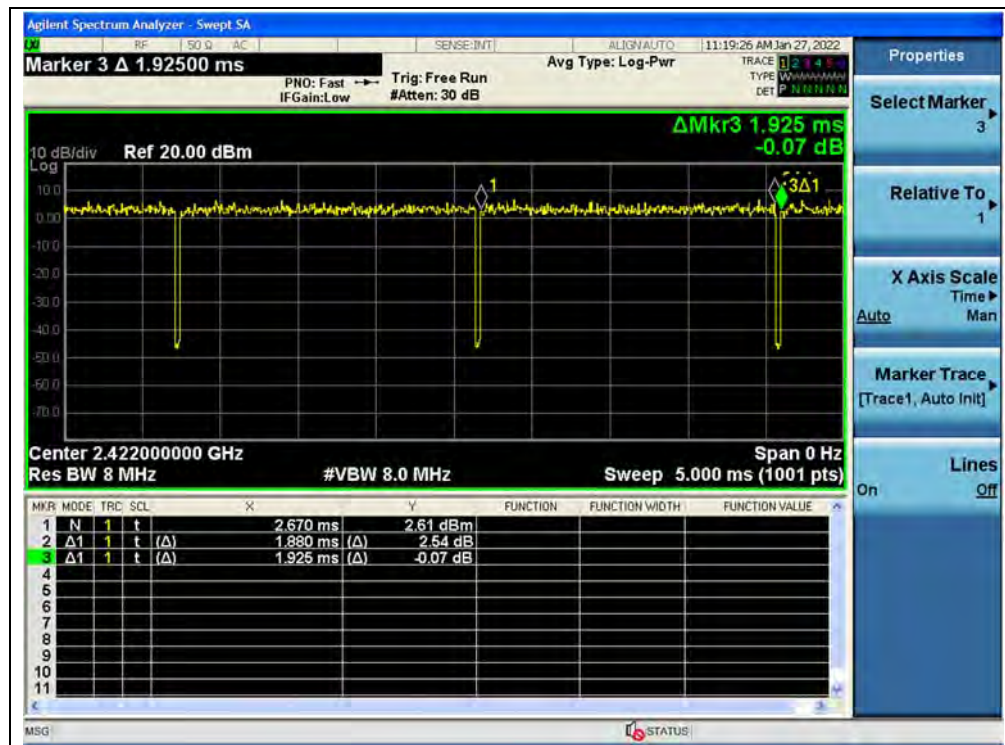
(Channel 1, 802.11b)



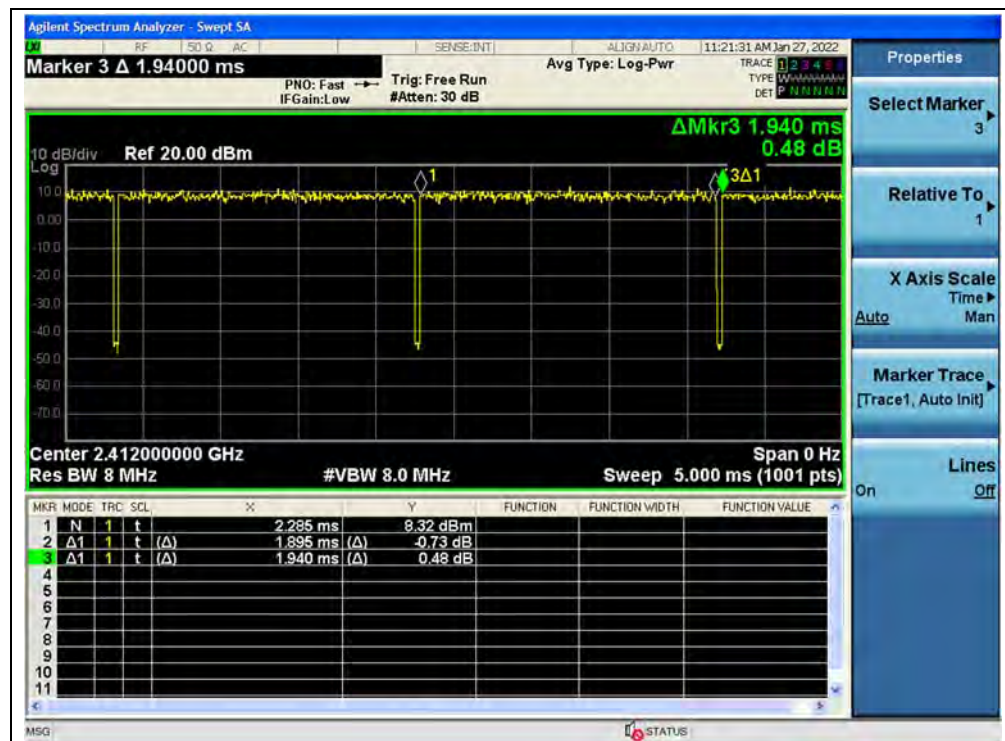
(Channel 1, 802.11g)



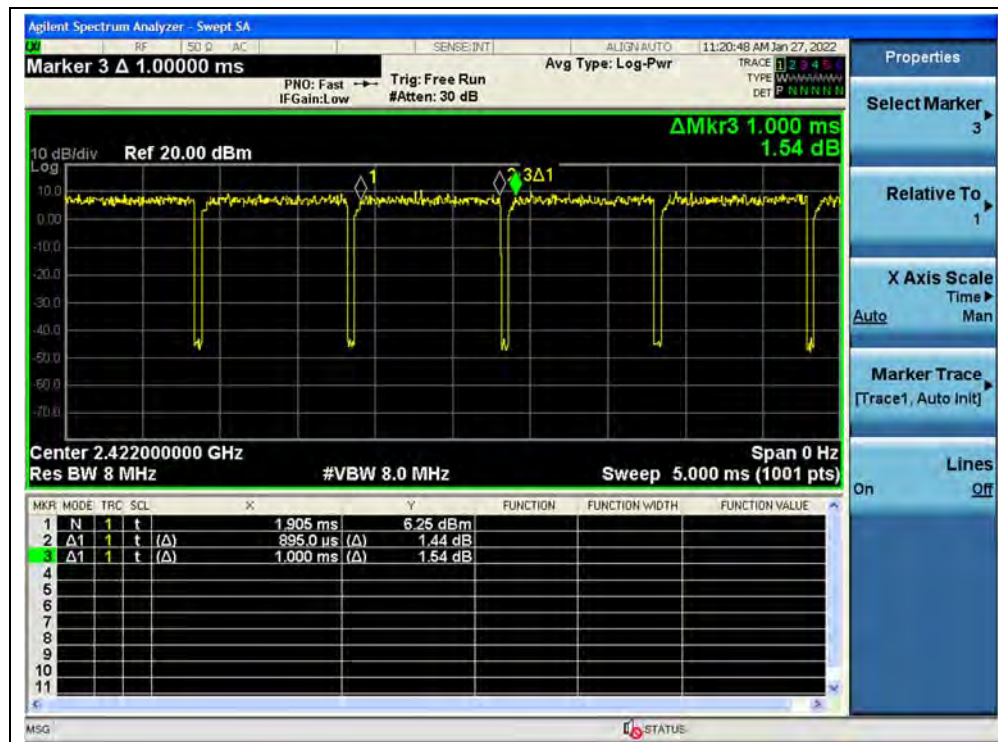
(Channel 1, 802.11n (HT20))



(Channel 3, 802.11n (HT40))



(Channel 1, 802.11ac (VHT20))



(Channel 3, 802.11ac (VHT40))

2.3. Maximum Peak and Average Conducted Output Power

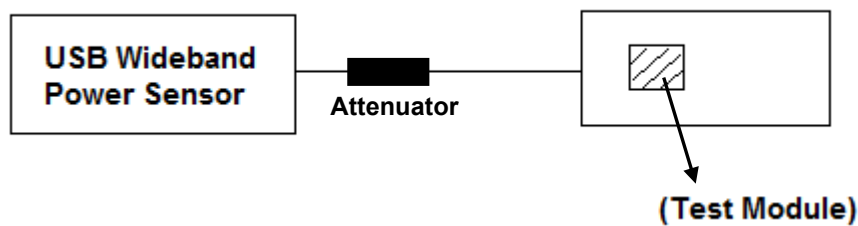
2.3.1. Requirement

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 Mode

Channel	Frequency (MHz)	Measured Output Peak Power		Limit		Verdict
		dBm	W	dBm	W	
1	2412	20.90	0.123	30	1	PASS
6	2437	19.82	0.096			PASS
11	2462	21.43	0.139			PASS

802.11g Mode

Channel	Frequency (MHz)	Measured Output Peak Power		Limit		Verdict
		dBm	W	dBm	W	
1	2412	21.78	0.151	30	1	PASS
6	2437	20.95	0.124			PASS
11	2462	22.31	0.170			PASS

802.11n (HT20) Mode

Channel	Frequency (MHz)	Measured Output Peak Power		Limit		Verdict
		dBm	W	dBm	W	
1	2412	21.70	0.148	30	1	PASS
6	2437	20.85	0.122			PASS
11	2462	22.21	0.166			PASS

802.11n (HT40) Mode

Channel	Frequency (MHz)	Measured Output Peak Power		Limit		Verdict
		dBm	W	dBm	W	
3	2422	21.79	0.151	30	1	PASS
6	2437	22.59	0.182			PASS
9	2452	22.54	0.179			PASS

**802.11ac (VHT20) Mode**

Channel	Frequency (MHz)	Measured Output Peak Power		Limit		Verdict
		dBm	W	dBm	W	
1	2412	21.74	0.149	30	1	PASS
6	2437	20.80	0.120			PASS
11	2462	22.13	0.163			PASS

802.11ac (VHT40) Mode

Channel	Frequency (MHz)	Measured Output Peak Power		Limit		Verdict
		dBm	W	dBm	W	
3	2422	21.88	0.154	30	1	PASS
6	2437	22.65	0.184			PASS
9	2452	22.45	0.176			PASS

**Maximum Average Conducted Output Power****802.11b Mode**

Channel	Frequency (MHz)	Average Power				Limit		Verdict
		Measured	Duty Factor	Duty Factor Calculated				
		dBm		dBm	W	dBm	W	
1	2412	18.50	0.05	18.55	0.072	30	1	PASS
6	2437	16.79		16.84	0.048			PASS
11	2462	18.77		18.82	0.076			PASS

802.11g Mode

Channel	Frequency (MHz)	Average Power				Limit		Verdict
		Measured	Duty Factor	Duty Factor Calculated				
		dBm		dBm	W	dBm	W	
1	2412	17.20	0.11	17.31	0.054	30	1	PASS
6	2437	16.49		16.60	0.046			PASS
11	2462	17.62		17.73	0.059			PASS

802.11n (HT20) Mode

Channel	Frequency (MHz)	Average Power				Limit		Verdict
		Measured	Duty Factor	Duty Factor Calculated				
		dBm		dBm	W	dBm	W	
1	2412	17.02	0.09	17.11	0.051	30	1	PASS
6	2437	16.54		16.63	0.046			PASS
11	2462	17.36		17.45	0.056			PASS

802.11n (HT40) Mode

Channel	Frequency (MHz)	Average Power				Limit		Verdict
		Measured	Duty Factor	Duty Factor Calculated				
		dBm		dBm	W	dBm	W	
3	2422	17.12	0.10	17.22	0.053	30	1	PASS
6	2437	17.89		17.99	0.063			PASS
9	2452	17.56		17.66	0.058			PASS

**802.11ac (VHT20) Mode**

Channel	Frequency (MHz)	Average Power				Limit		Verdict
		Measured	Duty Factor	Duty Factor Calculated				
		dBm		dBm	W	dBm	W	
1	2412	17.04	0.10	17.14	0.052	30	1	PASS
6	2437	16.55		16.65	0.046			PASS
11	2462	17.44		17.54	0.057			PASS

802.11ac (VHT40) Mode

Channel	Frequency (MHz)	Average Power				Limit		Verdict
		Measured	Duty Factor	Duty Factor Calculated				
		dBm		dBm	W	dBm	W	
3	2422	17.14	0.48	17.62	0.058	30	1	PASS
6	2437	17.91		18.39	0.069			PASS
9	2452	17.67		18.15	0.065			PASS

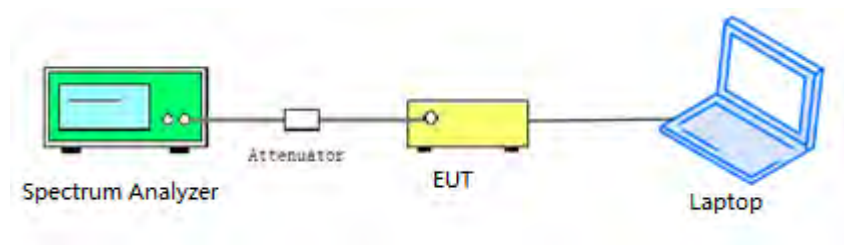
2.4. Bandwidth

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 50Ω; 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	8.574	≥500	PASS
6	2437	9.087	≥500	PASS
11	2462	7.578	≥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	14.45	≥500	PASS
6	2437	16.31	≥500	PASS
11	2462	15.24	≥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	16.36	≥500	PASS
6	2437	16.90	≥500	PASS
11	2462	16.05	≥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	32.55	≥500	PASS
6	2437	36.37	≥500	PASS
9	2452	35.00	≥500	PASS

B. Test Plot:



(Channel 3, 802.11n (HT40))



(Channel 6, 802.11n (HT40))



(Channel 9, 802.11n (HT40))

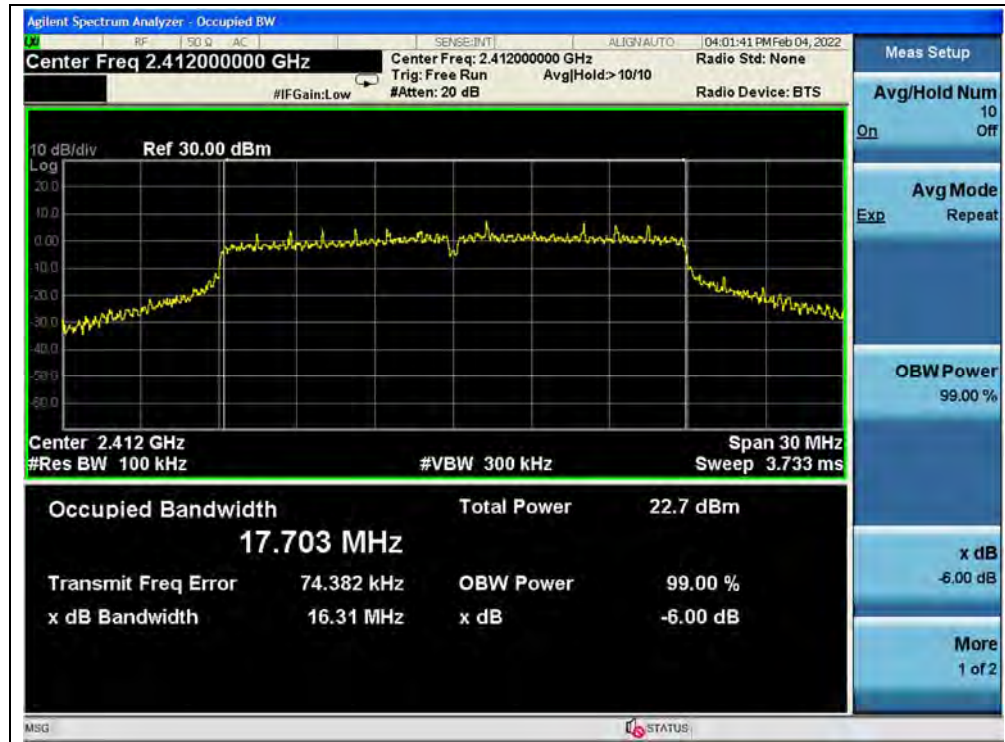


802.11ac (VHT20) Mode

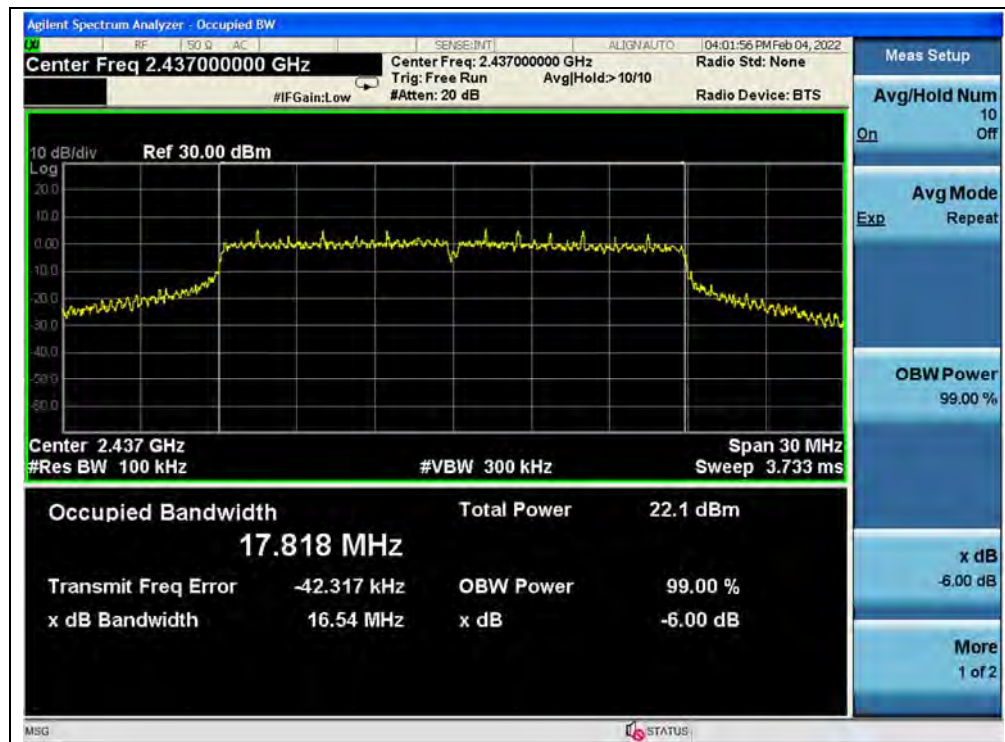
A. Test Verdict:

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limits(kHz)	Result
1	2412	16.31	≥500	PASS
6	2437	16.54	≥500	PASS
11	2462	15.45	≥500	PASS

B. Test Plot:



(Channel 1, 802.11ac (VHT20))



(Channel 6, 802.11ac (VHT20))



(Channel 11, 802.11ac (VHT20))



802.11ac (VHT40) Mode

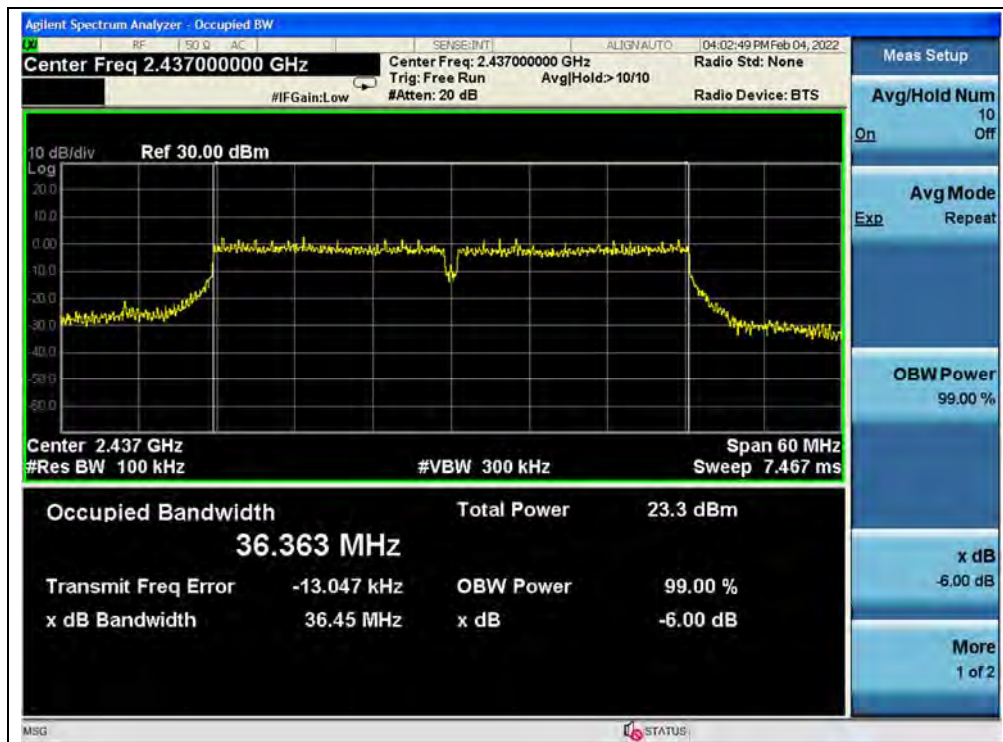
A. Test Verdict:

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limits(kHz)	Result
3	2422	33.85	≥500	PASS
6	2437	36.45	≥500	PASS
9	2452	35.09	≥500	PASS

B. Test Plot:



(Channel 3, 802.11ac (VHT40))



(Channel 6, 802.11ac (VHT40))



(Channel 9, 802.11ac (VHT40))

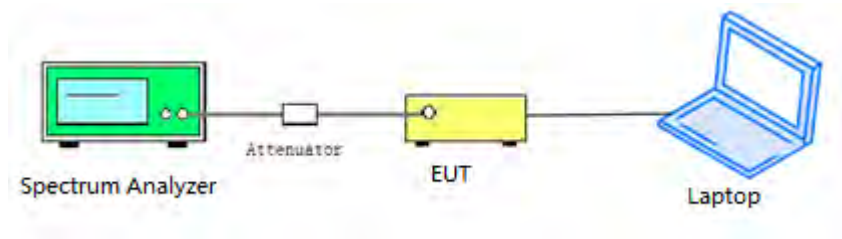
2.5. Conducted Spurious Emissions and Band Edge

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.



