REPORT No.: SZ24030292W03

TEST REPORT

APPLICANT	:	Shenzhen Xhorse Electronics Co., Ltd.
PRODUCT NAME	:	KEY TOOL MAX PRO
MODEL NAME	:	XDKMP0
BRAND NAME	:	Xhorse
FCC ID	:	2AI4T-XDKMP0
STANDARD(S)	:	47 CFR Part 15 Subpart C
RECEIPT DATE	:	2022-07-20
TEST DATE	:	2022-07-26 to 2024-05-30
ISSUE DATE	:	2024-07-10

Edited by: Peng Mi

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DIRECTORY

Change History		
Version	Date	Reason for change
1.0	2024-07-10	First edition

1. Technical Information

Note: Provide by applicant.

1.1. Applicant and Manufacturer Information

Applicant:	Shenzhen Xhorse Electronics Co., Ltd.
Applicant Address:	Floor 28, Block A, Building NO.6, international innovation Valley, Nanshan District, Shenzhen
Manufacturer:	Shenzhen Xhorse Electronics Co., Ltd.
Manufacturer Address:	Floor 28, Block A, Building NO.6, international innovation Valley, Nanshan District, Shenzhen

1.2. Equipment Under Test (EUT) Description

Product Name:	KEY TOOL MAX PRO	
Sample No.:	2#	
Hardware Version:	V3.0	
Software Version:	V1.5.1	
Modulation Technology:	DSSS, OFDM	
Modulation Mode:	802.11b, 802.11g, 802.11n (HT20)	
Operating Frequency Range:	802.11b/g/n (HT20): 2412 MHz–2462 MHz	
Antenna Type:	PCB Antenna	
Antenna Gain:	0.46 dBi	
Accessory Information:	Battery	
	Brand Name:	BAK
	Model No.:	G795260P
	Serial No.:	N/A
	Capacity:	3375 mAh
	Rated Voltage:	3.7 V
	Charge Limit:	4.2 V
	Manufacturer:	Zhengzhou BAK Battery Co., Ltd.

Note 1: This test report is variant from the original report (Report No.: SZ22070187W03, Model: XDKMP0), based on the similarity between before, the differences with before as below:

1. Some optocoupler devices are reduced, their position is U803, U806, U810, U804, U808, U809, and added 0 ohm resistance. Their modifications are only related to OBD-related functionality, it has nothing to do with wireless functions.
2. Modified the logic device U704 is added in the 125 kHz acquisition and receiving part, and some devices are not welded (U701, C724, C725), and the corresponding principle is modified.
3. Update the software version and hardware version.

There is no other change. The appearance, all RF parameters and circuits remain the same as before.

Note 2: 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. Modulation Type and Data Rate of EUT

Modulation Technology	Modulation Type	Data Rate (Mbps) Note1
DSSS (802.11b)	DBPSK	**1**
	DQPSK	2
	CCK	5.5/ 11
OFDM (802.11g)	BPSK	**6** / 9
	QPSK	12 / 18
	16QAM	24 / 36
	64QAM	48 / 54
OFDM (802.11n (HT20))	BPSK	**6.5**
	QPSK	13/19.5
	16QAM	26/39
	64QAM	52/58.5/65

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)	**1**	**2412**	8	2447
	2	2417	9	2452
	3	2422	10	2457
	4	2427	**11**	**2462**
	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$_{Note1}$	No deviation
2	N/A	Duty Cycle of Test Signal	Jul. 26, 2022	He Yuyang	PASS$_{Note1}$	No deviation
3	15.247(b)	Maximum Peak and Average Conducted Output Power	Aug. 02, 2022 May 30, 2024	He Yuyang	PASS$_{Note1}$	No deviation
4	15.247(a)	Bandwidth	Aug. 08, 2022	He Yuyang	PASS$_{Note1}$	No deviation
5	15.247(d)	Conducted Spurious Emission and Band Edge	Aug. 08, 2022	He Yuyang	PASS$_{Note1}$	No deviation
6	15.247(e)	Power Spectral Density	Aug. 11, 2022	He Yuyang	PASS$_{Note1}$	No deviation
7	15.207	Conducted Emission	Jul. 30, 2022	Wu Zhaoling	PASS$_{Note1}$	No deviation
8	15.247(d)	Restricted Frequency Bands	Aug. 03, 2022	Gao Jianrou	PASS$_{Note1}$	No deviation
9	15.209, 15.247(d)	Radiated Emission	Aug. 01, 2022	Gao Jianrou	PASS$_{Note1}$	No deviation

Note 1: The test results of these test items in this report refer to the test report (Report No.: SZ22070187W03).

Note 2: The tests were performed according to the method of measurements prescribed in ANSI

C63.10-2013, KDB 558074 D01 v05r02.

Note 3: The path loss during the RF test is calibrated to correct the results by the offset setting in the test equipment. The ref offset 11.5 dB contains two parts that cable loss 1.5 dB and Attenuator 10 dB.

Note 4: 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 5: 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

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

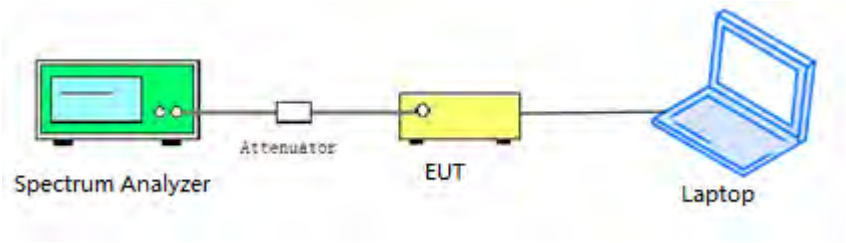
2.2. Duty Cycle of Test Signal

2.2.1. Requirement

Preferably, all measurements of maximum conducted (average) output power will be performed with the EUT transmitting continuously (i.e., with a duty cycle of greater than or equal to 98%). When continuous operation cannot be realized, then the use of sweep triggering/signal gating techniques can be used to ensure that measurements are made only during transmissions at the maximum power control level. Such sweep triggering/signal gating techniques will require knowledge of the minimum transmission duration (T) over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation. Sweep triggering/signal gating techniques can then be used if the measurement/sweep time of the analyzer can be set such that it does not exceed T at any time that data are being acquired (i.e., no transmitter OFF-time is to be considered).
When continuous transmission cannot be achieved and sweep triggering/signal gating cannot be implemented, alternative procedures are provided that can be used to measure the average power; however, they will require an additional measurement of the transmitter duty cycle (D). Within this subclause, the duty cycle refers to the fraction of time over which the transmitter is ON and is transmitting at its maximum power control level. The duty cycle is considered to be constant if variations are less than ±2%; otherwise, the duty cycle is considered to be nonconstant.

2.2.2. Test Description

Test Setup:



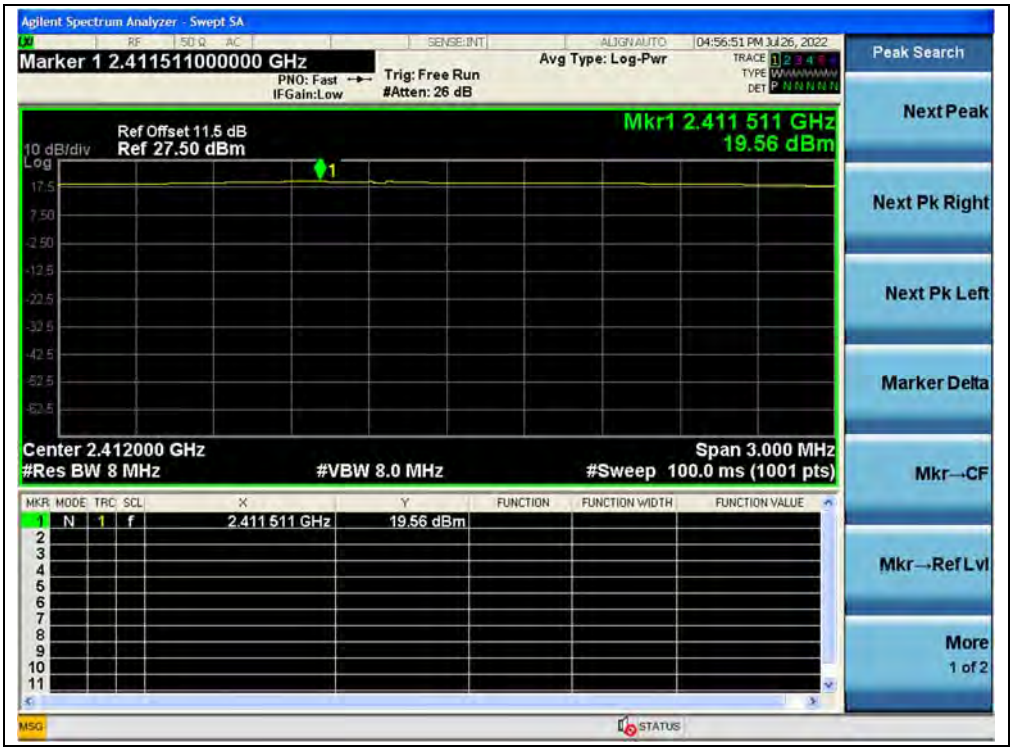
ANSI C63.10 2013 Clause 11.6 was used in order to prove compliance.

2.2.3. Test Result

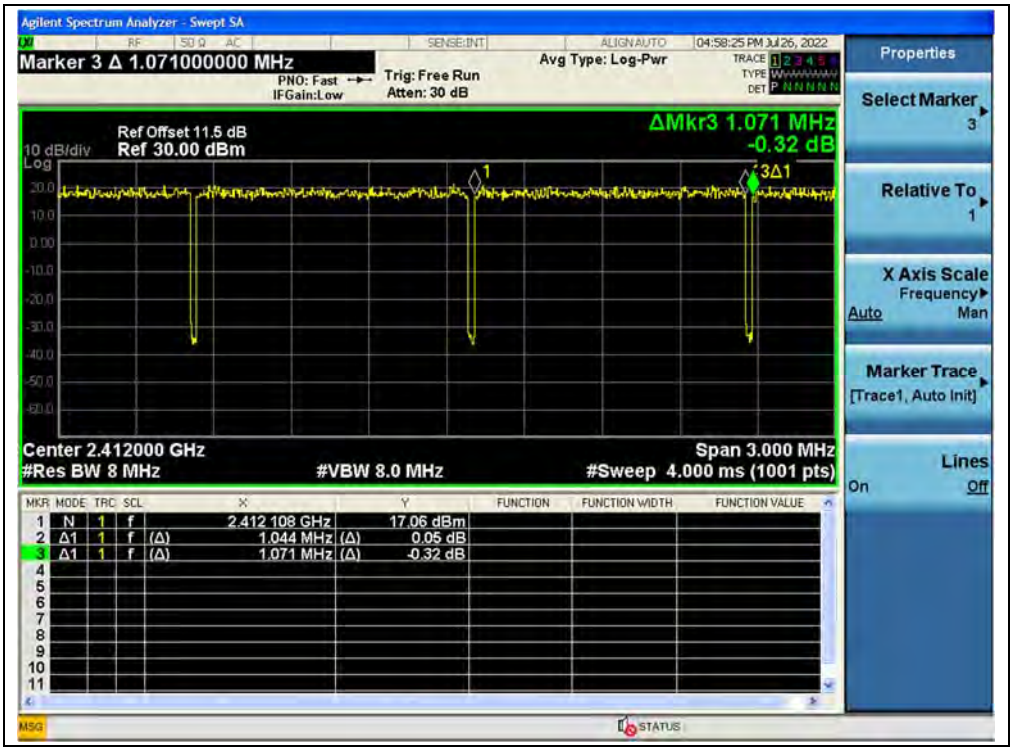
A. Test Verdict:

Test Mode	Duty Cycle (%) (D)	Duty Factor (10*lg[1/D])
802.11b	100.00	0.00
802.11g	97.48	0.11
802.11n (HT20)	97.31	0.12

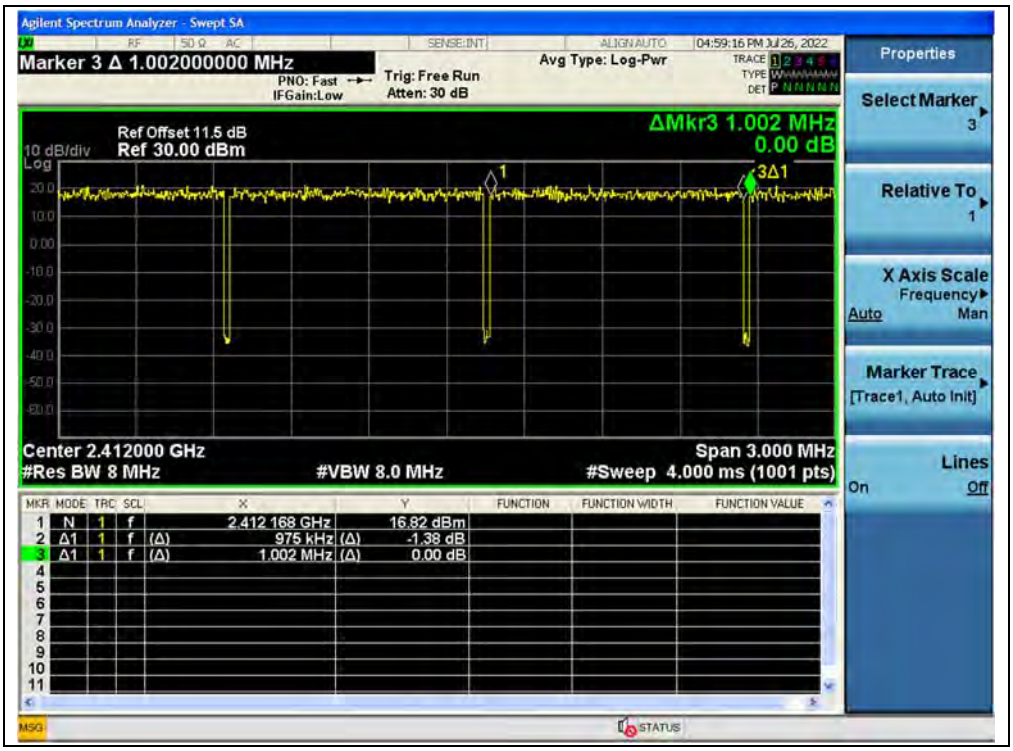
B. Test Plot:



(Channel 1, 802.11b)



(Channel 1, 802.11g)



(Channel 1, 802.11n (HT20))

2.3. Maximum Peak and Average Conducted Output Power

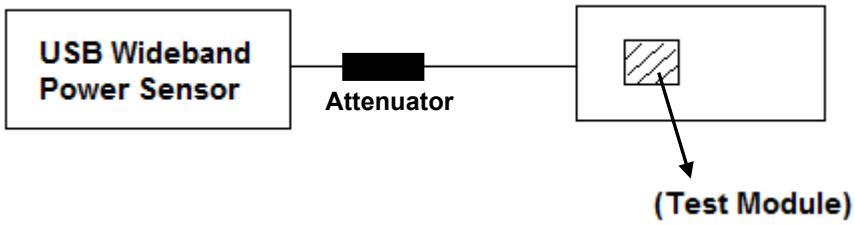
2.3.1. Requirement

According to FCC section 15.247(b)(3), For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: The maximum peak conducted output power of the intentional radiator shall not 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 50 Ohm; the path loss as the factor is calibrated to correct the reading.

