REPORT No.：SZ17080227W03

TEST REPORT

APPLICANT	:	EmdoorVR Technology Co.,Ltd
PRODUCT NAME	:	Android Virtual Reality Headset
MODEL NAME	:	AVR1-WT
BRAND NAME	:	Variety Products,LLC.
FCC ID	:	2ANTOR551-A-AVR1-WT
STANDARD(S)	:	47 CFR Part 15 Subpart C
TEST DATE	:	2017-09-19 to 2017-11-06
ISSUE DATE	:	2017-11-06

Tested by: Li Jingzong (Test Engineer)

Approved by: Andy Yeh (Technical Director)

MORLAB

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DIRECTORY

Change History		
Issue	**Date**	**Reason for change**
1.0	2017-11-06	First edition

1. Technical Information

Note: Provide by applicant.

1.1. Applicant and Manufacturer Information

Applicant:	EmdoorVR Technology Co.,Ltd
Applicant Address:	811/F JinFuLai Building,49-1 Dabao Road, Bao An District, Shenzhen
Manufacturer:	EmdoorVR Technology Co.,Ltd
Manufacturer Address:	811/F JinFuLai Building,49-1 Dabao Road, Bao An District, Shenzhen

1.2. Equipment Under Test (EUT) Description

Product Name:	Android Virtual Reality Headset
Serial No:	(N/A, marked #1 by test site)
Hardware Version:	EM_R551_MB_V1.1A
Software Version:	VR0277/3.20.001
Modulation Type:	DSSS, OFDM
Operating Frequency Range:	802.11b/g/n-20MHz: 2.412GHz - 2.462GHz 802.11n-40MHz: 2.422GHz - 2.452GHz
Channel Number:	802.11b/g/n-20MHz: 11 802.11n-40MHz: 7
Antenna Type:	FPCB Antenna
Antenna Gain:	1.84 dBi

Note 1: The EUT is a Android Virtual Reality Headset. It's operating at 2.4GHz ISM; it supports 802.11b, 802.11g, 802.11n and they are all tested in this report.

For 802.11b/g/n-20MHz (2.4GHz band), the frequencies allocated is F (MHz) =2412+5*(n-1) (1<=n<=11). The lowest, middle, highest channel numbers of the EUT used and tested in this report are separately 1 (2412MHz), 6 (2437MHz) and 11 (2462MHz).

For 802.11n-40MHz, the frequencies allocated is F (MHz) =2412+5*(n-1) (3<=n<=9). The lowest, middle, highest channel numbers of the EUT used and tested in this report are separately 3 (2422MHz), 6 (2437MHz) and 9 (2452MHz).

Note 2: The EUT connected to the serial port of the computer with a serial communication cable, we use the dedicated software to control the EUT continuous transmission.

Note 3: For a more detailed description, please refer to Specification or User's Manual supplied by the applicant and/or manufacturer.

1.3. Test Standards and Results

The objective of the report is to perform testing according to 47 CFR Part 15 Subpart C (Bluetooth, 2.4GHz ISM band radiators) for the EUT FCC ID Certification:

No	Identity	Document Title
1	47 CFR Part 15 (10-1-15 Edition)	Radio Frequency Devices

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

No.	Section	Description	Test Date	Test Engineer	Result
1	15.203	Antenna Requirement	N/A	N/A	PASS
2	15.247(b)	Peak Output Power	Sep 19, 2017	Li Jingzong	PASS
3	15.247(a)	Bandwidth	Sep 19, 2017	Li Jingzong	PASS
4	15.247(d)	Conducted Spurious Emission and Band Edge	Sep 19, 2017	Li Jingzong	PASS
5	15.247(d)	Restricted Frequency Bands	Nov 03&05, 2017	Zheng Fengjian	PASS
6	15.207	Conducted Emission	Nov 06, 2017	Zheng Fengjian	PASS
7	15.209, 15.247(d)	Radiated Emission	Nov 06, 2017	Zheng Fengjian	PASS
8	15.247(e)	Power spectral density (PSD)	Sep 19, 2017	Li Jingzong	PASS

Note: The tests of Conducted Emission and Radiated Emission were performed according to the method of measurements prescribed in ANSI C63.10 2013 and KDB558074 D01 v04 (04/05/2017).

1.4. Environmental Conditions

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

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

2. 47 CFR Part 15C Requirements

2.1. Antenna requirement

2.1.1. Applicable Standard

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

2.1.2. Result: Compliant

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

2.2. Peak Output Power

2.2.1. 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 exceed1 Watt.

2.2.2. Test Description

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

A. 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, all test result in power meter.

B. Equipments List:

Please reference ANNEX A(1.5).

2.2.3. Test Result

The lowest, middle and highest channels are selected to perform testing to verify the conducted RF output peak power of the Module.

2.2.3.1 802.11b Test Mode

Channel	Frequency (MHz)	Measured Output Peak Power		Limit		Verdict
		dBm	W	dBm	W	
1	2412	17.78	0.05998	30	1	PASS
6	2437	17.91	0.06180			PASS
11	2462	17.63	0.05794			PASS

Channel	Frequency (MHz)	Measured Output Average Power		Limit		Verdict
		dBm	W	dBm	W	
1	2412	15.87	0.03864	30	1	PASS
6	2437	16.01	0.03990			PASS
11	2462	15.45	0.03508			PASS

2.2.3.2 802.11g Test mode

Channel	Frequency (MHz)	Measured Output Peak Power		Limit		Verdict
		dBm	W	dBm	W	
1	2412	19.87	0.09705	30	1	PASS
6	2437	20.06	0.10139			PASS
11	2462	19.76	0.09462			PASS

Channel	Frequency (MHz)	Measured Output Average Power		Limit		Verdict
		dBm	W	dBm	W	
1	2412	11.24	0.01330	30	1	PASS
6	2437	11.47	0.01403			PASS
11	2462	11.07	0.01279			PASS

2.2.3.3 802.11n-20MHz Test mode

Channel	Frequency (MHz)	Measured Output Peak Power		Limit		Verdict
		dBm	W	dBm	W	
1	2412	18.82	0.07621	30	1	PASS
6	2437	18.94	0.07834			PASS
11	2462	18.84	0.07656			PASS

Channel	Frequency (MHz)	Measured Output Average Power		Limit		Verdict
		dBm	W	dBm	W	
1	2412	10.48	0.01117	30	1	PASS
6	2437	10.50	0.01122			PASS
11	2462	10.31	0.01074			PASS

2.2.3.4 802.11n-40MHz Test mode

Channel	Frequency (MHz)	Measured Output Peak Power		Limit		Verdict
		dBm	W	dBm	W	
3	2422	18.47	0.07031	30	1	PASS
6	2437	18.97	0.07889			PASS
9	2452	18.89	0.07745			PASS

Channel	Frequency (MHz)	Measured Output Average Power		Limit		Verdict
		dBm	W	dBm	W	
3	2422	10.31	0.01074	30	1	PASS
6	2437	10.77	0.01194			PASS
9	2452	10.61	0.01151			PASS

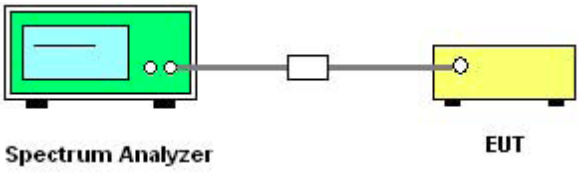
2.3. Bandwidth

2.3.1. 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.

2.3.2. Test Description

A. Test Set:



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.

KDB 558074 Section 8.1 Option 1 was used in order to prove compliance.

B. Equipments List:

Please reference ANNEX A(1.5).

2.3.3. Test Result

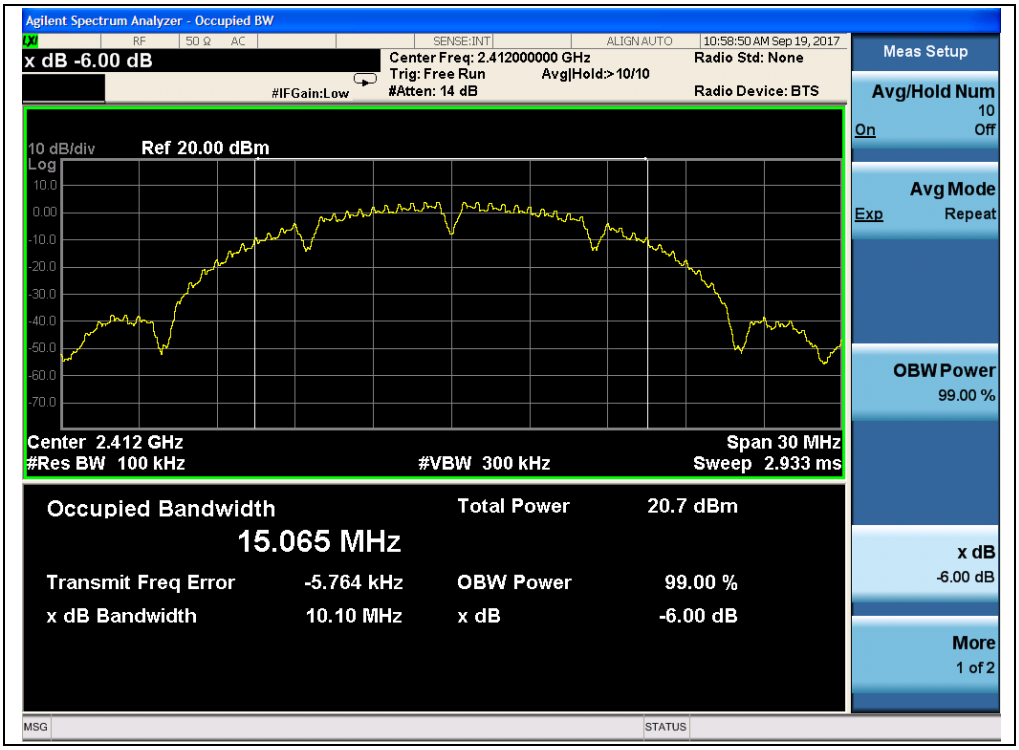
The lowest, middle and highest channels are selected to perform testing to record the 6 dB bandwidth of the Module.

2.3.3.1 802.11b Test mode

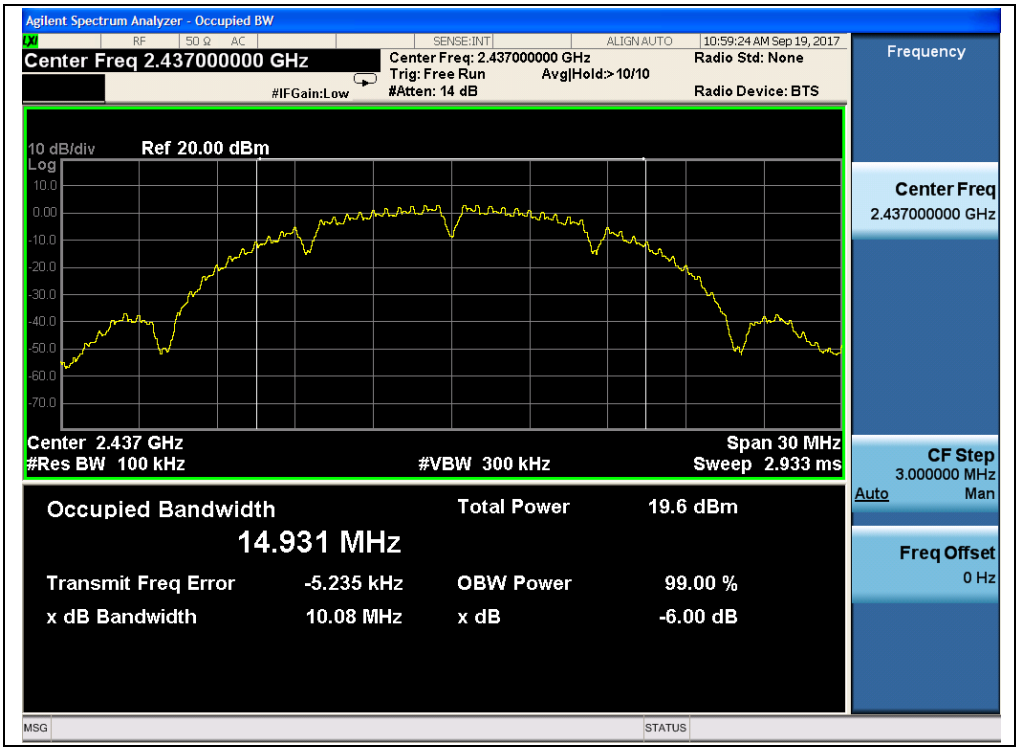
A. Test Verdict:

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limits(kHz)	Result
1	2412	10.10	≥500	PASS
6	2437	10.08	≥500	PASS
11	2462	10.09	≥500	PASS

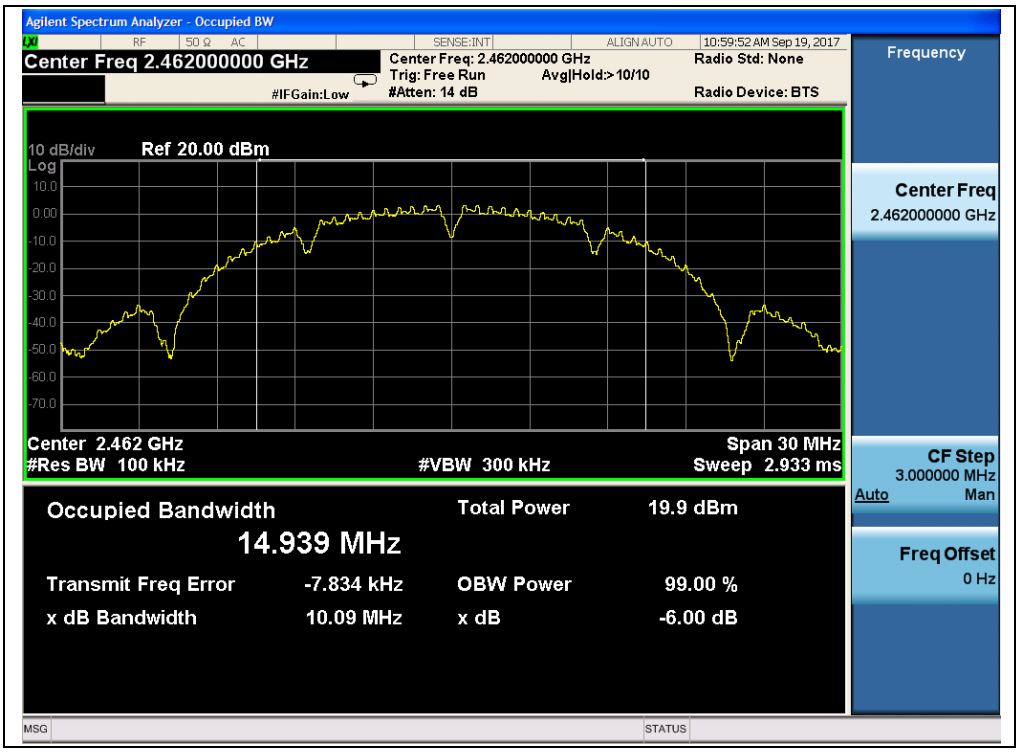
B. Test Plots



(Channel 1: 2412MHz @ 802.11b)



(Channel 6: 2437 MHz @ 802.11b)



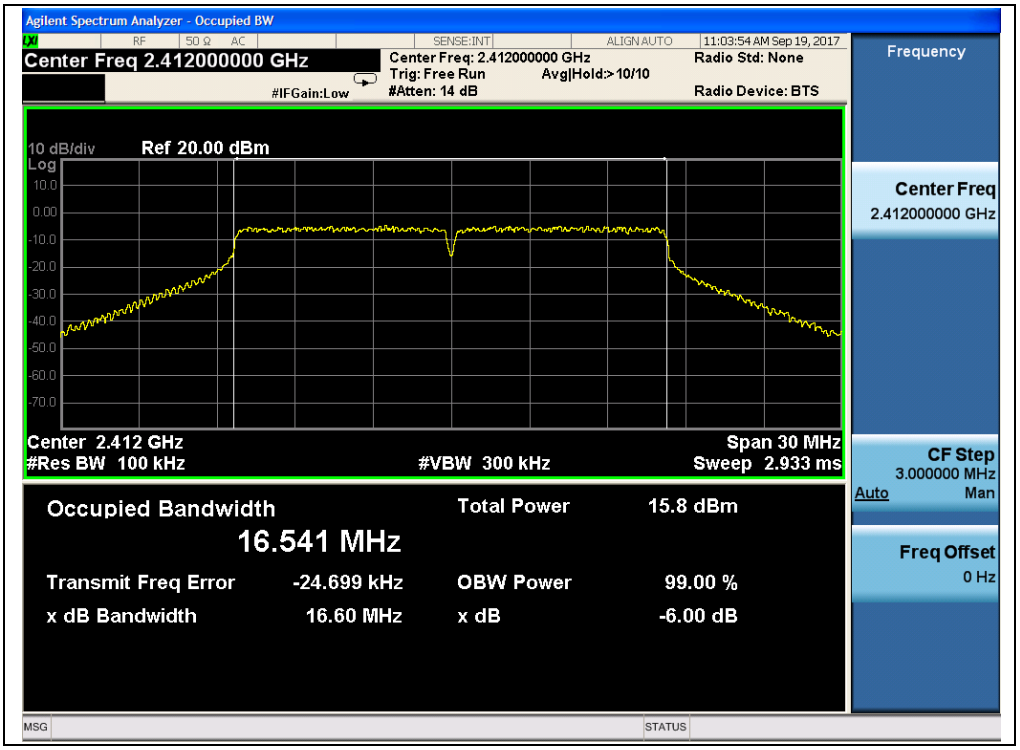
(Channel 11: 2462MHz @ 802.11b)

2.3.3.2 802.11g Test mode

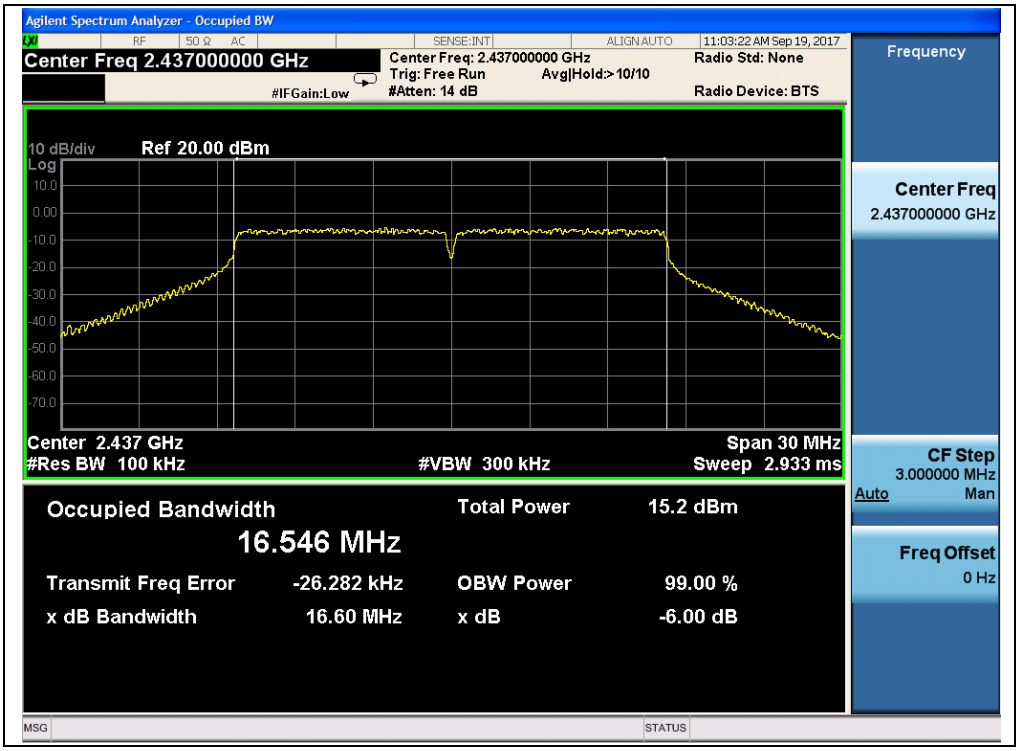
A. Test Verdict:

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limits (kHz)	Result
1	2412	16.60	≥500	PASS
6	2437	16.60	≥500	PASS
11	2462	16.60	≥500	PASS

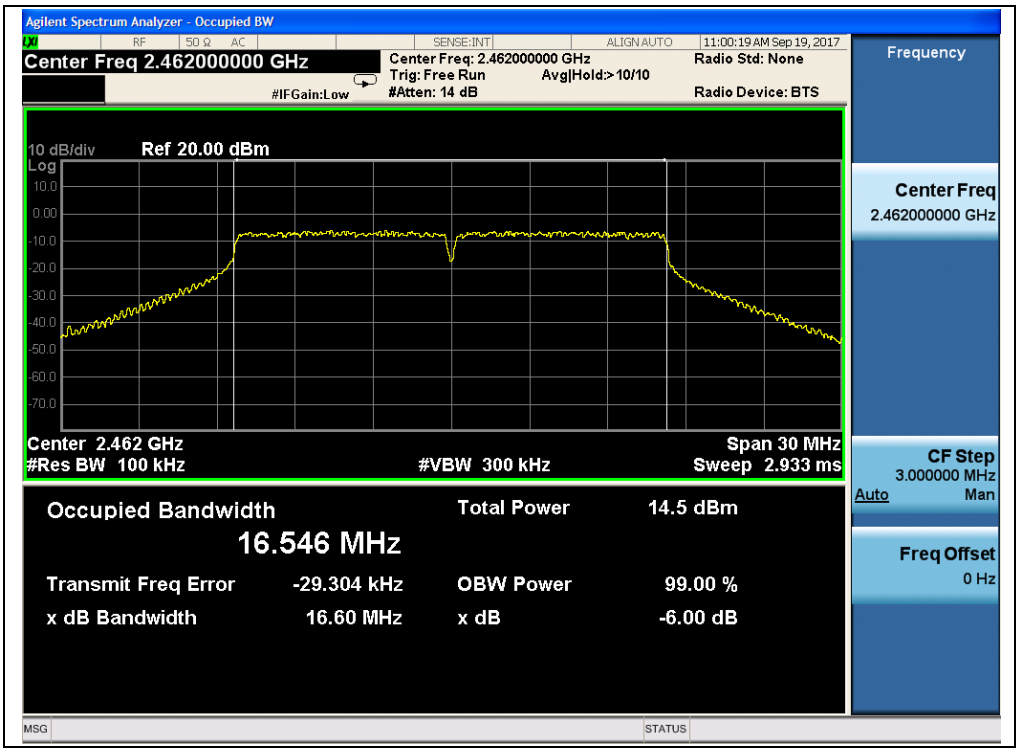
B. Test Plots:



(Channel 1: 2412MHz @ 802.11g)



(Channel 6: 2437MHz @ 802.11g)



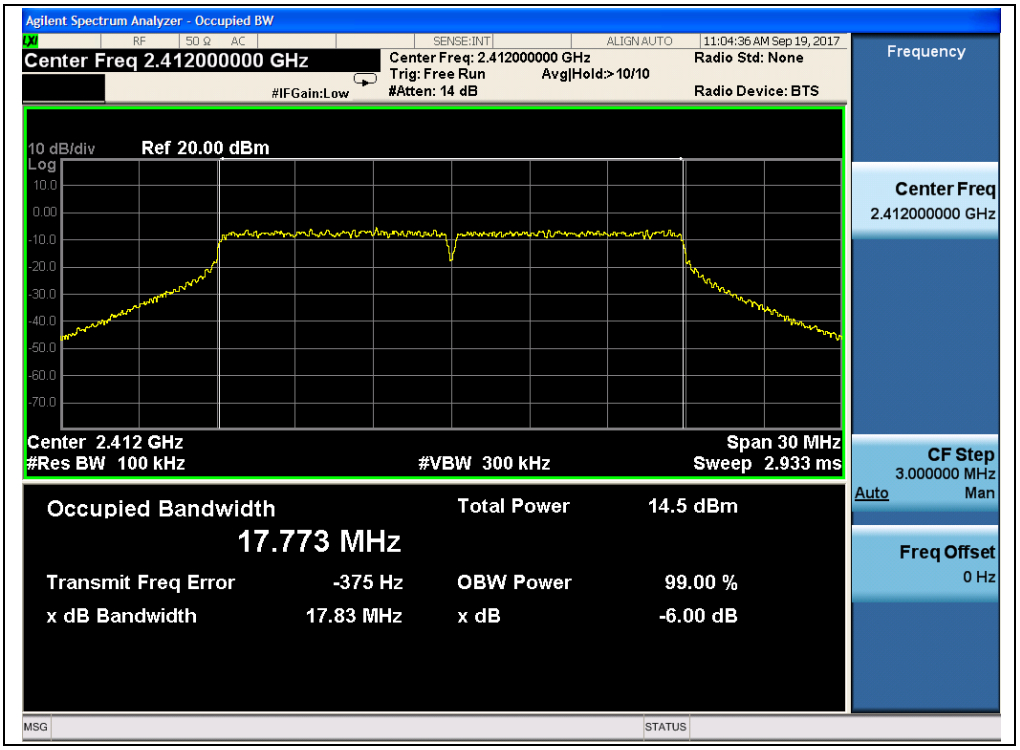
(Channel 11: 2462MHz @ 802.11g)