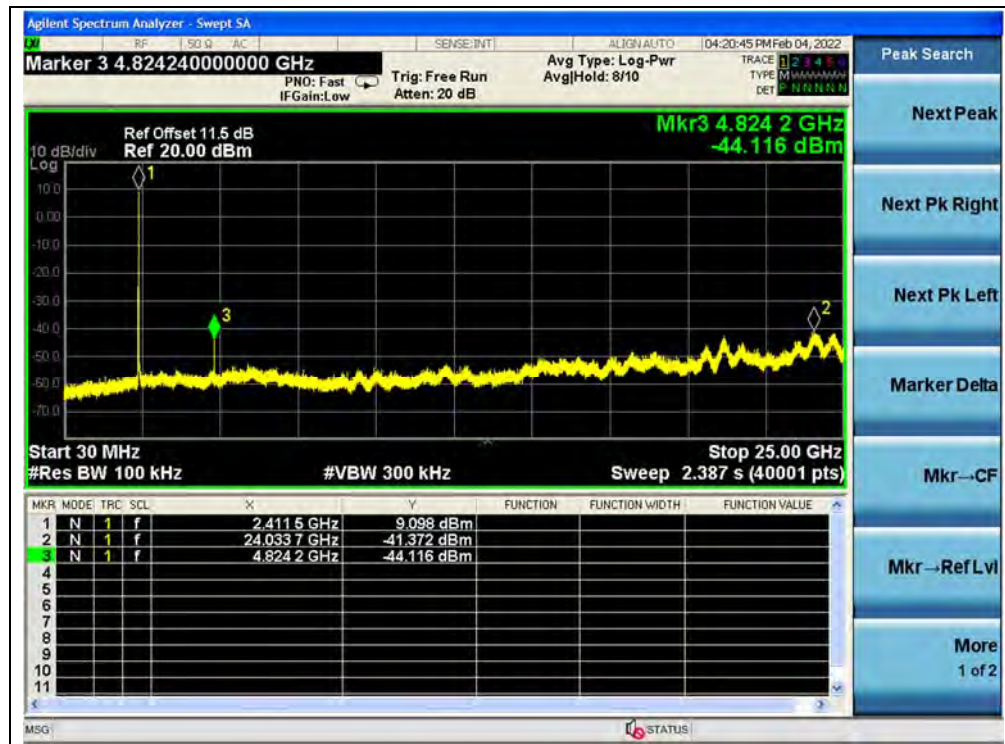
2.5.4. Test Result

802.11b Mode

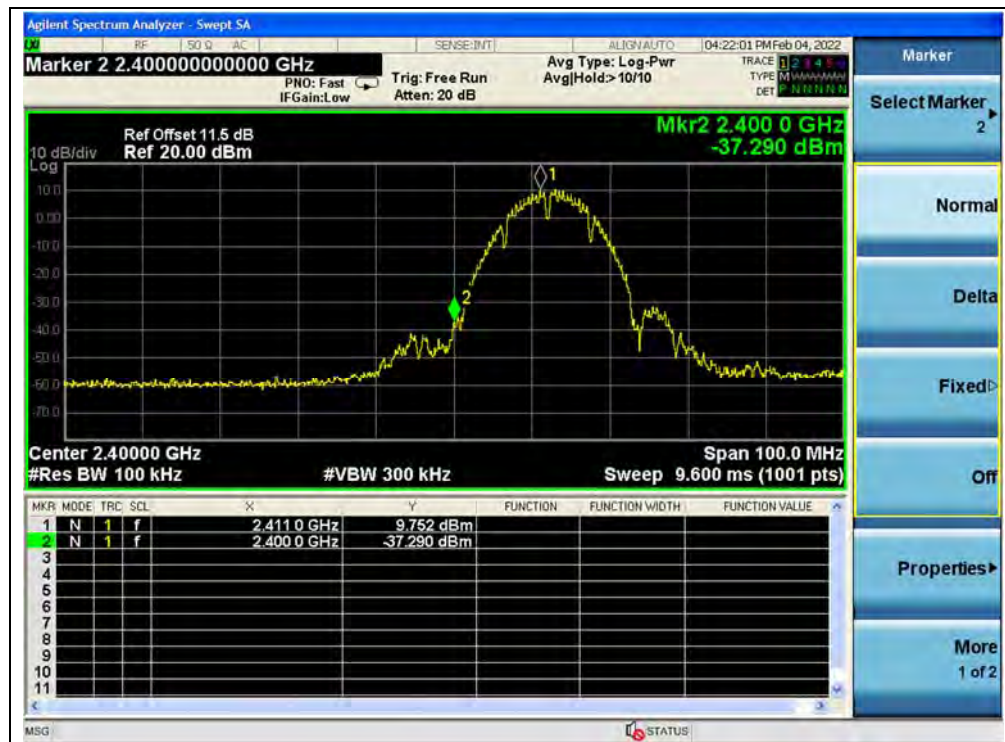
A. Test Verdict:

Channel	Frequency (MHz)	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
			Carrier Level	Calculated -20dBc Limit	
1	2412	-41.37	9.10	-10.90	PASS
6	2437	-40.63	8.51	-11.49	PASS
11	2462	-40.76	8.40	-11.60	PASS

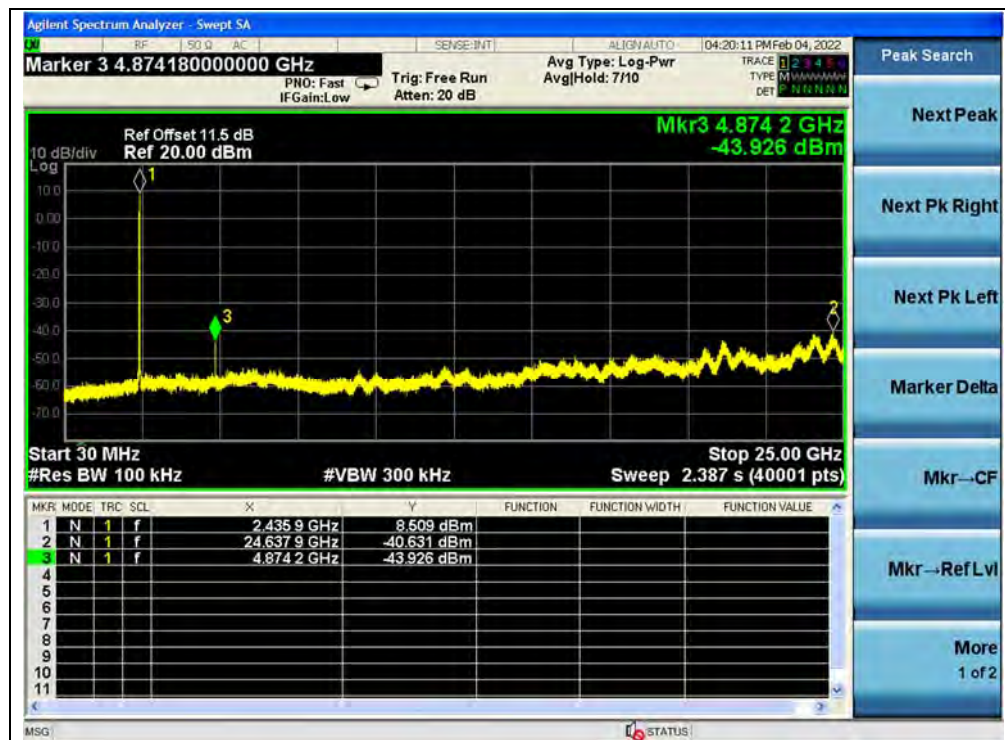
B. Test Plot:



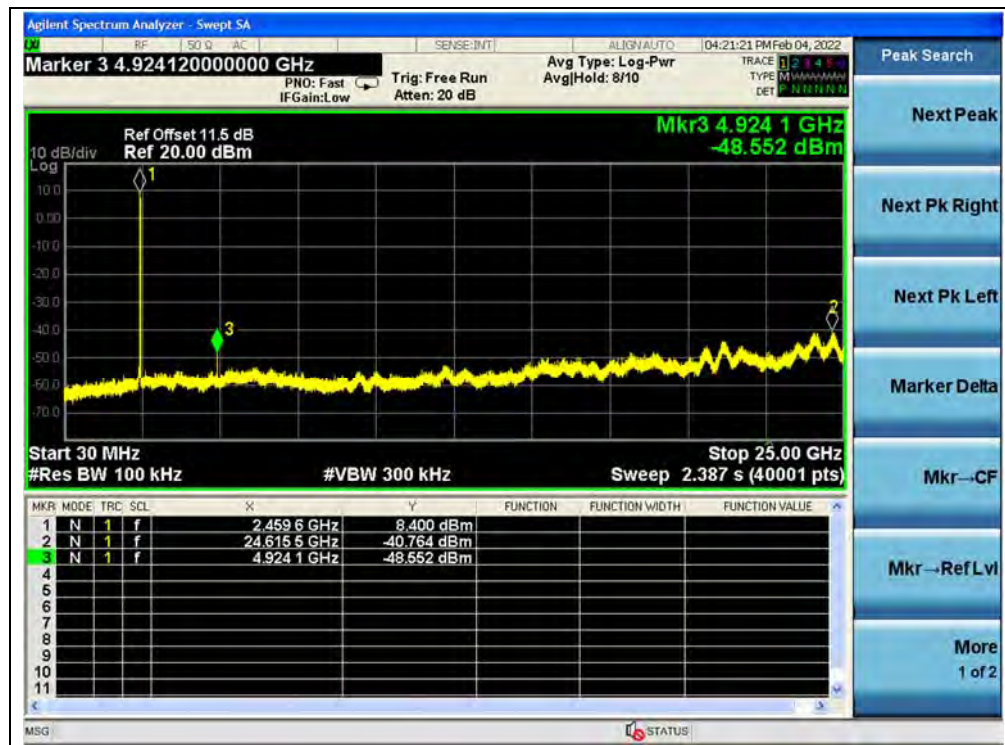
(30MHz to 25GHz, Channel 1, 802.11b)



(Band Edge, Channel 1, 802.11b)



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



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



(Band Edge, Channel 11, 802.11b)

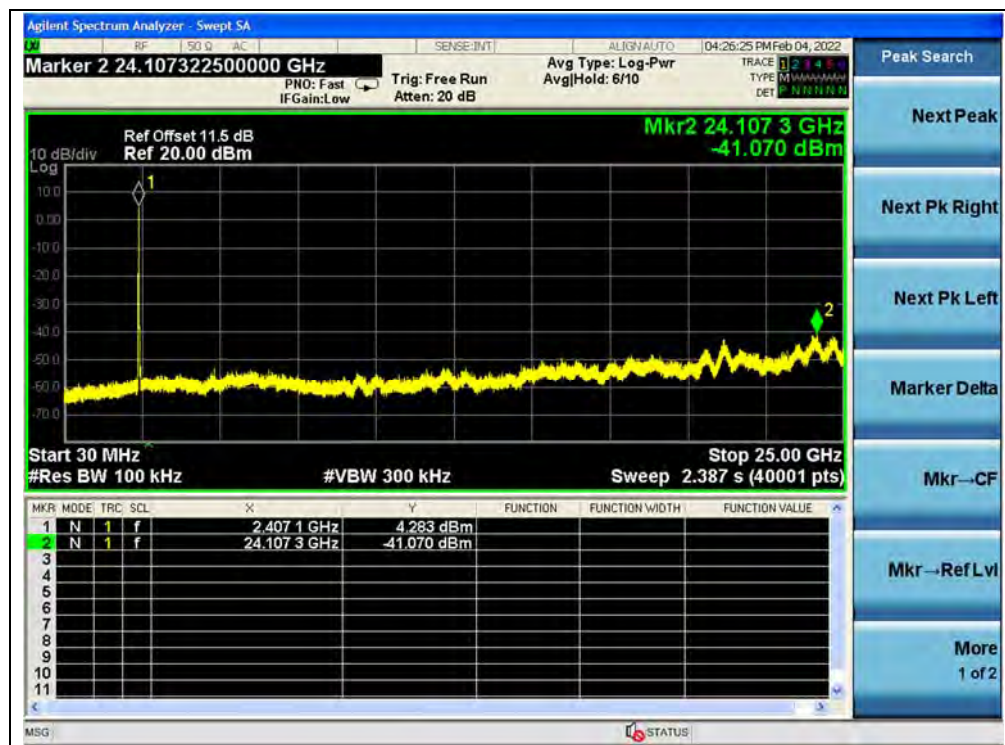


802.11g Mode

A. Test Verdict:

Channel	Frequency (MHz)	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
			Carrier Level	Calculated -20dBc Limit	
1	2412	-41.07	4.28	-15.72	PASS
6	2437	-40.84	2.40	-17.60	PASS
11	2462	-41.89	3.92	-16.08	PASS

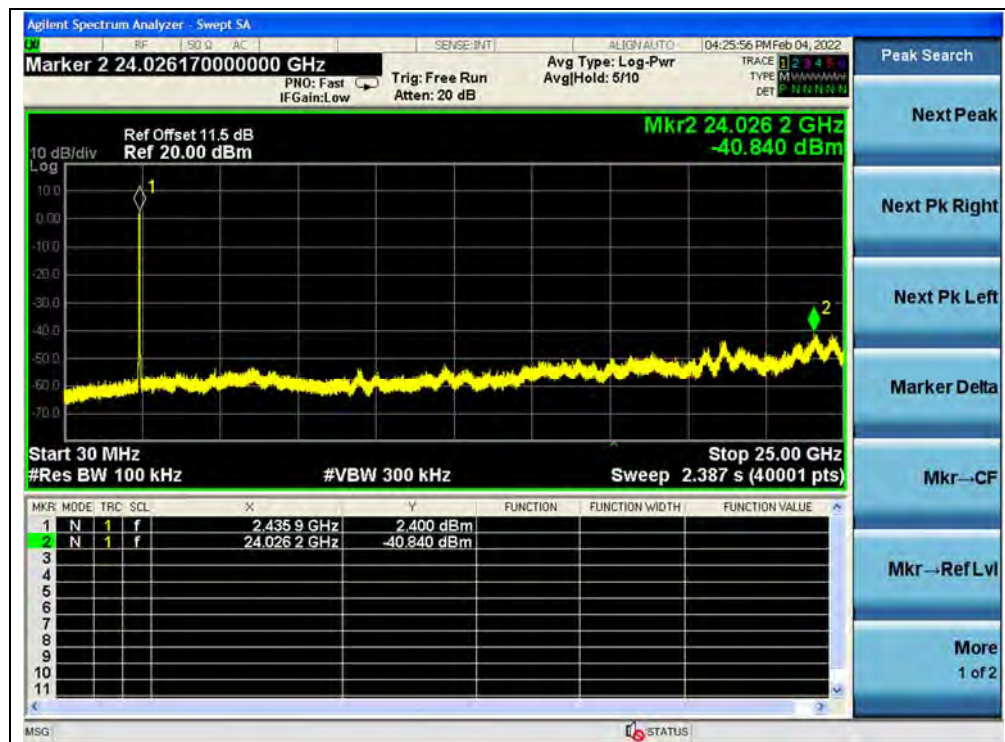
B. Test Plot:



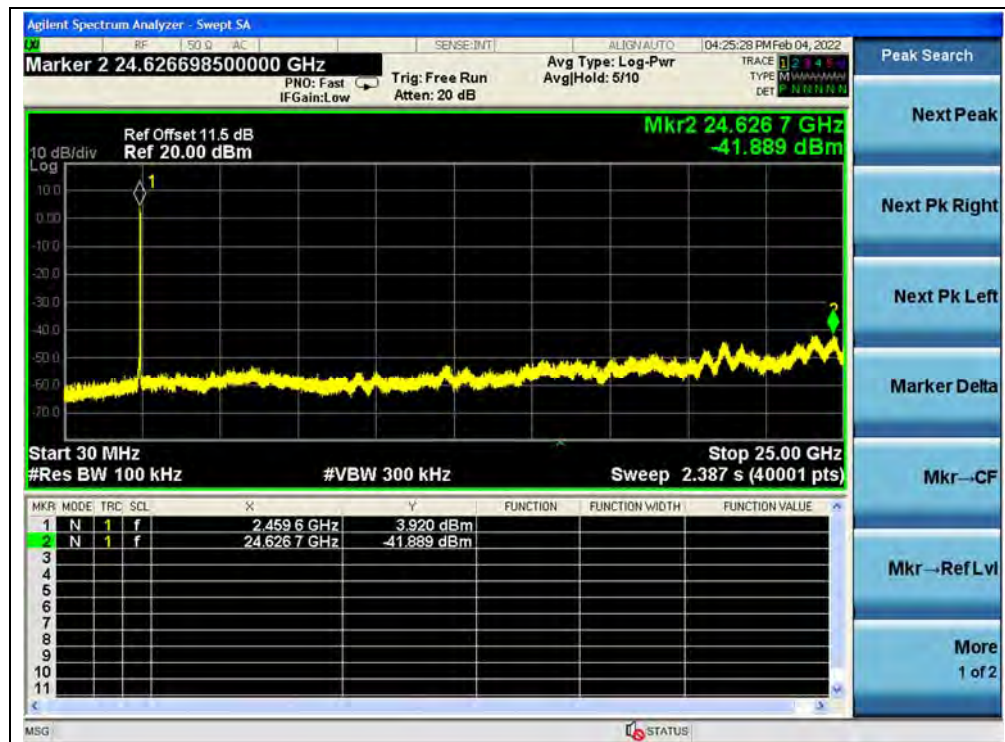
(30MHz to 25GHz, Channel 1, 802.11g)



(Band Edge, Channel 1, 802.11g)



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



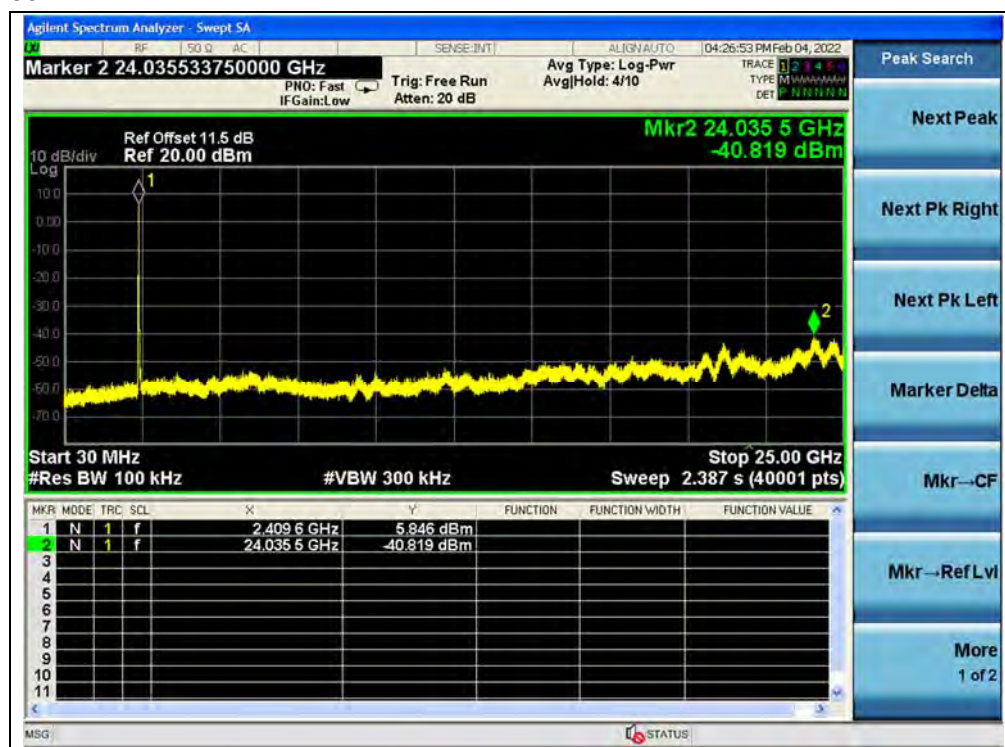
(30MHz to 25GHz, Channel 11, 802.11g)



(Band Edge, Channel 11, 802.11g)

**802.11n (HT20) Mode****A. Test Verdict:**

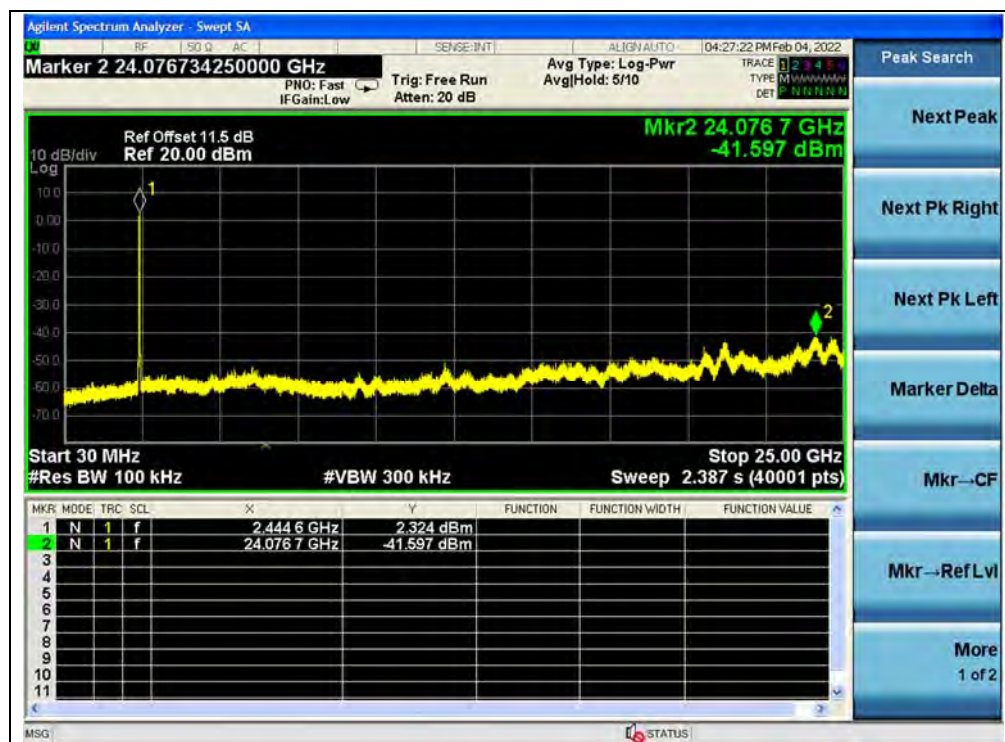
Channel	Frequency (MHz)	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
			Carrier Level	Calculated -20dBc Limit	
1	2412	-40.82	5.85	-14.15	PASS
6	2437	-41.60	2.32	-17.68	PASS
11	2462	-40.96	5.33	-14.67	PASS

B. Test Plot:

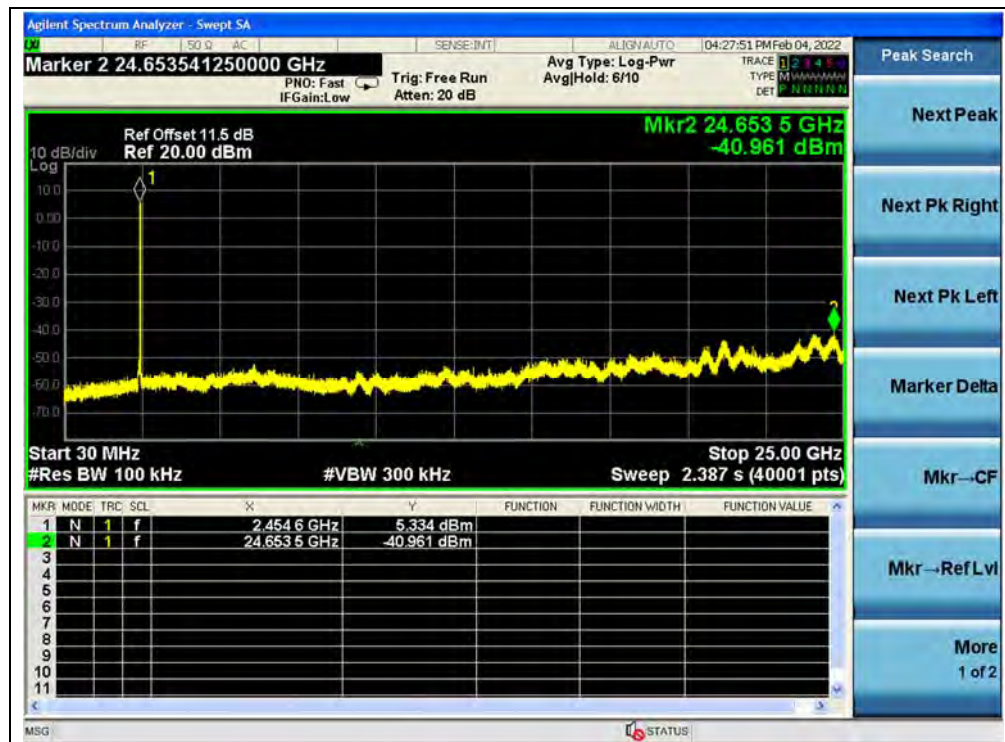
(30MHz to 25GHz, Channel 1, 802.11n (HT20))



(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))

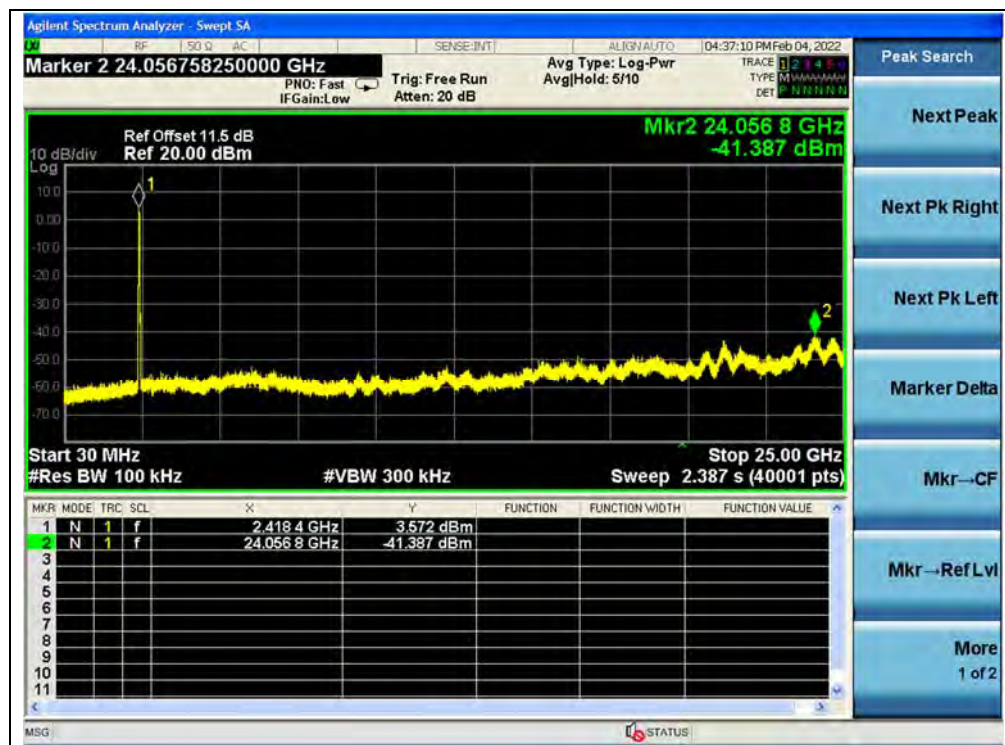


802.11n (HT40) Mode

A. Test Verdict:

Channel	Frequency (MHz)	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
			Carrier Level	Calculated -20dBc Limit	
3	2422	-41.39	3.57	-16.43	PASS
6	2437	-40.87	2.44	-17.56	PASS
9	2452	-41.10	2.68	-17.32	PASS

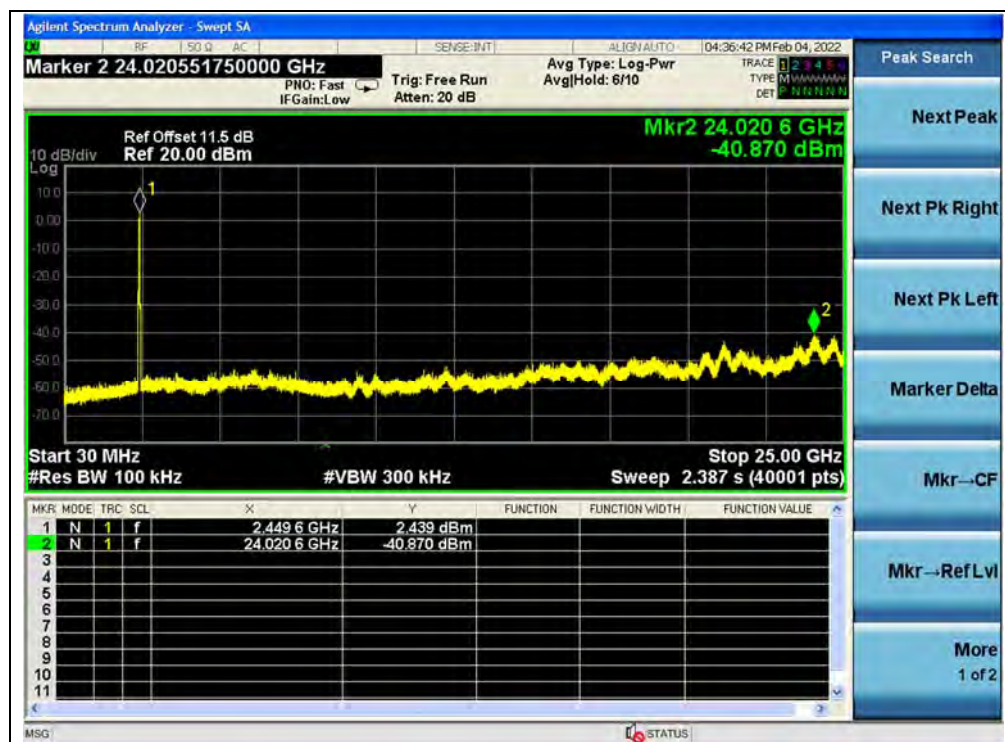
B. Test Plot:



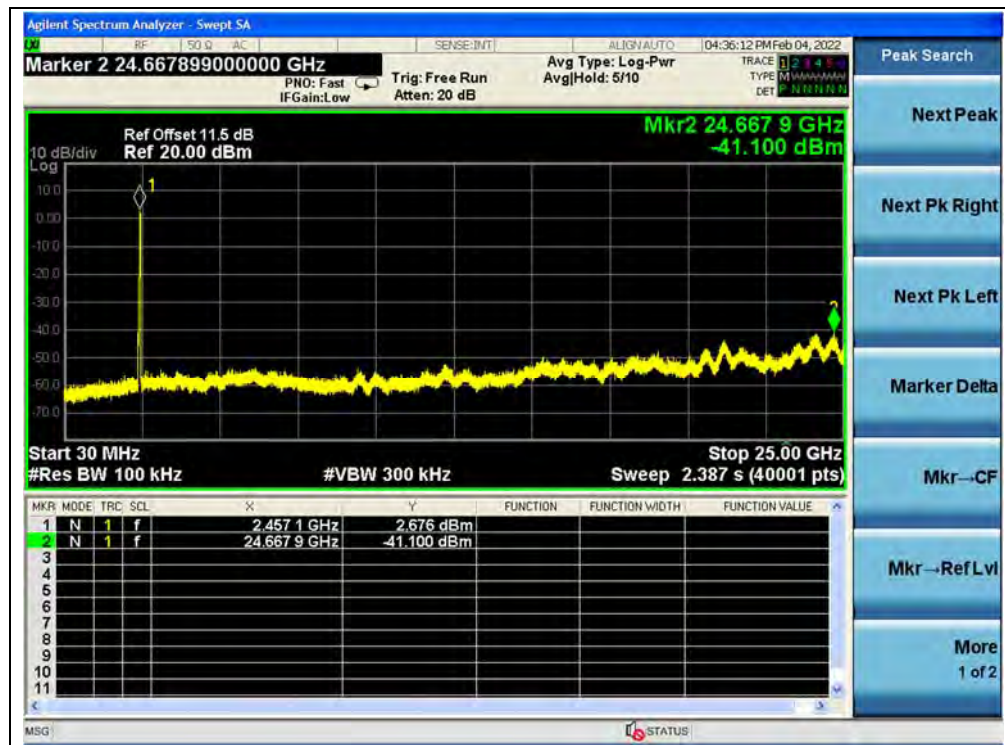
(30MHz to 25GHz, Channel 3, 802.11n (HT40))



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



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



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



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

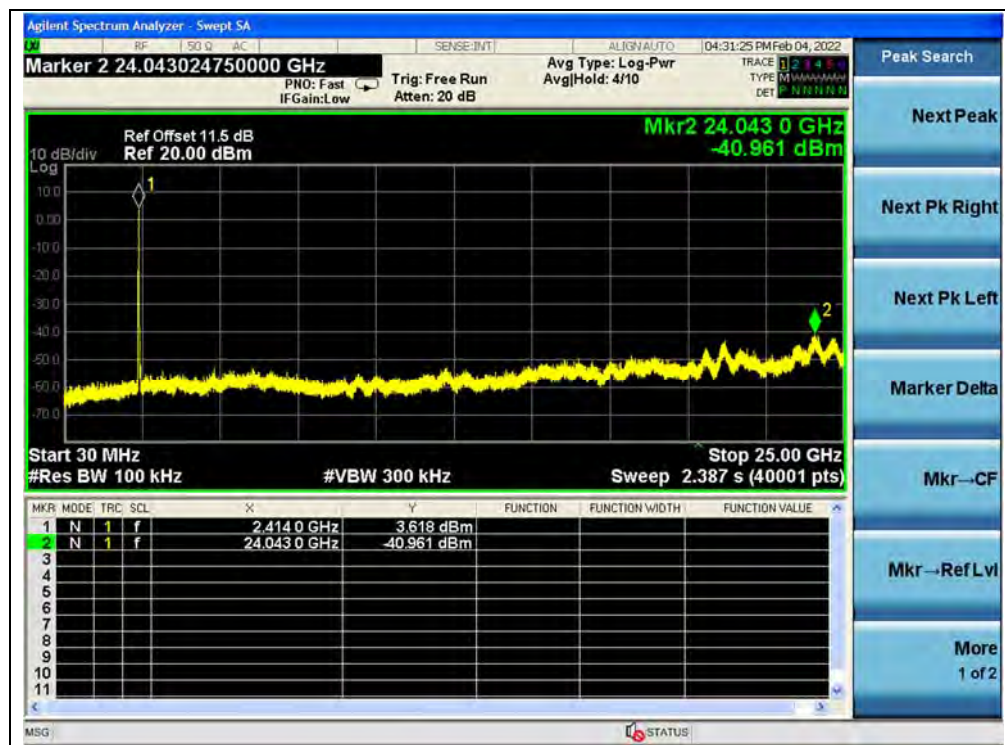


802.11ac (VHT20) Mode

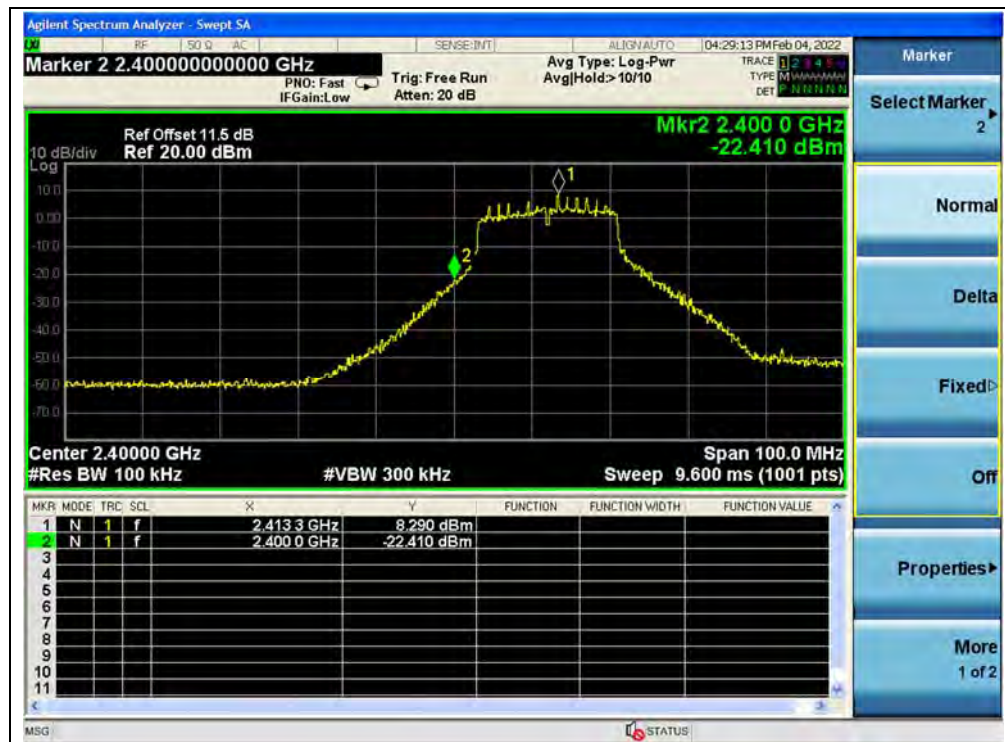
A. Test Verdict:

Channel	Frequency (MHz)	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
			Carrier Level	Calculated -20dBc Limit	
1	2412	-40.96	3.62	-16.38	PASS
6	2437	-41.24	1.81	-18.19	PASS
11	2462	-39.99	4.62	-15.38	PASS

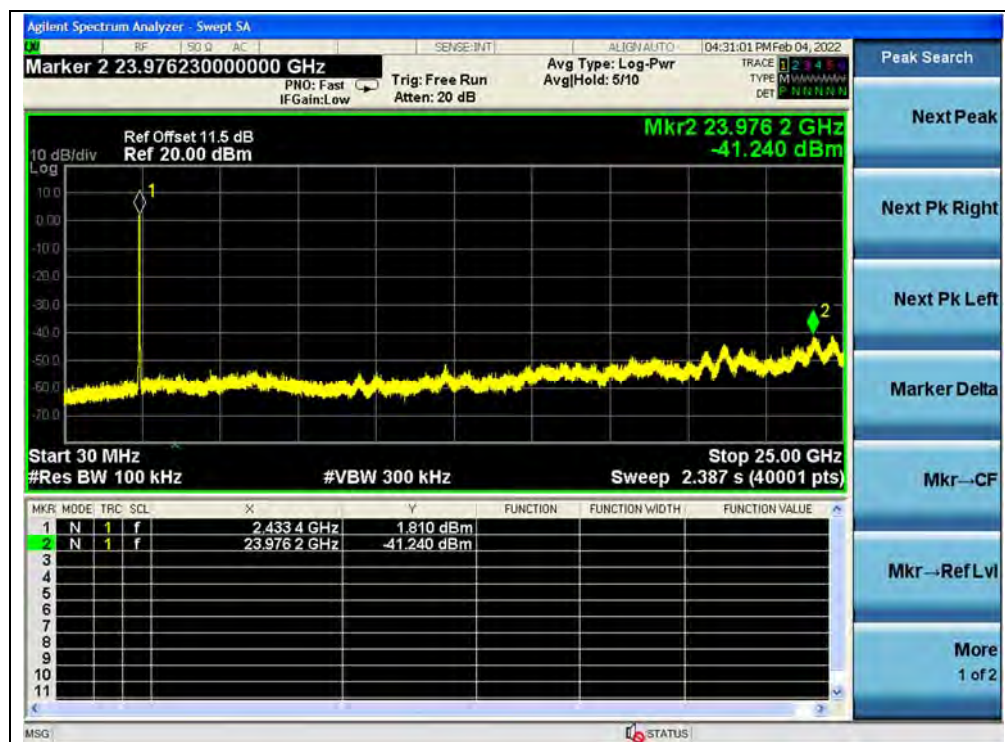
B. Test Plot:



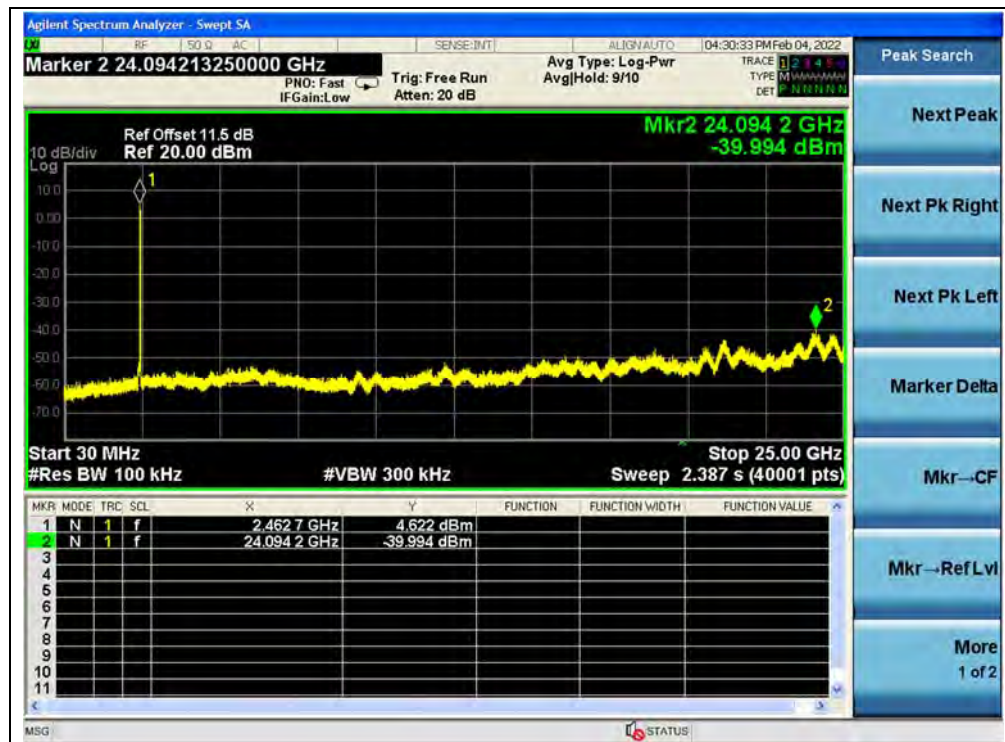
(30MHz to 25GHz, Channel 1, 802.11ac (VHT20))



(Band Edge, Channel 1, 802.11ac (VHT20))



(30MHz to 25GHz, Channel 6, 802.11ac (VHT20))



(30MHz to 25GHz, Channel 11, 802.11ac (VHT20))



(Band Edge, Channel 11, 802.11ac (VHT20))

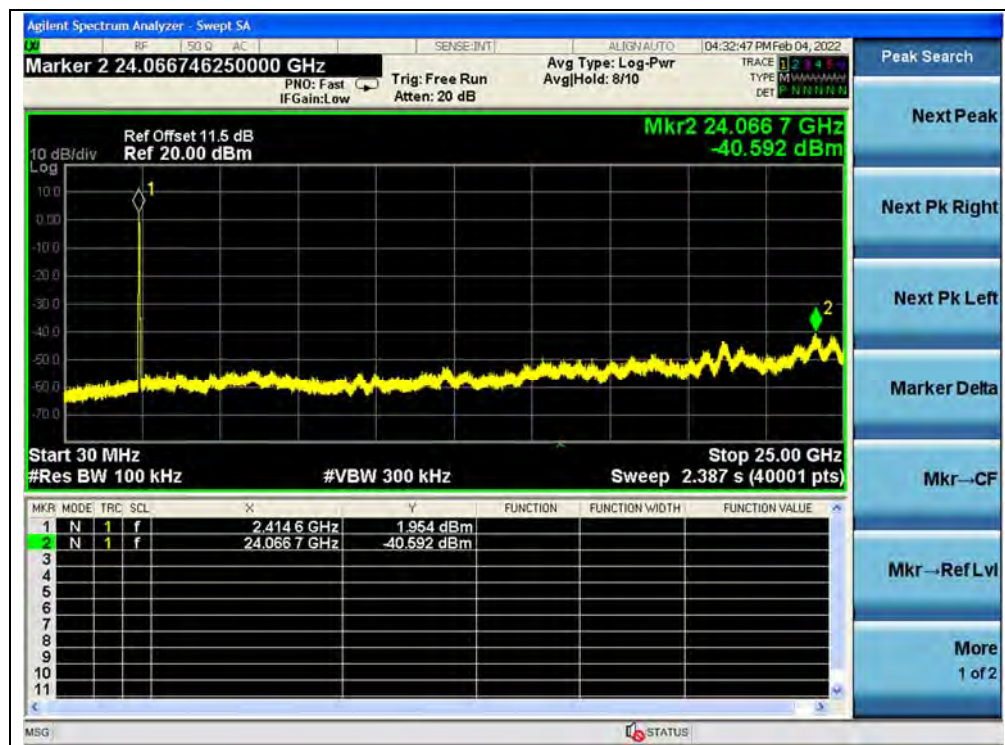


802.11ac (VHT40) Mode

A. Test Verdict:

Channel	Frequency (MHz)	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
			Carrier Level	Calculated -20dBc Limit	
3	2422	-40.59	1.95	-18.05	PASS
6	2437	-41.88	1.44	-18.56	PASS
9	2452	-41.06	1.96	-18.04	PASS

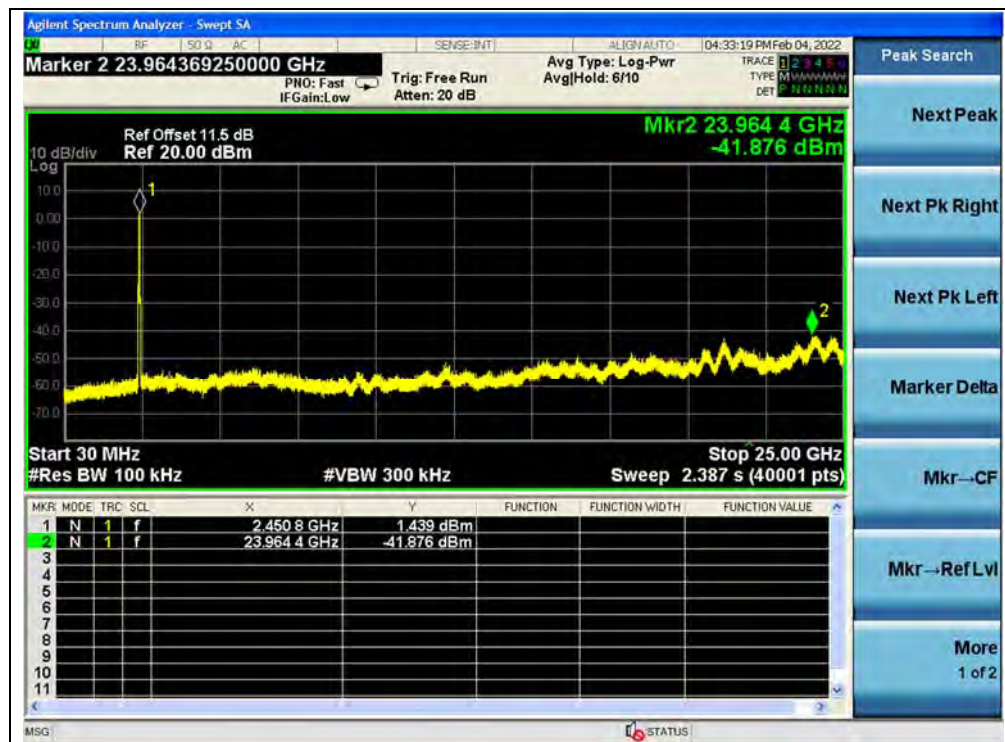
B. Test Plot:



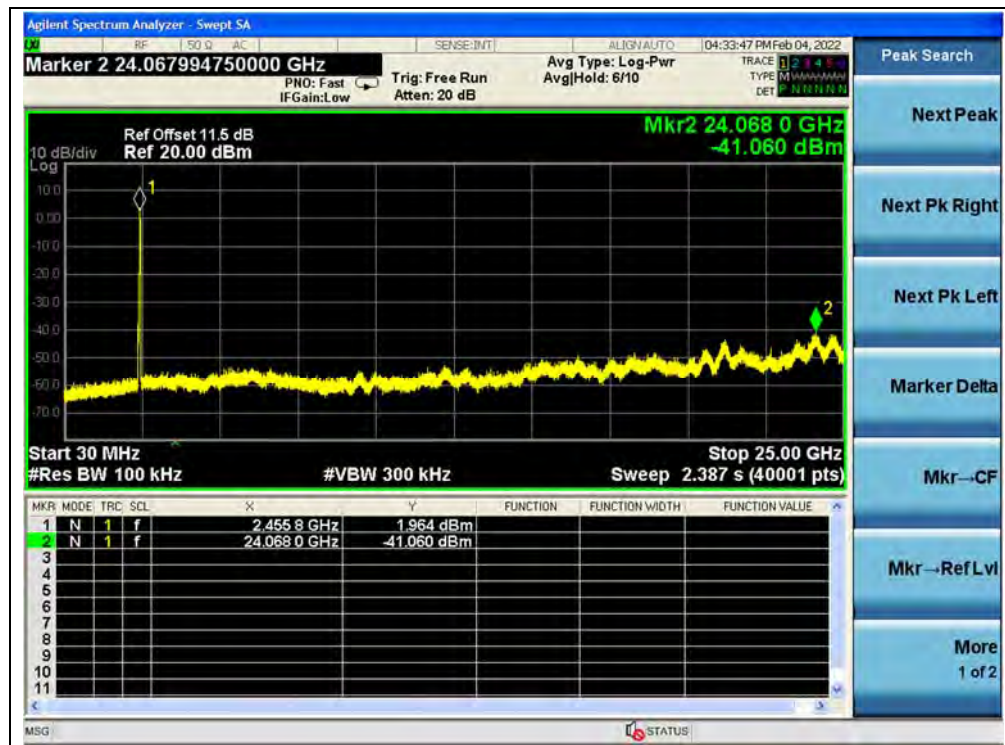
(30MHz to 25GHz, Channel 3, 802.11ac (VHT40))



(Band Edge, Channel 3, 802.11ac (VHT40))



(30MHz to 25GHz, Channel 6, 802.11ac (VHT40))



(30MHz to 25GHz, Channel 9, 802.11ac (VHT40))



(Band Edge, Channel 11, 802.11ac (VHT40))

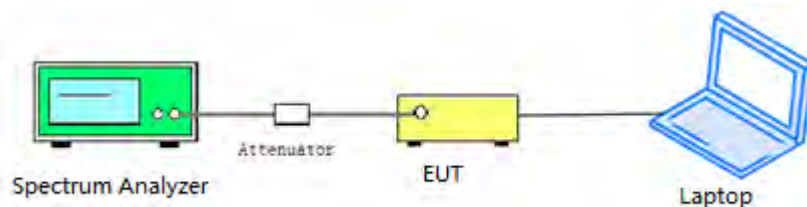
2.6. Power Spectral Density

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:

Spectral power density (dBm/3kHz)				
Channel	Frequency (MHz)	Measured PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
1	2412	-4.48	8	PASS
6	2437	-4.10	8	PASS
11	2462	-3.55	8	PASS

B. Test Plot:



(Channel 1, 802.11b)



(Channel 6, 802.11b)



(Channel 11, 802.11b)

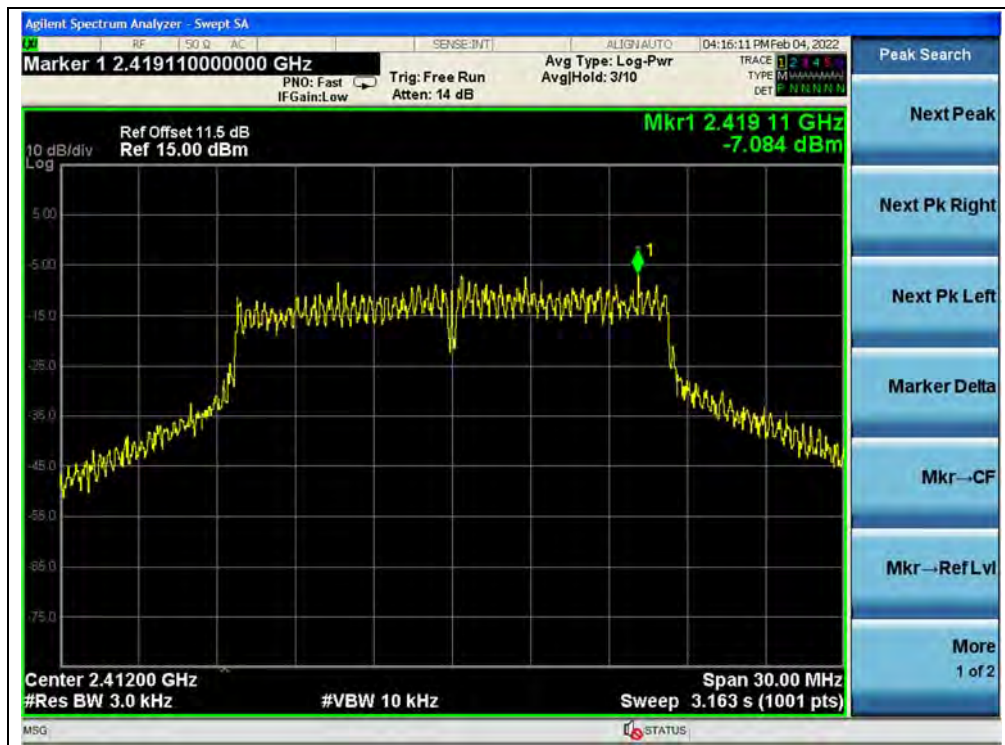


802.11g Mode

A. Test Verdict:

Spectral power density (dBm/3kHz)				
Channel	Frequency (MHz)	Measured PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
1	2412	-7.08	8	PASS
6	2437	-6.74	8	PASS
11	2462	-6.14	8	PASS

B. Test Plot:



(Channel 1, 802.11g)



