TEST REPORT

Applicant:	SEUIC Technologies Co., Ltd.
Address:	NO.15 Xinghuo Road, Nanjing New & High Technology Industry Development Zone, 210061, Nanjing City, Jiangsu Province, China
Equipment Type:	Portable Data Collection Terminal
Model Name:	AUTOID10 (refer section 2.4)
Brand Name:	AUTOID, Seuic
FCC ID:	2AC68-AUTOID10
Test Standard:	47 CFR Part 15 Subpart C (refer section 3.1)
Test Date:	Jul. 13, 2022 - Aug. 09, 2022
Date of Issue:	Aug. 10, 2022

ISSUED BY:

Shenzhen BALUN Technology Co., Ltd.

Tested by: Yu Yingyuan **Checked by:** Ye Hongji **Approved by:** Liao Jianming (Technical Director)

Revision History

Version	Issue Date	Revisions
Rev. 01	Aug. 10, 2022	Initial Issue

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1 GENERAL INFORMATION

1.1 Identification of the Testing Laboratory

Company Name	Shenzhen BALUN Technology Co., Ltd.
Address	Block B, 1/F, Baisha Science and Technology Park, Shahe West Road, Nanshan District, ShenZhen, GuangDong Province, China
Phone Number	+86 755 6685 0100

1.2 Identification of the Responsible Testing Location

Test Location	Shenzhen BALUN Technology Co., Ltd.
Address	Block B, 1/F, Baisha Science and Technology Park, Shahe West Road, Nanshan District, ShenZhen, GuangDong Province, China
Accreditation Certificate	The laboratory is a testing organization accredited by FCC as a accredited testing laboratory. The designation number is CN1196.
Description	All measurement facilities used to collect the measurement data are located at Block B, 1/F, Baisha Science and Technology Park, Shahe West Road, Nanshan District, ShenZhen, GuangDong Province, China

2 PRODUCT INFORMATION

2.1 Applicant Information

Applicant	SEUIC Technologies Co., Ltd.
Address	NO.15 Xinghuo Road, Nanjing New & High Technology Industry Development Zone, 210061, Nanjing City, Jiangsu Province, China

2.2 Manufacturer Information

Manufacturer	SEUIC Technologies Co., Ltd.
Address	NO.15 Xinghuo Road, Nanjing New & High Technology Industry Development Zone, 210061, Nanjing City, Jiangsu Province, China

2.3 Factory Information

Factory	SEUIC Technologies Co., Ltd.
Address	3rd Floor, No.4 Building, Zhicheng Industrial Park, Zhida Road, Nanjing Jiangbei New Area, Nanjing City, China

2.4 General Description for Equipment under Test (EUT)

EUT Name	Portable Data Collection Terminal
Model Name Under Test	AUTOID10
Series Model Name	AUTOID10N, AUTOID10HC, AUTOID10L, AUTOID10R, AUTOID10B, AUTOID10P, AUTOID10I, AUTOID10-6L, AUTOID10C, AUTOID10X, AUTOID10U, AUTOID10W, AUTOID10E, AUTOID10T, AUTOID10G, AUTOID10D, AUTOID10 1/2, AUTOID10F
Description of Model name differentiation	All models are same with electrical parameters and internal circuit structure, but only differ in model name and color.
Hardware Version	D560_Main_PCB_V3.1
Software Version	V1.0.30
Dimensions (Approx.)	160.34*67.02*19.9mm
Weight (Approx.)	N/A

2.5 Technical Information

Network and Wireless connectivity	2G Network GSM/GPRS/EGPRS 850/ 1900 MHz 3G Network CDMA 1x Band Class 0 EVDO Rel. 0/Rev. A Band Class 0 WCDMA/HSDPA/HSUPA Band 2/ 5 4G Network FDD LTE Band 5/ 7 TDD LTE Band 38/ 41 Bluetooth (BR+EDR+BLE) 2.4G WIFI 802.11b, 802.11g, 802.11n(HT20) 5G WIFI 802.11a, 802.11n(HT20/40) and 802.11ac(VHT20/40/80) U-NII-1/2A/2C/3, GPS, Beidou, GLONASS, Galileo, NFC

The requirement for the following technical information of the EUT was tested in this report:

Frequency Range	802.11b/g/n(20 MHz): 2.412 GHz - 2.472 GHz f_c = 2412 MHz + (N-1)*5 MHz, where - f_c = “Operating Frequency” in MHz, - N = “Channel Number” with the range from 1 to 13.
Modulation Type	DSSS, OFDM
Product Type	☐ Mobile ☒ Portable ☐ Fix Location
Antenna System (eg., MIMO, Smart Antenna)	N/A
Categorization as Correlated or Completely Uncorrelated	N/A
Antenna Type	PIFA Antenna
Antenna Gain	2.87 dBi (In test items related to antenna gain, the final results reflect this figure. This value is provided by the applicant.)
About the Product	Only the WIFI 802.11b, 802.11g and 802.11n (HT20) was tested in this report.

Modulation technology	Modulation Type	Transfer Rate (Mbps)(Single RF path)
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-20 MHz)	BPSK	6.5/7.2
	QPSK	13/19.5/14.4/21.7
	16QAM	26/39/28.9/43.3
	64QAM	52/58.5/65/57.8/65/72.2

Note: Preliminary tests were performed in different data rate in above table to find the worst radiated emission. The data rate shown in the table below is the worst-case rate with respect to the specific test item. Investigation has been done on all the possible configurations for searching the worst cases. The following table is a list of the test modes shown in this test report.

Test Items	Mode	Data Rate	Channel
Output Power	11b/11g/11n20	1/6/6.5 Mbps	1/6/11/12/13
6dB Bandwidth	11b/11g/11n20	1/6/6.5 Mbps	1/6/11/12/13
Conducted Spurious Emission	11b/11g/11n20	1/6/6.5 Mbps	1/6/11/12/13
Conducted Emission	11b/11g/11n20	1/6/6.5 Mbps	1/6/11/12/13
Radiated Spurious Emission	11b/11g/11n20	1/6/6.5 Mbps	1/6/11/12/13
Band Edge	11b/11g/11n20	1/6/6.5 Mbps	1/6/11/12/13
Power spectral density (PSD)	11b/11g/11n20	1/6/6.5 Mbps	1/6/11/12/13

Note: The above EUT information in section 2.4 and 2.6 was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

2.6 Additional Instructions

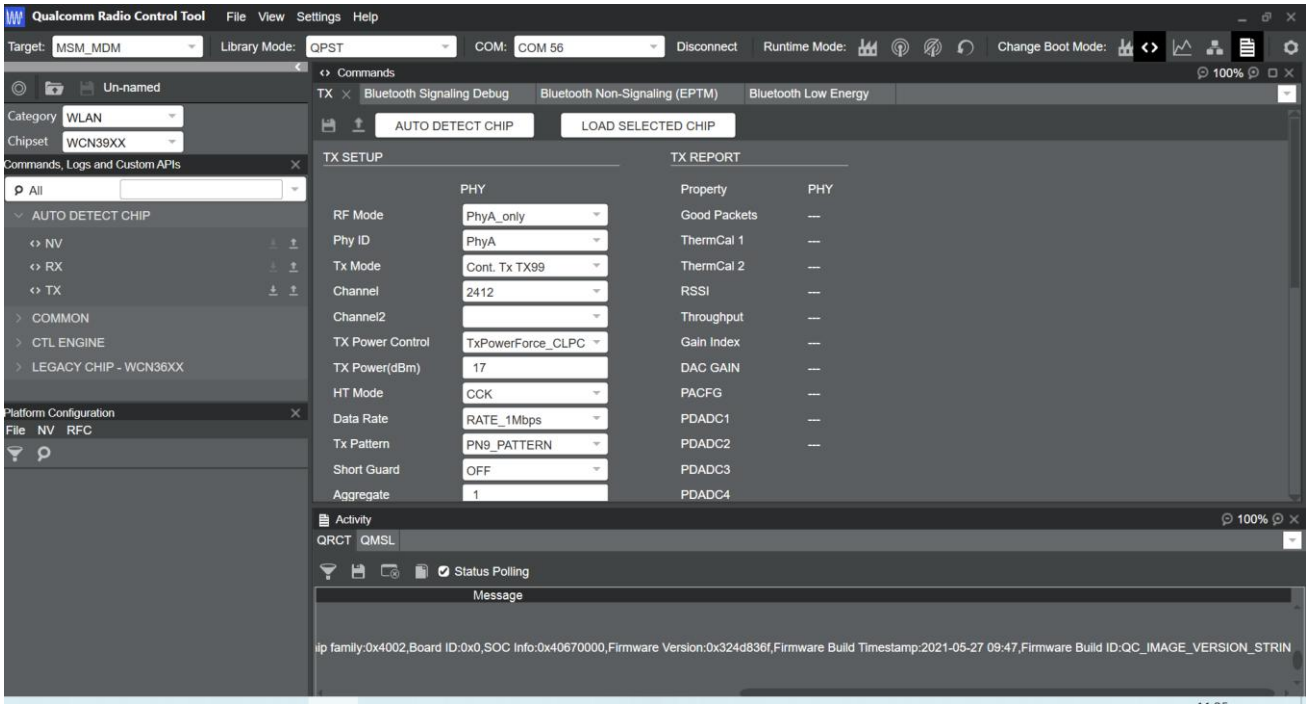
EUT Software Settings:

Mode	☒ Special software is used. The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.

During testing, Channel and Power Controlling Software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

Power level setup in software				
Test Software Version	QRCT4			
Support Units (Software installation media)	Description		Manufacturer	Model
	Notebook		HP	N/A
Mode	Channel	Frequency	Soft Set	
802.11 b	1	2412	17.00	
	6	2437	17.00	
	11	2462	17.00	
	12	2467	17.00	
	13	2462	16.00	
802.11 g	1	2412	15.00	
	6	2437	15.00	
	11	2462	15.00	
	12	2467	15.00	
	13	2472	1.00	
802.11 n20	1	2412	15.00	
	6	2437	15.00	
	11	2462	15.00	
	12	2467	13.00	
	13	2472	1.00	

Run software:



3 SUMMARY OF TEST RESULTS

3.1 Test Standards

No.	Identity	Document Title
1	47 CFR Part 15, Subpart C	Miscellaneous Wireless Communications Services
2	ANSI C63.10-2013	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices
3	KDB Publication 558074 D01v05r02	GUIDANCE FOR COMPLIANCE MEASUREMENTS ON DIGITAL TRANSMISSION SYSTEM, FREQUENCY HOPPING SPREAD SPECTRUM SYSTEM, AND HYBRID SYSTEM DEVICES OPERATING UNDER SECTION 15.247 OF THE FCC RULES

3.2 Test Verdict

No.	Description	FCC PART No.	Test Result	Verdict
1	Antenna Requirement	15.203	N/A	Pass Note 1
2	Output Power	15.247 (b)	ANNEX A.1	Pass
3	6dB Bandwidth	15.247 (a)	ANNEX A.2	Pass
4	Conducted Spurious Emission	15.247 (d)	ANNEX A.3	Pass
5	Band Edge(Authorized-band band-edge)	15.247 (d)	ANNEX A.4	Pass
6	Conducted Emission	15.207	ANNEX A.5	Pass
7	Radiated Spurious Emission	15.209; 15.247 (d)	ANNEX A.6	Pass
8	Band Edge(Restricted-band band-edge)	15.209; 15.247 (d)	ANNEX A.7	Pass
9	Power spectral density (PSD)	15.247 (e)	ANNEX A.8	Pass
10	Receiver Spurious Emissions	N/A	N/A	N/A Note 2

Note [1]: Please refer to section 5.1.

Note [2]: Only radio communication receivers operating in stand-alone mode within the band 30-960 MHz, as well as scanner receivers, are subject to Industry Canada requirements, so this test is not applicable.

4 GENERAL TEST CONFIGURATIONS

4.1 Test Environments

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

Relative Humidity	56% to 66%	
Atmospheric Pressure	100 kPa to 102 kPa	
Temperature	NT (Normal Temperature)	+21.2℃ to +24.4℃
Working Voltage of the EUT	NV (Normal Voltage)	3.85 V

4.2 Test Equipment List

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
Spectrum Analyzer	KEYSIGHT	N9020A	MY50330200	2022.05.19	2023.05.18
Spectrum Analyzer	ROHDE&SCHWARZ	FSV-40	101544	2022.01.04	2023.01.03
Spectrum Analyzer	KEYSIGHT	N9020A	MY50531259	2021.09.08	2022.09.07
EMI Receiver	ROHDE&SCHWARZ	ESRP	101036	2021.10.10	2022.10.09
EMI Receiver	KEYSIGHT	N9038A	MY53220118	2021.09.13	2022.09.12
Power Sensor	ROHDE&SCHWARZ	NRP18S	102521	2022.03.09	2023.03.08
LISN	SCHWARZBECK	NSLK 8127	8127-687	2022.06.01	2023.05.31
Test AntennaLoop (9 kHz-30 MHz)	SCHWARZBECK	FMZB 1519	1519-037	2021.04.16	2024.04.15
Test Antenna-Bi-Log (30 MHz-3 GHz)	SCHWARZBECK	VULB 9168	00883	2022.04.01	2025.03.31
Test Antenna-Horn (1-18 GHz)	SCHWARZBECK	BBHA 9120D	02460	2021.05.19	2024.05.08
Test Antenna-Horn (18-40 GHz)	A-INFO	LB-180400KF	J211060273	2021.07.02	2024.07.01
Anechoic Chamber	RAINFORD	9m*6m*6m	N/A	2021.08.16	2024.08.15
Anechoic Chamber	EMC Electronic Co., Ltd	20.10*11.60 *7.35m	N/A	2021.08.15	2024.08.14

4.3 Test Software List

Description	Manufacturer	Software Version	Serial No.	Applicable test Setup
BL410R	BALUN	V2.1.1.488	N/A	The section 4.5.1
BL410E	BALUN	V19.8.28.435	N/A	The section 4.5.2&4.5.3&4.5.4&4.5.5

4.4 Measurement Uncertainty

The following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2.

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

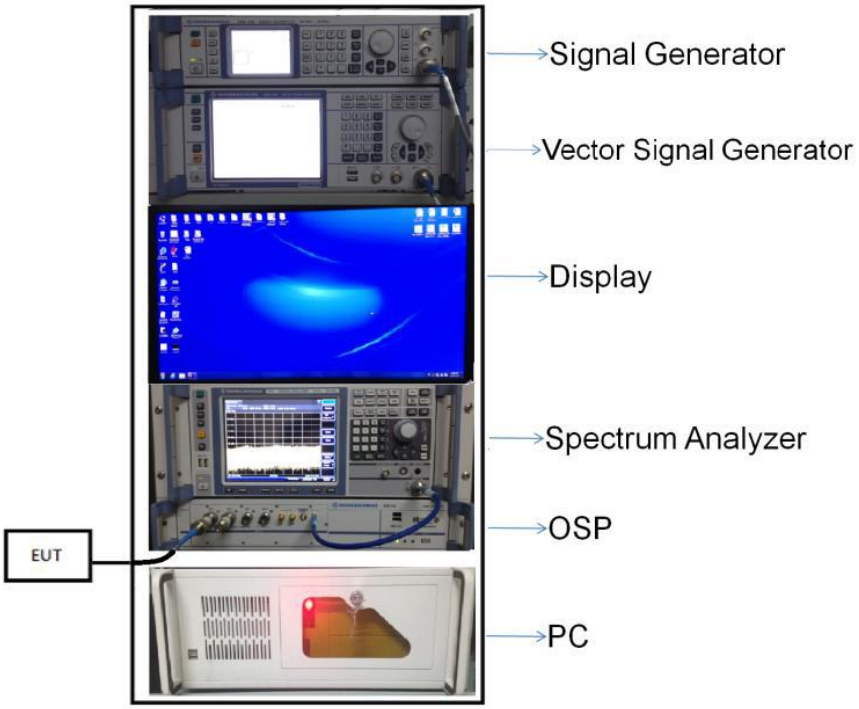
Parameters	Uncertainty
Occupied Channel Bandwidth	2.8%
RF output power, conducted	1.28 dB
Power Spectral Density, conducted	1.30 dB
Unwanted Emissions, conducted	1.84 dB
All emissions, radiated	5.36 dB
Temperature	0.82°C
Humidity	4.1%

4.5 Description of Test Setup

4.5.1 For Antenna Port Test

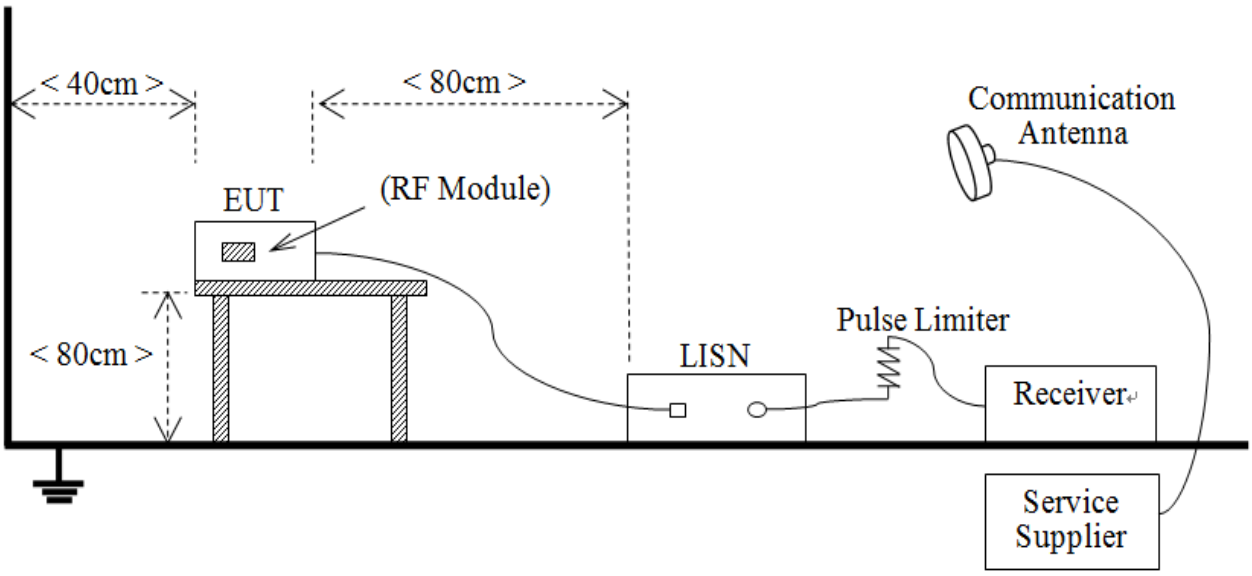
Conducted value (dBm) = Measurement value (dBm) + cable loss (dB)