2.3.3.3 802.11n-20 Test mode

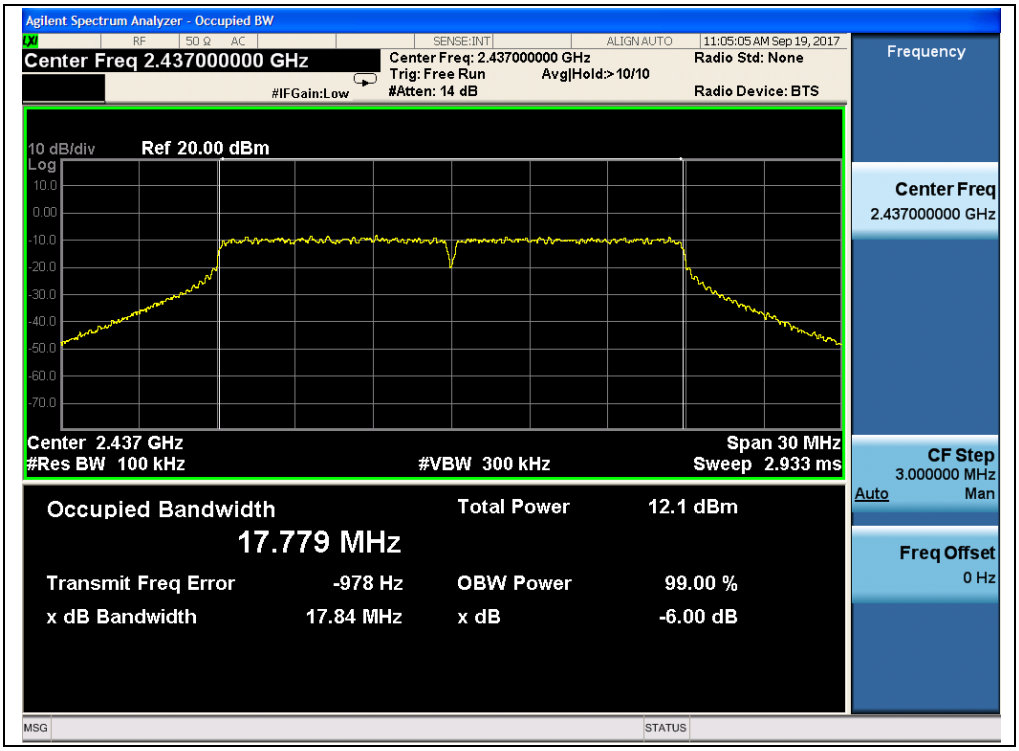
A. Test Verdict:

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limits (kHz)	Result
1	2412	17.83	≥500	PASS
6	2437	17.84	≥500	PASS
11	2462	17.84	≥500	PASS

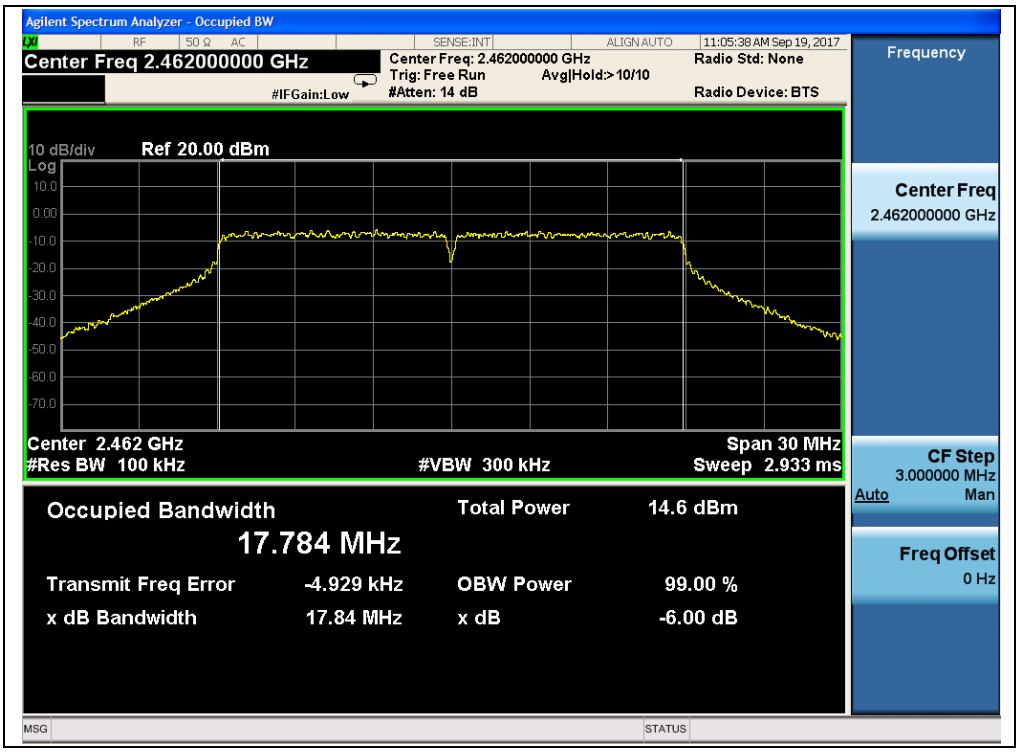
B. Test Plots:



(Channel 1: 2412MHz @ 802.11n-20)



(Channel 6: 2437MHz @ 802.11n-20)



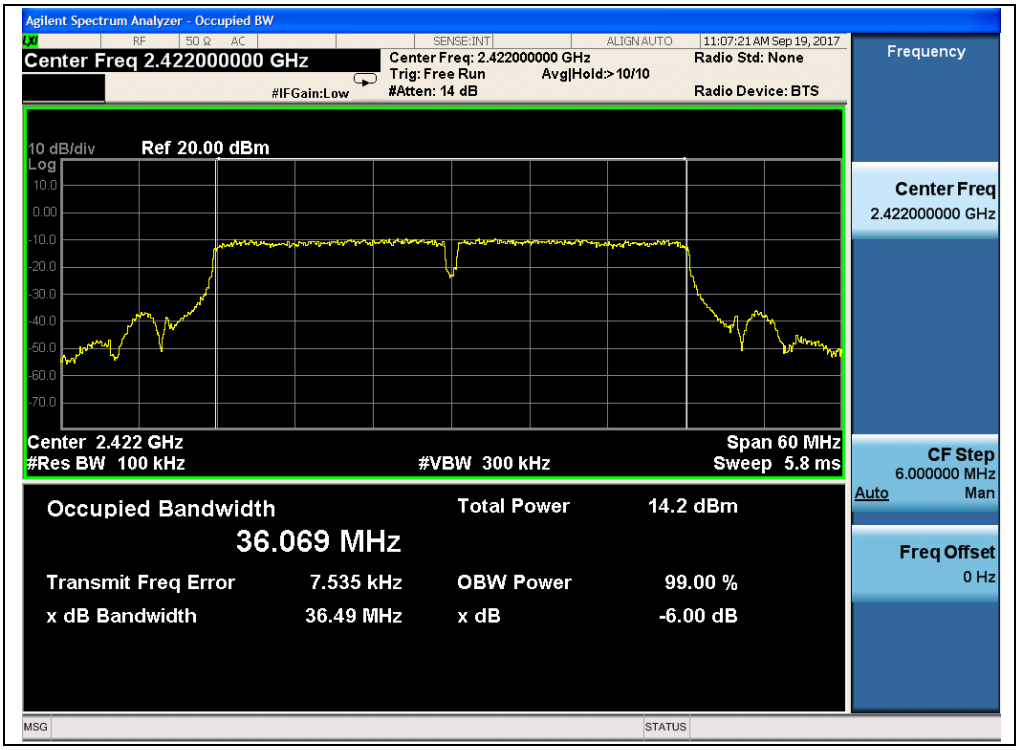
(Channel 11: 2462MHz @ 802.11n-20)

2.3.3.4 802.11n-40 Test mode

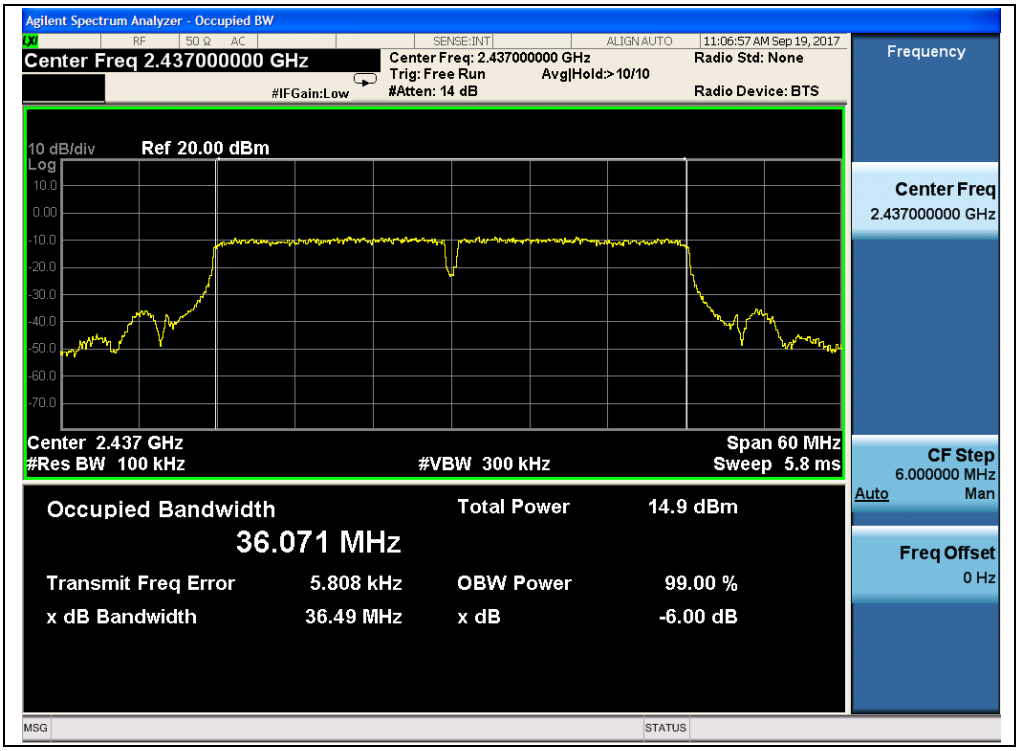
A. Test Verdict:

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limits (kHz)	Result
3	2422	36.49	≥500	PASS
6	2437	36.49	≥500	PASS
9	2452	36.46	≥500	PASS

B. Test Plots:



(Channel 3: 2422Mz @ 802.11n-40)



(Channel 6: 2437MHz @ 802.11n-40)

(Channel 9: 2452MHz @ 802.11n-40)

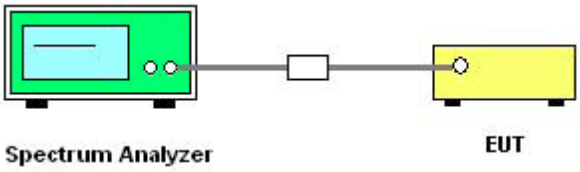
2.4. Conducted Spurious Emissions and Band Edge

2.4.1. 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.

2.4.2. Test Description

A. Test Set:



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.

KDB 558074 Section 11.0 was used in order to prove compliance.

B. Equipments List:

Please reference ANNEX A(1.5).

2.4.3. Test Result

The measurement frequency range is from 30MHz to the 10th harmonic of the fundamental frequency. The lowest, middle and highest channels are tested to verify the spurious emissions.

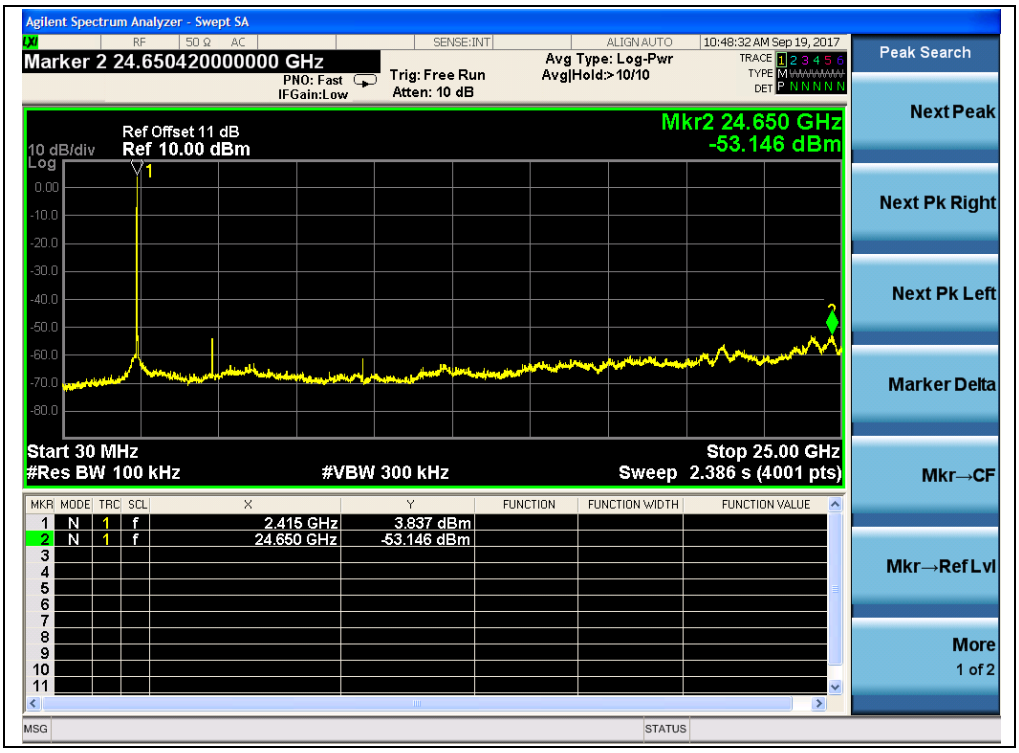
2.4.3.1 802.11b Test mode

A. Test Verdict:

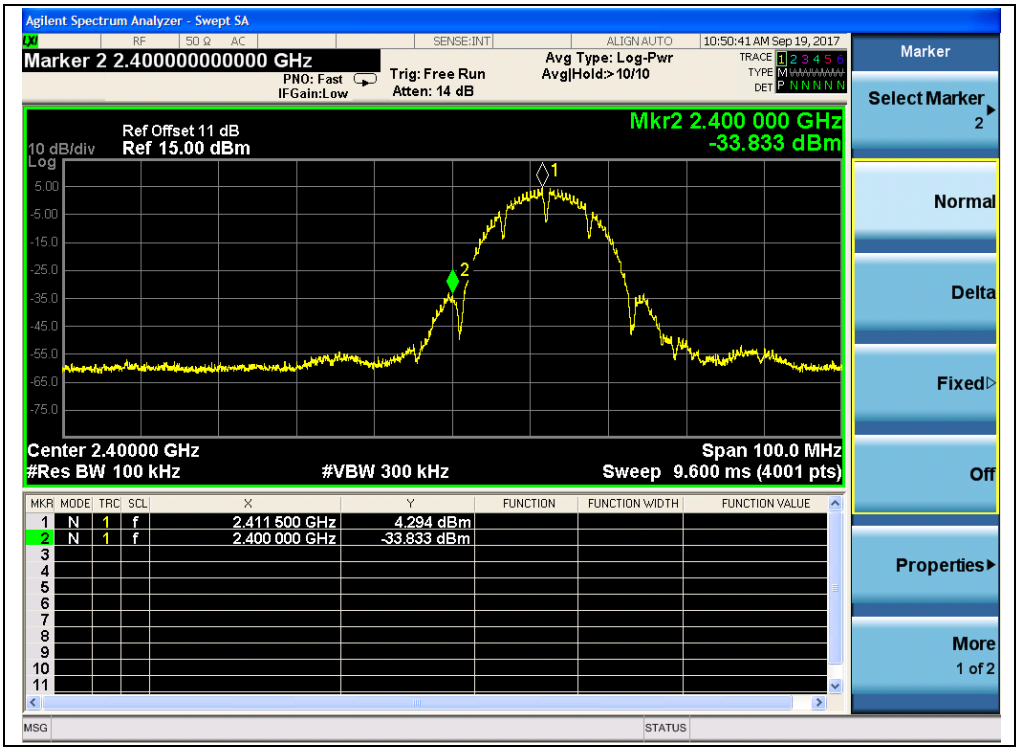
Channel	Frequency (MHz)	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
			Carrier Level	Calculated -20dBc Limit	
1	2412	-53.15	3.84	-16.16	PASS
6	2437	-53.66	4.15	-15.85	PASS
11	2462	-53.31	2.09	-17.91	PASS

B. Test Plots:

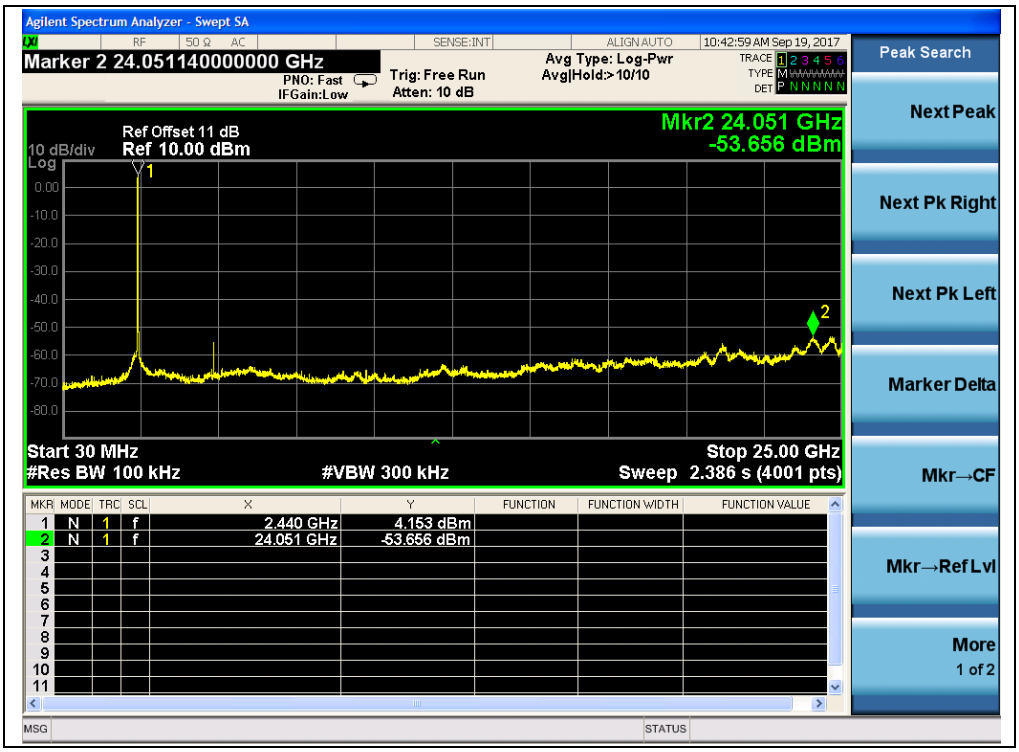
Note: the power of the Module transmitting frequency should be ignored.



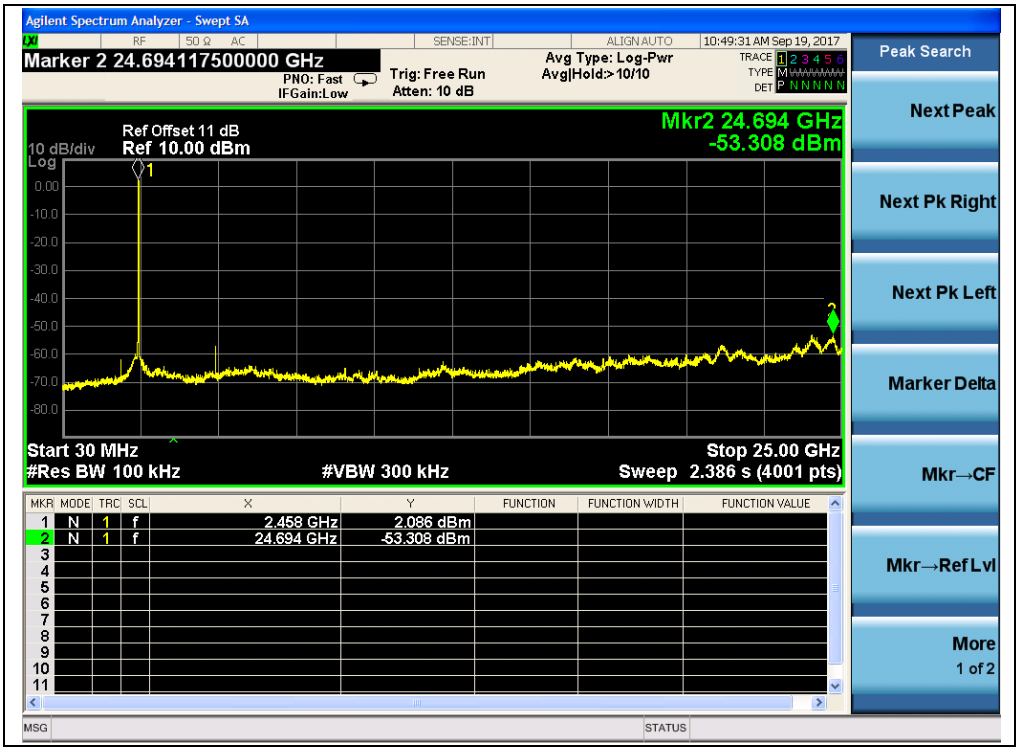
(Channel = 1, 30MHz to 25GHz)



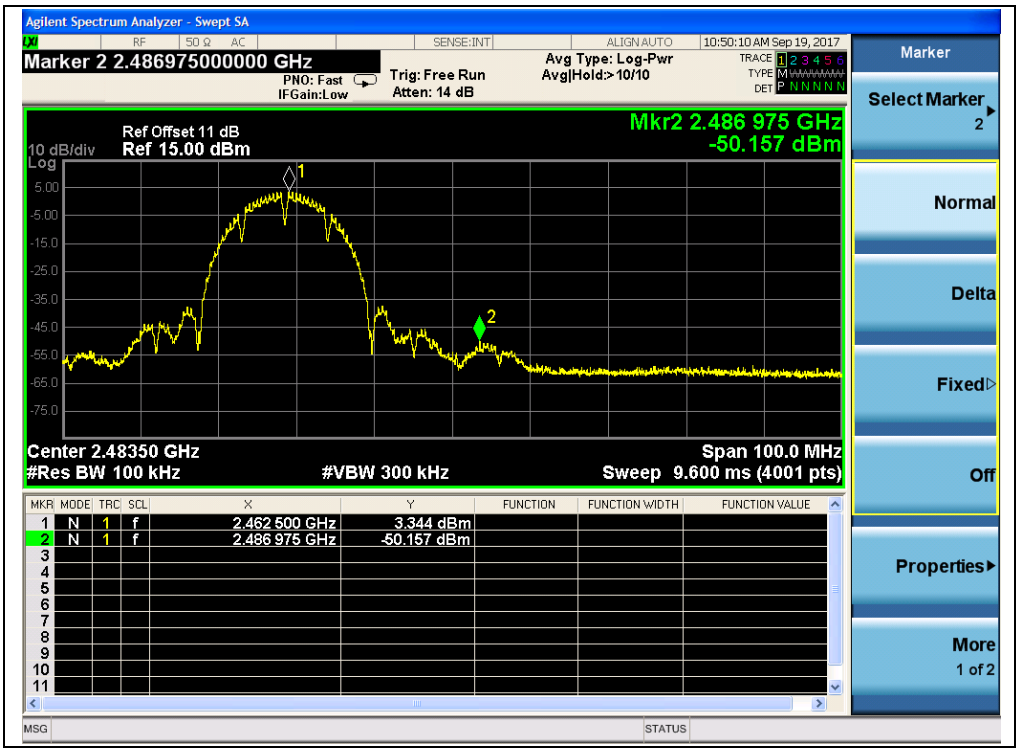
(Band Edge @ Channel = 1)



(Channel = 6, 30MHz to 25GHz)



(Channel = 11, 30MHz to 25GHz)



(Band Edge @ Channel = 11)