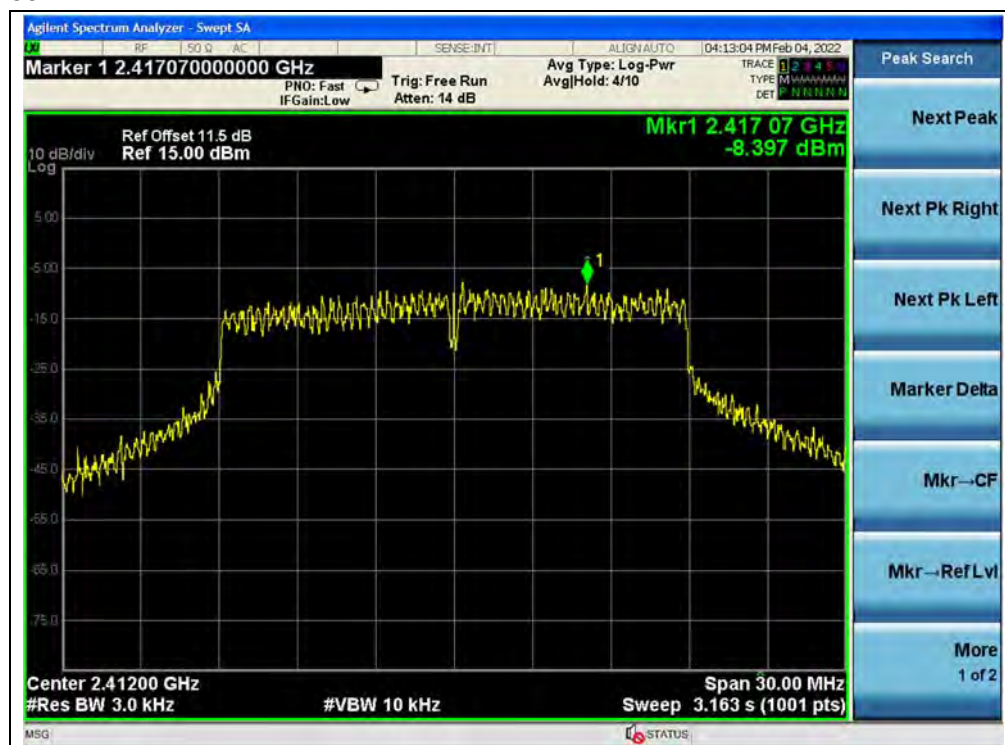
(Channel 6, 802.11g)



(Channel 11, 802.11g)

**802.11n (HT20) Mode****A. Test Verdict:**

Spectral power density (dBm/3kHz)				
Channel	Frequency (MHz)	Measured PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
1	2412	-8.40	8	PASS
6	2437	-8.21	8	PASS
11	2462	-7.34	8	PASS

B. Test Plot:

(Channel 1, 802.11n (HT20))



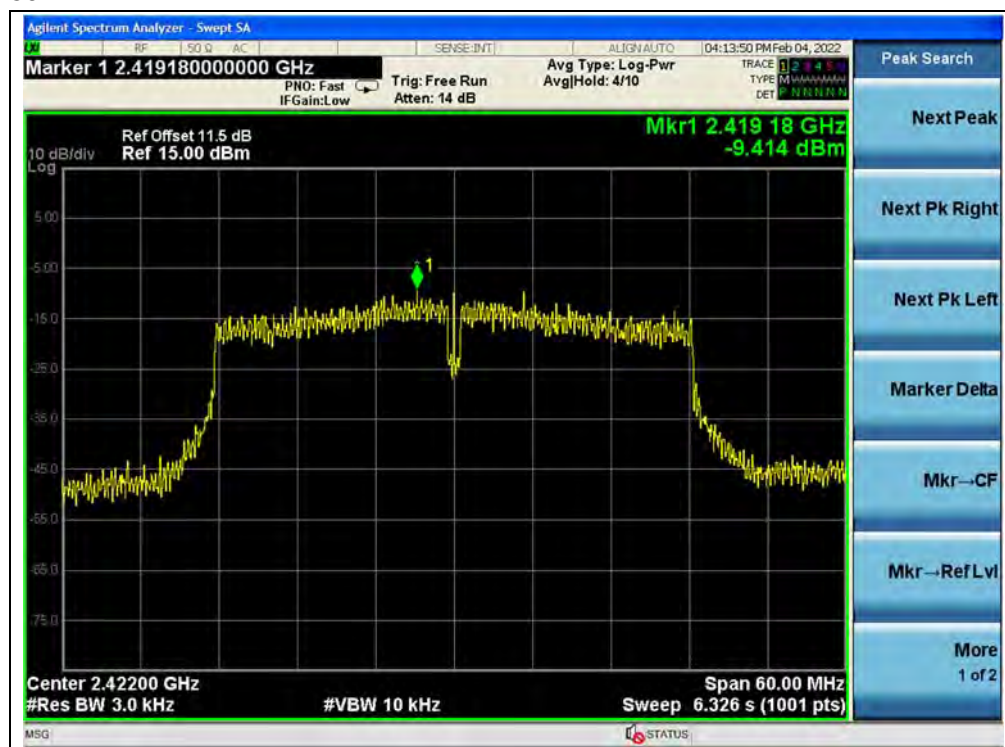
(Channel 6, 802.11n (HT20))



(Channel 11, 802.11n (HT20))

**802.11n (HT40) Mode****A. Test Verdict:**

Spectral power density (dBm/3kHz)				
Channel	Frequency (MHz)	Measured PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
3	2422	-9.41	8	PASS
6	2437	-10.30	8	PASS
9	2452	-9.68	8	PASS

B. Test Plot:

(Channel 3, 802.11n (HT40))



(Channel 6, 802.11n (HT40))



(Channel 9, 802.11n (HT40))



A. Test Verdict:

Spectral power density (dBm/3kHz)				
Channel	Frequency (MHz)	Measured PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
1	2412	-8.25	8	PASS
6	2437	-8.96	8	PASS
11	2462	-6.97	8	PASS

Agilent Spectrum Analyzer - Swept SA

RF SO D AC SENSE:INT ALIGN: AUTO 04:10:23 PM Feb 04, 2022

Marker 1 2.416980000000 GHz

PNO: Fast Trg: Free Run Avg Type: Log-Pwr
IF Gain: Low Atten: 14 dB Avg Hold: 4/10

TRACE 1 2 3 4 5
TYPE N BW N FWHM
DET N 0.10 PL N

Ref Offset 11.5 dB
Ref 15.00 dBm

10 dB/div
Log

Mkr1 2.416 98 GHz
-8.247 dBm

Center 2.41200 GHz Span 30.00 MHz
#Res BW 3.0 kHz #VBW 10 kHz Sweep 3.163 s (1001 pts)

MSG STATUS

Peak Search

Next Peak

Next Pk Right

Next Pk Left

Marker Delta

Mkr→CF

Mkr→Ref Lvl

More
1 of 2

(Channel 1, 802.11ac (VHT20))



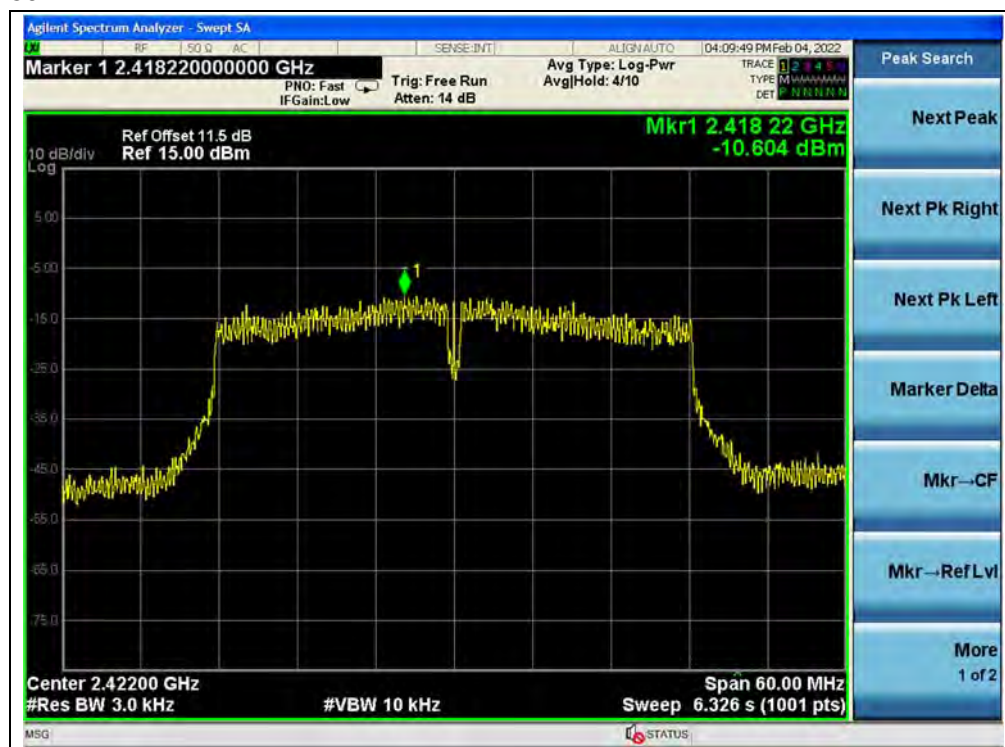
(Channel 6, 802.11ac (VHT20))



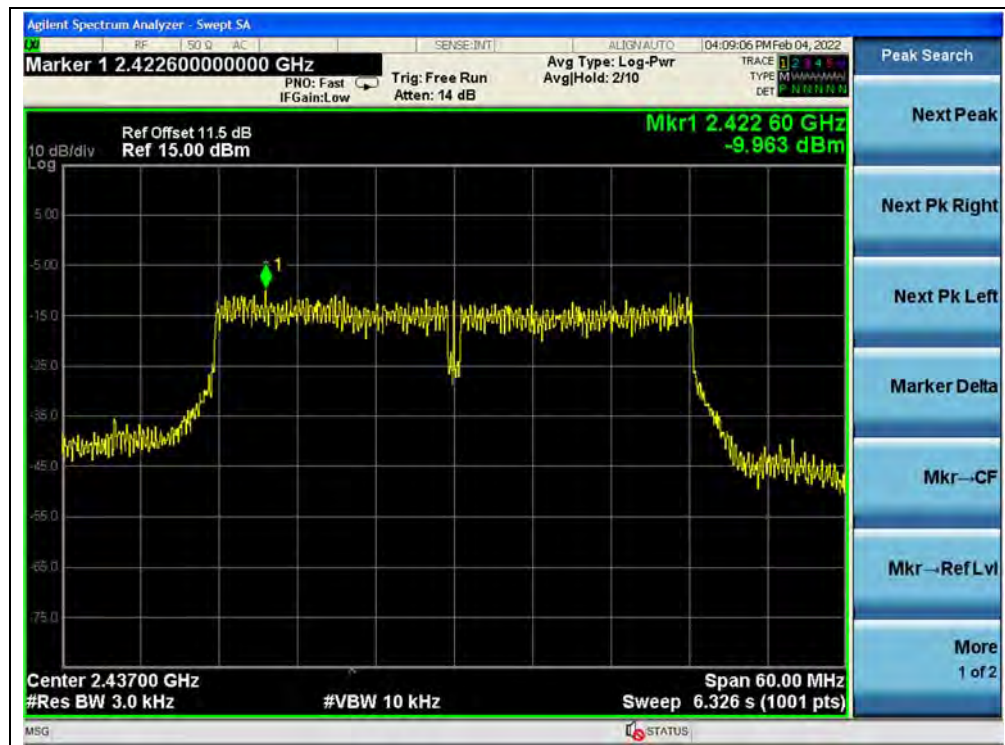
(Channel 11, 802.11ac (VHT20))

**802.11ac (VHT40) Mode****A. Test Verdict:**

Spectral power density (dBm/3kHz)				
Channel	Frequency (MHz)	Measured PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
3	2422	-10.60	8	PASS
6	2437	-9.96	8	PASS
9	2452	-9.51	8	PASS

B. Test Plot:

(Channel 3, 802.11ac (VHT40))



(Channel 6, 802.11ac (VHT40))



(Channel 9, 802.11ac (VHT40))

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 50 μ H/50 Ω line impedance stabilization network (LISN).

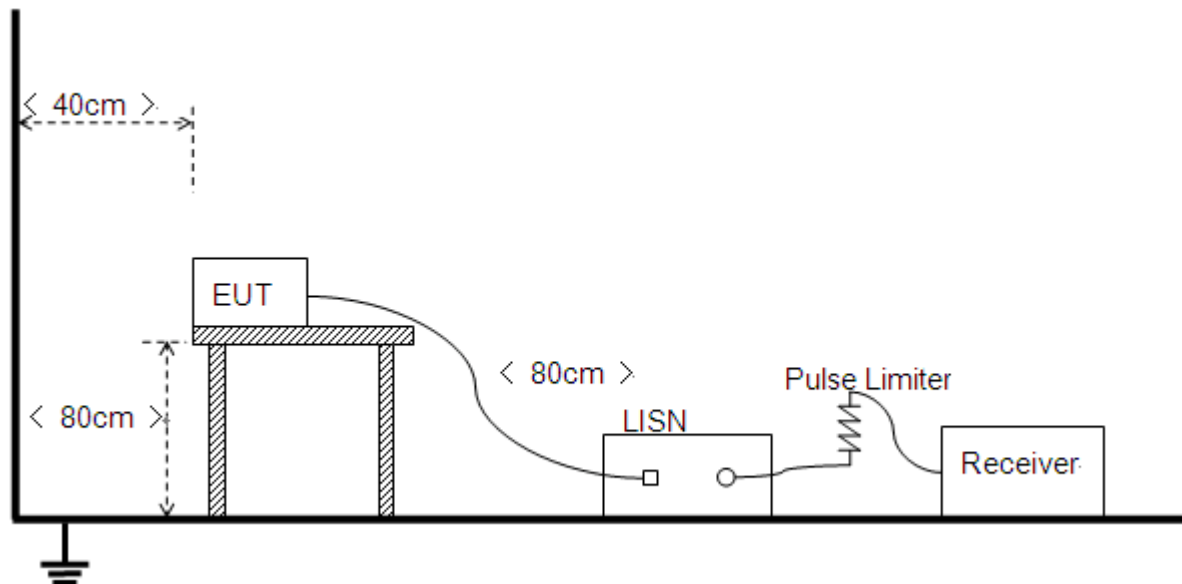
Frequency Range (MHz)	Conducted Limit (dB μ V)	
	Quai-peak	Average
0.15 - 0.50	66 to 56	56 to 46
0.50 - 5	56	46
5 - 30	60	50

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. Set RBW=9kHz, VBW=30kHz. 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 Mode: EUT+Adapter+Earphone + WIFI TX

Test Voltage: AC 120V/60Hz

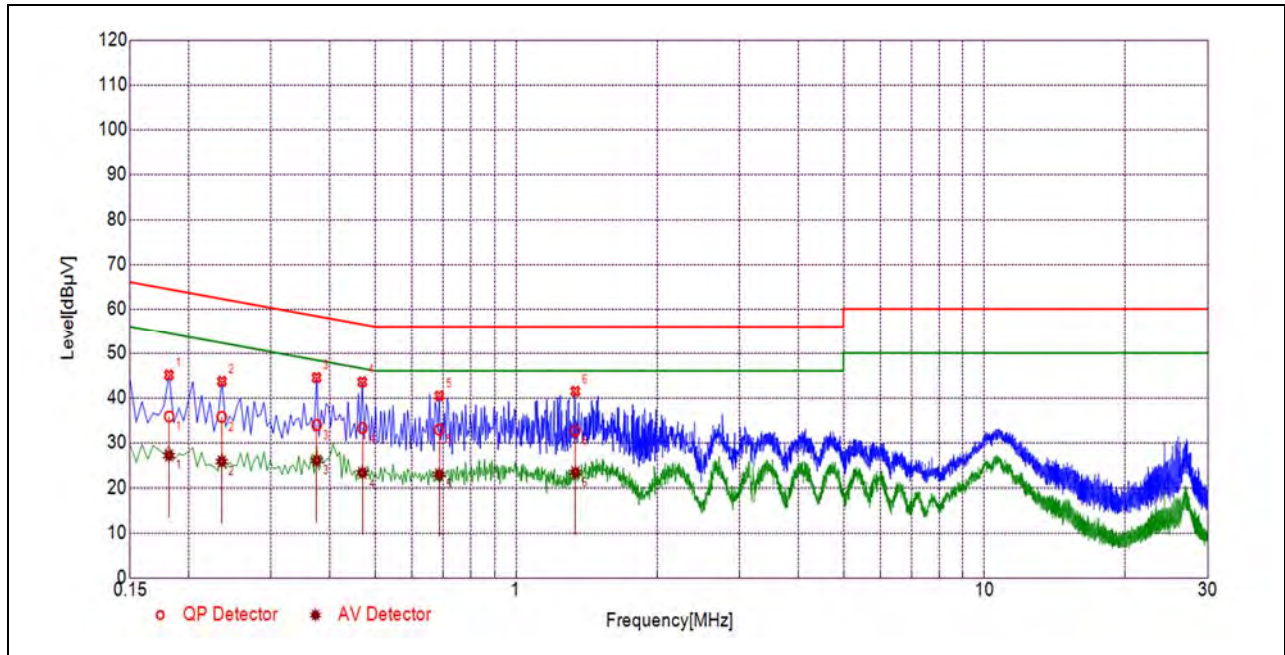
The measurement results are obtained as below:

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

U_R : Receiver Reading

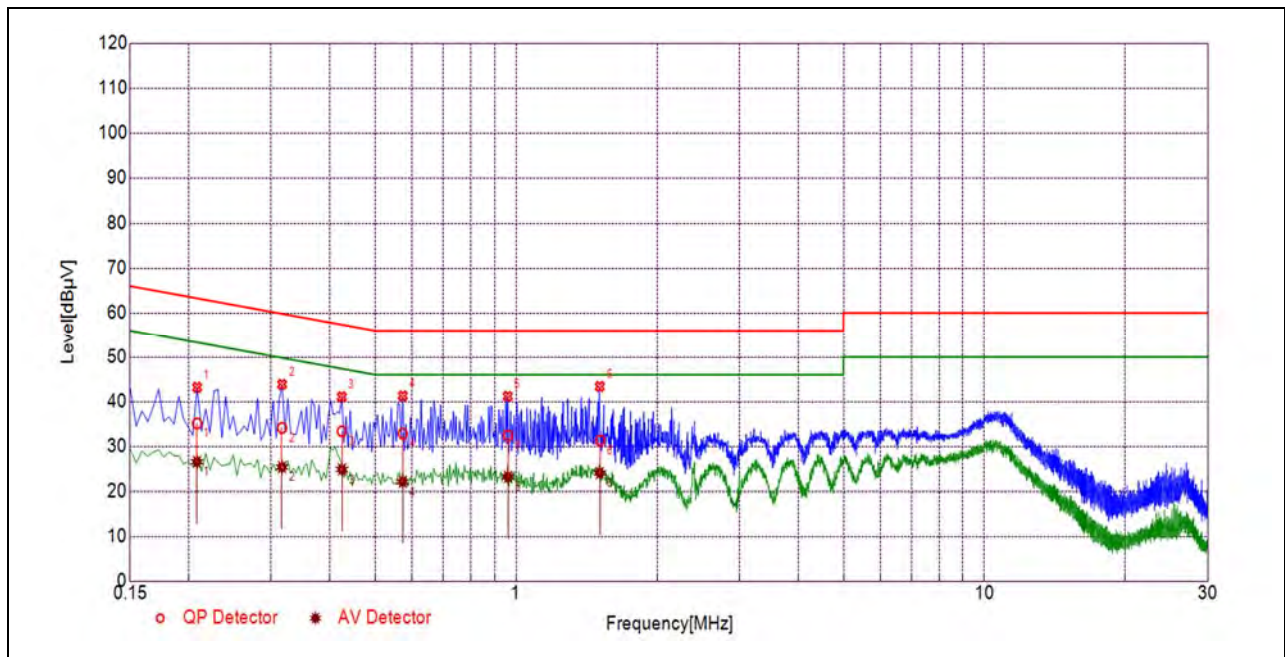
A_{Factor} : Voltage division factor of LISN

B. Test Plot:



(L Phase)

No.	Fre. (MHz)	Emission Level (dBμV)		Limit (dBμV)		Power-line	Verdict
		Quai-peak	Average	Quai-peak	Average		
1	0.1816	35.83	27.12	64.41	54.41	Line	PASS
2	0.2353	35.72	25.76	62.26	52.26		PASS
3	0.3752	33.91	26.00	58.39	48.39		PASS
4	0.4698	33.23	23.23	56.52	46.52		PASS
5	0.6851	32.87	22.89	56.00	46.00		PASS
6	1.3390	32.63	23.37	56.00	46.00		PASS



(N Phase)

No.	Fre. (MHz)	Emission Level (dBμV)		Limit (dBμV)		Power-line	Verdict
		Quai-peak	Average	Quai-peak	Average		
1	0.2084	35.10	26.53	63.27	53.27	Neutral	PASS
2	0.3164	34.12	25.34	59.80	49.80		PASS
3	0.4248	33.36	24.83	57.35	47.35		PASS
4	0.5727	32.83	22.06	56.00	46.00		PASS
5	0.9605	32.41	23.16	56.00	46.00		PASS
6	1.5097	31.27	24.03	56.00	46.00		PASS

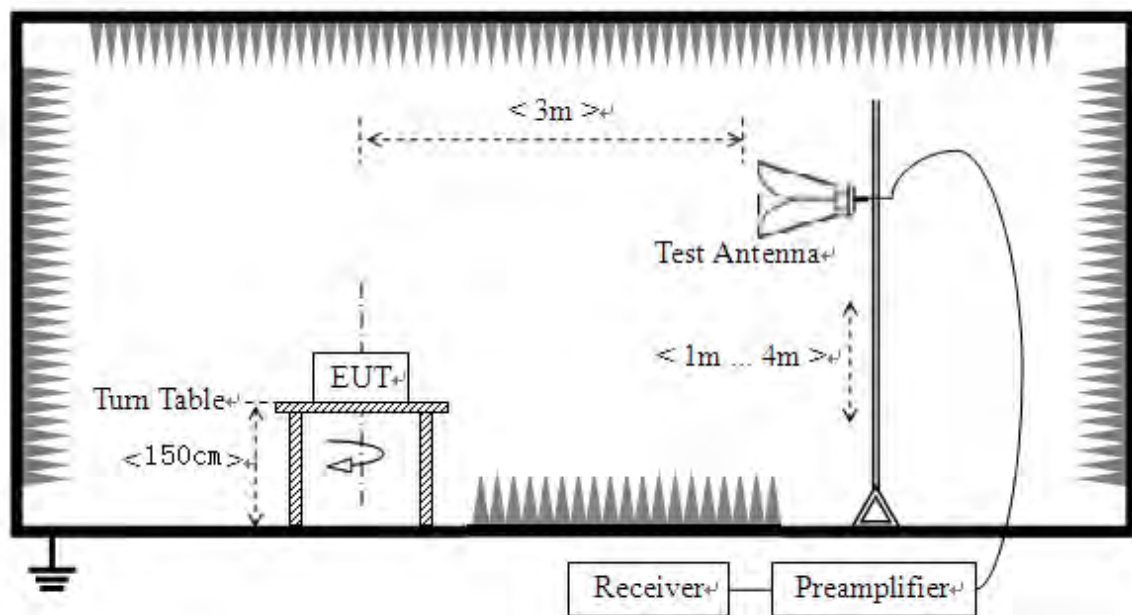
2.8. Restricted Frequency Bands

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_{preamp} : Preamplifier Gain

A_{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.

