TEST REPORT

APPLICANT	:	Nubia Technology Co., Ltd.
PRODUCT NAME	:	5G Mobile Phone
MODEL NAME	:	NX709J
BRAND NAME	:	REDMAGIC
FCC ID	:	2AHJO-NX709J
STANDARD(S)	:	47 CFR Part 15 Subpart C
RECEIPT DATE	:	2022-01-25
TEST DATE	:	2022-02-14 to 2022-03-16
ISSUE DATE	:	2022-03-30

Edited by: Peng Mi

Peng Mi (Rapporteur)

Approved by: Shen Junsheng

Shen Junsheng (Supervisor)

MORLAB

Shenzhen Morlab Communications Technology Co., Ltd.
FL1-3, Building A, FeiYang Science Park, No.8 LongChang Road,
Block67, BaoAn District, ShenZhen , GuangDong Province, P. R. China

Tel: 86-755-36698555 Fax: 86-755-36698525
Http://www.morlab.cn E-mail: service@morlab.cn

DIRECTORY

Change History		
Version	Date	Reason for change
1.0	2022-03-30	First edition

1. Technical Information

Note: Provide by applicant.

1.1. Applicant and Manufacturer Information

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

1.2. Equipment Under Test (EUT) Description

Product Name:	5G Mobile Phone	
Sample No.:	5#	
Hardware Version:	NX709J_V1AMB	
Software Version:	NX709J_UNCommon_V4.01	
Modulation Technology:	DSSS, OFDM, OFDMA	
Modulation Type:	Refer to section1.3	
Wireless Technology:	802.11b, 802.11g, 802.11n (HT20) 802.11ax (HEW20), 802.11ax (HEW40)	
Operating Frequency Range:	2412MHz–2462MHz	
Antenna Type:	PIFA Antenna	
Antenna Gain:	ANT 0: 0.70dBi; ANT 1: -0.50dBi	
Directional Gain:	3.71dBi$_{\text{Note 2}}$	
Accessory Information:	Battery	
	Brand Name:	nubia
	Model No.:	Li3923T89P8h636590
	Serial No.:	N/A
	Capacity:	2380mAh
	Rated Voltage:	7.78V
	Charge Limit:	8.96V
	Manufacturer:	Dongguan Amperex Technology Limited

Accessory Information:	AC Adapter	
	Brand Name:	nubia
	Model No.:	STC-A59152050AC-Z
	Serial No.:	N/A
	Rated Output:	5.0V⎓3.0A, 9.0V⎓3.0A, 15.0V⎓3.0A, 20.0V⎓3.0A PPS:5.0V-11.0V⎓5.0A, 5.0V-20.0V⎓3.25A
	Rated Input:	100-240V~50/60Hz, 1.5A
	Manufacturer:	ShenZhen KunXing Technology Co., Ltd.
	USB Cable	
	Model No.:	N52111200016D

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

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

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

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

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

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

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

1.3. Modulation Type and Data Rate of EUT

Mode	Bandwidth (MHz)	Modulation Technology	Modulation Type	Data Rate	RU Size
802.11b	20	DSSS	**DBPSK**	**1**/2/5.5/11Mbps	N/A
			DQPSK		
			CCK		
802.11g	20	OFDM	**BPSK**	**6**/9/12/18/24/36/48/54 Mbps	N/A
			QPSK		
			16QAM		
			64QAM		
802.11n	20 (HT20)	OFDM	**BPSK**	**MCS0**~MCS7	N/A
			QPSK		
			16QAM		
			64QAM		
802.11ax	20/40 (HEW20/40)	OFDMA	**BPSK**	**MSC0**~MCS11	26/52/106/ 242/484
			QPSK		
			16QAM		
			64QAM		
			256QAM		
			1024QAM		

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

1.4. The Channel Number and Frequency

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

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

1.5. Test Standards and Results

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

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

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

No.	Section	Description	Test Date	Test Engineer	Result	Method determination /Remark
1	15.203	Antenna Requirement	N/A	N/A	PASS	No deviation
2	N/A	Duty Cycle of Test Signal	Feb. 14, 2022	Su Xiaoxian	PASS	No deviation
3	15.247(b)	Maximum Conducted Output Power	Mar. 05, 2022	Su Xiaoxian	PASS	No deviation
4	15.247(a)	Bandwidth	Feb. 28, 2022	Su Xiaoxian	PASS	No deviation
5	15.247(d)	Conducted Spurious Emission and Band Edge	Feb. 28, 2022	Su Xiaoxian	PASS	No deviation
6	15.247(e)	Power Spectral Density (PSD)	Feb. 28, 2022	Su Xiaoxian	PASS	No deviation
7	15.207	Conducted Emission	Feb. 14, 2022	Zhang Bangyi	PASS	No deviation
8	15.247(d)	Restricted Frequency Bands	Mar. 16, 2022	Gao Jianrou	PASS	No deviation
9	15.209, 15.247(d)	Radiated Emission	Mar. 16, 2022	Gao Jianrou	PASS	No deviation

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

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

Note 3: Additions to, deviation, or exclusions from the method shall be judged in the "method determination" column of add, deviate or exclude from the specific method shall be explained in the "Remark" of the above table.
Note 4: When the test result is a critical value, we will use the measurement uncertainty give the judgment result based on the 95% confidence intervals.

1.6. 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.

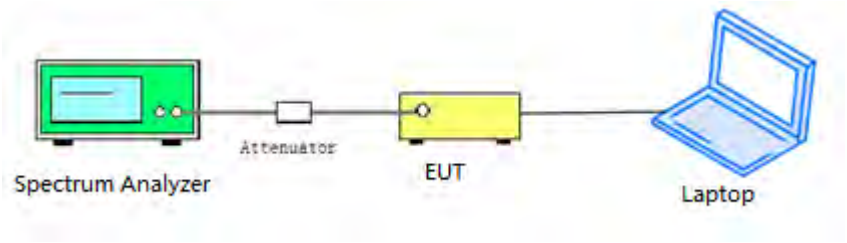
2.2. Duty Cycle of Test Signal

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

2.2.2. Test Description

Test Setup:



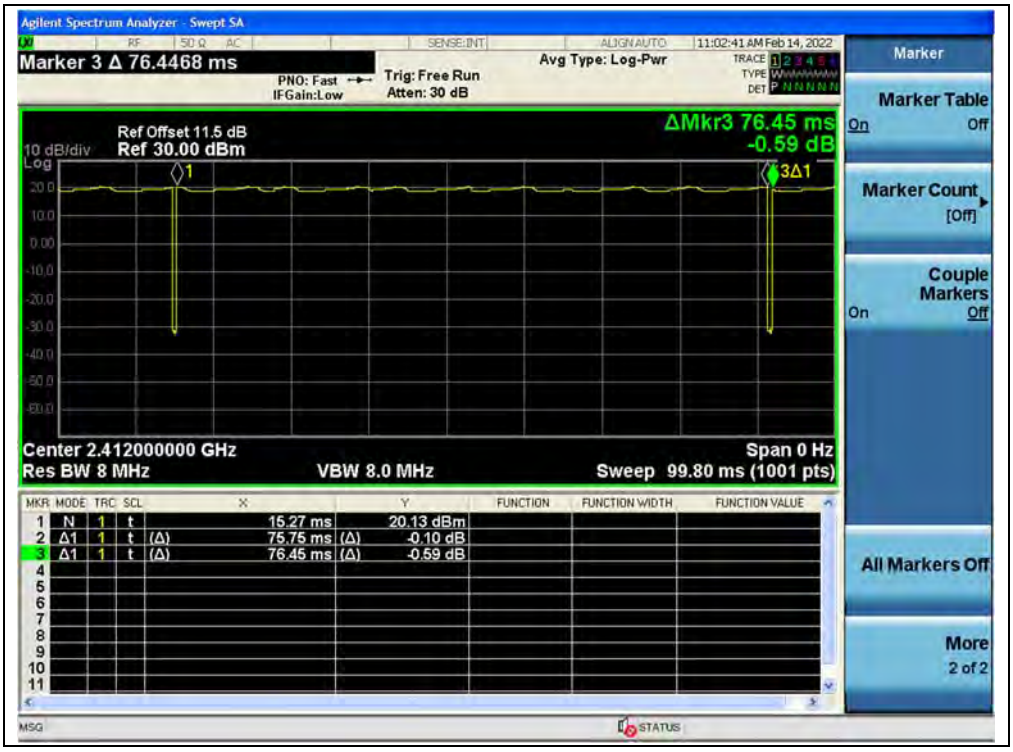
ANSI C63.10 2013 Clause 11.6 was used in order to prove compliance.

2.2.3. Test Result

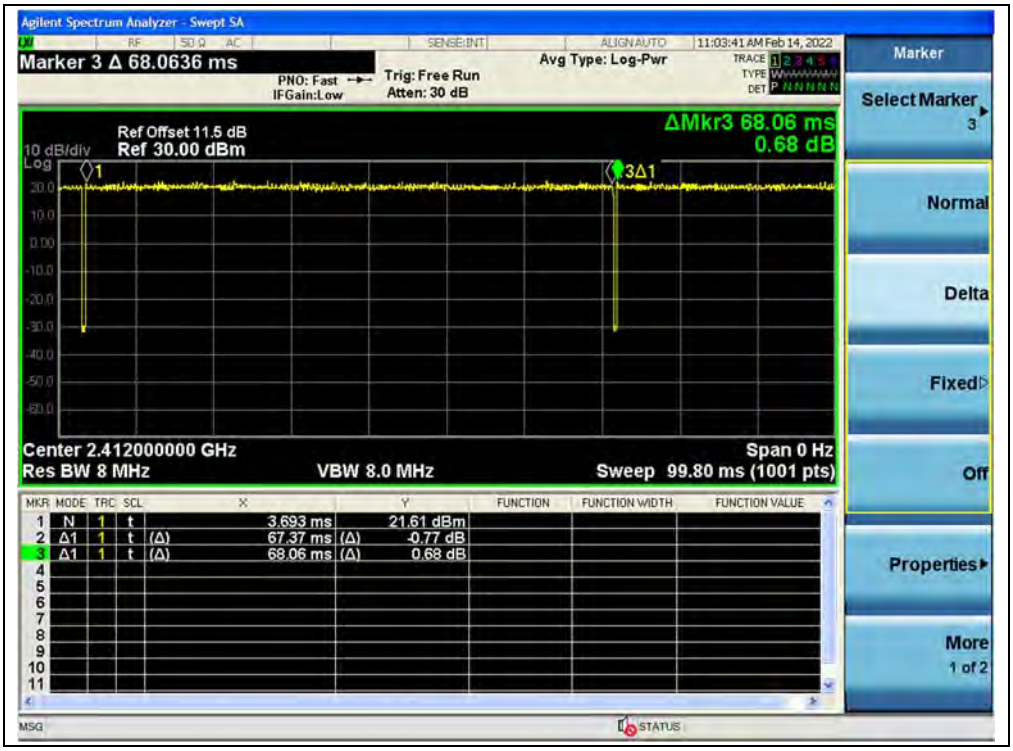
A.Test Verdict:

Test Mode	Duty Cycle (%) (D)	Duty Factor (10*lg[1/D])
802.11b	99.08	0.04
802.11g	98.99	0.04
802.11n (HT20)	99.02	0.04
802.11ax (HEW20)	99.09	0.04
802.11ax (HEW20) RU26	98.43	0.07
802.11ax (HEW40)	98.94	0.05

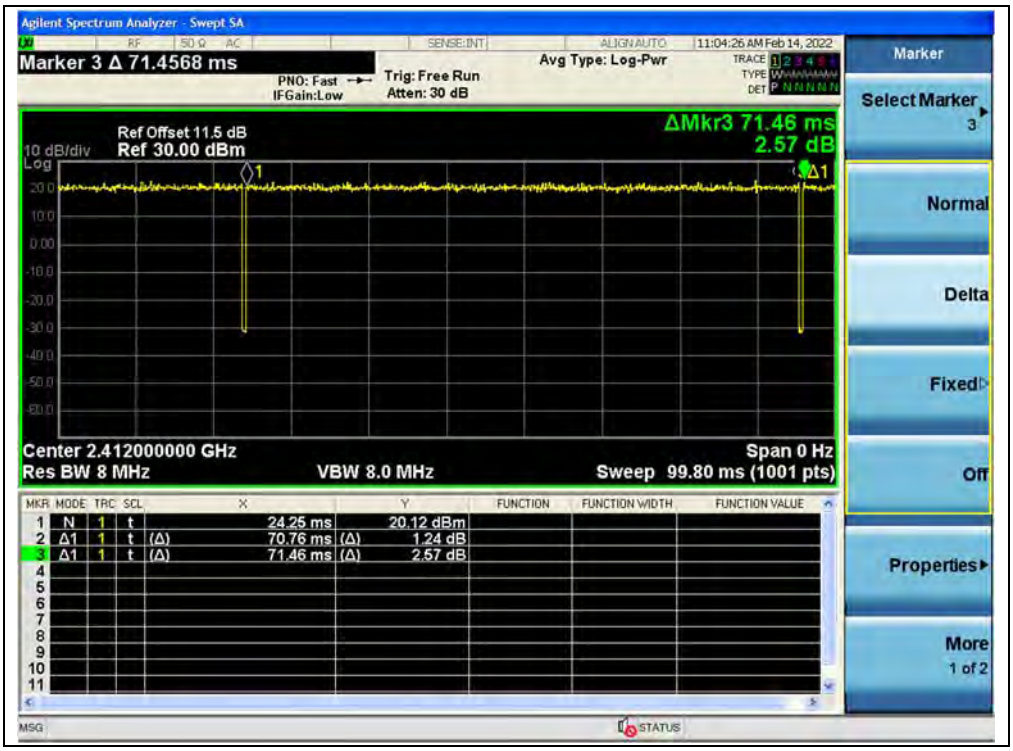
B.Test Plot:



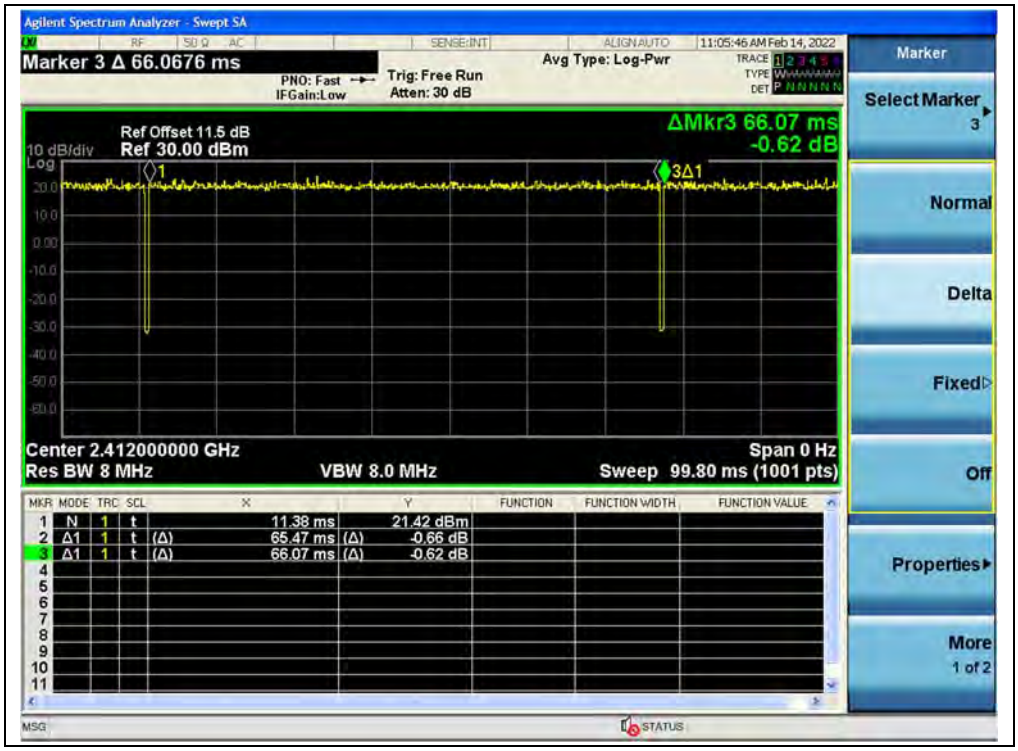
(Channel 1, 802.11b)



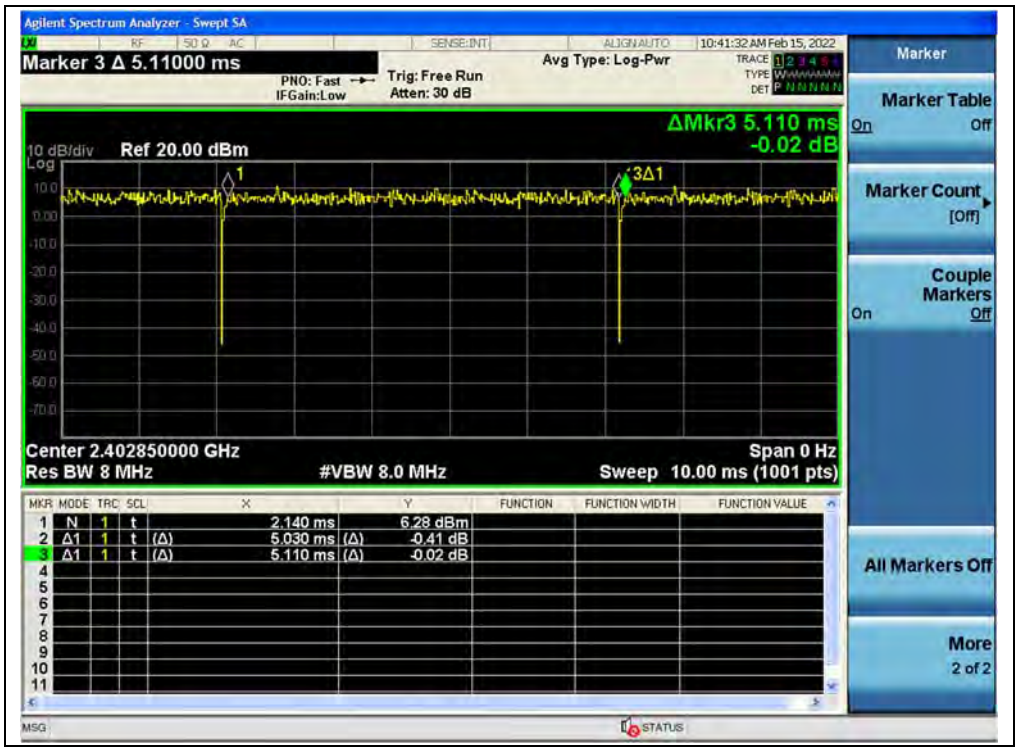
(Channel 1, 802.11g)



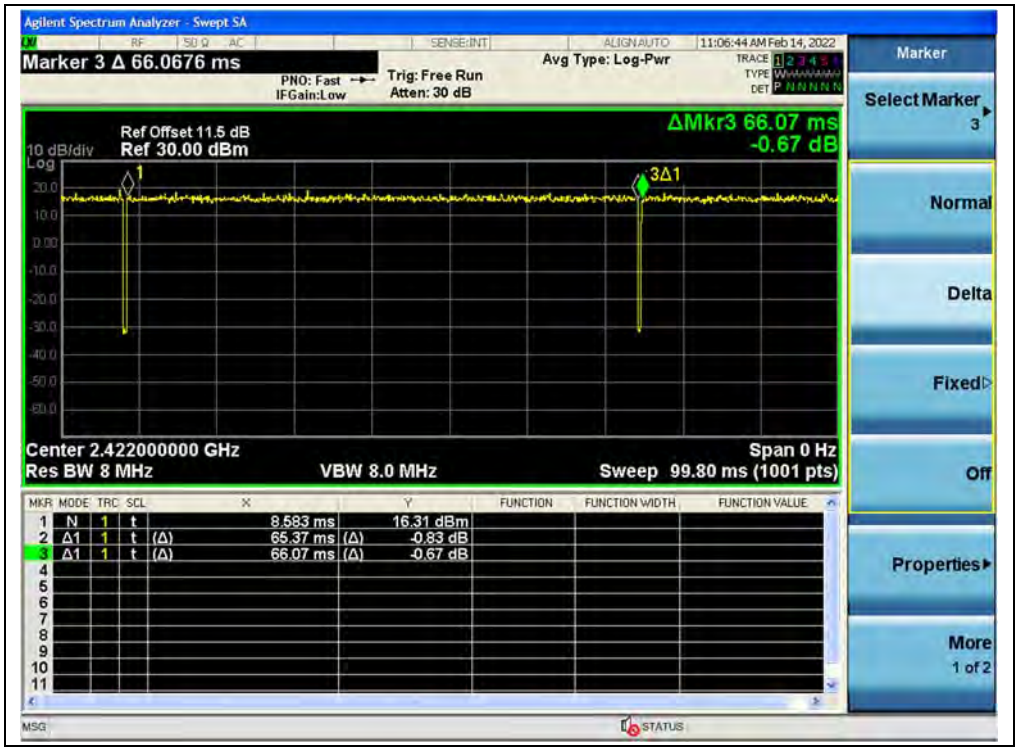
(Channel 1, 802.11n (HT20))



(Channel 1, 802.11ax (HEW20))



(Channel 1, 802.11ax (HEW20) RU26)



(Channel 3, 802.11ax (HEW40))

2.3. Maximum Conducted Output Power

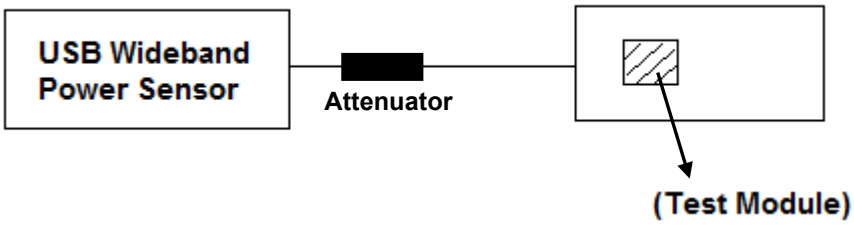
2.3.1. Requirement

According to FCC section 15.247(b)(3), For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: The maximum conducted output power of the intentional radiator shall not exceed1 Watt.

2.3.2. Test Description

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

Test Setup:



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

2.3.3. Test Result

Maximum Peak Conducted Output Power

802.11b Mode

Channel	Frequency (MHz)	Measured Peak Power				Limit (dBm)		Verdict
		ANT 0		ANT 1				
		dBm	W	dBm	W	dBm	W	
1	2412	17.46	0.056	17.29	0.054	30	1	PASS
6	2437	17.31	0.054	17.25	0.053			PASS
11	2462	17.14	0.052	17.26	0.053			PASS

802.11g Mode

Channel	Frequency (MHz)	Measured Peak Power				Limit (dBm)		Verdict
		ANT 0		ANT 1				
		dBm	W	dBm	W	dBm	W	
1	2412	**20.65**	**0.116**	20.11	0.103	30	1	PASS
6	2437	20.57	0.114	**20.42**	0.110			PASS
11	2462	20.53	0.113	20.22	0.105			PASS

802.11n (HT20) Mode

Channel	Frequency (MHz)	Measured Peak Power (dBm)		Total Power (dBm)	Total Power (W)	Limit		Verdict
		ANT 0	ANT 1			dBm	W	
1	2412	20.47	20.15	23.32	0.215	30	1	PASS
6	2437	20.52	20.36	23.44	0.221			PASS
11	2462	20.16	20.08	23.14	0.206			PASS
Note: Directional gain = 0.70dBi +10log(2) =3.71dBi＜6dBi, so the power limit is 1W(30dBm).								

802.11ax (HEW20) Mode

Channel	Frequency (MHz)	Measured Peak Power (dBm)		Total Power (dBm)	Total Power (W)	Limit		Verdict
		ANT 0	ANT 1			dBm	W	
1	2412	21.07	20.82	**23.96**	**0.249**	30	1	PASS
6	2437	20.91	20.49	23.71	0.235			PASS
11	2462	20.15	20.22	23.20	0.209			PASS
Note: Directional gain = 0.70dBi +10log(2) =3.71dBi＜6dBi, so the power limit is 1W(30dBm).								

802.11ax (HEW20) RU26 Mode

Channel	Frequency (MHz)	Measured Peak Power (dBm)		Total Power (dBm)	Total Power (W)	Limit		Verdict
		ANT 0	ANT 1			dBm	W	
1	2412	18.46	18.02	21.27	0.134	30	1	PASS
6	2437	18.57	18.36	21.46	0.140			PASS
11	2462	18.66	18.54	**21.61**	**0.145**			PASS
Note: Directional gain = 0.70dBi +10log(2) =3.71dBi＜6dBi, so the power limit is 1W(30dBm).								

802.11ax (HEW40) Mode

Channel	Frequency (MHz)	Measured Peak Power (dBm)		Total Power (dBm)	Total Power (W)	Limit		Verdict
		ANT 0	ANT 1			dBm	W	
3	2422	18.49	17.98	21.24	0.133	30	1	PASS
6	2437	18.50	17.68	21.11	0.129			PASS
9	2452	18.41	17.59	21.04	0.127			PASS
Note: Directional gain = 0.70dBi +10log(2) =3.71dBi＜6dBi, so the power limit is 1W(30dBm).								

Maximum Average Conducted Output Power

802.11b Mode

Frequency (MHz)	Average Power							Limit		Verdict
	Measured		Duty Factor	Duty factor Calculated						
	ANT 0	ANT 1		ANT 0		ANT 1				
	dBm	dBm		dBm	W	dBm	W	dBm	W	
2412	15.67	14.91	0.04	15.71	0.037	14.95	0.031	30	1	PASS
2437	15.20	15.52		15.24	0.033	15.56	0.036			PASS
2462	15.24	15.15		15.28	0.034	15.19	0.033			PASS

802.11g Mode

Frequency (MHz)	Average Power							Limit		Verdict
	Measured		Duty Factor	Duty factor Calculated						
	ANT 0	ANT 1		ANT 0		ANT 1				
	dBm	dBm		dBm	W	dBm	W	dBm	W	
2412	14.46	14.15	0.04	14.50	0.028	14.19	0.026	30	1	PASS
2437	14.50	14.62		14.54	0.028	14.66	0.029			PASS
2462	14.40	14.44		14.44	0.028	14.48	0.028			PASS

802.11n (HT20) Mode

Frequency (MHz)	Average Power					Limit		Verdict
	Measured		Duty Factor	Total Power with Duty Factor				
	ANT 0	ANT 1						
	dBm	dBm		dBm	W	dBm	W	
2412	13.35	12.82	0.04	16.13	0.041	30	1	PASS
2437	13.35	13.15		16.33	0.043			PASS
2462	13.17	13.08		16.13	0.041			PASS
Note: Directional gain = 0.70dBi +10log(2) =3.71dBi＜6dBi, so the power limit is 1W(30dBm).								

802.11ax (HEW20) Mode

Frequency (MHz)	Average Power					Limit		Verdict
	Measured		Duty Factor	Total Power with Duty Factor				
	ANT 0	ANT 1						
	dBm	dBm		dBm	W	dBm	W	
2412	12.60	11.84	0.04	15.31	0.034	30	1	PASS
2437	12.55	12.35		15.44	0.035			PASS
2462	12.36	12.08		15.31	0.034			PASS
Note: Directional gain = 0.70dBi +10log(2) =3.71dBi＜6dBi, so the power limit is 1W(30dBm).								

802.11ax (HEW20) RU26 Mode

Frequency (MHz)	Average Power					Limit		Verdict
	Measured		Duty Factor	Total Power with Duty Factor				
	ANT 0	ANT 1						
	dBm	dBm		dBm	W	dBm	W	
2412	11.82	11.81	0.07	14.91	0.031	30	1	PASS
2437	13.12	12.92		**16.13**	**0.041**			PASS
2462	12.92	13.05		16.02	0.040			PASS
Note: Directional gain = 0.70dBi +10log(2) =3.71dBi＜6dBi, so the power limit is 1W(30dBm).								

802.11ax (HEW40) Mode

Frequency (MHz)	Average Power					Limit		Verdict
	Measured		Duty Factor	Total Power with Duty Factor				
	ANT 0	ANT 1						
	dBm	dBm		dBm	W	dBm	W	
2422	11.56	11.92	0.05	14.77	0.030	30	1	PASS
2437	12.36	11.92		**15.19**	**0.033**			PASS
2452	11.92	11.83		14.91	0.031			PASS
Note: Directional gain = 0.70dBi +10log(2) =3.71dBi＜6dBi, so the power limit is 1W(30dBm).								