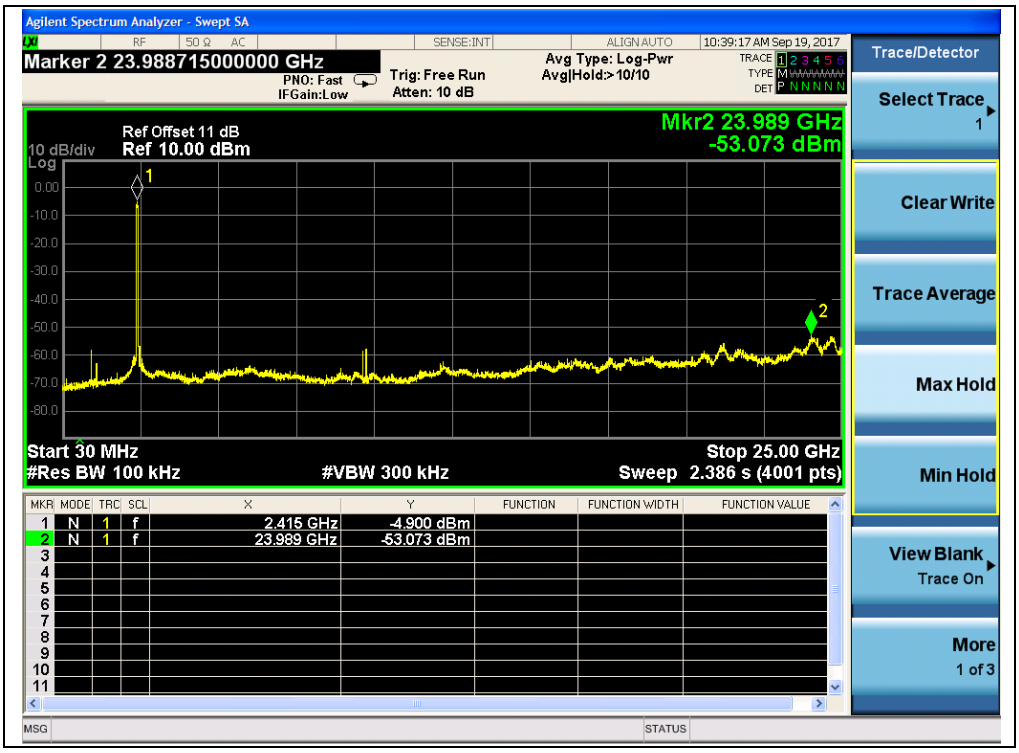
2.4.3.2 802.11g Test mode

A. Test Verdict:

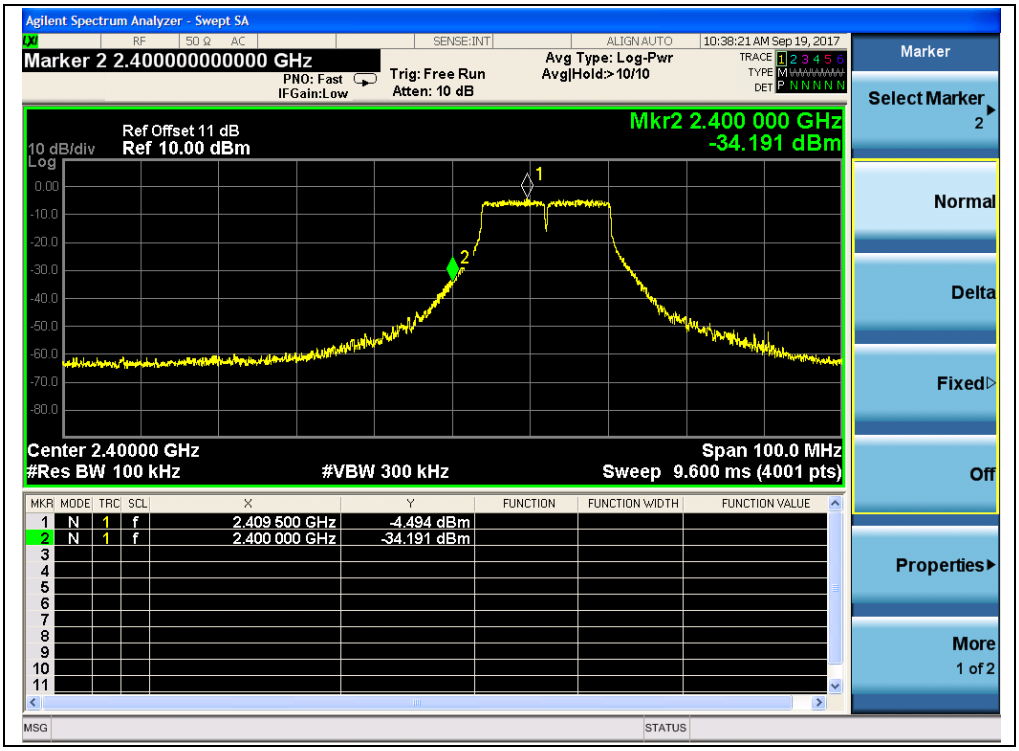
Channel	Frequency (MHz)	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
			Carrier Level	Calculated -20dBc Limit	
1	2412	-53.07	-4.90	-24.90	PASS
6	2437	-53.62	-5.28	-25.28	PASS
11	2462	-52.66	-5.63	-25.63	PASS

B. Test Plots:

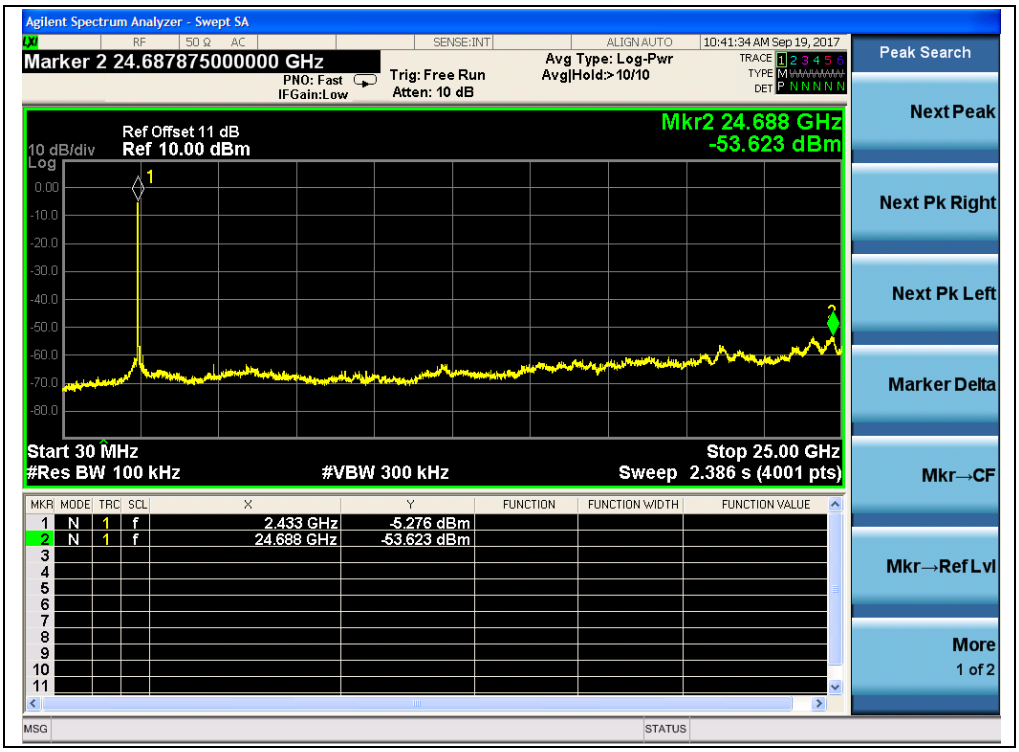
Note: the power of the Module transmitting frequency should be ignored.



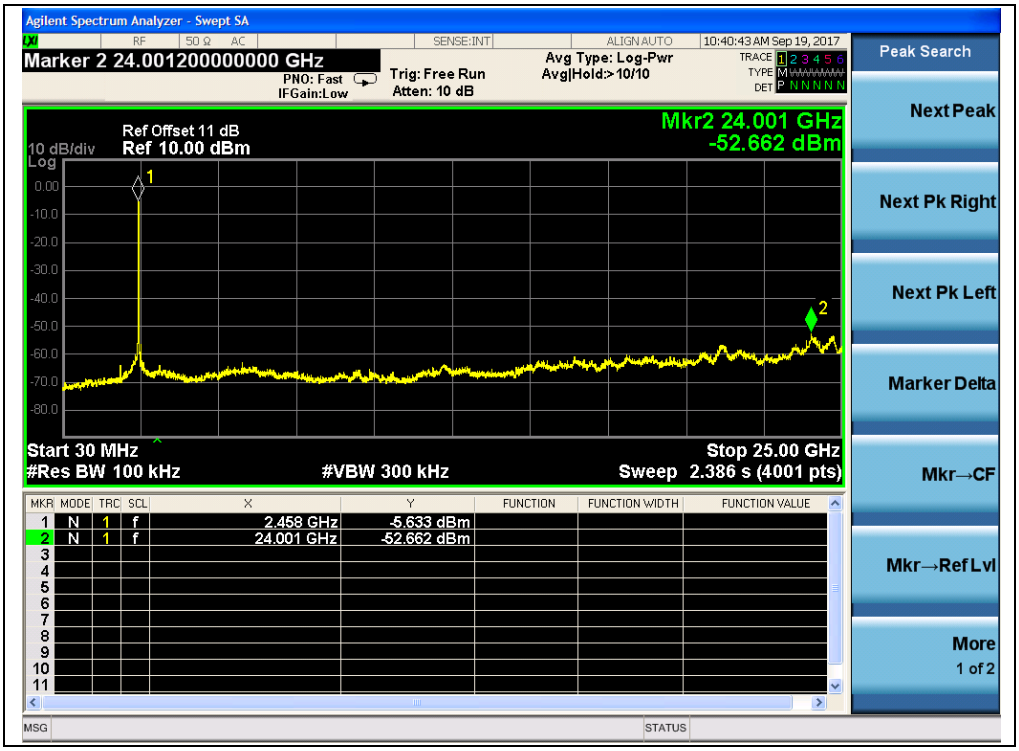
(Channel = 1, 30MHz to 25GHz)



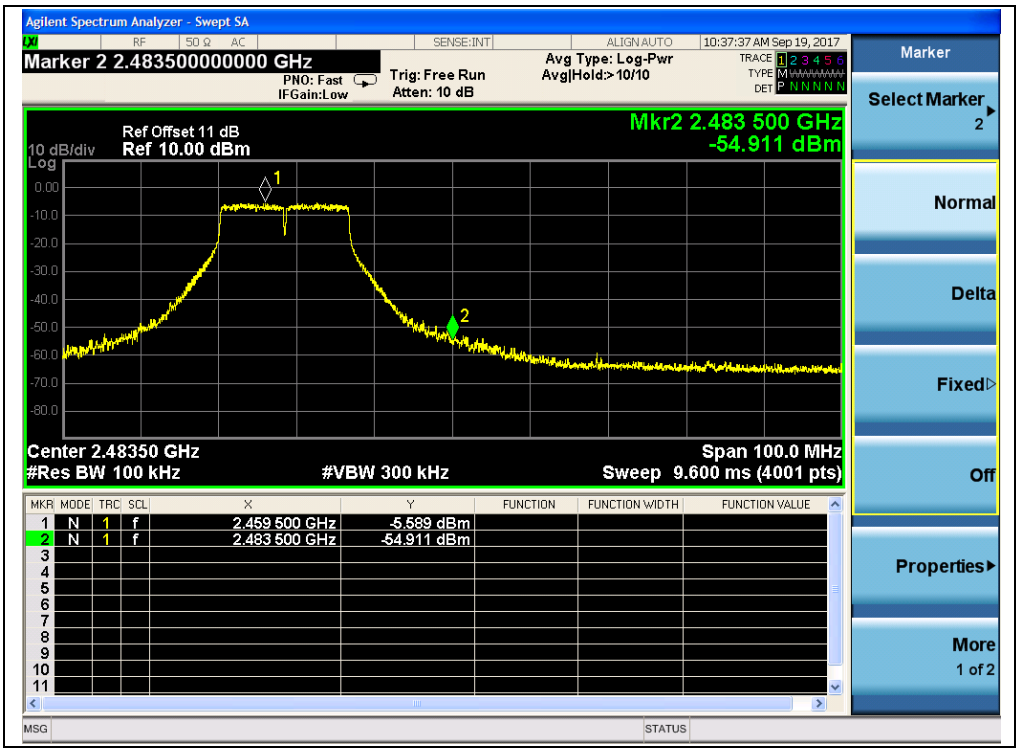
(Band Edge @ Channel = 1)



(Channel = 6, 30MHz to 25GHz)



(Channel = 11, 30MHz to 25GHz)



(Band Edge @ Channel = 11)

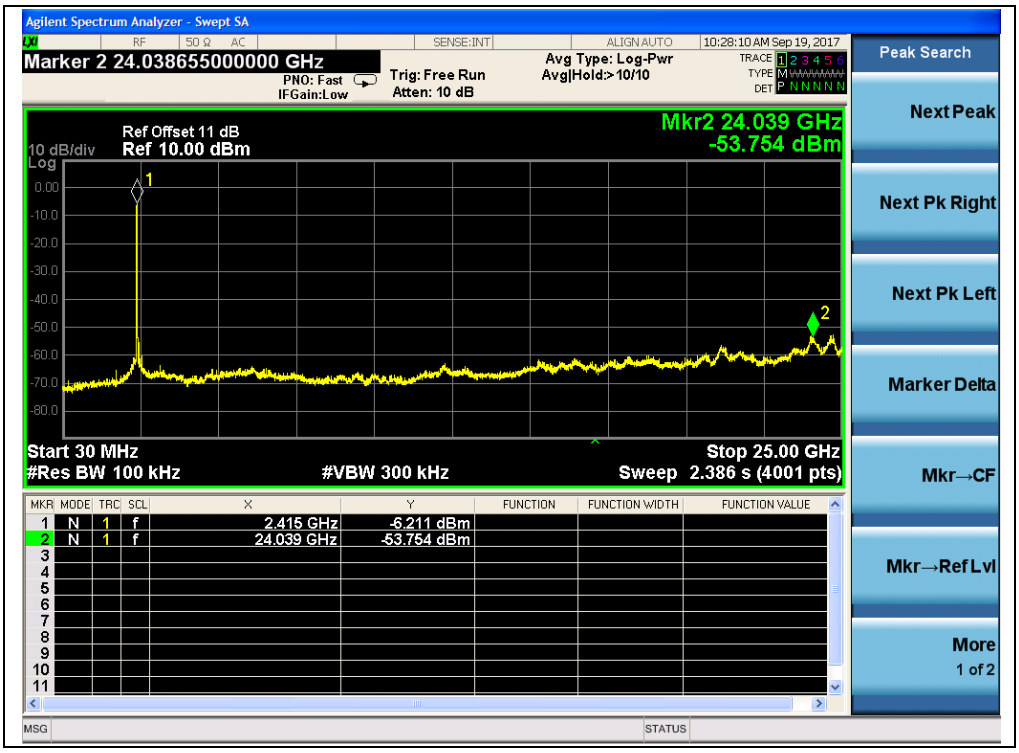
2.4.3.3 802.11n -20MHz Test mode

A. Test Verdict:

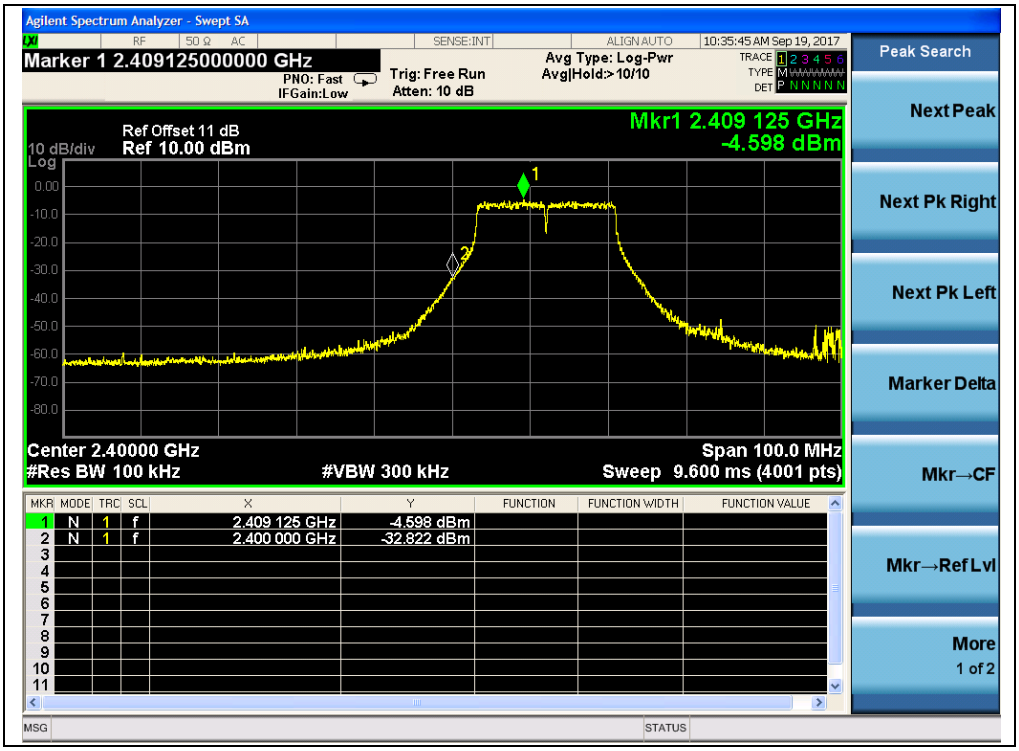
Channel	Frequency (MHz)	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
			Carrier Level	Calculated -20dBc Limit	
1	2412	-53.75	-6.21	-26.21	PASS
6	2437	-53.49	-5.76	-25.76	PASS
11	2462	-56.58	-6.29	-26.29	PASS

B. Test Plots:

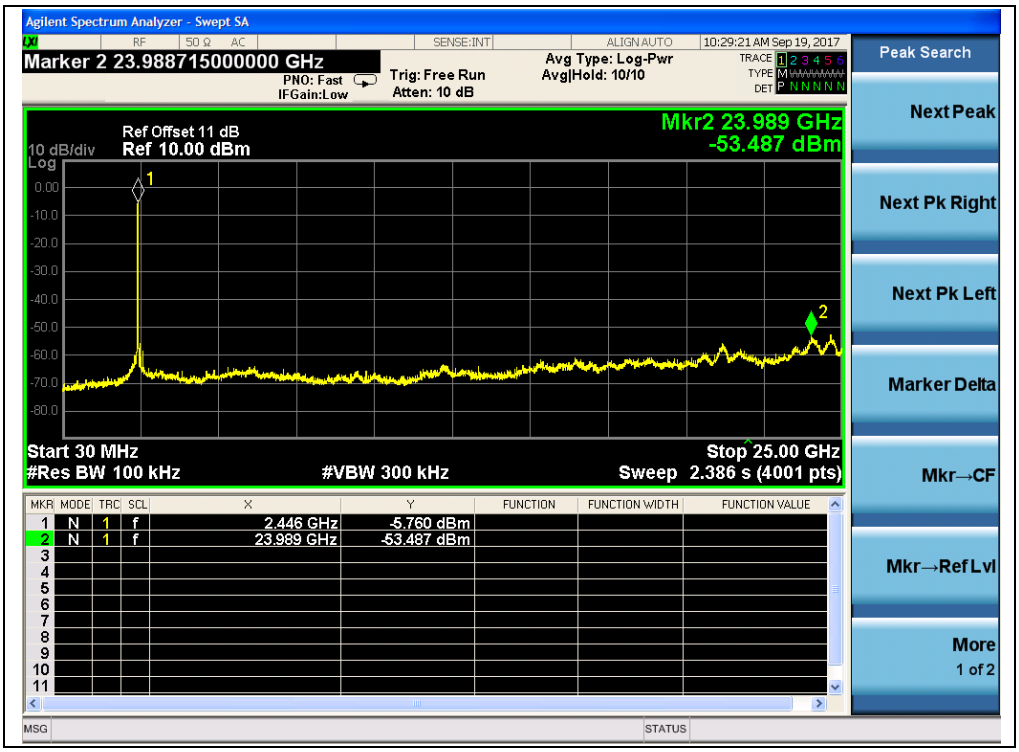
Note: the power of the Module transmitting frequency should be ignored.



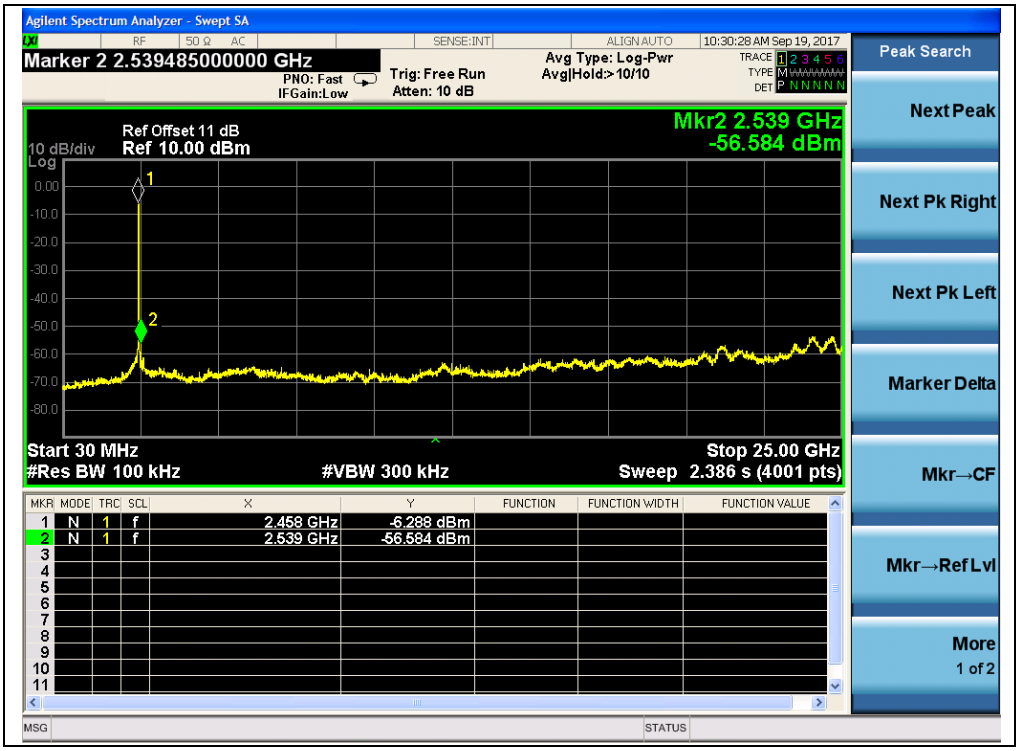
(Channel = 1, 30MHz to 25GHz)



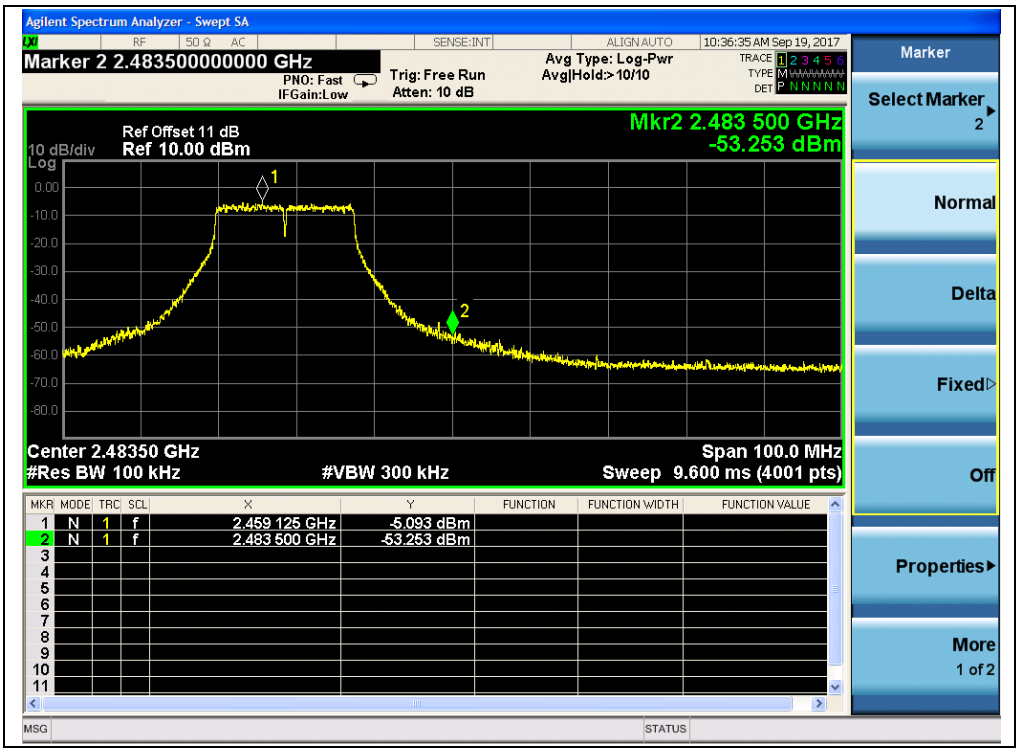
(Band Edge @ Channel = 1)



(Channel = 6, 30MHz to 25GHz)



(Channel = 11, 30MHz to 25GHz)



(Band Edge @ Channel = 11)