For example: the measurement value is 10 dBm and the cable 0.5dBm used, then the final result of EUT:
Conducted value (dBm) = 10 dBm + 0.5 dB = 10.5 dBm



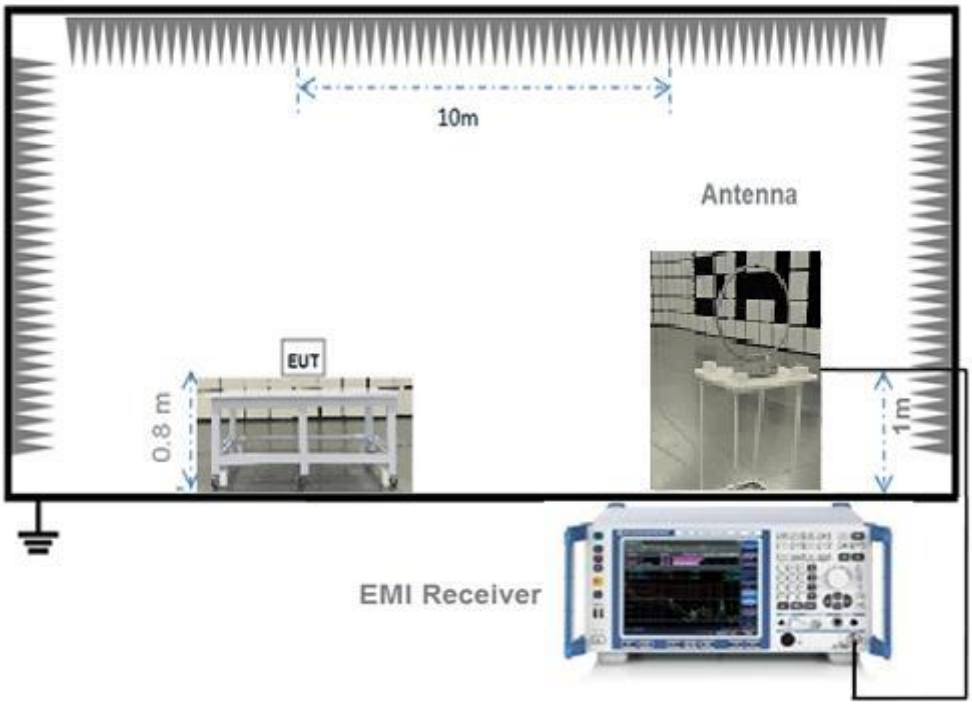
(Diagram 1)

4.5.2 For AC Power Supply Port Test



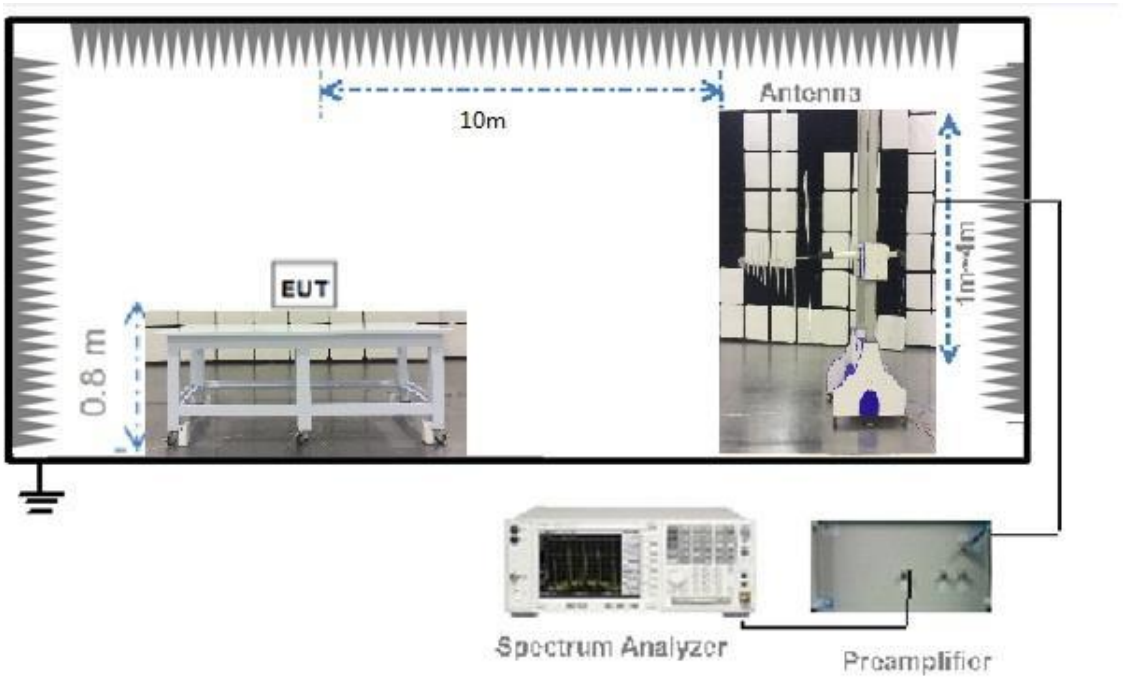
(Diagram 2)

4.5.3 For Radiated Test (Below 30 MHz)



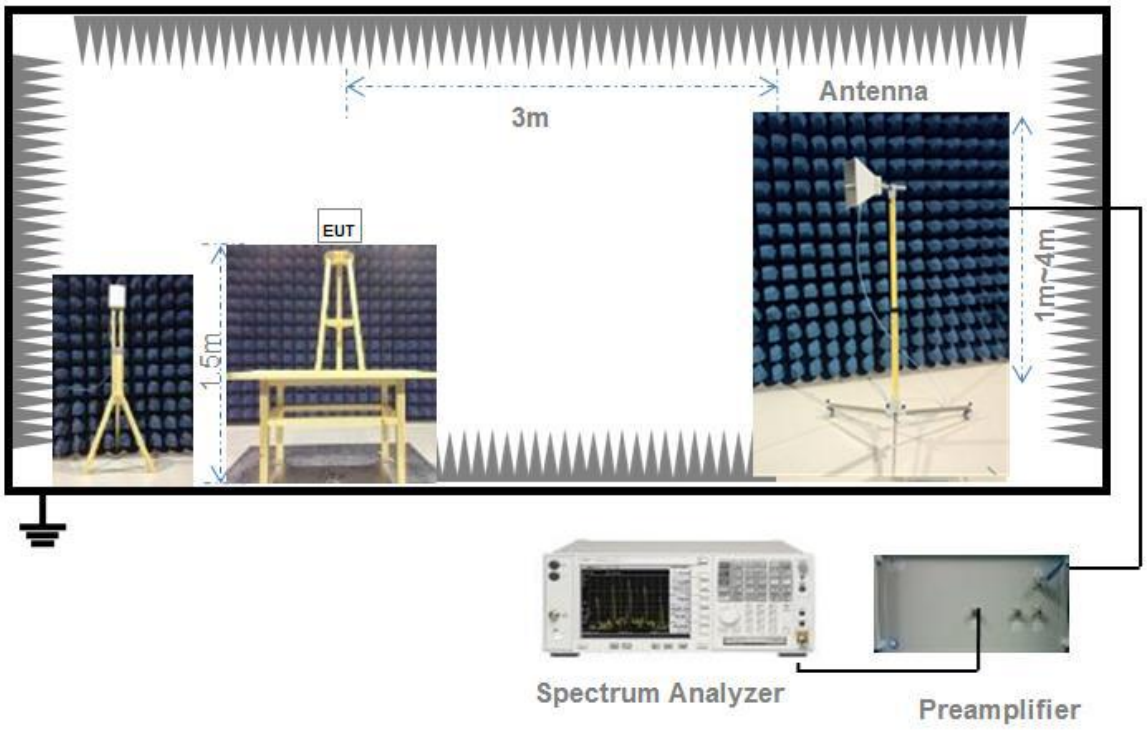
(Diagram 3)

4.5.4 For Radiated Test (30 MHz-1 GHz)



(Diagram 4)

4.5.5 For Radiated Test (Above 1 GHz)



(Diagram 5)

4.6 Measurement Results Explanation Example

4.6.1 For conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.
The spectrum analyzer offset is derived from RF cable loss and attenuator factor.
Offset = RF cable loss + attenuator factor.

4.6.2 For radiated band edges and spurious emission test:

E = EIRP – 20log D + 104.8

where:

E = electric field strength in dBμV/m,

EIRP = equivalent isotropic radiated power in dBm

D = specified measurement distance in meters.

EIRP= Measure Conducted output power Value (dBm) + Maximum transmit antenna gain (dBi) + the appropriate maximum ground reflection factor (dB)

5 TEST ITEMS

5.1 Antenna Requirements

5.1.1 Relevant Standards

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. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of § 15.211, § 15.213, § 15.217, § 15.219, or § 15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with § 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

If directional gain of transmitting antennas is greater than 6 dBi, the power shall be reduced by the same level in dB comparing to gain minus 6 dBi. For the fixed point-to-point operation, the power shall be reduced by one dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi. 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 FCC rule.

5.1.2 Antenna Anti-Replacement Construction

The Antenna Anti-Replacement as following method:

Protected Method	Description
The antenna is embedded in the product.	An embedded-in antenna design is used.

Reference Documents	Item
Photo	Please refer to the EUT Photo documents.

5.1.3 Antenna Gain

The antenna peak gain of EUT is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit.

5.2 Output Power

5.2.1 Test Limit

FCC § 15.247(b)

For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements.

5.2.2 Test Setup

See section 4.5.1 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.2.3 Test Procedure

Maximum peak conducted output power

The maximum peak conducted output power may be measured using a broadband peak RF power meter. The power meter shall have a video bandwidth that is greater than or equal to the DTS bandwidth and shall utilize a fast-responding diode detector.

Maximum conducted (average) output power (Reporting Only)

a) As an alternative to spectrum analyzer or EMI receiver measurements, measurements may be perfor med

using a wideband RF power meter with a thermocouple detector or equivalent if all of the conditions listed below are satisfied.

1) The EUT is configured to transmit continuously, or to transmit with a constant duty factor.

2) At all times when the EUT is transmitting, it shall be transmitting at its maximum power control level.

3) The integration period of the power meter exceeds the repetition period of the transmitted signal by at least a

factor of five.

b) If the transmitter does not transmit continuously, measure the duty cycle (x) of the transmitter output si gnal as

described in Section 6.0.

c) Measure the average power of the transmitter. This measurement is an average over both the on and off periods of the transmitter.

d) Adjust the measurement in dBm by adding 10log (1/x), where x is the duty cycle to the measurement r esult.

Measurements of duty cycle

The zero-span mode on a spectrum analyzer or EMI receiver if the response time and spacing between bins on the sweep are sufficient to permit accurate measurements of the on and off times of the transmitted signal.

Set the center frequency of the instrument to the center frequency of the transmission.

Set RBW ≥ OBW if possible; otherwise, set RBW to the largest available value.

Set VBW ≥ RBW. Set detector = peak or average.

The zero-span measurement method shall not be used unless both RBW and VBW are > 50/T and the number of sweep points across duration T exceeds 100. (For example, if VBW and/or RBW are limited to 3 MHz, then the zero-span method of measuring duty cycle shall not be used if T ≤ 16.7 microseconds.)

5.2.4 Test Result

Please refer to ANNEX A.1.

5.3 6dB Bandwidth

5.3.1 Limit

FCC §15.247(a)

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. The 6 dB bandwidth must be greater than 500 kHz.

5.3.2 Test Setup

See section 4.5.1 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.3.3 Test Procedure

Use the following spectrum analyzer settings:

Set RBW = 100 kHz.

Set the video bandwidth (VBW) ⩾ 3 RBW.

Detector = Peak.

Trace mode = max hold.

Sweep = auto couple.

Allow the trace to stabilize.

Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

5.3.4 Test Result

Please refer to ANNEX A.2.

5.4 Conducted Spurious Emission

5.4.1 Limit

FCC §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, based on either an RF conducted or a radiated measurement.

5.4.2 Test Setup

See section 4.5.1 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.4.3 Test Procedure

The DTS rules specify that in any 100 kHz bandwidth outside of the authorized frequency band, the power shall be attenuated according to the following conditions:

a) If the maximum peak conducted output power procedure was used to demonstrate compliance as described in 9.1, then the peak output power measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz (i.e., 20 dBc).

b) If maximum conducted (average) output power was used to demonstrate compliance as described in 9.2, then the peak power in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum in-band peak PSD level in 100 kHz (i.e., 30 dBc).

c) In either case, attenuation to levels below the 15.209 general radiated emissions limits is not required.

The following procedures shall be used to demonstrate compliance to these limits. Note that these procedures can be used in either an antenna-port conducted or radiated test set-up. Radiated tests must conform to the test site requirements and utilize maximization procedures defined herein.

Reference level measurement

Establish a reference level by using the following procedure:

Set instrument center frequency to DTS channel center frequency.

Set the span to ≥ 1.5 times the DTS bandwidth.

Set the RBW = 100 kHz.

Set the VBW ≥ 3 x RBW.

Detector = peak.

Sweep time = auto couple.

Trace mode = max hold.

Allow trace to fully stabilize.

Use the peak marker function to determine the maximum PSD level.

Emission level measurement

Use the following spectrum analyzer settings:

Span = wide enough to capture the peak level of the in-band emission and all spurious emissions (e.g., harmonics) from the lowest frequency generated in the EUT up through the 10th harmonic. Typically, several plots are required to cover this entire span.

Set the RBW = 100 kHz.

Set the VBW ⩾ 3 x RBW.

Detector = peak.

Sweep time = auto couple.

Trace mode = max hold.

Allow trace to fully stabilize.

Use the peak marker function to determine the maximum amplitude level.

Ensure that the amplitude of all unwanted emissions outside of the authorized frequency band (excluding restricted frequency bands) are attenuated by at least the minimum requirements specified in 11.1 a) or 11.1 b). Report the three highest emissions relative to the limit.

5.4.4 Test Result

Please refer to ANNEX A.3.

5.5 Band Edge (Authorized-band band-edge)

5.5.1 Limit

FCC §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, based on either an RF conducted or a radiated measurement.

5.5.2 Test Setup

See section 4.5.1 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.5.3 Test Procedure

The following procedures may be used to determine the peak or average field strength or power of an unwanted emission that is within 2 MHz of the authorized band edge. If a peak detector is utilized, use the procedure described in 13.2.1. Use the procedure described in 13.2.2 when using an average detector and the EUT can be configured to transmit continuously (i.e., duty cycle $\geqslant$ 98%). Use the procedure described in 13.2.3 when using an average detector and the EUT cannot be configured to transmit continuously but the duty cycle is constant (i.e., duty cycle variations are less than ± 2 percent). Use the procedure described in 13.2.4 when using an average detector for those cases where the EUT cannot be configured to transmit continuously and the duty cycle is not constant (duty cycle variations equal or exceed 2 percent).

When using a peak detector to measure unwanted emissions at or near the band edge (within 2 MHz of the authorized band), the following integration procedure can be used.

Set instrument center frequency to the frequency of the emission to be measured (must be within 2 MHz of the authorized band edge).

Set span to 2 MHz

RBW = 100 kHz.

VBW $\geqslant$ 3 x RBW.

Detector = peak.

Sweep time = auto.

Trace mode = max hold.

Allow sweep to continue until the trace stabilizes (required measurement time may increase for low duty cycle applications)

Compute the power by integrating the spectrum over 1 MHz using the analyzer's band power measurement function with band limits set equal to the emission frequency (femission) ± 0.5 MHz. If the instrument does not have a band power function, then sum the amplitude levels (in power units) at 100 kHz intervals extending across the 1 MHz spectrum defined by femission ± 0.5 MHz.

Standard method(The 99% OBW of the fundamental emission is without 2 MHz of the authorized band):

Span: Wide enough to capture the peak level of the emission operating on the channel closest to the band edge, as well as any modulation products that fall outside of the authorized band of operation.

Reference level: As required to keep the signal from exceeding the maximum instrument input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than [10 log (OBW/RBW)] below the reference level. Specific guidance is given in 4.1.5.2.

Attenuation: Auto (at least 10 dB preferred).

Sweep time: Coupled.

Resolution bandwidth: 100 kHz.

Video bandwidth: 300 kHz.

Detector: Peak.

Trace: Max hold.

5.5.4 Test Result

Please refer to ANNEX A.4.

5.6 Conducted Emission

5.6.1 Limit

FCC §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 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
0.50 - 30	60	50

5.6.2 Test Setup

See section 4.5.2 for test setup description for the AC power supply port. The photo of test setup please refer to ANNEX B.

5.6.3 Test Procedure

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.
Devices subject to Part 15 must be tested for all available U.S. voltages and frequencies (such as a nominal 120 VAC, 50/60 Hz and 240 VAC, 50/60 Hz) for which the device is capable of operation. A device rated for 50/60 Hz operation need not be tested at both frequencies provided the radiated and line conducted emissions are the same at both frequencies.

5.6.4 Test Result

Please refer to ANNEX A.5.

5.7 Radiated Spurious Emission

5.7.1 Limit

FCC §15.209&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:

1. 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 20dB above the maximum permitted average limit.
2. For above 1000 MHz, limit field strength of harmonics: 54dBuV/m@3m (AV) and 74dBuV/m@3m (PK).