2.3.3. Test Result

Maximum Peak Conducted Output Power

802.11b Mode

Channel	Frequency (MHz)	Measured Output Peak Power		Limit		Verdict
		dBm	W	dBm	W	
1	2412	16.31	0.043	30	1	PASS
6	2437	16.82	0.048			PASS
11	2462	16.46	0.044			PASS

802.11g Mode

Channel	Frequency (MHz)	Measured Output Peak Power		Limit		Verdict
		dBm	W	dBm	W	
1	2412	**22.23**	**0.167**	30	1	PASS
6	2437	21.98	0.158			PASS
11	2462	22.01	0.159			PASS

802.11n (HT20) Mode

Channel	Frequency (MHz)	Measured Output Peak Power		Limit		Verdict
		dBm	W	dBm	W	
1	2412	21.93	0.156	30	1	PASS
6	2437	21.71	0.148			PASS
11	2462	21.14	0.130			PASS

Maximum Average Conducted Output Power

802.11b Mode

Channel	Frequency (MHz)	Average Power				Limit		Verdict
		Measured	Duty Factor	Duty Factor Calculated		Limit		Verdict
		dBm		dBm	W	dBm	W	
1	2412	13.72	0.00	13.72	0.024	30	1	PASS
6	2437	13.71		13.71	0.023			PASS
11	2462	13.09		13.09	0.020			PASS

802.11g Mode

Channel	Frequency (MHz)	Average Power				Limit		Verdict
		Measured	Duty Factor	Duty Factor Calculated		Limit		Verdict
		dBm		dBm	W	dBm	W	
1	2412	13.91	0.11	**14.02**	**0.025**	30	1	PASS
6	2437	13.79		13.90	0.025			PASS
11	2462	13.47		13.58	0.023			PASS

802.11n (HT20) Mode

Channel	Frequency (MHz)	Average Power				Limit		Verdict
		Measured	Duty Factor	Duty Factor Calculated		Limit		Verdict
		dBm		dBm	W	dBm	W	
1	2412	13.21	0.12	13.33	0.022	30	1	PASS
6	2437	13.76		13.88	0.024			PASS
11	2462	13.46		13.58	0.023			PASS

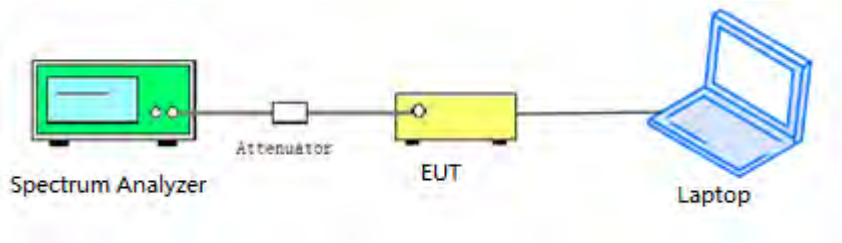
2.4. Bandwidth

2.4.1. Requirement

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

2.4.2. Test Description

Test Setup:



The EUT is coupled to the Spectrum Analyzer; the RF load attached to the EUT antenna terminal is 50 Ohm; 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	9.56	≥500	PASS
6	2437	9.56	≥500	PASS
11	2462	10.03	≥500	PASS

B. Test Plot:

(Channel 1, 802.11b)

(Channel 6, 802.11b)

(Channel 11, 802.11b)

802.11g Mode

A. Test Verdict:

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limits (kHz)	Result
1	2412	15.03	≥500	PASS
6	2437	15.33	≥500	PASS
11	2462	15.12	≥500	PASS

B. Test Plot:

(Channel 1, 802.11g)

(Channel 6, 802.11g)

(Channel 11, 802.11g)

802.11n (HT20) Mode

A. Test Verdict:

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limits (kHz)	Result
1	2412	15.08	≥500	PASS
6	2437	16.06	≥500	PASS
11	2462	15.12	≥500	PASS

B. Test Plot:

(Channel 1, 802.11n (HT20))

(Channel 6, 802.11n (HT20))

(Channel 11, 802.11n (HT20))

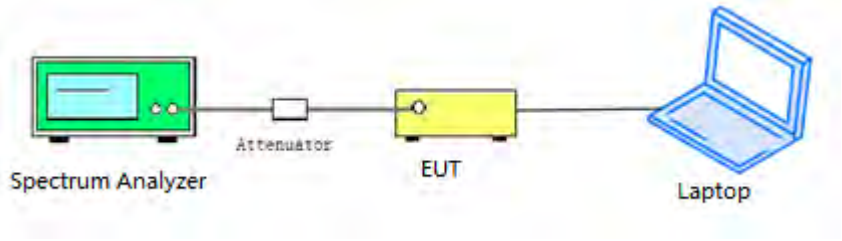
2.5. Conducted Spurious Emissions and Band Edge

2.5.1. Requirement

According to FCC section 15.247(c), in any 100 kHz 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 20 dB below that in the 100 kHz 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 50 Ohm; 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

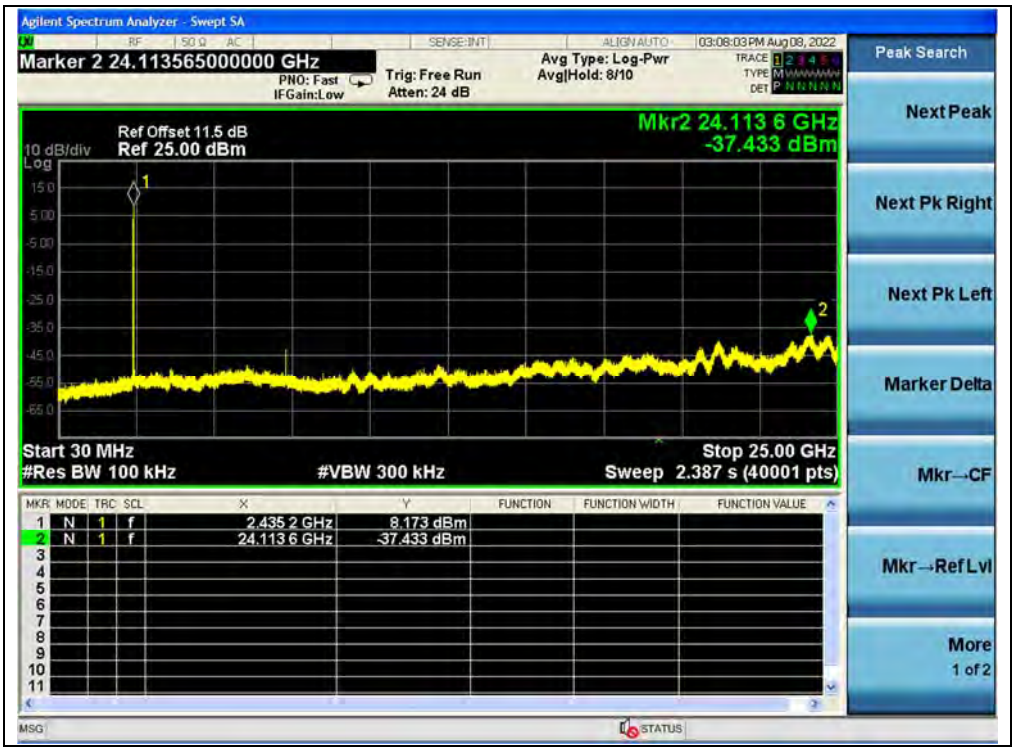
A. Test Verdict:

Channel	Frequency (MHz)	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
			Carrier Level	Calculated -20 dBc Limit	
1	2412	-36.53	7.84	-12.16	PASS
6	2437	-37.43	8.17	-11.83	PASS
11	2462	-37.15	7.47	-12.53	PASS

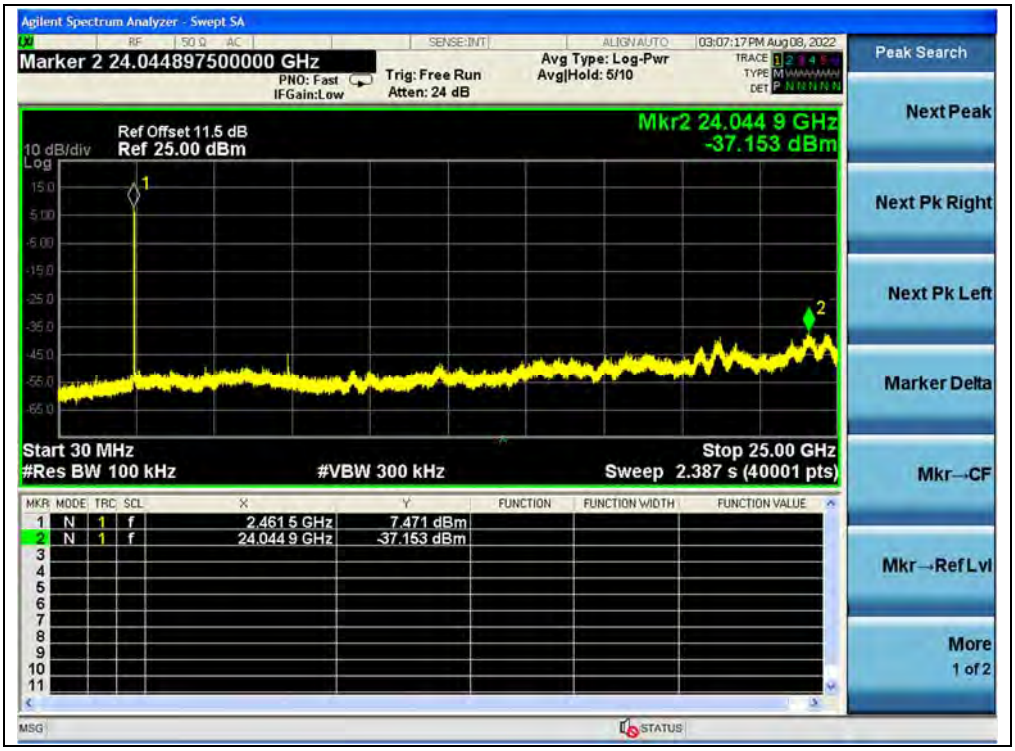
B. Test Plot:

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

(Band Edge, Channel 1, 802.11b)



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



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

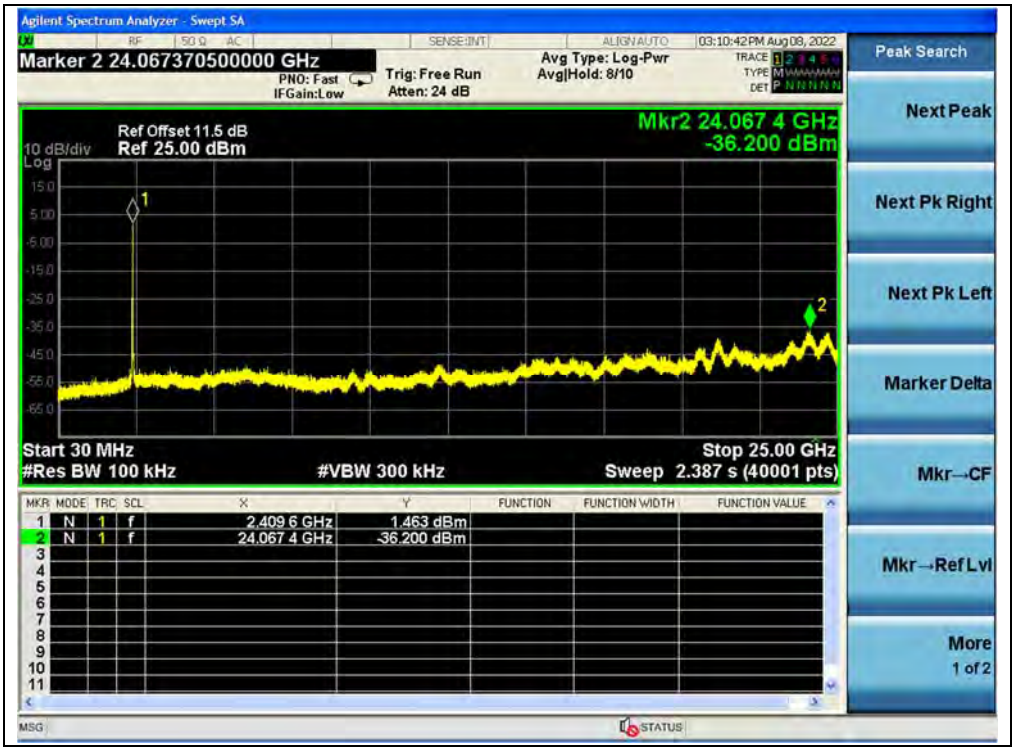
(Band Edge, Channel 11, 802.11b)