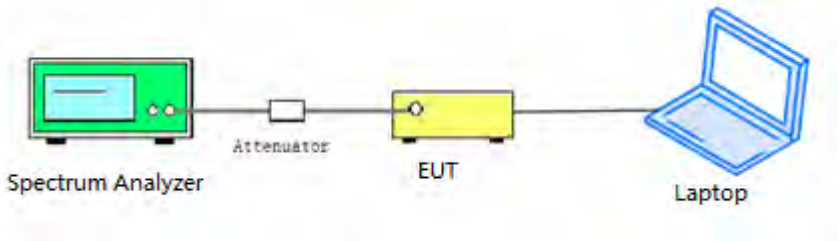
2.4. Bandwidth

2.4.1. Requirement

According to FCC section 15.247(a) (2), Systems using digital modulation techniques may operate in the 902 - 928 MHz, 2400 - 2483.5 MHz, and 5725 - 5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

2.4.2. Test Description

Test Setup:



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

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

2.4.3. Test Procedure

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

2.4.4. Test Result

802.11b Mode

A.Test Verdict:

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limits(kHz)	Result
1	2412	7.779	≥500	PASS
6	2437	7.417	≥500	PASS
11	2462	7.510	≥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	16.02	≥500	PASS
6	2437	16.31	≥500	PASS
11	2462	16.01	≥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	16.80	≥500	PASS
6	2437	17.16	≥500	PASS
11	2462	17.56	≥500	PASS

B.Test Plot:

(Channel 1, 802.11n (HT20))

(Channel 6, 802.11n (HT20))

(Channel 11, 802.11n (HT20))

802.11ax (HEW20) Mode

A.Test Verdict:

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limits(kHz)	Result
1	2412	18.68	≥500	PASS
6	2437	18.61	≥500	PASS
11	2462	18.39	≥500	PASS

B.Test Plot:

(Channel 3, 802.11ax (HEW20))

(Channel 6, 802.11ax (HEW20))

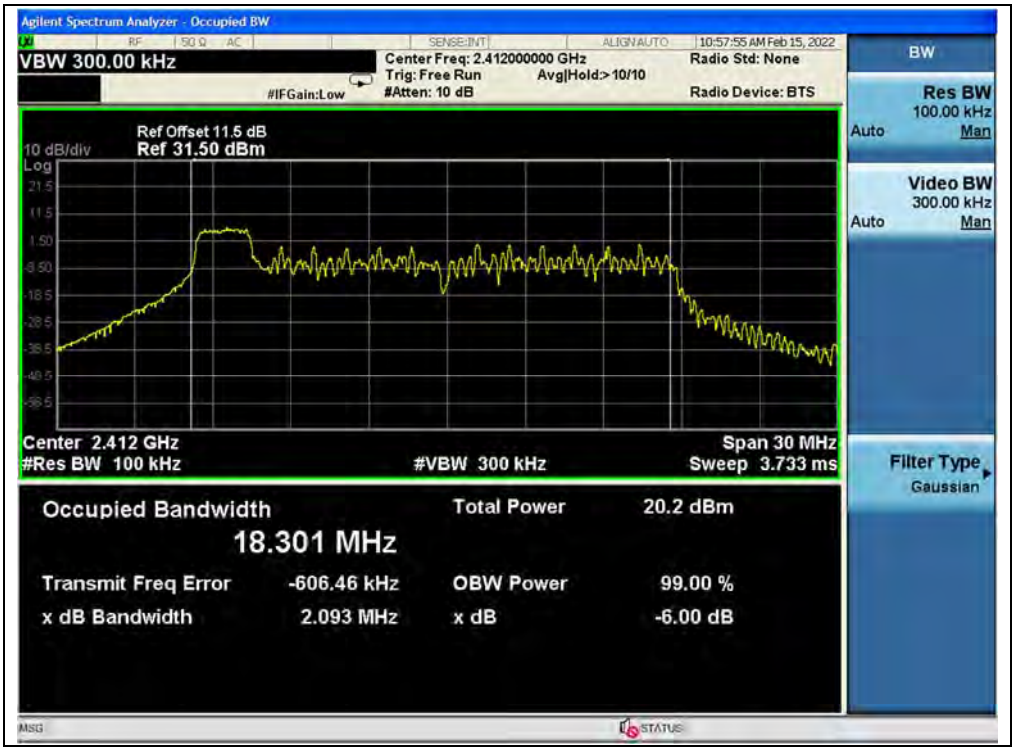
(Channel 9, 802.11ax (HEW20))

802.11ax (HEW20) RU26 Mode

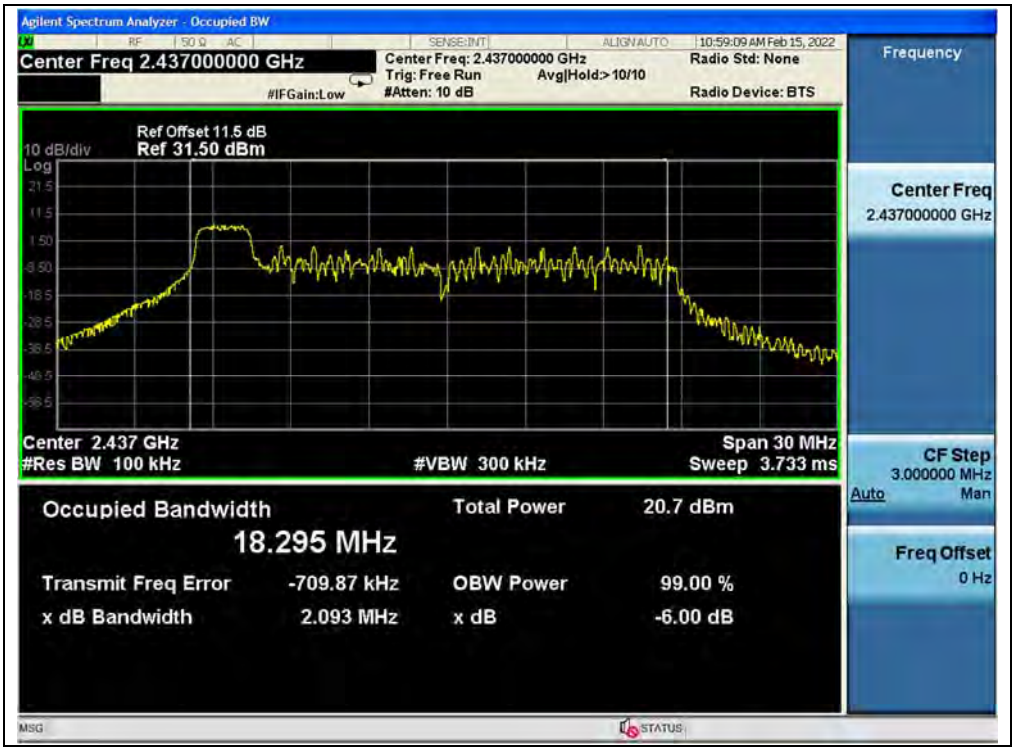
A.Test Verdict:

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limits(kHz)	Result
1	2412	2.093	≥500	PASS
6	2437	2.093	≥500	PASS
11	2462	2.085	≥500	PASS

B.Test Plot:



(Channel 3, 802.11ax (HEW20) RU26)



(Channel 6, 802.11ax (HEW20) RU26)

(Channel 9, 802.11ax (HEW20) RU26)

802.11ax (HEW40) Mode

A.Test Verdict:

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limits(kHz)	Result
3	2422	37.64	≥500	PASS
6	2437	38.04	≥500	PASS
9	2452	37.97	≥500	PASS

B.Test Plot:

(Channel 3, 802.11ax (HEW40))

(Channel 6, 802.11ax (HEW40))

(Channel 9, 802.11ax (HEW40))

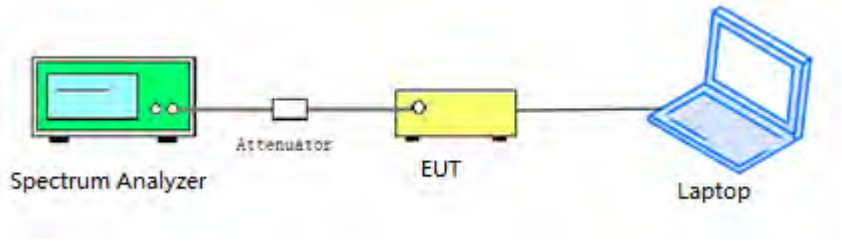
2.5. Conducted Spurious Emissions and Band Edge

2.5.1. Requirement

According to FCC section 15.247(c), in any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.

2.5.2. Test Description

Test Setup:



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

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

2.5.3. Test Procedure

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

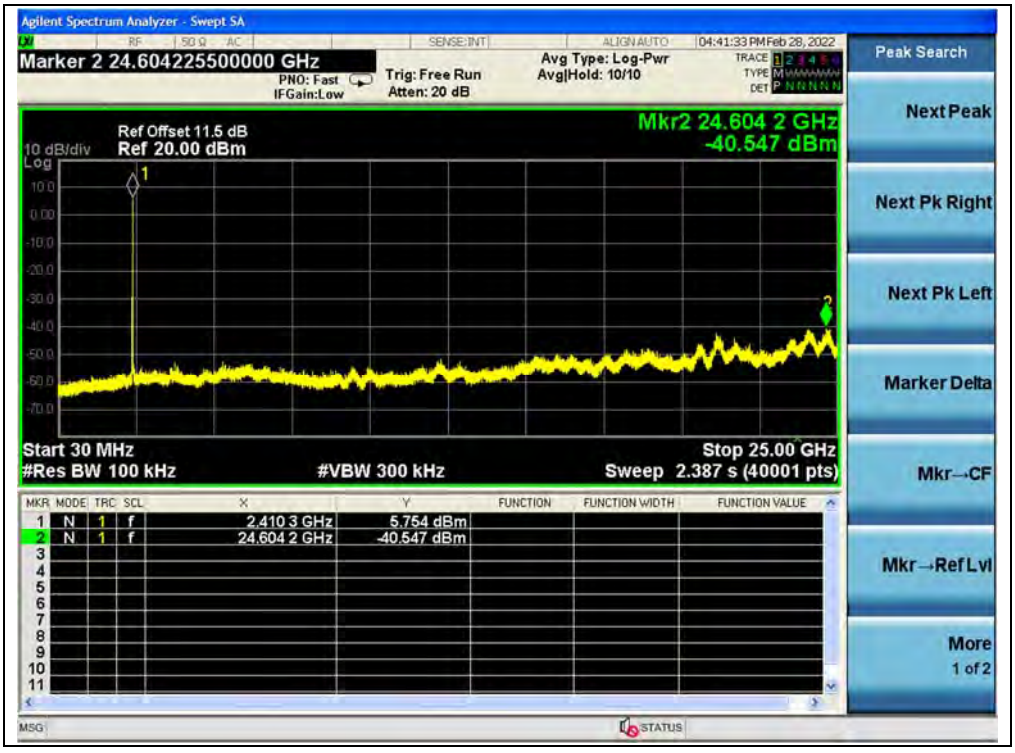
2.5.4. Test Result

802.11b Mode

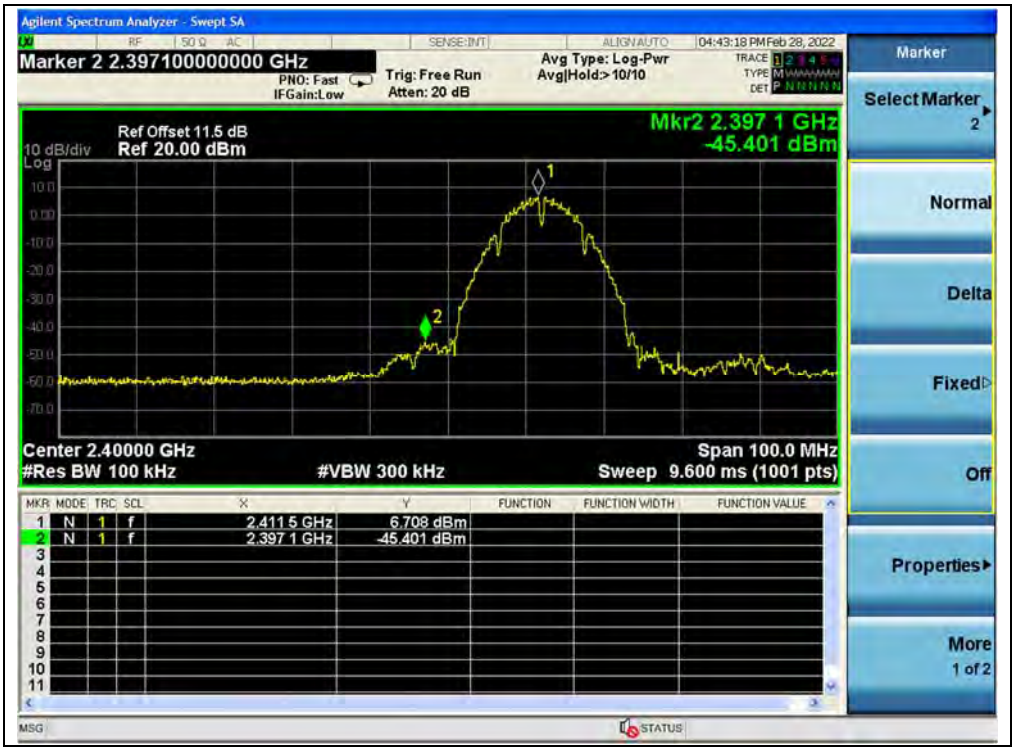
A.Test Verdict:

Channel	Frequency (MHz)	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
			Carrier Level	Calculated -20dBc Limit	
1	2412	-40.55	5.75	-14.25	PASS
6	2437	-40.68	5.73	-14.27	PASS
11	2462	-40.53	5.74	-14.26	PASS

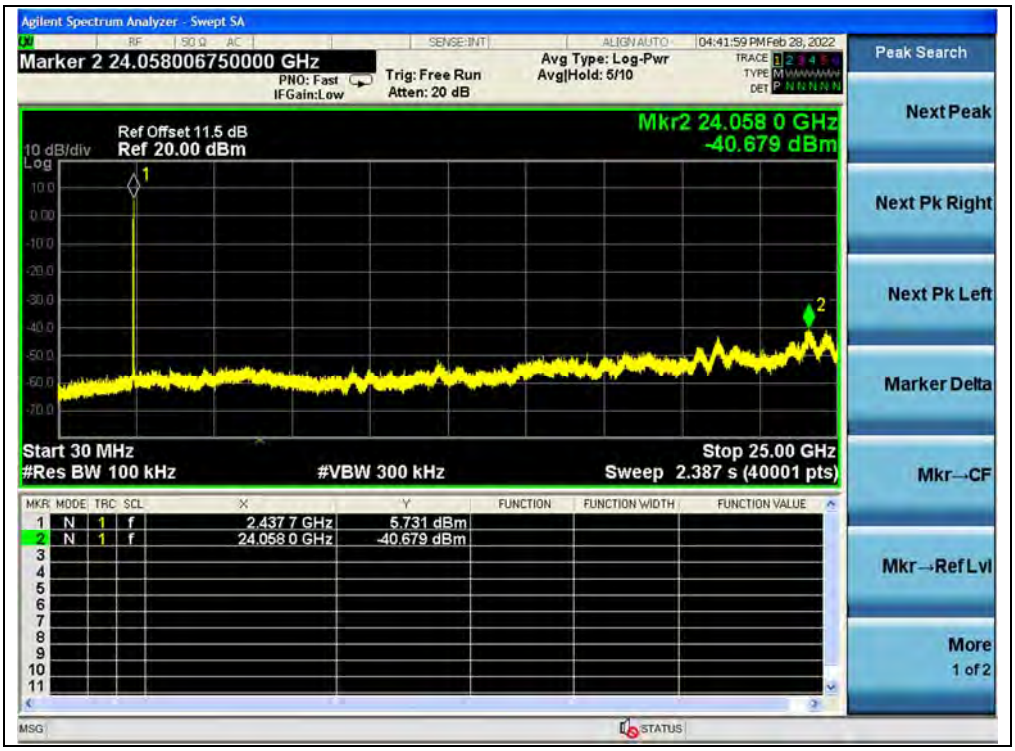
B.Test Plot:



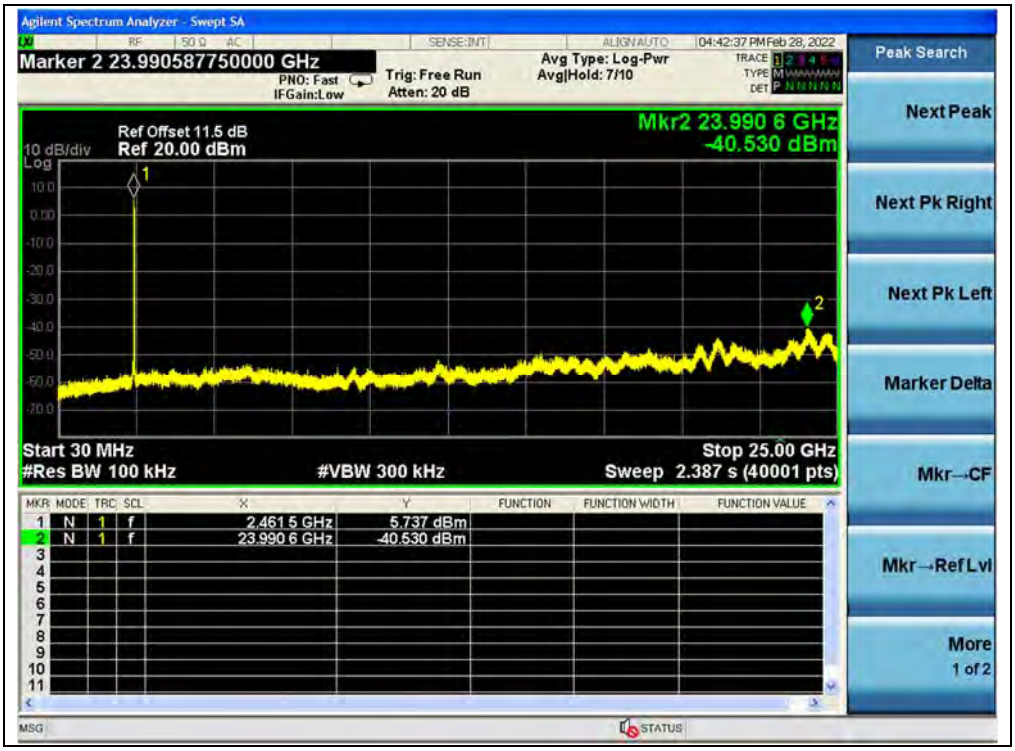
(30MHz to 25GHz, Channel 1, 802.11b)



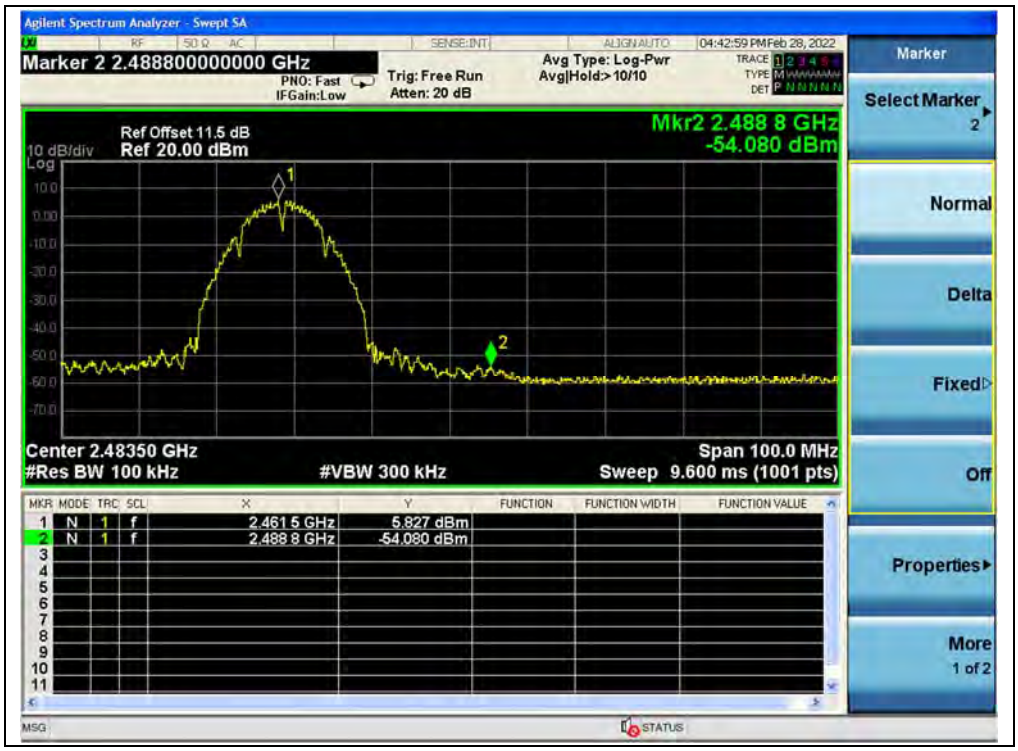
(Band Edge, Channel 1, 802.11b)



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



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



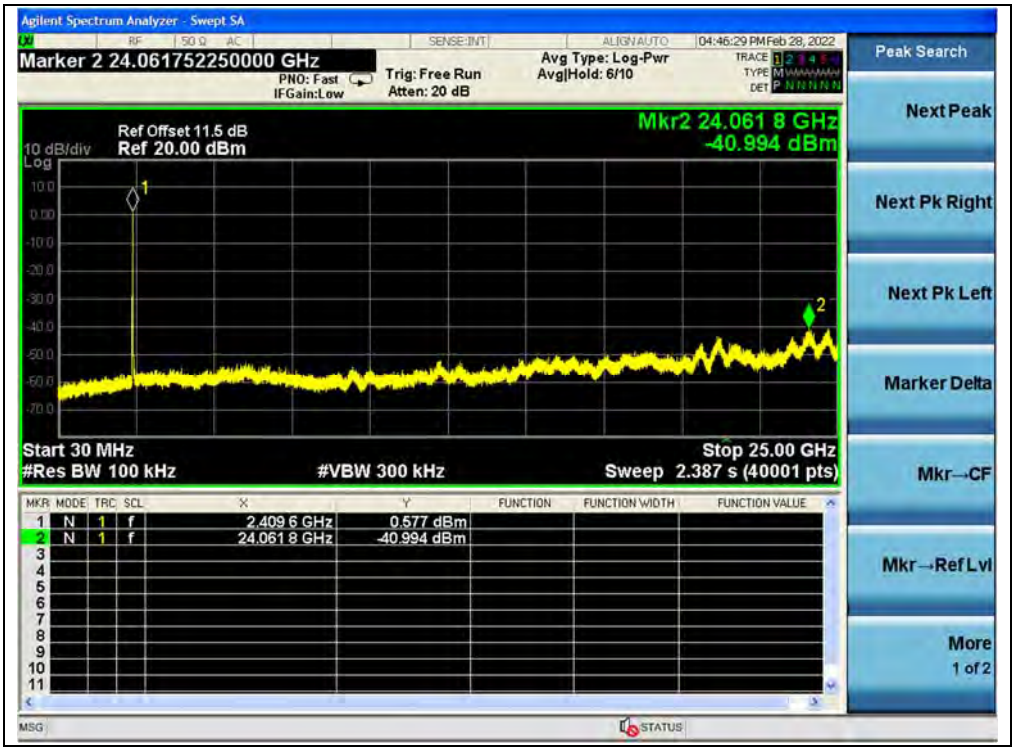
(Band Edge, Channel 11, 802.11b)

802.11g Mode

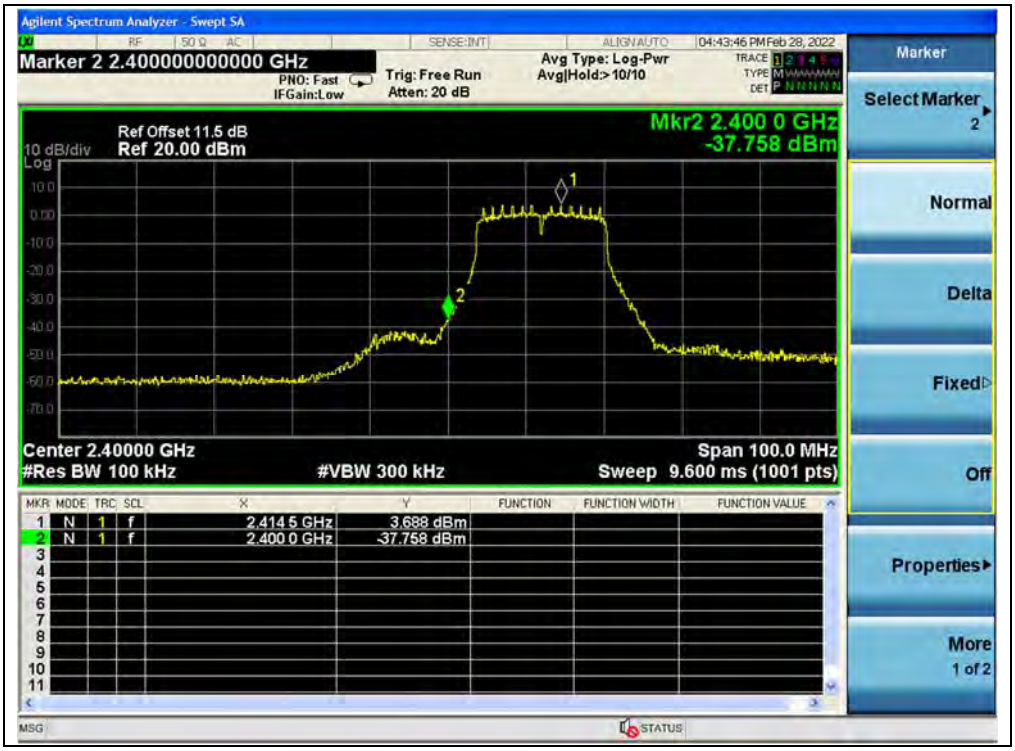
A.Test Verdict:

Channel	Frequency (MHz)	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
			Carrier Level	Calculated -20dBc Limit	
1	2412	-40.99	0.58	-19.42	PASS
6	2437	-40.31	0.36	-19.64	PASS
11	2462	-40.75	-0.36	-20.36	PASS

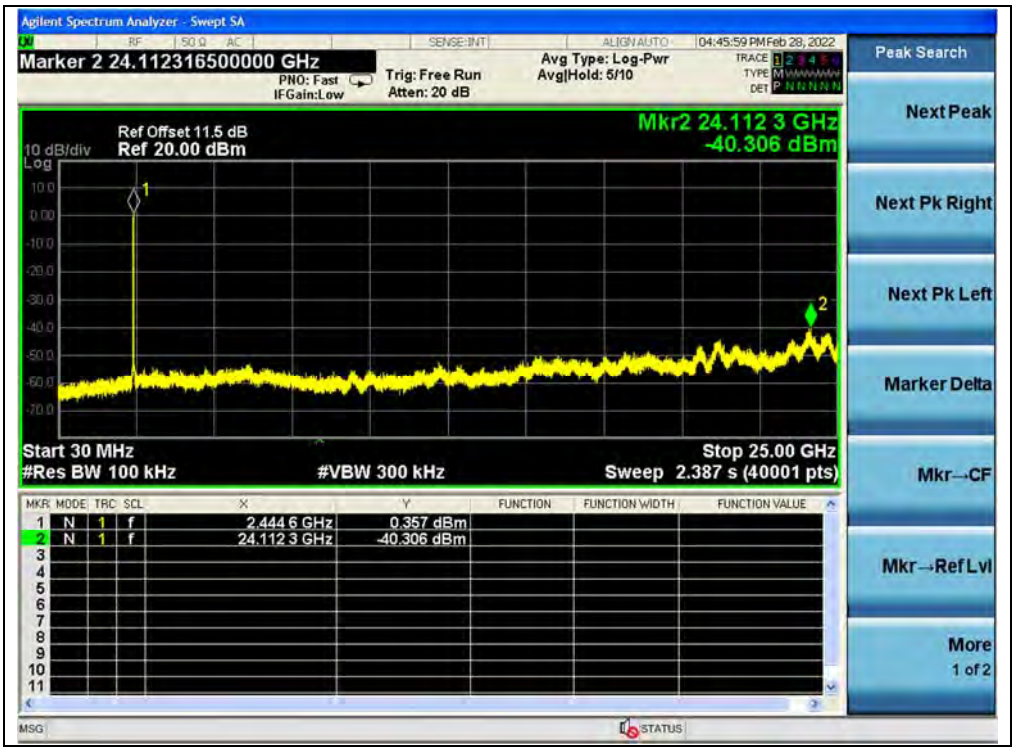
B.Test Plot:



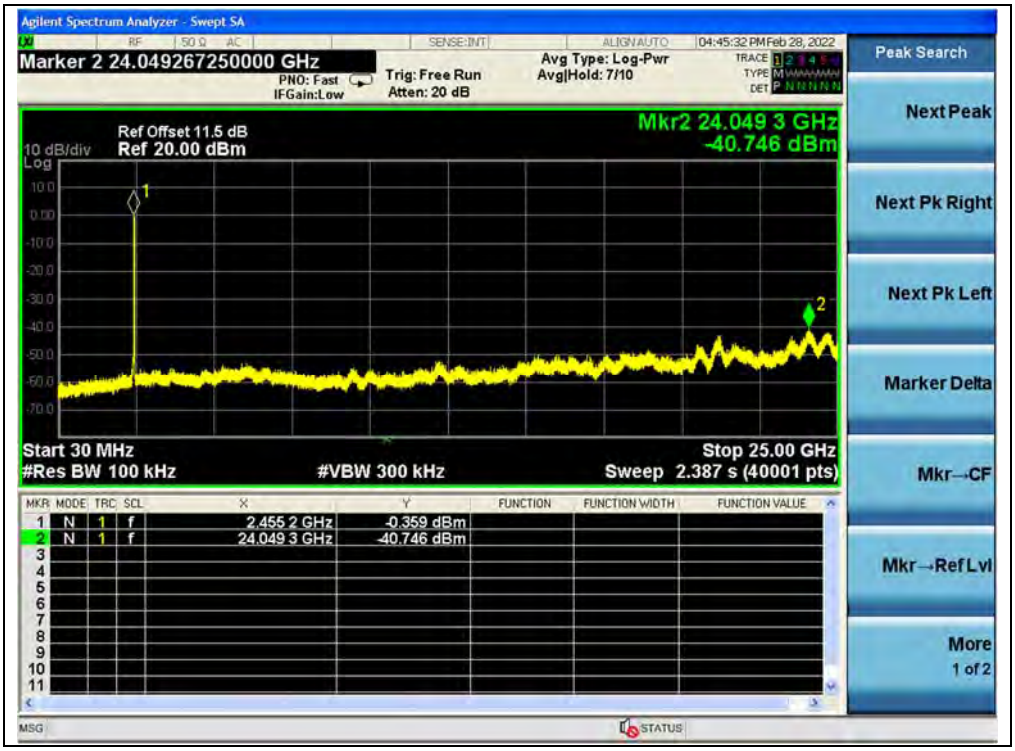
(30MHz to 25GHz, Channel 1, 802.11g)



(Band Edge, Channel 1, 802.11g)



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



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

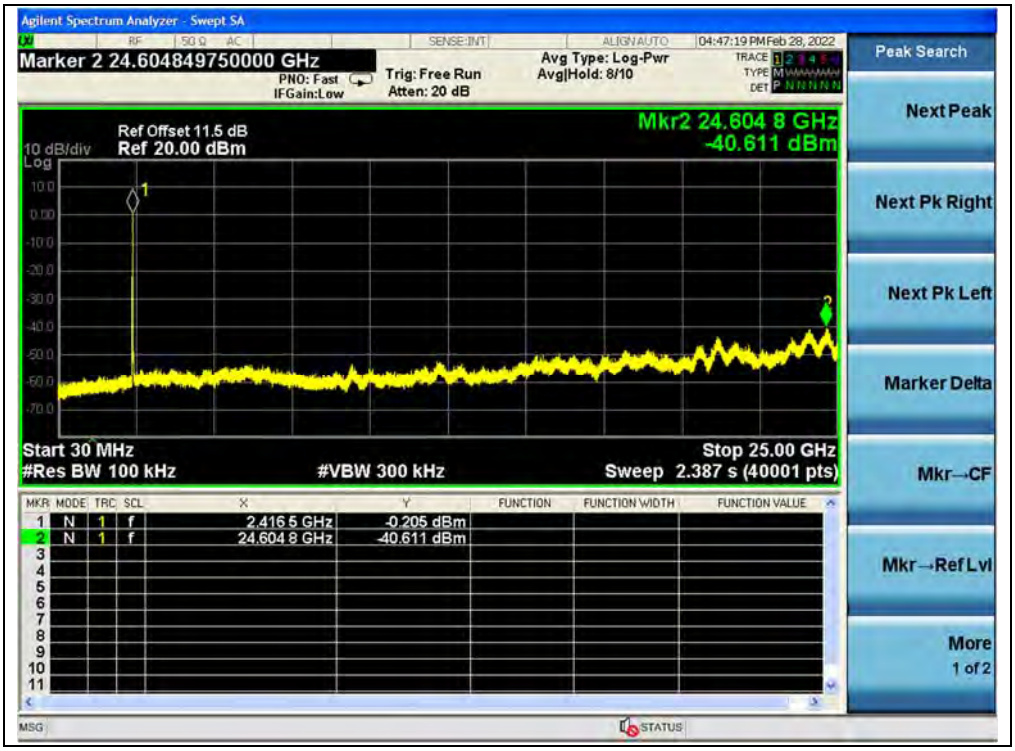
(Band Edge, Channel 11, 802.11g)

802.11n (HT20) Mode

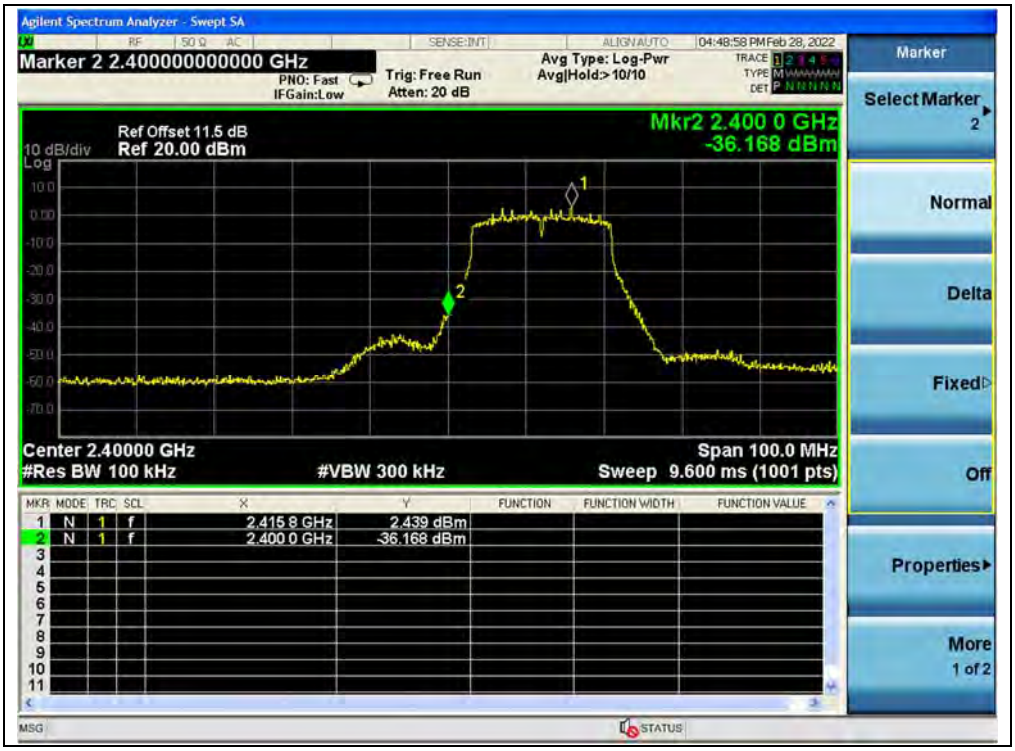
A.Test Verdict:

Channel	Frequency (MHz)	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
			Carrier Level	Calculated -20dBc Limit	
1	2412	-40.61	-0.21	-20.21	PASS
6	2437	-41.06	-0.72	-20.72	PASS
11	2462	-40.90	2.26	-17.74	PASS

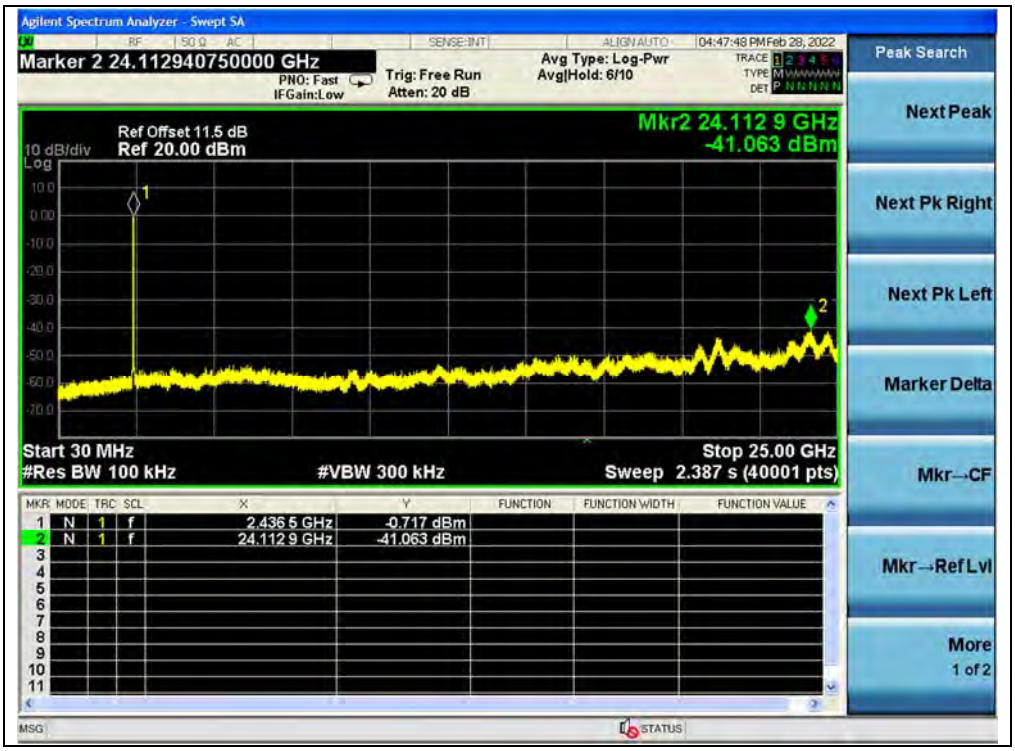
B.Test Plot:



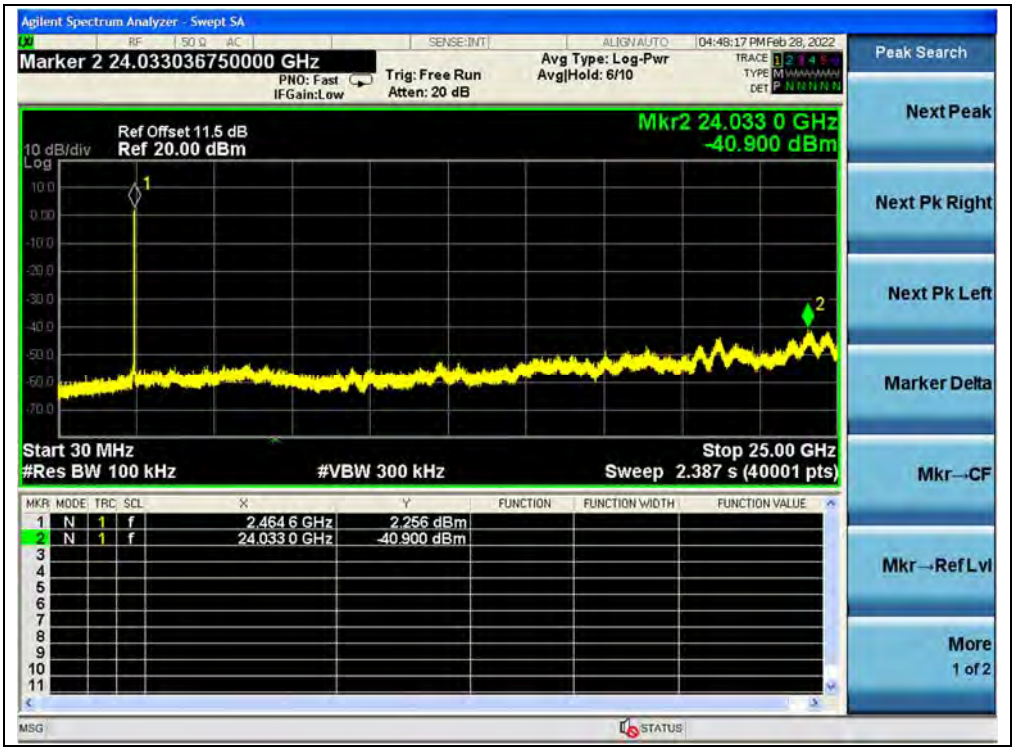
(30MHz to 25GHz, Channel 1, 802.11n (HT20))



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



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



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

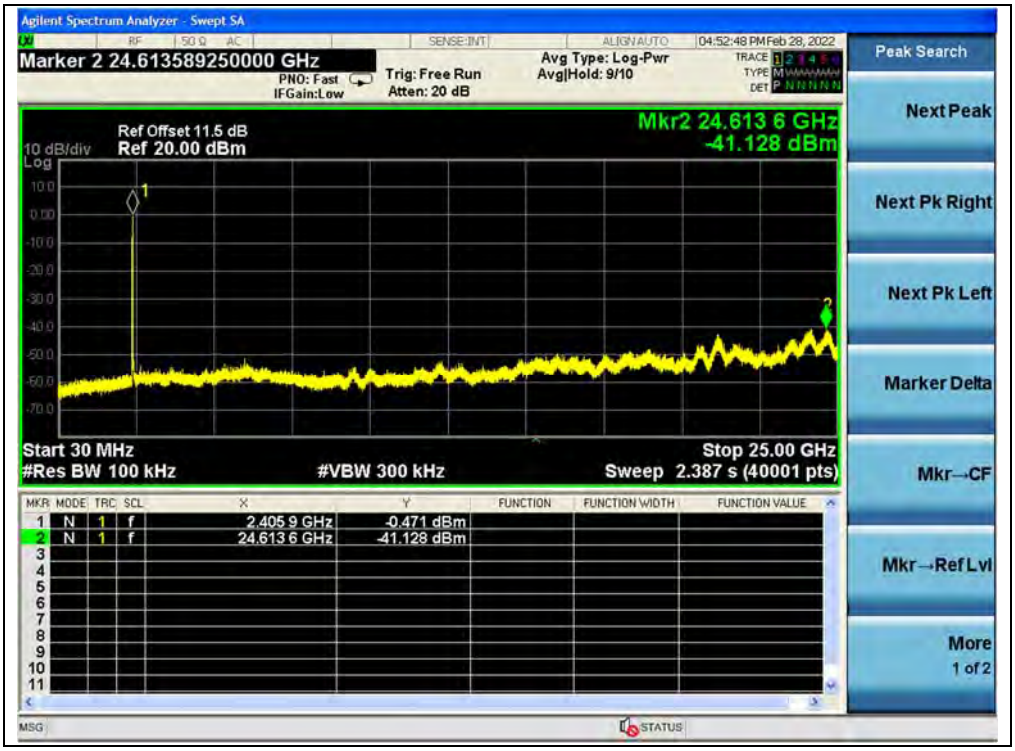
(Band Edge, Channel 11, 802.11n (HT20))

802.11ax (HEW20) Mode

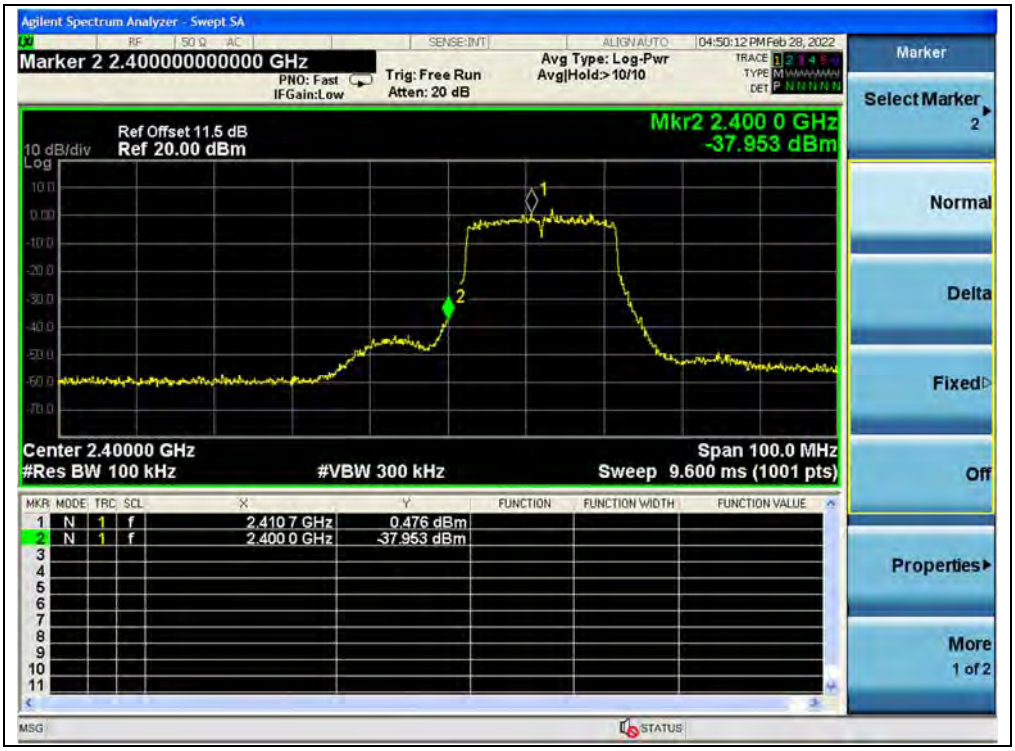
A.Test Verdict:

Channel	Frequency (MHz)	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
			Carrier Level	Calculated -20dBc Limit	
1	2412	-41.13	-0.47	-20.47	PASS
6	2437	-40.19	-1.37	-21.37	PASS
11	2462	-41.11	-1.97	-21.97	PASS

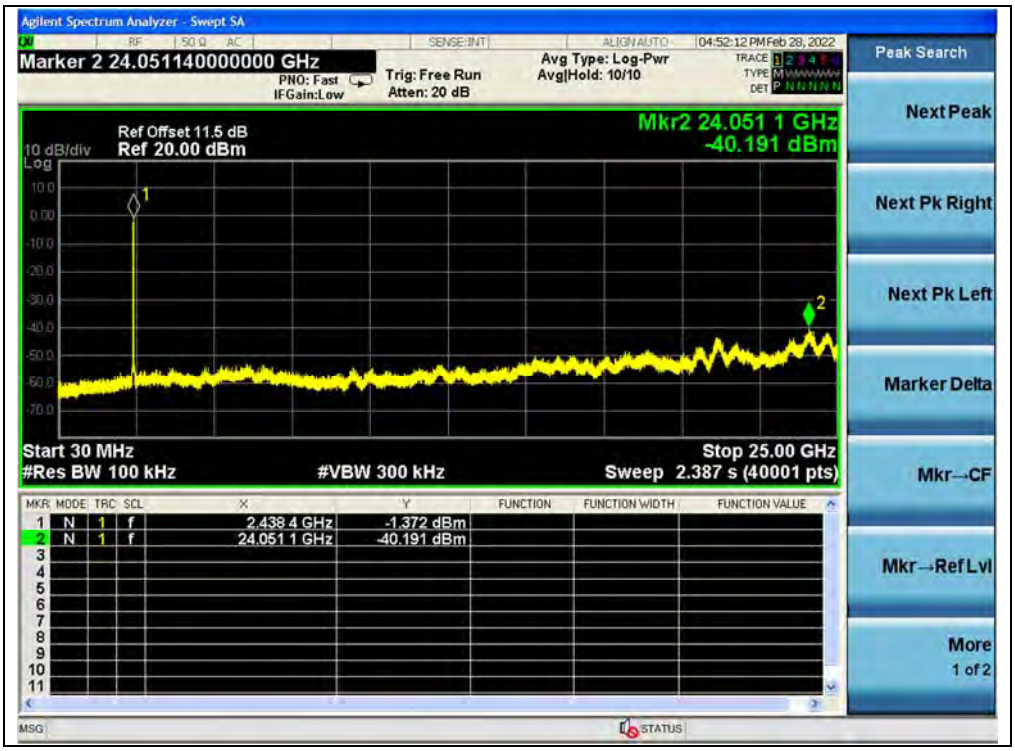
B.Test Plot:



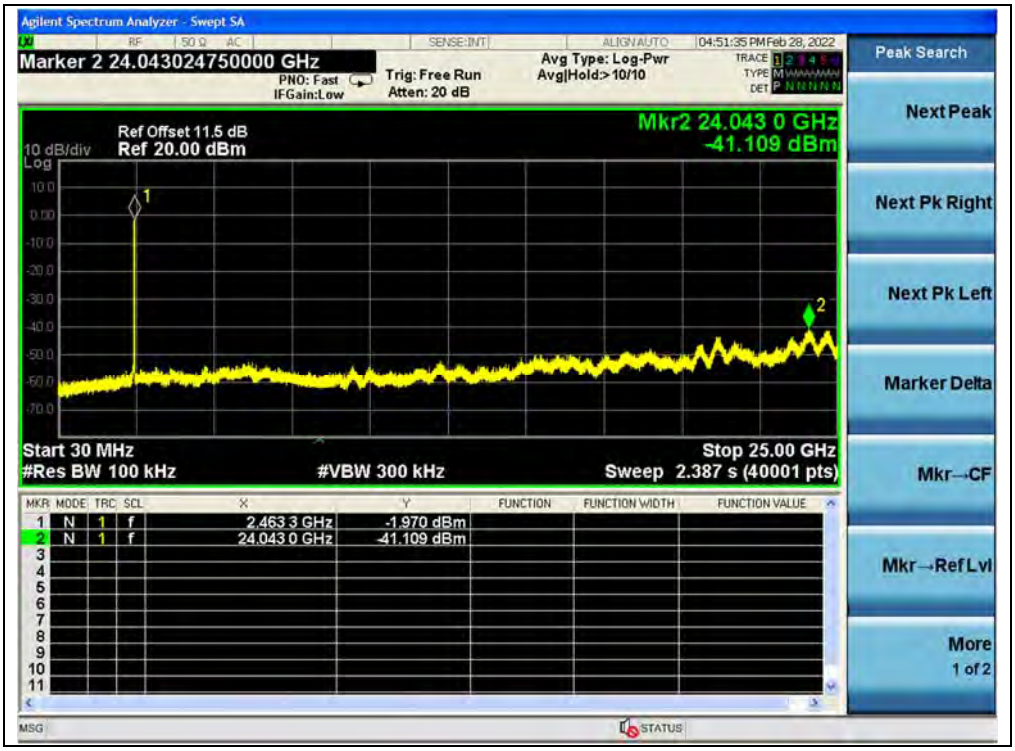
(30MHz to 25GHz, Channel 1, 802.11ax (HEW20))



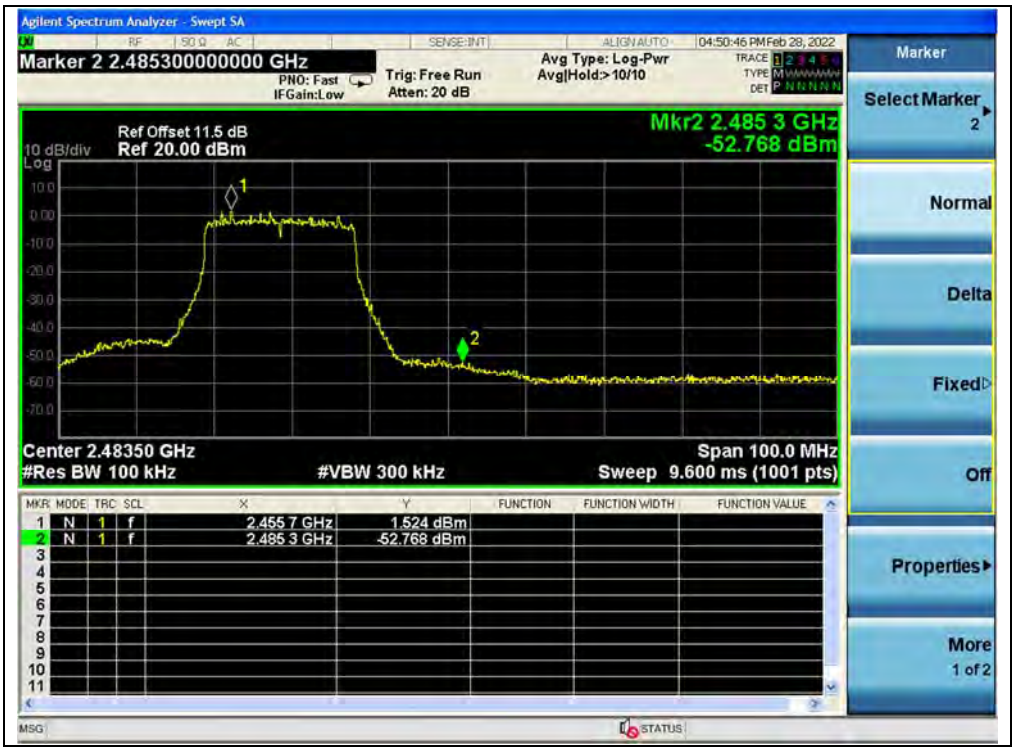
(Band Edge, Channel 1, 802.11ax (HEW20))



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



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



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

802.11ax (HEW20) RU26 Mode

A.Test Verdict:

Channel	Frequency (MHz)	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
			Carrier Level	Calculated -20dBc Limit	
1	2412	-40.27	5.52	-14.48	PASS
6	2437	-40.22	8.45	-11.55	PASS
11	2462	-39.38	6.23	-13.77	PASS

B.Test Plot:

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

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

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

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

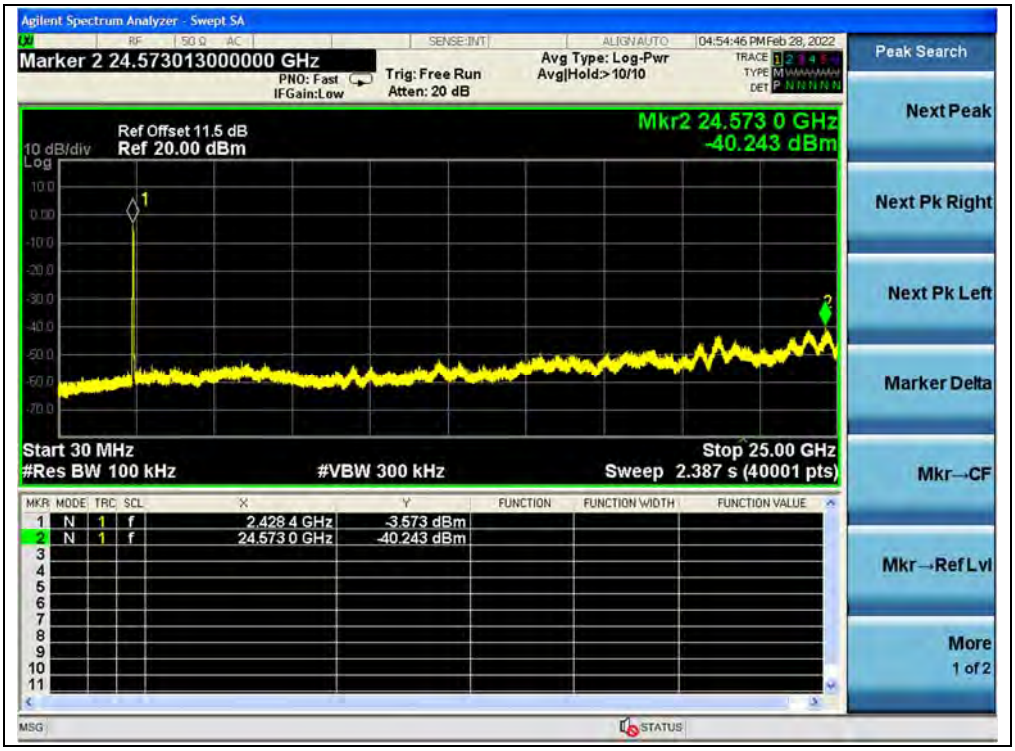
(Band Edge, Channel 11, 802.11ax (HEW20) RU26)

802.11ax (HEW40) Mode

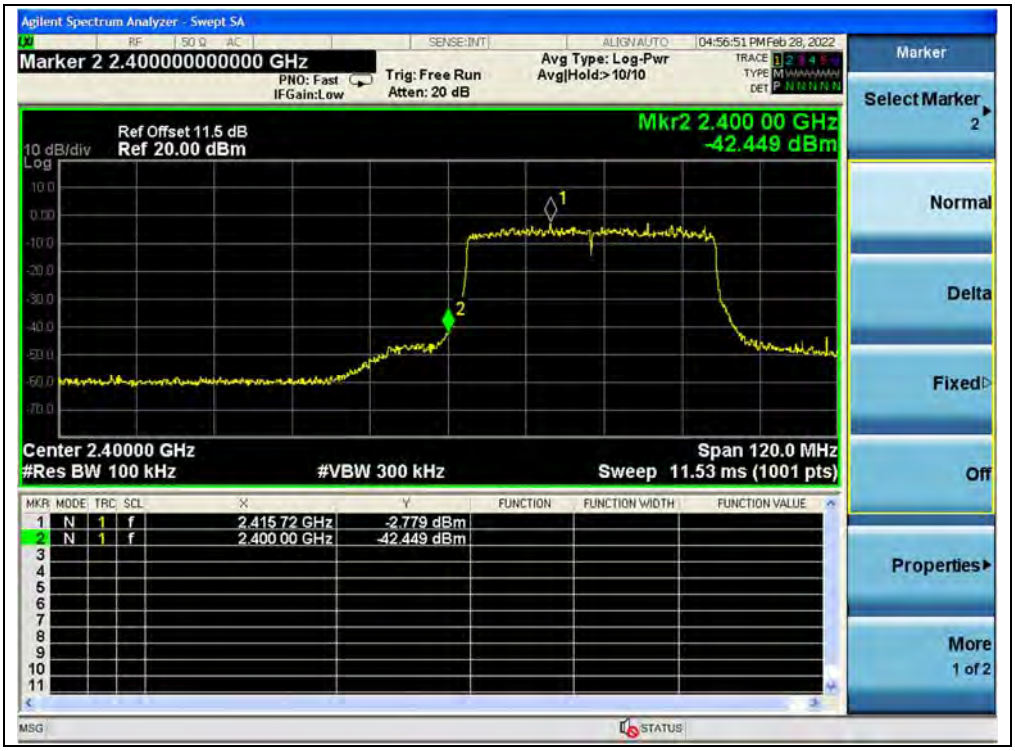
A.Test Verdict:

Channel	Frequency (MHz)	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
			Carrier Level	Calculated -20dBc Limit	
3	2422	-40.24	-3.57	-23.57	PASS
6	2437	-40.12	-3.79	-23.79	PASS
9	2452	-39.86	-4.55	-24.55	PASS

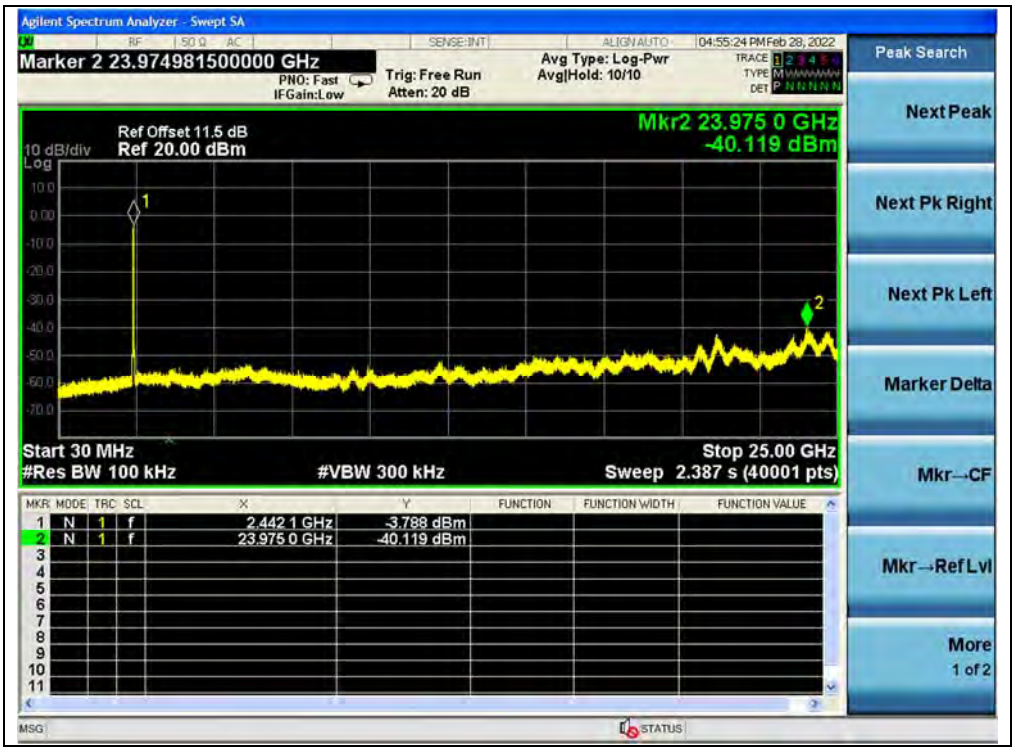
B.Test Plot:



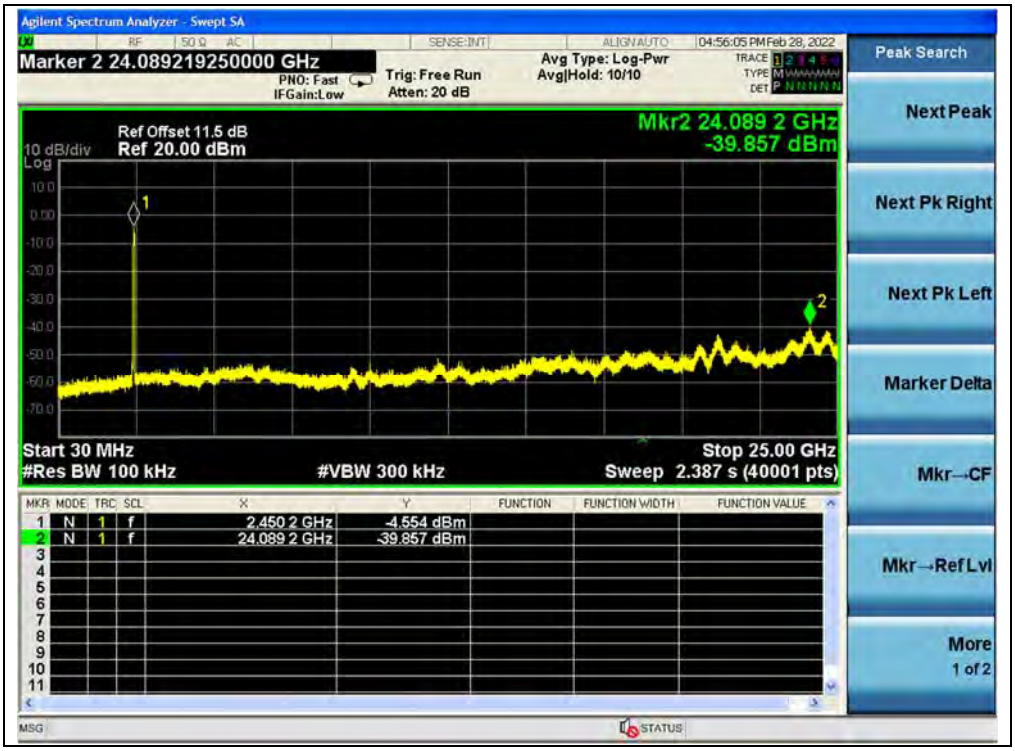
(30MHz to 25GHz, Channel 3, 802.11ax (HEW40))



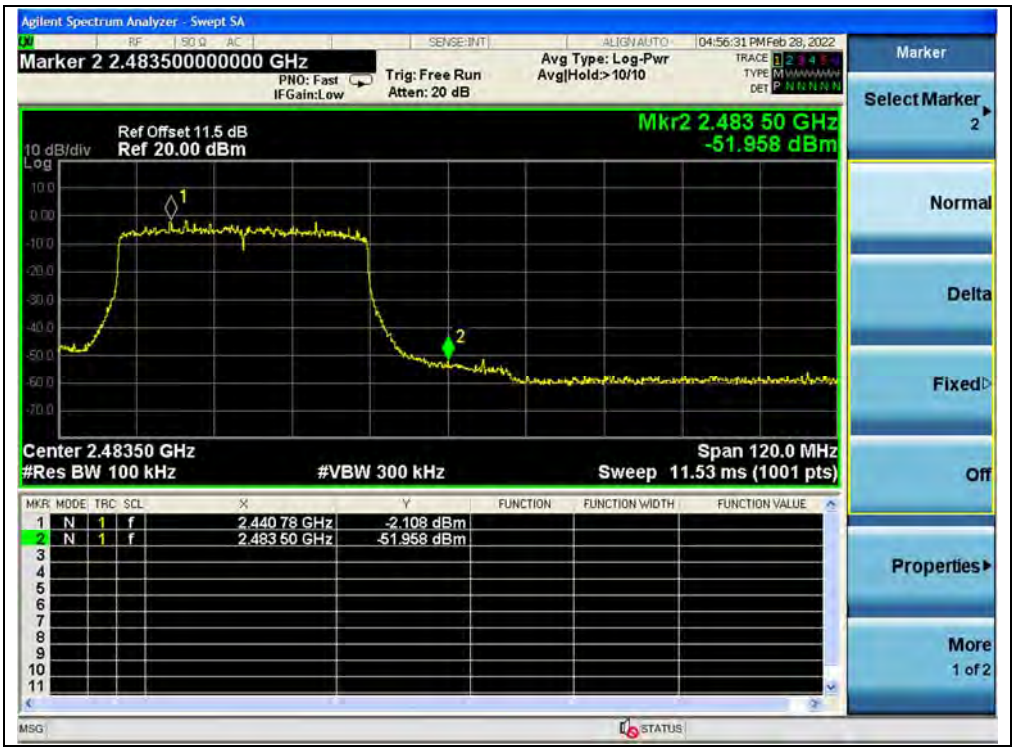
(Band Edge, Channel 3, 802.11ax (HEW40))



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



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



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

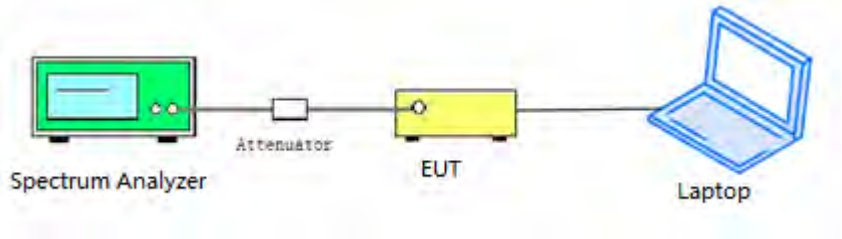
2.6. Power Spectral Density

2.6.1. Requirement

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

2.6.2. Test Description

Test Setup:



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

2.6.3. Test Procedure

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

2.6.4. Test Result

802.11b Mode

A.Test Verdict:

Channel	Frequency (MHz)	Measured PSD (dBm/3kHz)		Limit (dBm/3kHz)	Verdict
		ANT 0	ANT 1		
1	2412	-8.05	-9.06	8	PASS
6	2437	-8.75	-7.95	8	PASS
11	2462	-9.19	-8.10	8	PASS

B.Test Plot:

(Channel 1, 802.11b, ANT 0)

(Channel 6, 802.11b, ANT 0)

(Channel 11, 802.11b, ANT 0)

(Channel 1, 802.11b, ANT 1)

(Channel 6, 802.11b, ANT 1)

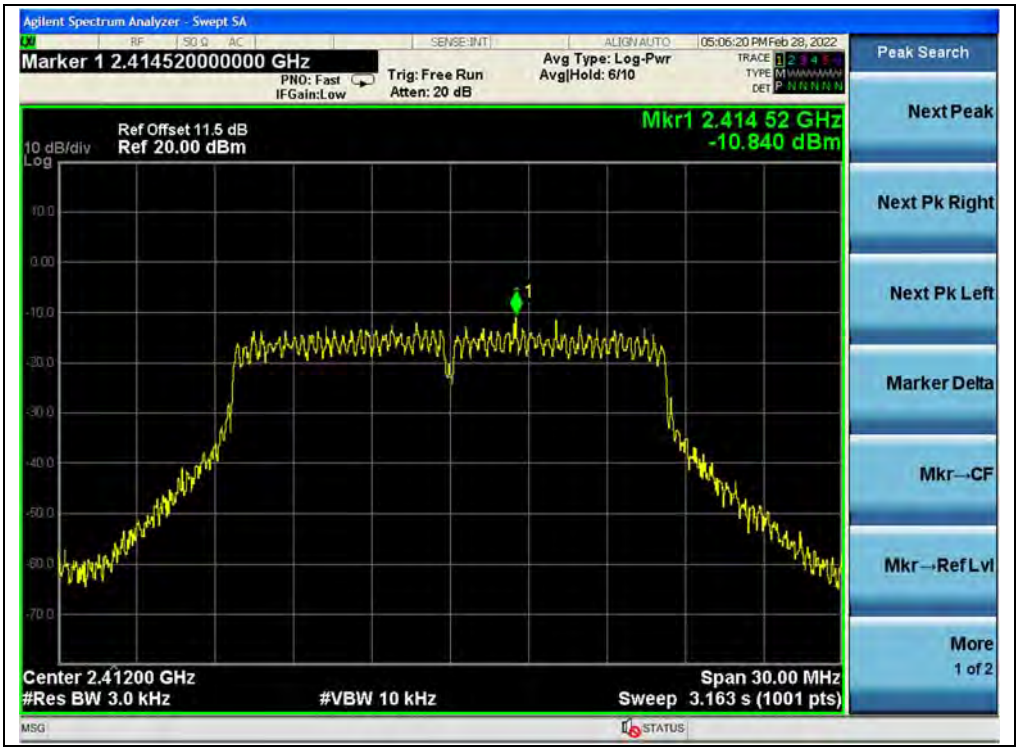
(Channel 11, 802.11b, ANT 1)

802.11g Mode

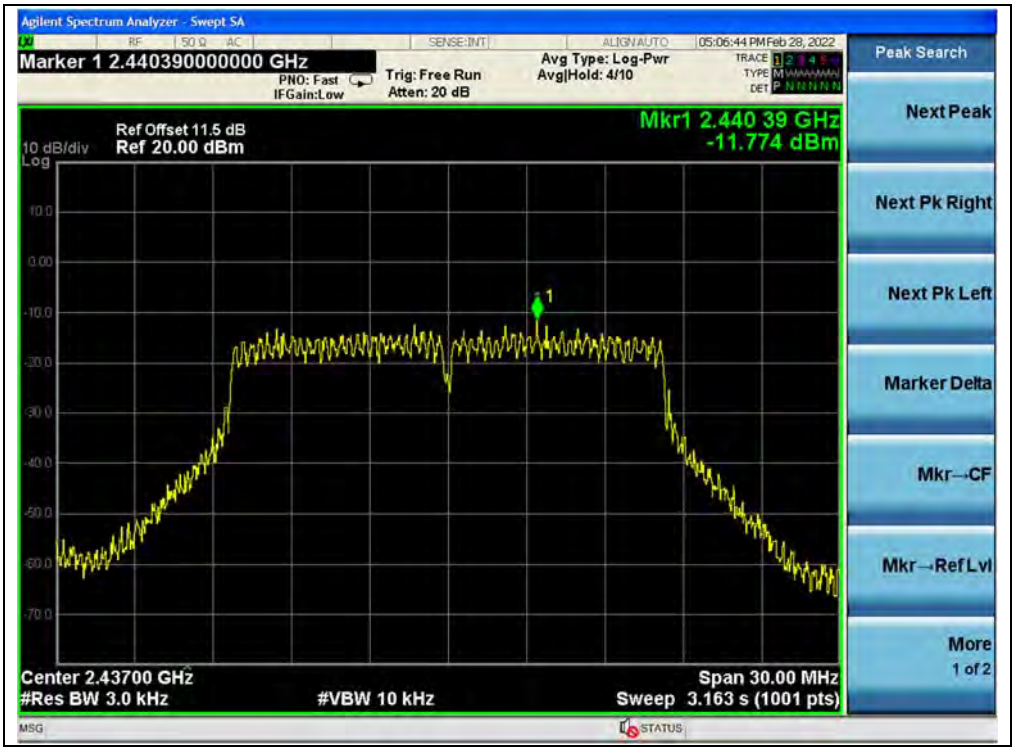
A.Test Verdict:

Channel	Frequency (MHz)	Measured PSD (dBm/3kHz)		Limit (dBm/3kHz)	Verdict
		ANT 0	ANT 1		
1	2412	-10.84	-12.30	8	PASS
6	2437	-11.77	-11.14	8	PASS
11	2462	-12.07	-11.34	8	PASS

B.Test Plot:



(Channel 1, 802.11g, ANT 0)

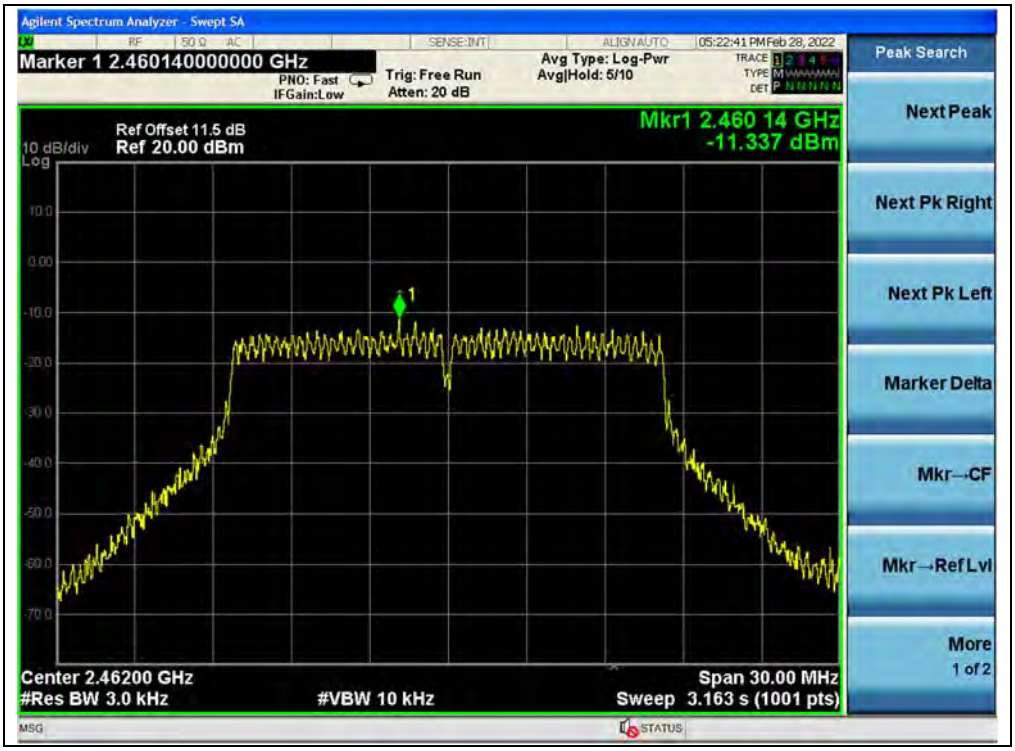


(Channel 6, 802.11g, ANT 0)

(Channel 11, 802.11g, ANT 0)

(Channel 1, 802.11g, ANT 1)

(Channel 6, 802.11g, ANT 1)



(Channel 11, 802.11g, ANT 1)

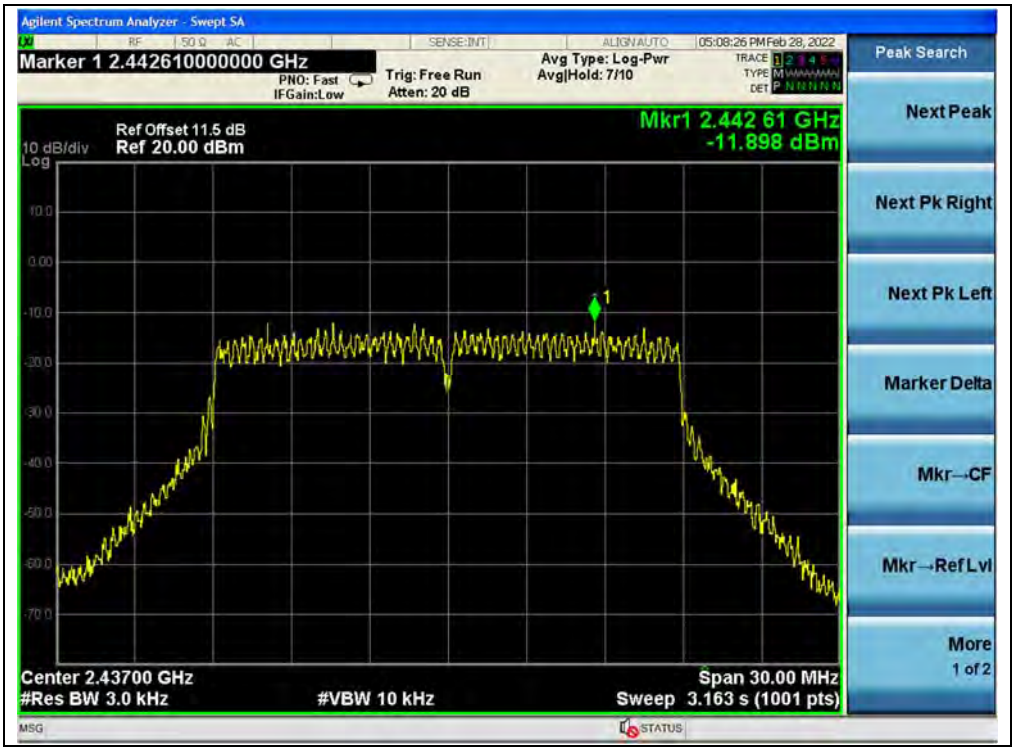
802.11n (HT20) Mode

A.Test Verdict:

Channel	Frequency (MHz)	Measured PSD (dBm/3kHz)		Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
		ANT 0	ANT 1			
1	2412	-12.31	-13.12	-9.69	8	PASS
6	2437	-11.90	-11.38	-8.62	8	PASS
11	2462	-13.46	-11.82	-9.55	8	PASS
Note: Directional gain = 0.70dBi +10log(2) = 3.71dBi＜6dBi, so the power density limit is 8 dBm/3kHz.						

B.Test Plot:

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

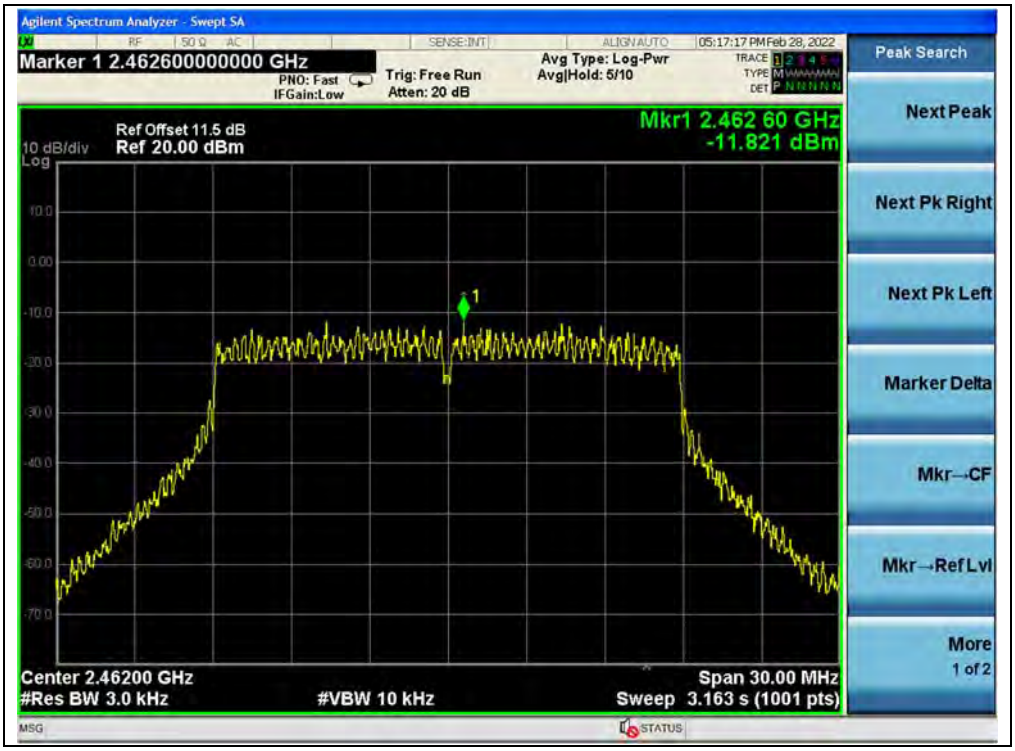


(Channel 6, 802.11n (HT20), ANT 0)

(Channel 11, 802.11n (HT20), ANT 0)

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

(Channel 6, 802.11n (HT20), ANT 1)



(Channel 11, 802.11n (HT20), ANT 1)

802.11ax (HEW20) 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	-13.46	-13.05	-10.24	8	PASS
6	2437	-14.27	-13.42	-10.81	8	PASS
11	2462	-14.81	-13.92	-11.33	8	PASS
Note: Directional gain = 0.70dBi +10log(2) = 3.71dBi＜6dBi, so the power density limit is 8 dBm/3kHz.						

B.Test Plot:

(Channel 1, 802.11ax (HEW20), ANT 0)

(Channel 6, 802.11ax (HEW20), ANT 0)

(Channel 11, 802.11ax (HEW20), ANT 0)

(Channel 1, 802.11ax (HEW20), ANT 1)

(Channel 6, 802.11ax (HEW20), ANT 1)

(Channel 11, 802.11ax (HEW20), ANT 1)

802.11ax (HEW20) RU26 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	-5.96	-4.99	-2.44	8	PASS
6	2437	-4.21	-4.03	-1.11	8	PASS
11	2462	-5.09	-4.32	-1.68	8	PASS
Note: Directional gain = 0.70dBi +10log(2) = 3.71dBi＜6dBi, so the power density limit is 8 dBm/3kHz.						

B.Test Plot:

(Channel 1, 802.11ax (HEW20) RU26, ANT 0)

(Channel 6, 802.11ax (HEW20) RU26, ANT 0)

(Channel 11, 802.11ax (HEW20) RU26, ANT 0)

(Channel 1, 802.11ax (HEW20) RU26, ANT 1)

(Channel 6, 802.11ax (HEW20) RU26, ANT 1)

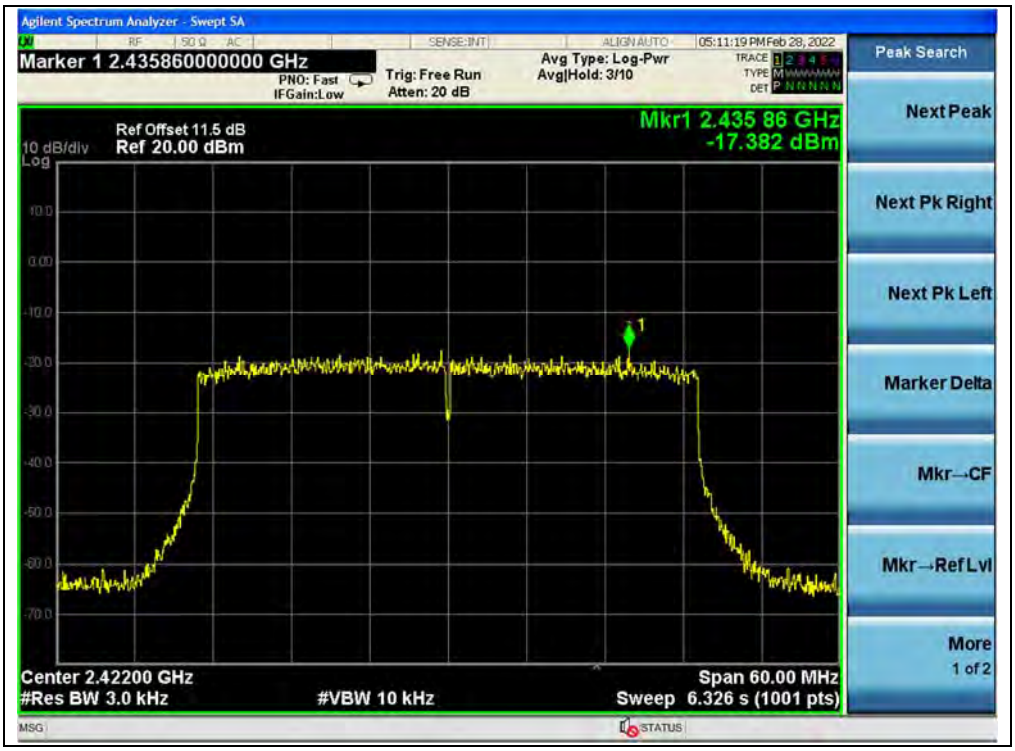
(Channel 11, 802.11ax (HEW20) RU26, ANT 1)

802.11ax (HEW40) Mode

A.Test Verdict:

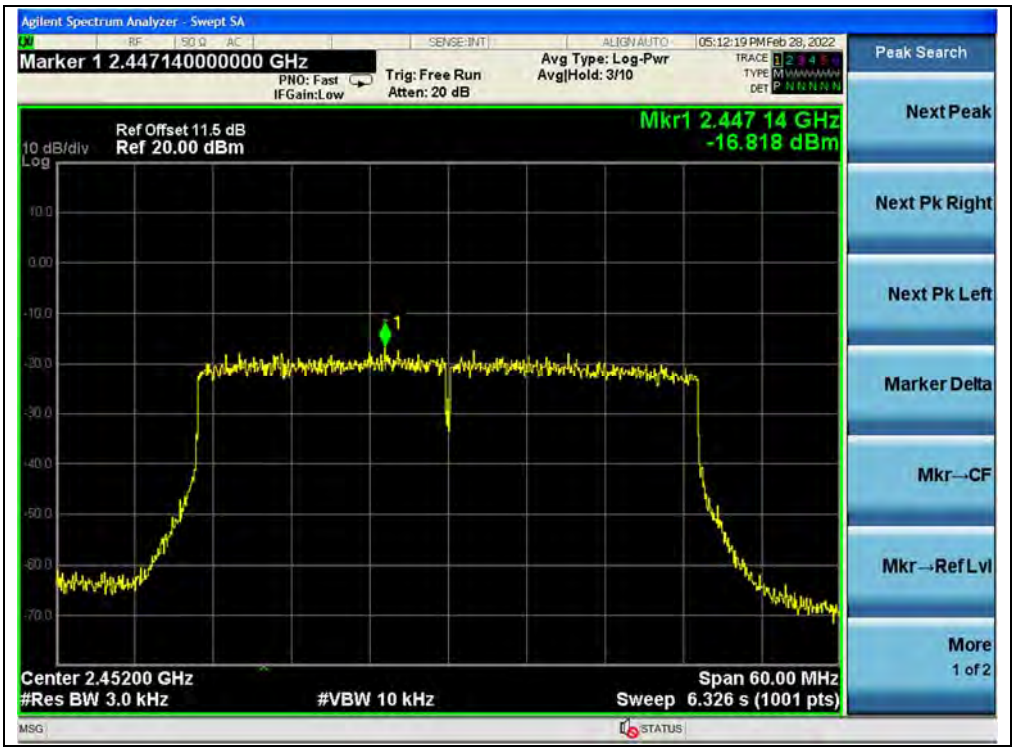
Channel	Frequency (MHz)	Measured PSD (dBm/3kHz)		Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
		ANT 0	ANT 1			
3	2422	-17.38	-16.40	-13.85	8	PASS
6	2437	-16.84	-16.94	-13.88	8	PASS
9	2452	-16.82	-16.44	-13.62	8	PASS
Note: Directional gain = 0.70dBi +10log(2) = 3.71dBi＜6dBi, so the power density limit is 8 dBm/3kHz.						