5.7.2 Test Setup

See section 4.5.3 to 4.5.5 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.7.3 Test Procedure

Since the emission limits are specified in terms of radiated field strength levels, measurements performed to demonstrate compliance have traditionally relied on a radiated test configuration. Radiated measurements remain the principal method for demonstrating compliance to the specified limits; however antenna-port conducted measurements are also now acceptable to demonstrate compliance (see below for details). When radiated measurements are utilized, test site requirements and procedures for maximizing and measuring radiated emissions that are described in ANSI C63.10 shall be followed.

Antenna-port conducted measurements may also be used as an alternative to radiated measurements for demonstrating compliance in the restricted frequency bands. If conducted measurements are performed, then proper impedance matching must be ensured and an additional radiated test for cabinet/case spurious emissions is required.

General Procedure for conducted measurements in restricted bands

a) Measure the conducted output power (in dBm) using the detector specified (see guidance regarding measurement procedures for determining quasi-peak, peak, and average conducted output power, respectively).

b) Add the maximum transmit antenna gain (in dBi) to the measured output power level to determine the EIRP level (see guidance on determining the applicable antenna gain)

c) Add the appropriate maximum ground reflection factor to the EIRP level (6 dB for frequencies ≤ 30 MHz, 4.7 dB for frequencies between 30 MHz and 1000 MHz, inclusive and 0 dB for frequencies > 1000 MHz).

d) For devices with multiple antenna-ports, measure the power of each individual chain and sum the EIRP of all chains in linear terms (e.g., Watts, mW).

e) Convert the resultant EIRP level to an equivalent electric field strength using the following relationship:

$E = EIRP – 20\log D + 104.8$

where:

E = electric field strength in dBμV/m,

EIRP = equivalent isotropic radiated power in dBm

D = specified measurement distance in meters.

f) Compare the resultant electric field strength level to the applicable limit.

g) Perform radiated spurious emission test.

Quasi-Peak measurement procedure

The specifications for measurements using the CISPR quasi-peak detector can be found in Publication 16 of the International Special Committee on Radio Frequency Interference (CISPR) of the International Electrotechnical Commission.

As an alternative to CISPR quasi-peak measurement, compliance can be demonstrated to the applicable emission limits using a peak detector.

Peak power measurement procedure

Peak emission levels are measured by setting the instrument as follows:

a) RBW = as specified in Table 1.

b) VBW ≥ 3 x RBW.

c) Detector = Peak.

d) Sweep time = auto.

e) Trace mode = max hold.

f) Allow sweeps to continue until the trace stabilizes. (Note that the required measurement time may be

longer for low duty cycle applications).

Table 1—RBW as a function of frequency

Frequency	RBW
9-150 kHz	200-300 Hz
0.15-30 MHz	9-10 kHz
30-1000 MHz	100-120 kHz
> 1000 MHz	1 MHz

If the peak-detected amplitude can be shown to comply with the average limit, then it is not necessary to perform a separate average measurement.

Trace averaging across on and off times of the EUT transmissions followed by duty cycle correction

If continuous transmission of the EUT (i.e., duty cycle ≥ 98 percent) cannot be achieved and the duty cycle is constant (i.e., duty cycle variations are less than ± 2 percent), then the following procedure shall be used:

a) The EUT shall be configured to operate at the maximum achievable duty cycle.

b) Measure the duty cycle, x, of the transmitter output signal as described in section 6.0.

c) RBW = 1 MHz (unless otherwise specified).

d) VBW ≥ 3 x RBW.

e) Detector = RMS, if span/(# of points in sweep) ≤ (RBW/2). Satisfying this condition may require increasing the number of points in the sweep or reducing the span. If this condition cannot be satisfied, then the detector mode shall be set to peak.

f) Averaging type = power (i.e., RMS).

1) As an alternative, the detector and averaging type may be set for linear voltage averaging.

2) Some instruments require linear display mode in order to use linear voltage averaging. Log or dB averaging shall not be used.

g) Sweep time = auto.

h) Perform a trace average of at least 100 traces.

i) A correction factor shall be added to the measurement results prior to comparing to the emission limit in order to compute the emission level that would have been measured had the test been performed at 100 percent duty cycle. The correction factor is computed as follows:

1) If power averaging (RMS) mode was used in step f), then the applicable correction factor is 10 log(1/x), where x is the duty cycle.

2) If linear voltage averaging mode was used in step f), then the applicable correction factor is 20 log(1/x), where x is the duty cycle.

3) If a specific emission is demonstrated to be continuous (≥ 98 percent duty cycle) rather than turning on and off with the transmit cycle, then no duty cycle correction is required for that emission.

NOTE: Reduction of the measured emission amplitude levels to account for operational duty factor is not permitted. Compliance is based on emission levels occurring during transmission - not on an average across on and off times of the transmitter.

Determining the applicable transmit antenna gain

A conducted power measurement will determine the maximum output power associated with a restricted band emission; however, in order to determine the associated EIRP level, the gain of the transmitting antenna (in dBi) must be added to the measured output power (in dBm).

Since the out-of-band characteristics of the EUT transmit antenna will often be unknown, the use of a conservative antenna gain value is necessary. Thus, when determining the EIRP based on the measured conducted power, the upper bound on antenna gain for a device with a single RF output shall be selected as the maximum in-band gain of the antenna across all operating bands, or 2 dBi, whichever is greater. However, for devices that operate in multiple frequency bands while using the same transmit antenna, the highest gain of the antenna within the operating band nearest in frequency to the restricted band emission being measured may be used in lieu of the overall highest gain when the emission is at a frequency that is within 20 percent of the nearest band edge frequency, but in no case shall a value less than 2 dBi be used.

See KDB 662911 for guidance on calculating the additional array gain term when determining the effective antenna gain for a EUT with multiple outputs occupying the same or overlapping frequency ranges in the same band.

Radiated spurious emission test

An additional consideration when performing conducted measurements of restricted band emissions is that unwanted emissions radiating from the EUT cabinet, control circuits, power leads, or intermediate circuit elements will likely go undetected in a conducted measurement configuration. To address this concern, a radiated test shall be performed to ensure that emissions emanating from the EUT cabinet (rather than the antenna port) also comply with the applicable limits.

For these cabinet radiated spurious emission measurements the EUT transmit antenna may be replaced with a termination matching the nominal impedance of the antenna. Procedures for performing radiated measurements are specified in ANSI C63.10. All detected emissions shall comply with the applicable limits.

The measurement frequency range is from 30 MHz to the 10th harmonic of the fundamental frequency. The Turn Table is actuated to turn from 0° to 360°, and both horizontal and vertical polarizations of the Test Antenna are used to find the maximum radiated power. Mid channels on all channel bandwidth verified. Only the worst RB size/offset presented.

The power of the EUT transmitting frequency should be ignored.

All Spurious Emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.

Use the following spectrum analyzer settings:

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

5.7.4 Test Result

Please refer to ANNEX A.6.

5.8 Band Edge (Restricted-band band-edge)

5.8.1 Limit

FCC §15.209&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).

5.8.2 Test Setup

See section 4.5.1 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.8.3 Test Procedure

The measurement frequency range is from 9 kHz to the 10th harmonic of the fundamental frequency. The Turn Table is actuated to turn from 0° to 360°, and both horizontal and vertical polarizations of the Test Antenna are used to find the maximum radiated power. Mid channels on all channel bandwidth verified. Only the worst RB size/offset presented.

The power of the EUT transmitting frequency should be ignored.

All Spurious Emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.

Use the following spectrum analyzer settings:

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

For measurement below 1GHz, If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported, Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.

For transmitters operating above 1 GHz repeat the measurement with an average detector.

5.8.4 Test Result

Please refer to ANNEX A.7.

5.9 Power Spectral density (PSD)

5.9.1 Limit

FCC §15.247(e)

The same method of determining the conducted output power shall be used to determine the power spectral density. If a peak output power is measured, then a peak power spectral density measurement is required. If an average output power is measured, then an average power spectral density measurement should be used.

5.9.2 Test Setup

See section 4.5.1 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.9.3 Test Procedure

Set analyzer center frequency to DTS channel center frequency.

Set the span to 1.5 times the DTS bandwidth.

Set the RBW to: 3 kHz $\leqslant$ RBW $\leqslant$ 100 kHz.

Set the VBW $\geqslant$ 3 RBW.

Detector = peak.

Sweep time = auto couple.

Trace mode = max hold.

Allow trace to fully stabilize.

Use the peak marker function to determine the maximum amplitude level within the RBW.

If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

5.9.4 Test Result

Please refer to ANNEX A.8.

ANNEX A TEST RESULT

A.1 Output Power

Duty Cycle

Test Mode	On Time (ms)	On+Off time (ms)	Duty Cycle
802.11b	13.22	13.35	99.03%
802.11g	2.197	2.235	98.30%
802.11n-20 MHz	2.046	2.084	98.18%

Peak Power Test Data

802.11b Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
1	19.37	86.50	30	1000	Pass
6	20.31	107.40			Pass
11	19.65	92.26			Pass
12	20.12	102.80			Pass
13	18.50	70.79			Pass

802.11g Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
1	20.10	102.33	30	1000	Pass
6	21.00	125.89			Pass
11	20.46	111.17			Pass
12	20.86	121.90			Pass
13	7.46	5.57			Pass

802.11n-20 MHz Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
1	19.93	98.40	30	1000	Pass
6	20.89	122.74			Pass
11	20.28	106.66			Pass
12	18.73	74.64			Pass
13	7.28	5.35			Pass

Average Power Test Data

802.11b Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
1	16.78	47.64	30	1000	Pass
6	17.67	58.48			Pass
11	17.03	50.47			Pass
12	17.19	52.36			Pass
13	15.79	37.93			Pass

802.11g Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
1	13.81	24.04	30	1000	Pass
6	14.58	28.71			Pass
11	13.95	24.83			Pass
12	14.29	26.85			Pass
13	0.91	1.23			Pass

802.11n-20 MHz Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
1	13.65	23.17	30	1000	Pass
6	14.46	27.93			Pass
11	13.92	24.66			Pass
12	12.15	16.41			Pass
13	0.71	1.18			Pass

A.2 Bandwidth

Test Data

802.11b Mode:

Channel	6 dB Bandwidth (MHz)	99% Bandwidth (MHz)	6 dB Bandwidth Limits (kHz)
1	8.650000	13.684000	⩾500
6	8.650000	13.752000	⩾500
11	9.100000	13.852000	⩾500
12	9.100000	13.774000	⩾500
13	8.650000	13.643000	⩾500

802.11g Mode:

Channel	6 dB Bandwidth (MHz)	99% Bandwidth (MHz)	6 dB Bandwidth Limits (kHz)
1	15.750000	17.201000	⩾500
6	15.900000	17.120000	⩾500
11	16.100000	17.189000	⩾500
12	15.700000	17.151000	⩾500
13	15.500000	17.080000	⩾500

802.11n-20MHz Mode:

Channel	6 dB Bandwidth (MHz)	99% Bandwidth (MHz)	6 dB Bandwidth Limits (kHz)
1	16.150000	18.268000	⩾500
6	15.950000	18.251000	⩾500
11	16.100000	18.320000	⩾500
12	16.250000	18.289000	⩾500
13	15.400000	18.114000	⩾500