802.11g Mode

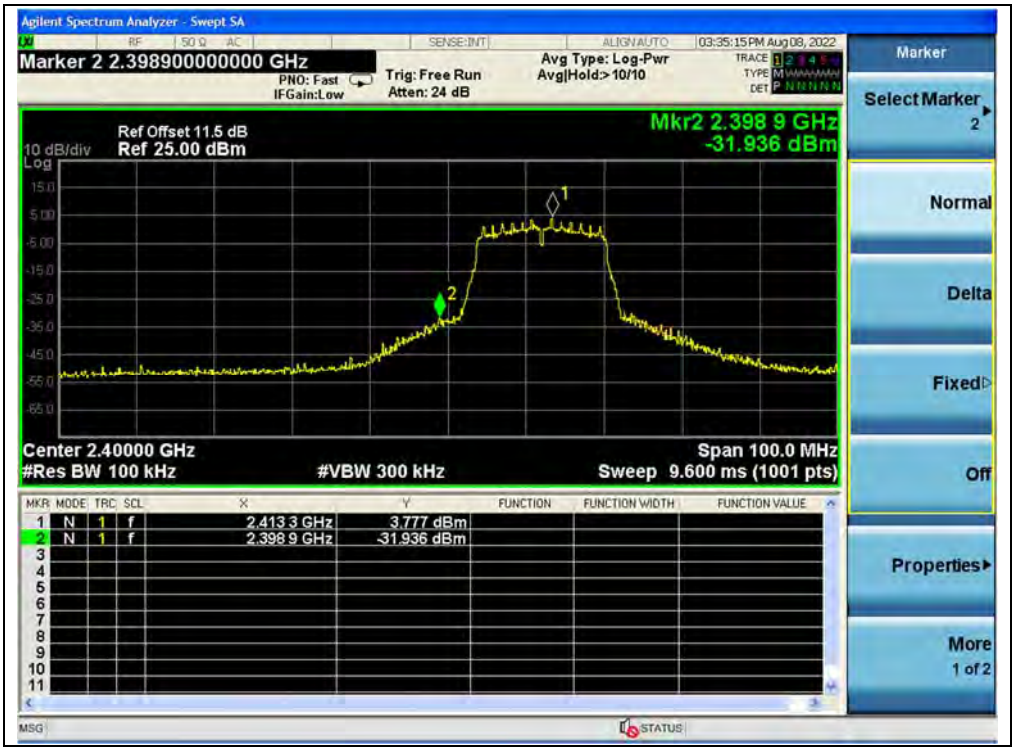
A. Test Verdict:

Channel	Frequency (MHz)	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
			Carrier Level	Calculated -20 dBc Limit	
1	2412	-36.20	1.46	-18.54	PASS
6	2437	-35.16	2.43	-17.57	PASS
11	2462	-35.58	2.02	-17.98	PASS

B. Test Plot:

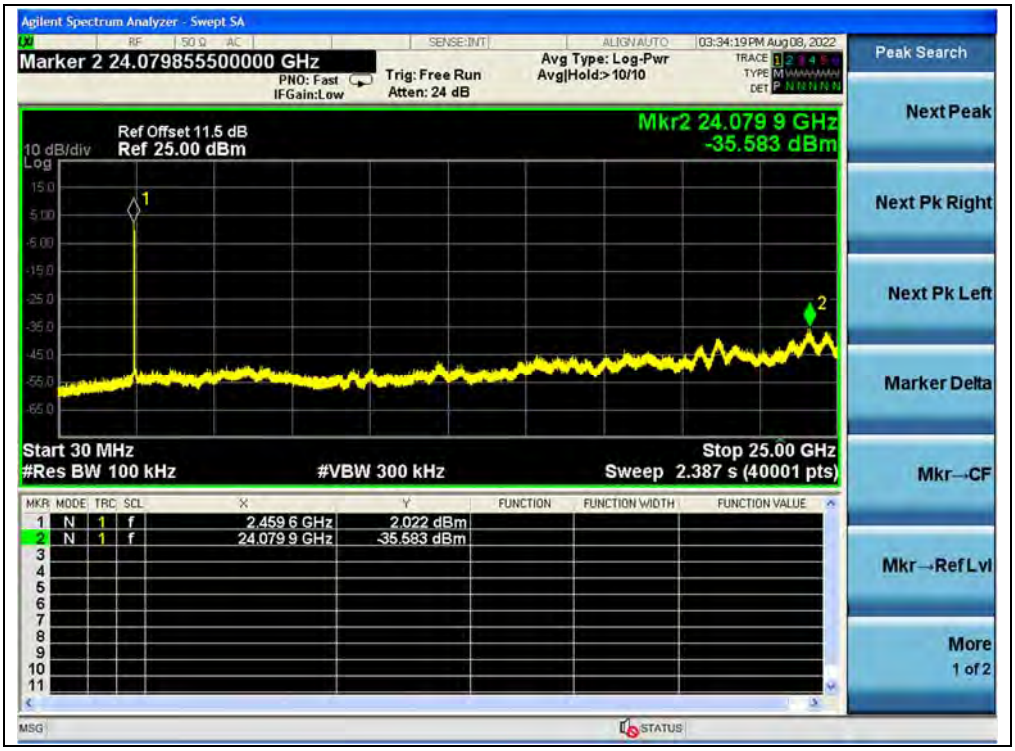


(30 MHz to 25 GHz, Channel 1, 802.11g)



(Band Edge, Channel 1, 802.11g)

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



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

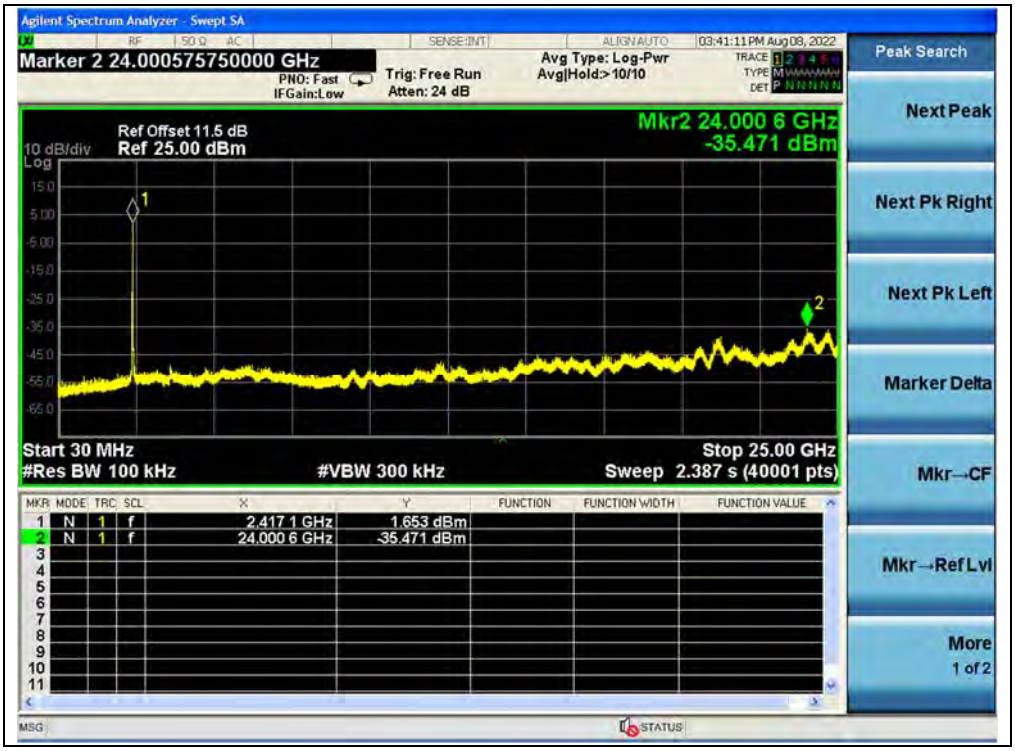
(Band Edge, Channel 11, 802.11g)

802.11n (HT20) Mode

A. Test Verdict:

Channel	Frequency (MHz)	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
			Carrier Level	Calculated -20 dBc Limit	
1	2412	-35.47	1.65	-18.35	PASS
6	2437	-36.48	2.07	-17.93	PASS
11	2462	-36.64	-0.15	-20.15	PASS

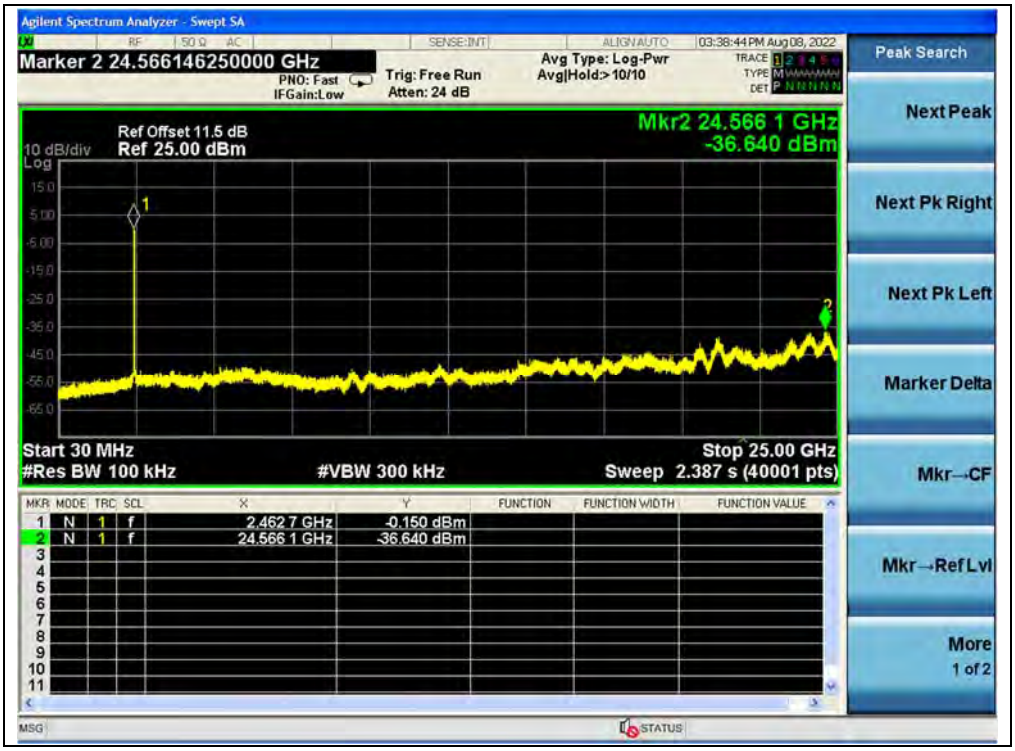
B. Test Plot:



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

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

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



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

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

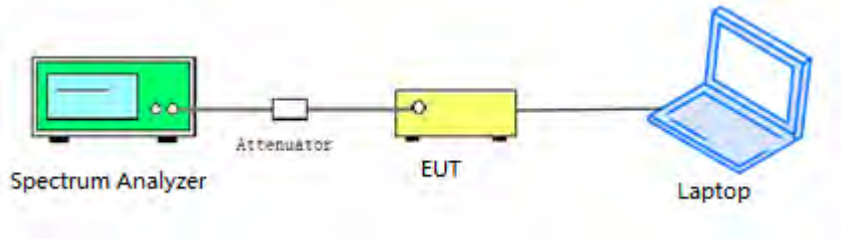
2.6. Power Spectral Density

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 8 dBm 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 50 Ohm; the path loss as the factor is calibrated to correct the reading.

2.6.3. Test Procedure

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

2.6.4. Test Result

802.11b Mode

A. Test Verdict:

Spectral Power Density (dBm/3 kHz)				
Channel	Frequency (MHz)	Measured PSD (dBm/3 kHz)	Limit (dBm/3 kHz)	Verdict
1	2412	-3.32	8	PASS
6	2437	-3.40	8	PASS
11	2462	-4.72	8	PASS

B. Test Plot:

(Channel 1, 802.11b)

(Channel 6, 802.11b)

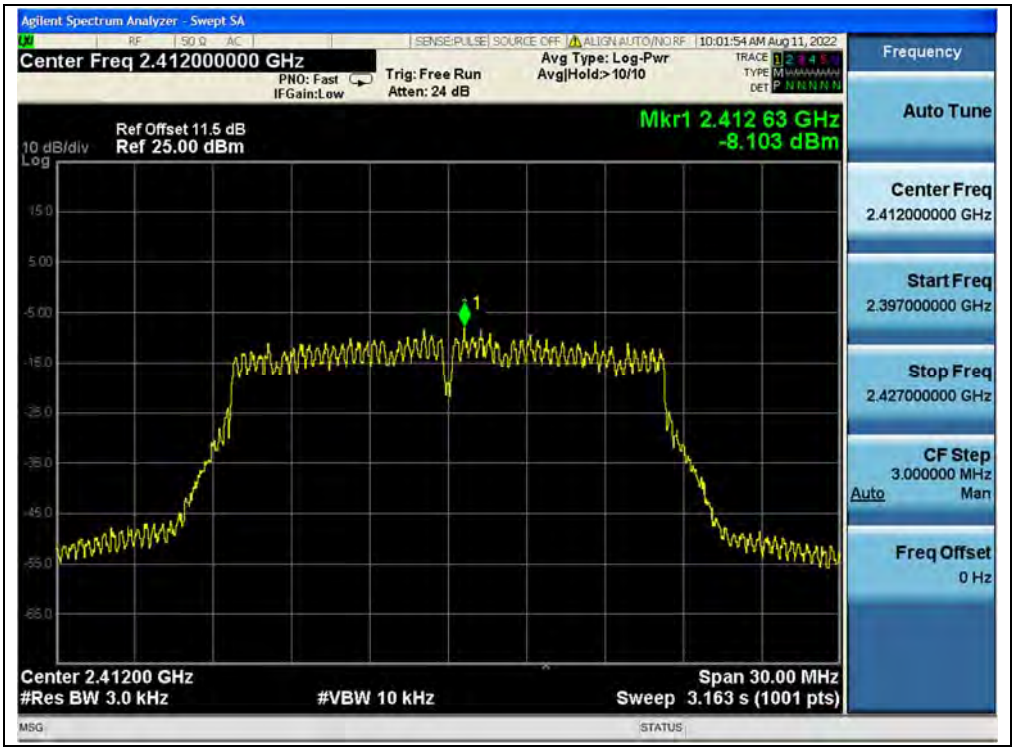
(Channel 11, 802.11b)

802.11g Mode

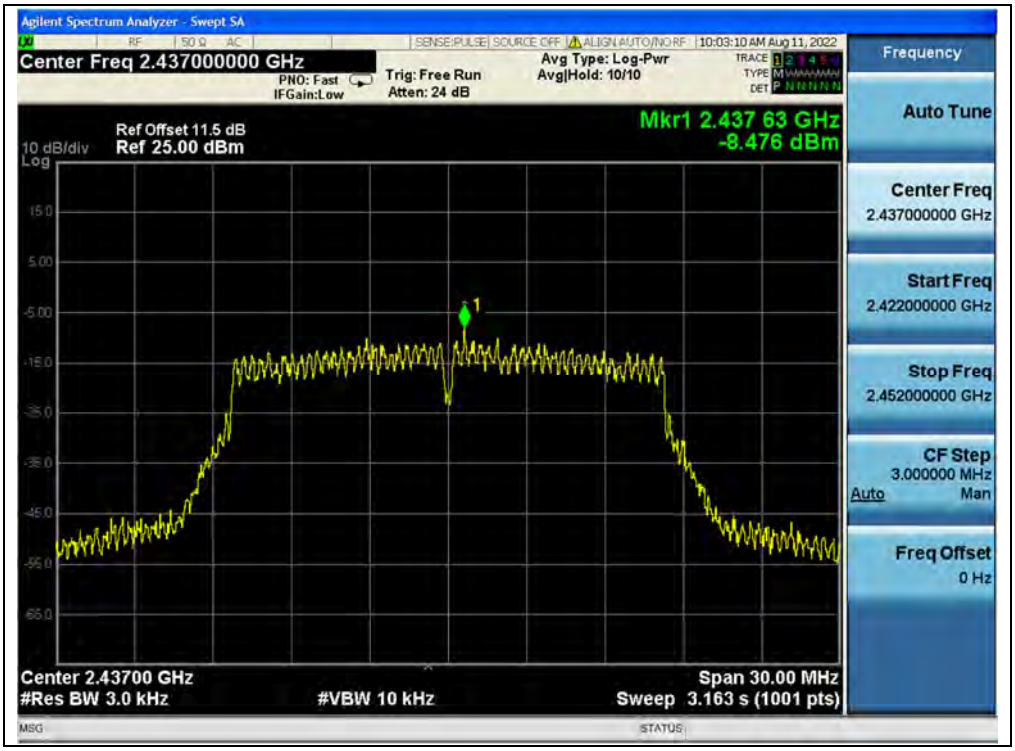
A. Test Verdict:

Spectral Power Density (dBm/3 kHz)				
Channel	Frequency (MHz)	Measured PSD (dBm/3 kHz)	Limit (dBm/3 kHz)	Verdict
1	2412	-8.10	8	PASS
6	2437	-8.48	8	PASS
11	2462	-8.94	8	PASS

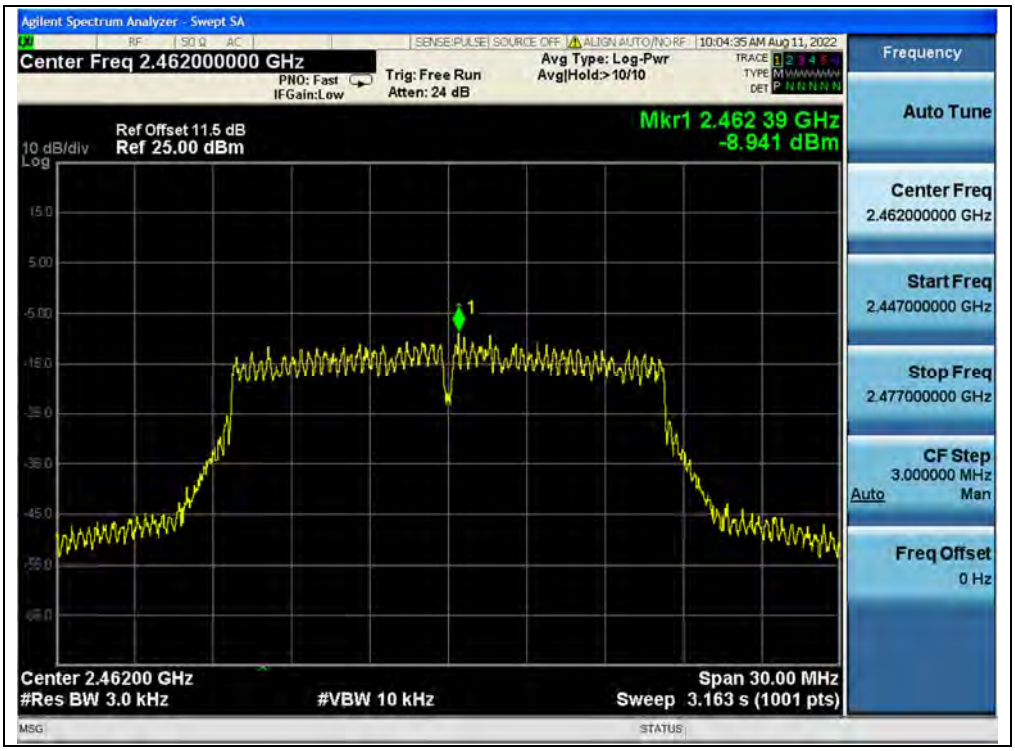
B. Test Plot:



(Channel 1, 802.11g)



(Channel 6, 802.11g)



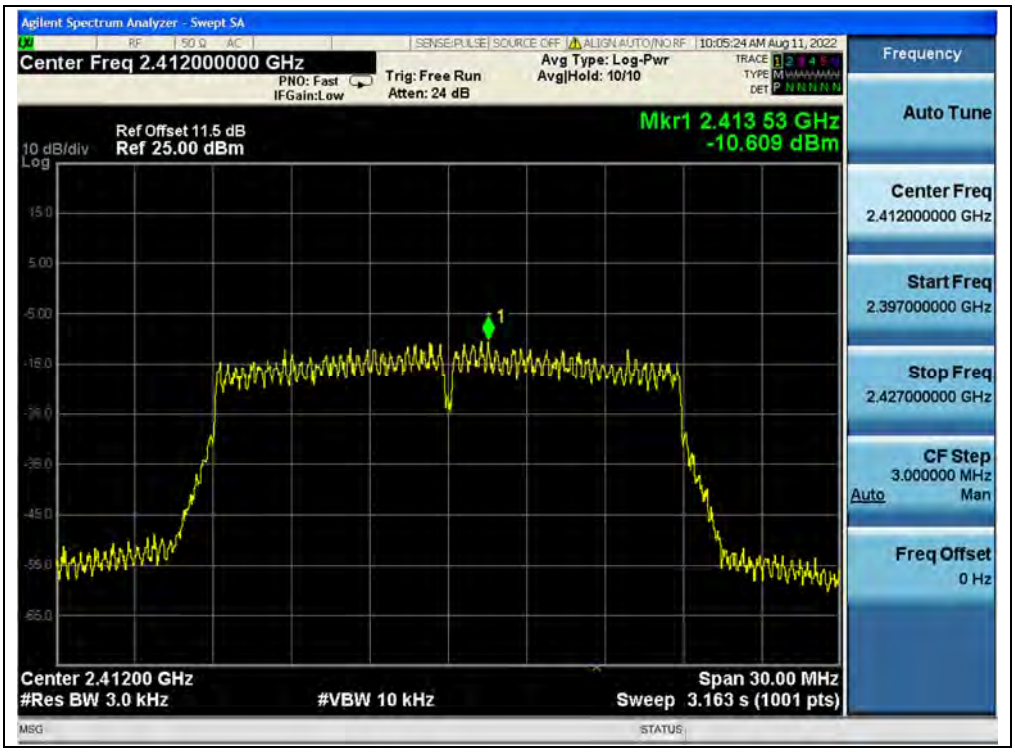
(Channel 11, 802.11g)

802.11n (HT20) Mode

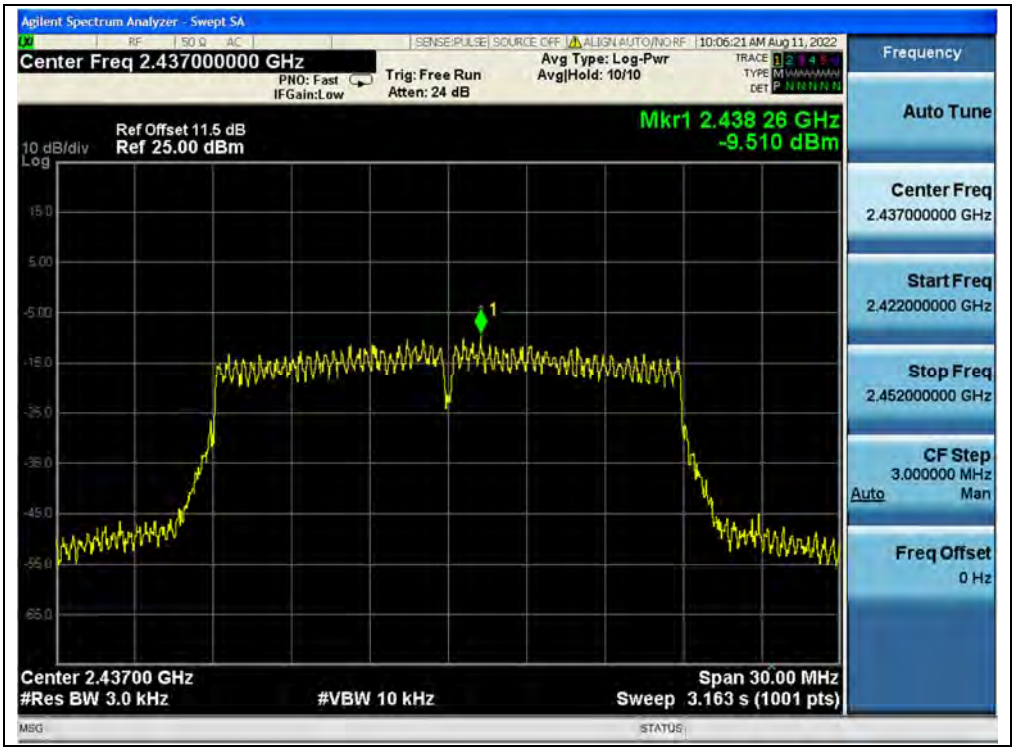
A. Test Verdict:

Spectral Power Density (dBm/3 kHz)				
Channel	Frequency (MHz)	Measured PSD (dBm/3 kHz)	Limit (dBm/3 kHz)	Verdict
1	2412	-10.61	8	PASS
6	2437	-9.51	8	PASS
11	2462	-10.61	8	PASS

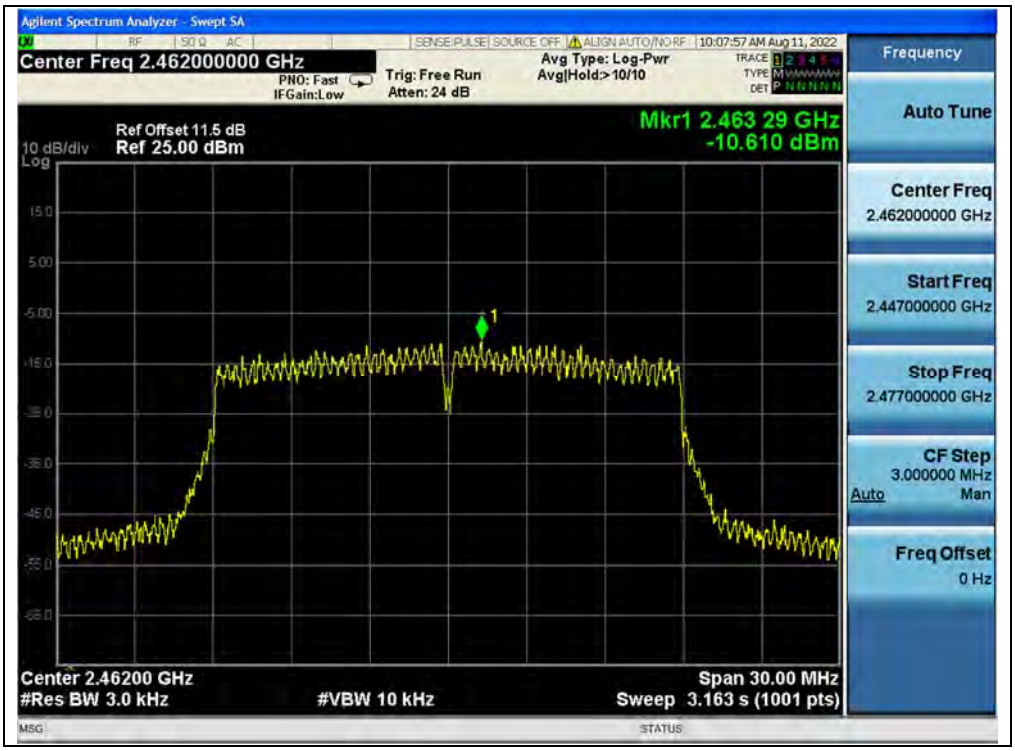
B. Test Plot:



(Channel 1, 802.11n (HT20))



(Channel 6, 802.11n (HT20))



(Channel 11, 802.11n (HT20))

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 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μH/50 Ω 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

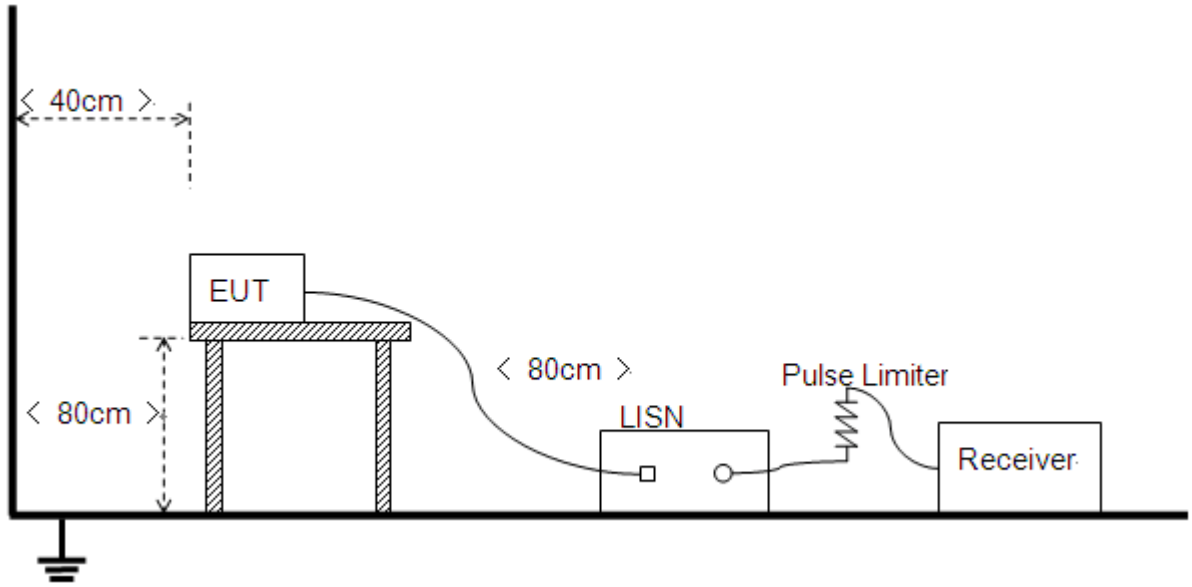
NOTE:

(a) The lower limit shall apply at the band edges.

(b) The limit decreases linearly with the logarithm of the frequency in the range 0.15–0.50 MHz.

2.7.2. Test Description

Test Setup:



The Table-top EUT was placed upon a non-metallic table 0.8 m above the horizontal metal reference ground plane. EUT was connected to LISN and LISN was connected to reference Ground Plane. EUT was 80 cm 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 = 9 kHz, VBW = 30 kHz. Refer to recorded points and plots below.