B.Test Plot:



(Channel 3, 802.11ax (HEW40), ANT 0)

(Channel 6, 802.11ax (HEW40), ANT 0)



(Channel 9, 802.11ax (HEW40), ANT 0)

(Channel 3, 802.11ax (HEW40), ANT 1)

(Channel 6, 802.11ax (HEW40), ANT 1)

(Channel 9, 802.11ax (HEW40), ANT 1)

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

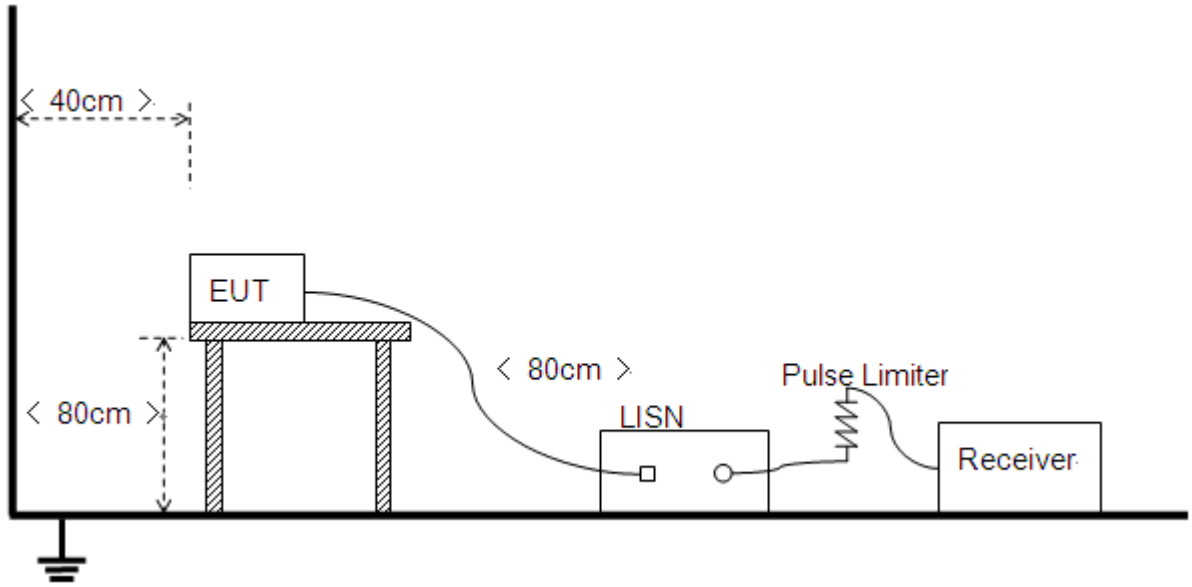
Note:

(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. 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

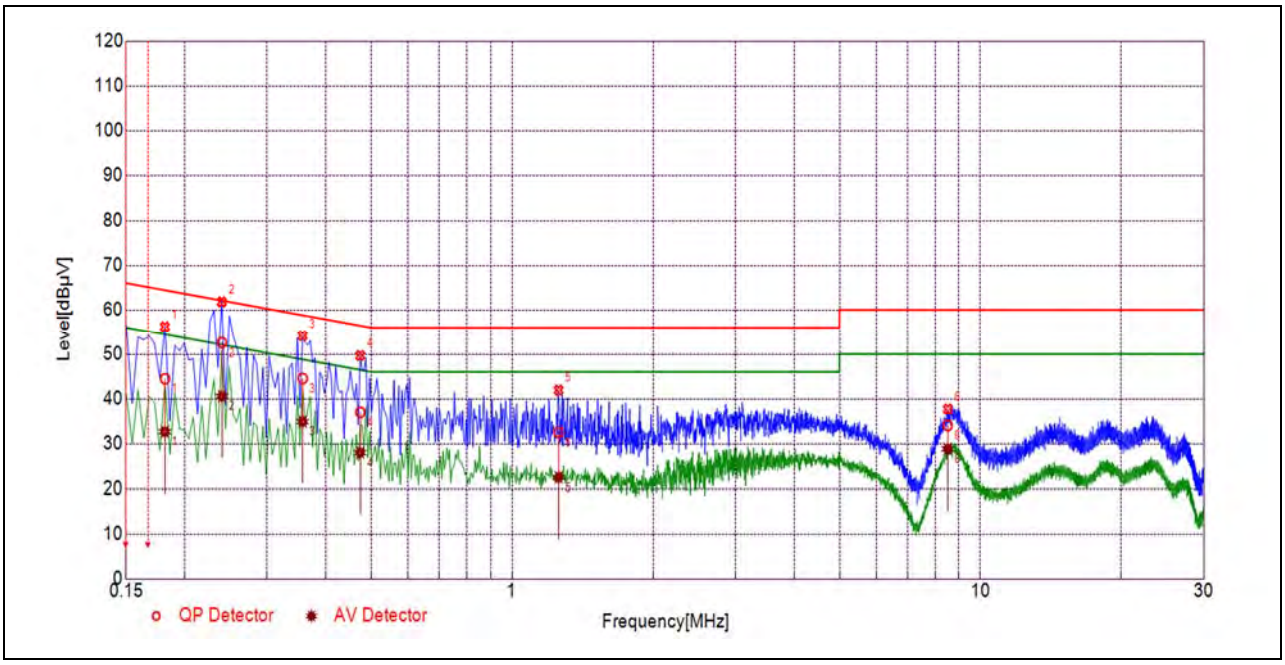
The measurement results are obtained as below:

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

U_R: Receiver Reading

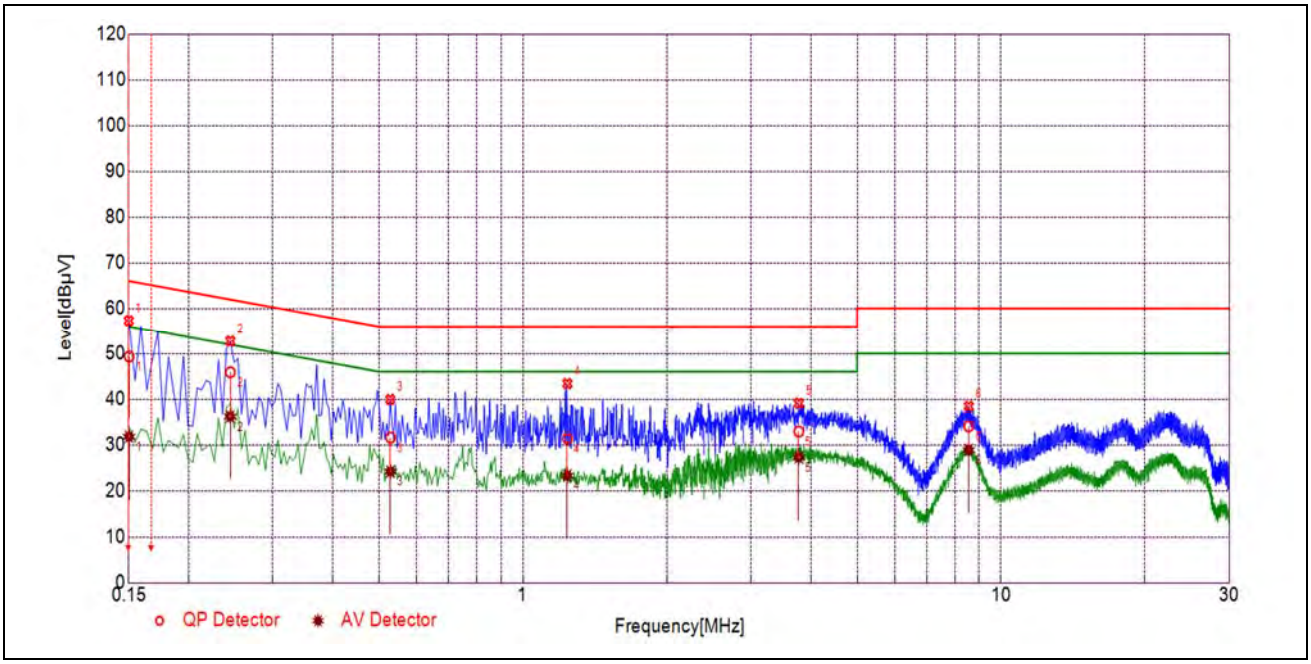
A_{Factor}: Voltage division factor of LISN

B.Test Plot:



(L Phase)

No.	Fre. (MHz)	Emission Level (dBµV)		Limit (dBµV)		Power-line	Verdict
		Quai-peak	Average	Quai-peak	Average		
1	0.1815	44.44	32.65	64.42	54.42	Line	PASS
2	0.2402	52.57	40.53	62.09	52.09		PASS
3	0.3573	44.52	34.88	58.79	48.79		PASS
4	0.4740	36.97	27.97	56.44	46.44		PASS
5	1.2574	32.53	22.48	56.00	46.00		PASS
6	8.5137	34.05	28.81	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	0.1501	49.32	31.78	65.99	55.99	Neutral	PASS
2	0.2444	45.87	36.17	61.95	51.95		PASS
3	0.5285	31.57	24.17	56.00	46.00		PASS
4	1.2384	31.34	23.28	56.00	46.00		PASS
5	3.7747	32.89	27.25	56.00	46.00		PASS
6	8.5562	34.05	28.88	60.00	50.00		PASS

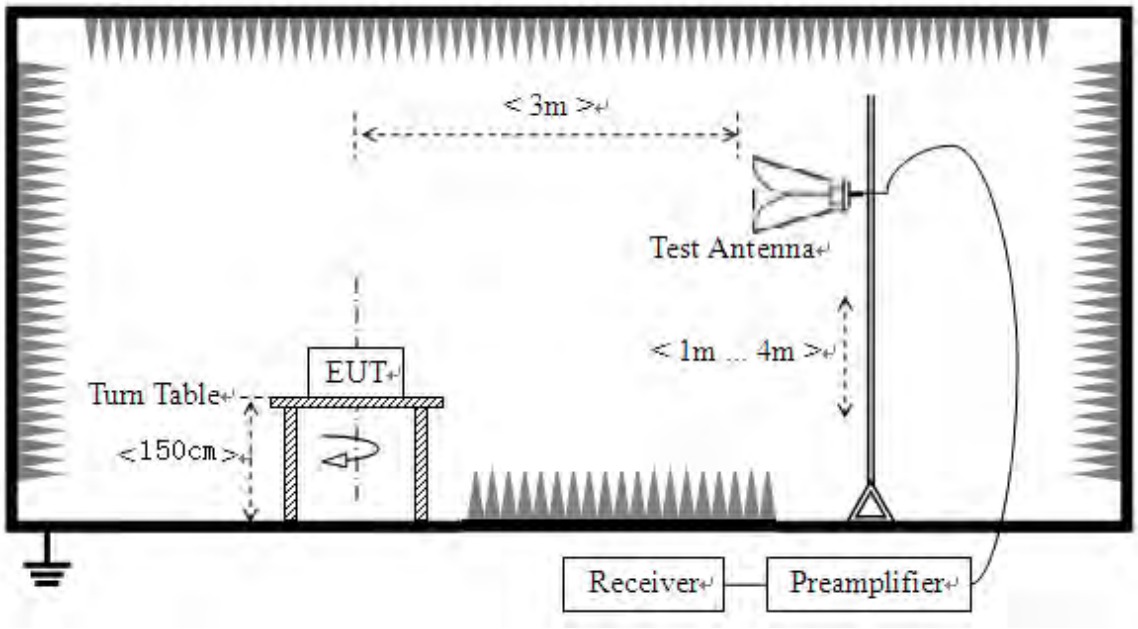
2.8. Restricted Frequency Bands

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 [dBμV/m] =U_R + A_T + A_{Factor} [dB]; A_T =$L_{Cable\ loss}$ [dB]-G_{preamp} [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 (dBμV)	A_T (dB)	A_{Factor} (dB@3m)	Max. Emission E (dBμV/m)	Limit (dBμV/m)	Verdict
		PK/ AV						
1	2385.68	PK	26.83	6.74	27.20	60.77	74	PASS
1	2390.00	AV	14.37	6.74	27.20	48.31	54	PASS
11	2491.94	PK	26.11	6.74	27.20	60.05	74	PASS
11	2486.17	AV	14.17	6.74	27.20	48.11	54	PASS

B.Test Plot:

(PEAK, Channel 1, 802.11b)

(AVERAGE, Channel 1, 802.11b)

(PEAK, Channel 11, 802.11b)

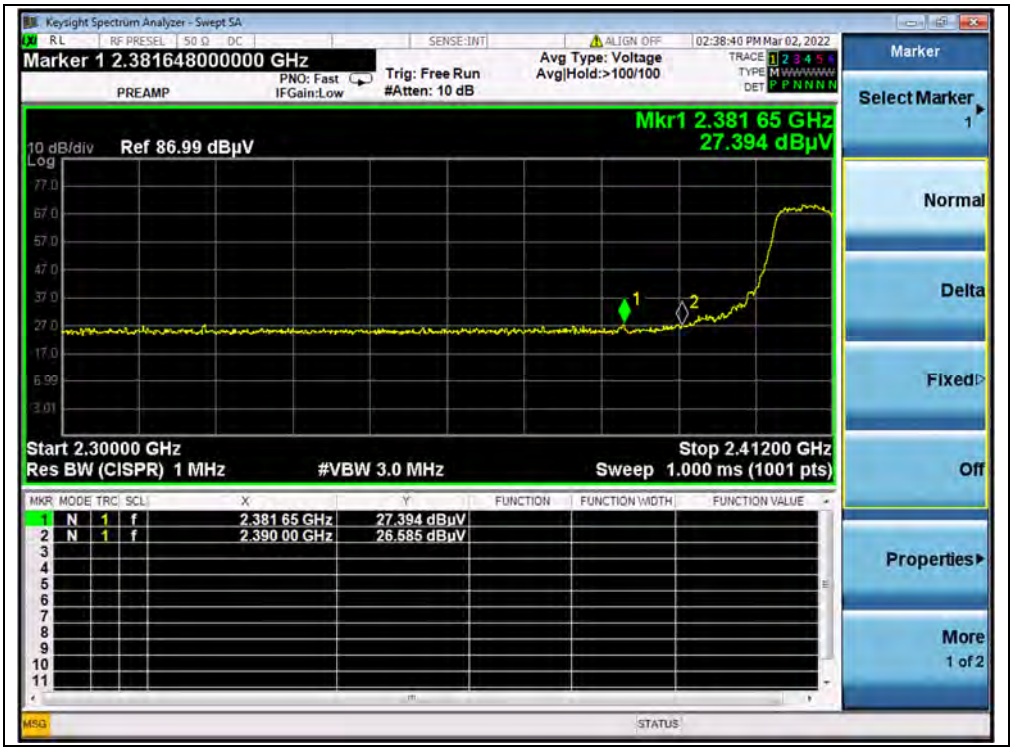
(AVERAGE, Channel 11, 802.11b)

802.11g Mode

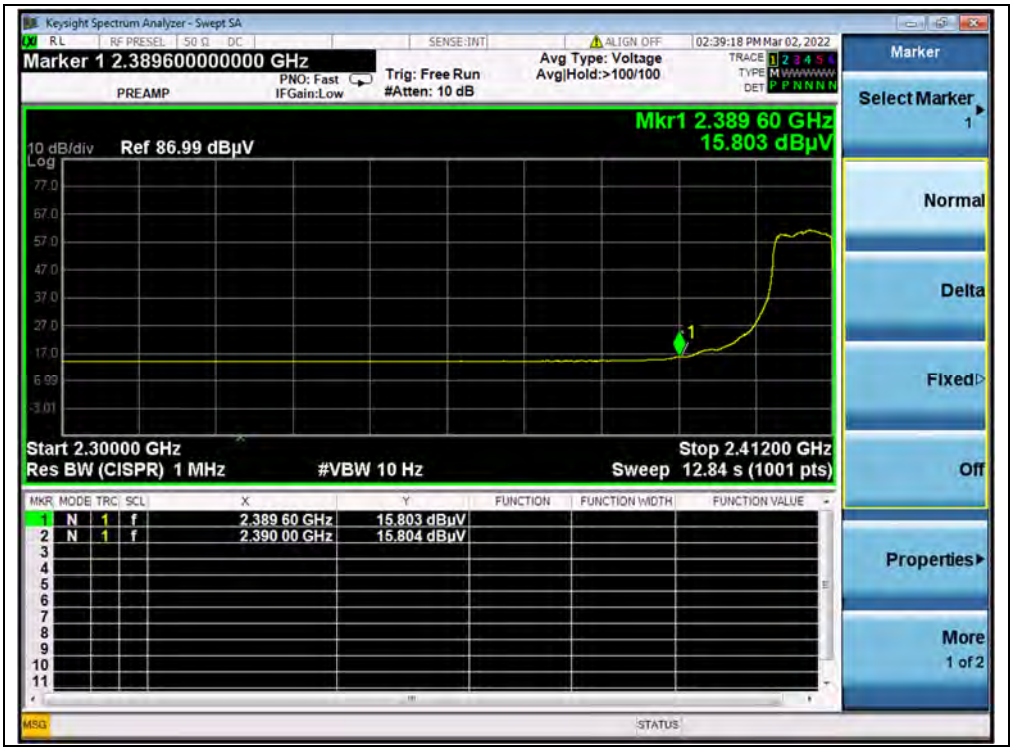
A.Test Verdict:

Channel	Frequency (MHz)	Detector	Receiver Reading U_R (dBμV)	A_T (dB)	A_{Factor} (dB@3m)	Max. Emission E (dBμV/m)	Limit (dBμV/m)	Verdict
		PK/ AV						
1	2381.65	PK	27.39	6.74	27.20	61.33	74	PASS
1	2390.00	AV	15.80	6.74	27.20	49.74	54	PASS
11	2485.90	PK	26.21	6.74	27.20	60.15	74	PASS
11	2483.50	AV	15.20	6.74	27.20	49.14	54	PASS

B.Test Plot:

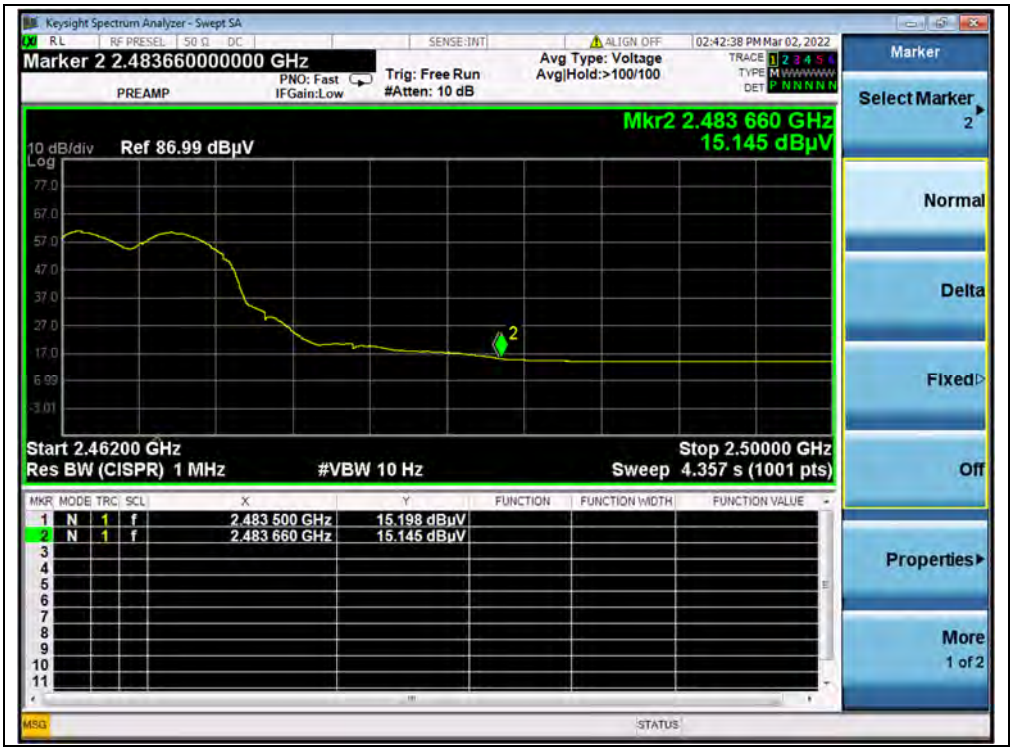


(PEAK, Channel 1, 802.11g)



(AVERAGE, Channel 1, 802.11g)

(PEAK, Channel 11, 802.11g)



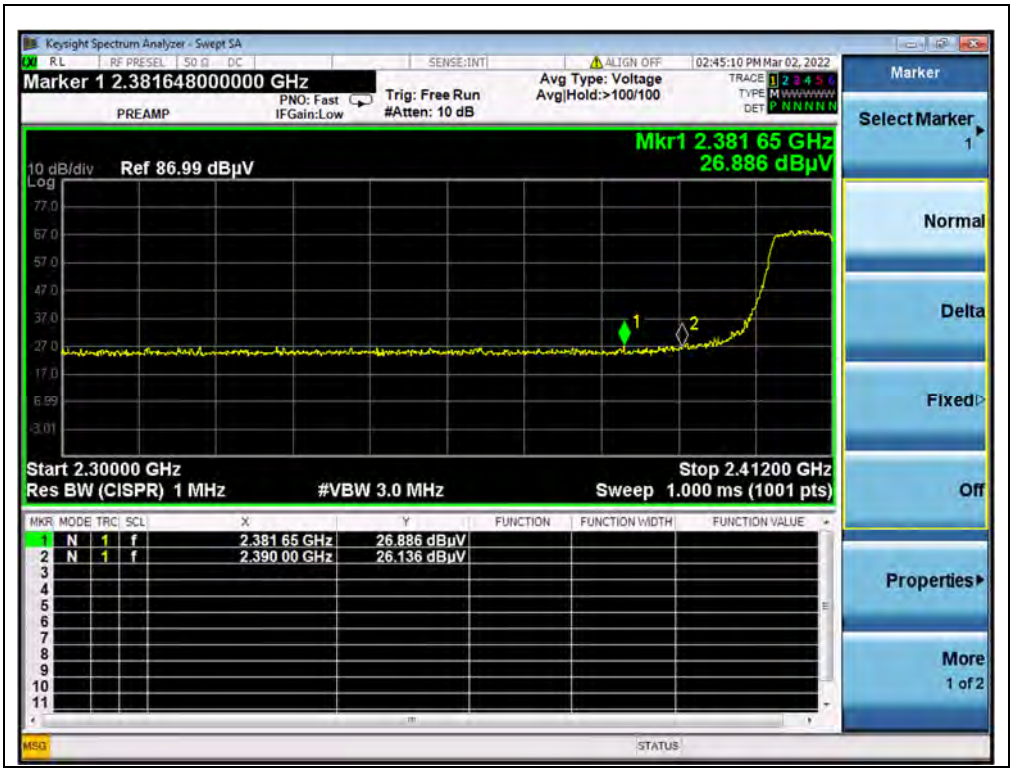
(AVERAGE, Channel 11, 802.11g)

802.11n (HT20) Mode

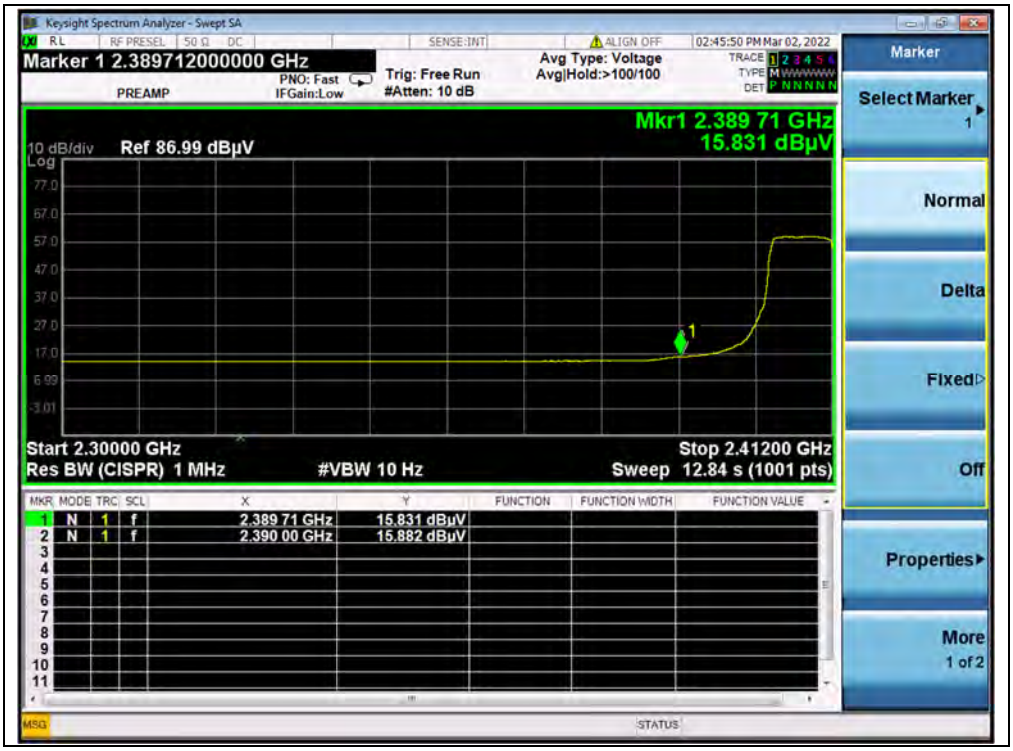
A.Test Verdict:

Channel	Frequency (MHz)	Detector	Receiver Reading U_R (dBμV)	A_T (dB)	A_{Factor} (dB@3m)	Max. Emission E (dBμV/m)	Limit (dBμV/m)	Verdict
		PK/ AV						
1	2381.65	PK	26.89	6.74	27.20	60.83	74	PASS
1	2390.00	AV	15.88	6.74	27.20	49.82	54	PASS
11	2495.67	PK	26.42	6.74	27.20	60.36	74	PASS
11	2483.50	AV	15.13	6.74	27.20	49.07	54	PASS

B.Test Plot:

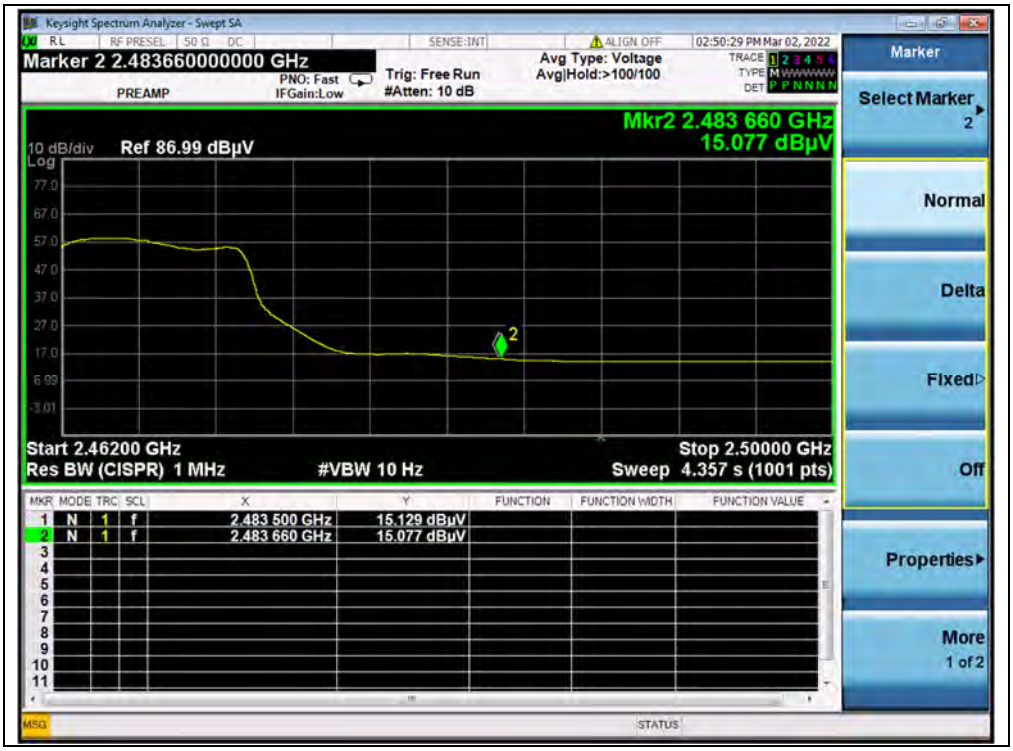


(PEAK, Channel 1, 802.11n (HT20))