Test Plots

6 dB Bandwidth

802.11b CHANNEL 1

802.11b CHANNEL 6

802.11b CHANNEL 11

802.11b CHANNEL 12

802.11b CHANNEL 13

802.11g CHANNEL 1

802.11g CHANNEL 6

802.11g CHANNEL 11

802.11g CHANNEL 12

802.11g CHANNEL 13

802.11n-20 MHz CHANNEL 1

802.11n-20 MHz CHANNEL 6

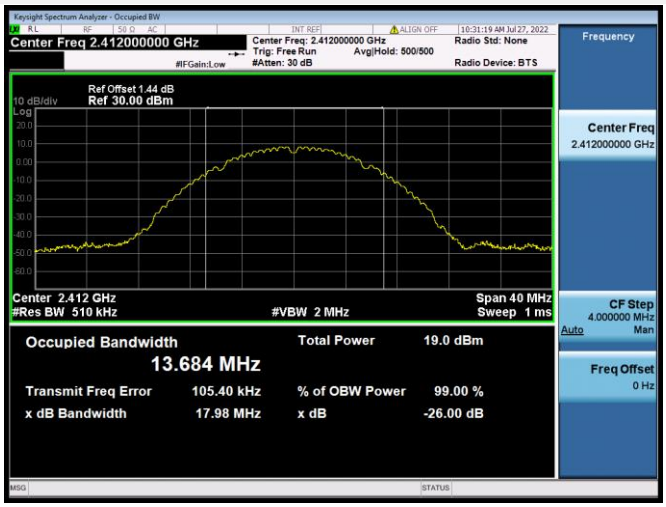
802.11n-20 MHz CHANNEL 11

802.11n-20 MHz CHANNEL 12

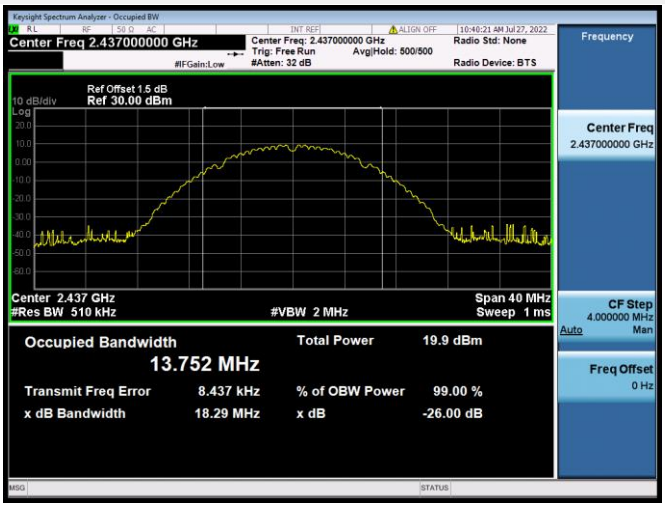
802.11n-20 MHz CHANNEL 13

99% Bandwidth

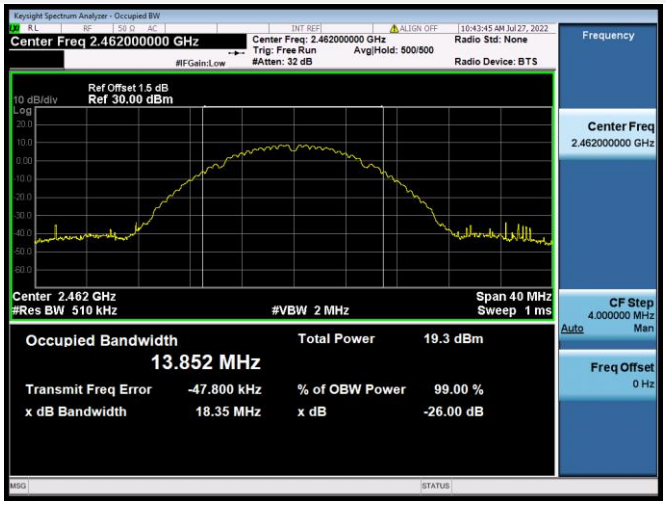
802.11b CHANNEL 1



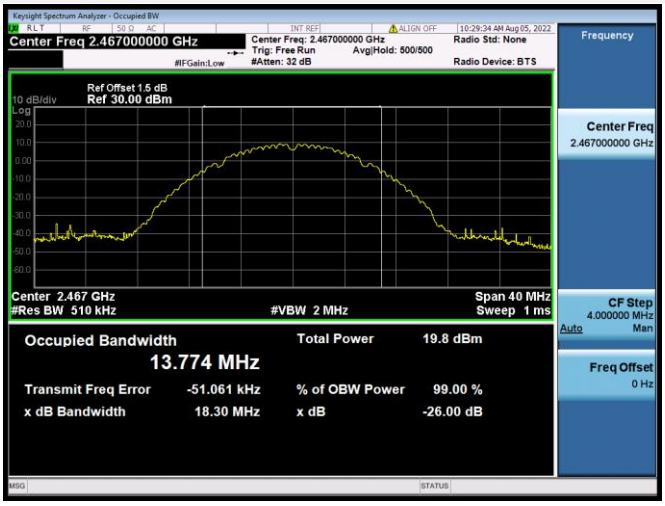
802.11b CHANNEL 6



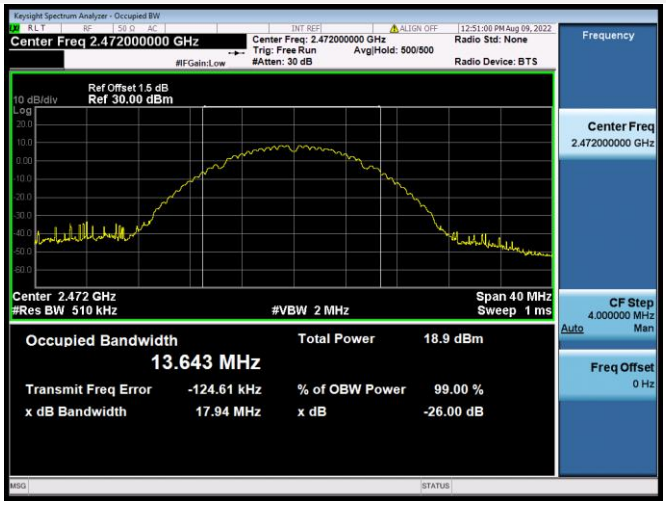
802.11b CHANNEL 11



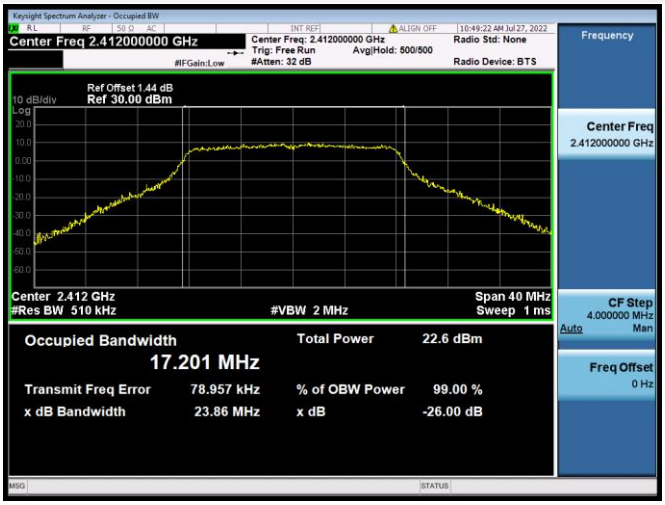
802.11b CHANNEL 12



802.11b CHANNEL 13



802.11g CHANNEL 1

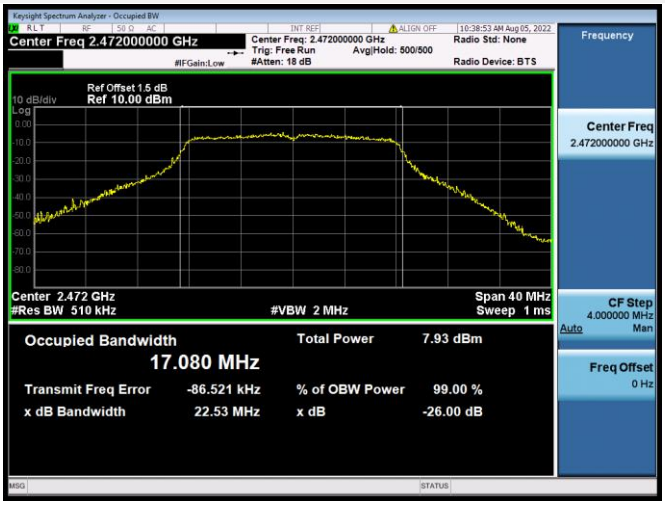


802.11g CHANNEL 6

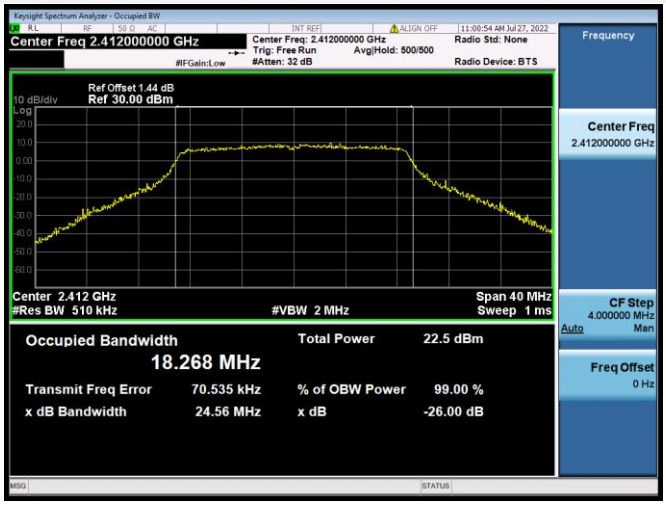
802.11g CHANNEL 11

802.11g CHANNEL 12

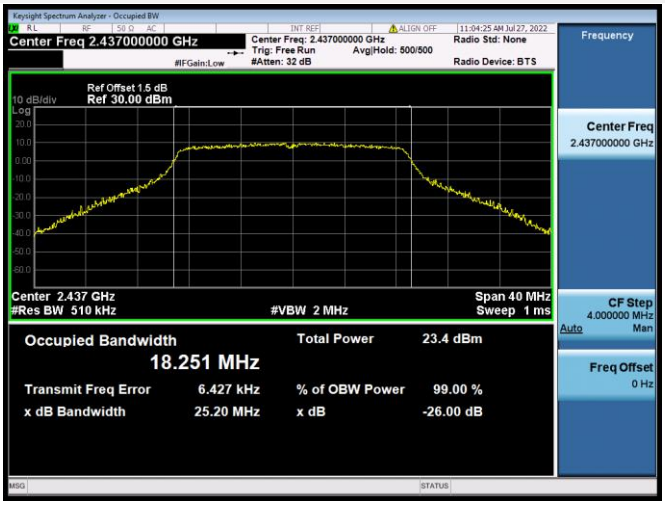
802.11g CHANNEL 13



802.11n-20 MHz CHANNEL 1

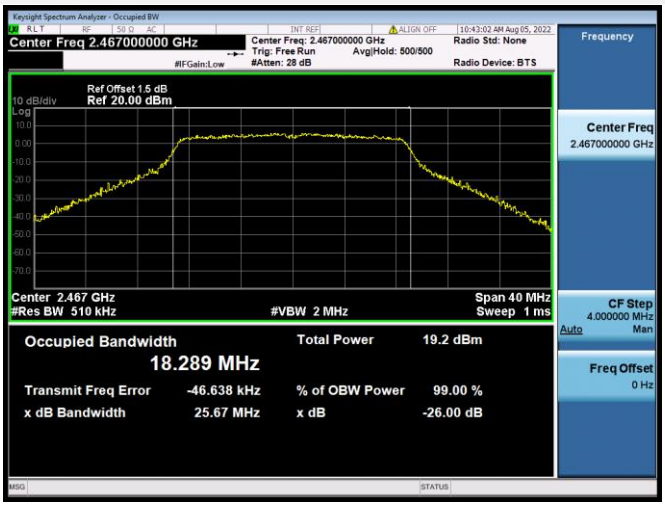


802.11n-20 MHz CHANNEL 6



802.11n-20 MHz CHANNEL 11

802.11n-20 MHz CHANNEL 12



802.11n-20 MHz CHANNEL 13

A.3 Conducted Spurious Emissions

Test Data

802.11b Mode:

Channel	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
1	-49.35	8.34	-11.66	Pass
6	-49.24	9.20	-10.80	Pass
11	-49.81	8.49	-11.51	Pass
12	-49.06	9.12	-10.88	Pass
13	-49.68	8.20	-11.80	Pass

802.11g Mode:

Channel	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
1	-49.49	6.24	-13.76	Pass
6	-49.36	7.11	-12.89	Pass
11	-49.61	6.49	-13.51	Pass
12	-49.26	5.03	-14.97	Pass
13	-49.63	-8.42	-28.42	Pass

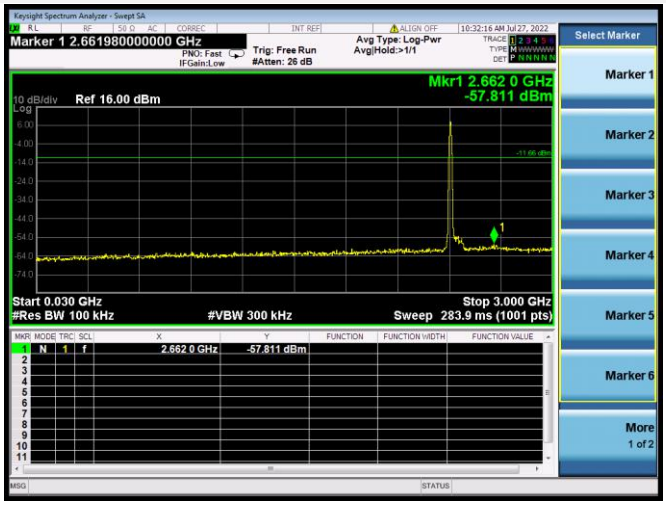
802.11n-20MHz Mode:

Channel	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
1	-50.00	6.40	-13.60	Pass
6	-49.97	7.24	-12.76	Pass
11	-49.14	6.45	-13.55	Pass
12	-48.91	2.96	-17.04	Pass
13	-49.63	-8.40	-28.40	Pass

Test Plots

802.11b CHANNEL 1 CARRIER LEVEL

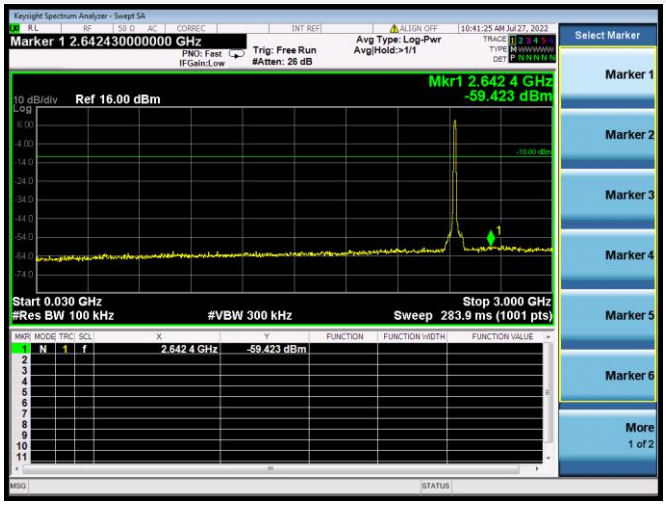
802.11b CHANNEL 1, SPURIOUS 30 MHz ~ 3 GHz



802.11b CHANNEL 1, SPURIOUS 2 GHz ~ 25 GHz

802.11b CHANNEL 6 CARRIER LEVEL

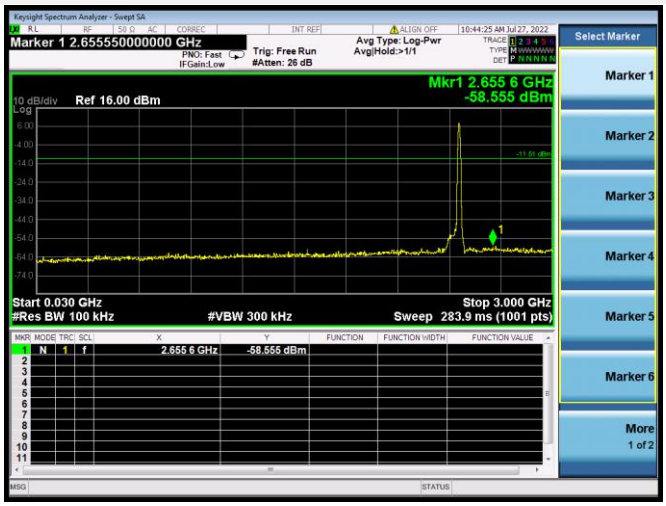
802.11b CHANNEL 6, SPURIOUS
30 MHz ~ 3 GHz



802.11b CHANNEL 6, SPURIOUS
2 GHz ~ 25 GHz

802.11b CHANNEL 11 CARRIER LEVEL

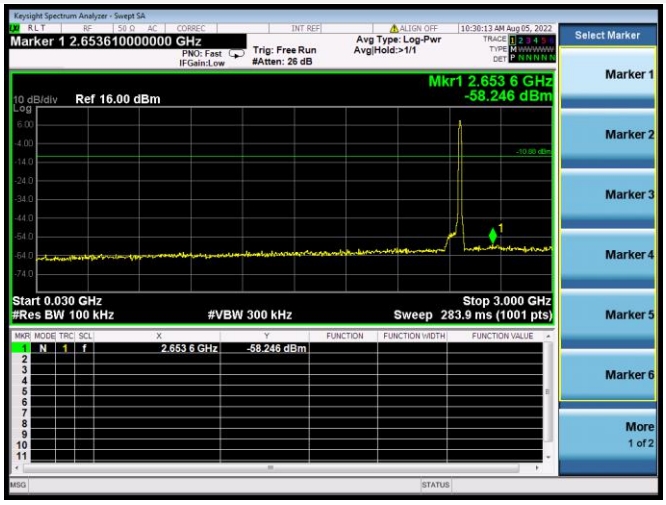
802.11b CHANNEL 11, SPURIOUS
30 MHz ~ 3 GHz



802.11b CHANNEL 11, SPURIOUS
2 GHz ~ 25 GHz

802.11b CHANNEL 12 CARRIER LEVEL

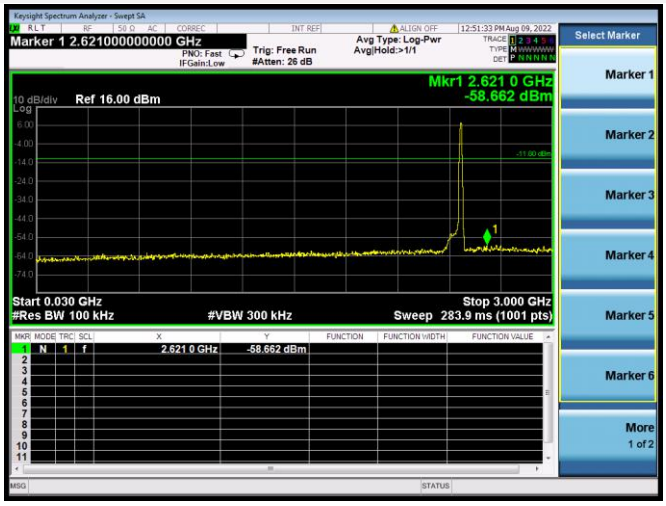
802.11b CHANNEL 12, SPURIOUS
30 MHz ~ 3 GHz