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

A. Test Setup:

Test Mode: EUT + Adapter + WIFI TX

Test Voltage: AC 120 V/60 Hz

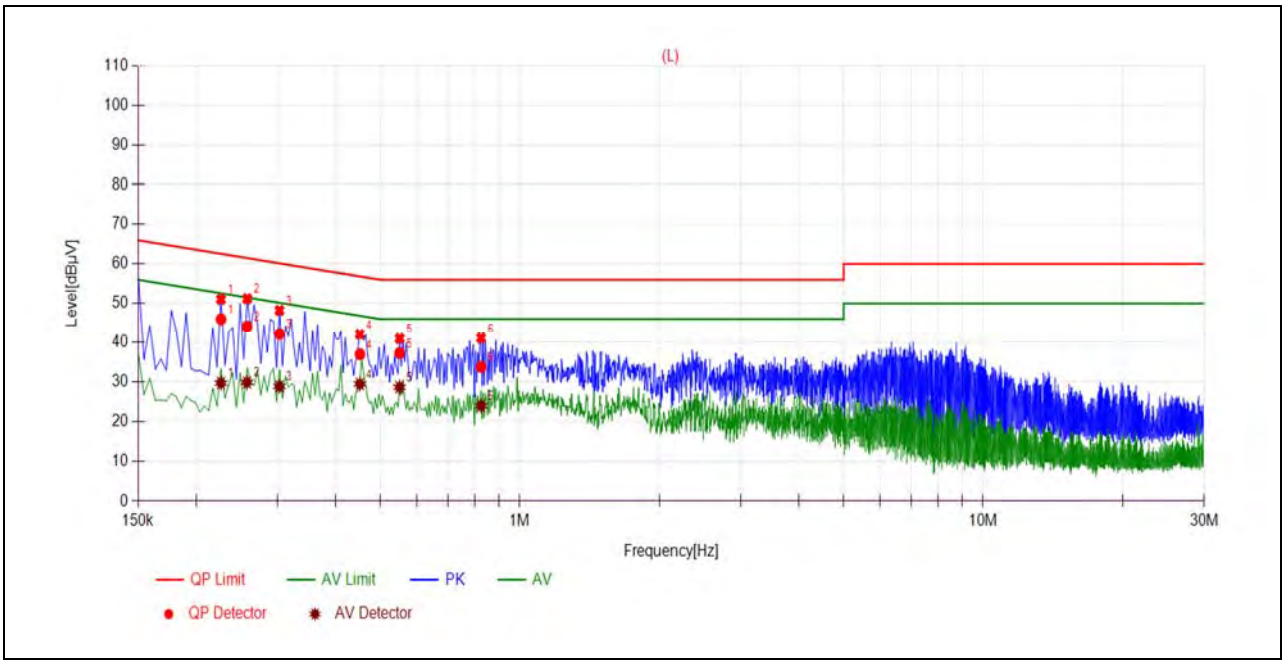
The measurement results are obtained as below:

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

U_R: Receiver Reading

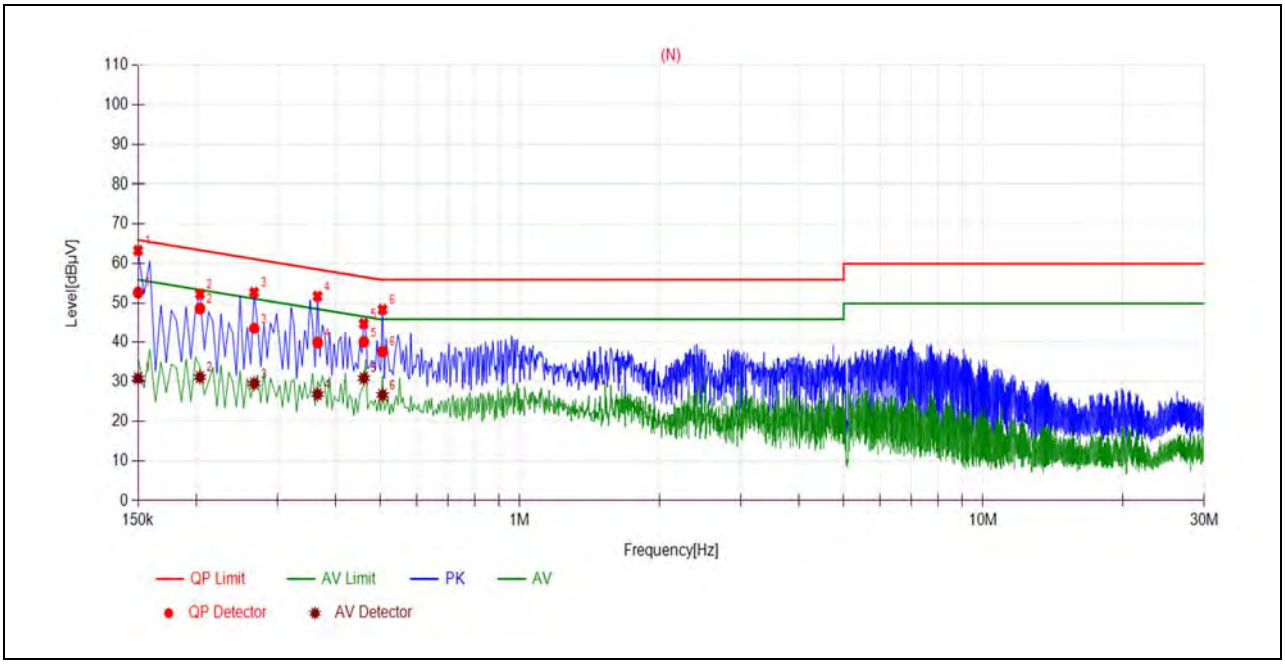
A_{Factor}: Voltage division factor of LISN

B. Test Plot:



(L Phase)

No.	Fre. (MHz)	Emission Level (dBµV)		Limit (dBµV)		Power-line	Verdict
		Quai-peak	Average	Quai-peak	Average		
1	0.2265	45.97	29.65	62.58	52.58	Line	PASS
2	0.2578	44.11	29.83	61.50	51.50		PASS
3	0.3029	42.16	28.83	60.16	50.16		PASS
4	0.4518	36.95	29.40	56.84	46.84		PASS
5	0.5501	37.24	28.60	56.00	46.00		PASS
6	0.8253	33.76	23.92	56.00	46.00		PASS



(N Phase)

No.	Fre. (MHz)	Emission Level (dBµV)		Limit (dBµV)		Power-line	Verdict
		Quai-peak	Average	Quai-peak	Average		
1	0.1500	52.73	30.84	66.00	56.00	Neutral	PASS
2	0.2040	48.71	31.11	63.45	53.45		PASS
3	0.2671	43.63	29.52	61.21	51.21		PASS
4	0.3661	39.87	26.80	58.59	48.59		PASS
5	0.4607	40.07	30.86	56.68	46.68		PASS
6	0.5056	37.60	26.61	56.00	46.00		PASS

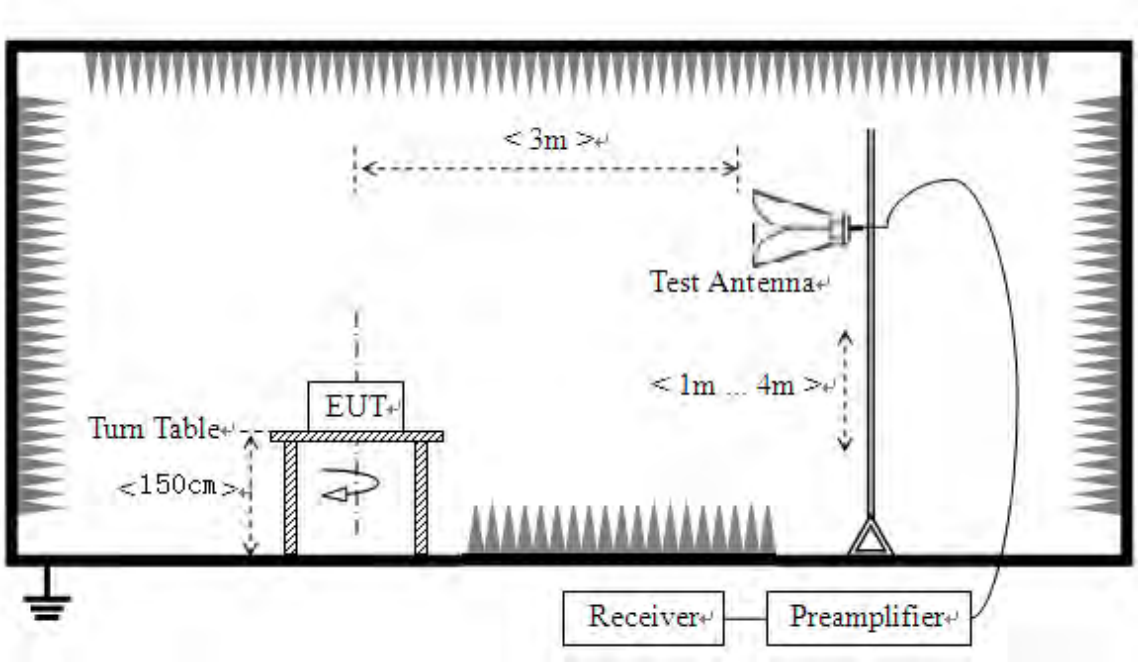
2.8. Restricted Frequency Bands

2.8.1. Requirement

According to FCC section 15.247(d), in any 100 kHz 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 20 dB below that in the 100 kHz 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 3 m 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 3 m away from the EUT. Test Antenna height is varied from 1 m to 4 m above the ground to determine the maximum value of the field strength.

2.8.3. Test Procedure

Span = wide enough to fully capture the emission being measured
RBW = 1 MHz for f ≥ 1 GHz, 100 kHz for f < 1 GHz
VBW = 3 MHz
Sweep = auto
Detector function = peak/average
Trace = max hold

Allow the trace to stabilize

2.8.4. Test Result

The lowest and highest channels are tested to verify Restricted Frequency Bands.
The measurement results are obtained as below:
$E\ [dB\mu V/m] = U_R + A_T + A_{Factor}\ [dB]$; $A_T = L_{Cable\ loss}\ [dB] - G_{preamp}\ [dB]$
A_T: Total correction Factor except Antenna
U_R: Receiver Reading
G_{preamp}: Preamplifier Gain
A_{Factor}: Antenna Factor at 3 m

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 PK/ AV	Receiver Reading U_R (dBμV)	A_T (dB)	A_{Factor} (dB@3m)	Max. Emission E (dBμV/m)	Limit (dBμV/m)	Verdict
1	2331.63	PK	24.68	6.74	27.20	58.62	74	PASS
1	2390.00	AV	13.54	6.74	27.20	47.48	54	PASS
11	2484.43	PK	23.88	6.74	27.20	57.82	74	PASS
11	2483.50	AV	13.53	6.74	27.20	47.47	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)

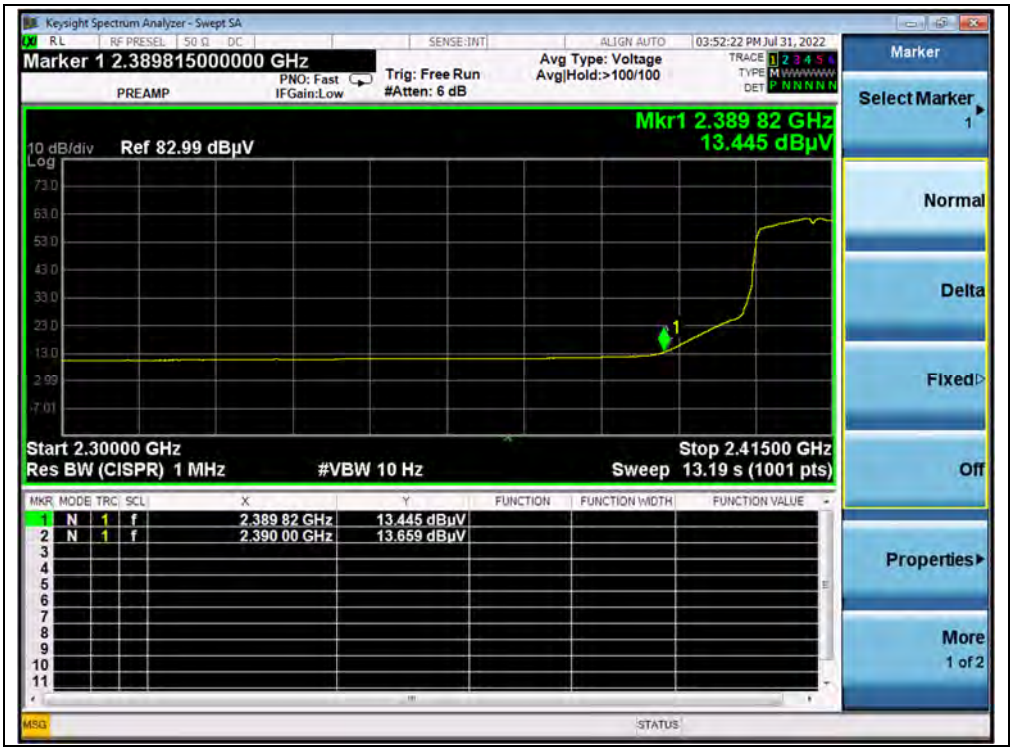
802.11g Mode

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	2390.00	PK	26.90	6.74	27.20	60.84	74	PASS
1	2390.00	AV	13.66	6.74	27.20	47.60	54	PASS
11	2483.83	PK	32.67	6.74	27.20	66.61	74	PASS
11	2483.50	AV	16.52	6.74	27.20	50.46	54	PASS

B. Test Plot:

(PEAK, Channel 1, 802.11g)



(AVERAGE, Channel 1, 802.11g)

(PEAK, Channel 11, 802.11g)