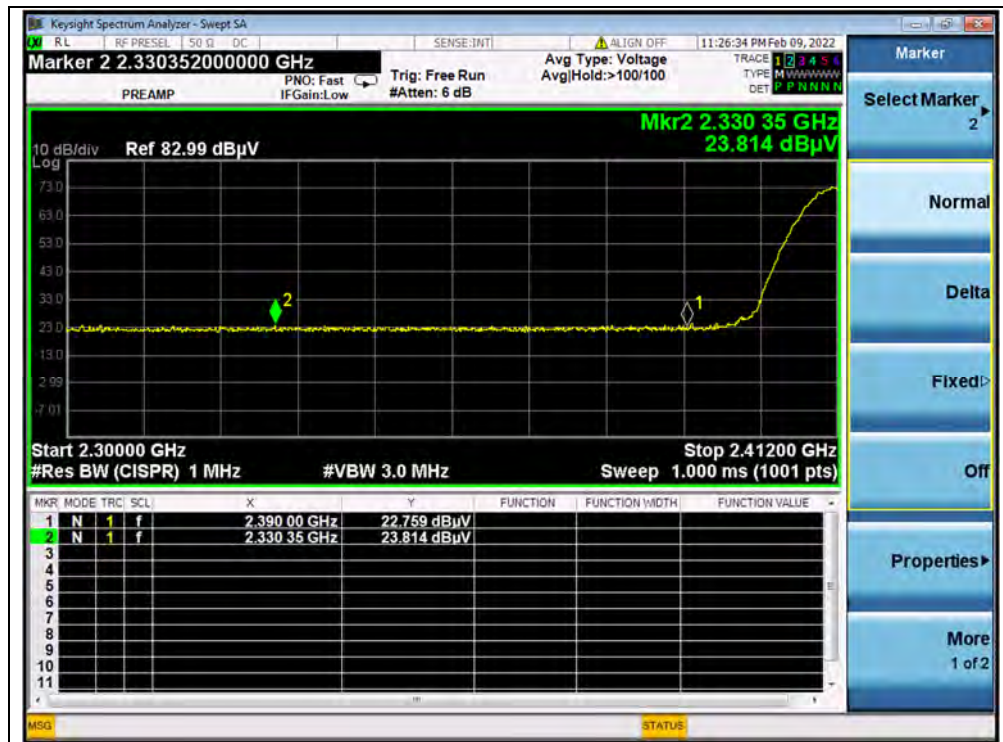
802.11b Mode

A. Test Verdict:

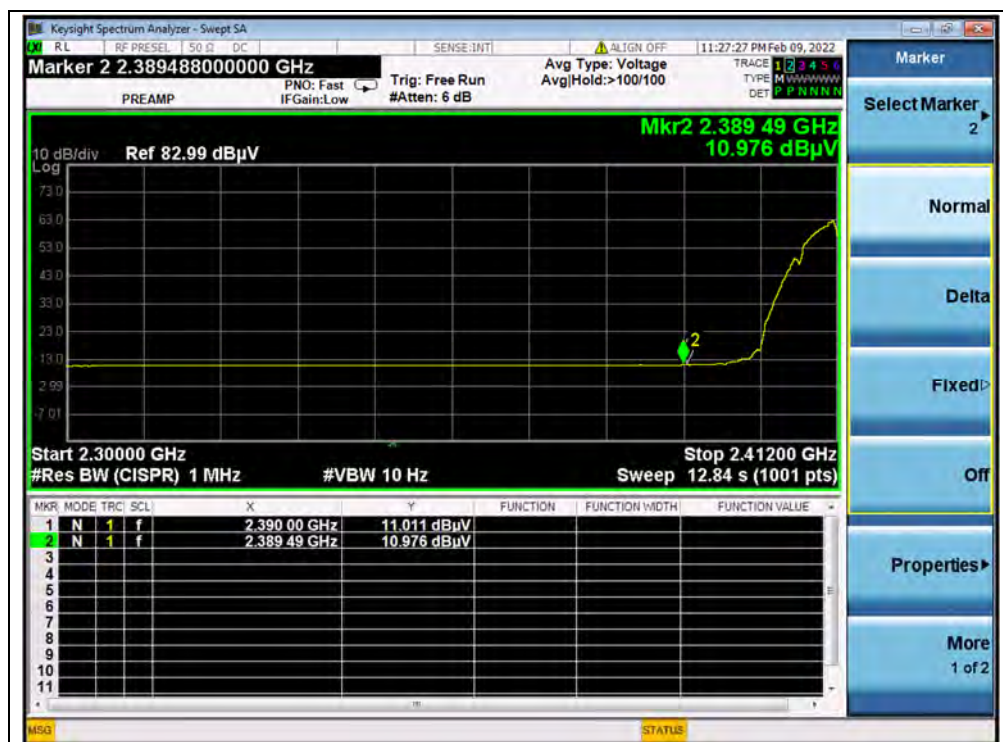
Channel	Frequency (MHz)	Detector	Receiver Reading U_R (dB μ V)	A_T (dB)	A_{Factor} (dB@3m)	Max. Emission E (dB μ V/m)	Limit (dB μ V/m)	Verdict
		PK/ AV						
1	2330.35	PK	23.81	6.74	27.20	57.75	74	PASS
1	2390.00	AV	11.01	6.74	27.20	44.95	54	PASS
11	2486.55	PK	23.34	6.74	27.20	57.28	74	PASS
11	2487.50	AV	10.74	6.74	27.20	44.68	54	PASS



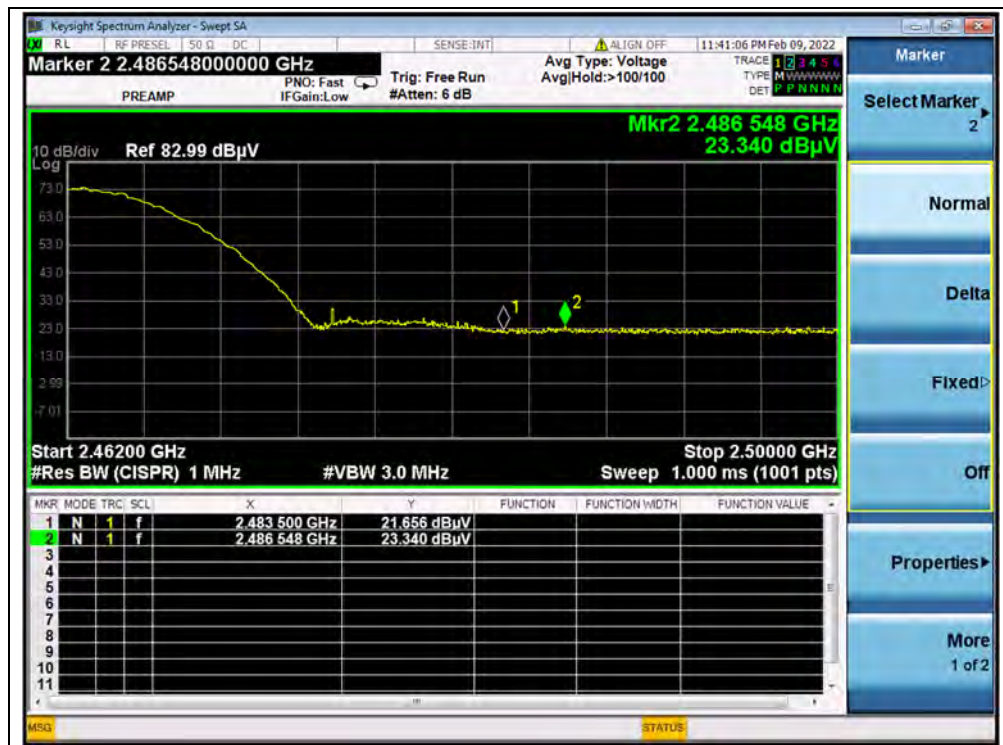
B. Test Plot:



(PEAK, Channel 1, 802.11b)



(AVERAGE, Channel 1, 802.11b)



(PEAK, Channel 11, 802.11b)



(AVERAGE, Channel 11, 802.11b)

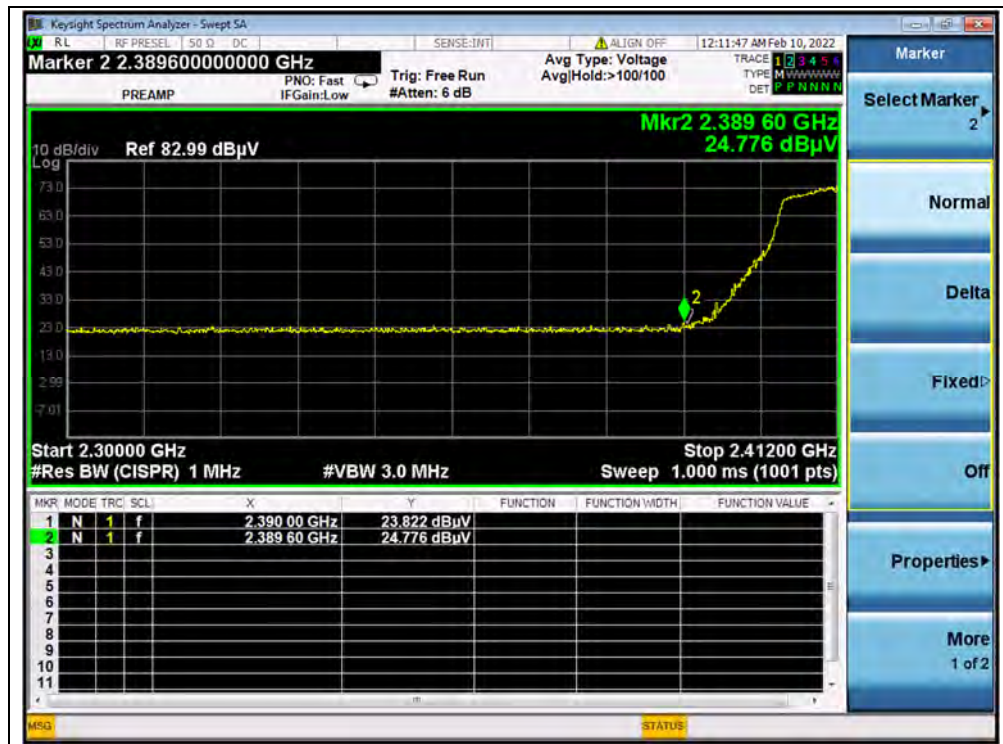


802.11g Mode

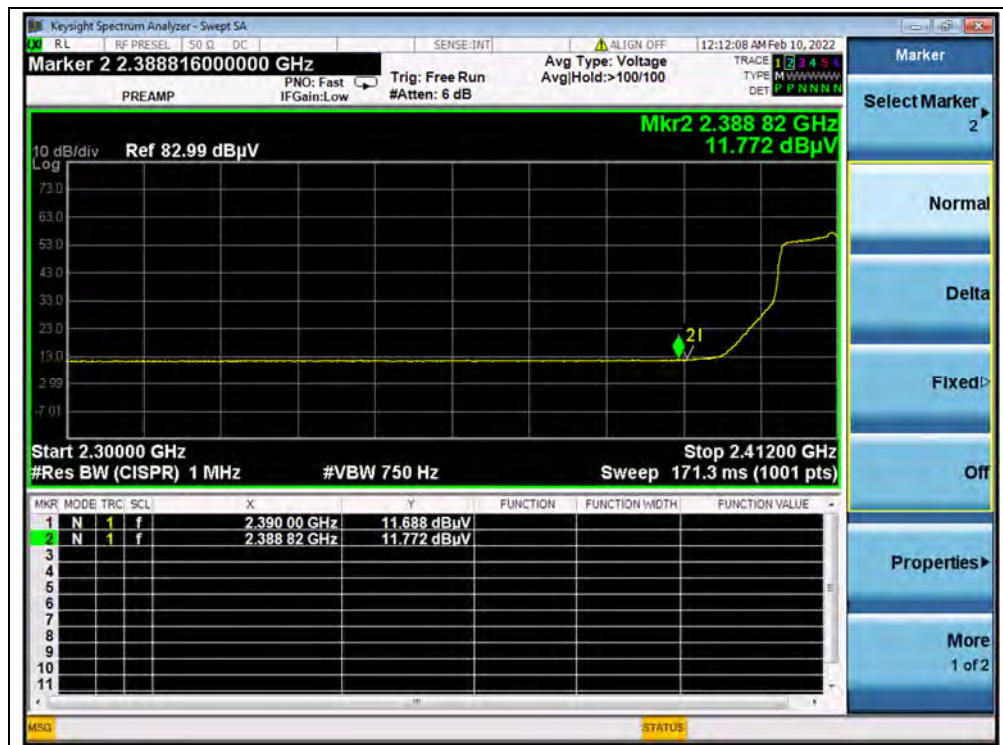
A. Test Verdict:

Channel	Frequency (MHz)	Detector	Receiver Reading U_R (dB μ V)	A_T (dB)	A_{Factor} (dB@3m)	Max. Emission E (dB μ V/m)	Limit (dB μ V/m)	Verdict
		PK/ AV						
1	2389.60	PK	24.78	6.74	27.20	58.72	74	PASS
1	2388.82	AV	11.77	6.74	27.20	45.71	54	PASS
11	2484.38	PK	27.24	6.74	27.20	61.18	74	PASS
11	2483.66	AV	11.64	6.74	27.20	45.58	54	PASS

B. Test Plot:



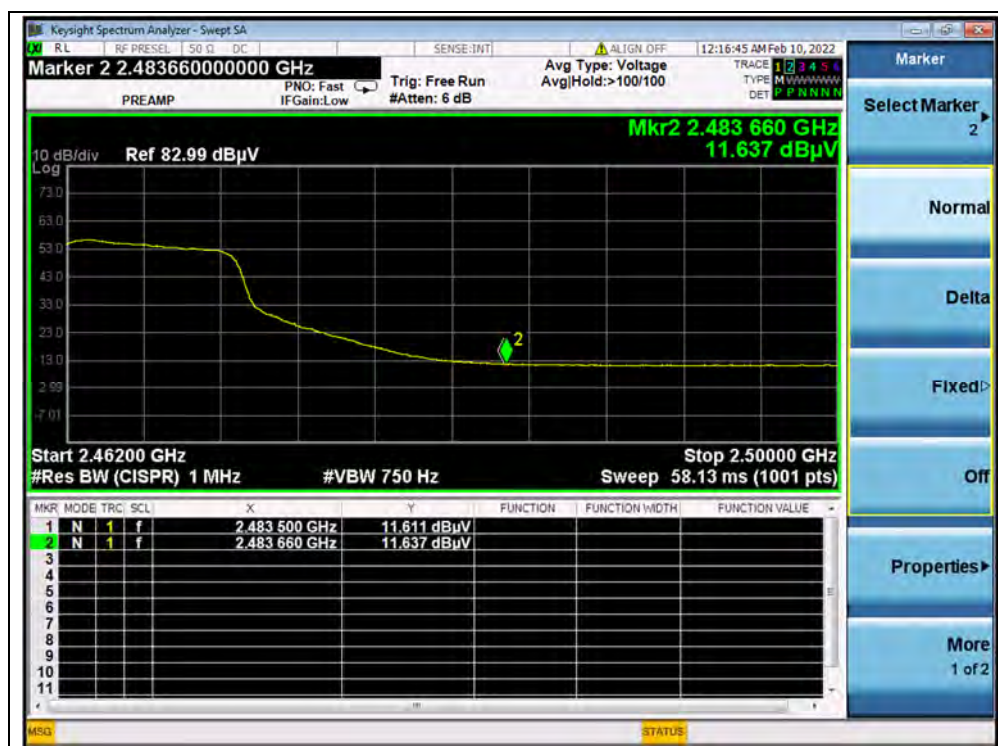
(PEAK, Channel 1, 802.11g)



(AVERAGE, Channel 1, 802.11g)



(PEAK, Channel 11, 802.11g)



(AVERAGE, Channel 11, 802.11g)

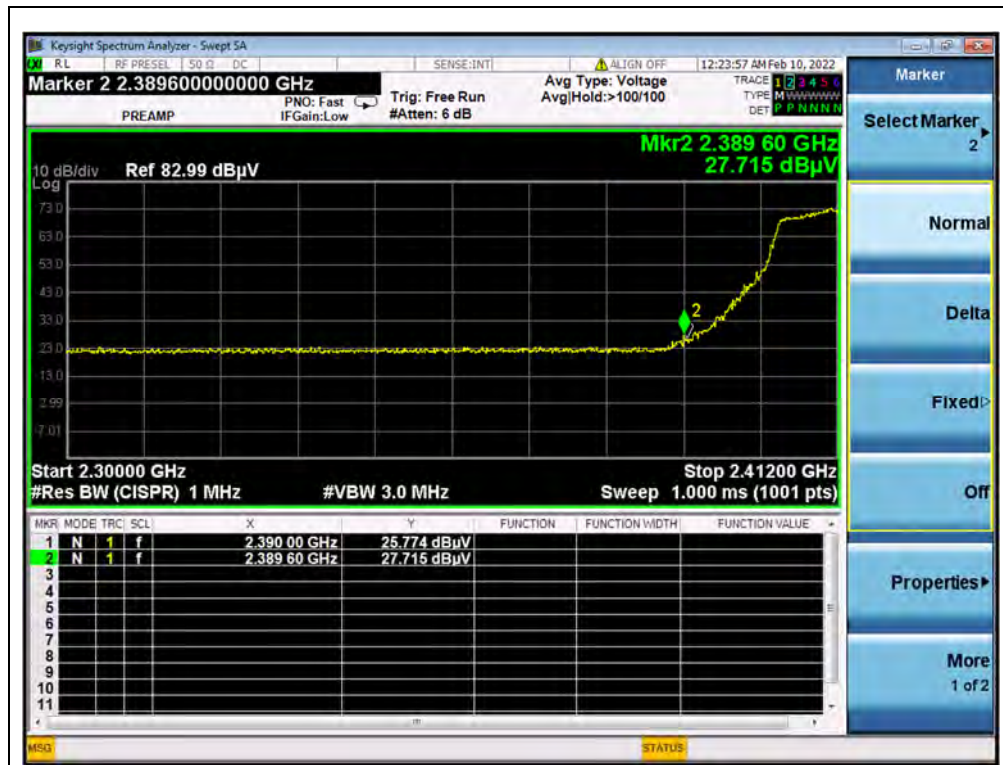


802.11n (HT20) Mode

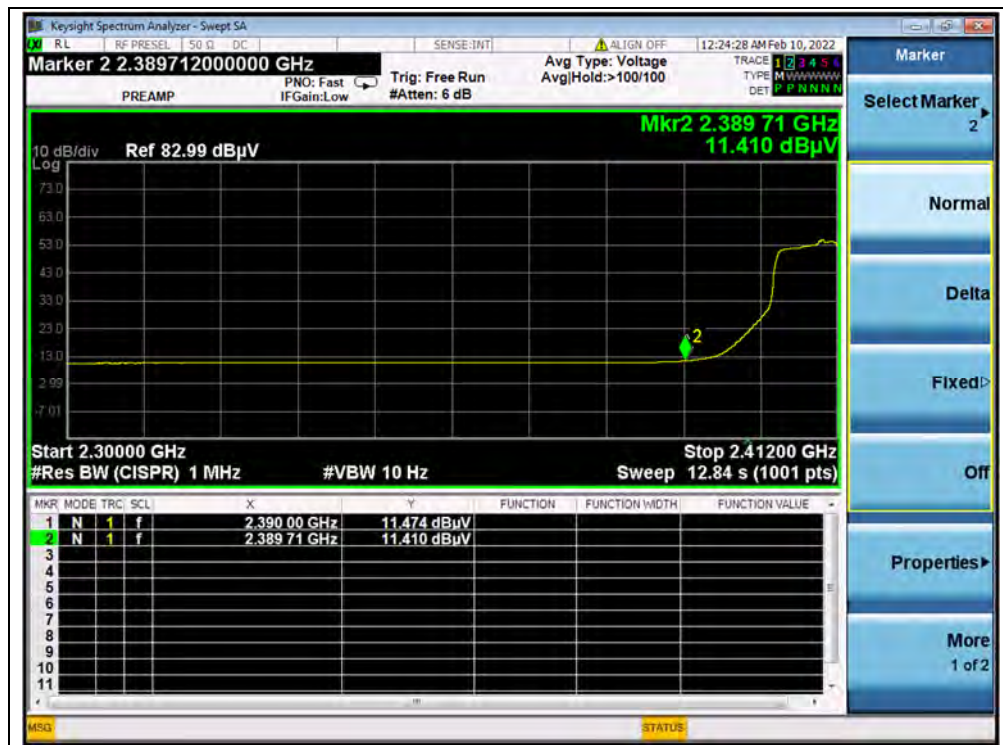
A. Test Verdict:

Channel	Frequency (MHz)	Detector	Receiver Reading U_R (dB μ V)	A_T (dB)	A_{Factor} (dB@3m)	Max. Emission E (dB μ V/m)	Limit (dB μ V/m)	Verdict
		PK/ AV						
1	2389.60	PK	27.72	6.74	27.20	61.66	74	PASS
1	2390.00	AV	11.47	6.74	27.20	45.41	54	PASS
11	2483.62	PK	28.15	6.74	27.20	62.09	74	PASS
11	2483.50	AV	11.02	6.74	27.20	44.96	54	PASS

B. Test Plot:



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



(AVERAGE, Channel 1, 802.11n (HT20))



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



(AVERAGE, Channel 11, 802.11n (HT20))

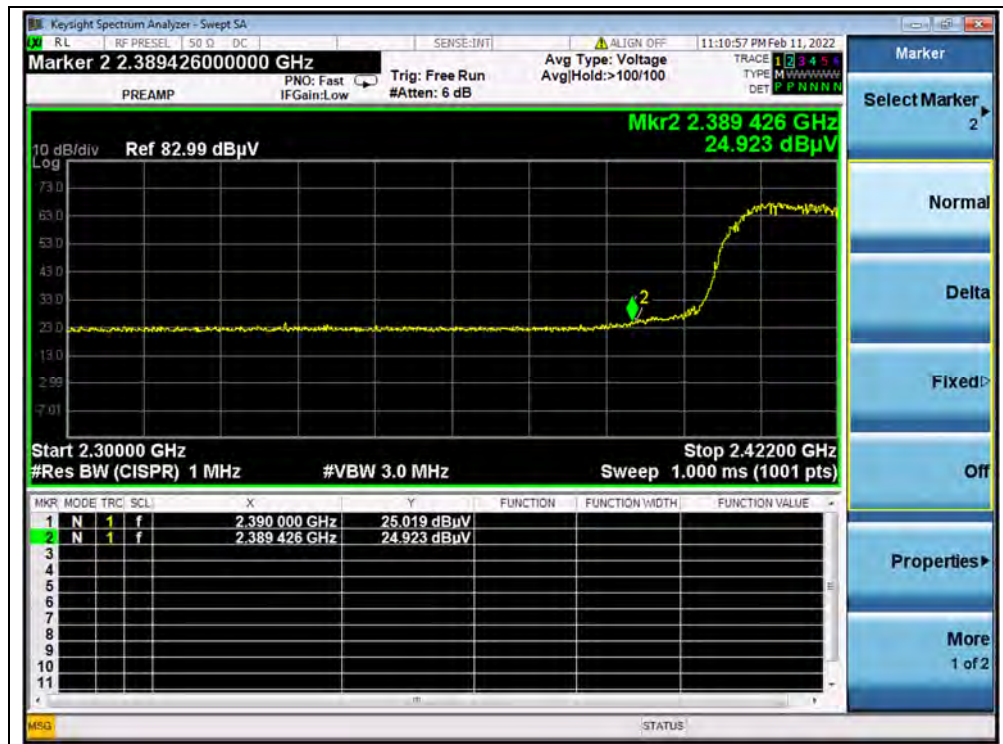


802.11n (HT40) Mode

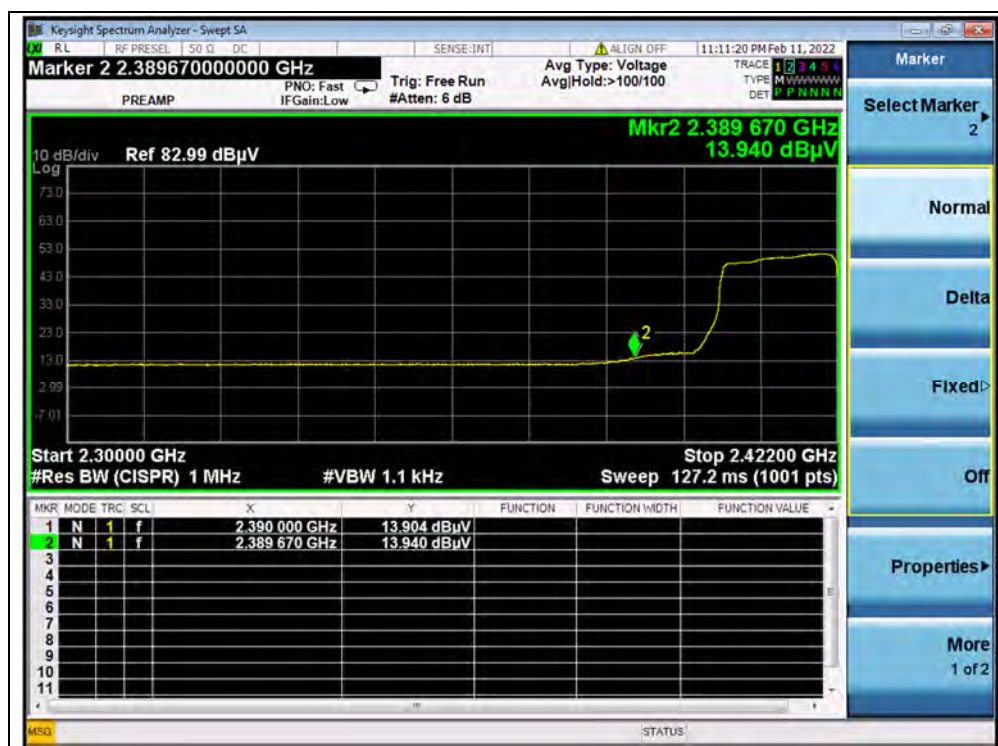
A. Test Verdict:

Channel	Frequency (MHz)	Detector	Receiver Reading U_R (dB μ V)	A_T (dB)	A_{Factor} (dB@3m)	Max. Emission E (dB μ V/m)	Limit (dB μ V/m)	Verdict
		PK/ AV						
3	2390.00	PK	25.02	6.74	27.20	58.96	74	PASS
3	2389.67	AV	13.94	6.74	27.20	47.88	54	PASS
9	2485.22	PK	25.38	6.74	27.20	59.32	74	PASS
9	2483.78	AV	13.75	6.74	27.20	47.69	54	PASS