802.11b CHANNEL 12, SPURIOUS
2 GHz ~ 25 GHz

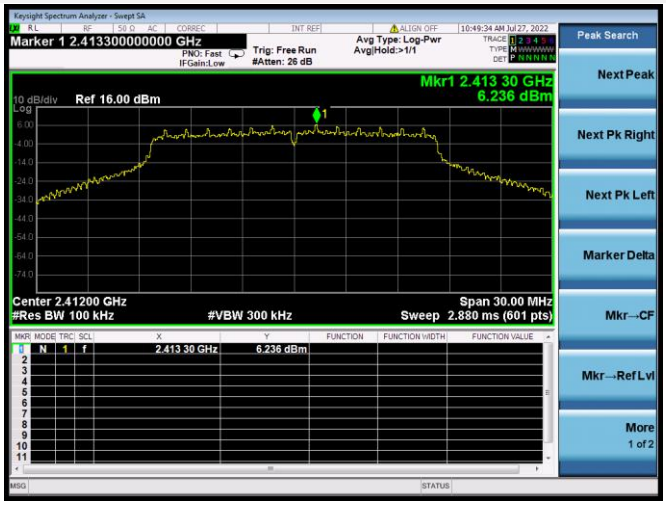
802.11b CHANNEL 13 CARRIER LEVEL

802.11b CHANNEL 13, SPURIOUS 30 MHz ~ 3 GHz

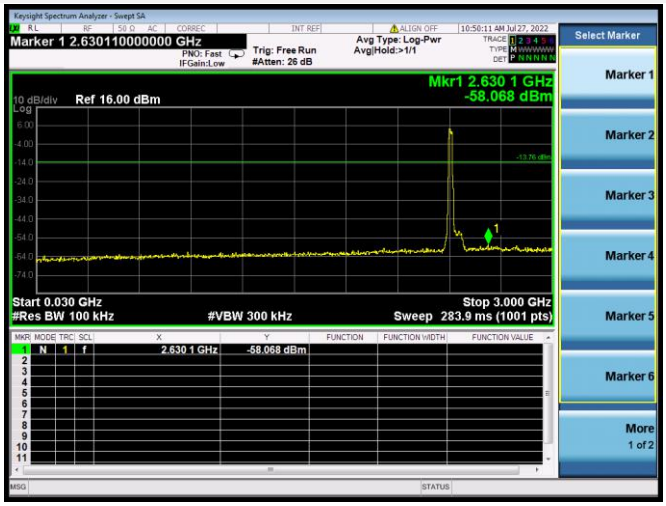


802.11b CHANNEL 13, SPURIOUS 2 GHz ~ 25 GHz

802.11g CHANNEL 1 CARRIER LEVEL

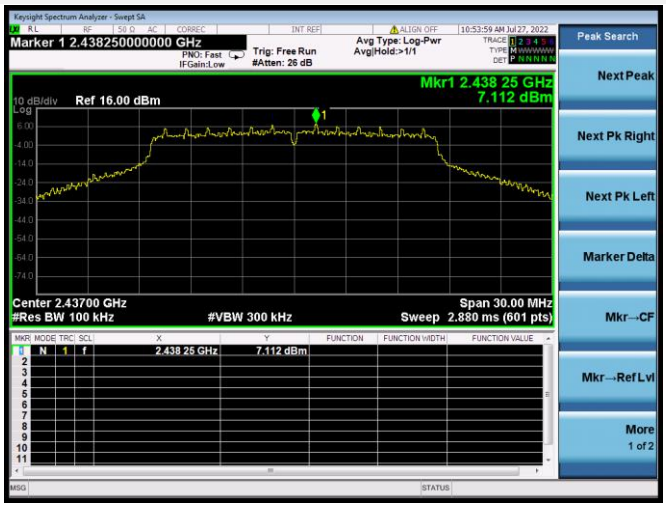


802.11g CHANNEL 1, SPURIOUS 30 MHz ~ 3 GHz

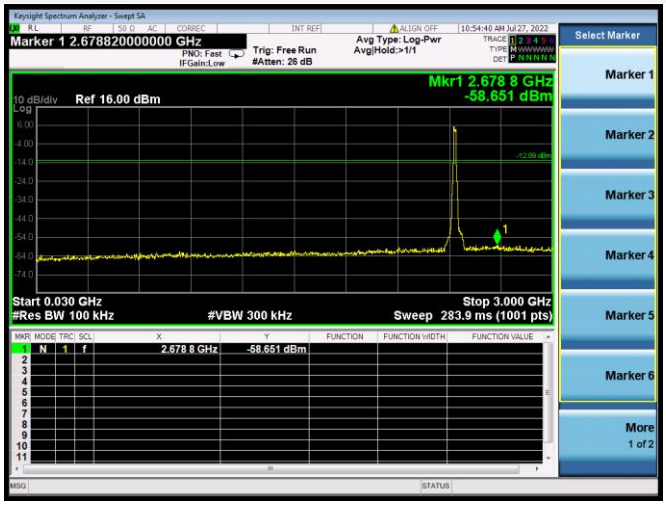


802.11g CHANNEL 1, SPURIOUS 2 GHz ~ 25 GHz

802.11g CHANNEL 6 CARRIER LEVEL

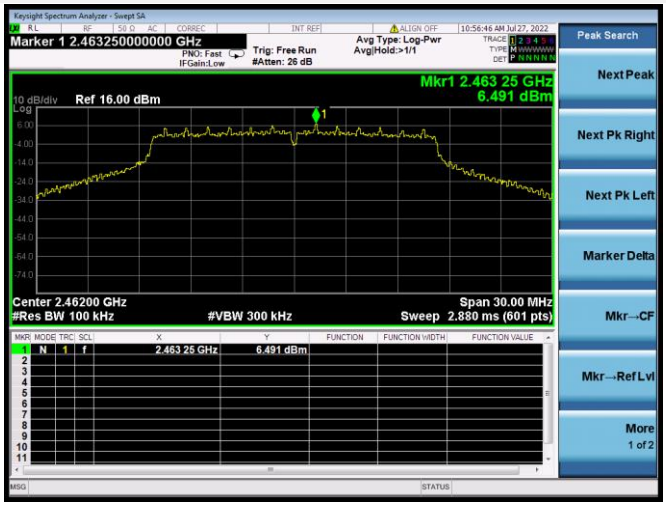


802.11g CHANNEL 6, SPURIOUS
30 MHz ~ 3 GHz

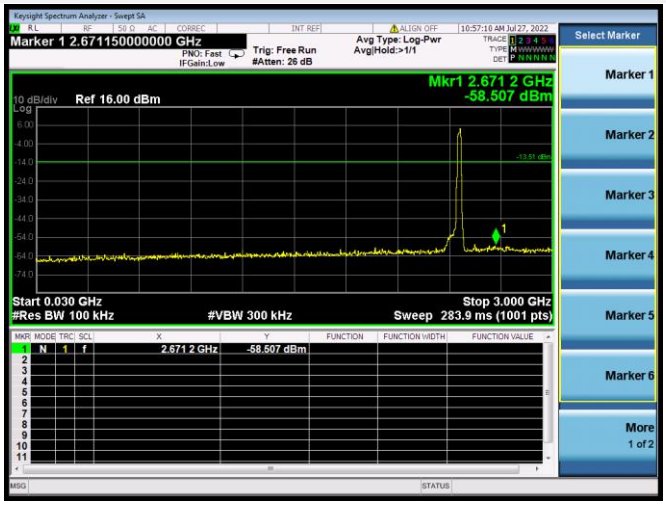


802.11g CHANNEL 6, SPURIOUS
2 GHz ~ 25 GHz

802.11g CHANNEL 11 CARRIER LEVEL

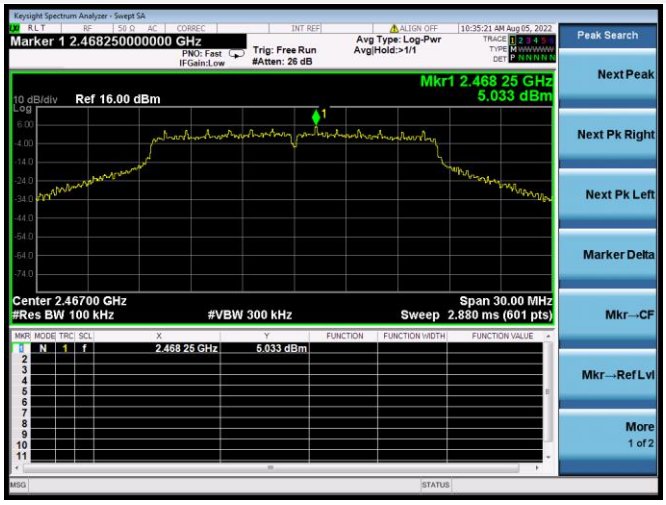


802.11g CHANNEL 11, SPURIOUS
30 MHz ~ 3 GHz

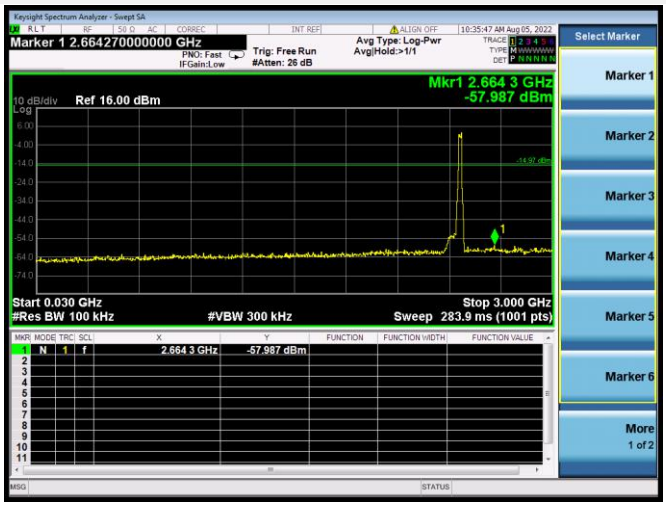


802.11g CHANNEL 11, SPURIOUS
2 GHz ~ 25 GHz

802.11g CHANNEL 12 CARRIER LEVEL



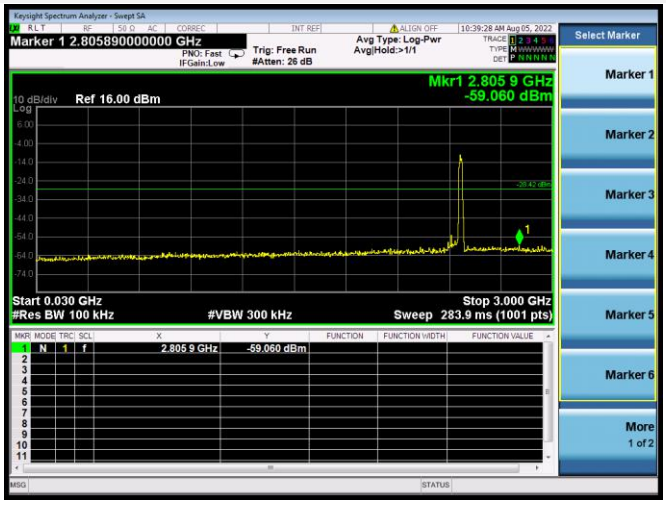
802.11g CHANNEL 12, SPURIOUS
30 MHz ~ 3 GHz



802.11g CHANNEL 12, SPURIOUS
2 GHz ~ 25 GHz

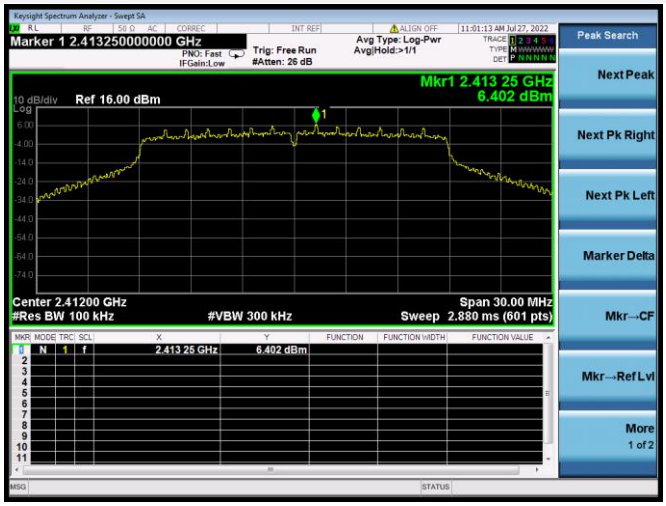
802.11g CHANNEL 13 CARRIER LEVEL

802.11g CHANNEL 13, SPURIOUS 30 MHz ~ 3 GHz

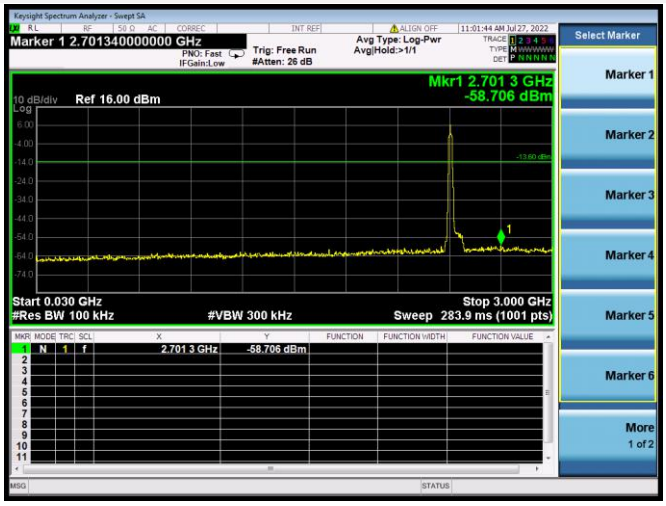


802.11g CHANNEL 13, SPURIOUS 2 GHz ~ 25 GHz

802.11n-20 MHz CHANNEL 1 CARRIER LEVEL



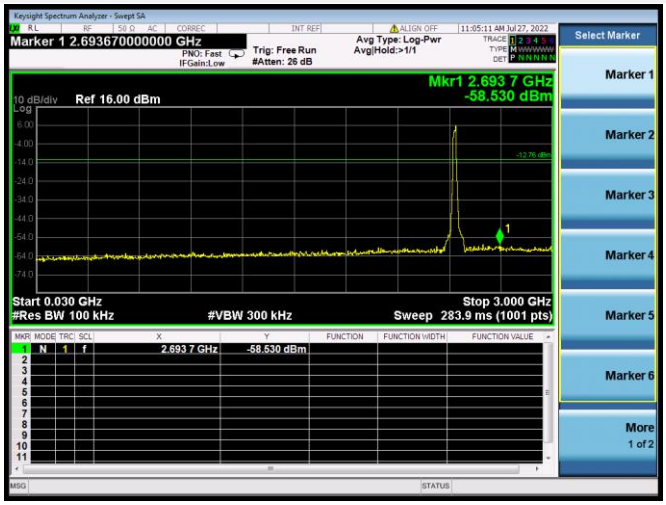
802.11n-20 MHz CHANNEL 1, SPURIOUS
30 MHz ~ 3 GHz



802.11n-20 MHz CHANNEL 1, SPURIOUS
2 GHz ~ 25 GHz

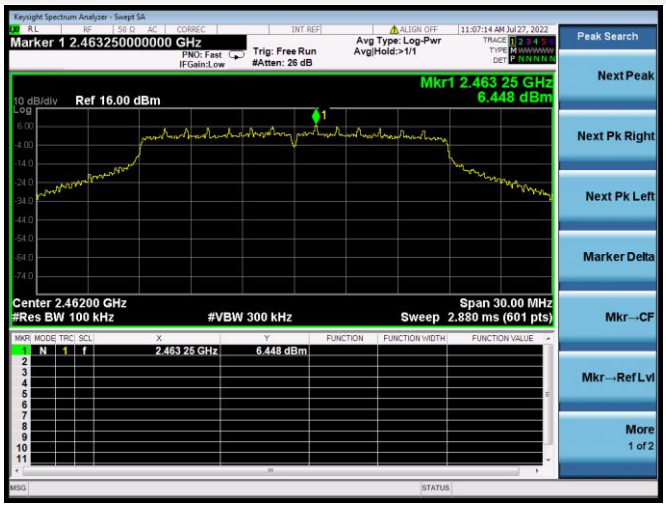
802.11n-20 MHz CHANNEL 6 CARRIER LEVEL

802.11n-20 MHz CHANNEL 6, SPURIOUS
30 MHz ~ 3 GHz

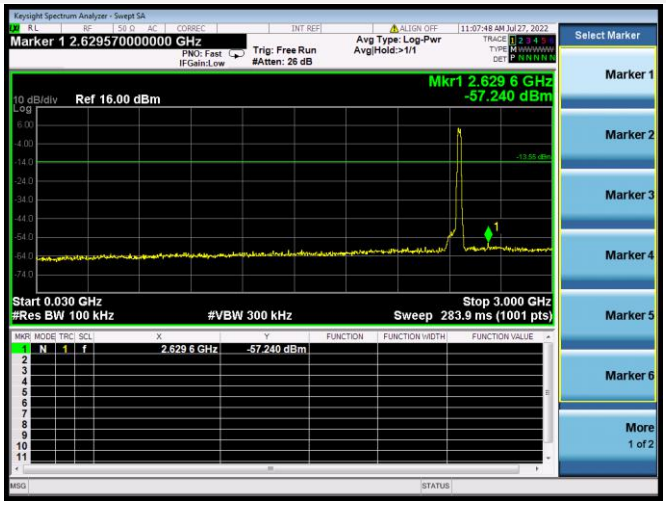


802.11n-20 MHz CHANNEL 6, SPURIOUS
2 GHz ~ 25 GHz

802.11n-20 MHz CHANNEL 11 CARRIER LEVEL

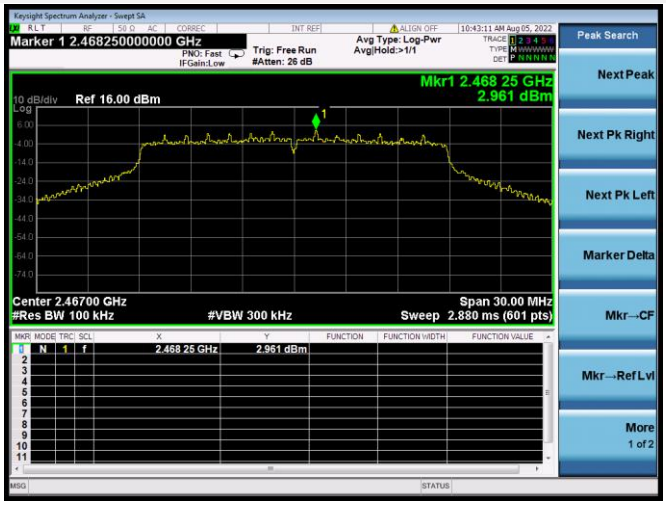


802.11n-20 MHz CHANNEL 11, SPURIOUS
30 MHz ~ 3 GHz

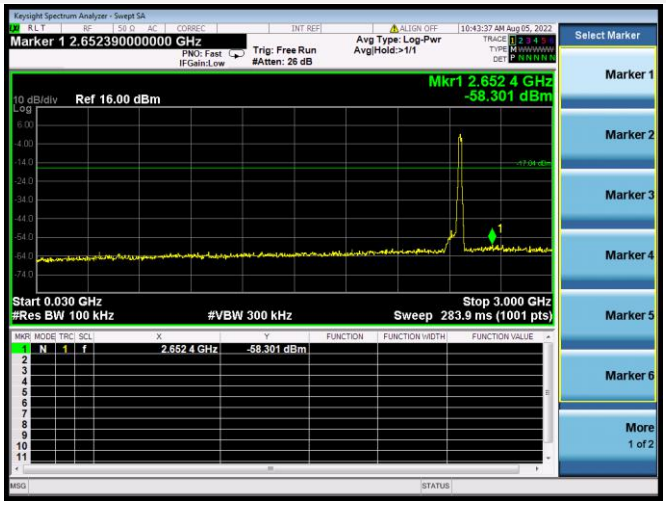


802.11n-20 MHz CHANNEL 11, SPURIOUS
2 GHz ~ 25 GHz

802.11n-20 MHz CHANNEL 12 CARRIER LEVEL

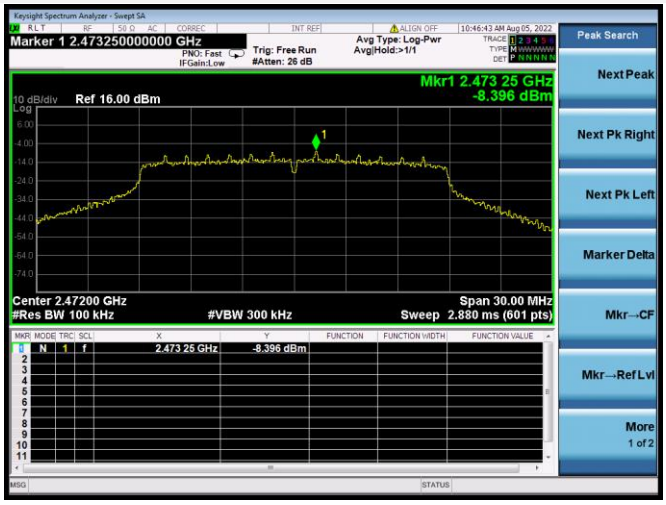


802.11n-20 MHz CHANNEL 12, SPURIOUS
30 MHz ~ 3 GHz

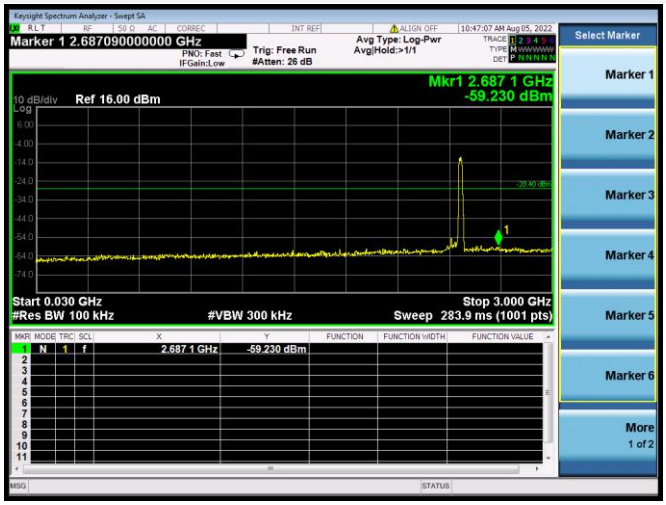


802.11n-20 MHz CHANNEL 12, SPURIOUS
2 GHz ~ 25 GHz

802.11n-20 MHz CHANNEL 13 CARRIER LEVEL



802.11n-20 MHz CHANNEL 13, SPURIOUS
30 MHz ~ 3 GHz



802.11n-20 MHz CHANNEL 13, SPURIOUS
2 GHz ~ 25 GHz

A.4 Band Edge (Authorized-band band-edge)

Note 1: The 99% OBW of the fundamental emission is without 2 MHz of the authorized band.