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

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



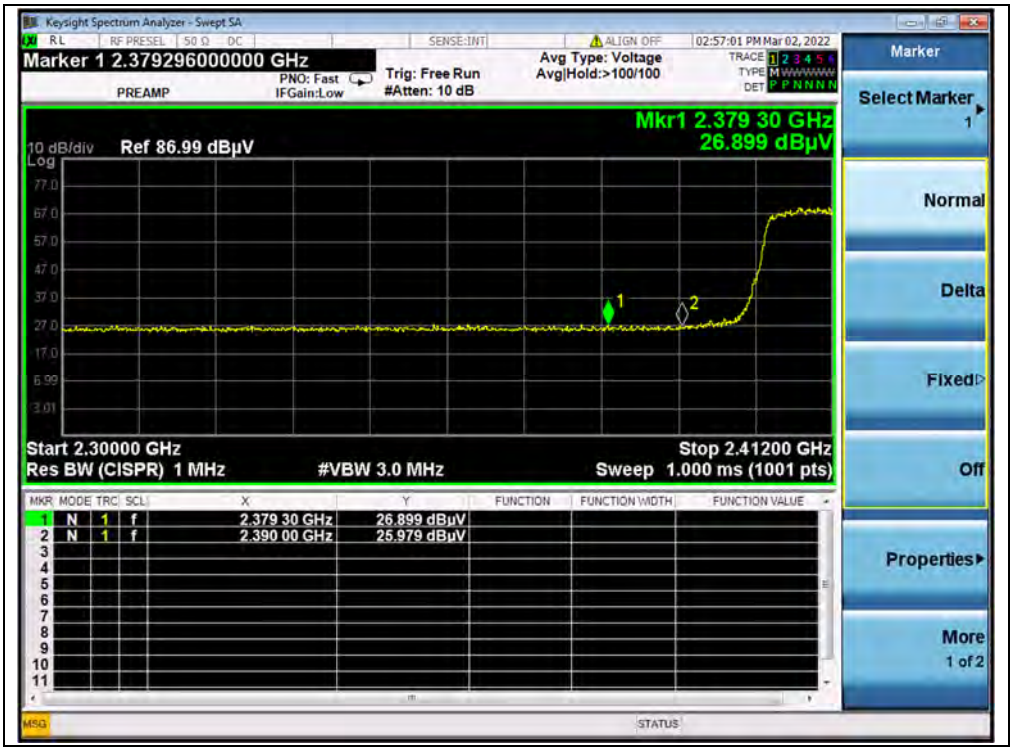
(AVERAGE, Channel 11, 802.11n (HT20))

802.11ax (HEW20) Mode

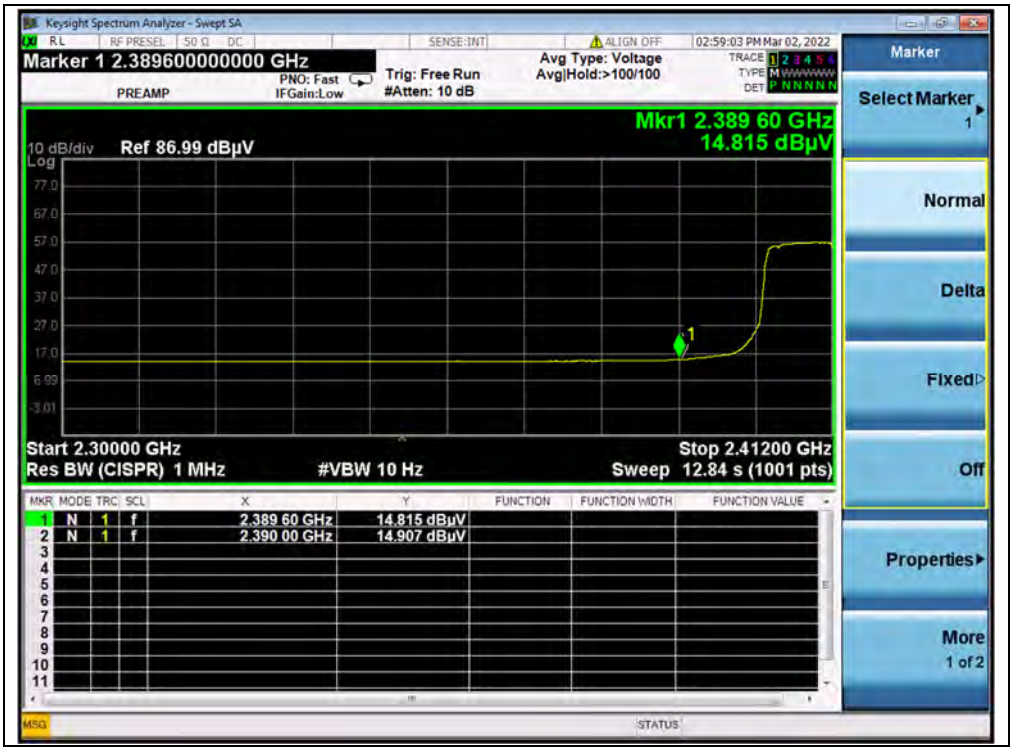
A.Test Verdict:

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						
1	2379.30	PK	26.90	6.74	27.20	60.84	74	PASS
1	2390.00	AV	14.91	6.74	27.20	48.85	54	PASS
11	2484.34	PK	26.65	6.74	27.20	60.59	74	PASS
11	2483.50	AV	15.19	6.74	27.20	49.13	54	PASS

B.Test Plot:

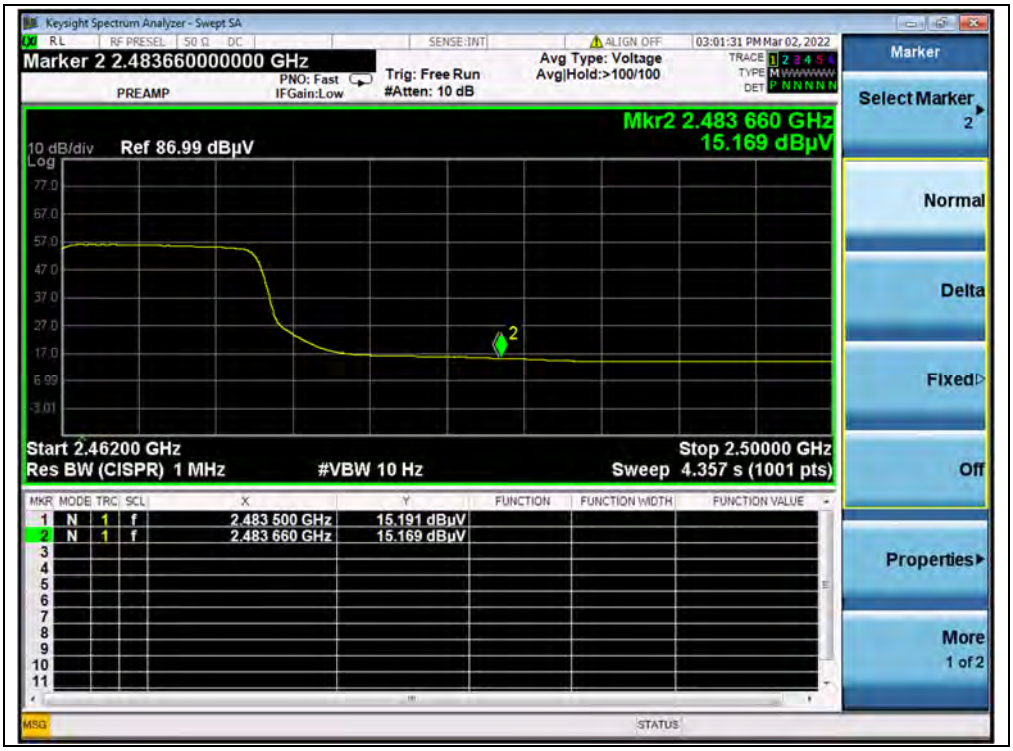


(PEAK, Channel 1, 802.11ax (HEW20))



(AVERAGE, Channel 1, 802.11ax (HEW20))

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



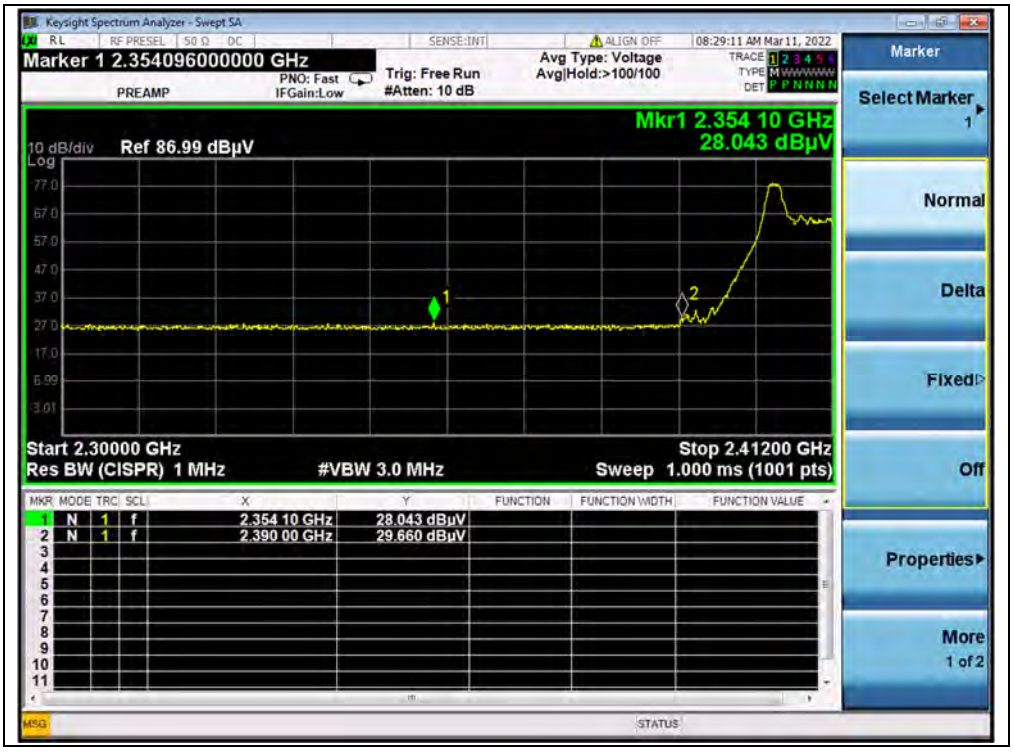
(AVERAGE, Channel 11, 802.11ax (HEW20))

802.11ax (HEW20) RU26 Mode

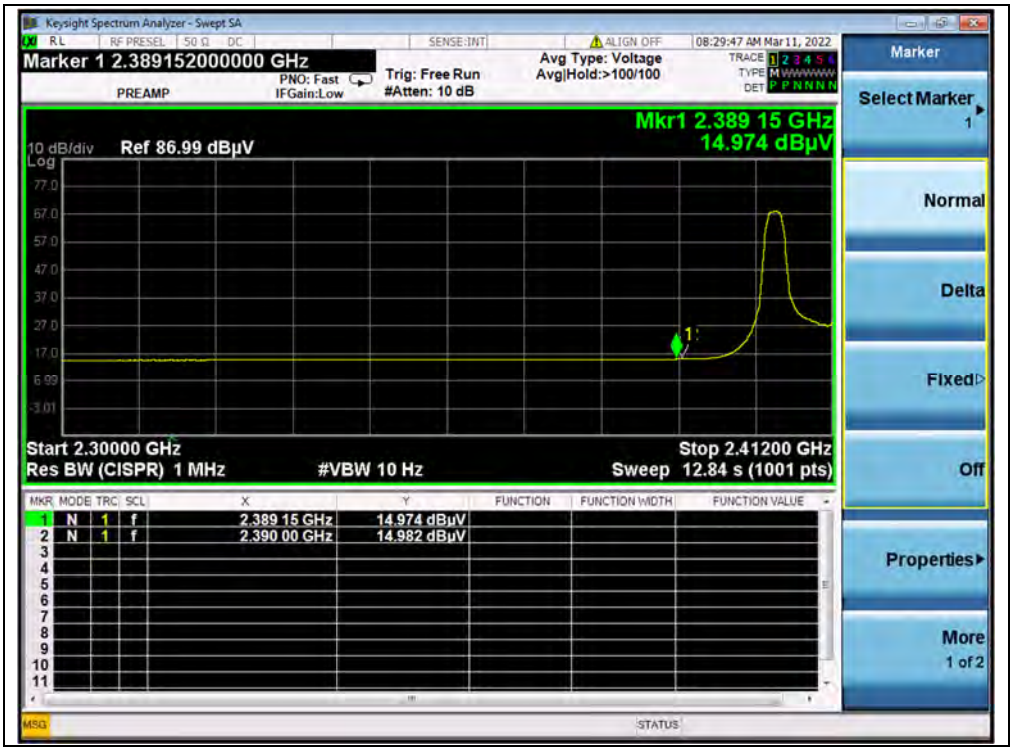
A.Test Verdict:

Channel	Frequency (MHz)	Detector PK/ AV	Receiver Reading U_R (dBμV)	A_T (dB)	A_{Factor} (dB@3m)	Max. Emission E (dBμV/m)	Limit (dBμV/m)	Verdict
1	2390.00	PK	29.66	6.74	27.20	63.60	74	PASS
1	2390.00	AV	14.98	6.74	27.20	48.92	54	PASS
11	2483.96	PK	30.74	6.74	27.20	64.68	74	PASS
11	2483.50	AV	14.63	6.74	27.20	48.57	54	PASS

B.Test Plot:

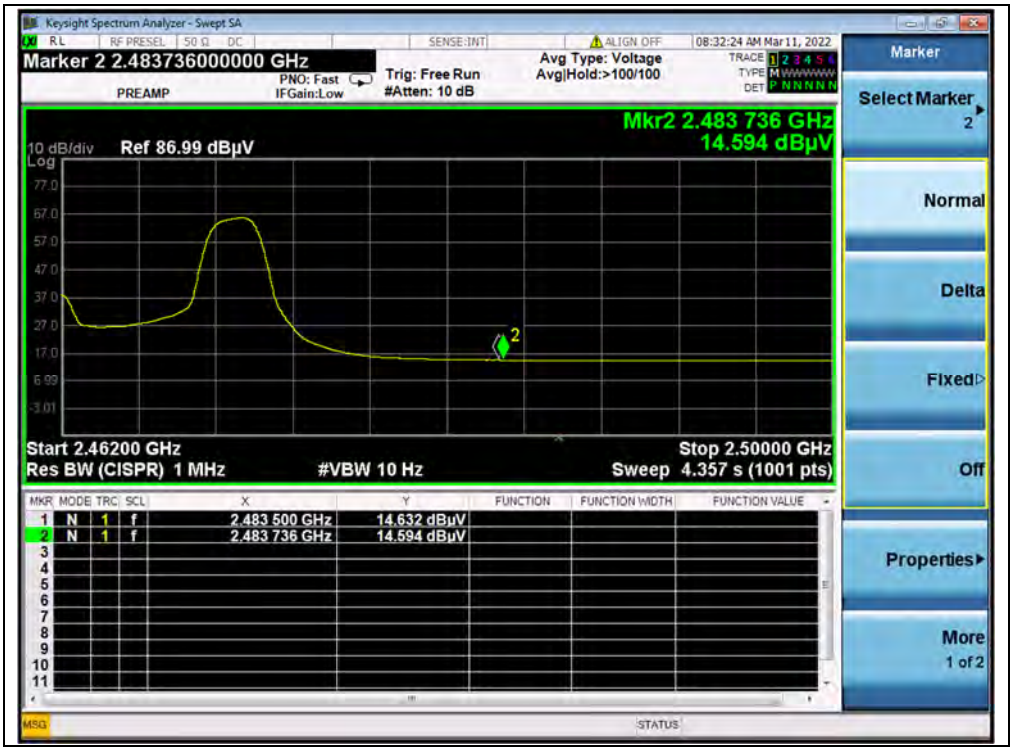


(PEAK, Channel 1, 802.11ax (HEW20) RU26)



(AVERAGE, Channel 1, 802.11ax (HEW20) RU26)

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



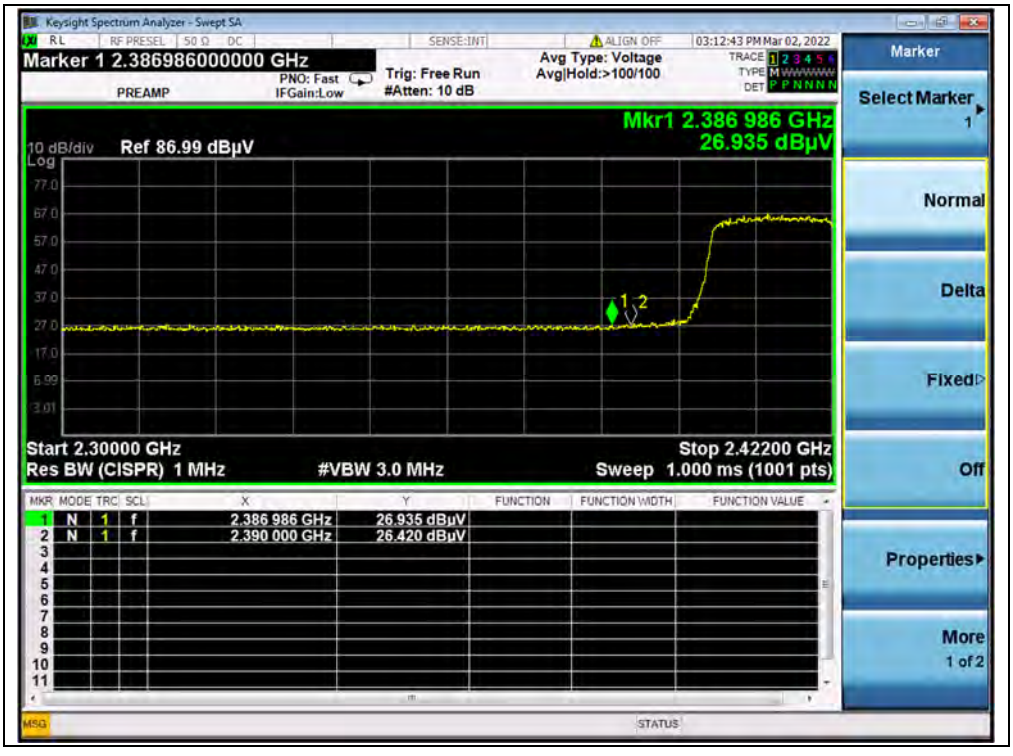
(AVERAGE, Channel 11, 802.11ax (HEW20) RU26)

802.11ax (HEW40) Mode

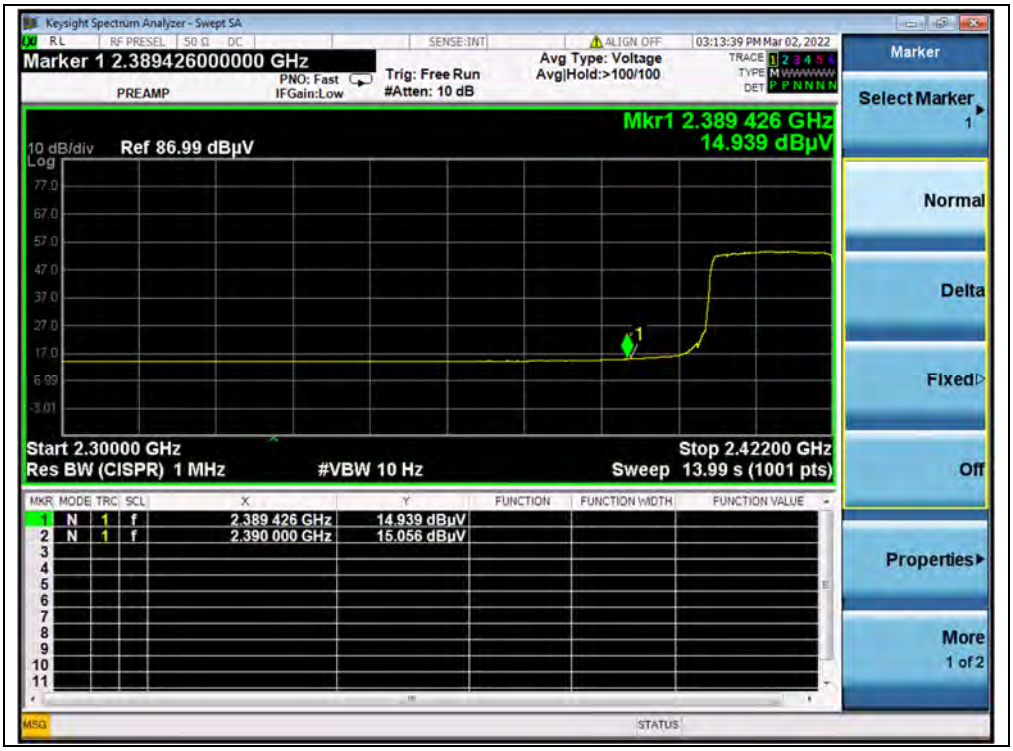
A.Test Verdict:

Channel	Frequency (MHz)	Detector PK/ AV	Receiver Reading U_R (dBμV)	A_T (dB)	A_{Factor} (dB@3m)	Max. Emission E (dBμV/m)	Limit (dBμV/m)	Verdict
3	2386.99	PK	26.94	6.74	27.20	60.88	74	PASS
3	2390.00	AV	15.06	6.74	27.20	49.00	54	PASS
9	2483.93	PK	28.08	6.74	27.20	62.02	74	PASS
9	2483.50	AV	14.59	6.74	27.20	48.53	54	PASS

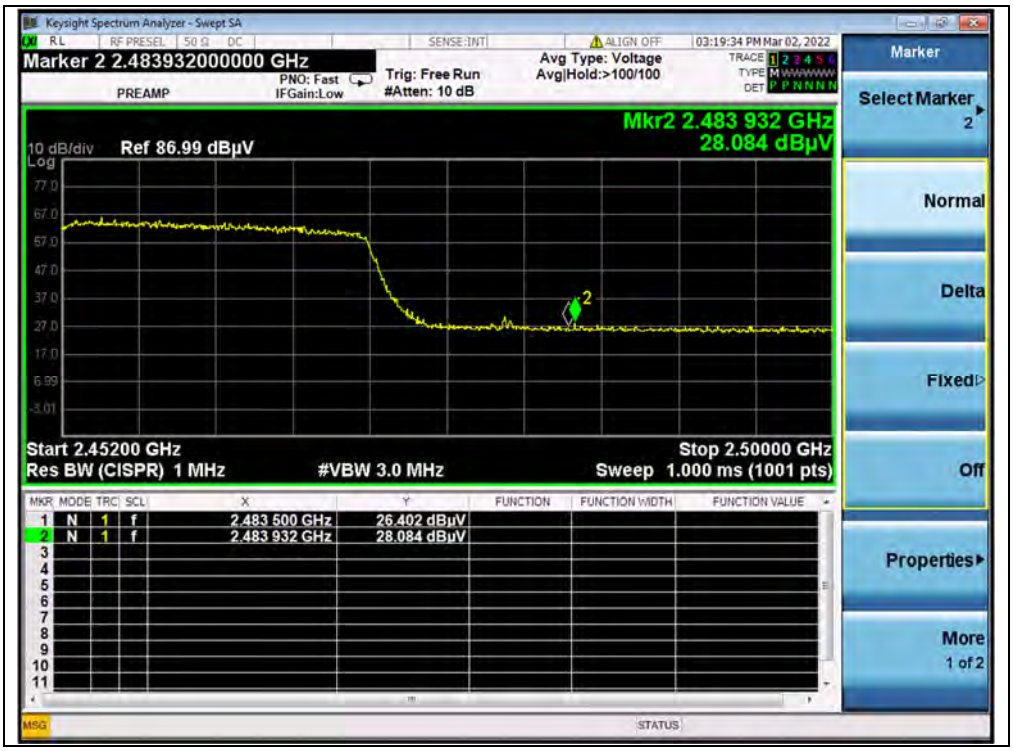
B.Test Plot:



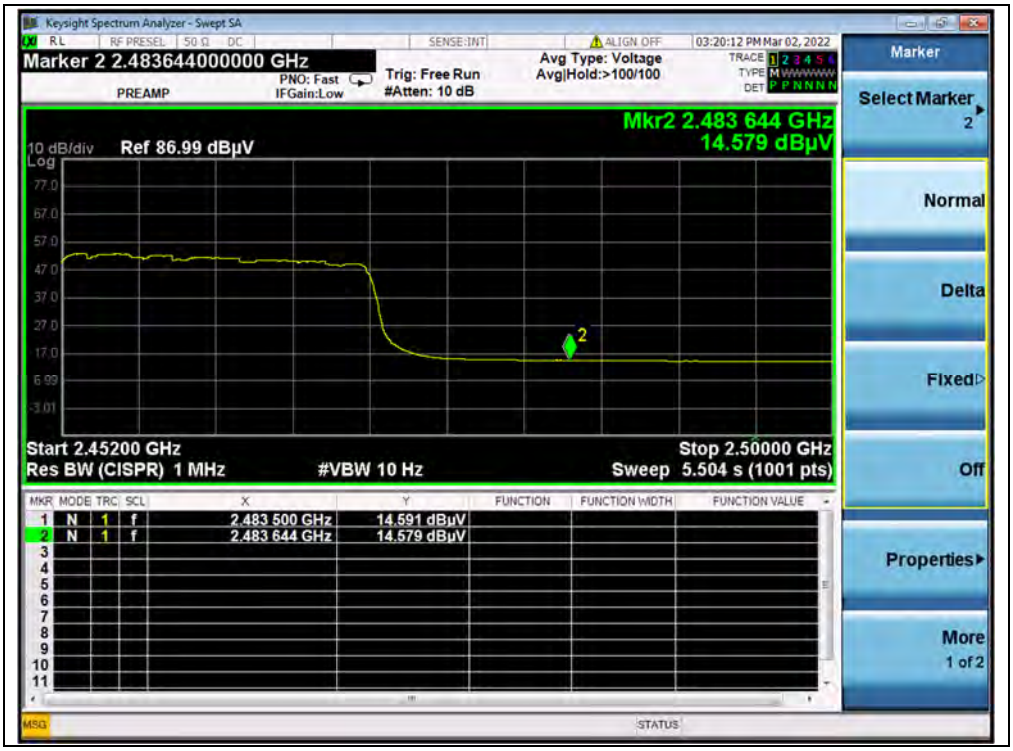
(PEAK, Channel 3, 802.11ax (HEW40))



(AVERAGE, Channel 3, 802.11ax (HEW40))



(PEAK, Channel 9, 802.11ax (HEW40))



(AVERAGE, Channel 9, 802.11ax (HEW40))

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 (μV/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

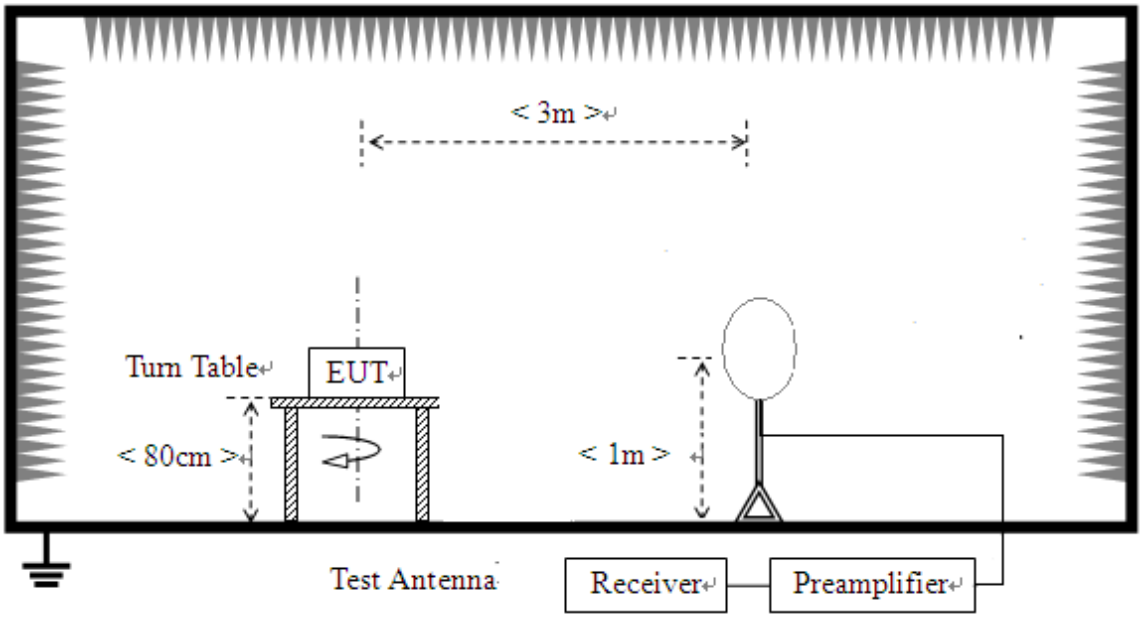
Note1: For above 1000MHz, the emission limit in this paragraph is based on measurement instrumentation employing an average detector, measurement using instrumentation with a peak detector function, corresponding to 20dB above the maximum permitted average limit.