B. Test Plot:



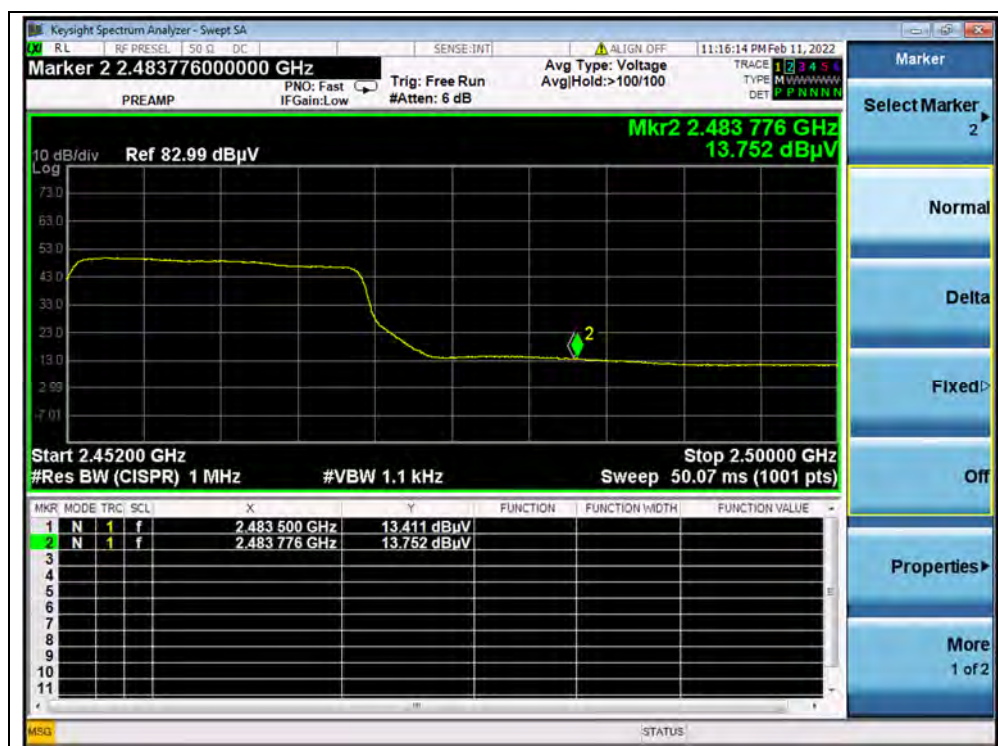
(PEAK, Channel 3, 802.11n (HT40))



(AVERAGE, Channel 3, 802.11n (HT40))



(PEAK, Channel 9, 802.11n (HT40))



(AVERAGE, Channel 9, 802.11n (HT40))

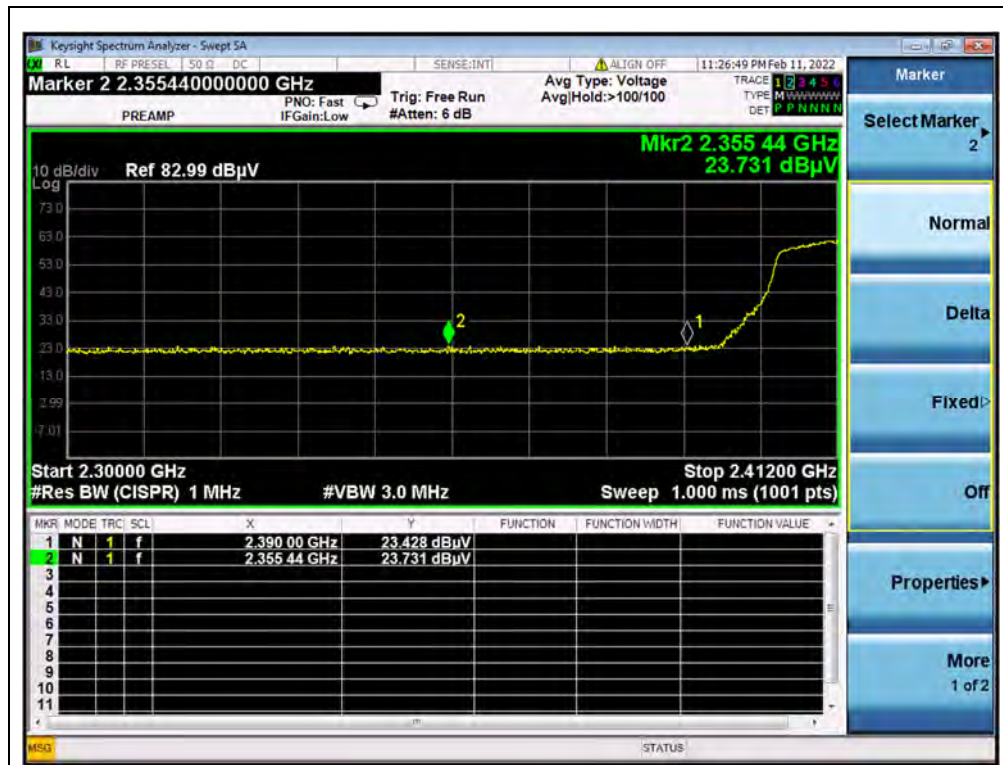


802.11ac (VHT20) Mode

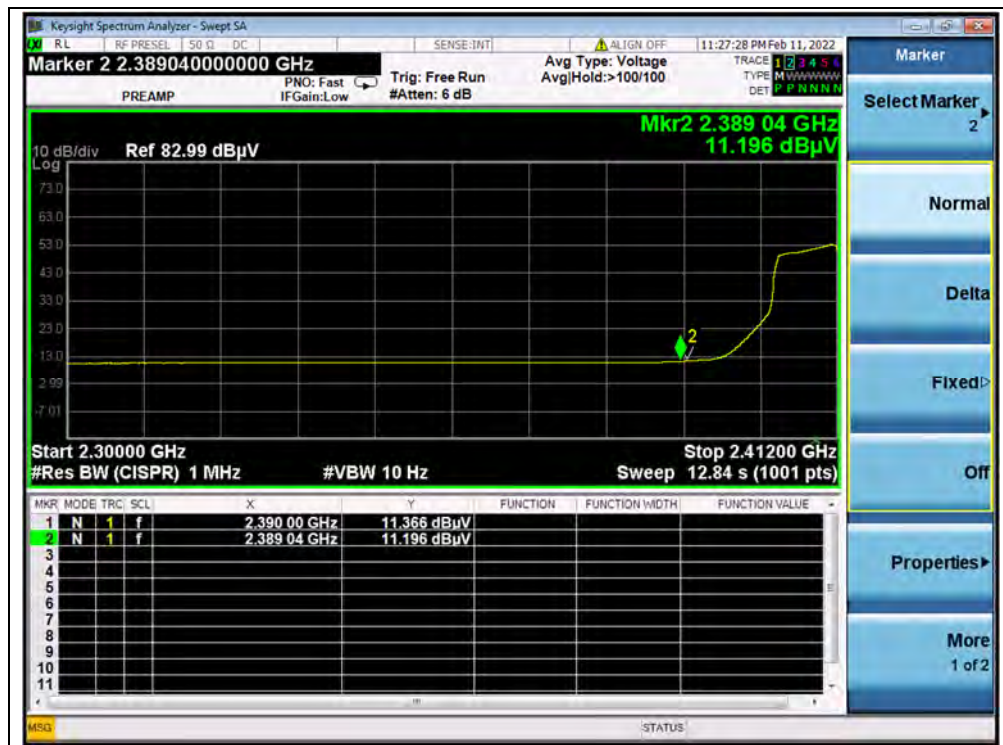
A. Test Verdict:

Channel	Frequency (MHz)	Detector	Receiver Reading U_R (dB μ V)	A_T (dB)	A_{Factor} (dB@3m)	Max. Emission E (dB μ V/m)	Limit (dB μ V/m)	Verdict
		PK/ AV						
1	2355.44	PK	23.73	6.74	27.20	57.67	74	PASS
1	2390.00	AV	11.37	6.74	27.20	45.31	54	PASS
11	2484.38	PK	23.33	6.74	27.20	57.27	74	PASS
11	2483.50	AV	10.87	6.74	27.20	44.81	54	PASS

B. Test Plot:



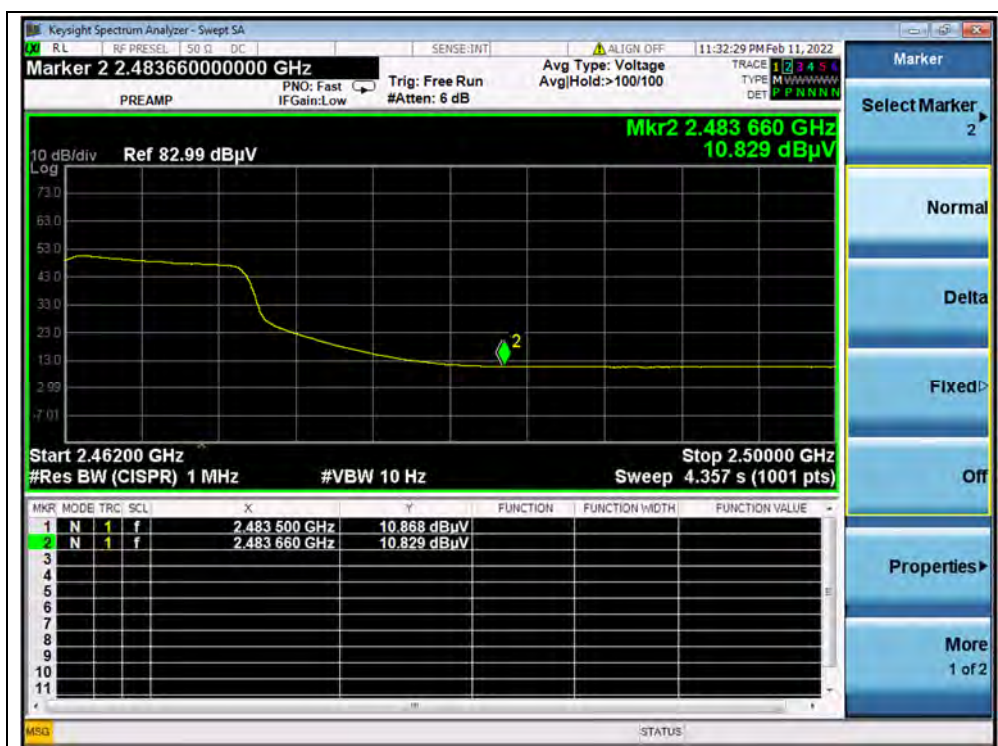
(PEAK, Channel 1, 802.11ac (VHT20))



(AVERAGE, Channel 1, 802.11ac (VHT20))



(PEAK, Channel 11, 802.11ac (VHT20))



(AVERAGE, Channel 11, 802.11ac (VHT20))

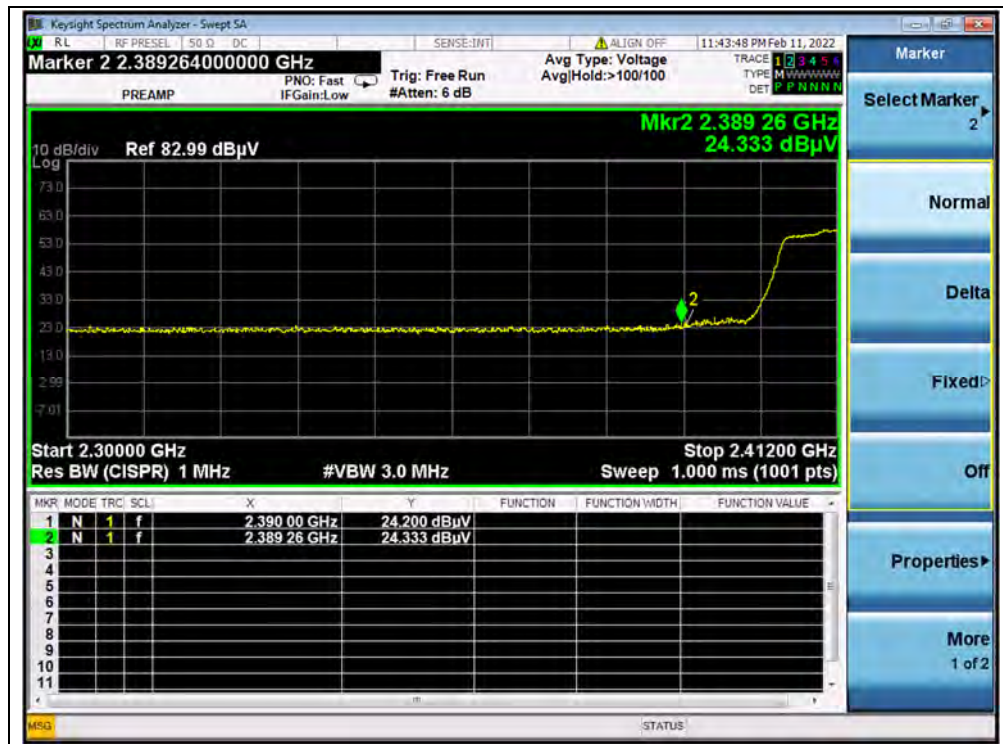


802.11ac (VHT40) Mode

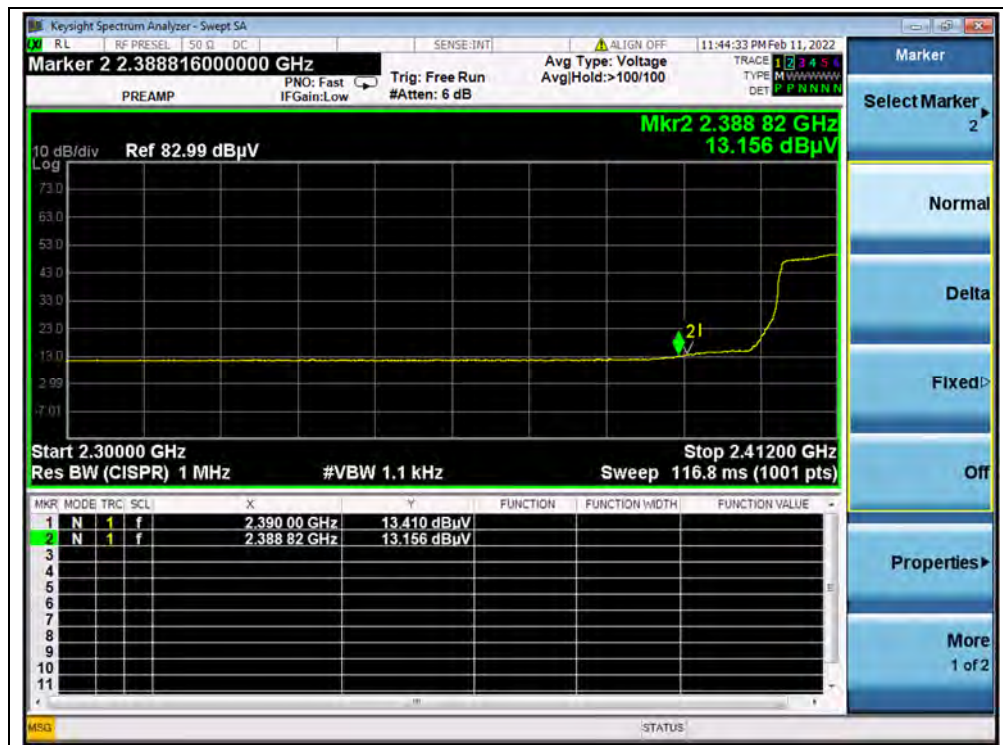
A. Test Verdict:

Channel	Frequency (MHz)	Detector	Receiver Reading U_R (dBμV)	A_T (dB)	A_{Factor} (dB@3m)	Max. Emission E (dBμV/m)	Limit (dBμV/m)	Verdict
		PK/ AV						
3	2389.26	PK	24.33	6.74	27.20	58.27	74	PASS
3	2390.00	AV	13.41	6.74	27.20	47.35	54	PASS
9	2485.37	PK	25.26	6.74	27.20	59.20	74	PASS
9	2483.74	AV	13.52	6.74	27.20	47.46	54	PASS

B. Test Plot:



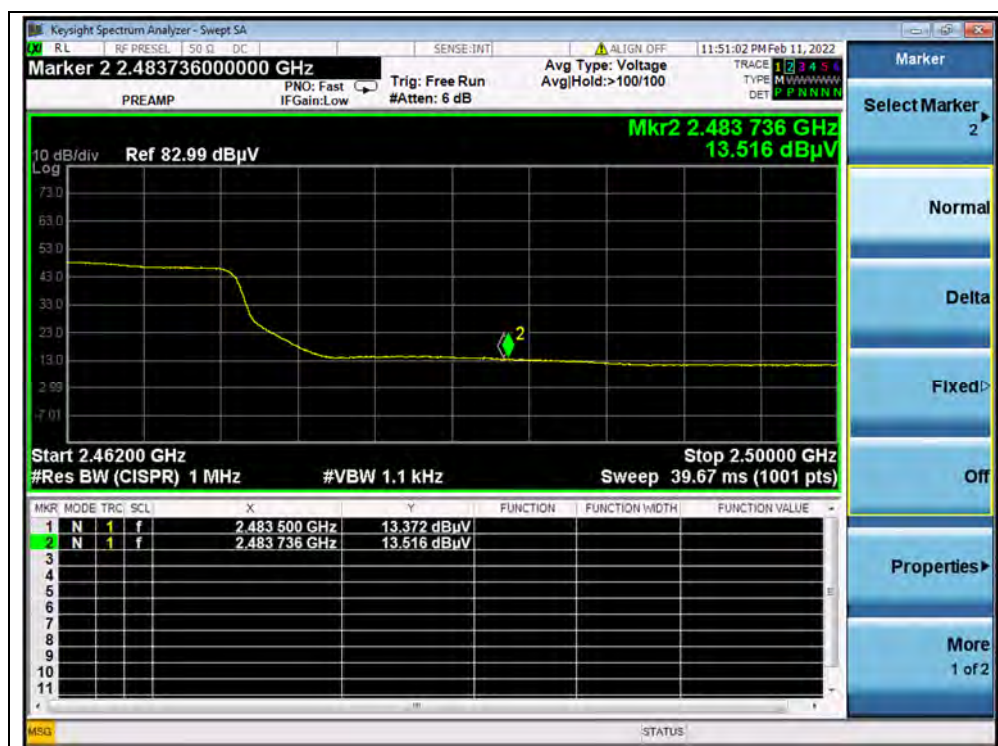
(PEAK, Channel 3, 802.11ac (VHT40))



(AVERAGE, Channel 3, 802.11ac (VHT40))



(PEAK, Channel 9, 802.11ac (VHT40))



(AVERAGE, Channel 9, 802.11ac (VHT40))

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 ($\mu\text{V/m}$)	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

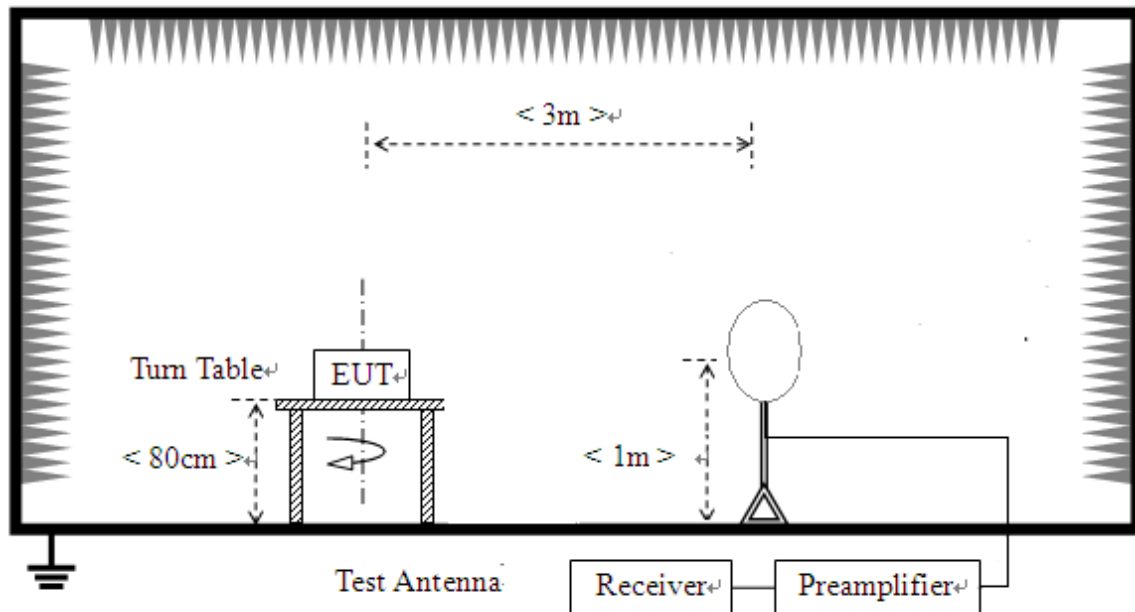
Note1: For above 1000MHz, the emission limit in this paragraph is based on measurement instrumentation employing an average detector, measurement using instrumentation with a peak detector function, corresponding to 20dB above the maximum permitted average limit.

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).

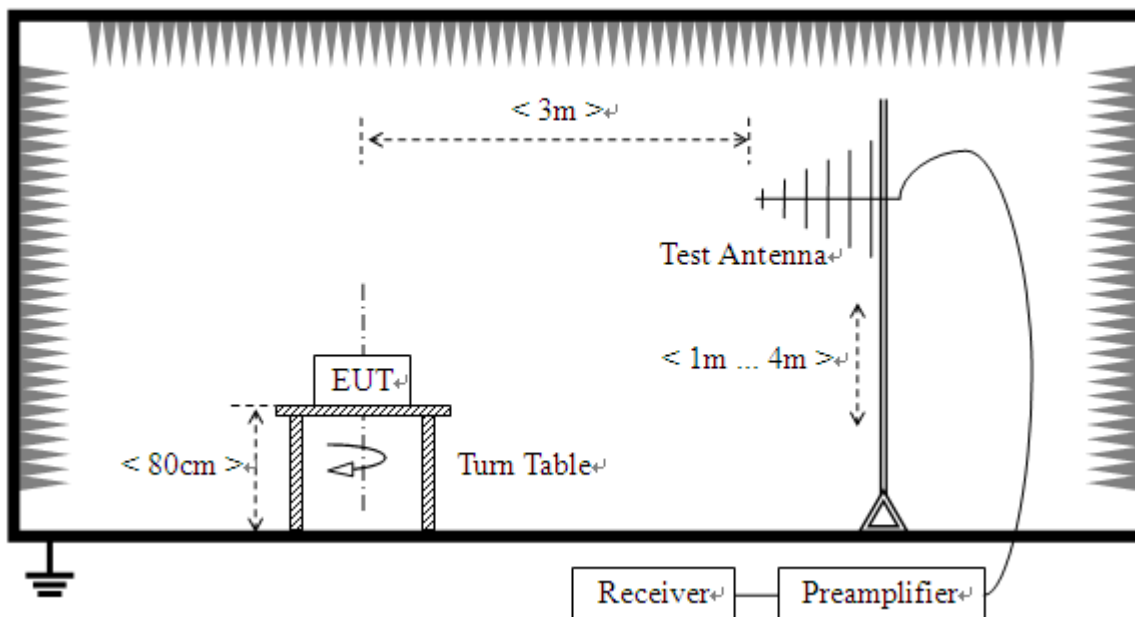
2.9.2. Test Description

Test Setup:

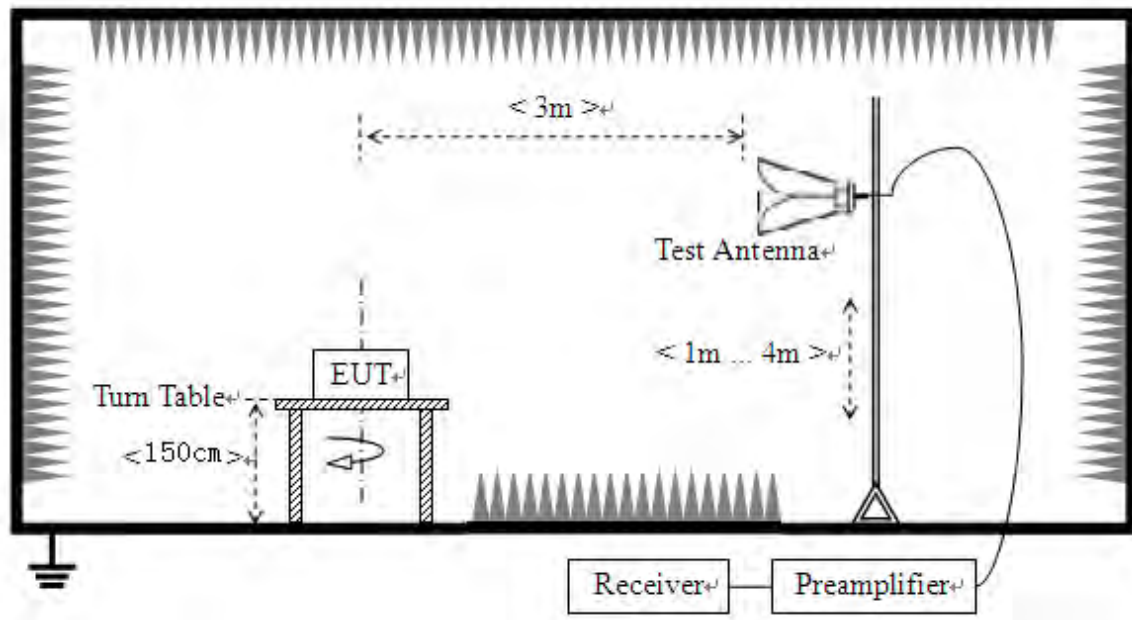
- 1) For radiated emissions from 9kHz to 30MHz



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



3) For radiated emissions above 1GHz



The EUT is placed on a non-conducting table 80 cm above the ground plane for measurement below 1GHz; 1.5 m above the ground plane for measurement above 1GHz. The antenna to EUT distance is 3meters. The EUT is configured in accordance with ANSI C63.10. The EUT is set to transmit in a continuous mode.

For measurements below 30MHz, the emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9kHz-90 kHz, 110kHz-490 kHz. Radiated emission limits in these two bands are based on measurements employing an average detector.

For measurements below 1GHz the resolution bandwidth is set to 100kHz for peak detection measurements or 120kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1GHz the resolution bandwidth is set to 1MHz, the video band width is set to 3MHz for peak measurements and as applicable for average measurements.

The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.



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 (or average) limit, it is unnecessary to perform an quasi-peak measurement (or average).