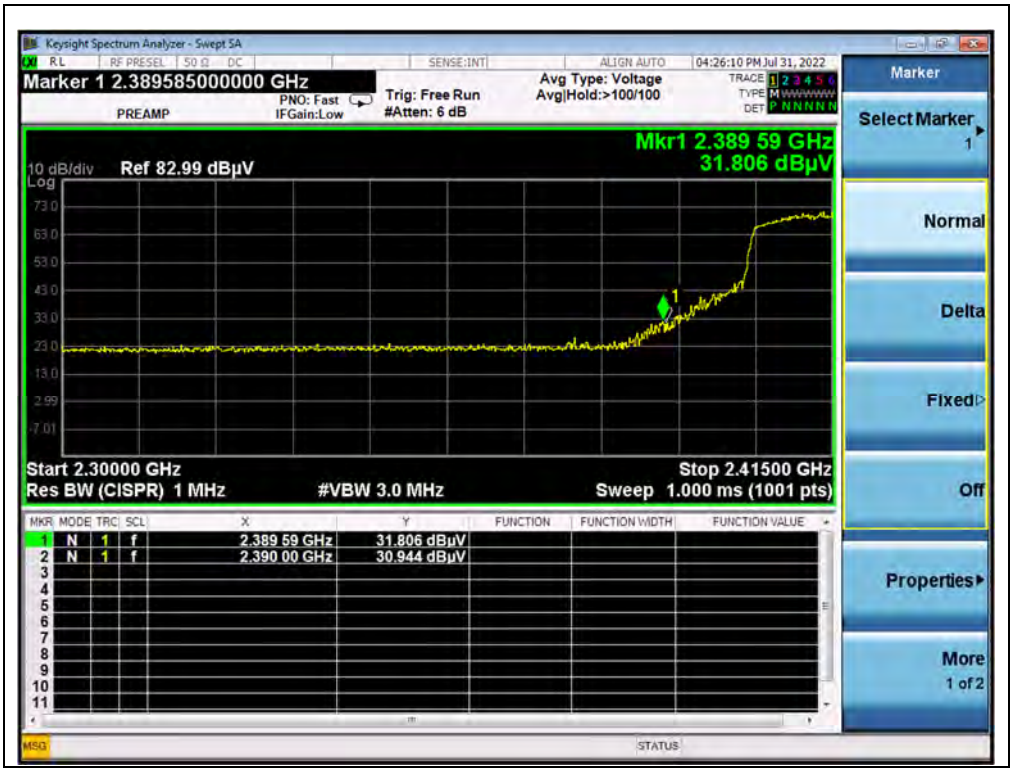
(AVERAGE, Channel 11, 802.11g)

802.11n (HT20) Mode

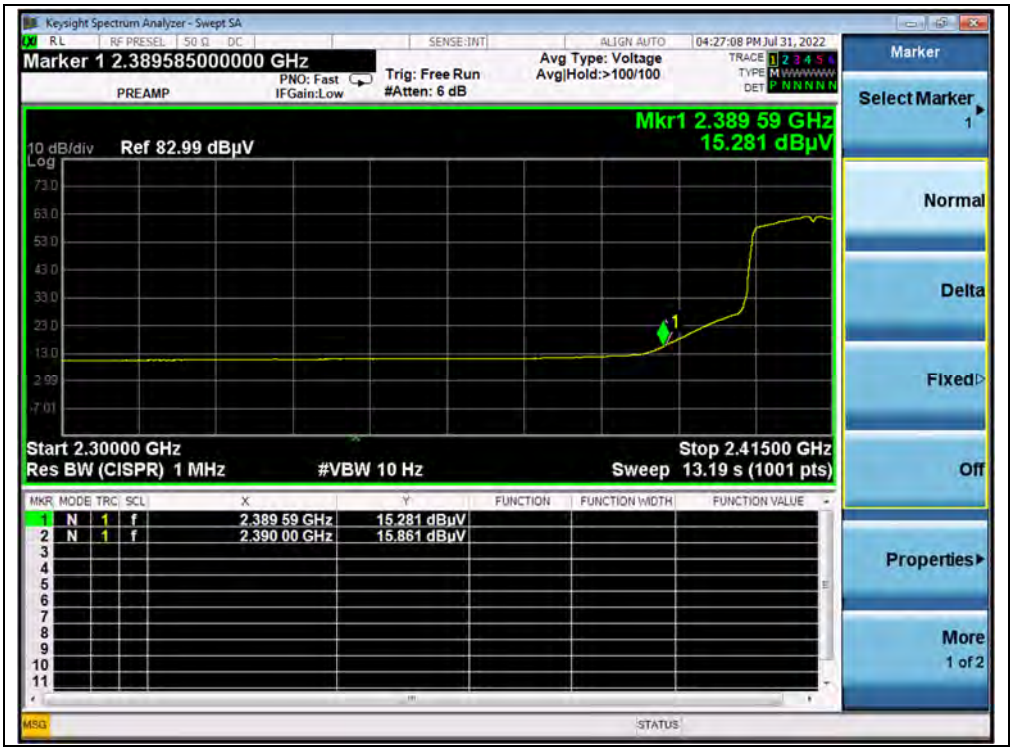
A. Test Verdict:

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	2389.59	PK	31.81	6.74	27.20	65.75	74	PASS
1	2390.00	AV	15.86	6.74	27.20	49.80	54	PASS
11	2483.73	PK	38.15	6.74	27.20	72.09	74	PASS
11	2483.50	AV	17.90	6.74	27.20	51.84	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))

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:

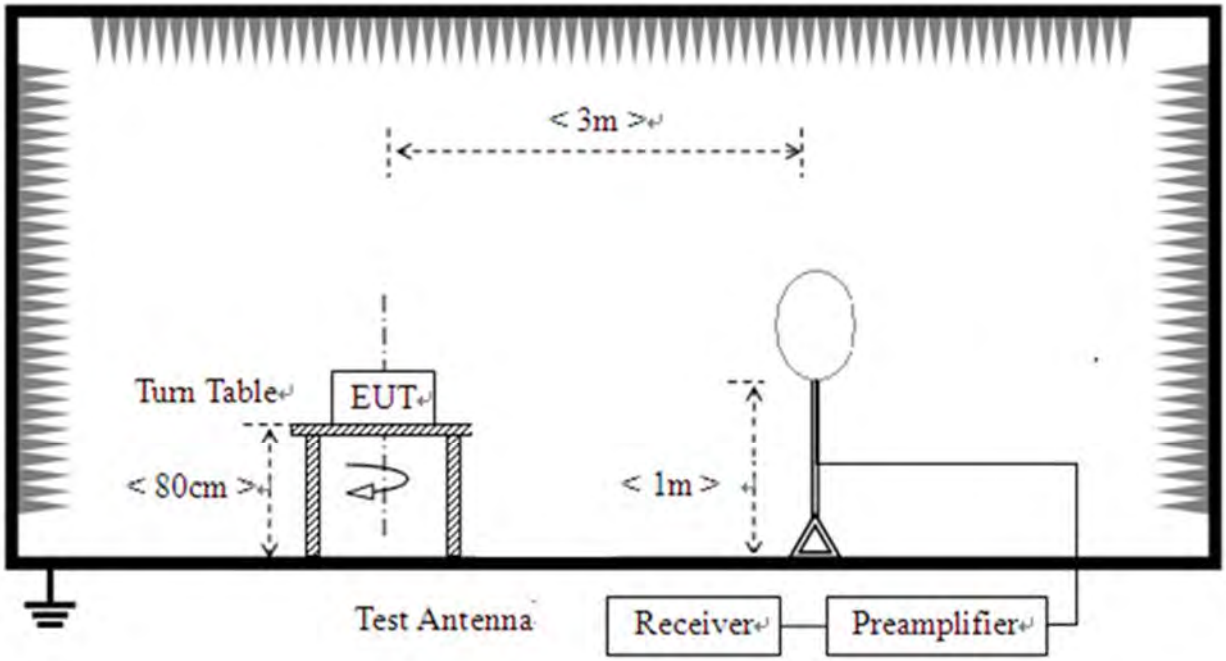
Frequency (MHz)	Field Strength (μV/m)	Measurement Distance (m)
0.009–0.490	2400/F (kHz)	300
0.490–1.705	24000/F (kHz)	30
1.705–30.0	30	30
30–88	100	3
88–216	150	3
216–960	200	3
Above 960	500	3

Note1: For above 1000 MHz, 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 20 dB above the maximum permitted average limit.
Note2: For above 1000 MHz, limit field strength of harmonics: 54 dBuV/m@3 m (AV) and 74 dBuV/m@3 m (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).

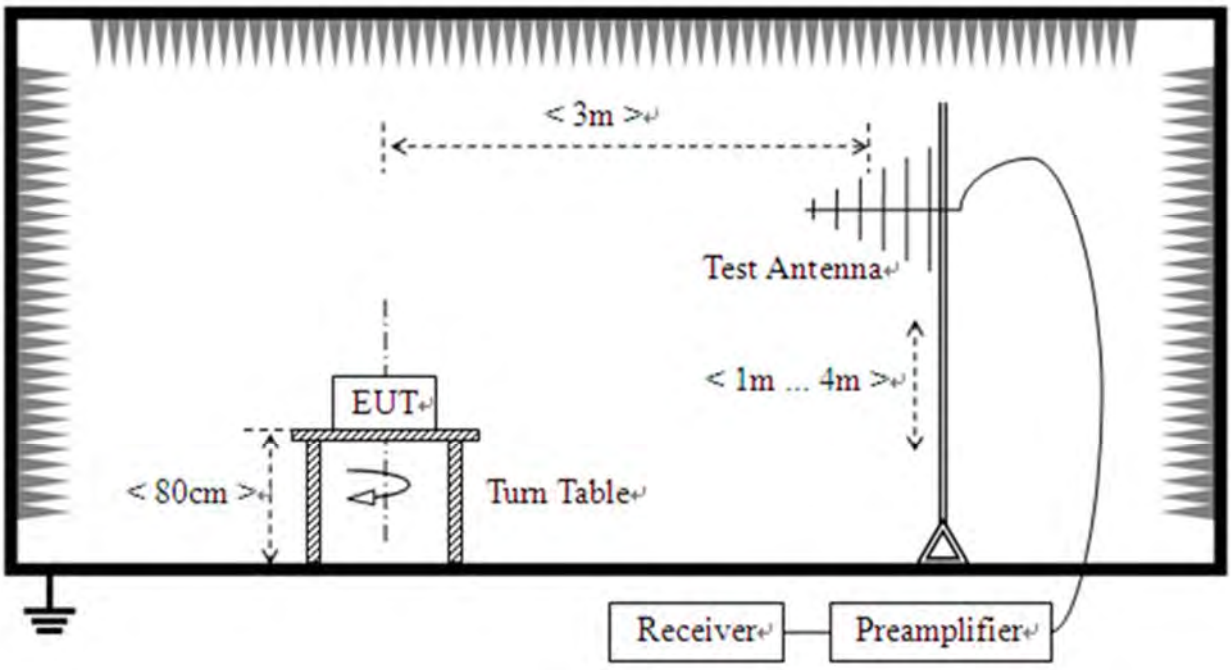
2.9.2. Test Description

Test Setup:

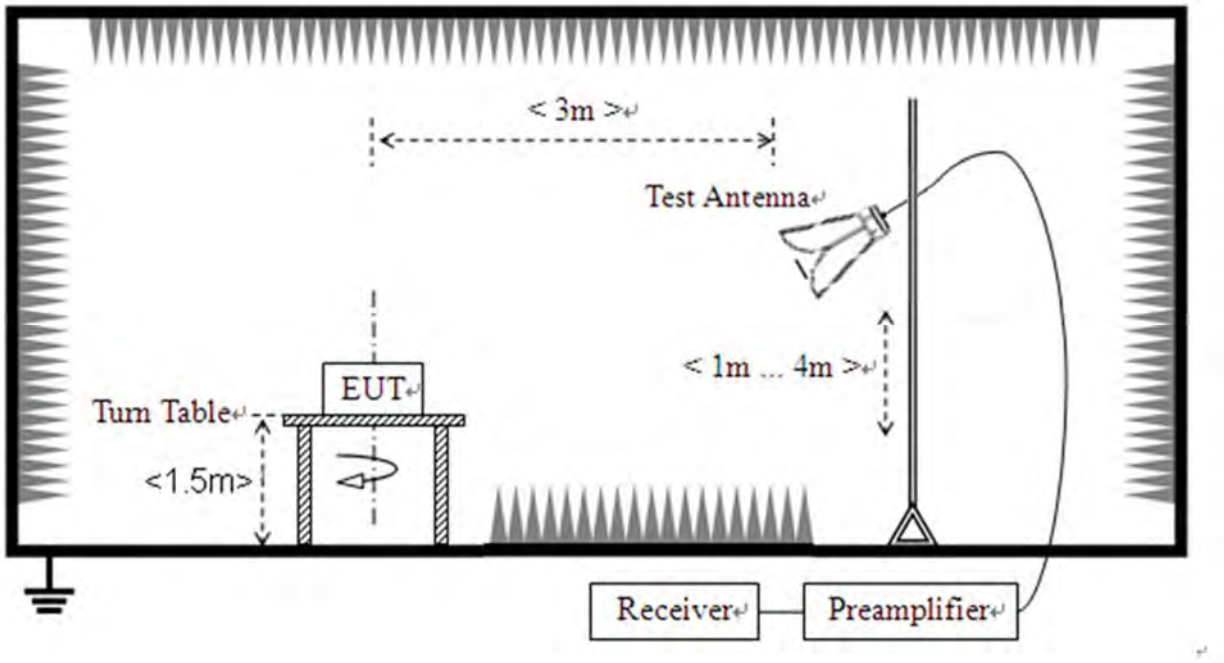
1) For radiated emissions from 9 kHz to 30 MHz



2) For radiated emissions from 30 MHz to 1 GHz



3) For radiated emissions above 1 GHz



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

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

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

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

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. For measurements above 1 GHz, keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response.

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 3 m

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

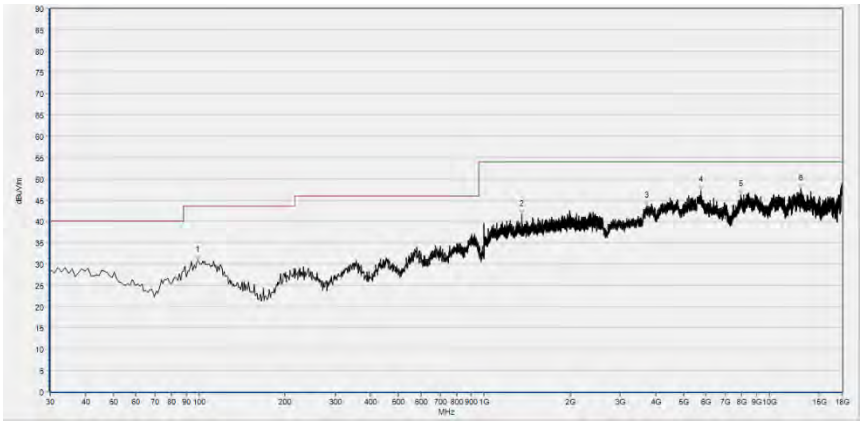
Note1: All radiated emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.

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

Note3: For the frequency, which started from 18 GHz to 10th harmonic of the highest frequency, was pre-scanned and the result which was 20 dB lower than the limit was not recorded.