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).

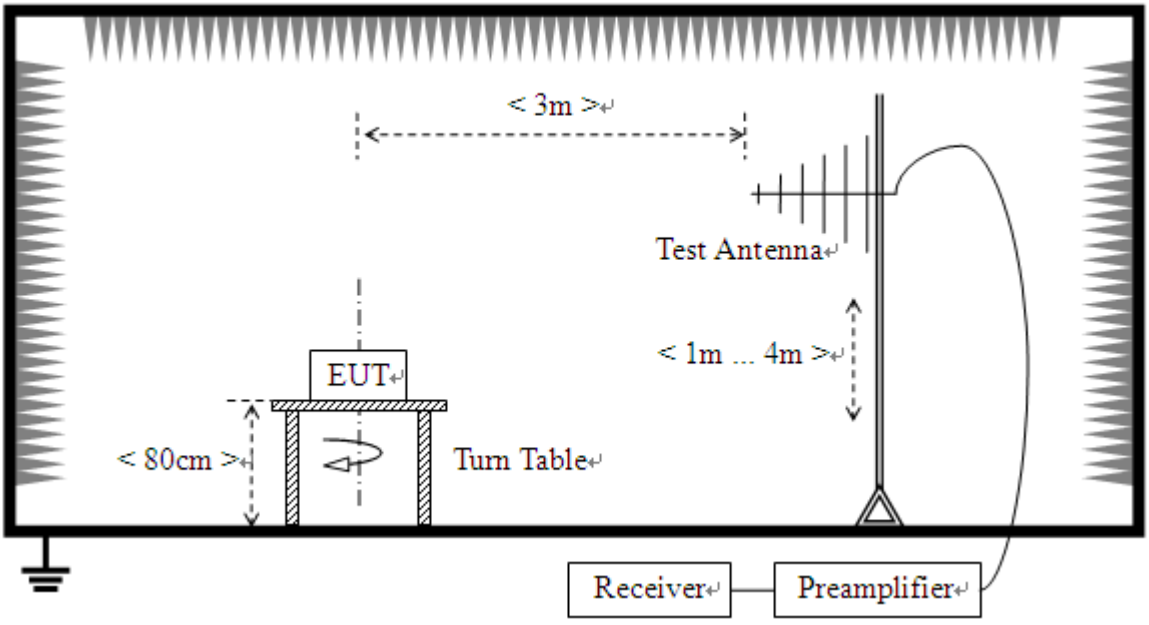
2.9.2. Test Description

Test Setup:

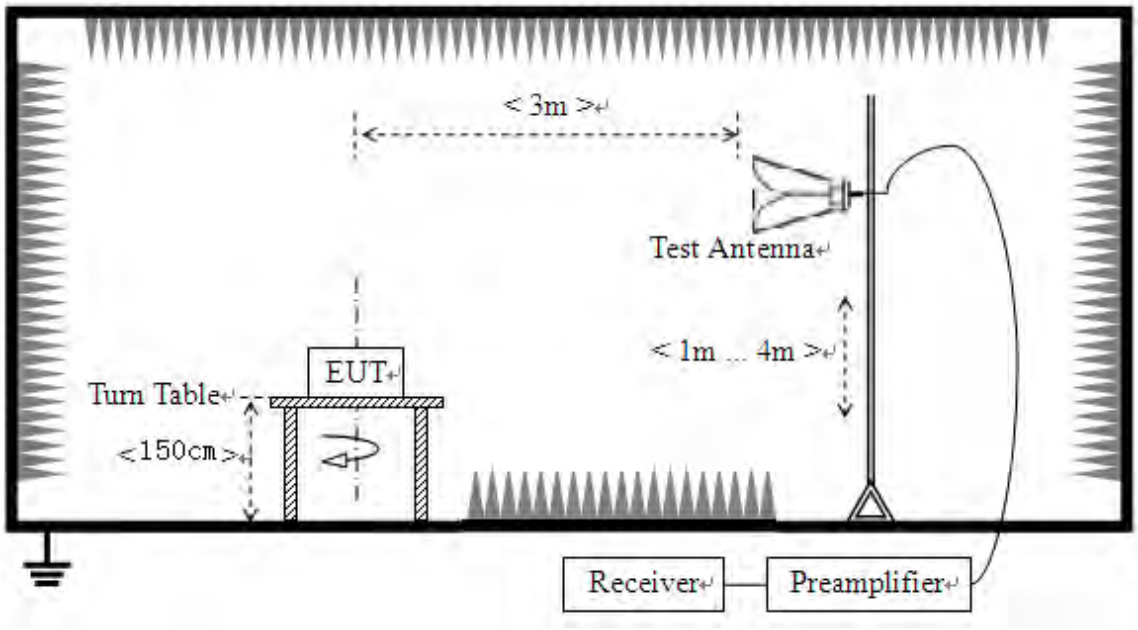
1) For radiated emissions from 9kHz to 30MHz



2) For radiated emissions from 30MHz to1GHz



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:

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

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.

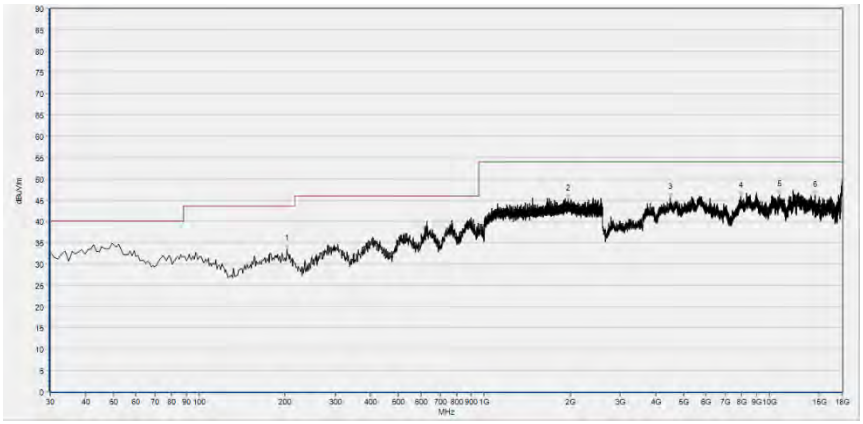
Note1: All radiated emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.

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.

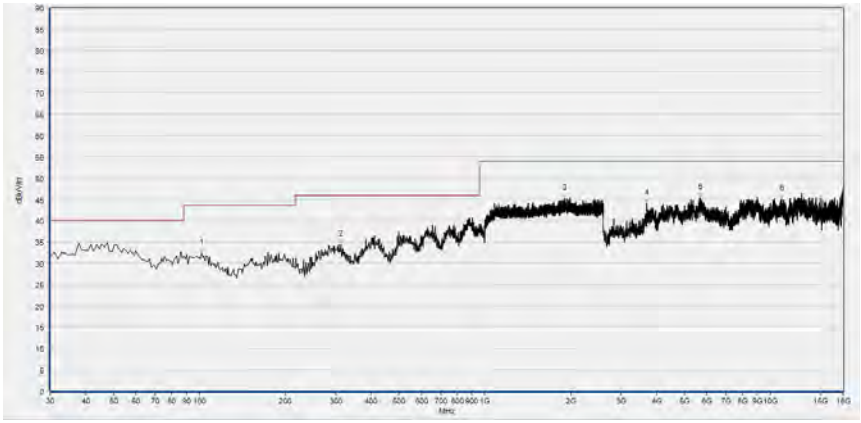
802.11b Mode

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
203.630	33.47	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
1963.733	45.21	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
4491.120	45.51	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
7922.240	46.00	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
10823.600	46.27	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
14448.760	46.02	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

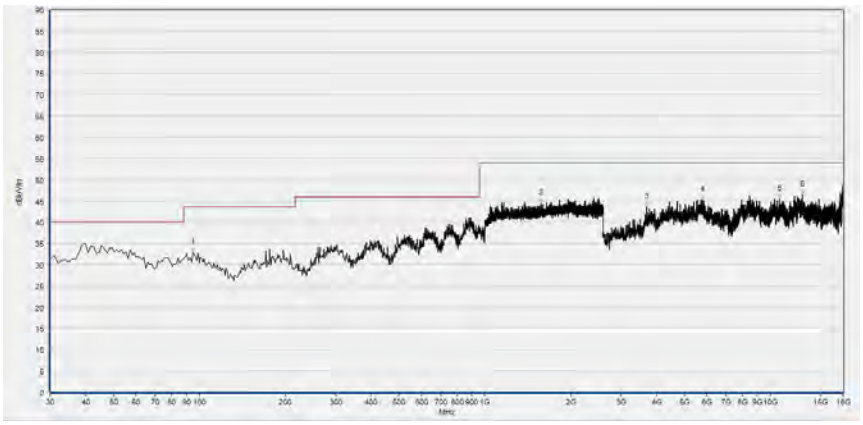
(Antenna Horizontal, 30MHz to 18GHz)



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
101.780	32.33	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
312.270	34.43	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1899.200	45.20	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
3693.400	44.16	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
5686.160	45.36	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
10980.680	45.06	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

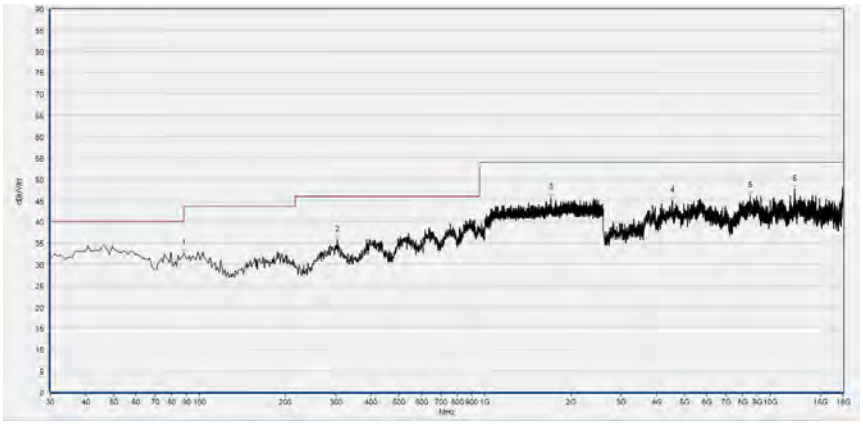
(Antenna Vertical, 30MHz to 18GHz)

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
94.990	32.93	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
1574.933	44.37	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
3690.320	43.64	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5772.400	45.17	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
10777.400	45.45	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12924.160	46.45	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

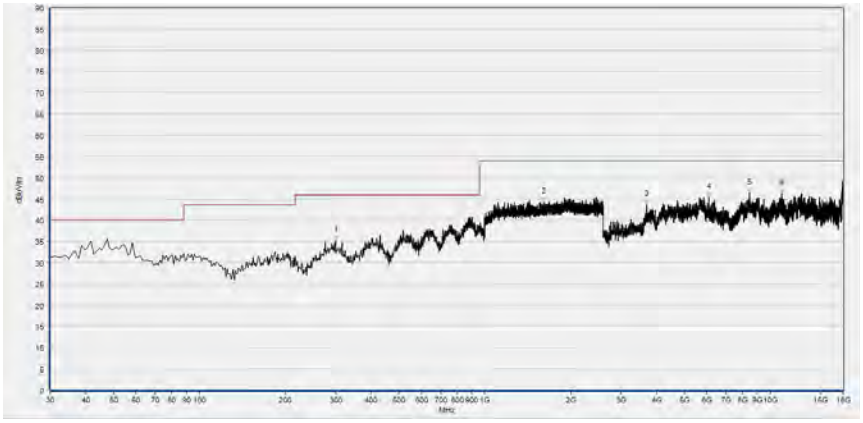
(Antenna Horizontal, 30MHz to 18GHz)



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
88.200	32.54	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
304.510	35.68	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1704.533	45.59	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
4552.720	44.94	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
8498.200	46.12	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12141.840	47.63	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

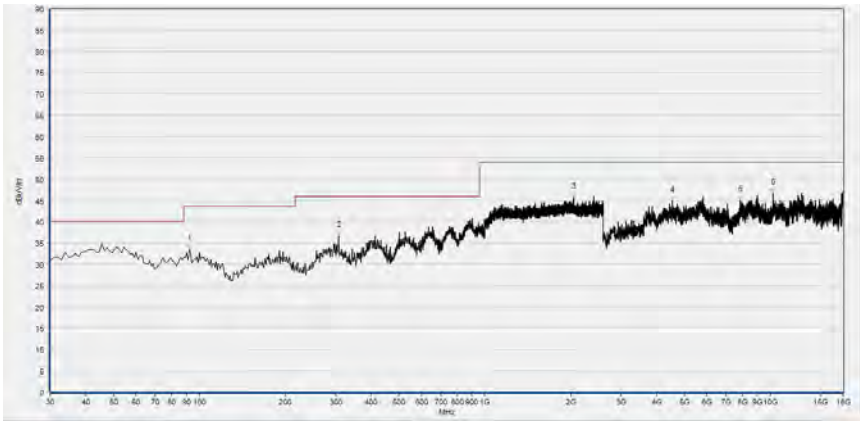
(Antenna Vertical, 30MHz to 18GHz)

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
300.630	35.25	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1604.800	44.26	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
3693.400	43.77	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
6083.480	45.39	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
8442.760	46.50	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
10974.520	46.23	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

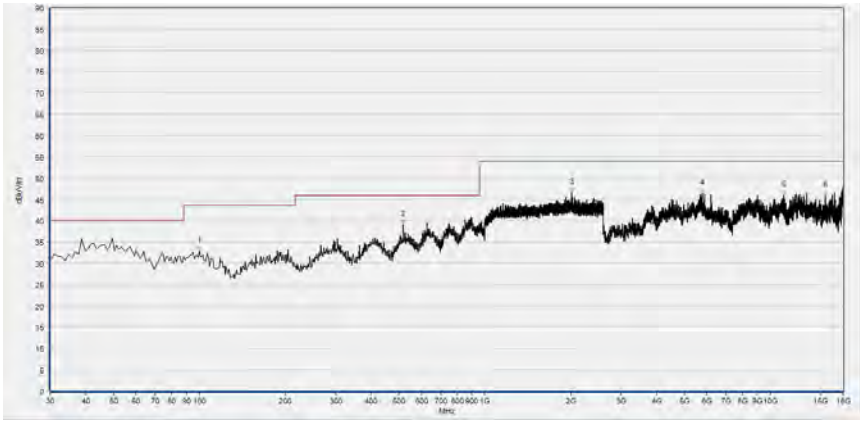


Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
92.080	33.58	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
307.420	36.72	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
2051.733	45.70	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
4534.240	44.90	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
7866.800	45.09	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
10216.840	46.69	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

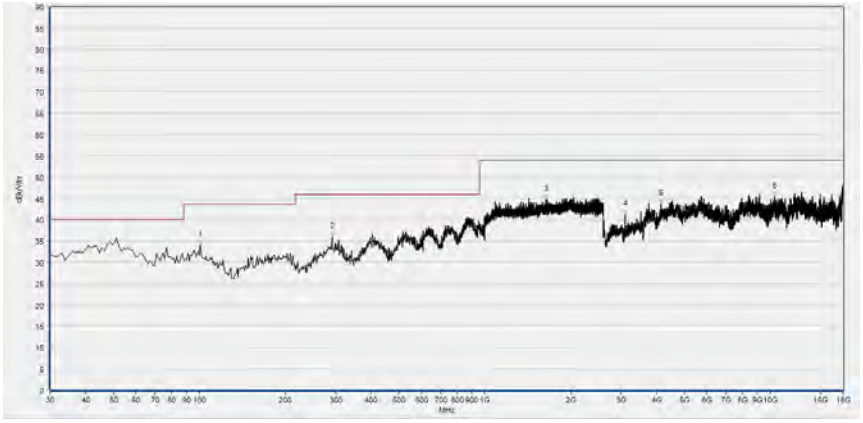
802.11g Mode

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
99.840	32.86	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
517.910	39.01	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
2016.000	46.56	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5769.320	46.46	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
11171.640	45.88	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
15591.440	45.91	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

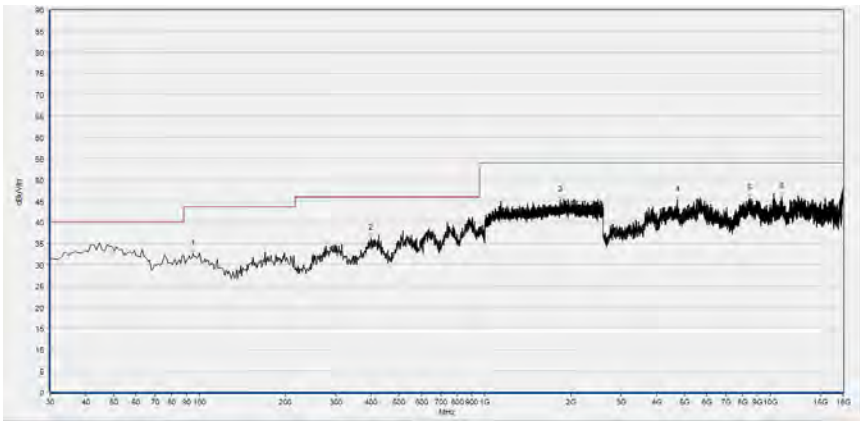
(Antenna Horizontal, 30MHz to 18GHz)



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
100.810	33.97	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
291.900	35.97	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1635.733	44.70	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
3095.880	41.31	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
4149.240	43.72	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
10340.040	45.50	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

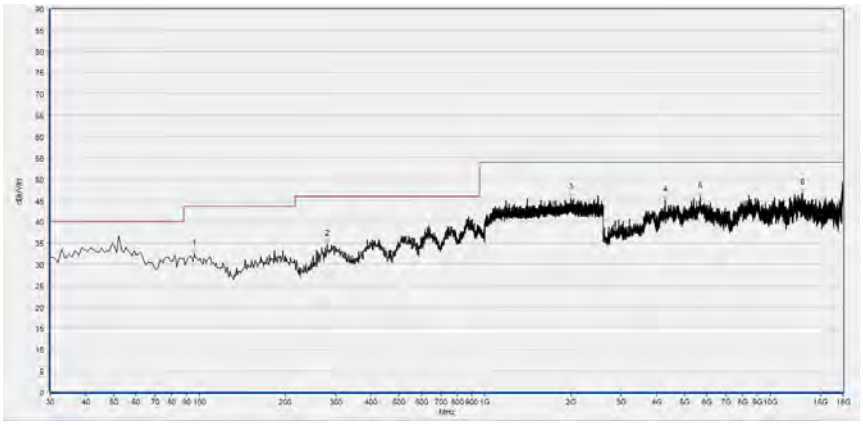
(Antenna Vertical, 30MHz to 18GHz)

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
94.990	32.44	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
398.600	36.23	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1832.000	45.20	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
4725.200	45.33	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
8479.720	45.54	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
10965.280	45.90	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

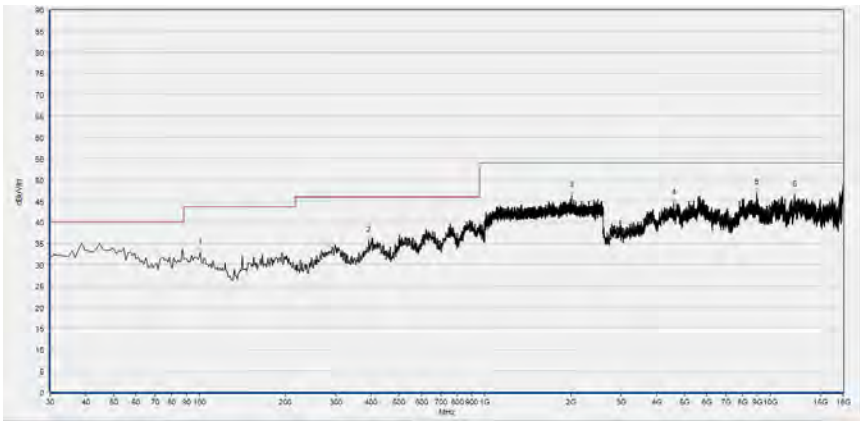
(Antenna Horizontal, 30MHz to 18GHz)



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
95.960	32.30	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
280.260	34.62	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1997.867	45.63	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
4281.680	45.06	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
5673.840	45.86	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12933.400	46.82	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

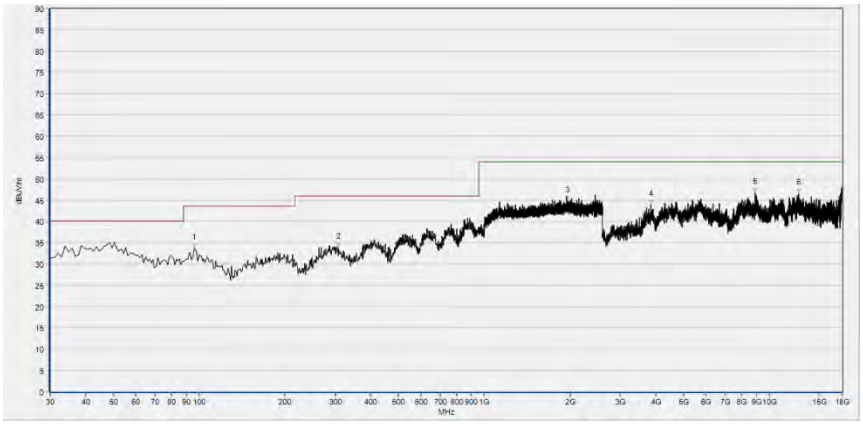
(Antenna Vertical, 30MHz to 18GHz)

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
100.810	32.77	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
392.780	35.65	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
2011.733	46.27	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
4589.680	44.37	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
8941.720	46.91	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12141.840	46.40	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

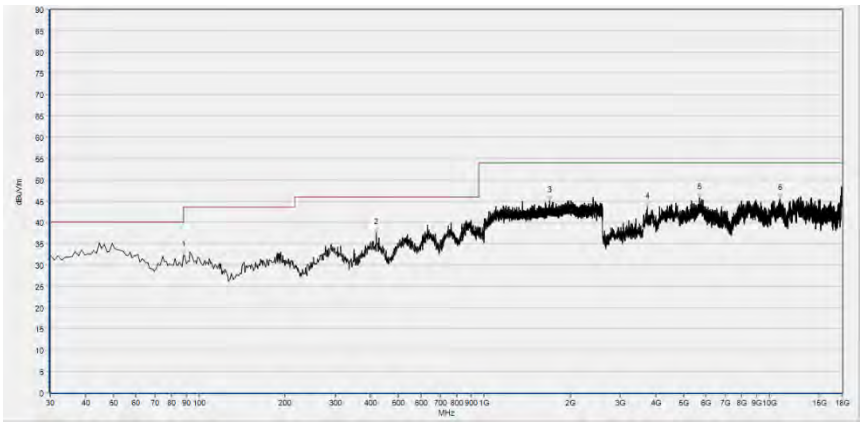


Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
95.960	33.71	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
307.420	33.78	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1957.333	44.70	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
3841.240	43.94	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
8904.760	46.76	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12690.080	46.56	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

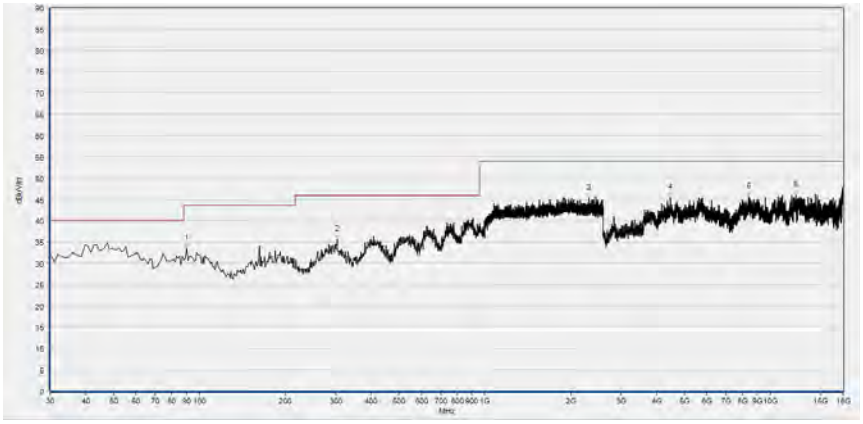
802.11n (HT20) Mode

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
88.200	32.34	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
418.000	37.61	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1698.667	45.06	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
3733.440	43.50	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5676.920	45.79	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
10894.440	45.54	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

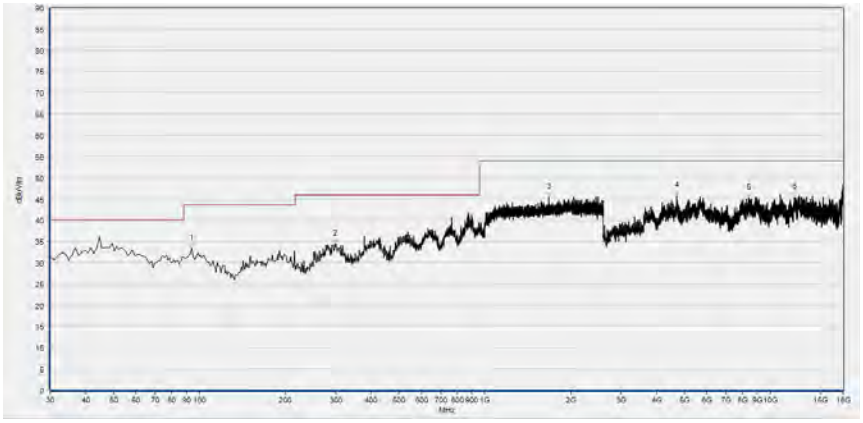
(Antenna Horizontal, 30MHz to 18GHz)



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
90.140	33.49	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
303.540	35.54	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
2317.867	45.29	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
4472.640	45.34	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
8421.200	45.62	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12277.360	45.97	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

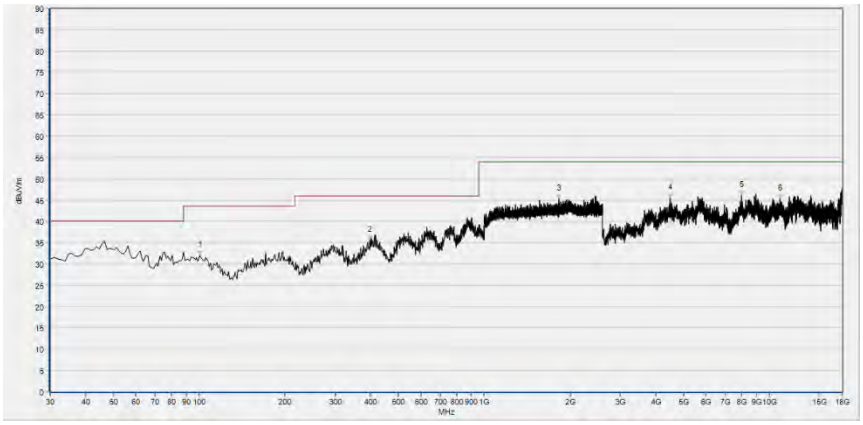
(Antenna Vertical, 30MHz to 18GHz)

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	33.38	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
298.690	34.30	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1678.933	45.35	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
4709.800	45.84	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
8415.040	45.32	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12138.760	45.42	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

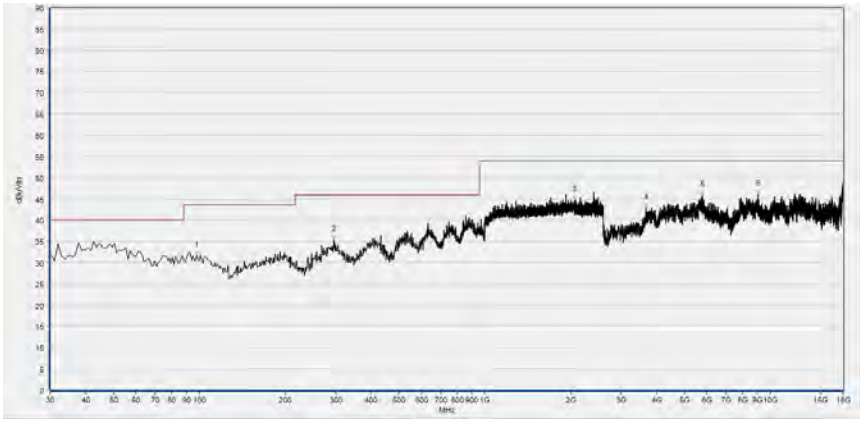
(Antenna Horizontal, 30MHz to 18GHz)