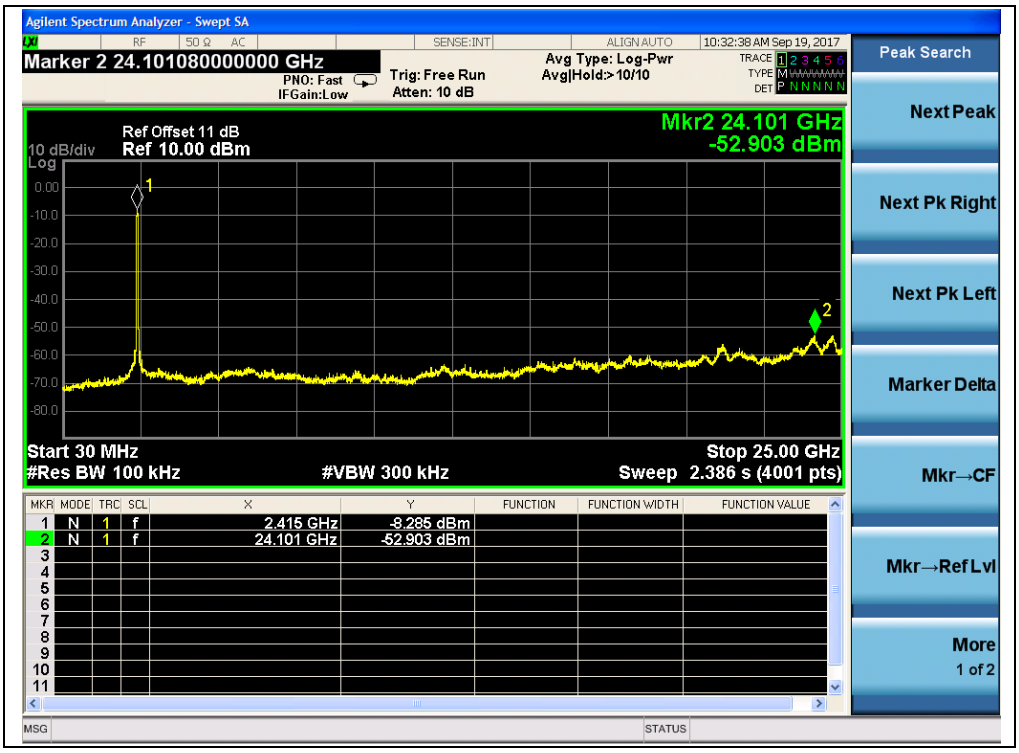
2.4.3.4 802.11n -40MHz Test mode

A. Test Verdict:

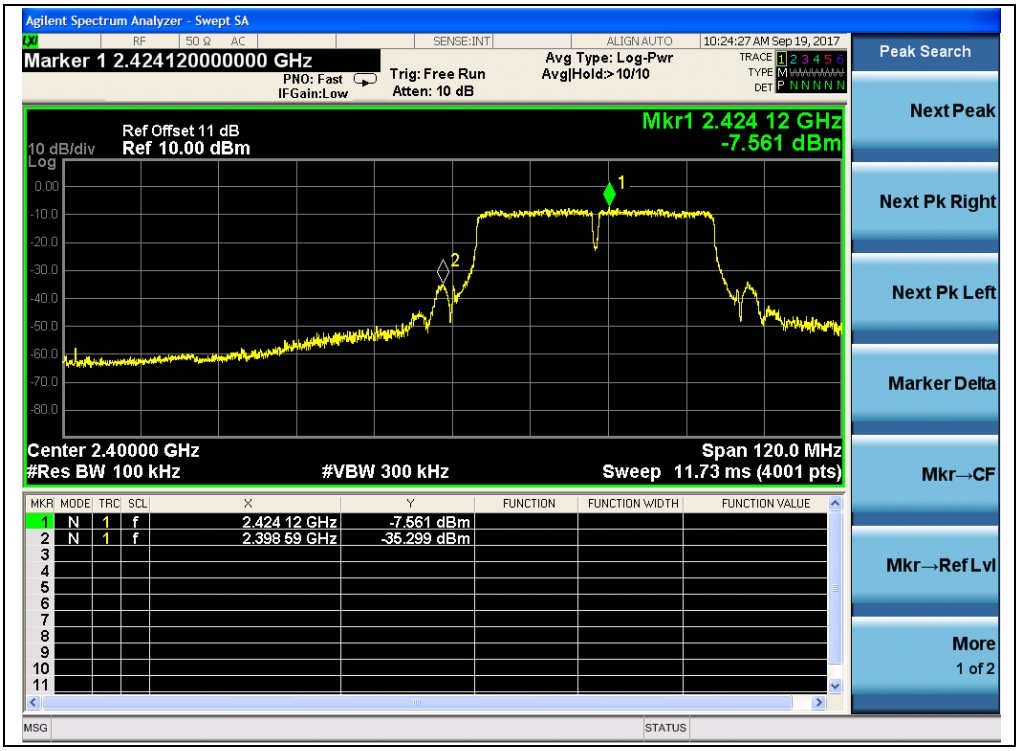
Channel	Frequency (MHz)	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
			Carrier Level	Calculated -20dBc Limit	
3	2422	-52.90	-8.29	-28.29	PASS
6	2437	-53.98	-8.51	-28.51	PASS
9	2452	-53.29	-8.74	-28.74	PASS

B. Test Plots:

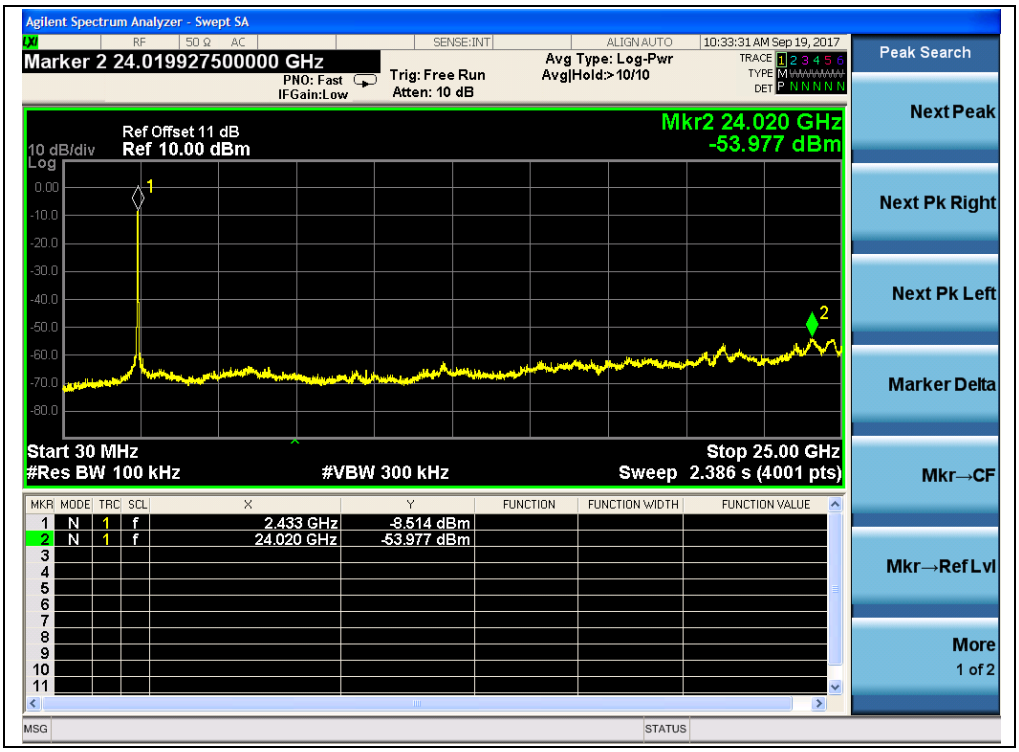
Note: the power of the Module transmitting frequency should be ignored.



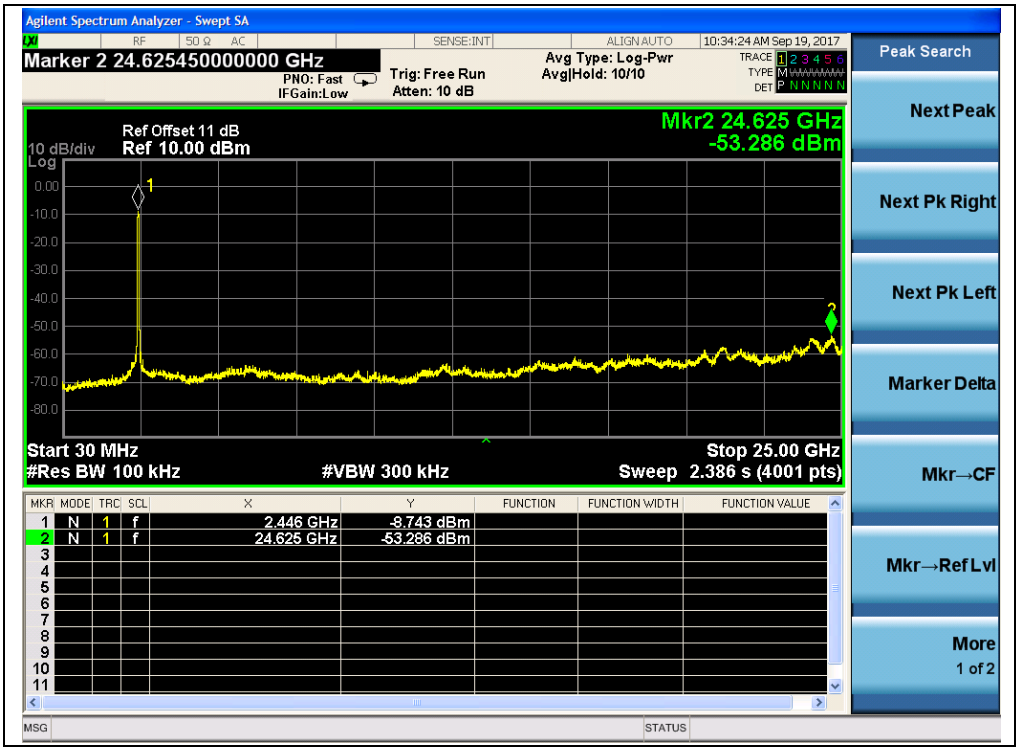
(Channel = 3, 30MHz to 25GHz)



(Band Edge @ Channel = 3)



(Channel = 6, 30MHz to 25GHz)



(Channel = 9, 30MHz to 25GHz)

(Band Edge @ Channel = 9)

2.5. Power spectral density (PSD)

2.5.1. 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.

2.5.2. Test Description

A. Test procedure

The measured power spectral density was calculated by the reading of the spectrum analyzer and calibration. Following is the test procedure for PSD test:
a) Set analyzer center frequency to channel center frequency.
b) Set the span to 30MHz
c) Set the RBW to 3 kHz
d) Set the VBW to 10KHz
e) Detector = peak.
f) Sweep time = auto couple.
g) Trace mode = max hold.
h) Allow trace to fully stabilize.
i) Use the peak marker function to determine the maximum amplitude level within the RBW.

B. Test Set:

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.

KDB 558074 Section 10.2 was used in order to prove compliance.

C. Equipments List:

Please reference ANNEX A(1.5).

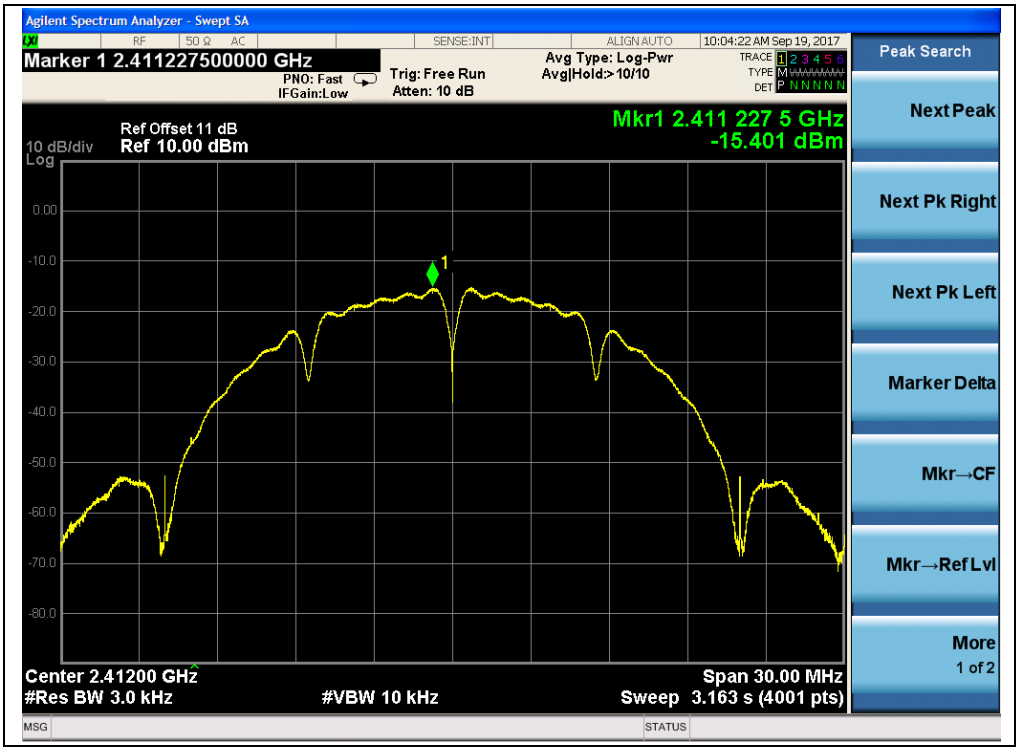
2.5.3. Test Result

2.5.3.1 802.11b Test mode

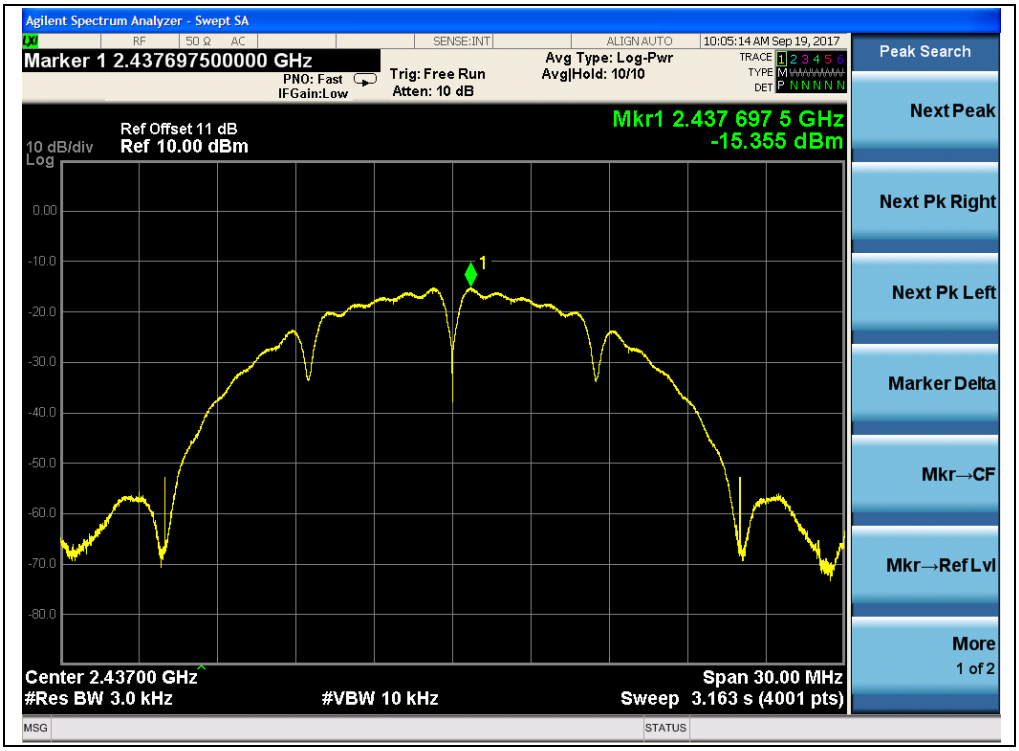
A. Test Verdict:

Spectral power density (dBm/3kHz)				
Channel	Frequency (MHz)	Measured PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
1	2412	-15.40	8	PASS
6	2437	-15.36	8	PASS
11	2462	-14.88	8	PASS
Measurement uncertainty: ±1.3dB				

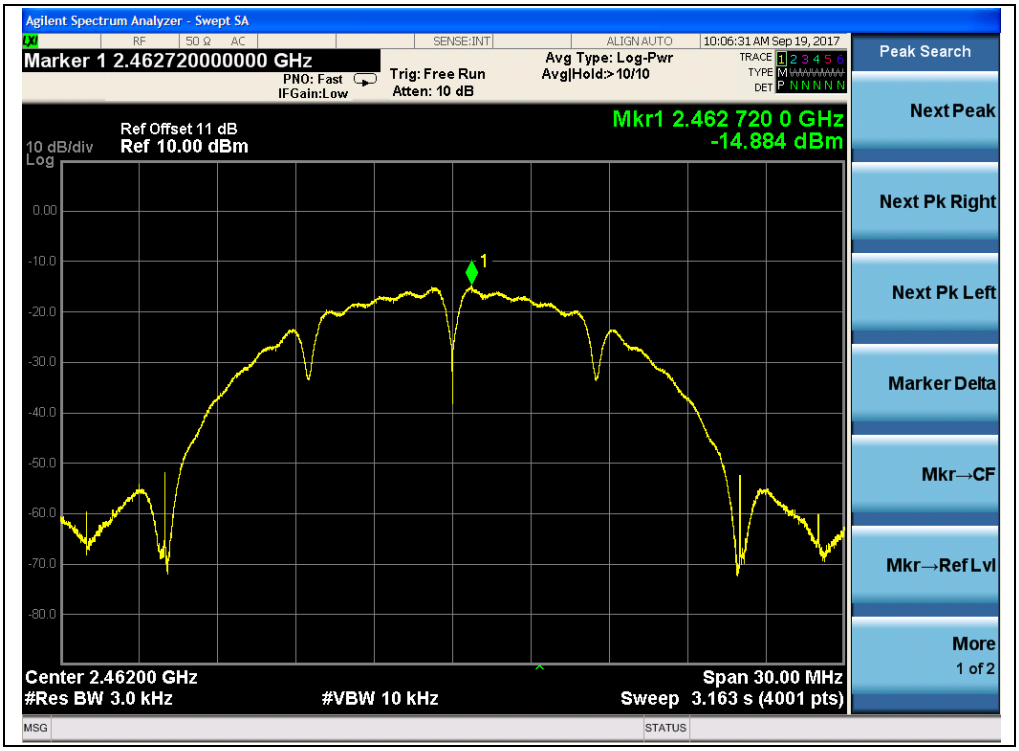
B. Test Plots:



(Channel = 1 @ 802.11b)



(Channel = 6 @ 802.11b)



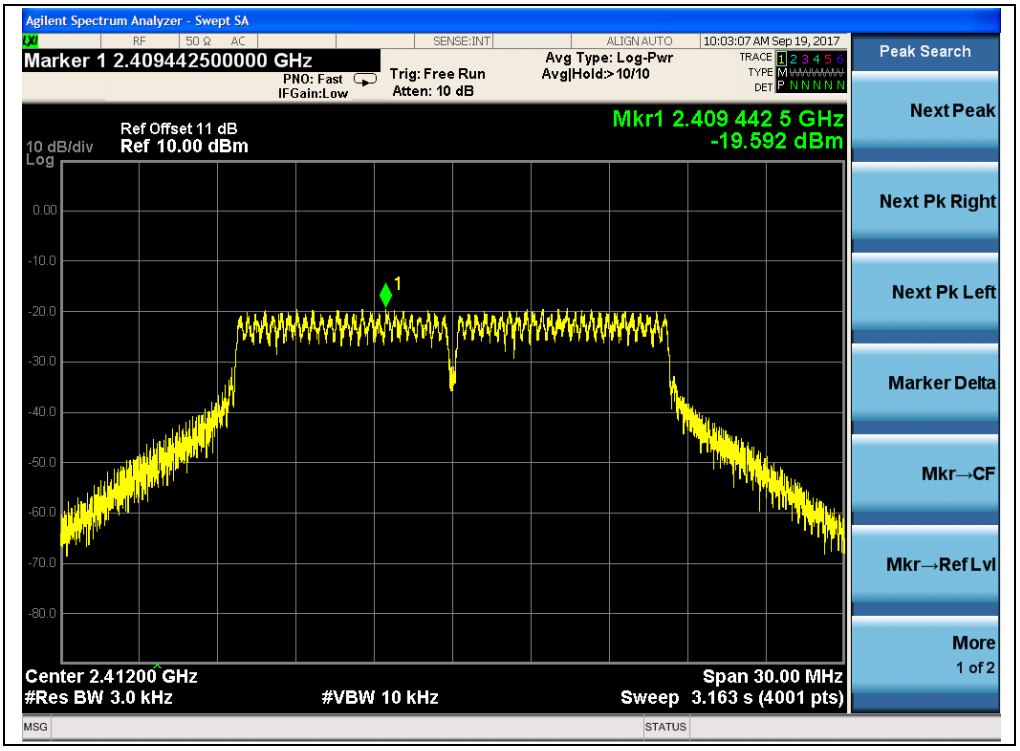
(Channel = 11 @ 802.11b)

2.5.3.2 802.11g Test mode

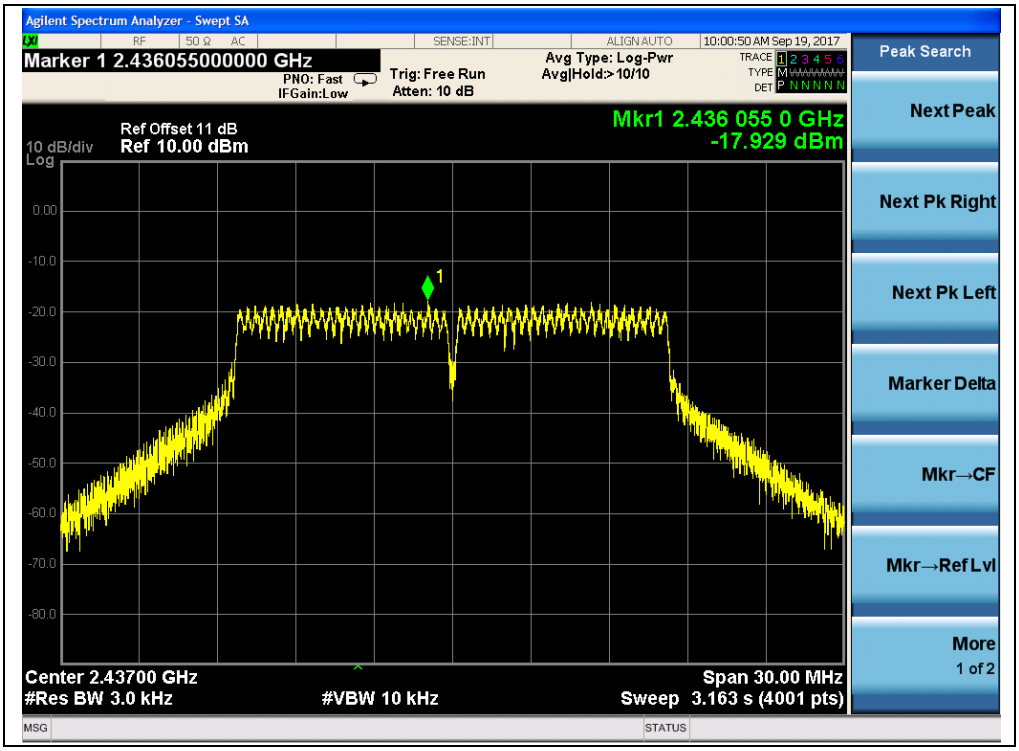
A. Test Verdict:

Spectral power density (dBm/3kHz)				
Channel	Frequency (MHz)	Measured PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
1	2412	-19.59	8	PASS
6	2437	-17.93	8	PASS
11	2462	-18.67	8	PASS
Measurement uncertainty: ±1.3dB				

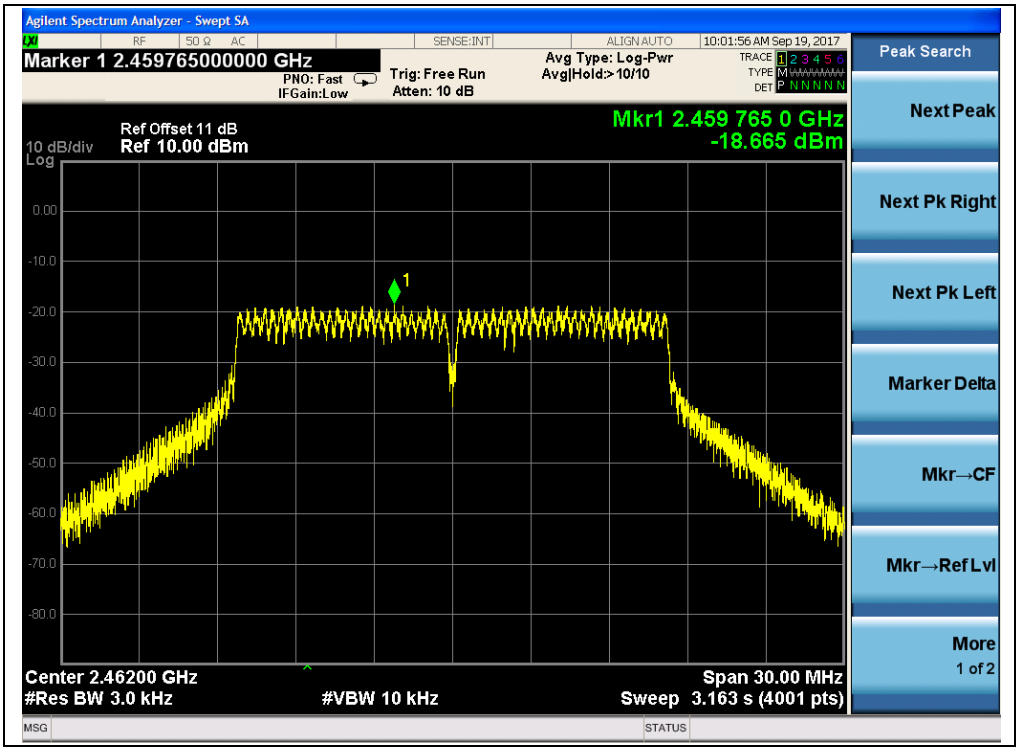
B. Test Plots:



(Channel = 1 @ 802.11g)



(Channel = 6 @ 802.11g)



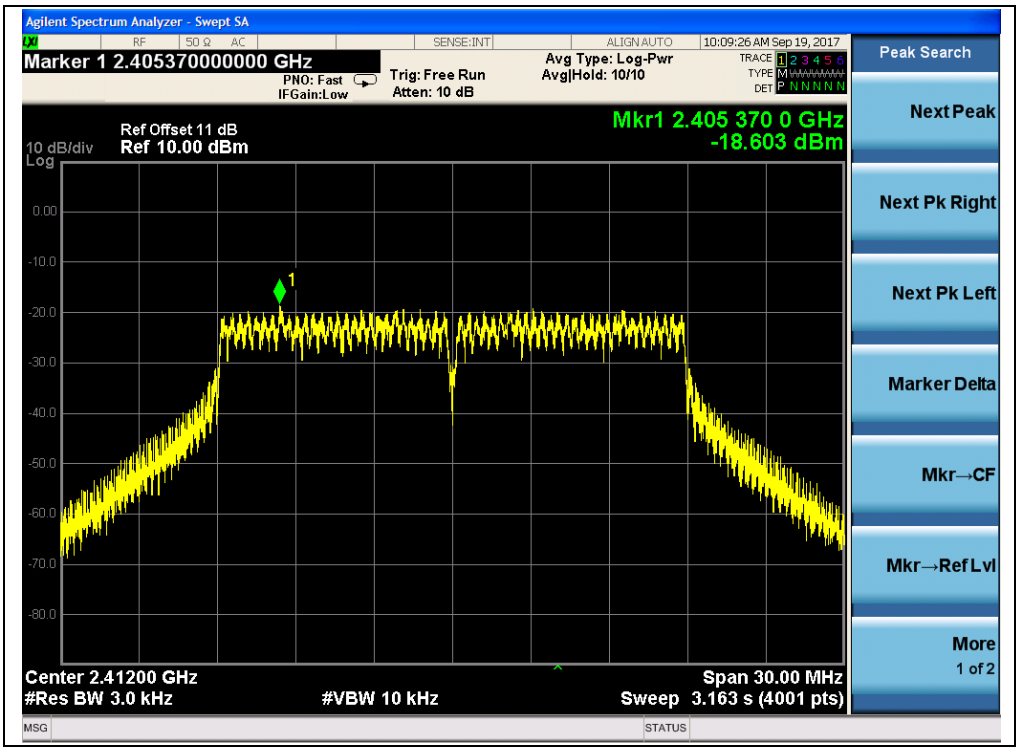
(Channel = 11 @ 802.11g)

2.5.3.3 802.11n-20MHz Test mode

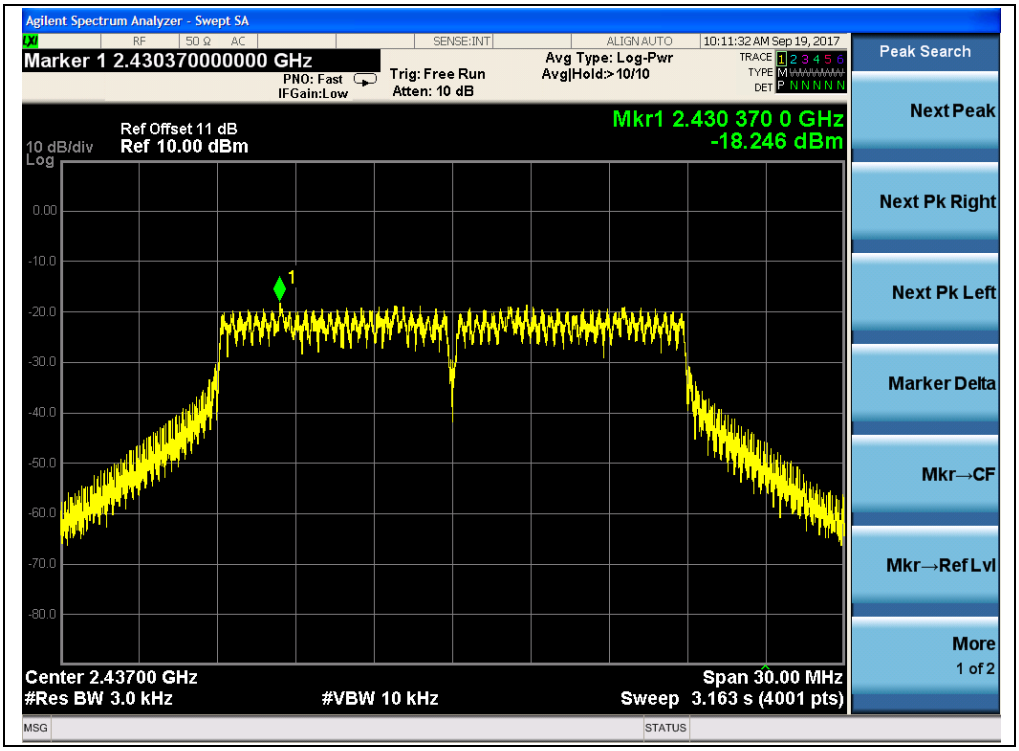
A. Test Verdict:

Spectral power density (dBm/3kHz)				
Channel	Frequency (MHz)	Measured PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
1	2412	-18.60	8	PASS
6	2437	-18.25	8	PASS
11	2462	-18.54	8	PASS
Measurement uncertainty: ±1.3dB				

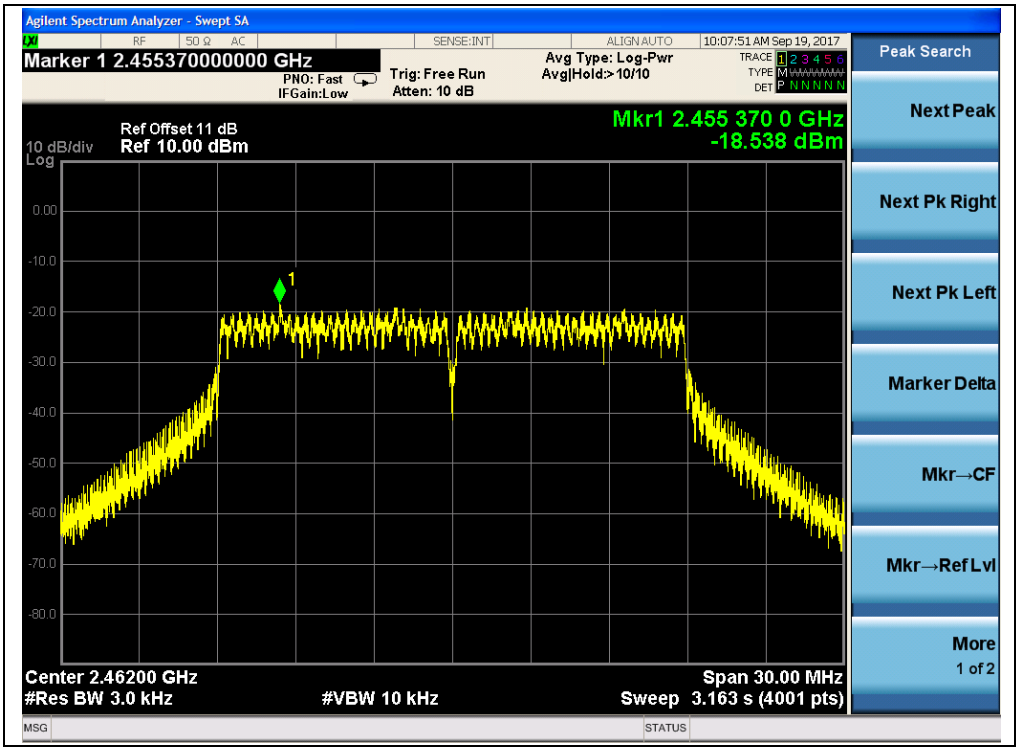
B. Test Plots:



(Channel = 1 @ 802.11n-20MHz)



(Channel = 6 @ 802.11n-20MHz)



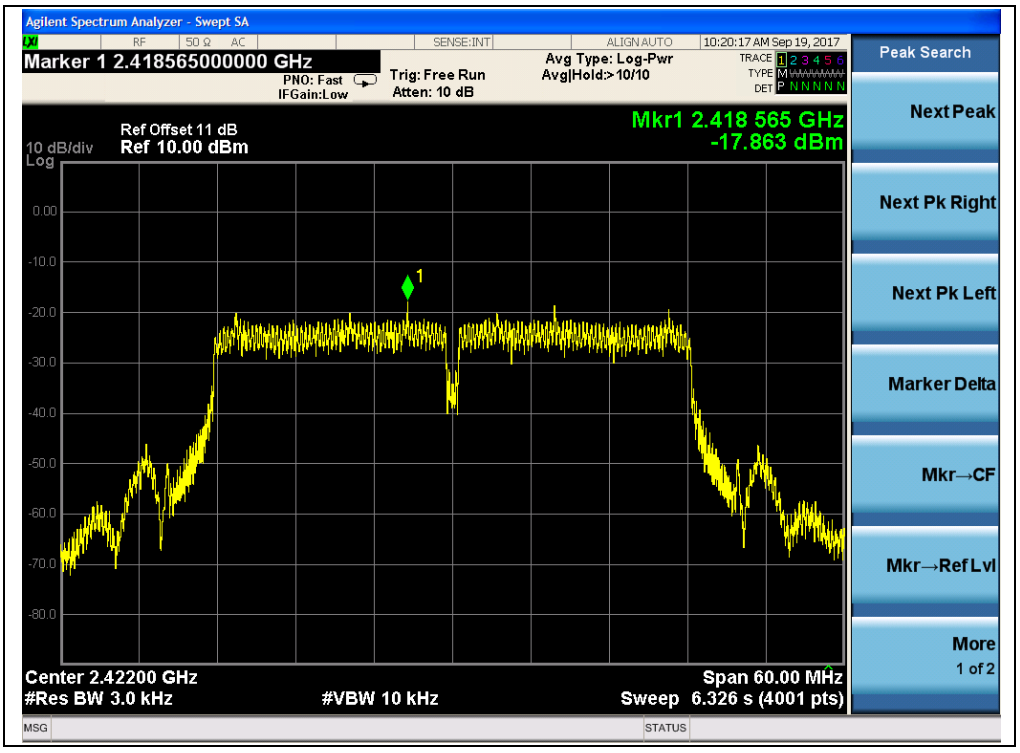
(Channel = 11 @ 802.11n-20MHz)

2.5.3.4 802.11n-40MHz Test mode

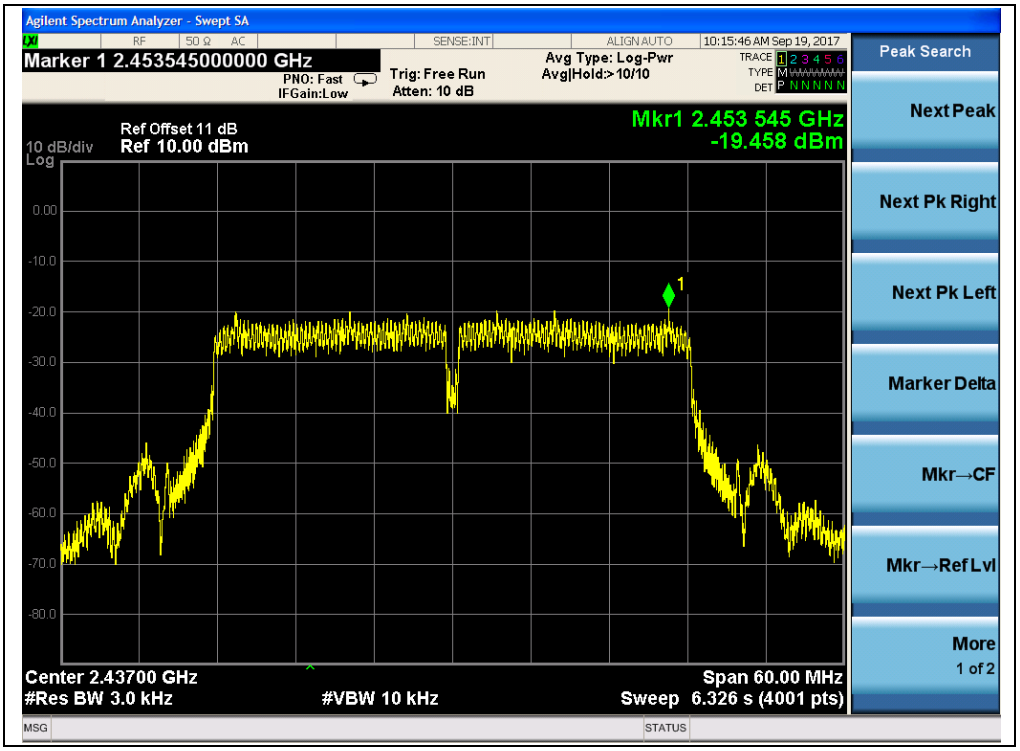
A. Test Verdict:

Spectral power density (dBm/3kHz)				
Channel	Frequency (MHz)	Measured PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
3	2422	-17.86	8	PASS
6	2437	-19.46	8	PASS
9	2452	-17.95	8	PASS
Measurement uncertainty: ±1.3dB				

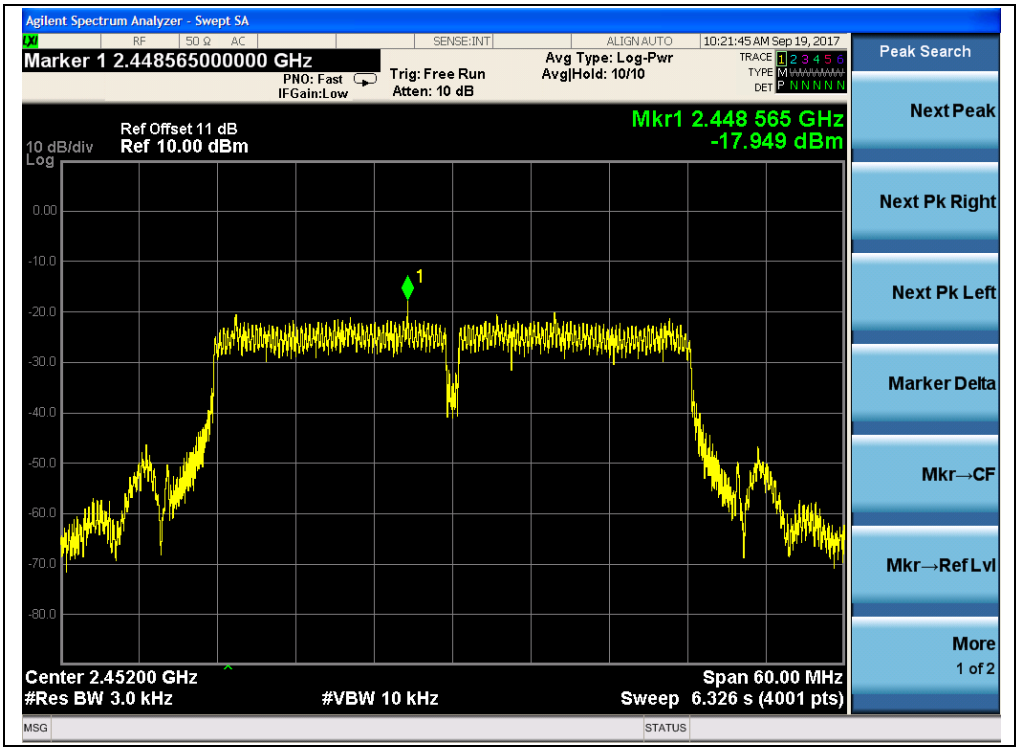
B. Test Plots:



(Channel = 3 @ 802.11n-40MHz)



(Channel = 6 @ 802.11n-40MHz)



(Channel = 9 @ 802.11n-40MHz)

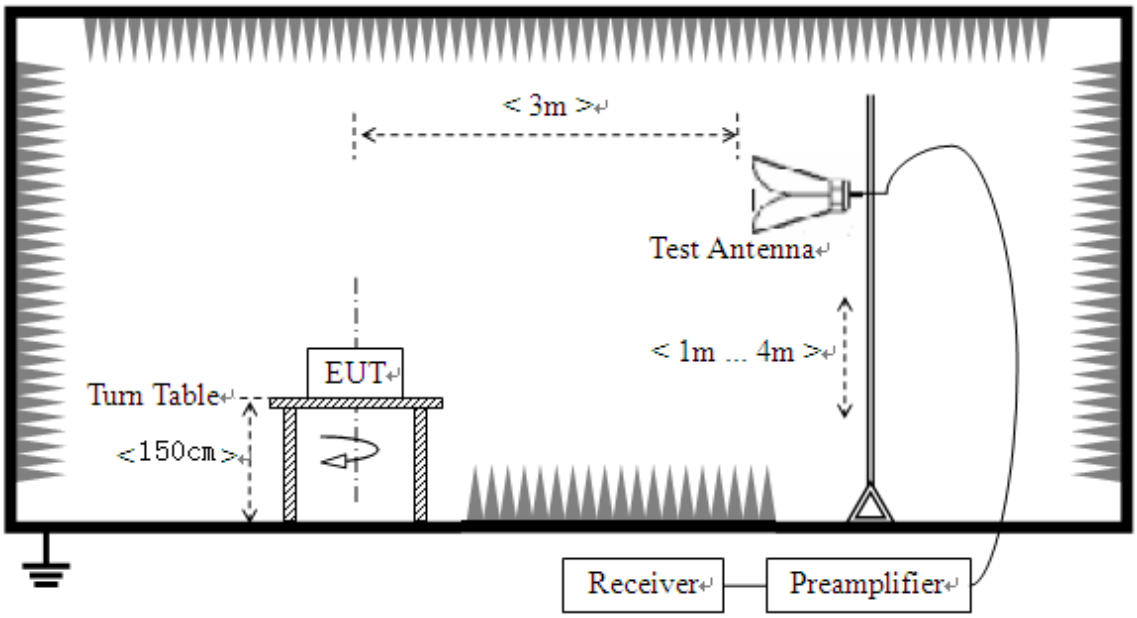
2.6. Restricted Frequency Bands

2.6.1. 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).

2.6.2. Test Description

A. 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.

KDB 558074 Section 12.1 was used in order to prove compliance.

B. Equipments List:

Please reference ANNEX A(1.5).

2.6.3. 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.

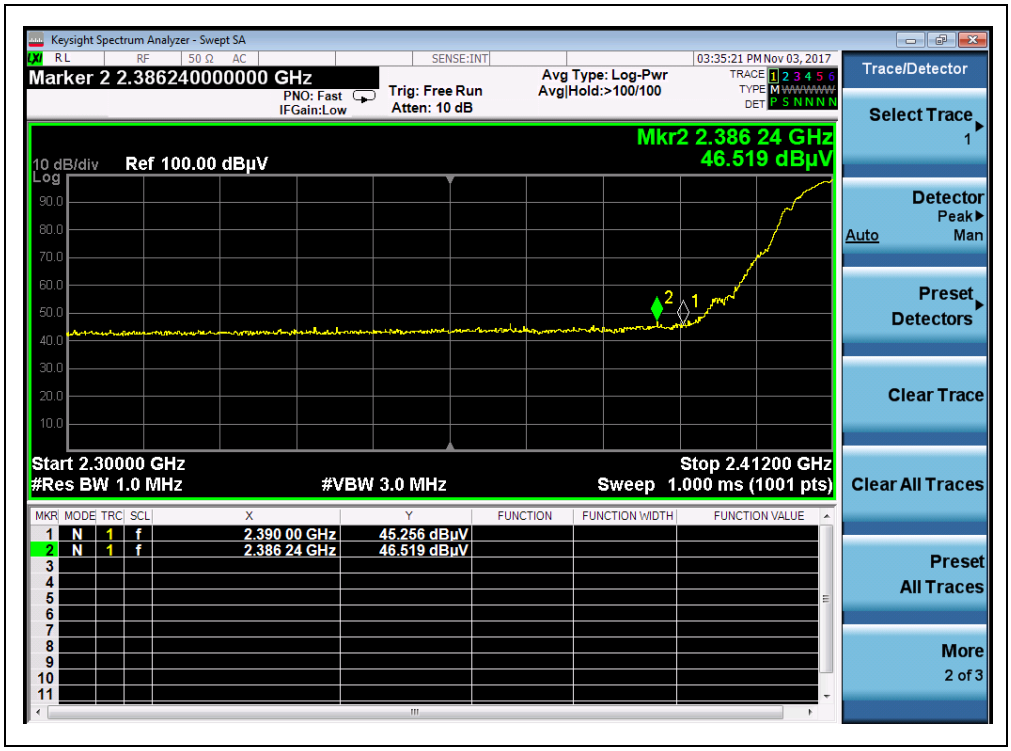
2.6.3.1 802.11b Test mode

The lowest and highest channels are tested to verify the band edge emissions.

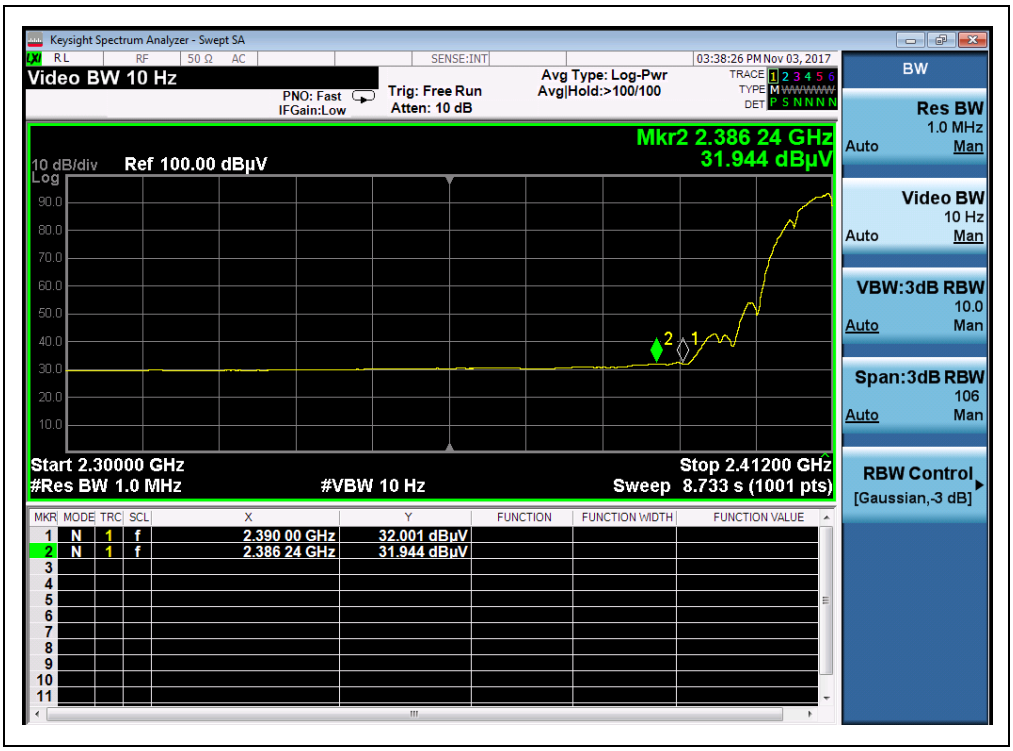
A. Test Verdict:

Channel	Frequency (MHz)	Detector	Receiver Reading U_R (dBuV)	A_T (dB)	A_{Factor} (dB@3m)	Max. Emission E (dBμV/m)	Limit (dBμV/m)	Verdict
		PK/ AV						
1	2386.24	PK	46.52	-47.23	32.6	31.89	74	Pass
1	2386.24	AV	31.94	-47.23	32.6	17.31	54	Pass
11	2488.22	PK	48.75	-47.31	32.6	34.04	74	Pass
11	2487.88	AV	36.79	-47.31	32.6	22.08	54	Pass

B. Test Plots:



(Plot A1: Channel = 1 PEAK @ 802.11b)



(Plot A2: Channel = 1 AVG @ 802.11b)

(Plot B1: Channel = 11 PEAK @ 802.11b)

(Plot B2: Channel = 11 AVG @ 802.11b)

2.6.3.2 802.11g Test mode

The lowest and highest channels are tested to verify the band edge emissions.