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_{preamp} : Preamplifier Gain

A_{Factor} : Antenna Factor at 3m

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

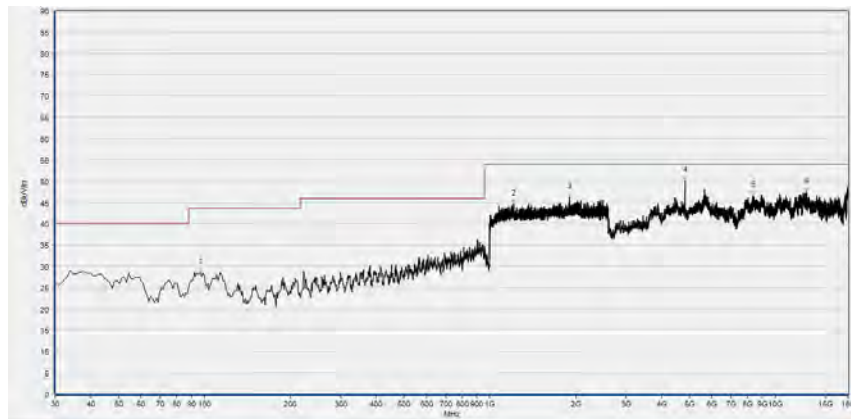
Note1: All radiated emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.

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.

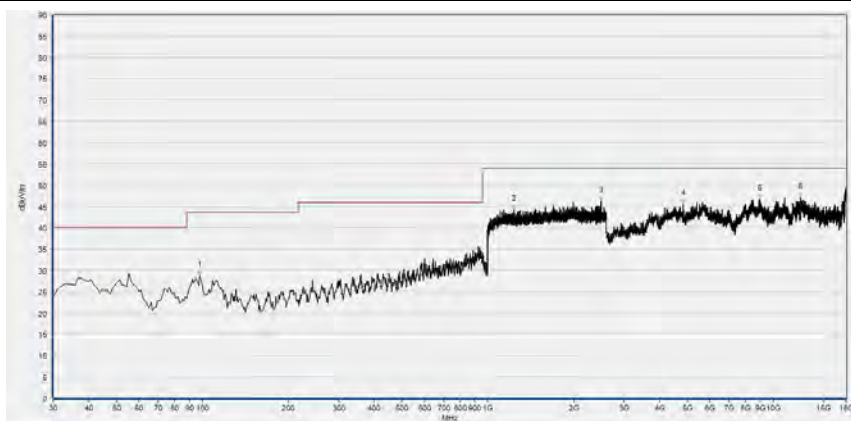
**802.11b Mode**

Plot 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
96.930	28.57	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
1216.000	44.59	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
1901.333	46.24	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
4823.900	50.03	N/A	45.65	74.00	N/A	54.00	Horizontal	PASS
8387.320	46.67	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12871.800	47.37	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

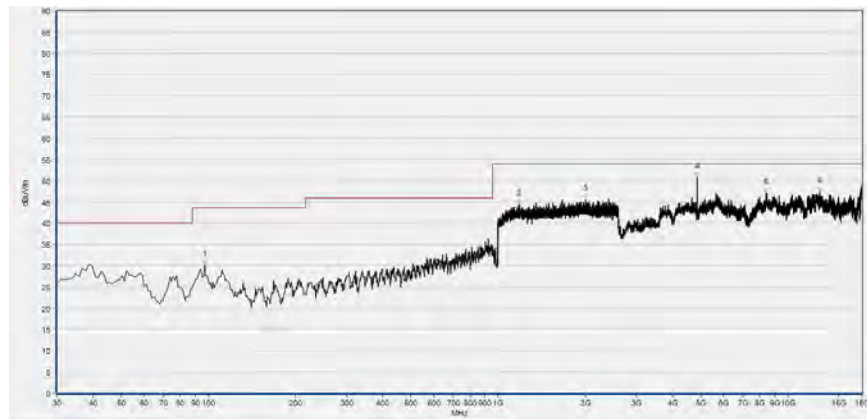


Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
97.900	28.83	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
1231.467	44.31	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
2493.867	46.30	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
4823.760	45.58	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
8984.840	46.80	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12474.480	47.05	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

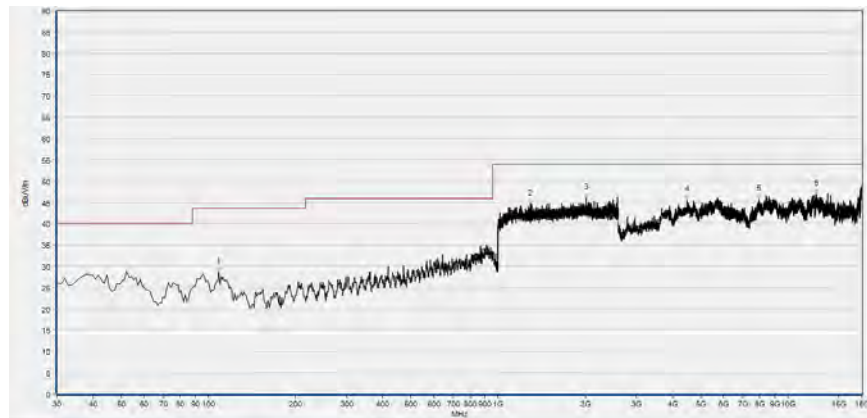


Plot for Channel 6



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
96.930	30.19	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
1177.067	44.43	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
2005.867	45.59	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
4874.100	50.74	N/A	44.31	74.00	N/A	54.00	Horizontal	PASS
8421.200	47.18	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12899.520	47.41	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

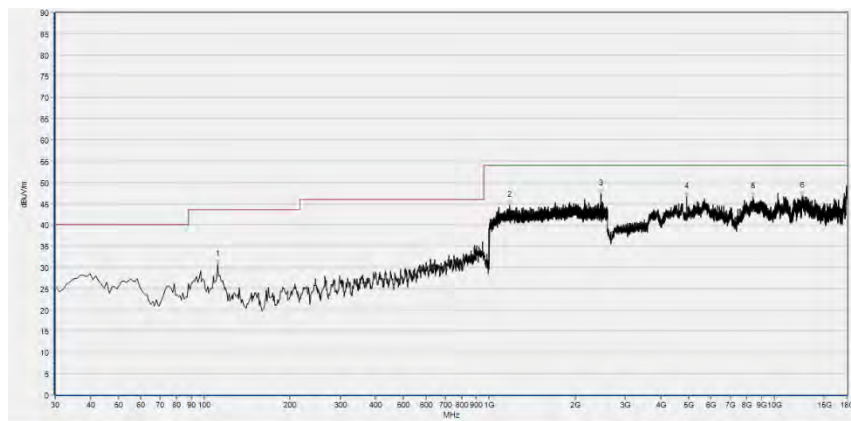


Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
108.570	28.58	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
1293.867	44.60	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
2010.133	46.15	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
4488.040	45.53	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
7922.240	45.75	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12496.040	47.01	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

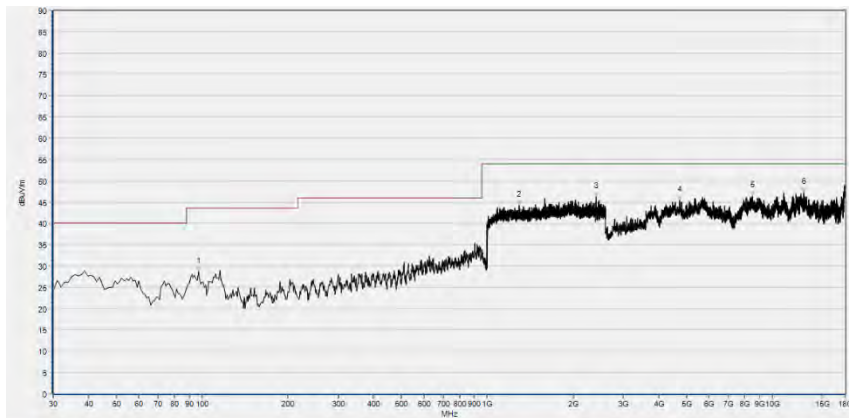


Plot for Channel 11



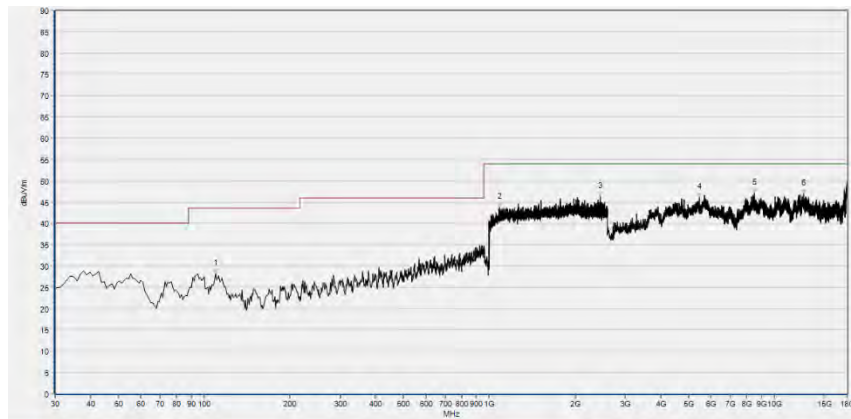
Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
111.480	30.61	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
1179.200	44.56	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
2460.800	47.22	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
4922.320	46.59	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
8430.440	46.60	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12496.040	46.74	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)



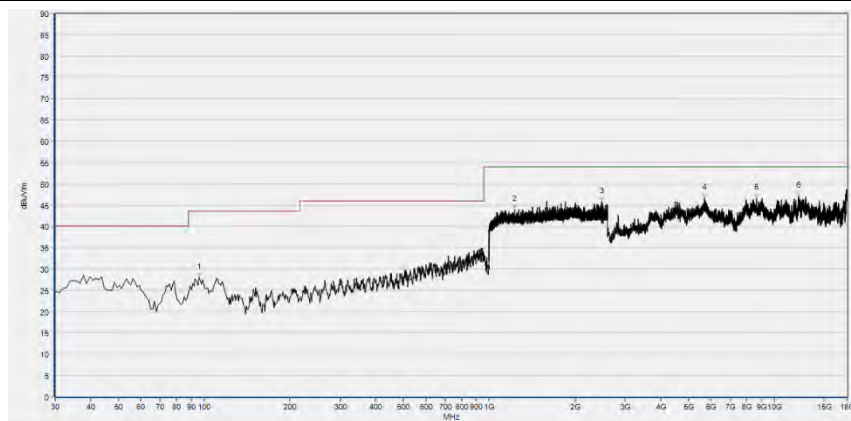
Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
96.930	28.65	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
1294.400	44.17	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
2403.200	46.19	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
4728.280	45.45	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
8492.040	46.37	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12893.360	47.19	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

**802.11g Mode****Plot 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
109.540	28.10	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
1086.933	43.75	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
2449.067	46.34	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5452.080	46.15	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
8492.040	47.02	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12680.840	46.85	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

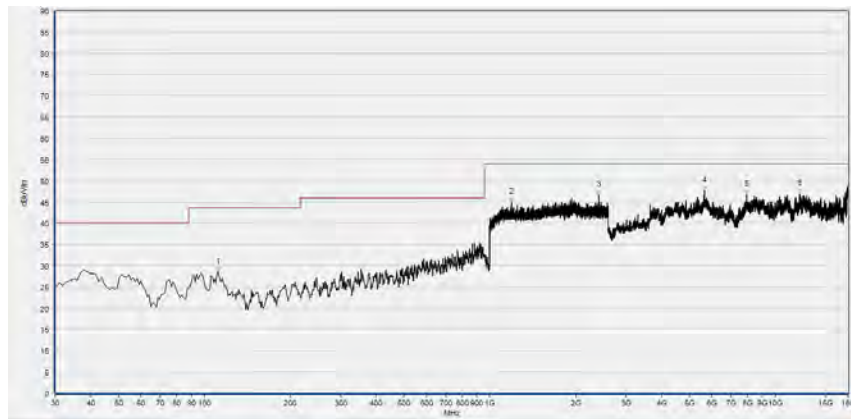


Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
95.960	27.98	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
1224.533	43.83	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
2485.333	45.82	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
5689.240	46.53	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
8646.040	46.51	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12191.120	47.10	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

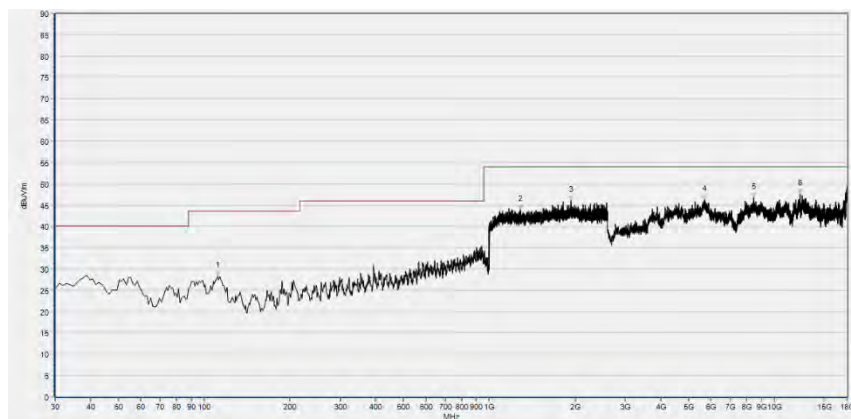


Plot for Channel 6



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
111.480	28.43	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
1189.333	44.86	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
2413.333	46.64	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5655.360	47.62	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
7937.640	46.68	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12148.000	46.90	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

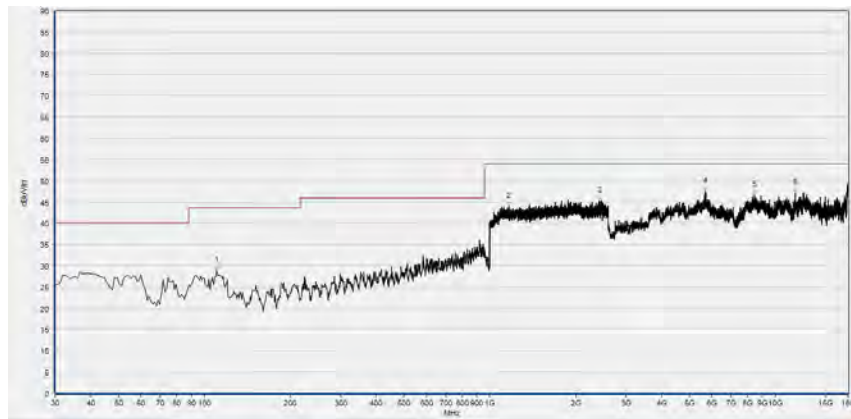


Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
111.480	28.28	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
1286.400	43.84	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
1934.400	46.10	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
5698.480	46.32	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
8455.080	46.69	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12295.840	47.59	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

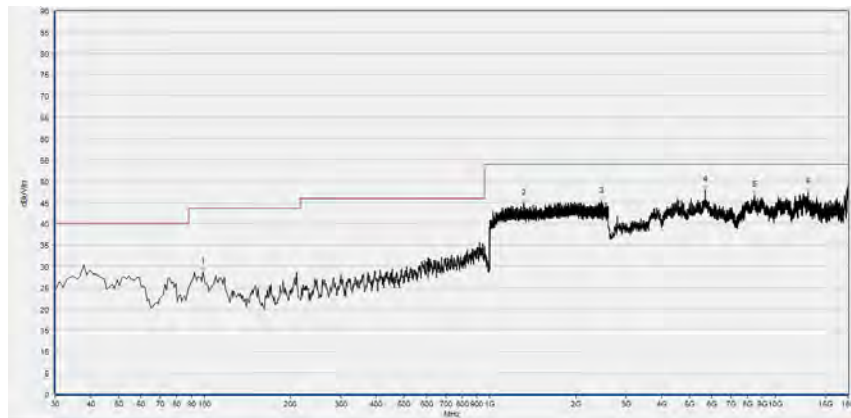


Plot for Channel 11



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
110.510	28.87	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
1168.533	43.94	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
2417.067	45.25	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5680.000	47.48	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
8452.000	46.54	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
11766.080	47.13	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

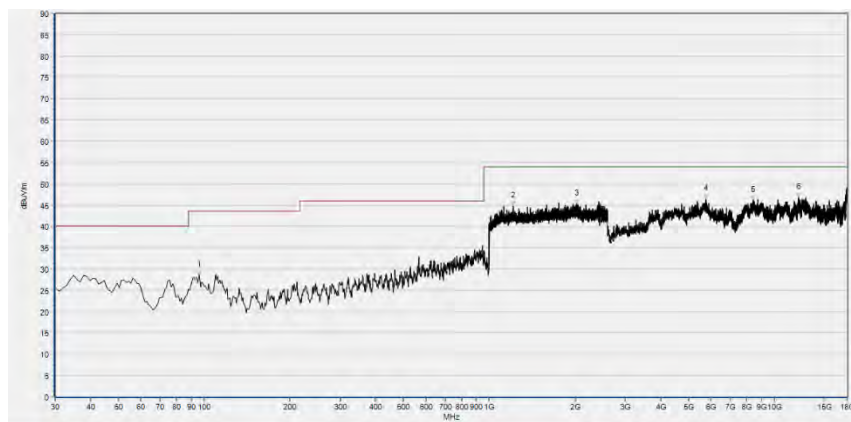


Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
98.870	28.61	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
1317.867	44.80	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
2463.467	45.32	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
5683.080	47.85	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
8467.400	46.68	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
13019.640	47.47	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

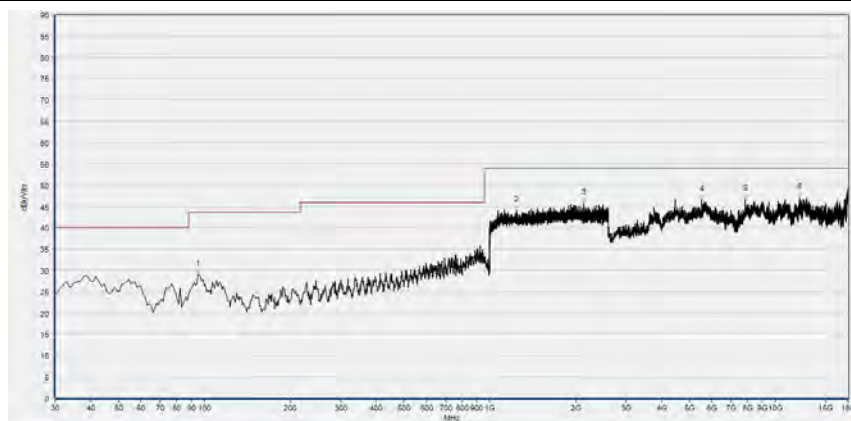
**802.11n (HT20) Mode**

Plot 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
95.960	28.53	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
1214.933	44.80	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
2021.333	45.24	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5741.600	46.37	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
8424.280	46.05	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12166.480	46.80	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

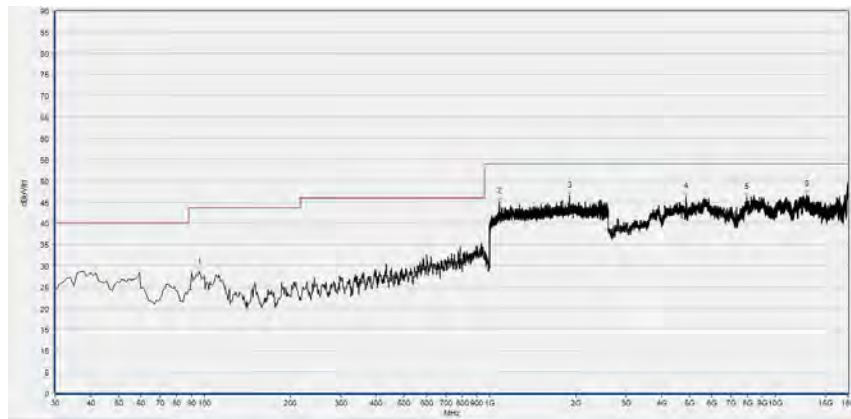


Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
94.990	28.95	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
1240.000	44.00	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
2131.200	45.80	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
5535.240	46.58	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
7866.800	46.70	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12129.520	47.11	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

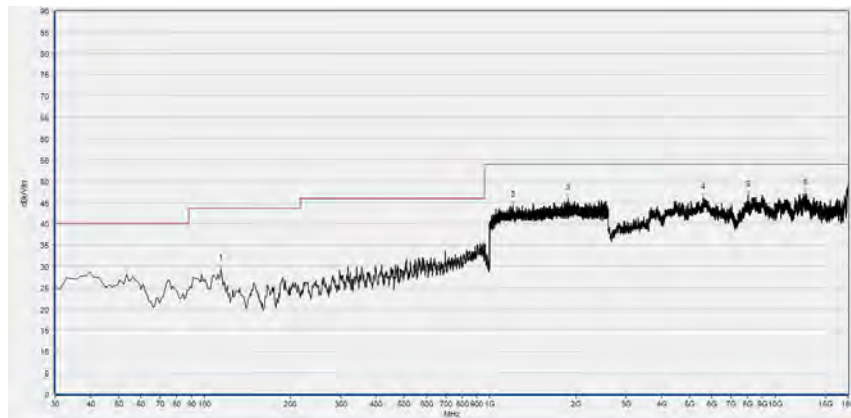


Plot for Channel 6



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
95.960	28.54	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
1079.467	45.05	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
1902.400	46.38	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
4879.200	46.28	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
7962.280	46.01	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12914.920	46.69	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

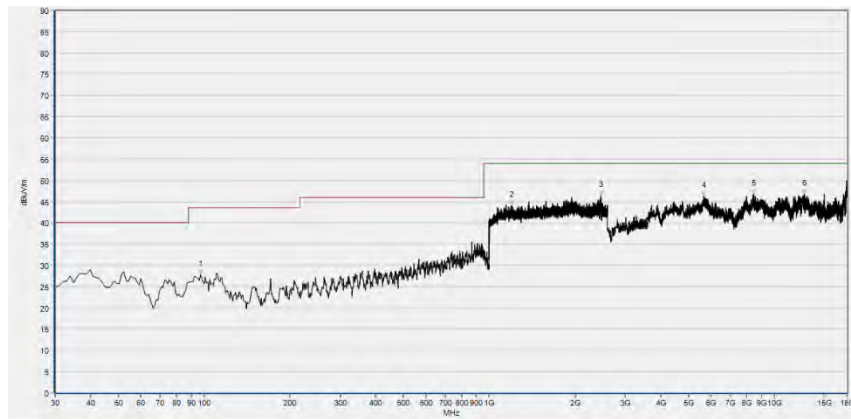


Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
114.390	29.33	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
1209.067	44.18	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
1875.200	46.00	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
5593.760	46.09	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
8014.640	46.78	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12742.440	47.15	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

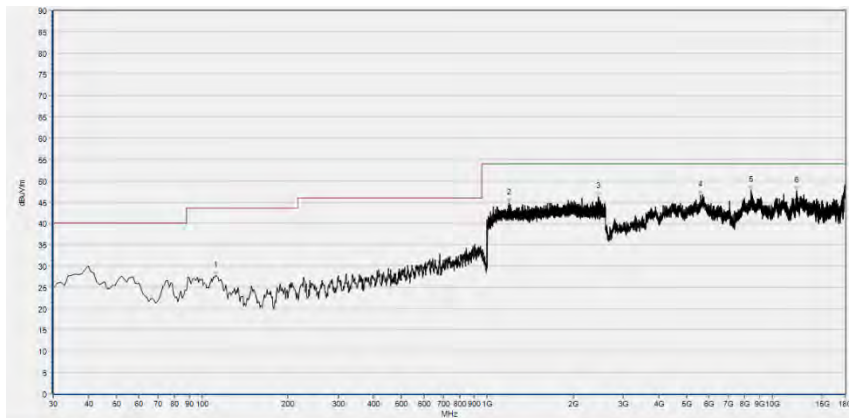


Plot for Channel 11



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
96.930	27.90	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
1200.533	44.00	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
2464.000	46.50	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5667.680	46.23	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
8461.240	46.72	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12736.280	46.73	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

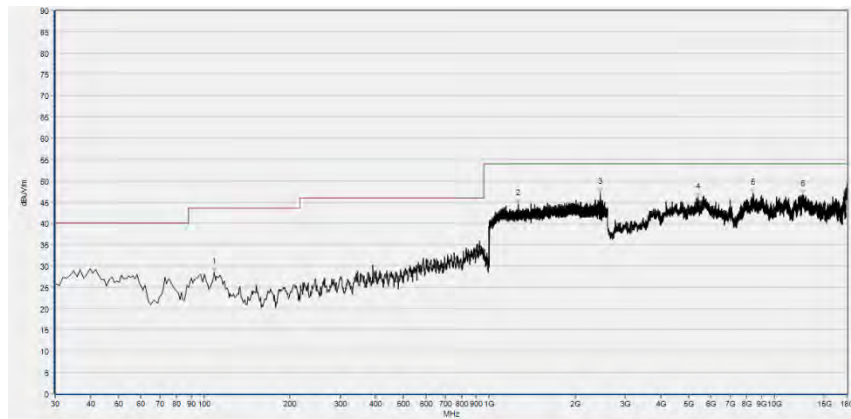


Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
111.480	27.65	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
1195.733	44.82	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
2456.533	46.20	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
5603.000	46.62	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
8427.360	47.83	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12144.920	47.63	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