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
100.810	32.09	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
397.630	35.54	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1829.333	45.33	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
4478.800	45.39	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
7971.520	46.03	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
10872.880	45.22	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

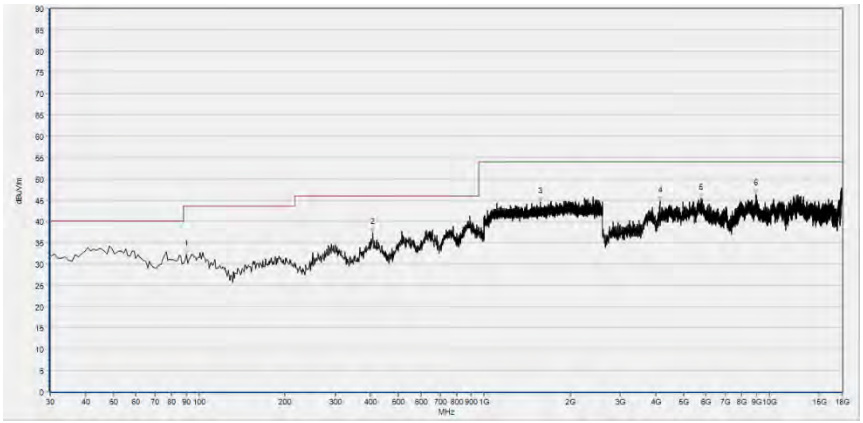
(Antenna Vertical, 30MHz to 18GHz)

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
97.900	31.72	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
295.780	35.39	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
2061.867	44.75	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
3674.920	42.96	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5797.040	45.86	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
9055.680	46.17	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

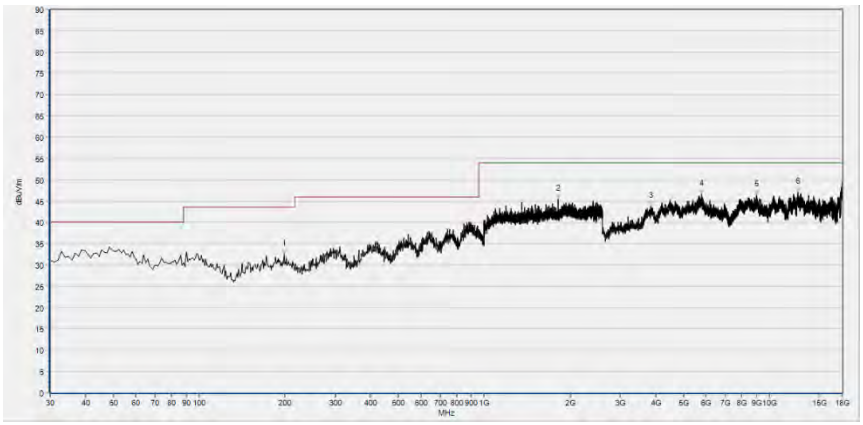


Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
90.140	32.25	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
406.360	37.46	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1575.467	44.66	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
4130.760	44.74	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
5763.160	45.47	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
8950.960	46.37	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

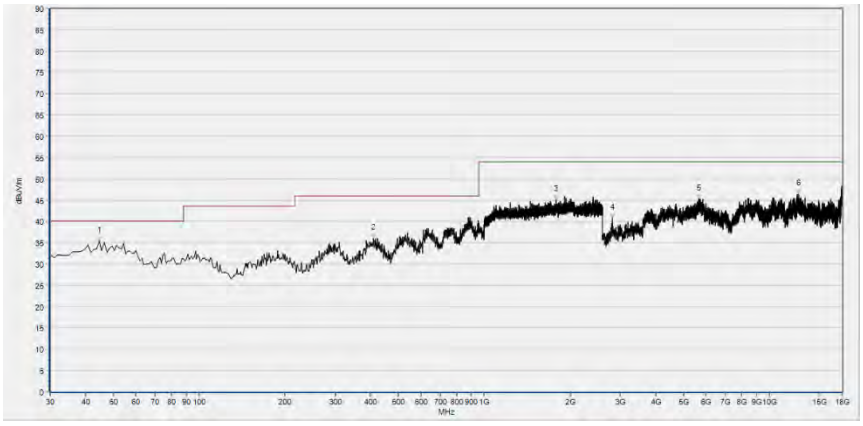
802.11ax (HEW20) Mode

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
198.780	32.53	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
1817.600	45.42	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
3832.000	43.82	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5772.400	46.57	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
9000.240	46.40	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12606.920	47.11	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

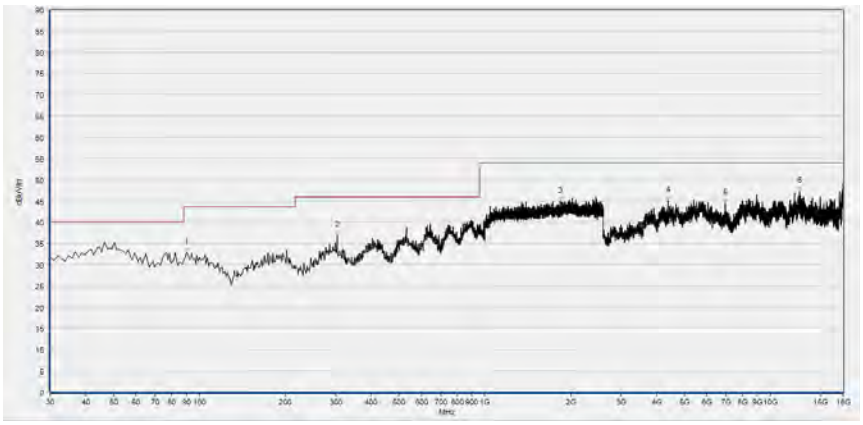
(Antenna Horizontal, 30MHz to 18GHz)



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
44.550	35.28	N/A	N/A	N/A	40.00	N/A	Vertical	PASS
409.270	36.01	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1784.533	45.03	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
2809.440	40.74	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
5658.440	45.19	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12680.840	46.35	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

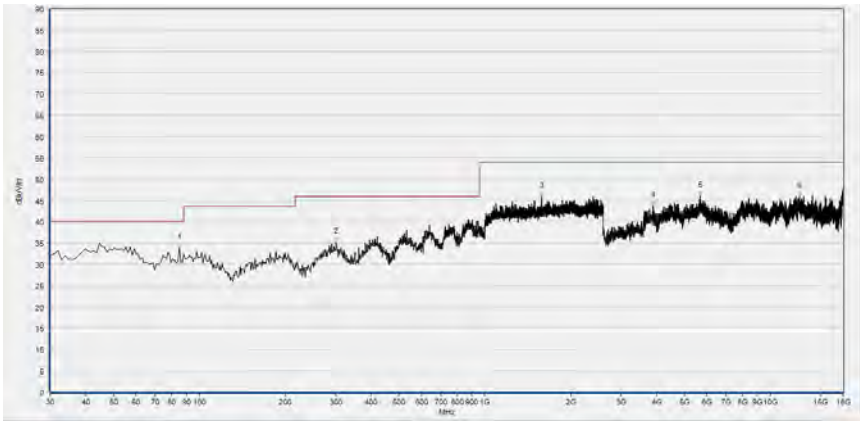
(Antenna Vertical, 30MHz to 18GHz)

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
90.140	32.84	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
303.540	36.85	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1840.000	44.87	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
4380.240	45.06	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
6942.800	44.45	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12683.920	47.26	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

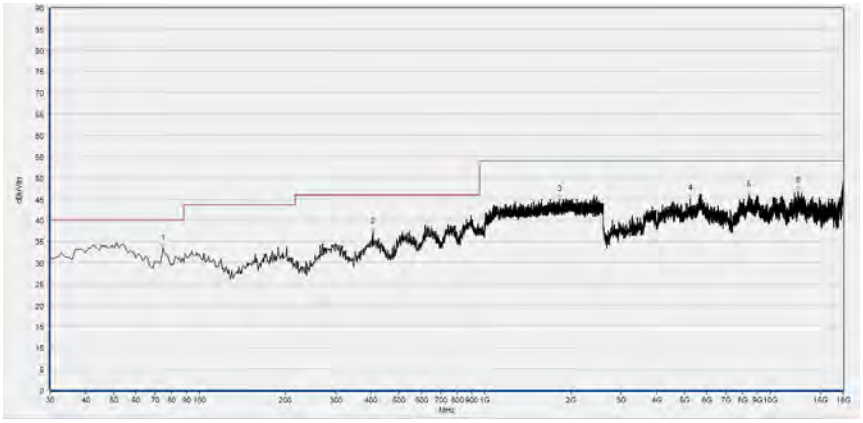
(Antenna Horizontal, 30MHz to 18GHz)



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
85.290	33.90	N/A	N/A	N/A	40.00	N/A	Vertical	PASS
301.600	35.20	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1578.667	45.86	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
3893.600	43.70	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
5692.320	46.13	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12683.920	45.98	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

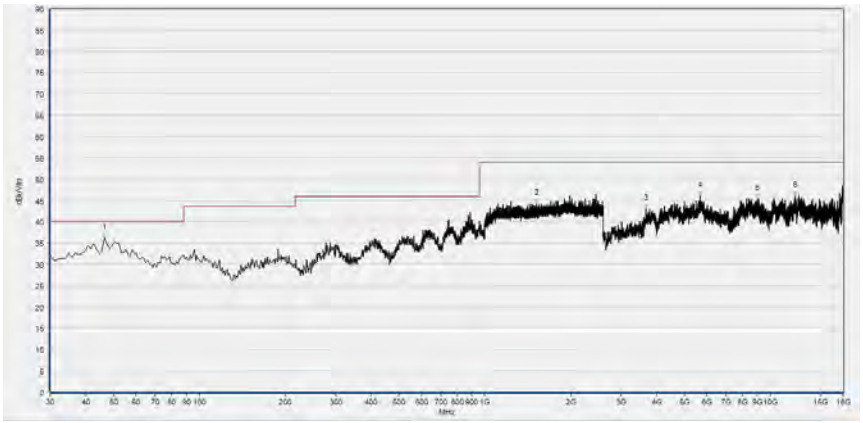
(Antenna Vertical, 30MHz to 18GHz)

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
74.620	33.32	N/A	N/A	N/A	40.00	N/A	Horizontal	PASS
405.390	37.12	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1830.400	44.92	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5236.480	45.04	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
8433.520	45.85	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12502.200	46.93	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

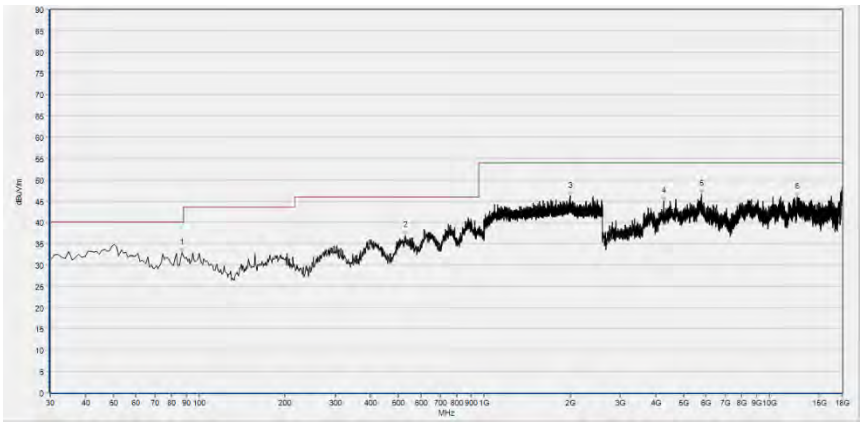


Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
46.490	36.18	N/A	N/A	N/A	40.00	N/A	Vertical	PASS
1517.333	44.18	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
3674.920	43.10	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
5689.240	46.08	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
9015.640	45.36	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12218.840	46.04	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

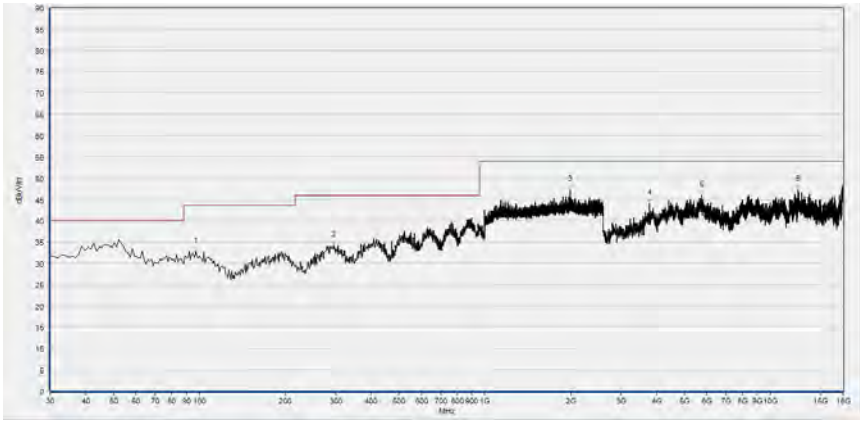
802.11ax (HEW20) RU26 Mode

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
87.230	32.88	N/A	N/A	N/A	40.00	N/A	Horizontal	PASS
528.580	36.88	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1997.333	46.06	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
4266.280	44.99	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5784.720	46.63	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12514.520	46.00	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

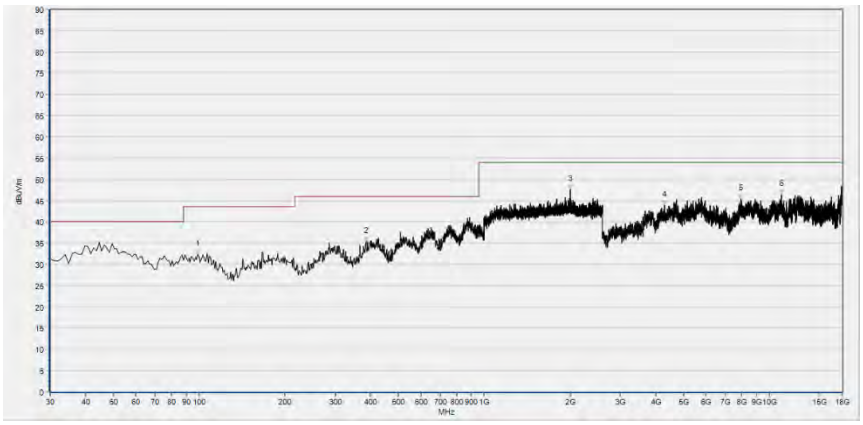
(Antenna Horizontal, 30MHz to 18GHz)



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	32.66	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
294.810	34.21	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1995.200	47.28	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
3779.640	44.12	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
5750.840	45.96	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12492.960	47.22	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

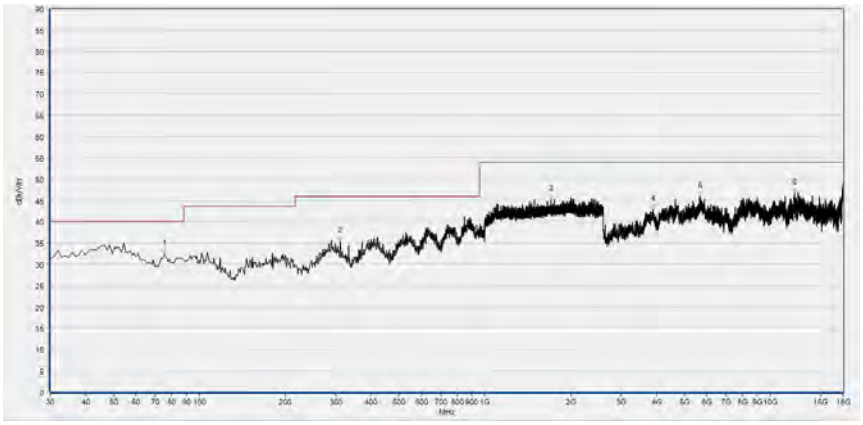
(Antenna Vertical, 30MHz to 18GHz)

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
98.870	32.30	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
385.020	35.43	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1998.400	47.63	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
4294.000	43.91	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
7928.400	45.44	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
10999.160	46.49	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

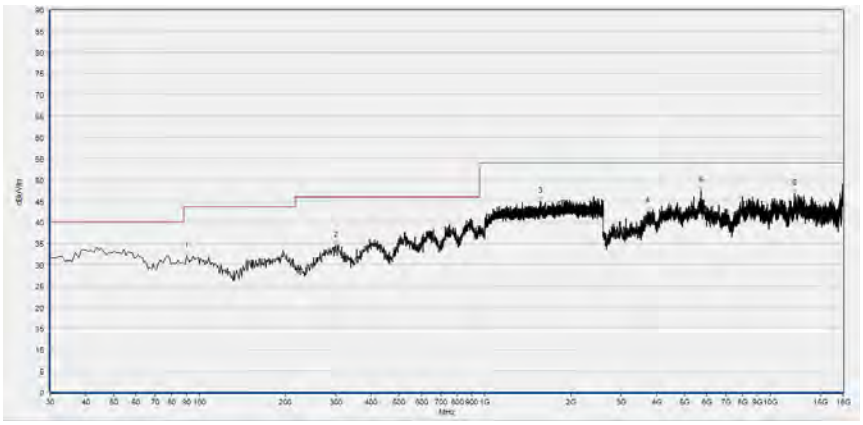
(Antenna Horizontal, 30MHz to 18GHz)



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
75.590	32.36	N/A	N/A	N/A	40.00	N/A	Vertical	PASS
311.300	35.35	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1709.333	45.25	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
3887.440	42.83	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
5686.160	45.84	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12135.680	46.79	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

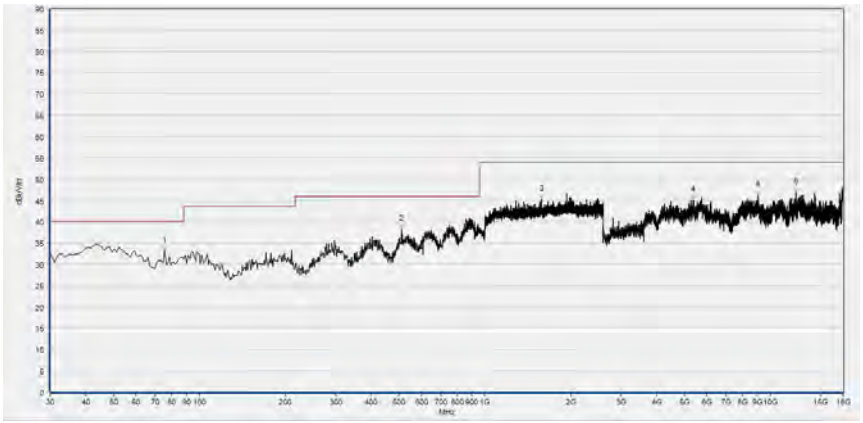
(Antenna Vertical, 30MHz to 18GHz)

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
90.140	32.09	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
300.630	34.55	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1560.533	44.89	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
3702.640	42.53	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5729.280	47.49	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12184.960	46.80	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30MHz to 18GHz)

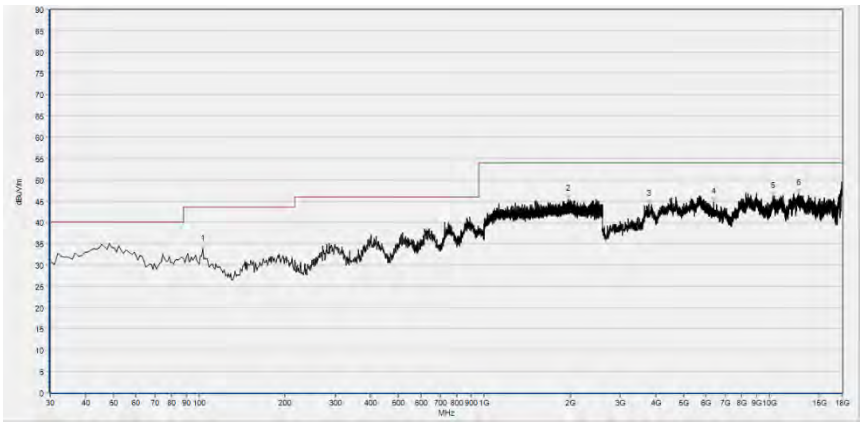


Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
75.590	33.18	N/A	N/A	N/A	40.00	N/A	Vertical	PASS
510.150	38.25	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1577.067	45.18	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
5372.000	45.14	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
9089.560	46.25	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12308.160	46.98	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30MHz to 18GHz)

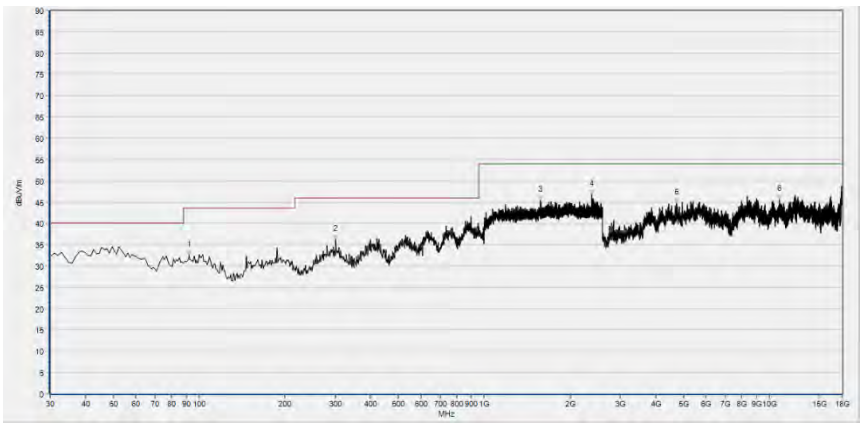
802.11ax (HEW40) Mode

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
102.750	33.69	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
1970.667	45.44	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
3779.640	44.24	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
6369.920	44.83	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
10293.840	46.11	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12680.840	46.71	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

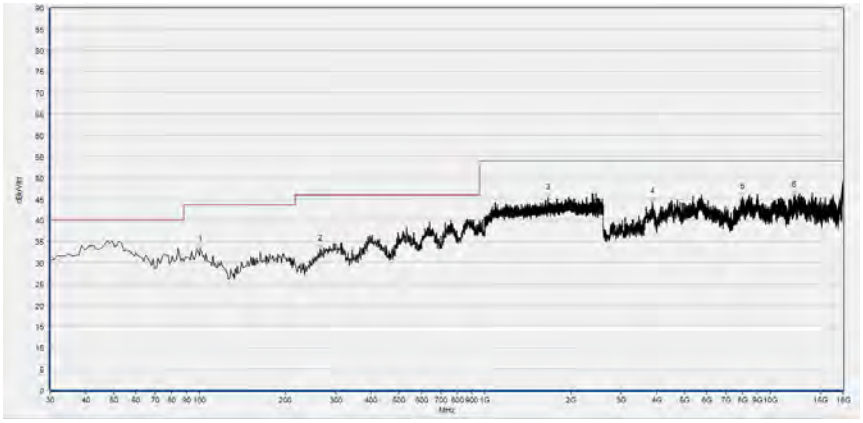
(Antenna Horizontal, 30MHz to 18GHz)



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
92.080	32.52	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
301.600	36.18	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1576.000	45.36	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
2386.133	46.76	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
4737.520	44.77	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
10848.240	45.53	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

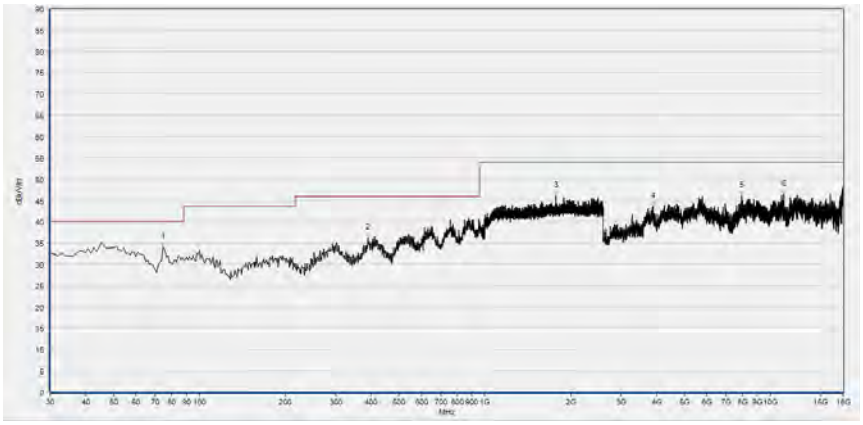
(Antenna Vertical, 30MHz to 18GHz)

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
100.810	33.18	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
264.740	33.25	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1668.267	45.20	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
3853.560	44.32	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
8002.320	45.38	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12123.360	45.75	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

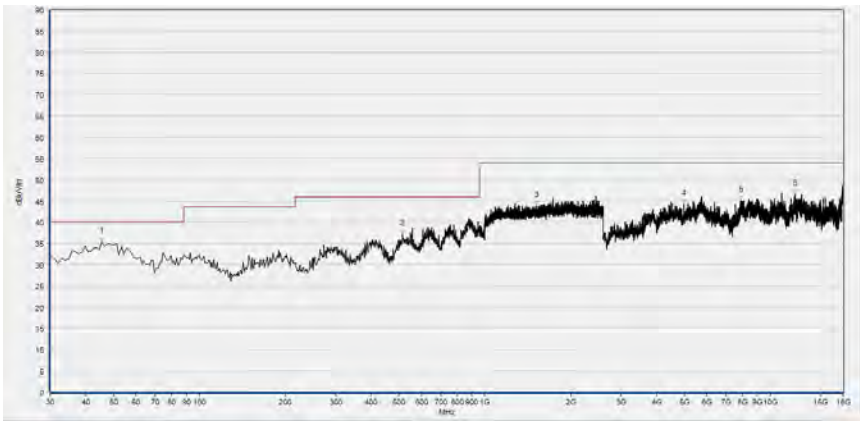
(Antenna Horizontal, 30MHz to 18GHz)



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
74.620	34.07	N/A	N/A	N/A	40.00	N/A	Vertical	PASS
388.900	36.28	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1778.667	46.09	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
3884.360	43.63	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
7931.480	46.16	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
11177.800	46.35	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

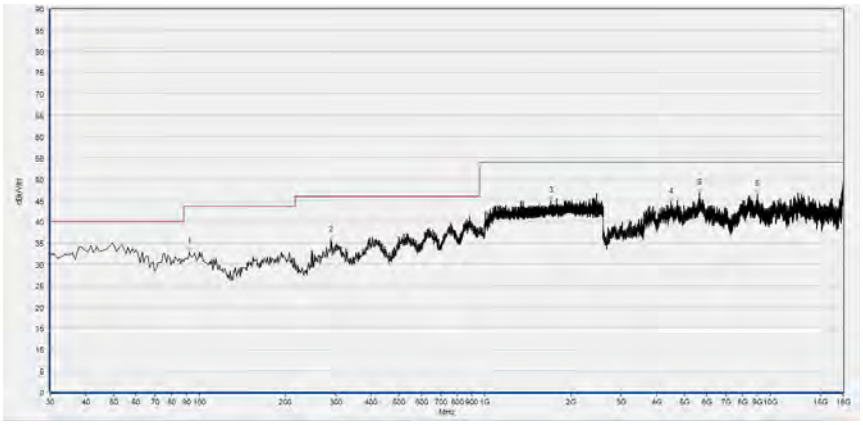
(Antenna Vertical, 30MHz to 18GHz)

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
45.520	35.41	N/A	N/A	N/A	40.00	N/A	Horizontal	PASS
515.000	37.24	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1521.600	43.89	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
4980.840	44.23	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
7903.760	45.16	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12258.880	46.63	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
92.080	32.91	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
288.990	35.73	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1706.133	44.99	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
4484.960	44.54	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
5658.440	46.70	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
8997.160	46.45	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	±2.22dB
Power Spectral Density	±2.22dB
Bandwidth	±5%
Conducted Spurious Emission	±2.77dB
Restricted Frequency Bands	±5%
Radiated Emission	±2.95dB
Conducted Emission	±2.44dB

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
				2022.03.01	2023.02.28
USB Wideband Power Sensor	MY54210011	U2021XA	Agilent	2021.03.25	2022.03.24
				2022.03.01	2023.02.28
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
				2022.03.03	2023.03.02
LISN	8127449	NSLK 8127	Schwarzbeck	2021.03.09	2022.03.08
				2022.03.03	2023.03.02
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	V2.5.77.0418
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	2022.02.11	2025.02.10
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	S020180L3203	Tonscend	2021.07.16	2022.07.15
18-26.5GHz pre-Amplifier	46732	S10M100L3802	Tonscend	2021.07.16	2022.07.15
26-40GHz pre-Amplifier	56774	S40M400L4002	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

END OF REPORT