Test Data

802.11b Mode:

Channel	Measured Max. Band Edge Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
1	-40.74	8.34	-11.66	Pass
11	-52.67	8.49	-11.51	Pass
12	-49.20	9.12	-10.88	Pass
13	-39.80	8.20	-11.80	Pass

802.11g Mode:

Channel	Measured Max. Band Edge Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
1	-23.83	6.24	-13.76	Pass
11	-49.99	6.49	-13.51	Pass
12	-38.22	5.03	-14.97	Pass
13	-39.58	-8.42	-28.42	Pass

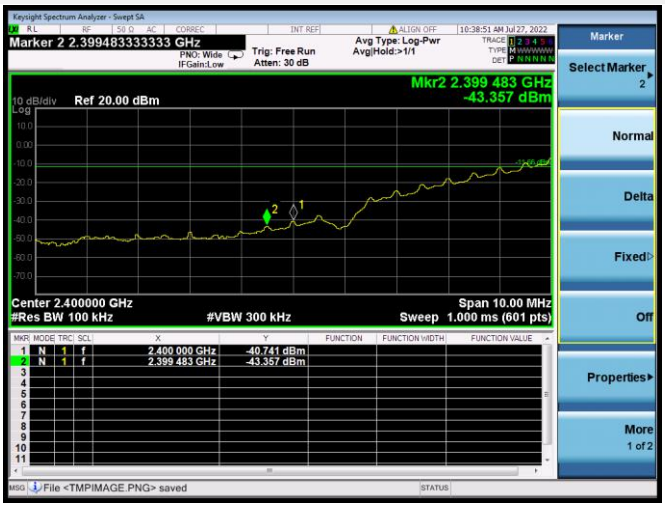
802.11n-20 MHz Mode:

Channel	Measured Max. Band Edge Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
1	-23.86	6.40	-13.60	Pass
11	-49.33	6.45	-13.55	Pass
12	-39.11	2.96	-17.04	Pass
13	-37.47	-8.40	-28.40	Pass

Test Plots

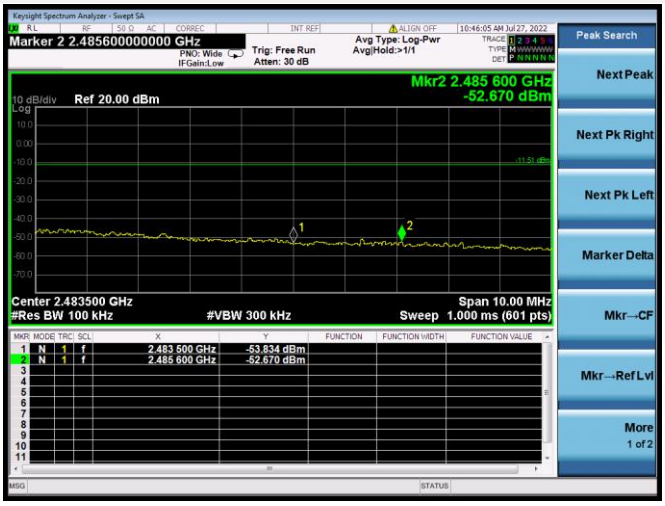
802.11b CHANNEL 1, CARRIER LEVEL

802.11b CHANNEL 1, BAND EDGE



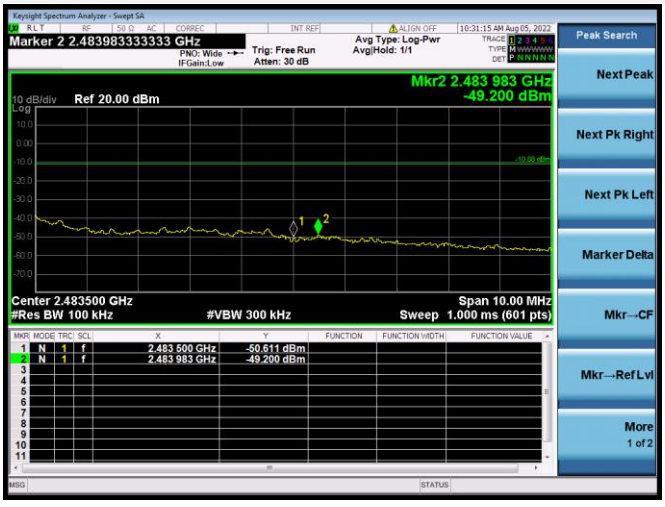
802.11b CHANNEL 11, CARRIER LEVEL

802.11b CHANNEL 11, BAND EDGE



802.11b CHANNEL 12, CARRIER LEVEL

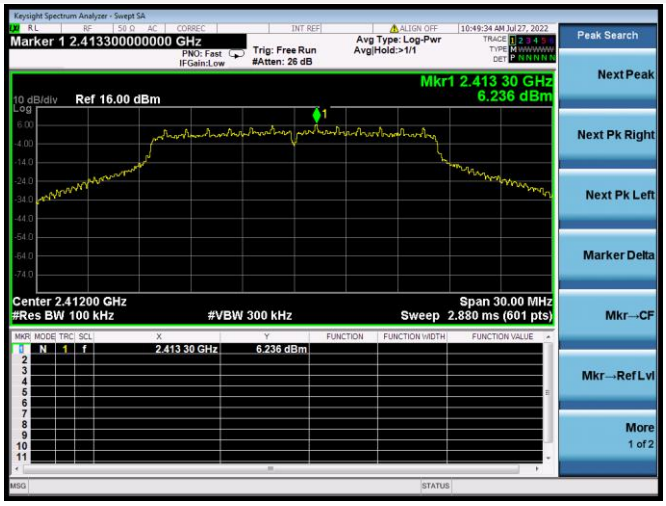
802.11b CHANNEL 12, BAND EDGE



802.11b CHANNEL 13, CARRIER LEVEL

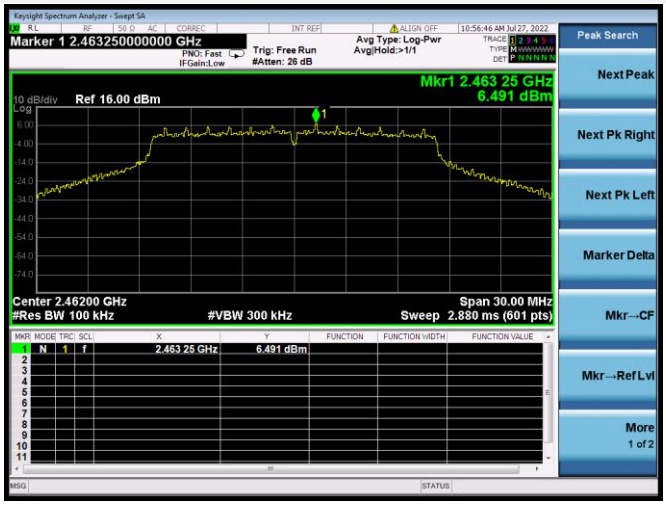
802.11b CHANNEL 13, BAND EDGE

802.11g CHANNEL 1, CARRIER LEVEL

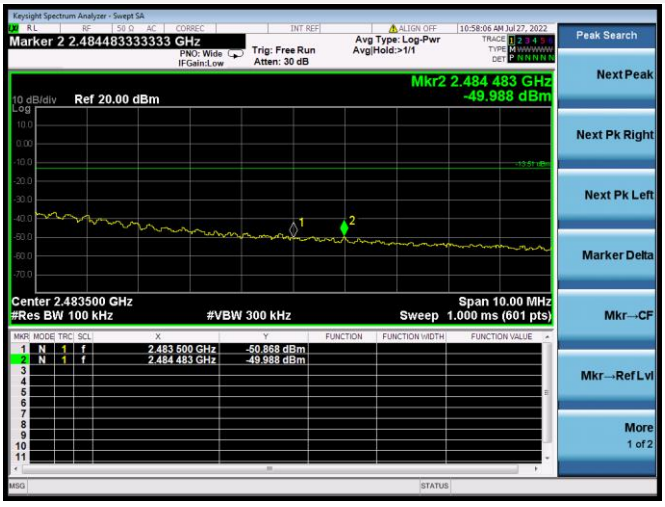


802.11g CHANNEL 1, BAND EDGE

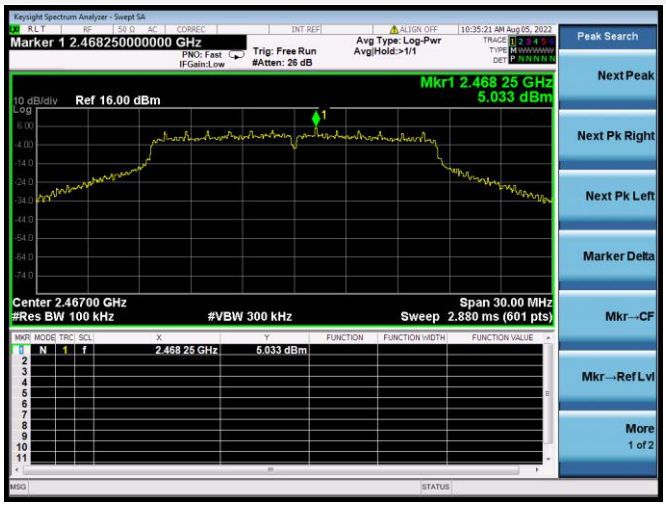
802.11g CHANNEL 11, CARRIER LEVEL



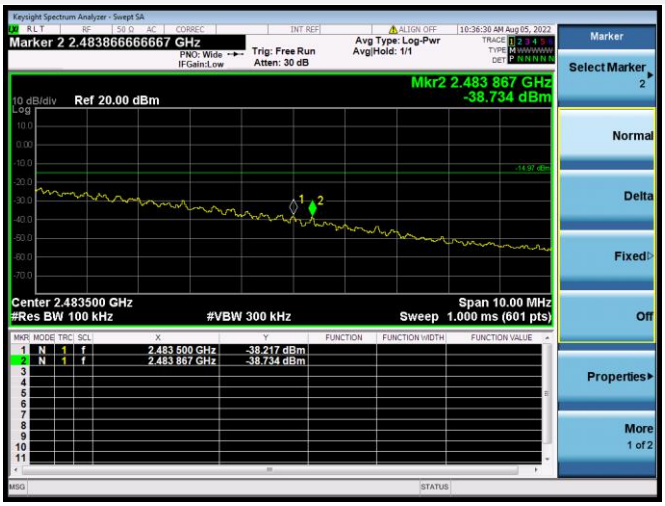
802.11g CHANNEL 11, BAND EDGE



802.11g CHANNEL 12, CARRIER LEVEL



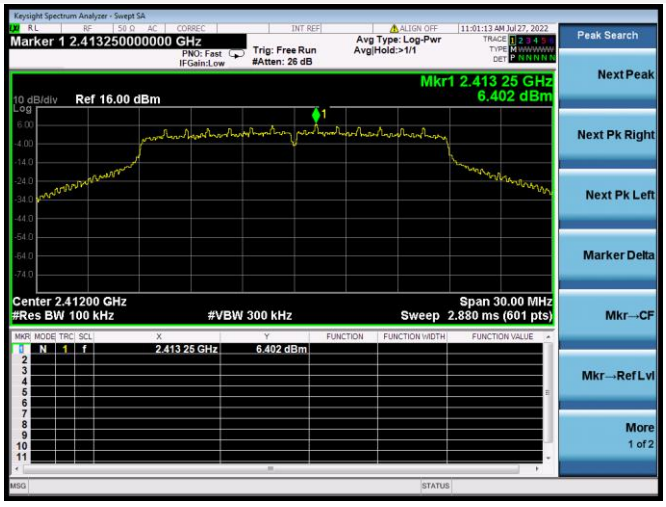
802.11g CHANNEL 12, BAND EDGE



802.11g CHANNEL 13, CARRIER LEVEL

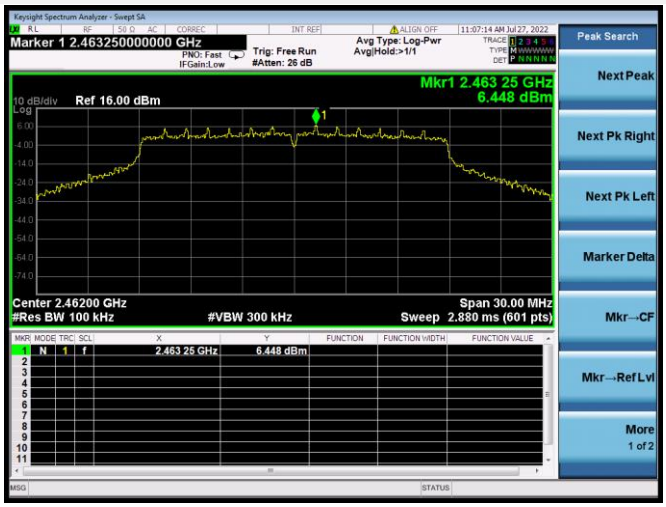
802.11g CHANNEL 13, BAND EDGE

802.11n-20 MHz CHANNEL 1, CARRIER LEVEL

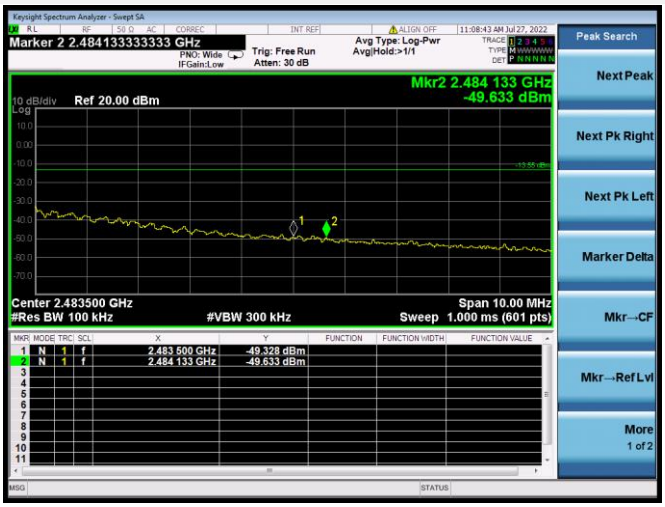


802.11n-20 MHz CHANNEL 1, BAND EDGE

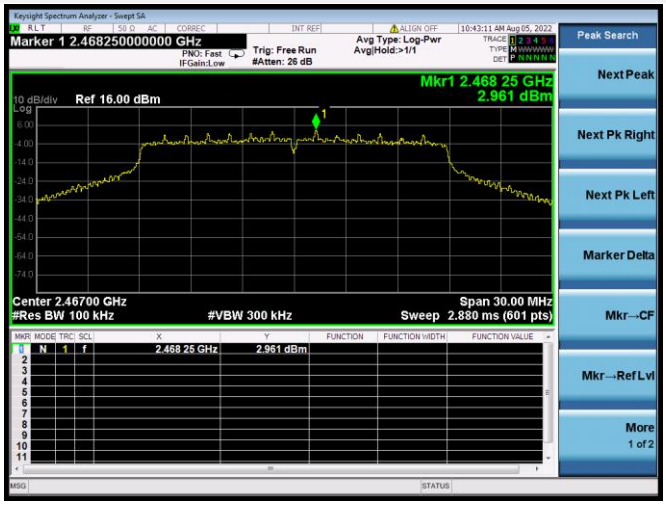
802.11n-20 MHz CHANNEL 11, CARRIER LEVEL



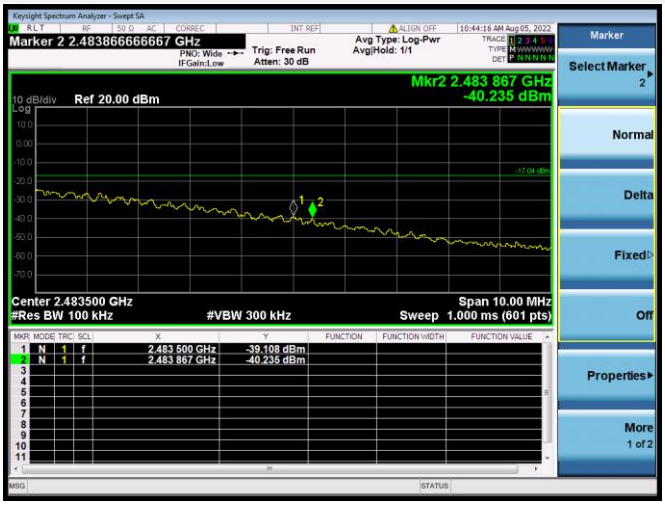
802.11n-20 MHz CHANNEL 11, BAND EDGE



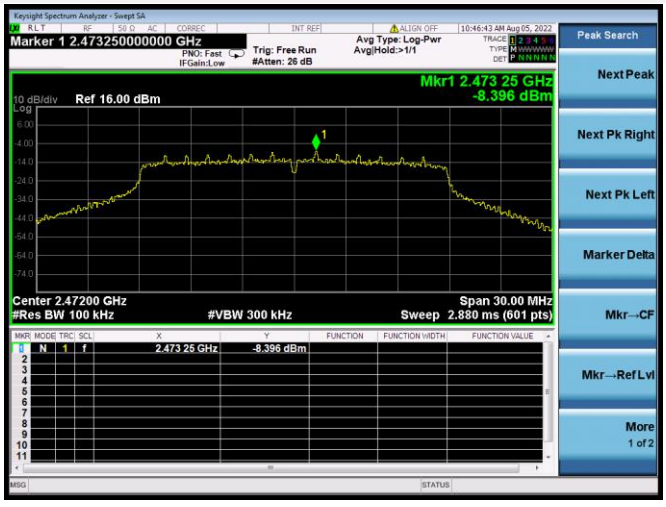
802.11n-20 MHz CHANNEL 12, CARRIER LEVEL