A. Test Verdict:

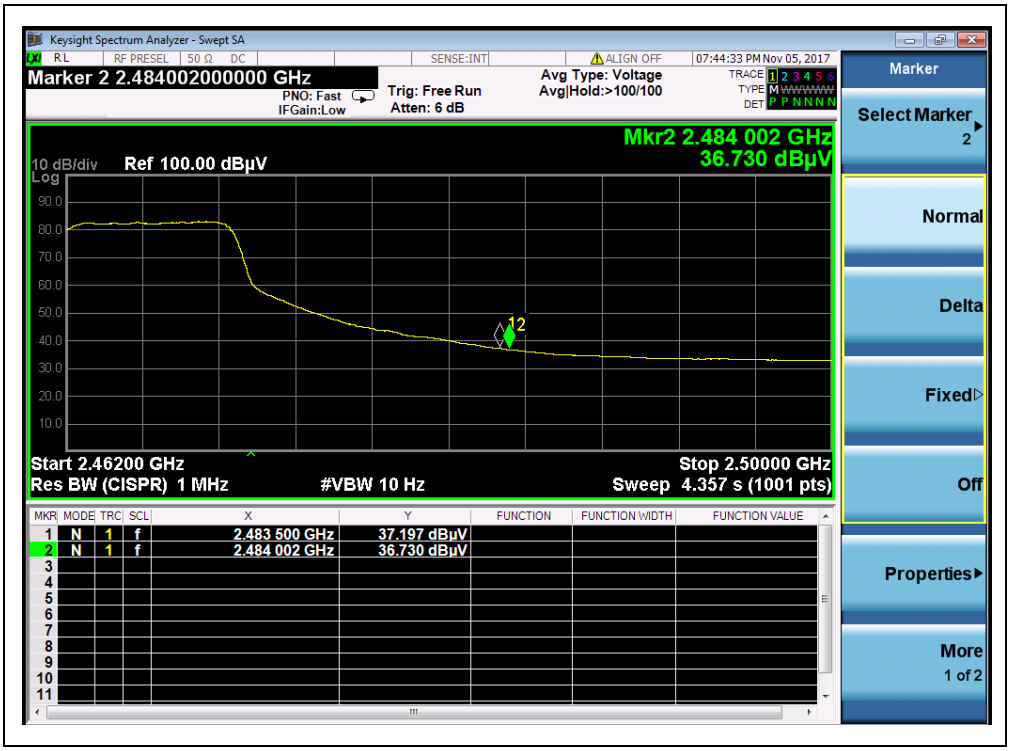
Channel	Frequency (MHz)	Detector PK/ AV	Receiver Reading U_R (dBuV)	A_T (dB)	A_{Factor} (dB@3m)	Max. Emission E (dBμV/m)	Limit (dBμV/m)	Verdict
1	2382.21	PK	46.97	-47.23	32.6	32.34	74	Pass
1	2382.21	AV	30.47	-47.23	32.6	15.84	54	Pass
11	2485.07	PK	52.15	-33.18	32.5	51.47	74	Pass
11	2484.00	AV	36.73	-33.18	32.5	36.05	54	Pass

B. Test Plots:

(Plot C1: Channel = 1 PEAK @ 802.11g)

(Plot C2: Channel = 1 AVG @ 802.11g)

(Plot D1: Channel = 11 PEAK @ 802.11g)



(Plot D2: Channel = 11 AVG @ 802.11g)

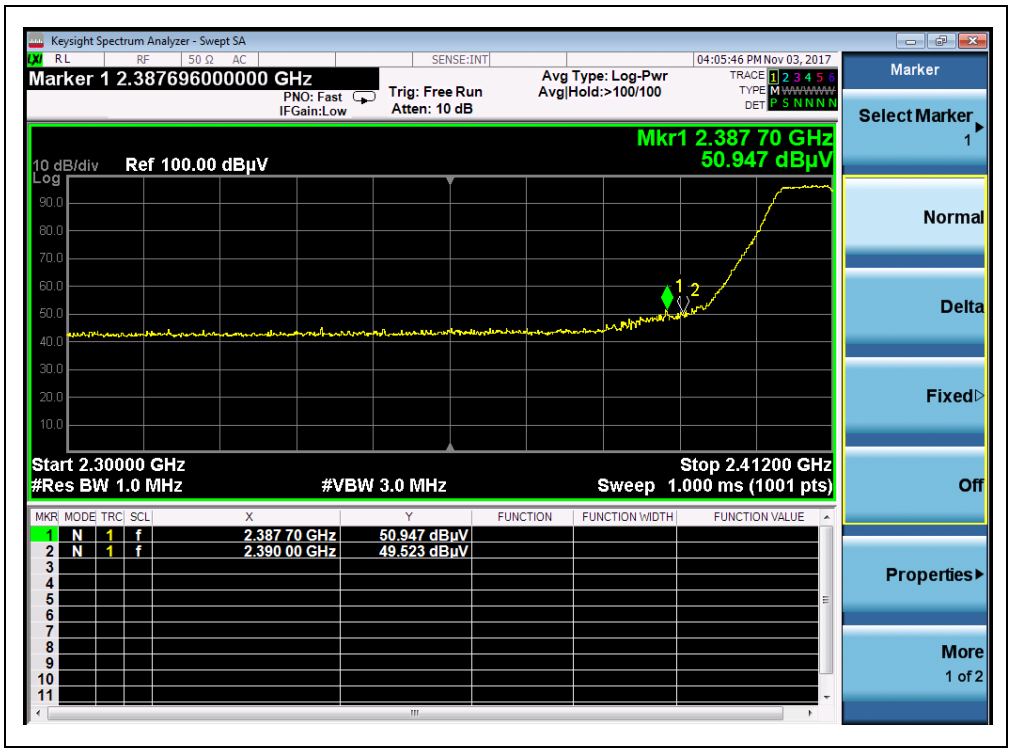
2.6.3.3 802.11n-20MHz Test mode

The lowest and highest channels are tested to verify the band edge emissions.

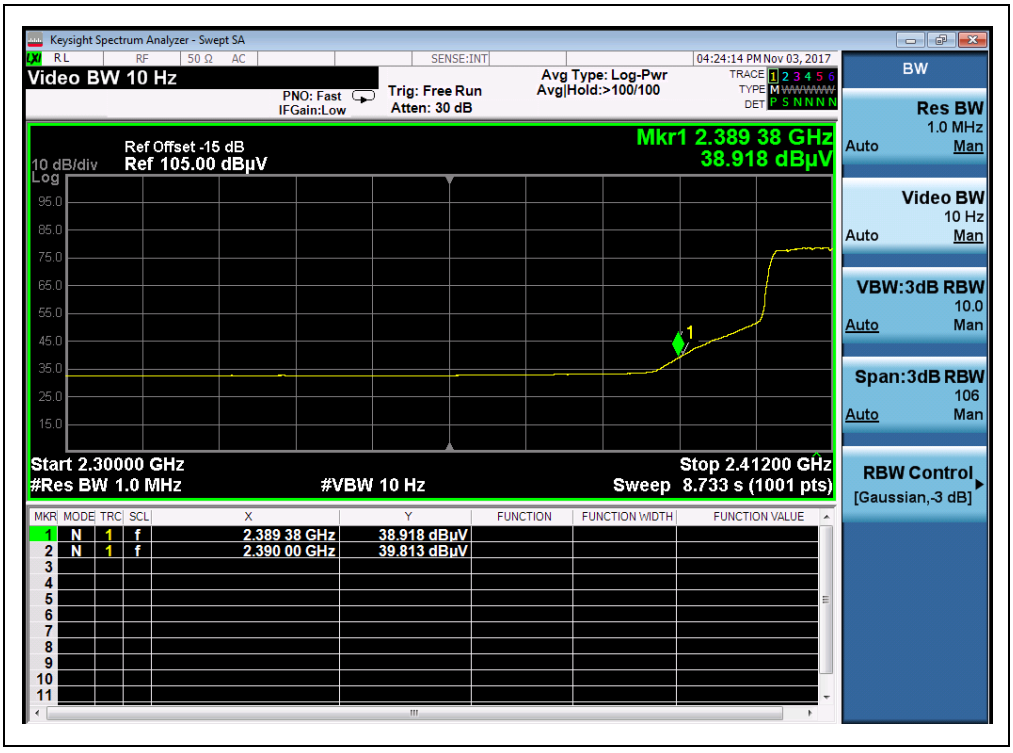
A. Test Verdict:

Channel	Frequency (MHz)	Detector PK/ AV	Receiver Reading U_R (dBuV)	A_T (dB)	A_{Factor} (dB@3m)	Max. Emission E (dBµV/m)	Limit (dBµV/m)	Verdict
1	2387.70	PK	50.95	-47.23	32.6	36.32	74	Pass
1	2389.38	AV	38.92	-47.23	32.6	24.29	54	Pass
11	2485.10	PK	51.84	-33.18	32.5	51.16	74	Pass
11	2483.89	AV	37.81	-33.18	32.5	37.13	54	Pass

B. Test Plots:

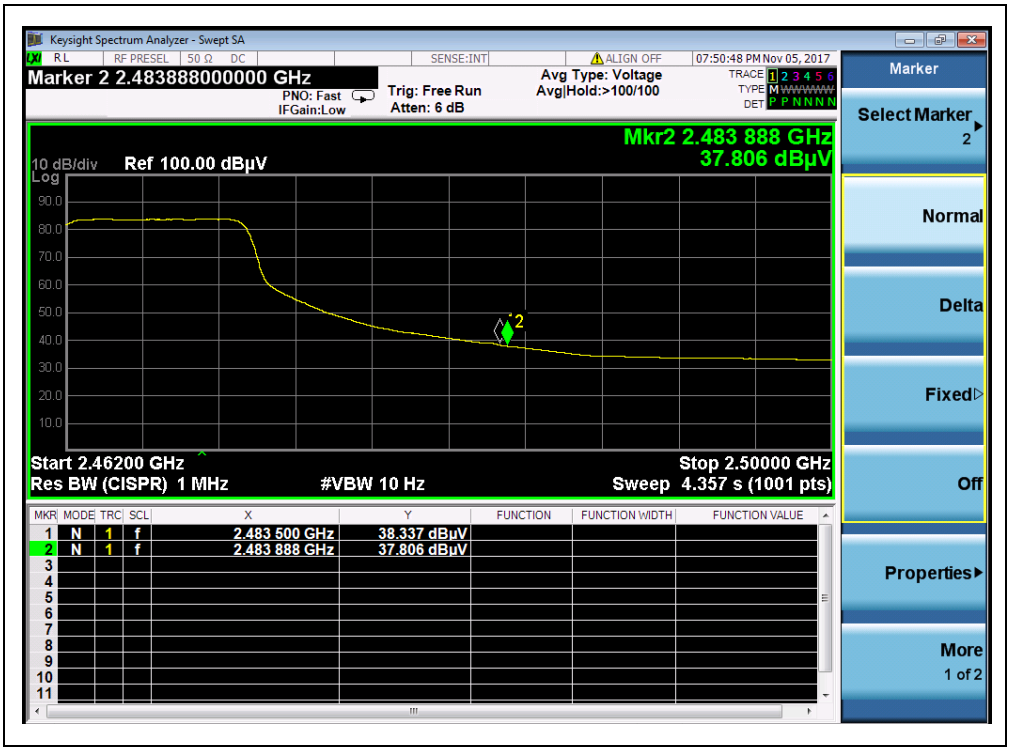


(Plot E1: Channel = 1 PEAK @ 802.11n-20)



(Plot E2: Channel = 1 AVG @ 802.11n-20)

(Plot F1: Channel = 11 PEAK @ 802.11n-20)



(Plot F2: Channel = 11 AVG @ 802.11n-20)

2.6.3.4 802.11n-40MHz Test mode

The lowest and highest channels are tested to verify the band edge emissions.

A. Test Verdict:

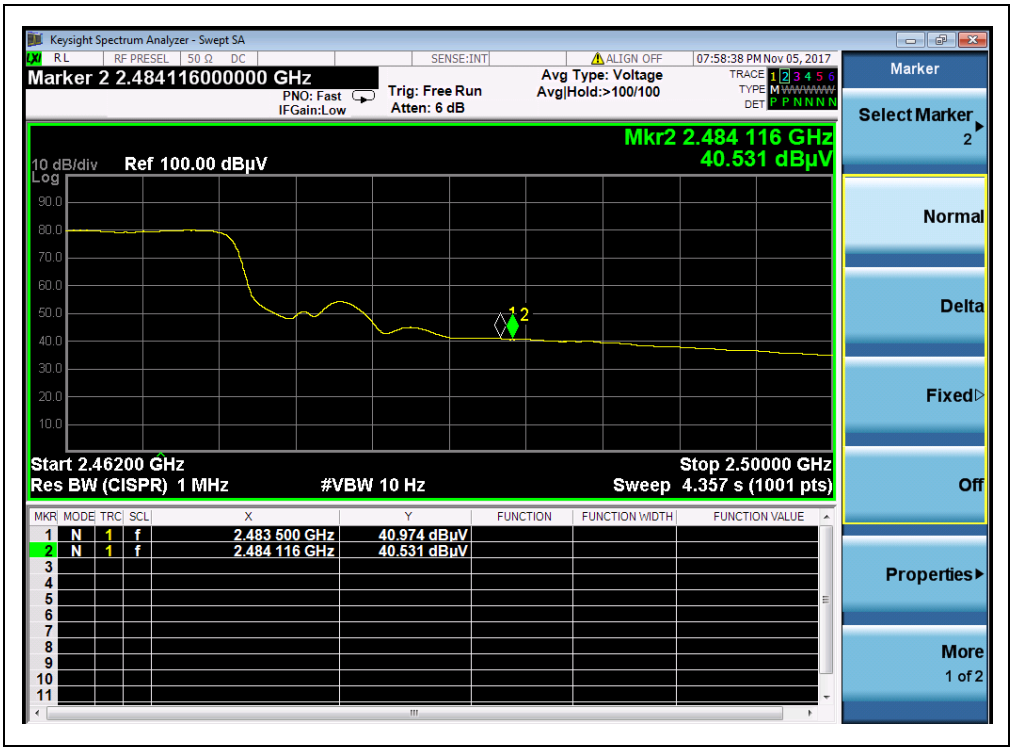
Channel	Frequency (MHz)	Detector PK/ AV	Receiver Reading U_R (dBuV)	A_T (dB)	A_{Factor} (dB@3m)	Max. Emission E (dBμV/m)	Limit (dBμV/m)	Verdict
3	2388.37	PK	77.27	-47.23	32.6	62.64	74	Pass
3	2388.37	AV	59.12	-47.23	32.6	44.49	54	Pass
9	2486.24	PK	54.09	-33.18	32.5	53.41	74	Pass
9	2484.12	AV	40.53	-33.18	32.5	39.85	54	Pass

B. Test Plots:

(Plot E1: Channel = 3 PEAK @ 802.11n-40)

(Plot E2: Channel = 3 AVG @ 802.11n-40)

(Plot F1: Channel = 9 PEAK @ 802.11n-40)



(Plot F2: Channel = 9 AVG @ 802.11n-40)

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

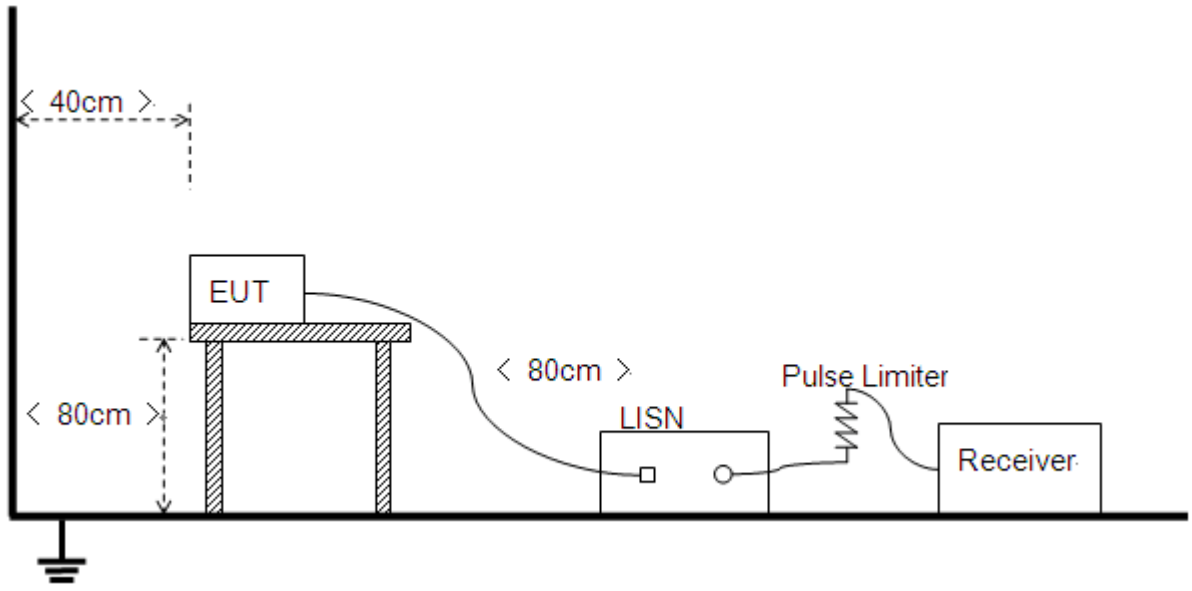
NOTE:

(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

A. 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.

B. Equipments List:

Please reference ANNEX A(1.5).

2.7.3. Test Result

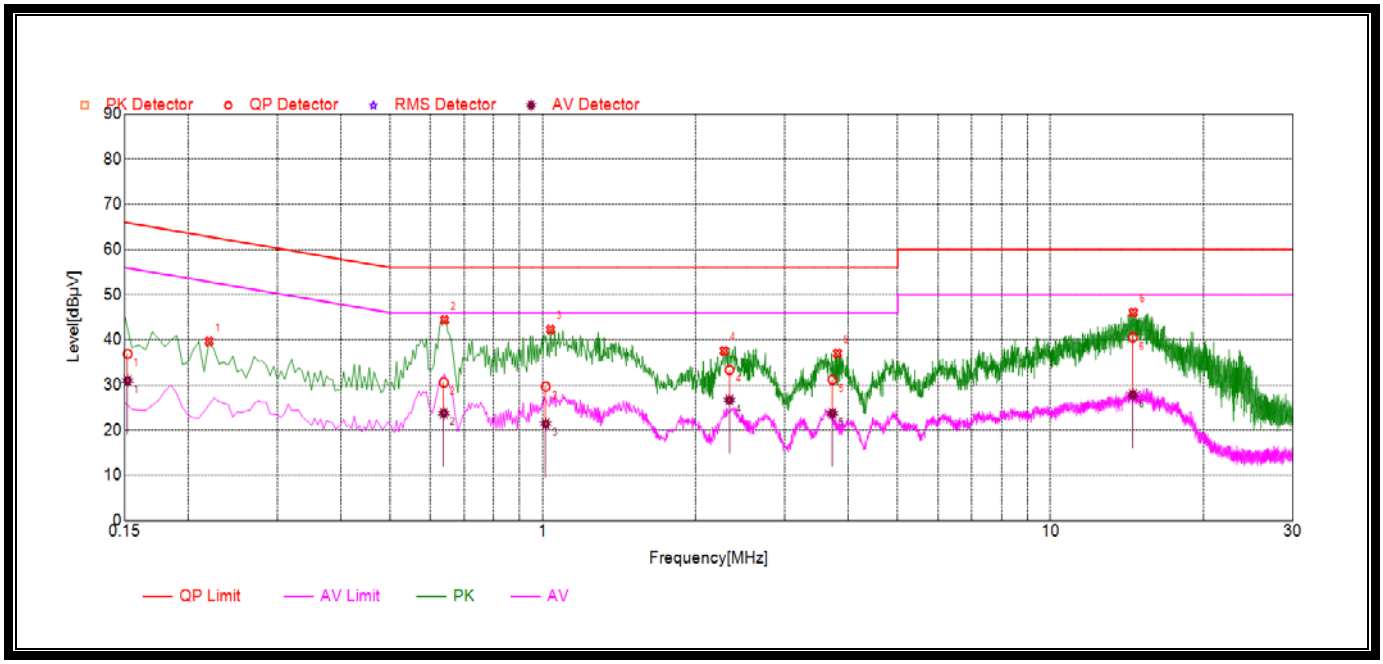
The maximum conducted interference is searched using Peak (PK), if the emission levels more than the AV and QP limits, and that have narrow margins from the AV and QP limits will be re-measured with AV and QP detectors. Tests for both L phase and N phase lines of the power mains connected to the EUT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

A. Test setup:

The EUT configuration of the emission tests is EUT + Link.

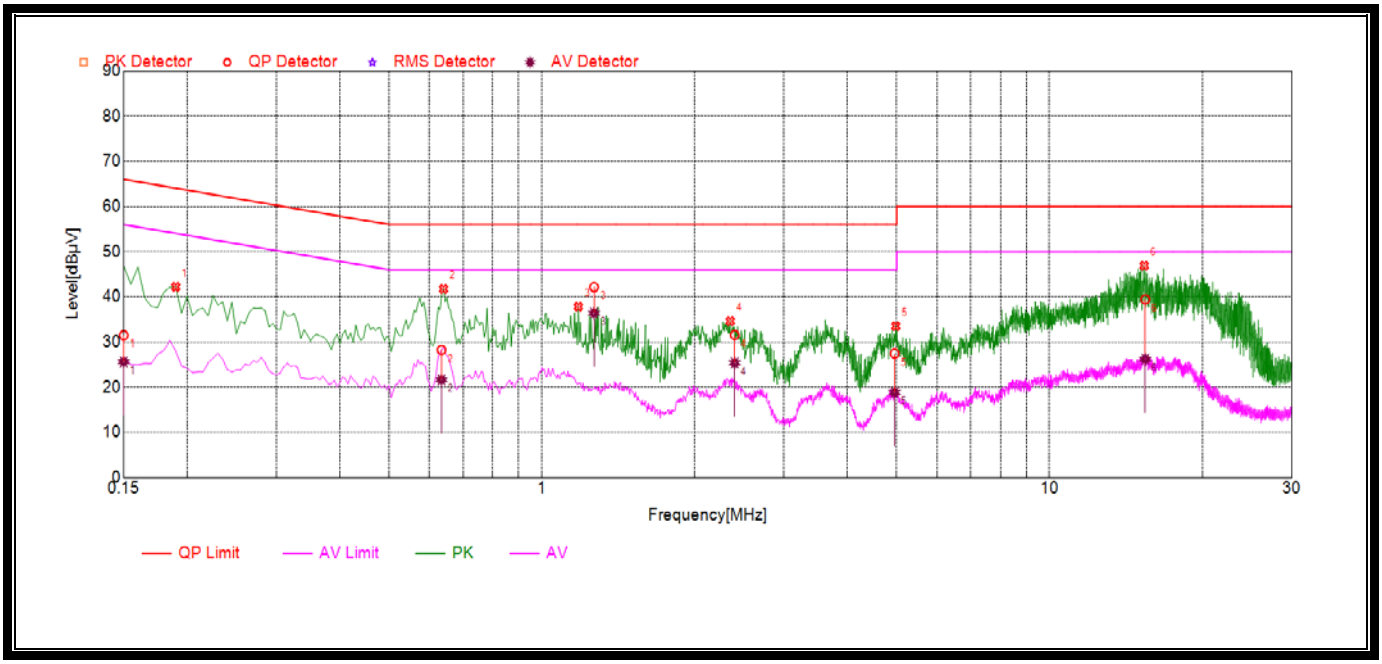
Note: The test voltage is AC 120V/60Hz.

B. Test Plots:



(Plot A: L Phase)

NO.	Fre. (MHz)	Emission Level (dBµV)		Limit (dBµV)		Power-line	Verdict
		Quai-peak	Average	Quai-peak	Average		
1	0.152	36.88	30.97	65.89	55.89	Line	PASS
2	0.638	30.56	23.76	56.00	46.00		PASS
3	1.0128	29.66	21.42	56.00	46.00		PASS
4	2.331	33.33	26.68	56.00	46.00		PASS
5	3.7186	31.19	23.75	56.00	46.00		PASS
6	14.5352	40.52	27.87	60.00	50.00		PASS



(Plot B: N Phase)

NO.	Fre. (MHz)	Emission Level (dBµV)		Limit (dBµV)		Power-line	Verdict
		Quai-peak	Average	Quai-peak	Average		
1	0.15	31.49	25.60	66.00	56.00	Line	PASS
2	0.6342	28.27	21.64	56.00	46.00		PASS
3	1.2668	42.15	36.40	56.00	46.00		PASS
4	2.398	31.56	25.38	56.00	46.00		PASS
5	4.9538	27.44	18.87	56.00	46.00		PASS
6	15.443	39.44	26.21	60.00	50.00		PASS

2.8. Radiated Emission

2.8.1. 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

Note:

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.