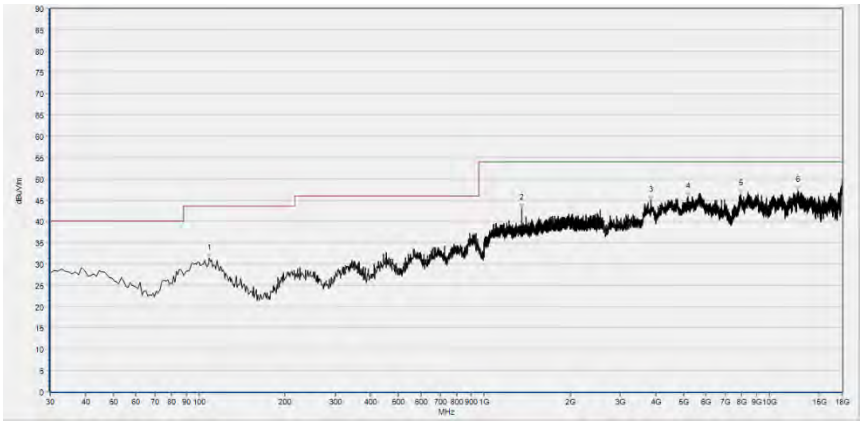
802.11b Mode

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
98.870	30.78	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
1350.400	41.54	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
3714.960	43.49	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5744.680	47.18	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
7925.320	46.27	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12908.760	47.53	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

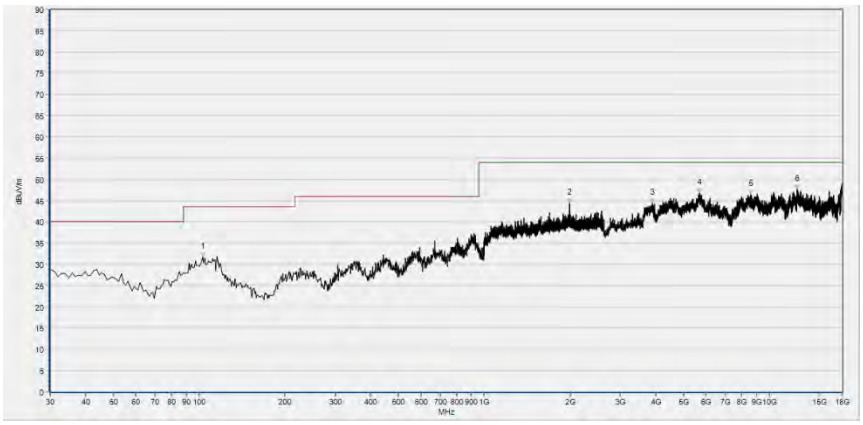
(Antenna Horizontal, 30 MHz to 18 GHz)



Fre. (MHz)	PK (dBµV/m)	QP (dBµV/m)	AV (dBµV/m)	Limit-PK (dBµV/m)	Limit-QP (dBµV/m)	Limit-AV (dBµV/m)	Antenna	Verdict
108.570	31.35	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
1350.400	43.09	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
3844.320	44.86	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
5184.120	45.72	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
7956.120	46.49	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12563.800	47.32	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

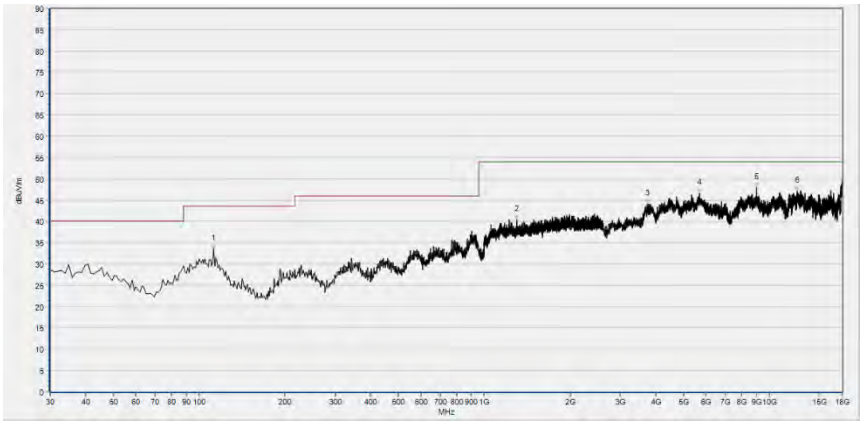
(Antenna Vertical, 30 MHz to 18 GHz)

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
102.750	31.75	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
1992.533	44.42	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
3887.440	44.47	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5689.240	46.70	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
8609.080	46.49	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12520.680	47.67	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

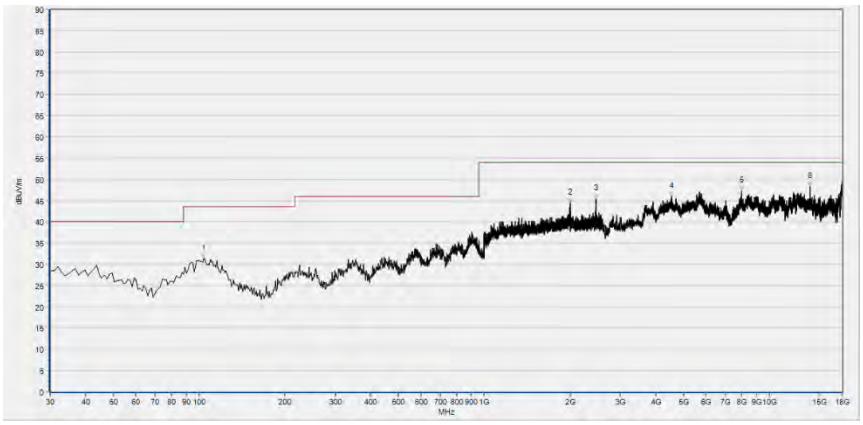
(Antenna Horizontal, 30 MHz to 18 GHz)



Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
112.450	33.46	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
1298.667	40.32	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
3736.520	44.03	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
5686.160	46.51	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
9003.320	47.95	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12523.760	47.16	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

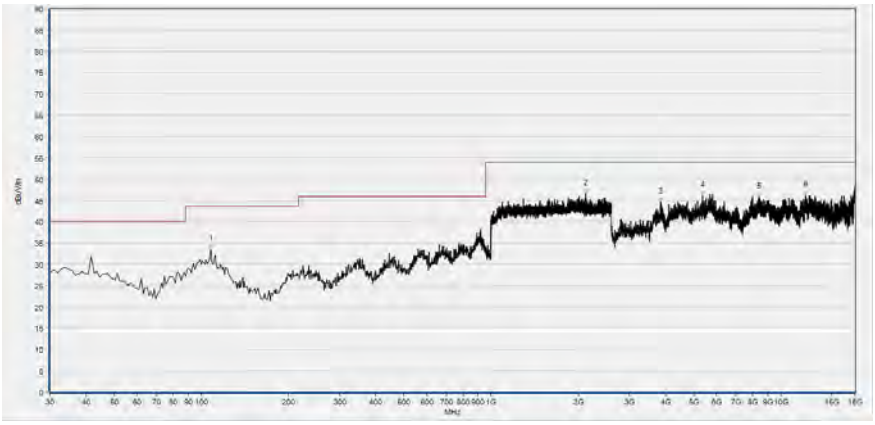
(Antenna Vertical, 30 MHz to 18 GHz)

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
103.720	31.37	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
1999.467	44.39	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
2465.067	45.45	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
4528.080	45.97	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
7993.080	47.21	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
13919.000	48.27	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30 MHz to 18 GHz)

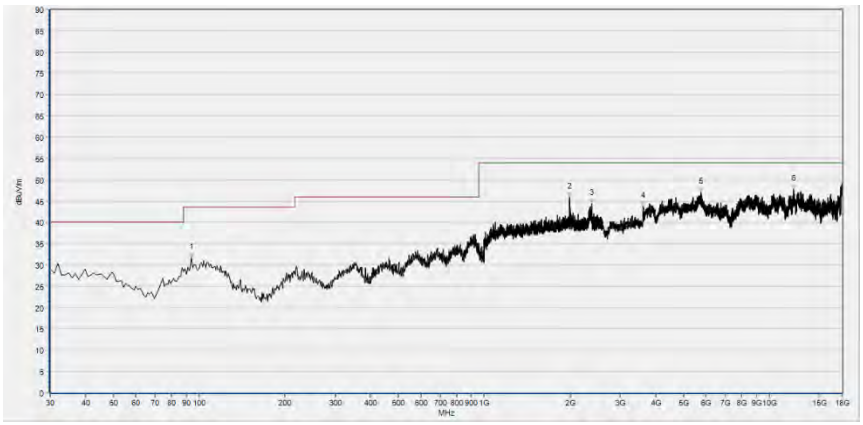


Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
107.600	33.57	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
2124.800	46.54	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
3850.480	44.57	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
5378.160	46.14	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
8408.880	45.74	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12154.160	46.30	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30 MHz to 18 GHz)

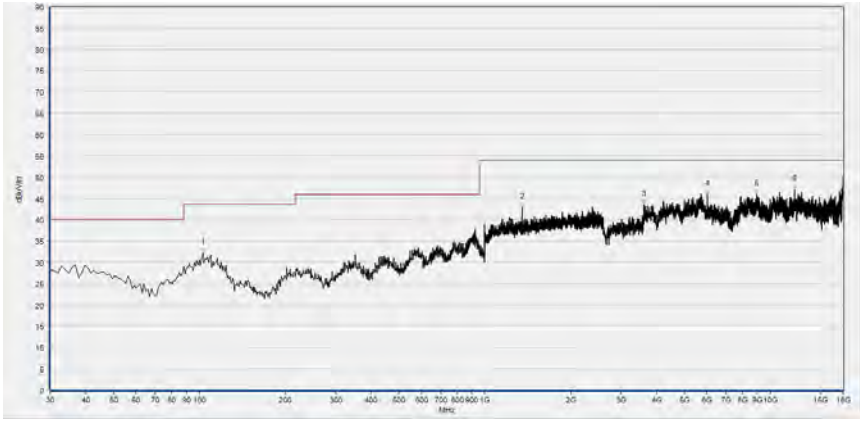
802.11g Mode

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
94.020	31.60	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
1994.667	45.85	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
2381.333	44.49	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
3610.240	43.68	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5760.080	47.10	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12151.080	47.75	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

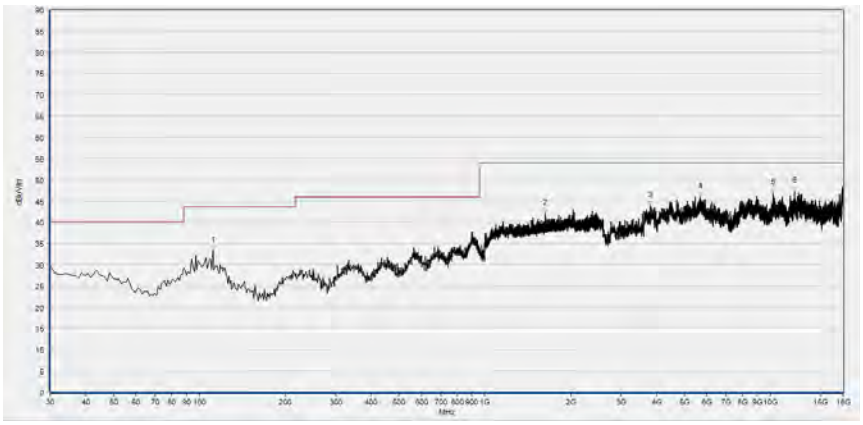
(Antenna Horizontal, 30 MHz to 18 GHz)



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	32.25	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
1349.867	42.95	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
3610.240	43.63	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
6018.800	45.94	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
8984.840	45.89	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12154.160	47.06	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

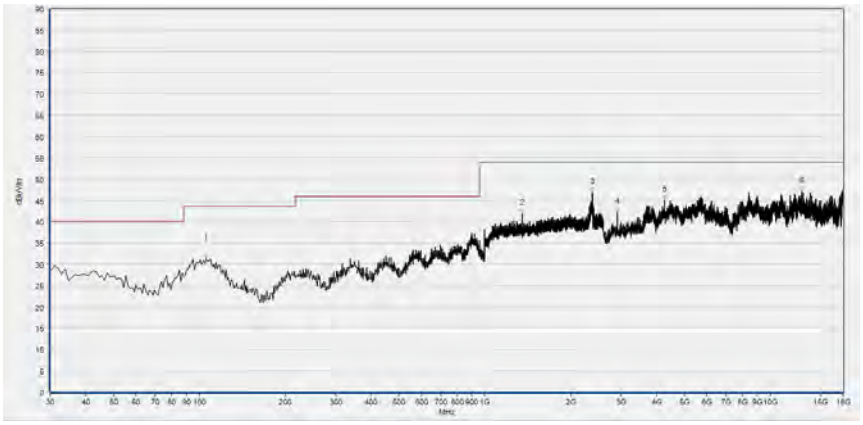
(Antenna Vertical, 30 MHz to 18 GHz)

Plot for Channel 6



Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
111.480	33.35	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
1630.400	42.03	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
3798.120	43.99	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5689.240	45.84	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
10226.080	46.89	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12144.920	47.29	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

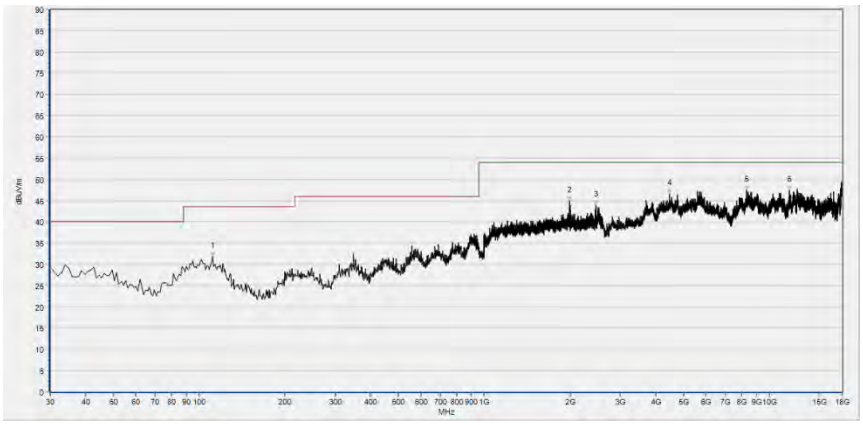
(Antenna Horizontal, 30 MHz to 18 GHz)



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
105.660	31.29	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
1349.867	41.86	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
2378.133	46.91	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
2914.160	42.19	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
4253.960	45.10	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12871.800	47.16	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