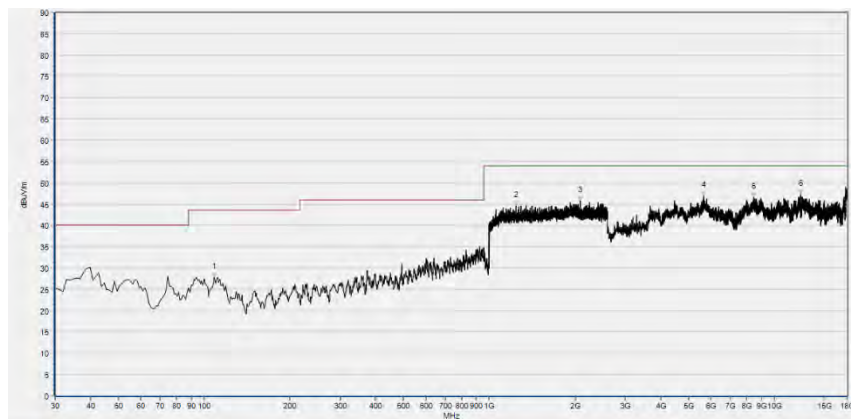
**802.11n (HT40) Mode**

Plot for Channel 3



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
108.570	28.46	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
1260.800	44.60	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
2454.400	47.20	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5393.560	46.09	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
8424.280	47.03	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12573.040	46.68	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

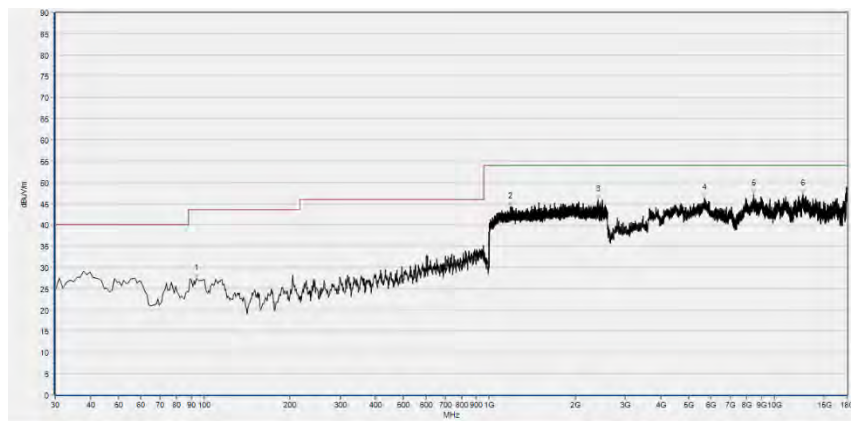


Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
108.570	27.77	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
1241.600	44.53	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
2083.200	45.73	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
5658.440	46.90	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
8461.240	46.53	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12348.200	47.23	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

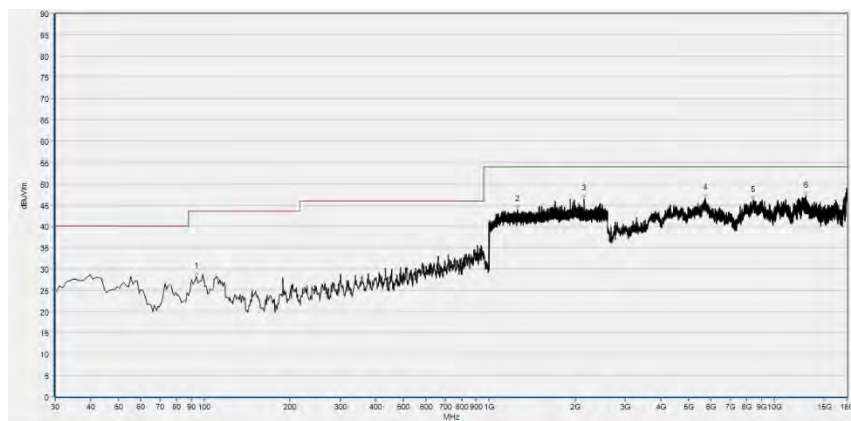


Plot for Channel 6



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
94.020	27.33	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
1187.733	44.19	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
2404.800	45.87	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5695.400	46.30	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
8448.920	47.18	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12582.280	47.24	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

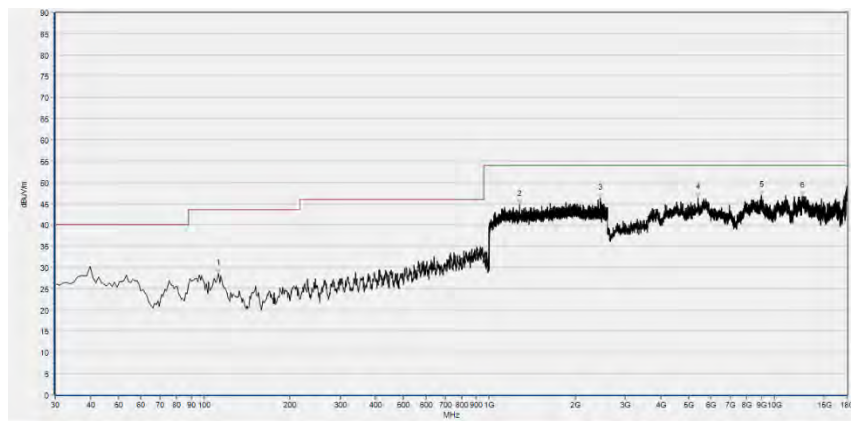


Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
94.020	28.22	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
1252.800	43.84	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
2152.533	46.37	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
5732.360	46.59	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
8427.360	46.06	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12893.360	47.13	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

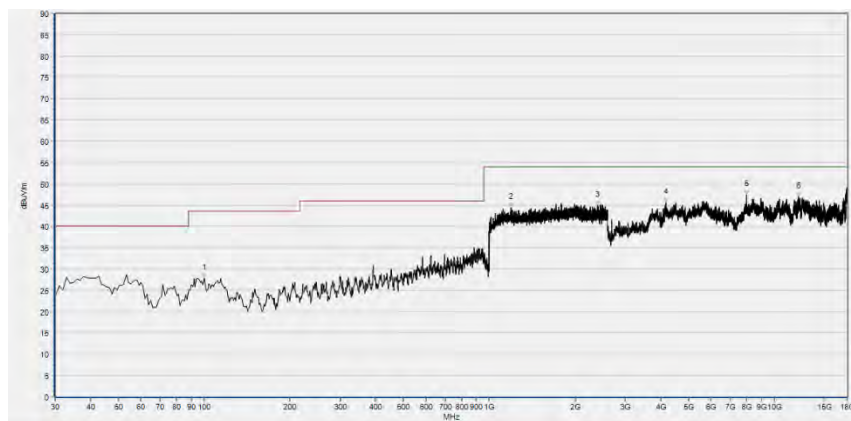


Plot for Channel 9



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
112.450	28.48	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
1276.800	44.67	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
2451.200	46.34	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5390.480	46.38	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
8991.000	46.88	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12492.960	46.71	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

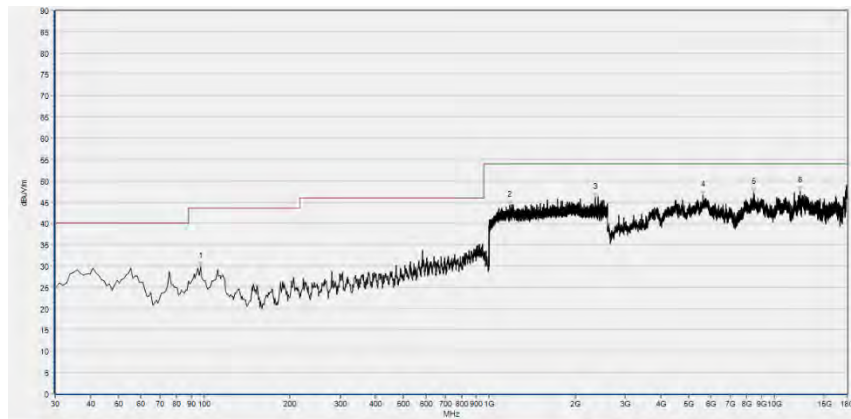


Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
99.840	27.83	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
1194.667	44.46	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
2389.333	44.85	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
4161.560	45.65	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
8002.320	47.39	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12135.680	47.01	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

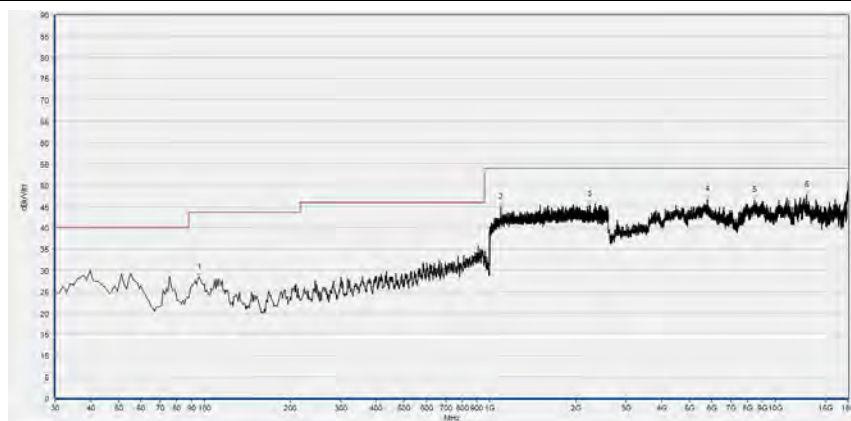
**802.11ac (VHT20) Mode**

Plot 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
96.930	29.77	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
1179.200	44.19	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
2349.333	46.15	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5612.240	46.55	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
8452.000	47.19	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12283.520	47.52	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

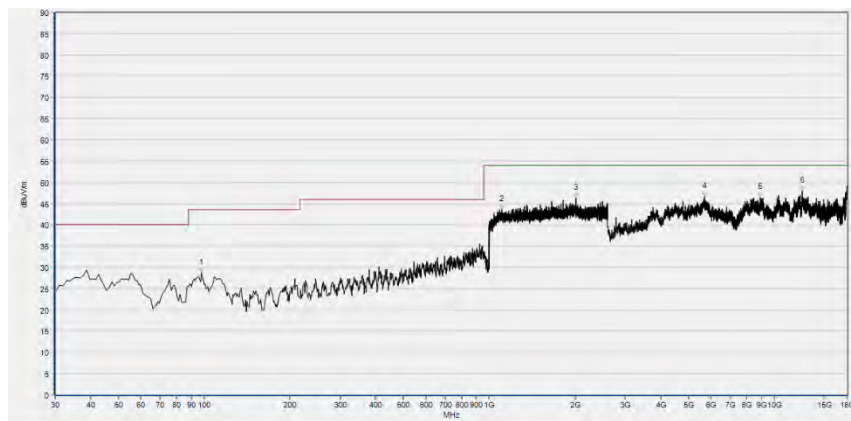


Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
95.960	28.33	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
1096.000	44.78	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
2233.067	45.35	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
5778.560	46.57	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
8467.400	46.35	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12890.280	47.61	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

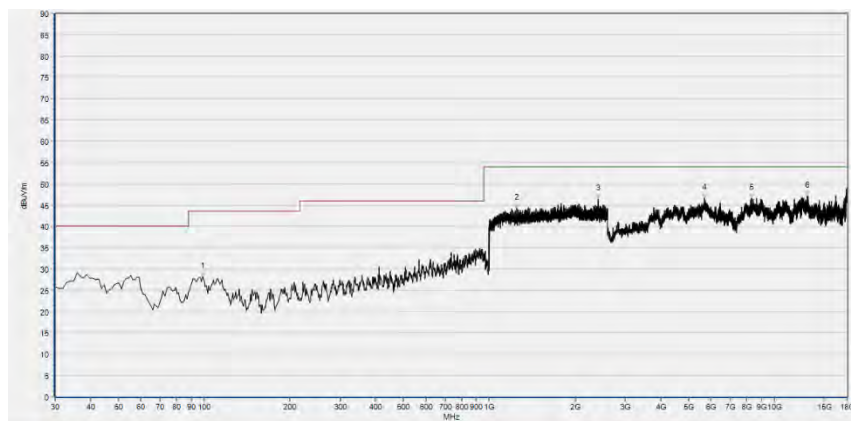


Plot for Channel 6



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
97.900	28.65	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
1105.600	43.56	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
2009.067	46.20	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5676.920	46.56	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
8935.560	46.50	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12523.760	47.87	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

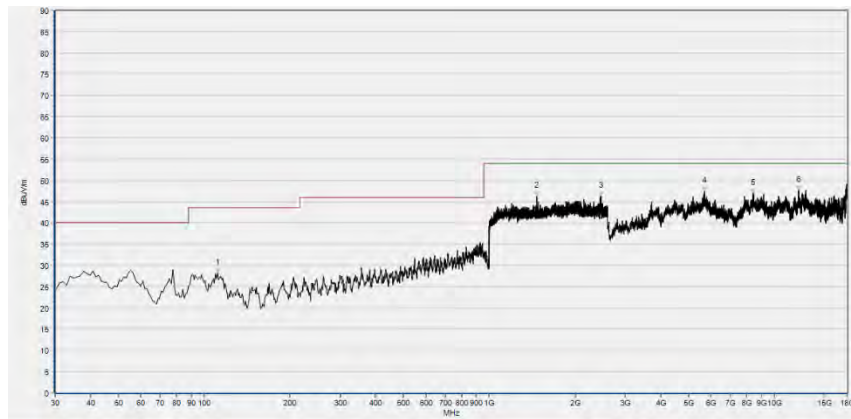


Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
98.870	28.22	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
1248.000	44.23	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
2415.467	46.43	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
5680.000	46.51	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
8334.960	46.55	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
13068.920	47.14	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

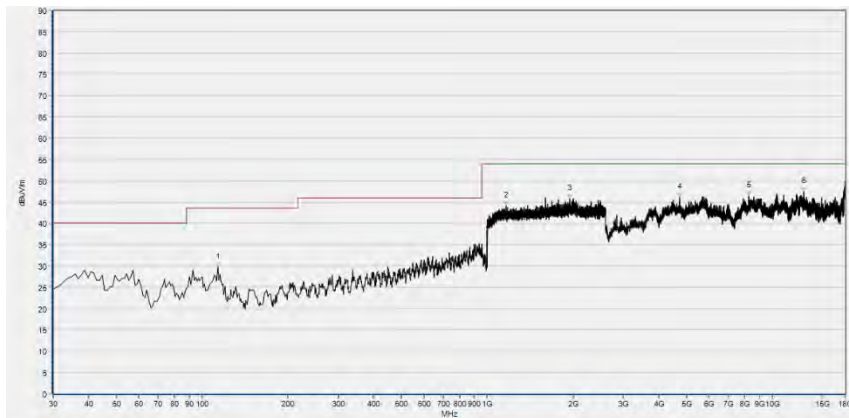


Plot for Channel 11



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
111.480	28.23	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
1465.600	46.20	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
2461.867	46.19	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5698.480	47.36	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
8390.400	46.97	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12141.840	47.64	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

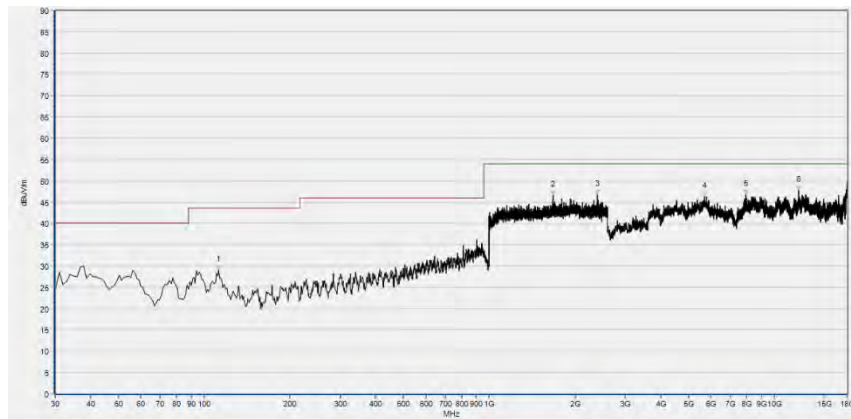


Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
113.420	29.74	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
1166.400	44.05	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
1942.933	45.67	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
4731.360	46.17	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
8245.640	46.35	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12911.840	47.48	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

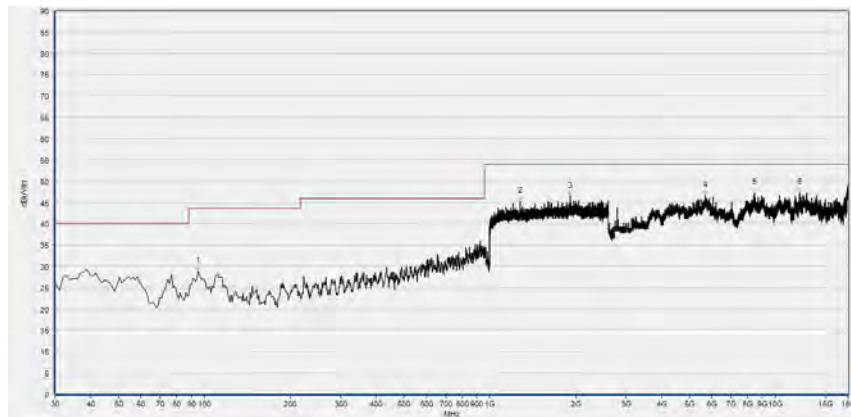
**802.11ac (VHT40) Mode**

Plot for Channel 3



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
112.450	29.06	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
1670.933	46.65	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
2389.867	46.75	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5683.080	46.23	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
7946.880	46.79	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12135.680	47.79	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

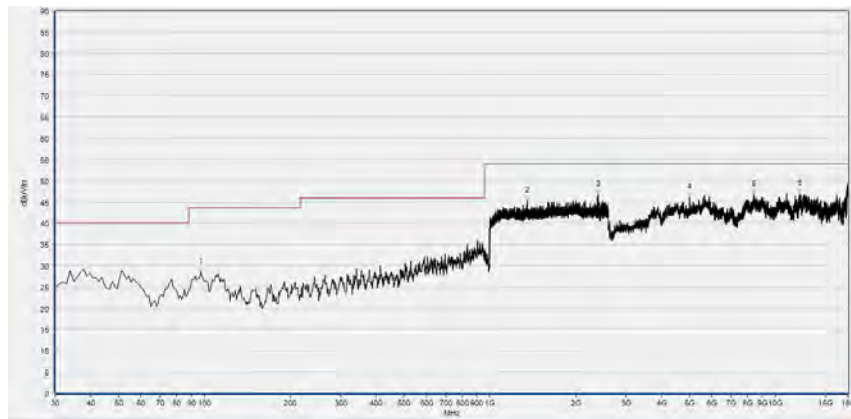
(Antenna Horizontal, 30MHz to 18GHz)



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
94.990	28.77	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
1278.400	45.26	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
1910.400	46.46	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
5695.400	46.52	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
8442.760	47.23	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12135.680	47.22	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

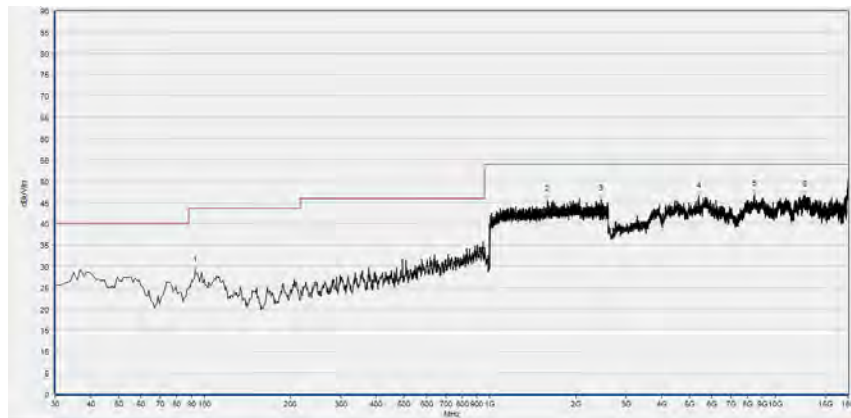
(Antenna Vertical, 30MHz to 18GHz)

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
96.930	28.41	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
1351.467	45.18	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
2388.800	46.80	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5002.400	46.07	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
8396.560	46.79	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12135.680	46.92	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

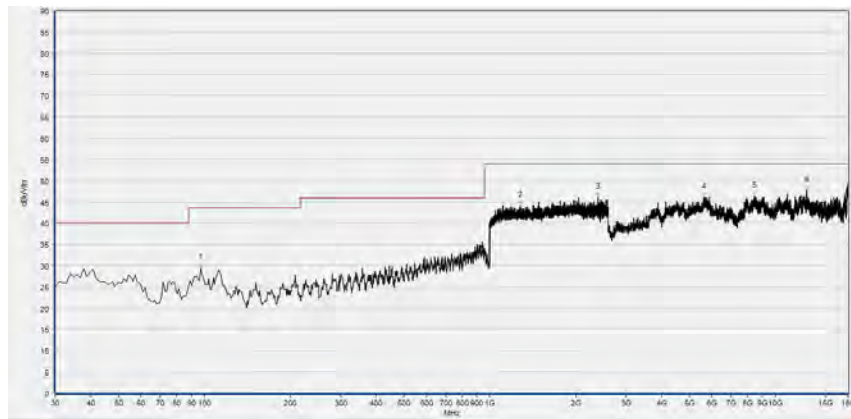
(Antenna Horizontal, 30MHz to 18GHz)



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
93.050	29.04	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
1594.133	45.64	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
2457.600	45.67	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
5393.560	46.37	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
8470.480	46.92	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12665.440	46.69	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

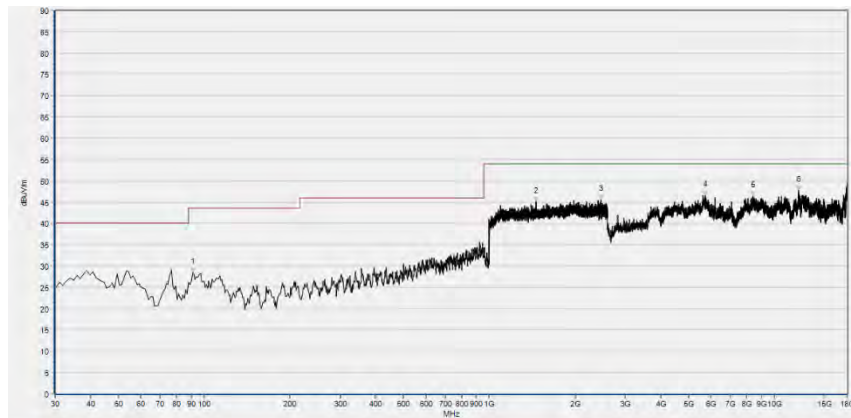
(Antenna Vertical, 30MHz to 18GHz)

Plot for Channel 9



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
96.930	29.43	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
1280.533	44.03	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
2390.400	46.06	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5606.080	46.09	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
8452.000	46.37	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12893.360	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
91.110	28.49	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
1458.133	45.15	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
2462.933	45.65	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
5704.640	46.60	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
8418.120	46.43	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12184.960	47.69	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	$\pm 2.22\text{dB}$
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

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

2. Identification of the Responsible Testing Location

Name:	Shenzhen Morlab Communications Technology Co., Ltd.
Address:	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	Due Date
Attenuator 1	(N/A.)	10dB	Resent	N/A	N/A
EXA Signal Analyzer	MY53470836	N9010A	Agilent	2021.03.25	2022.03.24
USB Wideband Power Sensor	MY54210011	U2021XA	Agilent	2021.03.25	2022.03.24
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	Due Date
Receiver	MY56400093	N9038A	KEYSIGHT	2021.03.09	2022.03.08
LISN	812744	NSLK 8127	Schwarzbeck	2021.03.09	2022.03.08
Pulse Limiter (10dB)	VTSD 9561 F-B #206	VTSD 9561-F	Schwarzbeck	2021.07.21	2022.07.20
Coaxial Cable(BNC) (30MHz-26GHz)	CB01	EMC01	Morlab	N/A	N/A

4.3 List of Software Used

Description	Manufacturer	Software Version
Test System	Townsend	V2.6
Power Panel	Agilent	V3.8
MORLAB EMCR V1.2	MORLAB	V1.0
TS+ -[JS32-CE]	Tonscend	V2.5.0.0

**4.4 Radiated Test Equipments**

Equipment Name	Serial No.	Type	Manufacturer	Cal. Date	Due Date
Receiver	MY54130016	N9038A	Agilent	2021.07.16	2022.07.15
Test Antenna - Bi-Log	9163-519	VULB 9163	Schwarzbeck	2019.05.24	2022.05.23
Test Antenna - Loop	1519-022	FMZB1519	Schwarzbeck	2019.02.14	2022.02.14
Test Antenna – Horn	01774	BBHA 9120D	Schwarzbeck	2019.07.26	2022.07.25
Test Antenna – Horn	BBHA9170 #774	BBHA9170	Schwarzbeck	2019.07.26	2022.07.25
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
Coaxial Cable (N male) (30MHz-40GHz)	CB05	EMC05	Morlab	N/A	N/A
1-18GHz pre-Amplifier	61171/61172	S020180L32 03	Tonscend	2021.07.16	2022.07.15
18-26.5GHz pre-Amplifier	46732	S10M100L38 02	Tonscend	2021.07.16	2022.07.15
26-40GHz pre-Amplifier	56774	S40M400L40 02	Tonscend	2021.07.16	2022.07.15
Notch Filter	N/A	WRCG-2400-2483.5-60SS	Wainwright	2021.07.16	2022.07.15
Anechoic Chamber	N/A	9m*6m*6m	CRT	2020.01.06	2023.01.05

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