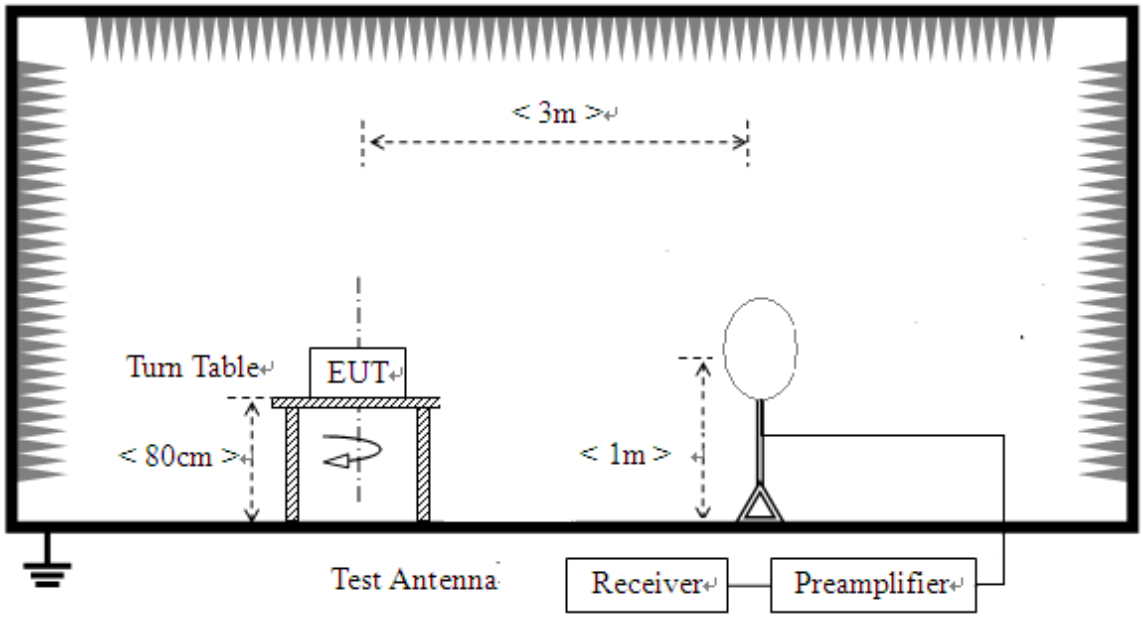
For above 1000MHz, limit field strength of harmonics: 54dBuV/m@3m (AV) and 74dBuV/m@3m (PK)

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)

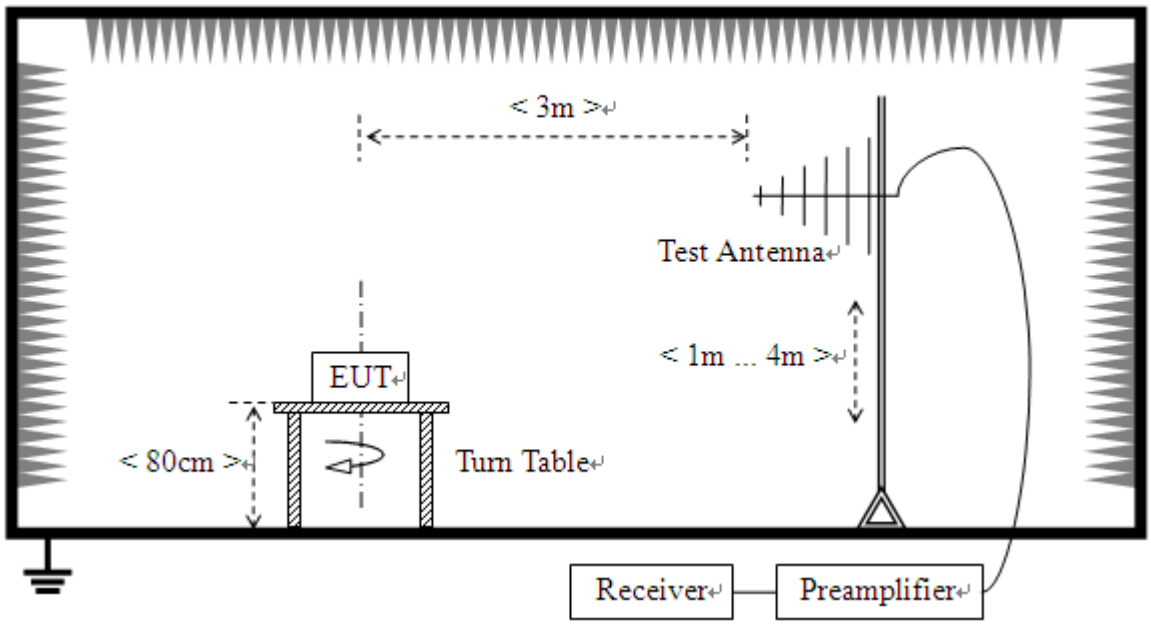
2.8.2. Test Description

A. Test Setup:

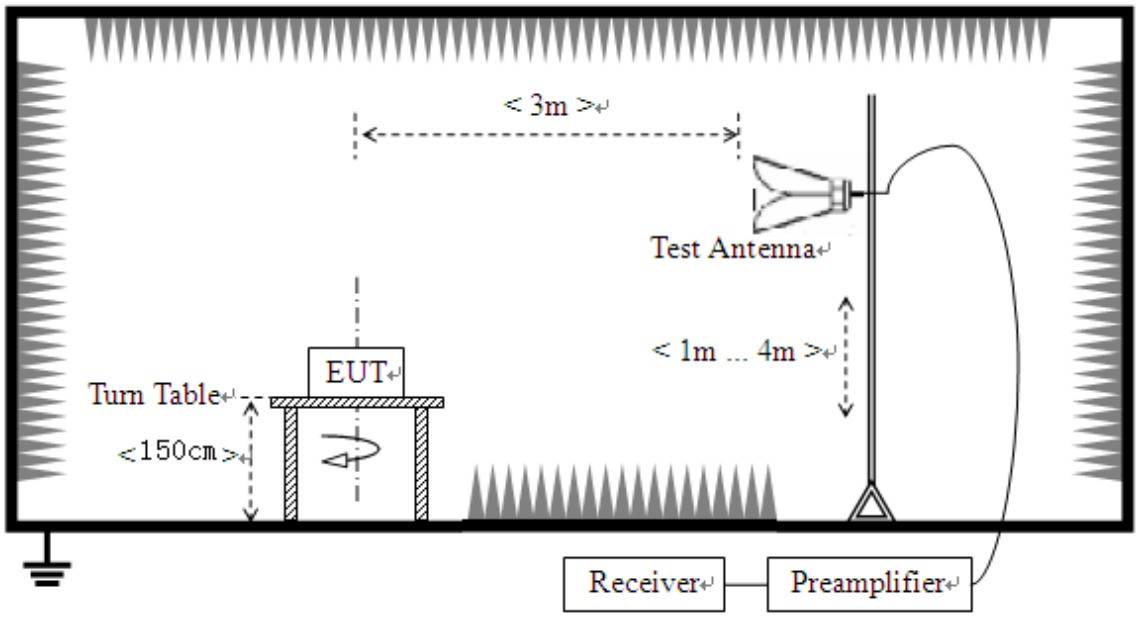
1) For radiated emissions from 9kHz to 30MHz



2) For radiated emissions from 30MHz to1GHz



3) For radiated emissions above 1GHz



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

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

For the radiated emission test above 1GHz:

Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.

The EUT is located in a 3m Semi-Anechoic Chamber; the antenna factors, cable loss and so on of

the site as factors are calculated to correct the reading

For the Test Antenna:

(a) In the frequency range of 9kHz to 30MHz, magnetic field is measured with Loop Test Antenna. The Test Antenna is positioned with its plane vertical at 1m distance from the EUT. The center of the Loop Test Antenna is 1m above the ground. During the measurement the Loop Test Antenna rotates about its vertical axis for maximum response at each azimuth about the EUT.
(b) In the frequency range above 30MHz, Bi-Log Test Antenna (30MHz to 1GHz) and Horn Test Antenna (above 1GHz) are used. Place the test antenna at 3m away from area of the EUT, while keeping the test antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The test antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final test antenna elevation shall be that which maximizes the emissions. The test antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane. The emission levels at both horizontal and vertical polarizations should be tested.

A. Equipments List:

Please reference ANNEX A(1.5).

2.8.3. Test Result

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

The measurement results are obtained as below:

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

A_T: Total correction Factor except Antenna

U_R: Receiver Reading

G_{preamp}: Preamplifier Gain

A_{Factor}: Antenna Factor at 3m

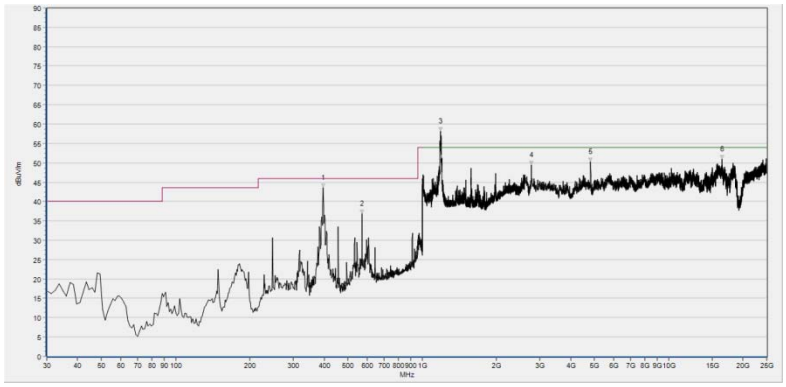
During the test, the total correction Factor A_T and A_{Factor} were built in test software.

The low frequency, which started from 9KHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported.

2.8.3.1 802.11b Test mode

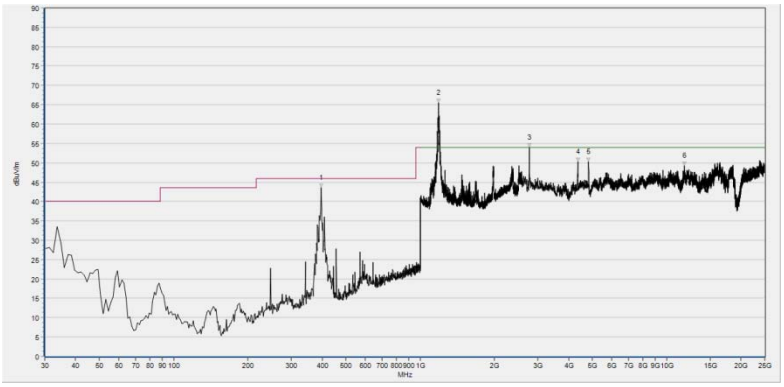
A. Test Plots for the Whole Measurement Frequency Range:

Plots for Channel = 1



Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
396.633	43.56	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
570.238	36.95	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1188.000	61.04	N/A	38.86	74.0	N/A	54.0	Horizontal	PASS
2775.159	49.49	N/A	N/A	74.0	N/A	54.0	Horizontal	PASS
4824.113	50.28	N/A	N/A	74.0	N/A	54.0	Horizontal	PASS
16502.746	50.87	N/A	N/A	74.0	N/A	54.0	Horizontal	PASS

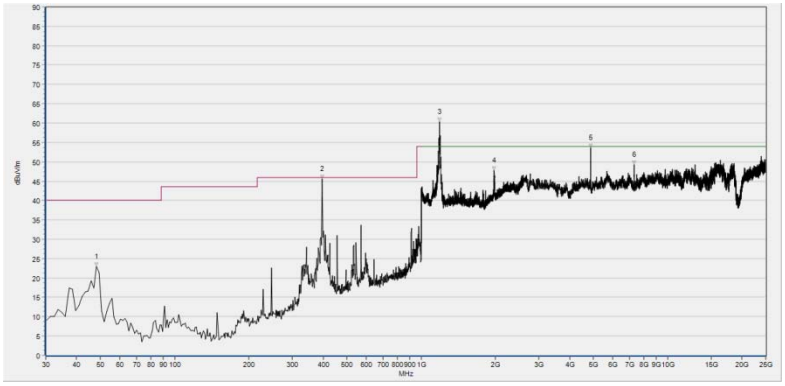
(Antenna Horizontal, 30MHz to 25GHz)



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
396.633	43.65	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1187.900	65.29	N/A	44.37	74.0	N/A	54.0	Vertical	PASS
2771.300	56.29	N/A	36.26	74.0	N/A	54.0	Vertical	PASS
4355.665	50.22	N/A	N/A	74.0	N/A	54.0	Vertical	PASS
4824.113	50.25	N/A	N/A	74.0	N/A	54.0	Vertical	PASS
11826.405	49.25	N/A	N/A	74.0	N/A	54.0	Vertical	PASS

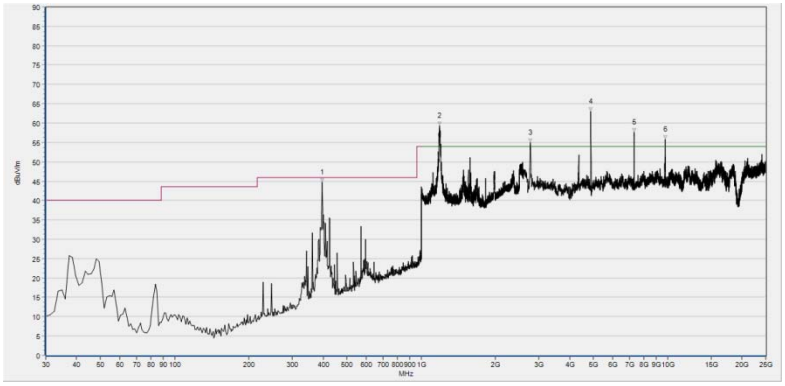
(Antenna Vertical, 30MHz to 25GHz)

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
48.210	22.89	N/A	N/A	N/A	40.00	N/A	Horizontal	PASS
396.040	50.63	43.38	N/A	N/A	46.00	N/A	Horizontal	PASS
1188.000	62.64	N/A	39.83	74.0	N/A	54.0	Horizontal	PASS
1979.592	47.69	N/A	N/A	74.0	N/A	54.0	Horizontal	PASS
4872.995	53.59	N/A	N/A	74.0	N/A	54.0	Horizontal	PASS
7308.929	49.30	N/A	N/A	74.0	N/A	54.0	Horizontal	PASS

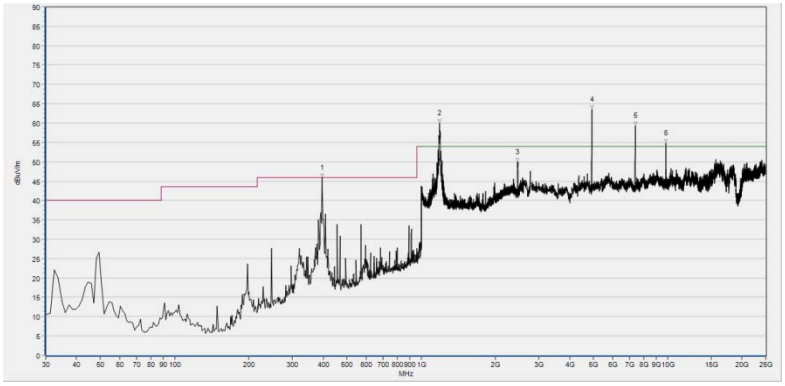
(Antenna Horizontal, 30MHz to 25GHz)



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
396.633	44.72	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1187.700	62.70	N/A	39.80	74.0	N/A	54.0	Vertical	PASS
2771.800	58.45	N/A	38.67	74.0	N/A	54.0	Vertical	PASS
4874.000	65.35	N/A	53.58	74.0	N/A	54.0	Vertical	PASS
7311.100	58.37	N/A	45.10	74.0	N/A	54.0	Vertical	PASS
9748.000	55.81	N/A	49.53	74.0	N/A	54.0	Vertical	PASS

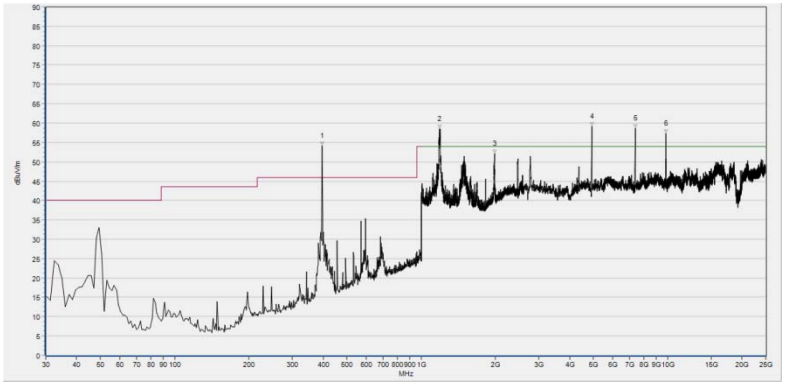
(Antenna Vertical, 30MHz to 25GHz)

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
396.040	50.99	43.99	N/A	N/A	46.00	N/A	Horizontal	PASS
1188.300	62.01	N/A	40.76	74.0	N/A	54.0	Horizontal	PASS
2462.345	49.87	N/A	N/A	74.0	N/A	54.0	Horizontal	PASS
4923.900	64.30	N/A	46.89	74.0	N/A	54.0	Horizontal	PASS
7386.100	57.50	N/A	43.70	74.0	N/A	54.0	Horizontal	PASS
9848.100	54.43	N/A	46.98	74.0	N/A	54.0	Horizontal	PASS

(Antenna Horizontal, 30MHz to 25GHz)



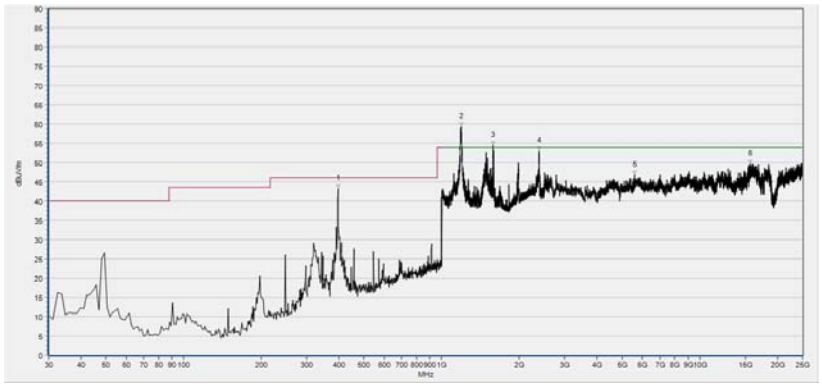
Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
396.000	50.90	44.80	N/A	N/A	46.00	N/A	Vertical	PASS
1188.100	59.50	N/A	38.78	74.0	N/A	54.0	Vertical	PASS
1980.872	52.08	N/A	N/A	74.0	N/A	54.0	Vertical	PASS
4924.000	60.68	N/A	48.64	74.0	N/A	54.0	Vertical	PASS
7386.400	57.74	N/A	45.53	74.0	N/A	54.0	Vertical	PASS
9847.900	55.53	N/A	48.88	74.0	N/A	54.0	Vertical	PASS

(Antenna Vertical, 30MHz to 25GHz)

2.8.3.2 802.11g Test mode

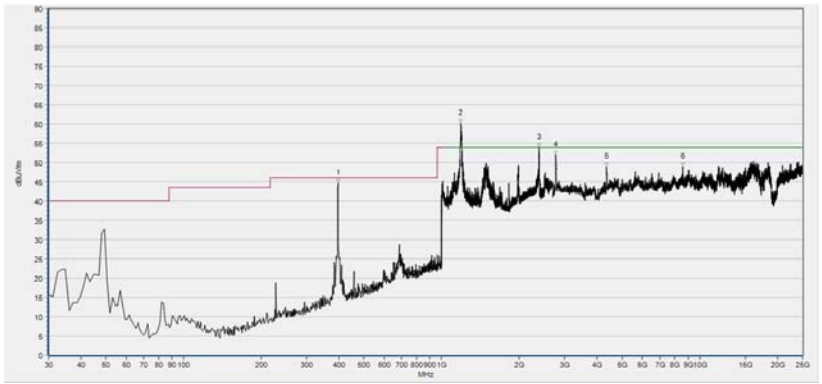
B. Test Plots for the Whole Measurement Frequency Range:

Plots for Channel = 1



Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
396.633	43.23	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1187.800	62.56	N/A	40.97	74.0	N/A	54.0	Horizontal	PASS
1578.800	45.67	N/A	28.29	74.0	N/A	54.0	Horizontal	PASS
2381.673	53.09	N/A	N/A	74.0	N/A	54.0	Horizontal	PASS
5577.705	46.79	N/A	N/A	74.0	N/A	54.0	Horizontal	PASS
15683.979	49.69	N/A	N/A	74.0	N/A	54.0	Horizontal	PASS

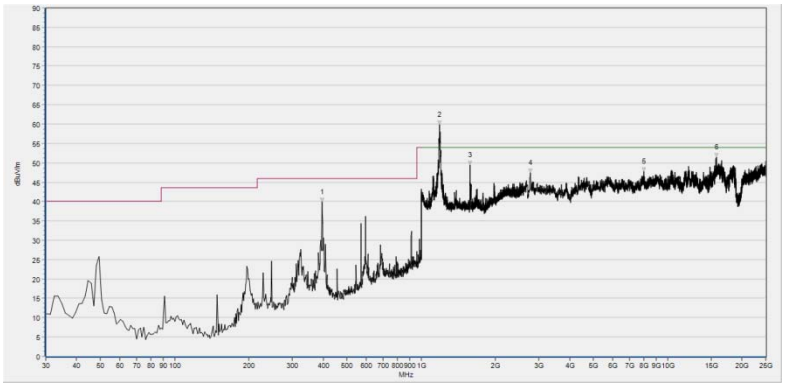
(Antenna Horizontal, 30MHz to 25GHz)



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
396.633	44.65	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1188.400	62.23	N/A	40.02	74.0	N/A	54.0	Vertical	PASS
2382.313	53.98	N/A	N/A	74.0	N/A	54.0	Vertical	PASS
2767.012	51.97	N/A	N/A	74.0	N/A	54.0	Vertical	PASS
4355.665	48.90	N/A	N/A	74.0	N/A	54.0	Vertical	PASS
8587.998	48.87	N/A	N/A	74.0	N/A	54.0	Vertical	PASS

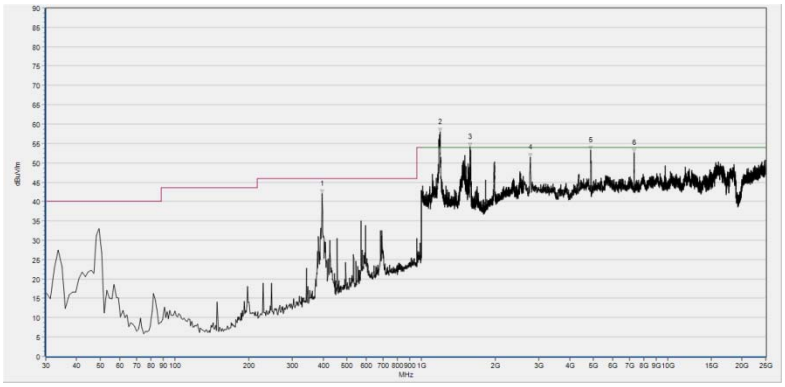
(Antenna Vertical, 30MHz to 25GHz)

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
395.419	39.90	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1188.200	60.54	N/A	39.78	74.0	N/A	54.0	Horizontal	PASS
1580.072	49.48	N/A	N/A	74.0	N/A	54.0	Horizontal	PASS
2771.086	47.39	N/A	N/A	74.0	N/A	54.0	Horizontal	PASS
8013.639	47.82	N/A	N/A	74.0	N/A	54.0	Horizontal	PASS
15765.448	51.47	N/A	N/A	74.0	N/A	54.0	Horizontal	PASS

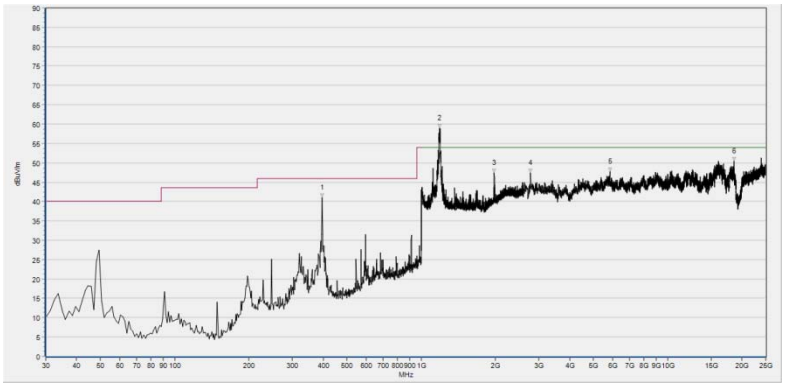
(Antenna Horizontal, 30MHz to 25GHz)



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
395.419	42.09	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1187.900	59.98	N/A	38.75	74.0	N/A	54.0	Vertical	PASS
1578.900	55.63	N/A	28.30	74.0	N/A	54.0	Vertical	PASS
2775.159	51.44	N/A	N/A	74.0	N/A	54.0	Vertical	PASS
4872.995	53.31	N/A	N/A	74.0	N/A	54.0	Vertical	PASS
7313.002	52.61	N/A	N/A	74.0	N/A	54.0	Vertical	PASS