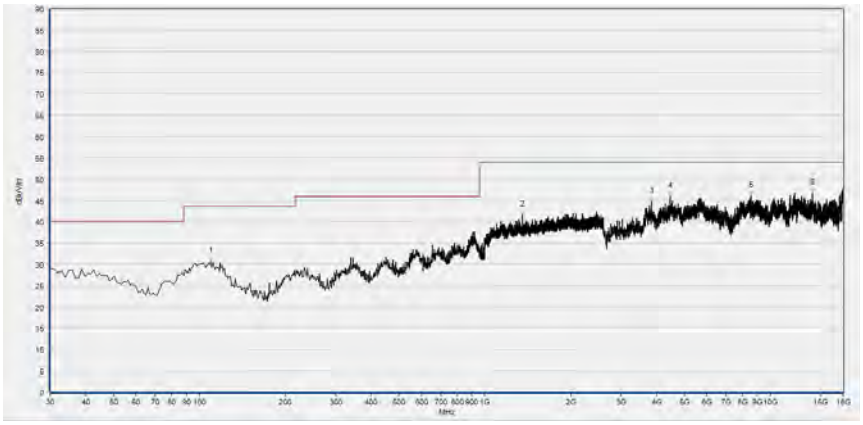
(Antenna Vertical, 30 MHz to 18 GHz)

Plot for Channel 11



Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
111.480	31.89	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
1992.533	44.92	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
2464.000	43.91	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
4463.400	46.53	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
8328.800	47.36	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
11744.520	47.37	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30 MHz to 18 GHz)

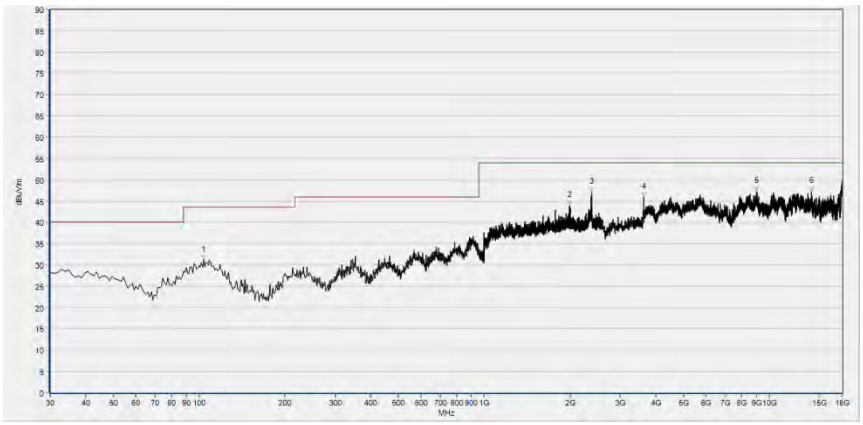


Fre. (MHz)	PK (dBμV/m)	QP (dBμV/m)	AV (dBμV/m)	Limit-PK (dBμV/m)	Limit-QP (dBμV/m)	Limit-AV (dBμV/m)	Antenna	Verdict
109.540	30.67	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
1353.067	41.54	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
3838.160	44.81	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
4451.080	45.85	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
8538.240	46.03	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
14073.000	46.72	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30 MHz to 18 GHz)

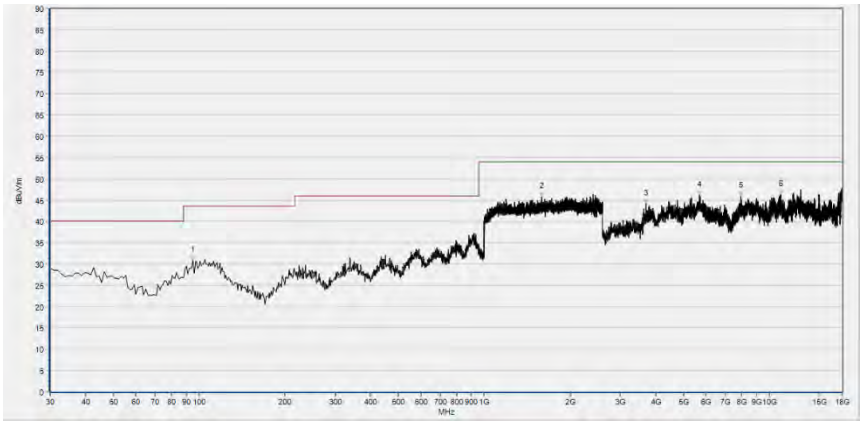
802.11n (HT20) Mode

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
103.720	31.18	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
1991.467	43.85	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
2376.000	47.07	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
3619.480	45.85	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
9000.240	47.20	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
14036.040	47.20	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

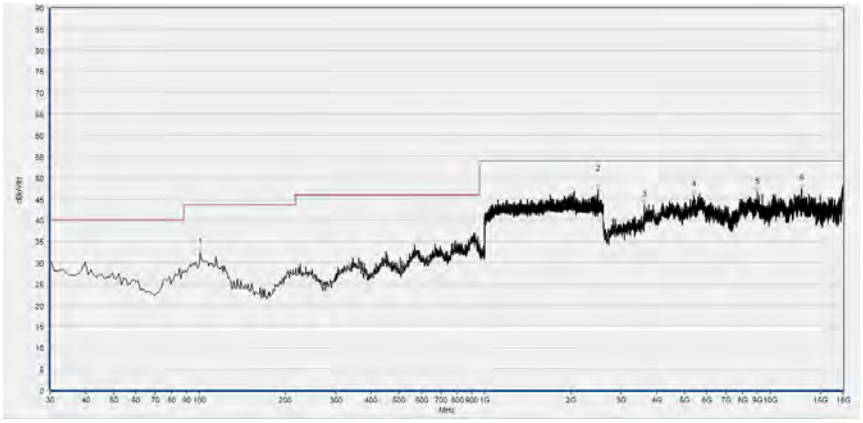
(Antenna Horizontal, 30 MHz to 18 GHz)



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	30.87	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
1587.200	45.77	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
3693.400	44.02	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
5692.320	46.15	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
7928.400	45.98	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
10971.440	46.29	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

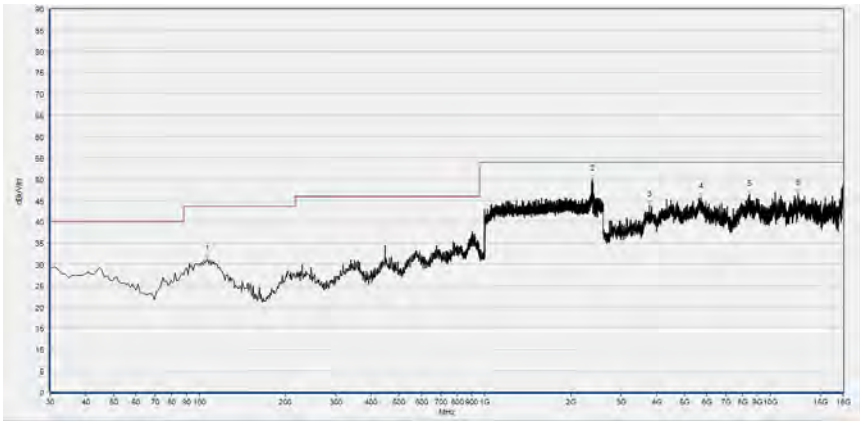
(Antenna Vertical, 30 MHz to 18 GHz)

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	32.29	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
2488.533	47.18	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
3616.400	43.63	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5402.800	45.95	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
8997.160	46.55	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12893.360	47.48	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

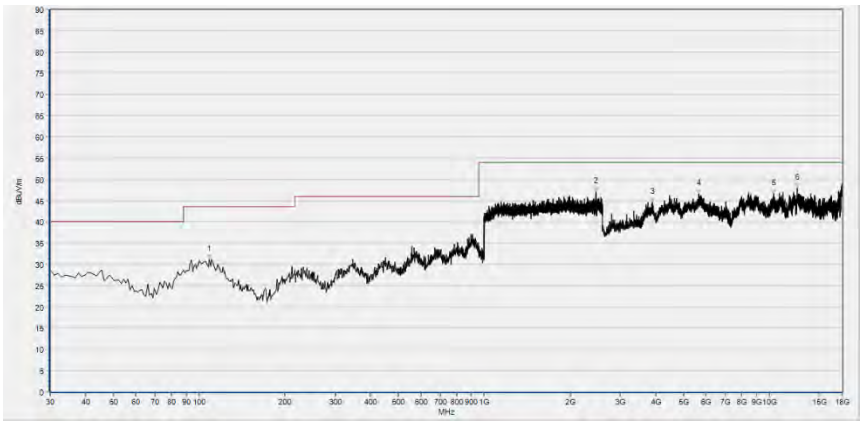
(Antenna Horizontal, 30 MHz to 18 GHz)



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
106.630	31.16	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
2380.800	49.96	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
3782.720	43.95	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
5723.120	45.78	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
8467.400	46.49	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
12508.360	46.59	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

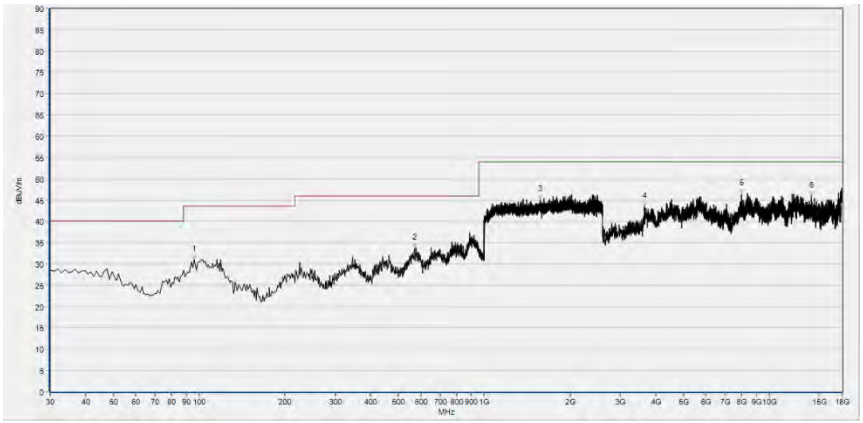
(Antenna Vertical, 30 MHz to 18 GHz)

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
108.570	31.24	N/A	N/A	N/A	43.50	N/A	Horizontal	PASS
2461.333	47.05	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
3878.200	44.52	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
5664.600	46.52	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
10361.600	46.54	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS
12533.000	47.92	N/A	N/A	74.00	N/A	54.00	Horizontal	PASS

(Antenna Horizontal, 30 MHz to 18 GHz)



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	31.00	N/A	N/A	N/A	43.50	N/A	Vertical	PASS
569.320	33.65	N/A	N/A	N/A	46.00	N/A	Vertical	PASS
1573.333	45.03	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
3641.040	43.40	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
7993.080	46.47	N/A	N/A	74.00	N/A	54.00	Vertical	PASS
14042.200	45.90	N/A	N/A	74.00	N/A	54.00	Vertical	PASS

(Antenna Vertical, 30 MHz to 18 GHz)

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	±2.22 dB
Power Spectral Density	±2.22 dB
Bandwidth	±5%
Conducted Spurious Emission	±2.77 dB
Restricted Frequency Bands	±5%
Radiated Emission	±2.95 dB
Conducted Emission	±2.44 dB

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

Annex B Testing Laboratory Information

1. Identification of the Responsible Testing Laboratory

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

2. Identification of the Responsible Testing Location

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

3. Facilities and Accreditations

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

4. Test Equipment Utilized

4.1 Conducted Test Equipment

Equipment Name	Serial No.	Type	Manufacturer	Cal. Date	Due Date
EXA Signal Analyzer	MY53470836	N9010A	Agilent	2022.03.01	2023.02.28
				2023.02.27	2024.02.26
				2024.02.19	2025.02.18
RF Cable (30 MHz–26 GHz)	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 Equipment

Equipment Name	Serial No.	Type	Manufacturer	Cal. Date	Due Date
Receiver	MY56400093	N9038A	KEYSIGHT	2022.03.03	2023.03.02
				2023.02.09	2024.02.08
				2024.01.25	2025.01.24
LISN	812744	NSLK 8127	Schwarzbeck	2022.03.03	2023.03.02
				2023.02.21	2024.02.20
				2024.02.02	2025.02.01
Pulse Limiter (10 dB)	VTSD 9561 F-B #206	VTSD 9561-F	Schwarzbeck	2021.07.21	2022.07.20
				2022.07.06	2023.07.05
				2023.06.27	2024.06.26
Coaxial Cable (BNC) (30 MHz–26 GHz)	CB01	EMC01	Morlab	N/A	N/A

4.3 List of Software Used

Description	Manufacturer	Software Version
Test System	Tonscend	V2.5.77.0418
Morlab EMCR V1.2	Morlab	V1.0
TS+ -[JS32-CE]	Tonscend	V2.5.0.0

4.4 Radiated Test Equipment

Equipment Name	Serial No.	Type	Manufacturer	Cal. Date	Due Date
Receiver	MY54130016	N9038A	Agilent	2022.07.06	2023.07.05
				2023.06.21	2024.06.20
Test Antenna - Bi-Log	9163-519	VULB 9163	Schwarzbeck	2022.05.25	2025.05.24
Test Antenna - Loop	1519-022	FMZB1519	Schwarzbeck	2022.02.11	2025.02.10
Test Antenna - Horn	01774	BBHA 9120D	Schwarzbeck	2022.07.13	2025.07.12
Test Antenna - Horn	BBHA9170#773	BBHA 9170	Schwarzbeck	2022.07.14	2025.07.13
Coaxial Cable (N male) (9 KHz–30 MHz)	CB04	EMC04	Morlab	N/A	N/A
Coaxial Cable (N male) (30 MHz–26 GHz)	CB02	EMC02	Morlab	N/A	N/A
Coaxial Cable (N male) (30 MHz–26 GHz)	CB03	EMC03	Morlab	N/A	N/A
Coaxial Cable (N male) (30 MHz–40 GHz)	CB05	EMC05	Morlab	N/A	N/A
1–18 GHz pre-Amplifier	61171/61172	S020180L3203	Tonscend	2022.07.08	2023.07.07
				2023.06.27	2024.06.26
18–26.5 GHz pre-Amplifier	46732	S10M100L3802	Tonscend	2022.07.08	2023.07.07
				2023.06.27	2024.06.26
26–40 GHz pre-Amplifier	56774	S40M400L4002	Tonscend	2022.07.08	2023.07.07
				2023.06.27	2024.06.26
Notch Filter	N/A	WRCG-2400-2483.5-60SS	Wainwright	2022.07.08	2023.07.07
				2023.06.27	2024.06.26
Anechoic Chamber	N/A	9m*6m*6m	CRT	2020.01.06	2023.01.05
				2022.05.10	2025.05.09

END OF REPORT