802.11n-20 MHz CHANNEL 12, BAND EDGE



802.11n-20 MHz CHANNEL 13, CARRIER LEVEL



802.11n-20 MHz CHANNEL 13, BAND EDGE

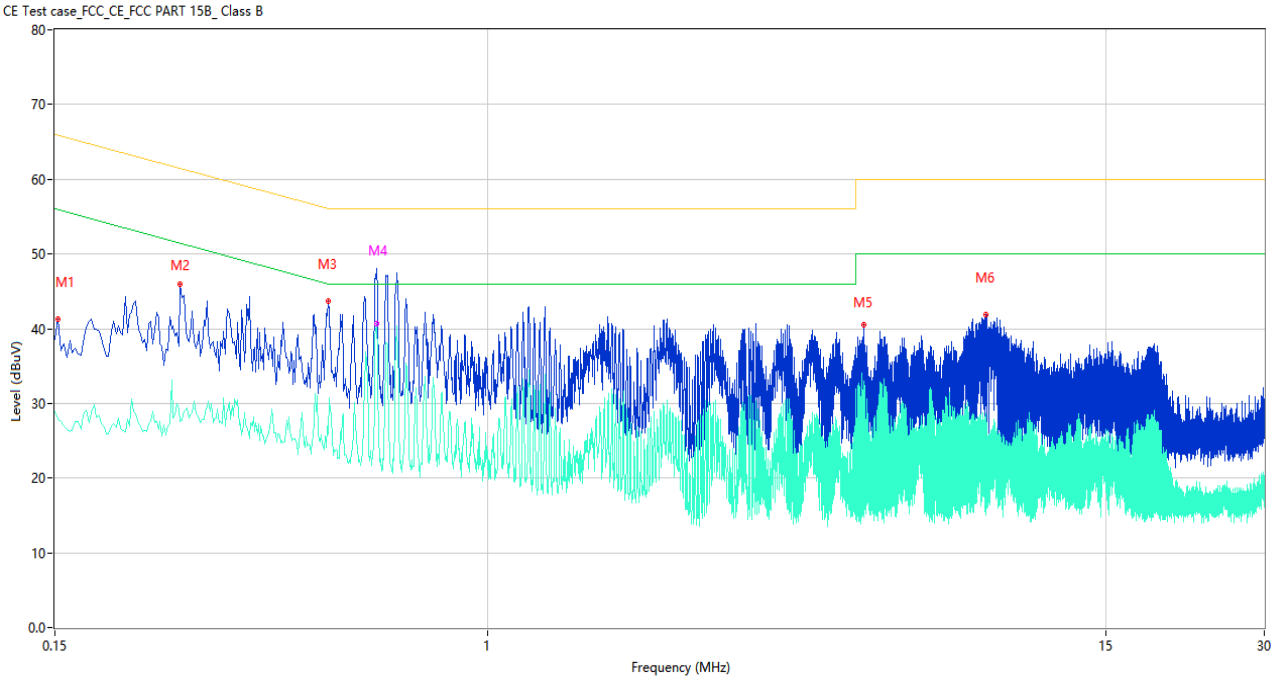
A.5 Conducted Emissions

Note [1]: The EUT is working in the Normal link mode. All modes have been tested and normal link mode is worst.

Note [2]: Devices subject to Part 15 must be tested for all available U.S. voltages and frequencies (such as a nominal 120 VAC, 60 Hz and 240 VAC, 50 Hz) for which the device is capable of operation. So, The configuration 120 VAC, 60 Hz and 240 VAC, 50 Hz were tested respectively, but only the worst configuration (120 VAC, 60 Hz) shown here.

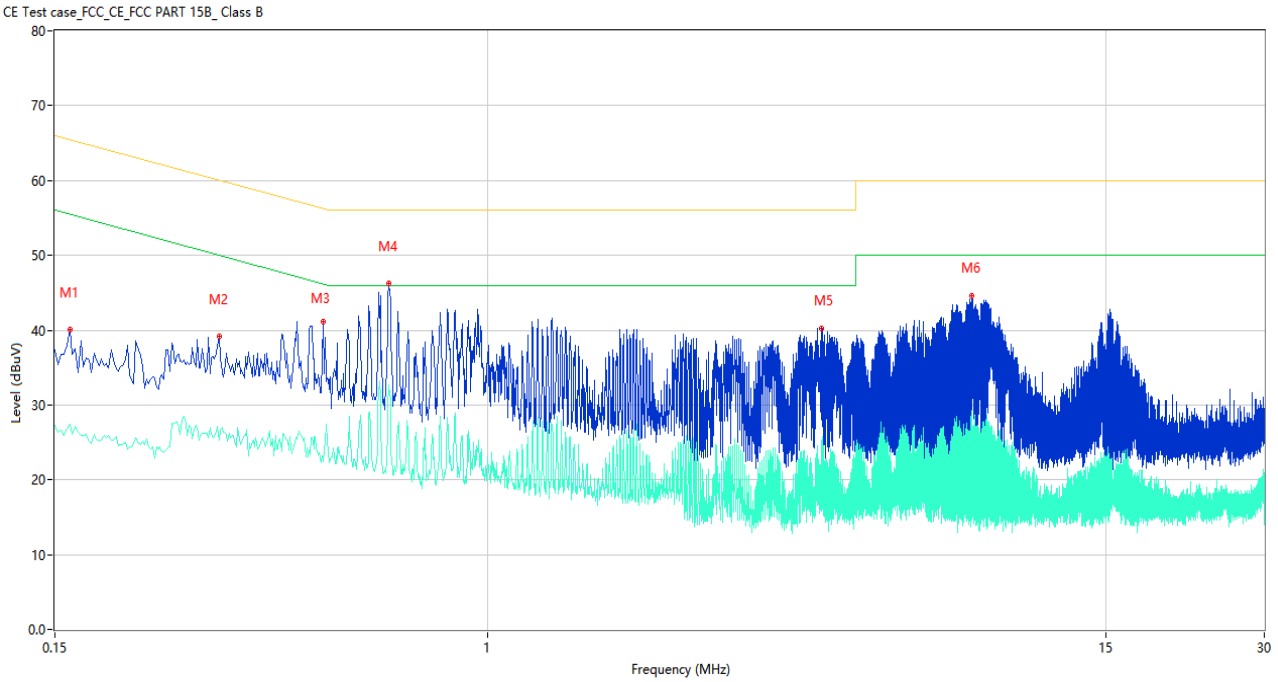
Test Data and Plots

PHASE L



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Over Limit (dB)	Detector	Line	Verdict
1	0.152	41.22	10.19	65.89	-24.67	Peak	L	Pass
1**	0.152	27.87	10.19	55.89	-28.02	AV	L	Pass
2	0.260	45.98	10.07	61.43	-15.45	Peak	L	Pass
2**	0.260	27.58	10.07	51.43	-23.85	AV	L	Pass
3	0.496	43.66	10.30	56.07	-12.41	Peak	L	Pass
3**	0.496	25.94	10.30	46.07	-20.13	AV	L	Pass
4	0.614	48.05	10.50	56.00	-7.95	Peak	L	Pass
4**	0.614	40.70	10.50	46.00	-5.30	AV	L	Pass
5	5.192	40.49	10.42	60.00	-19.51	Peak	L	Pass
5**	5.192	32.98	10.42	50.00	-17.02	AV	L	Pass
6	8.862	41.85	10.49	60.00	-18.15	Peak	L	Pass
6**	8.862	26.61	10.49	50.00	-23.39	AV	L	Pass

PHASE N



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Over Limit (dB)	Detector	Line	Verdict
1	0.160	40.01	10.17	65.46	-25.45	Peak	N	Pass
1**	0.160	27.35	10.17	55.46	-28.11	AV	N	Pass
2	0.308	39.13	10.03	60.02	-20.89	Peak	N	Pass
2**	0.308	25.27	10.03	50.02	-24.75	AV	N	Pass
3	0.486	41.17	10.35	56.24	-15.07	Peak	N	Pass
3**	0.486	22.45	10.35	46.24	-23.79	AV	N	Pass
4	0.648	46.25	10.24	56.00	-9.75	Peak	N	Pass
4**	0.648	32.76	10.24	46.00	-13.24	AV	N	Pass
5	4.312	40.30	10.25	56.00	-15.70	Peak	N	Pass
5**	4.312	25.28	10.25	46.00	-20.72	AV	N	Pass
6	8.340	44.60	10.52	60.00	-15.40	Peak	N	Pass
6**	8.340	15.56	10.52	50.00	-34.44	AV	N	Pass

A.6 Radiated Emission

Note [1]: The symbol of "--" in the table which means not application.

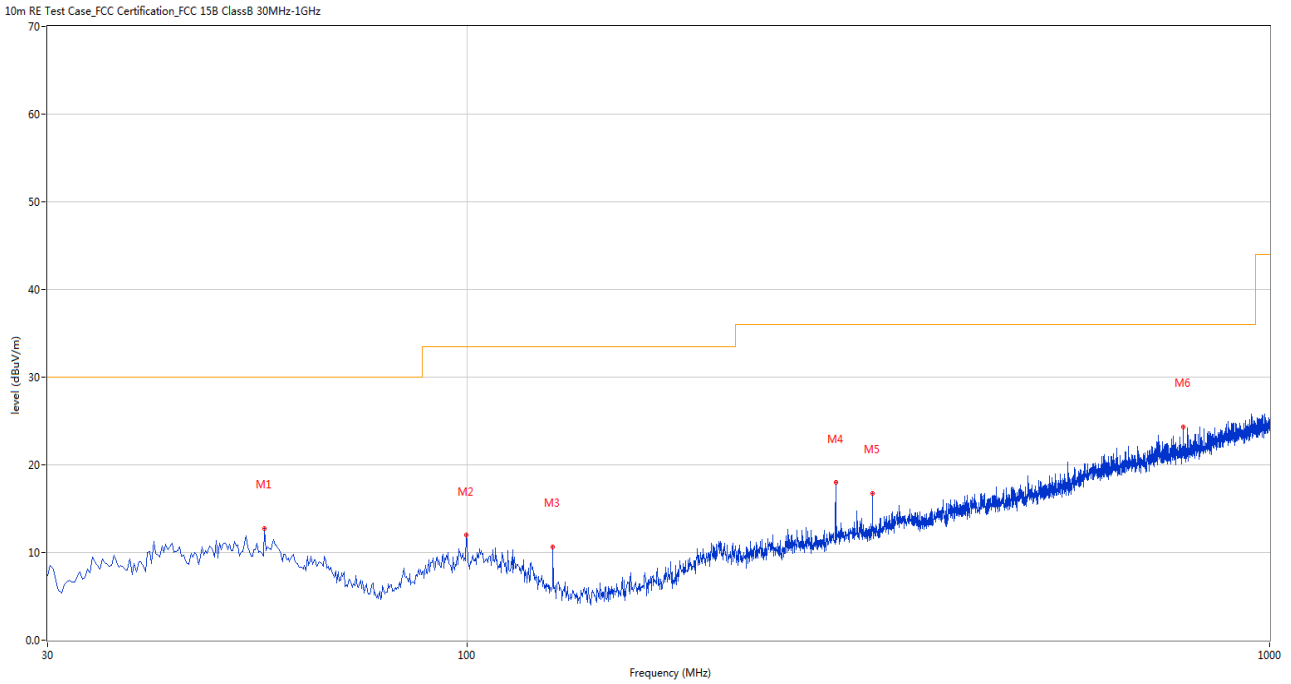
Note [2]: For the test data above 1 GHz，According the ANSI C63.10-2013, where limits are specified for both average and peak (or quasi-peak) detector functions, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement.

Note [3]: The low frequency, which started from 9 kHz to 30 MHz, was pre-scanned and the result which was 20 dB lower than the limit line per 15.31(o) was not reported.

Note [4]: The EUT is working in the Normal link mode below 1 GHz. All modes have been tested and normal link mode is worst.

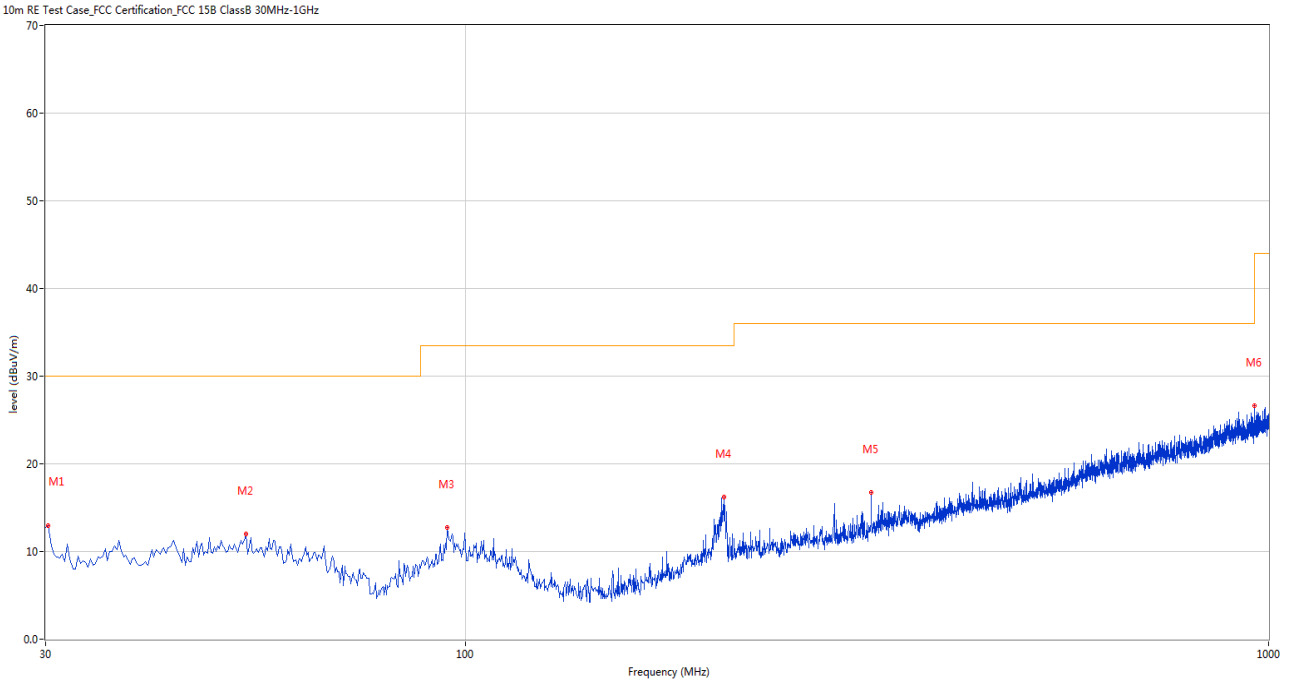
Test Data and Plots

30 MHz to 1 GHz, ANT H



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	55.941	12.76	-26.78	30.0	-17.24	Peak	255.00	100	Horizontal	Pass
2	99.823	11.99	-27.98	33.5	-21.51	Peak	0.00	200	Horizontal	Pass
3	127.946	10.64	-31.06	33.5	-22.86	Peak	144.00	100	Horizontal	Pass
4	287.956	17.97	-25.19	36.0	-18.03	Peak	231.00	200	Horizontal	Pass
5	319.958	16.75	-24.53	36.0	-19.25	Peak	0.00	200	Horizontal	Pass
6	780.107	24.33	-14.40	36.0	-11.67	Peak	0.00	200	Horizontal	Pass

30 MHz to 1 GHz, ANT V



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	30.242	12.91	-29.40	30.0	-17.09	Peak	94.00	100	Vertical	Pass
2	53.274	11.99	-26.43	30.0	-18.01	Peak	0.00	200	Vertical	Pass
3	94.974	12.70	-28.85	33.5	-20.80	Peak	135.00	200	Vertical	Pass
4	209.890	16.17	-28.04	33.5	-17.33	Peak	320.00	100	Vertical	Pass
5	319.958	16.71	-24.53	36.0	-19.29	Peak	0.00	200	Vertical	Pass
6	960.725	26.62	-11.94	44.0	-17.38	Peak	230.00	100	Vertical	Pass

Note 1: The marked spikes near 2400 MHz with circle should be ignored because they are Fundamental signal.

Note 2: The spurious above 18G is noise only, do not show on the report.