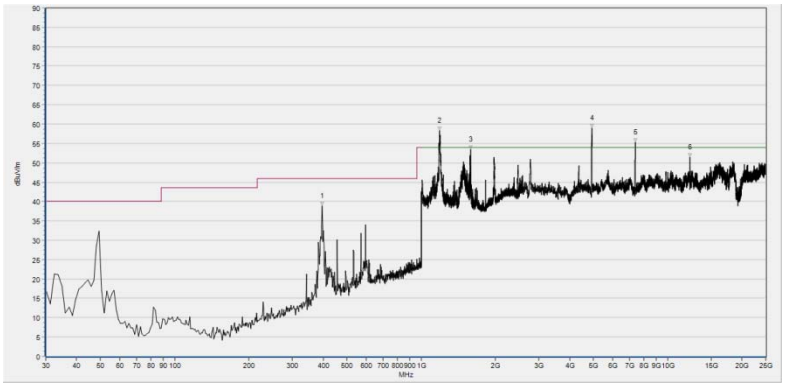
(Antenna Vertical, 30MHz to 25GHz)

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
395.419	41.02	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1188.000	61.85	N/A	39.90	74.0	N/A	54.0	Horizontal	PASS
1979.592	47.43	N/A	N/A	74.0	N/A	54.0	Horizontal	PASS
2779.233	47.45	N/A	N/A	74.0	N/A	54.0	Horizontal	PASS
5826.187	47.71	N/A	N/A	74.0	N/A	54.0	Horizontal	PASS
18563.921	50.46	N/A	N/A	74.0	N/A	54.0	Horizontal	PASS

(Antenna Horizontal, 30MHz to 25GHz)



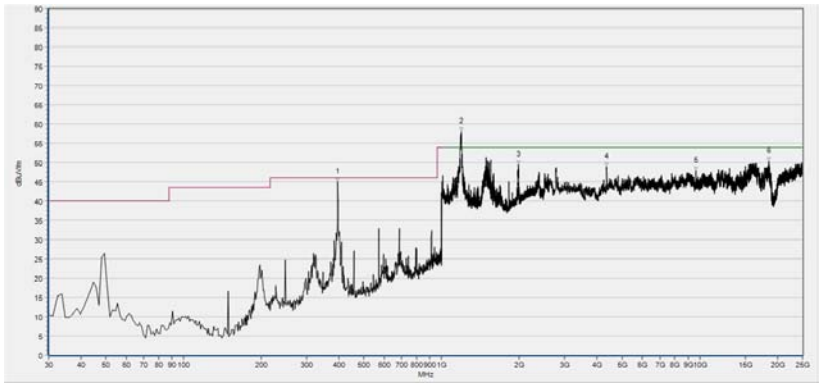
Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
395.419	38.94	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1188.100	59.94	N/A	39.04	74.0	N/A	54.0	Vertical	PASS
1588.395	53.47	N/A	N/A	74.0	N/A	54.0	Vertical	PASS
4923.300	56.55	N/A	40.02	74.0	N/A	54.0	Vertical	PASS
7383.000	56.41	N/A	39.18	74.0	N/A	54.0	Vertical	PASS
12307.074	51.37	N/A	N/A	74.0	N/A	54.0	Vertical	PASS

(Antenna Vertical, 30MHz to 25GHz)

2.8.3.3 802.11n-20MHz Test mode

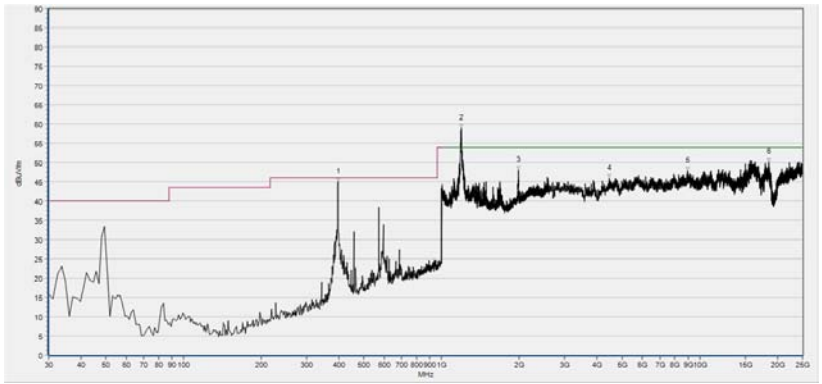
C. Test Plots for the Whole Measurement Frequency Range:

Plots for Channel = 1



Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
395.419	45.03	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1187.500	60.14	N/A	38.39	74.0	N/A	54.0	Horizontal	PASS
1980.232	49.41	N/A	N/A	74.0	N/A	54.0	Horizontal	PASS
4359.738	48.92	N/A	N/A	74.0	N/A	54.0	Horizontal	PASS
9647.099	47.86	N/A	N/A	74.0	N/A	54.0	Horizontal	PASS
18563.921	50.30	N/A	N/A	74.0	N/A	54.0	Horizontal	PASS

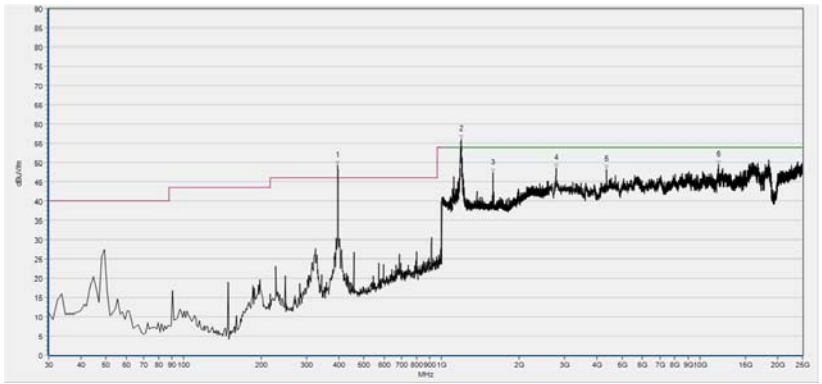
(Antenna Horizontal, 30MHz to 25GHz)



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
396.633	45.08	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1195.000	58.59	N/A	26.39	74.0	N/A	54.0	Vertical	PASS
1979.592	48.04	N/A	N/A	74.0	N/A	54.0	Vertical	PASS
4453.428	45.82	N/A	N/A	74.0	N/A	54.0	Vertical	PASS
8987.198	47.89	N/A	N/A	74.0	N/A	54.0	Vertical	PASS
18462.084	50.20	N/A	N/A	74.0	N/A	54.0	Vertical	PASS

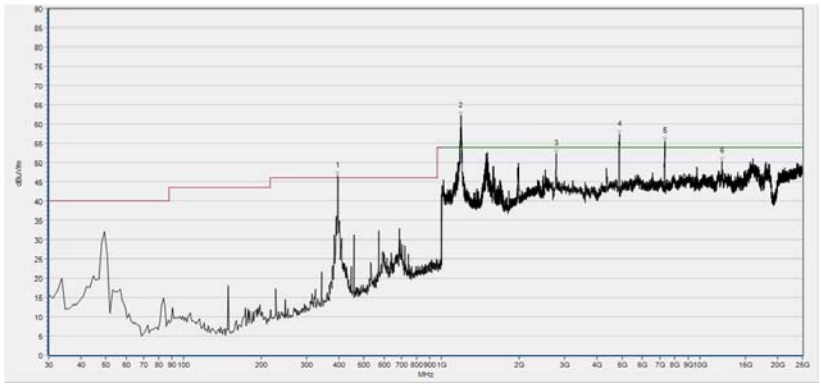
(Antenna Vertical, 30MHz to 25GHz)

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
395.980	49.18	42.08	N/A	N/A	46.00	N/A	Horizontal	PASS
1188.100	59.85	N/A	38.15	74.0	N/A	54.0	Horizontal	PASS
1578.792	47.31	N/A	N/A	74.0	N/A	54.0	Horizontal	PASS
2775.159	48.53	N/A	N/A	74.0	N/A	54.0	Horizontal	PASS
4355.665	48.26	N/A	N/A	74.0	N/A	54.0	Horizontal	PASS
11842.699	49.40	N/A	N/A	74.0	N/A	54.0	Horizontal	PASS

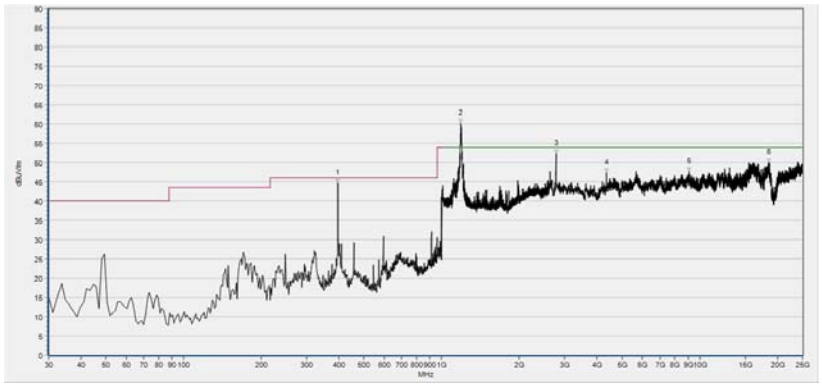
(Antenna Horizontal, 30MHz to 25GHz)



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
396.020	55.25	46.59	N/A	N/A	46.00	N/A	Vertical	PASS
1188.000	62.21	N/A	40.82	74.0	N/A	54.0	Vertical	PASS
2775.159	52.35	N/A	N/A	74.0	N/A	54.0	Vertical	PASS
4878.500	49.94	N/A	33.84	74.0	N/A	54.0	Vertical	PASS
7313.600	49.89	N/A	34.84	74.0	N/A	54.0	Vertical	PASS
12184.870	50.41	N/A	N/A	74.0	N/A	54.0	Vertical	PASS

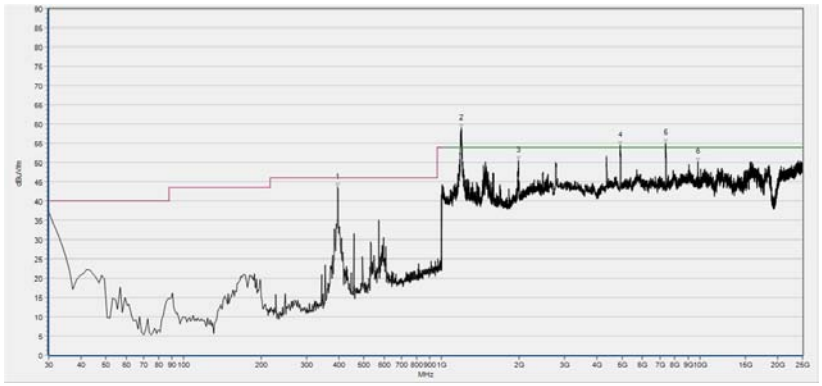
(Antenna Vertical, 30MHz to 25GHz)

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
395.419	44.57	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1188.000	63.44	N/A	41.36	74.0	N/A	54.0	Horizontal	PASS
2771.086	52.33	N/A	N/A	74.0	N/A	54.0	Horizontal	PASS
4355.665	47.29	N/A	N/A	74.0	N/A	54.0	Horizontal	PASS
9072.740	47.71	N/A	N/A	74.0	N/A	54.0	Horizontal	PASS
18462.084	49.98	N/A	N/A	74.0	N/A	54.0	Horizontal	PASS

(Antenna Horizontal, 30MHz to 25GHz)



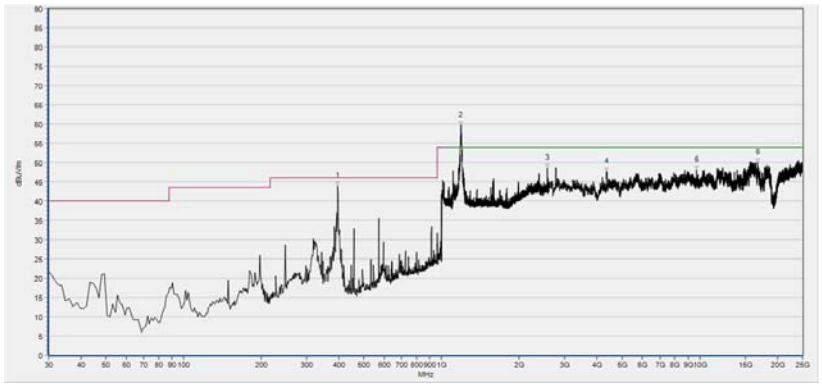
Fre. (MHz)	Pk (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
395.419	43.54	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1188.400	61.90	N/A	40.02	74.0	N/A	54.0	Vertical	PASS
1979.592	50.51	N/A	N/A	74.0	N/A	54.0	Vertical	PASS
4923.900	59.32	N/A	42.30	74.0	N/A	54.0	Vertical	PASS
7393.700	50.21	N/A	35.63	74.0	N/A	54.0	Vertical	PASS
9846.699	50.10	N/A	N/A	74.0	N/A	54.0	Vertical	PASS

(Antenna Vertical, 30MHz to 25GHz)

2.8.3.4 802.11n-40MHz Test mode

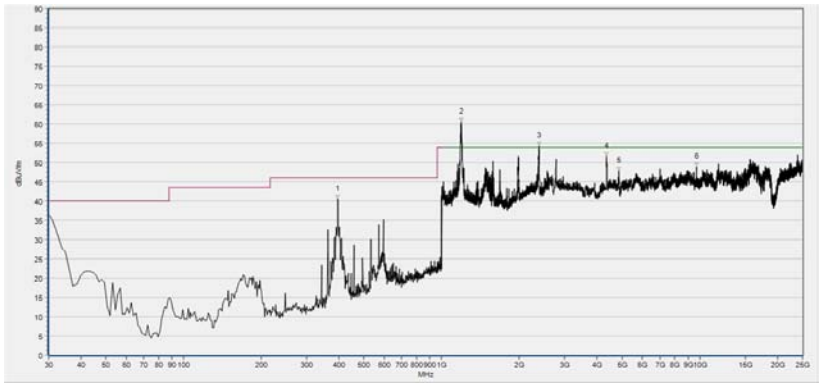
D. Test Plots for the Whole Measurement Frequency Range:

Plots 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
395.419	43.90	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1187.900	58.55	N/A	37.57	74.0	N/A	54.0	Horizontal	PASS
2572.469	48.65	N/A	N/A	74.0	N/A	54.0	Horizontal	PASS
4351.591	47.64	N/A	N/A	74.0	N/A	54.0	Horizontal	PASS
9687.834	47.97	N/A	N/A	74.0	N/A	54.0	Horizontal	PASS
16808.256	50.04	N/A	N/A	74.0	N/A	54.0	Horizontal	PASS

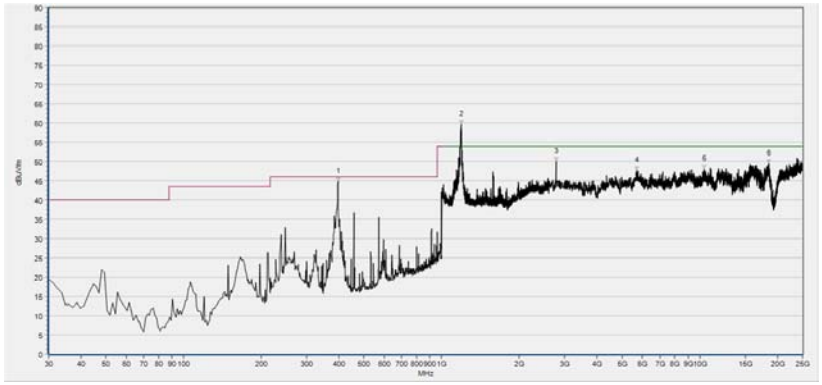
(Plot A.2: Antenna Horizontal, 30MHz to 25GHz)



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
395.419	40.49	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1187.900	61.22	N/A	40.97	74.0	N/A	54.0	Vertical	PASS
2383.200	51.64	N/A	37.29	74.0	N/A	54.0	Vertical	PASS
4351.591	51.59	N/A	N/A	74.0	N/A	54.0	Vertical	PASS
4864.848	47.86	N/A	N/A	74.0	N/A	54.0	Vertical	PASS
9687.834	48.92	N/A	N/A	74.0	N/A	54.0	Vertical	PASS

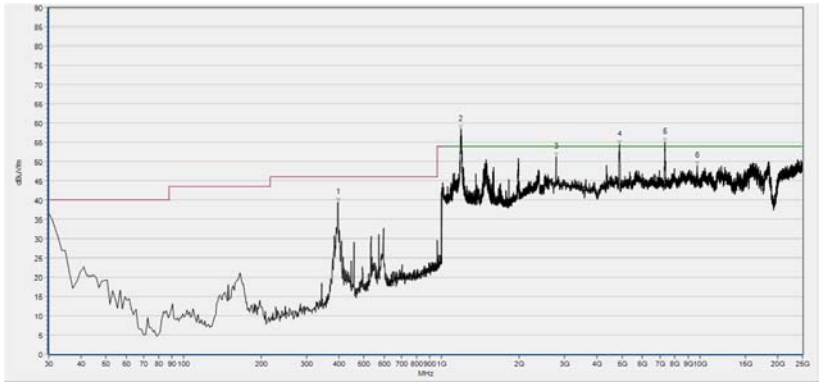
(Plot A.3: Antenna Vertical, 30MHz to 25GHz)

Plots 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
396.633	44.82	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1187.100	57.26	N/A	33.74	74.0	N/A	54.0	Horizontal	PASS
2771.086	50.08	N/A	N/A	74.0	N/A	54.0	Horizontal	PASS
5687.689	47.70	N/A	N/A	74.0	N/A	54.0	Horizontal	PASS
10380.324	48.04	N/A	N/A	74.0	N/A	54.0	Horizontal	PASS
18474.304	49.41	N/A	N/A	74.0	N/A	54.0	Horizontal	PASS

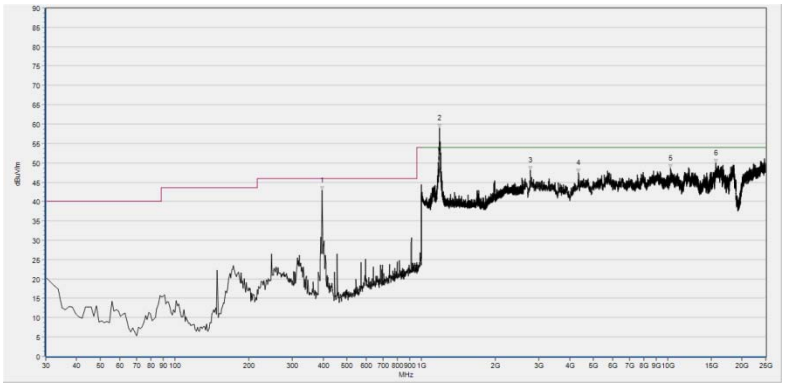
(Plot B.2: Antenna Horizontal, 30MHz to 25GHz)



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
396.633	39.50	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1187.600	57.75	N/A	37.48	74.0	N/A	54.0	Vertical	PASS
2771.086	51.23	N/A	N/A	74.0	N/A	54.0	Vertical	PASS
4875.900	55.08	N/A	40.58	74.0	N/A	54.0	Vertical	PASS
7324.100	56.63	N/A	41.68	74.0	N/A	54.0	Vertical	PASS
9748.936	48.94	N/A	N/A	74.0	N/A	54.0	Vertical	PASS

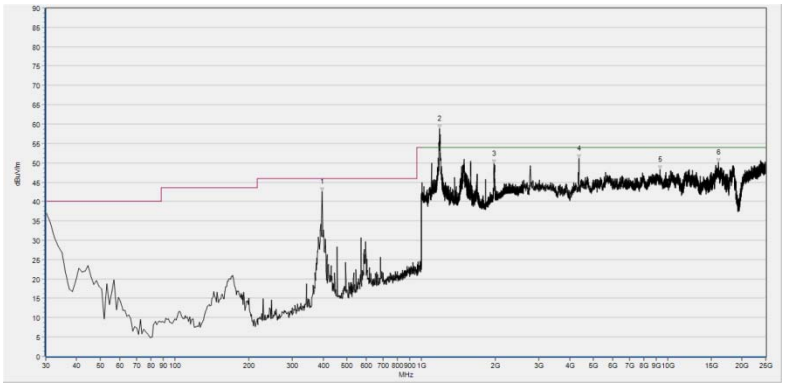
(Plot B.3: Antenna Vertical, 30MHz to 25GHz)

Plots 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
395.419	42.82	N/A	N/A	N/A	46.00	N/A	Horizontal	PASS
1188.100	56.72	N/A	36.62	74.0	N/A	54.0	Horizontal	PASS
2771.086	48.07	N/A	N/A	74.0	N/A	54.0	Horizontal	PASS
4351.591	47.43	N/A	N/A	74.0	N/A	54.0	Horizontal	PASS
10286.634	48.54	N/A	N/A	74.0	N/A	54.0	Horizontal	PASS
15667.685	49.93	N/A	N/A	74.0	N/A	54.0	Horizontal	PASS

(Plot C.2: Antenna Horizontal, 30MHz to 25GHz)



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
395.419	42.53	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1187.600	60.11	N/A	38.48	74.0	N/A	54.0	Vertical	PASS
1979.592	49.70	N/A	N/A	74.0	N/A	54.0	Vertical	PASS
4359.738	51.07	N/A	N/A	74.0	N/A	54.0	Vertical	PASS
9321.222	48.28	N/A	N/A	74.0	N/A	54.0	Vertical	PASS
16046.518	50.10	N/A	N/A	74.0	N/A	54.0	Vertical	PASS

(Plot C.3: Antenna Vertical, 30MHz to 25GHz)

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 (PSD)	±2.22dB
Bandwidth	±5%
Conducted Spurious Emission	±2.77 dB
Restricted Frequency Bands	±5%
Radiated Emission	±2.95dB
Conducted Emission	±2.44dB

Annex B Testing Laboratory Information

1. Identification of the Responsible Testing Laboratory

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

2. Identification of the Responsible Testing Location

Name:	Shenzhen Morlab Communications Technology Co., Ltd. Morlab Laboratory
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

Shenzhen Morlab Communications Technology Co., Ltd. Morlab Laboratory is a testing organization accredited by China National Accreditation Service for Conformity Assessment (CNAS) according to ISO/IEC 17025. The accreditation certificate number is L3572.

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.

4. Test Equipments Utilized

4.1 Conducted Test Equipments

Equipment Name	Serial No.	Type	Manufacturer	Cal. Date	Cal. Due
Spectrum Analyzer	MY45101810	E4407B	Agilent	2017.05.24	2018.05.23
Power Splitter	NW521	1506A	Weinschel	2017.05.24	2018.05.23
Attenuator 1	(N/A.)	10dB	Resnet	2017.05.24	2018.05.23
Attenuator 2	(N/A.)	3dB	Resnet	2017.05.24	2018.05.23
EXA Signal Analzyer	MY53470836	N9010A	Agilent	2016.12.07	2017.12.06
USB Wideband Power Sensor	MY54210011	U2021XA	Agilent	2017.05.24	2018.05.23
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

4.2 Conducted Emission Test Equipments

Equipment Name	Serial No.	Type	Manufacturer	Cal. Date	Cal. Due
Receiver	US44210471	E7405A	Agilent	2017.05.24	2018.05.23
LISN	812744	NSLK 8127	Schwarzbeck	2017.05.24	2018.05.23
Service Supplier	100448	CMU200	R&S	2017.05.24	2018.05.23
Pulse Limiter (20dB)	9391	VTSD 9561-D	Schwarzbeck	2017.05.24	2018.05.23
Coaxial cable(BNC) (30MHz-26GHz)	CB01	EMC01	Morlab	N/A	N/A

4.3Auxiliary Test Equipment

Equipment Name	Model No.	Brand Name	Manufacturer	Cal.Date	Cal.Due Date
Computer	T430i	Think Pad	Lenovo	N/A	N/A

4.4 Radiated Test Equipments

Equipment Name	Serial No.	Type	Manufacturer	Cal. Date	Cal.Due Date
System Simulator	GB45360846	8960-E5515C	Agilent	2017.05.17	2018.05.16
Receiver	MY54130016	N9038A	Agilent	2017.05.17	2018.05.16
Test Antenna - Bi-Log	N/A	VULB9163	Schwarzbeck	2016.12.09	2017.12.08
Test Antenna - Horn	9170C-531	BBHA9170	Schwarzbeck	2017.03.30	2018.03.29
Test Antenna - Loop	1519-022	FMZB1519	Schwarzbeck	2017.03.30	2018.03.29
Test Antenna - Horn	71688	BBHA 9120D	Schwarzbeck	2017.03.30	2018.03.29
Coaxial cable (N male) (9KHz-30MHz)	CB04	EMC04	Morlab	N/A	N/A
Coaxial cable (N male) (30MHz-26GHz)	CB02	EMC02	Morlab	N/A	N/A
Coaxial cable(N male) (30MHz-26GHz)	CB03	EMC03	Morlab	N/A	N/A
1-18GHz pre-Amplifier	MA02	TS-PR18	Rohde& Schwarz	2017.05.17	2018.05.16
18-26.5GHz pre-Amplifier	MA03	TS-PR18	Rohde& Schwarz	2017.05.17	2018.05.16
Climate Chamber	2004012	HL4003T	Yinhe	2017.01.11	2018.01.10
Vibration Table	N/A	ACT2000-S015L	CMI-COM	2017.01.11	2018.01.10
Anechoic Chamber	N/A	9m*6m*6m	Changning	2017.01.11	2018.01.10

END OF REPORT