1 GHz to 18 GHz, ANT H 802.11b CHANNEL 1

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1000.100	43.20	-18.66	74.0	-30.80	Peak	229.00	400	Horizontal	Pass
1**	1000.100	34.41	-18.66	54.0	-19.59	AV	229.00	400	Horizontal	Pass
2	2410.900	105.34	-13.47	74.0	31.34	Peak	0.00	100	Horizontal	N/A
2**	2410.900	102.49	-13.47	54.0	48.49	AV	0.00	100	Horizontal	N/A
3	2891.900	50.38	-9.94	74.0	-23.62	Peak	319.00	100	Horizontal	Pass
3**	2891.900	40.96	-9.94	54.0	-13.04	AV	319.00	100	Horizontal	Pass
4	7835.750	52.95	2.15	74.0	-21.05	Peak	241.00	400	Horizontal	Pass
4**	7835.750	44.03	2.15	54.0	-9.97	AV	241.00	400	Horizontal	Pass
5	11548.250	49.54	-4.38	74.0	-24.46	Peak	163.00	100	Horizontal	Pass
5**	11548.250	40.67	-4.38	54.0	-13.33	AV	163.00	100	Horizontal	Pass
6	16582.238	52.77	0.00	74.0	-21.23	Peak	34.00	200	Horizontal	Pass
6**	16582.238	42.53	0.00	54.0	-11.47	AV	34.00	200	Horizontal	Pass

1 GHz to 18 GHz, ANT V 802.11b CHANNEL 1

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1330.900	42.93	-17.43	74.0	-31.07	Peak	275.00	400	Vertical	Pass
1**	1330.900	32.38	-17.43	54.0	-21.62	AV	275.00	400	Vertical	Pass
2	2412.000	104.21	-13.41	74.0	30.21	Peak	116.00	100	Vertical	N/A
2**	2412.000	100.18	-13.41	54.0	46.18	AV	116.00	100	Vertical	N/A
3	2663.400	52.19	-12.47	74.0	-21.81	Peak	0.00	100	Vertical	Pass
3**	2663.400	40.71	-12.47	54.0	-13.29	AV	0.00	100	Vertical	Pass
4	7217.000	53.78	-1.47	74.0	-20.22	Peak	317.00	300	Vertical	Pass
4**	7217.000	41.99	-1.47	54.0	-12.01	AV	317.00	300	Vertical	Pass
5	12448.850	49.25	-2.17	74.0	-24.75	Peak	128.00	100	Vertical	Pass
5**	12448.850	39.79	-2.17	54.0	-14.21	AV	128.00	100	Vertical	Pass
6	16894.875	52.72	1.47	74.0	-21.28	Peak	70.00	200	Vertical	Pass
6**	16894.875	42.44	1.47	54.0	-11.56	AV	70.00	200	Vertical	Pass

1 GHz to 18 GHz, ANT H 802.11b CHANNEL 6

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1502.100	41.61	-17.43	74.0	-32.39	Peak	51.00	200	Horizontal	Pass
1**	1502.100	32.41	-17.43	54.0	-21.59	AV	51.00	200	Horizontal	Pass
2	2435.800	106.48	-12.13	74.0	32.48	Peak	349.00	100	Horizontal	N/A
2**	2435.800	103.58	-12.13	54.0	49.58	AV	349.00	100	Horizontal	N/A
3	2767.000	49.91	-11.01	74.0	-24.09	Peak	131.00	100	Horizontal	Pass
3**	2767.000	40.17	-11.01	54.0	-13.83	AV	131.00	100	Horizontal	Pass
4	7818.000	53.14	1.73	74.0	-20.86	Peak	39.00	100	Horizontal	Pass
4**	7818.000	43.03	1.73	54.0	-10.97	AV	39.00	100	Horizontal	Pass
5	12698.700	50.23	-2.34	74.0	-23.77	Peak	180.00	300	Horizontal	Pass
5**	12698.700	39.59	-2.34	54.0	-14.41	AV	180.00	300	Horizontal	Pass
6	17312.776	52.73	1.98	74.0	-21.27	Peak	263.00	100	Horizontal	Pass
6**	17312.776	43.73	1.98	54.0	-10.27	AV	263.00	100	Horizontal	Pass

1 GHz to 18 GHz, ANT V 802.11b CHANNEL 6

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1328.300	42.07	-17.09	74.0	-31.93	Peak	134.00	400	Vertical	Pass
1**	1328.300	34.66	-17.09	54.0	-19.34	AV	134.00	400	Vertical	Pass
2	2437.000	104.55	-12.30	74.0	30.55	Peak	104.00	150	Vertical	N/A
2**	2437.000	99.97	-12.30	54.0	45.97	AV	104.00	150	Vertical	N/A
3	2662.600	52.51	-12.49	74.0	-21.49	Peak	360.00	100	Vertical	Pass
3**	2662.600	41.80	-12.49	54.0	-12.20	AV	360.00	100	Vertical	Pass
4	7834.000	52.89	2.24	74.0	-21.11	Peak	218.00	100	Vertical	Pass
4**	7834.000	43.52	2.24	54.0	-10.48	AV	218.00	100	Vertical	Pass
5	12804.600	49.65	-2.03	74.0	-24.35	Peak	335.00	300	Vertical	Pass
5**	12804.600	40.13	-2.03	54.0	-13.87	AV	335.00	300	Vertical	Pass
6	17046.600	53.09	0.89	74.0	-20.91	Peak	54.00	400	Vertical	Pass
6**	17046.600	42.80	0.89	54.0	-11.20	AV	54.00	400	Vertical	Pass

1 GHz to 18 GHz, ANT H 802.11b CHANNEL 11

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1374.100	42.40	-17.45	74.0	-31.60	Peak	220.00	300	Horizontal	Pass
1**	1374.100	31.75	-17.45	54.0	-22.25	AV	220.00	300	Horizontal	Pass
2	2462.000	102.98	-12.64	74.0	28.98	Peak	354.00	100	Horizontal	N/A
2**	2462.000	98.89	-12.64	54.0	44.89	AV	354.00	100	Horizontal	N/A
3	2782.500	49.31	-11.21	74.0	-24.69	Peak	5.00	100	Horizontal	Pass
3**	2782.500	39.74	-11.21	54.0	-14.26	AV	5.00	100	Horizontal	Pass
4	7871.250	52.97	2.06	74.0	-21.03	Peak	4.00	100	Horizontal	Pass
4**	7871.250	43.97	2.06	54.0	-10.03	AV	4.00	100	Horizontal	Pass
5	11210.050	48.98	-4.08	74.0	-25.02	Peak	302.00	300	Horizontal	Pass
5**	11210.050	39.04	-4.08	54.0	-14.96	AV	302.00	300	Horizontal	Pass
6	17283.637	52.91	1.99	74.0	-21.09	Peak	84.00	100	Horizontal	Pass
6**	17283.637	42.95	1.99	54.0	-11.05	AV	84.00	100	Horizontal	Pass

1 GHz to 18 GHz, ANT V 802.11b CHANNEL 11

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1327.800	42.92	-17.16	74.0	-31.08	Peak	276.00	100	Vertical	Pass
1**	1327.800	33.53	-17.16	54.0	-20.47	AV	276.00	100	Vertical	Pass
2	2462.100	96.76	-12.64	74.0	22.76	Peak	71.00	100	Vertical	N/A
2**	2462.100	92.29	-12.64	54.0	38.29	AV	71.00	100	Vertical	N/A
3	2657.500	55.32	-12.48	74.0	-18.68	Peak	200.00	150	Vertical	Pass
3**	2657.500	44.88	-12.48	54.0	-9.12	AV	200.00	150	Vertical	Pass
4	5318.750	55.03	-3.54	74.0	-18.97	Peak	210.00	400	Vertical	Pass
4**	5318.750	42.34	-3.54	54.0	-11.66	AV	210.00	400	Vertical	Pass
5	12668.063	49.57	-2.31	74.0	-24.43	Peak	253.00	200	Vertical	Pass
5**	12668.063	40.29	-2.31	54.0	-13.71	AV	253.00	200	Vertical	Pass
6	16542.074	52.96	0.03	74.0	-21.04	Peak	24.00	100	Vertical	Pass
6**	16542.074	43.48	0.03	54.0	-10.52	AV	24.00	100	Vertical	Pass

1 GHz to 18 GHz, ANT H 802.11b CHANNEL 12

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1508.800	41.46	-17.39	74.0	-32.54	Peak	64.00	100	Horizontal	Pass
1**	1508.800	31.95	-17.39	54.0	-22.05	AV	64.00	100	Horizontal	Pass
2	2467.000	105.42	-12.72	74.0	31.42	Peak	309.00	100	Horizontal	N/A
2**	2467.000	100.93	-12.72	54.0	46.93	AV	309.00	100	Horizontal	N/A
3	4453.750	49.39	-4.17	74.0	-24.61	Peak	82.00	100	Horizontal	Pass
3**	4453.750	39.02	-4.17	54.0	-14.98	AV	82.00	100	Horizontal	Pass
4	7821.500	52.61	1.69	74.0	-21.39	Peak	177.00	200	Horizontal	Pass
4**	7821.500	43.46	1.69	54.0	-10.54	AV	177.00	200	Horizontal	Pass
5	11044.750	49.13	-5.04	74.0	-24.87	Peak	292.00	400	Horizontal	Pass
5**	11044.750	38.48	-5.04	54.0	-15.52	AV	292.00	400	Horizontal	Pass
6	16522.912	52.33	0.01	74.0	-21.67	Peak	7.00	100	Horizontal	Pass
6**	16522.912	43.32	0.01	54.0	-10.68	AV	7.00	100	Horizontal	Pass

1 GHz to 18 GHz, ANT V 802.11b CHANNEL 12

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1165.400	42.96	-18.17	74.0	-31.04	Peak	184.00	100	Vertical	Pass
1**	1165.400	32.56	-18.17	54.0	-21.44	AV	184.00	100	Vertical	Pass
2	2467.000	104.47	-12.72	74.0	30.47	Peak	110.00	100	Vertical	N/A
2**	2467.000	100.22	-12.72	54.0	46.22	AV	110.00	100	Vertical	N/A
3	2655.800	52.33	-12.37	74.0	-21.67	Peak	198.00	100	Vertical	Pass
3**	2655.800	41.90	-12.37	54.0	-12.10	AV	198.00	100	Vertical	Pass
4	7835.000	52.73	2.19	74.0	-21.27	Peak	360.00	200	Vertical	Pass
4**	7835.000	44.60	2.19	54.0	-9.40	AV	360.00	200	Vertical	Pass
5	12610.350	49.35	-2.55	74.0	-24.65	Peak	360.00	100	Vertical	Pass
5**	12610.350	39.90	-2.55	54.0	-14.10	AV	360.00	100	Vertical	Pass
6	17241.901	53.17	1.85	74.0	-20.83	Peak	229.00	200	Vertical	Pass
6**	17241.901	43.60	1.85	54.0	-10.40	AV	229.00	200	Vertical	Pass

1 GHz to 18 GHz, ANT H 802.11b CHANNEL 13

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1599.800	41.62	-17.74	74.0	-32.38	Peak	141.00	300	Horizontal	Pass
1**	1599.800	35.32	-17.74	54.0	-18.68	AV	141.00	300	Horizontal	Pass
2	2470.600	102.69	-12.71	74.0	28.69	Peak	313.00	100	Horizontal	N/A
2**	2470.600	99.79	-12.71	54.0	45.79	AV	313.00	100	Horizontal	N/A
3	5367.000	50.72	-3.42	74.0	-23.28	Peak	270.00	100	Horizontal	Pass
3**	5367.000	40.69	-3.42	54.0	-13.31	AV	270.00	100	Horizontal	Pass
4	7874.250	52.95	2.06	74.0	-21.05	Peak	261.00	400	Horizontal	Pass
4**	7874.250	43.33	2.06	54.0	-10.67	AV	261.00	400	Horizontal	Pass
5	12917.737	49.61	-1.80	74.0	-24.39	Peak	82.00	400	Horizontal	Pass
5**	12917.737	39.34	-1.80	54.0	-14.66	AV	82.00	400	Horizontal	Pass
6	17295.450	52.54	2.01	74.0	-21.46	Peak	45.00	200	Horizontal	Pass
6**	17295.450	42.98	2.01	54.0	-11.02	AV	45.00	200	Horizontal	Pass

1 GHz to 18 GHz, ANT V 802.11b CHANNEL 13

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1329.200	42.62	-17.20	74.0	-31.38	Peak	144.00	400	Vertical	Pass
1**	1329.200	33.43	-17.20	54.0	-20.57	AV	144.00	400	Vertical	Pass
2	2470.800	103.14	-12.71	74.0	29.14	Peak	107.00	100	Vertical	N/A
2**	2470.800	100.19	-12.71	54.0	46.19	AV	107.00	100	Vertical	N/A
3	2665.400	53.82	-12.44	74.0	-20.18	Peak	197.00	100	Vertical	Pass
3**	2665.400	45.55	-12.44	54.0	-8.45	AV	197.00	100	Vertical	Pass
4	7281.500	52.40	-0.73	74.0	-21.60	Peak	107.00	400	Vertical	Pass
4**	7281.500	42.25	-0.73	54.0	-11.75	AV	107.00	400	Vertical	Pass
5	12515.826	49.05	-2.36	74.0	-24.95	Peak	0.00	300	Vertical	Pass
5**	12515.826	39.10	-2.36	54.0	-14.90	AV	0.00	300	Vertical	Pass
6	17803.911	53.16	3.19	74.0	-20.84	Peak	33.00	100	Vertical	Pass
6**	17803.911	43.87	3.19	54.0	-10.13	AV	33.00	100	Vertical	Pass

1 GHz to 18 GHz, ANT H 802.11g CHANNEL 1

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1298.400	41.73	-17.52	74.0	-32.27	Peak	305.00	400	Horizontal	Pass
1**	1298.400	32.39	-17.52	54.0	-21.61	AV	305.00	400	Horizontal	Pass
2	2413.400	103.65	-13.42	74.0	29.65	Peak	354.00	100	Horizontal	N/A
2**	2413.400	96.21	-13.42	54.0	42.21	AV	354.00	100	Horizontal	N/A
3	2930.700	49.67	-10.80	74.0	-24.33	Peak	0.00	200	Horizontal	Pass
3**	2930.700	40.47	-10.80	54.0	-13.53	AV	0.00	200	Horizontal	Pass
4	7860.750	53.11	1.30	74.0	-20.89	Peak	75.00	200	Horizontal	Pass
4**	7860.750	43.20	1.30	54.0	-10.80	AV	75.00	200	Horizontal	Pass
5	12673.762	49.03	-2.32	74.0	-24.97	Peak	302.00	200	Horizontal	Pass
5**	12673.762	39.12	-2.32	54.0	-14.88	AV	302.00	200	Horizontal	Pass
6	17059.724	52.59	1.00	74.0	-21.41	Peak	128.00	400	Horizontal	Pass
6**	17059.724	43.57	1.00	54.0	-10.43	AV	128.00	400	Horizontal	Pass

1 GHz to 18 GHz, ANT V 802.11g CHANNEL 1

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1000.000	42.75	-18.65	74.0	-31.25	Peak	323.00	400	Vertical	Pass
1**	1000.000	31.11	-18.65	54.0	-22.89	AV	323.00	400	Vertical	Pass
2	2413.500	98.85	-13.42	74.0	24.85	Peak	115.00	200	Vertical	N/A
2**	2413.500	90.74	-13.42	54.0	36.74	AV	115.00	200	Vertical	N/A
3	2657.200	53.97	-12.43	74.0	-20.03	Peak	360.00	100	Vertical	Pass
3**	2657.200	45.25	-12.43	54.0	-8.75	AV	360.00	100	Vertical	Pass
4	5311.250	54.40	-3.70	74.0	-19.60	Peak	220.00	200	Vertical	Pass
4**	5311.250	44.28	-3.70	54.0	-9.72	AV	220.00	200	Vertical	Pass
5	12446.950	49.51	-2.20	74.0	-24.49	Peak	127.00	400	Vertical	Pass
5**	12446.950	40.13	-2.20	54.0	-13.87	AV	127.00	400	Vertical	Pass
6	16903.801	52.48	1.45	74.0	-21.52	Peak	8.00	200	Vertical	Pass
6**	16903.801	43.44	1.45	54.0	-10.56	AV	8.00	200	Vertical	Pass

1 GHz to 18 GHz, ANT H 802.11g CHANNEL 6

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1392.400	41.63	-17.24	74.0	-32.37	Peak	215.00	200	Horizontal	Pass
1**	1392.400	32.33	-17.24	54.0	-21.67	AV	215.00	200	Horizontal	Pass
2	2435.100	105.01	-12.08	74.0	31.01	Peak	349.00	150	Horizontal	N/A
2**	2435.100	96.86	-12.08	54.0	42.86	AV	349.00	150	Horizontal	N/A
3	2805.900	50.00	-10.86	74.0	-24.00	Peak	56.00	200	Horizontal	Pass
3**	2805.900	40.54	-10.86	54.0	-13.46	AV	56.00	200	Horizontal	Pass
4	7840.750	54.06	1.79	74.0	-19.94	Peak	164.00	200	Horizontal	Pass
4**	7840.750	44.79	1.79	54.0	-9.21	AV	164.00	200	Horizontal	Pass
5	12420.588	49.47	-2.60	74.0	-24.53	Peak	164.00	100	Horizontal	Pass
5**	12420.588	40.01	-2.60	54.0	-13.99	AV	164.00	100	Horizontal	Pass
6	16502.699	52.78	0.00	74.0	-21.22	Peak	218.00	200	Horizontal	Pass
6**	16502.699	43.30	0.00	54.0	-10.70	AV	218.00	200	Horizontal	Pass

1 GHz to 18 GHz, ANT V 802.11g CHANNEL 6

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1329.700	43.42	-17.27	74.0	-30.58	Peak	144.00	400	Vertical	Pass
1**	1329.700	31.95	-17.27	54.0	-22.05	AV	144.00	400	Vertical	Pass
2	2433.500	98.57	-12.22	74.0	24.57	Peak	106.00	200	Vertical	N/A
2**	2433.500	91.03	-12.22	54.0	37.03	AV	106.00	200	Vertical	N/A
3	2654.600	52.87	-12.58	74.0	-21.13	Peak	208.00	150	Vertical	Pass
3**	2654.600	42.16	-12.58	54.0	-11.84	AV	208.00	150	Vertical	Pass
4	7861.250	52.44	1.32	74.0	-21.56	Peak	270.00	100	Vertical	Pass
4**	7861.250	44.41	1.32	54.0	-9.59	AV	270.00	100	Vertical	Pass
5	10813.662	48.74	-5.17	74.0	-25.26	Peak	165.00	300	Vertical	Pass
5**	10813.662	38.73	-5.17	54.0	-15.27	AV	165.00	300	Vertical	Pass
6	17144.250	52.26	1.59	74.0	-21.74	Peak	10.00	100	Vertical	Pass
6**	17144.250	43.12	1.59	54.0	-10.88	AV	10.00	100	Vertical	Pass

1 GHz to 18 GHz, ANT H 802.11g CHANNEL 11

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1328.000	41.67	-17.13	74.0	-32.33	Peak	237.00	200	Horizontal	Pass
1**	1328.000	32.51	-17.13	54.0	-21.49	AV	237.00	200	Horizontal	Pass
2	2470.200	105.02	-12.69	74.0	31.02	Peak	360.00	150	Horizontal	N/A
2**	2470.200	96.57	-12.69	54.0	42.57	AV	360.00	150	Horizontal	N/A
3	2885.300	50.09	-10.08	74.0	-23.91	Peak	291.00	100	Horizontal	Pass
3**	2885.300	41.01	-10.08	54.0	-12.99	AV	291.00	100	Horizontal	Pass
4	7454.500	53.13	1.17	74.0	-20.87	Peak	226.00	100	Horizontal	Pass
4**	7454.500	44.18	1.17	54.0	-9.82	AV	226.00	100	Horizontal	Pass
5	12440.063	49.20	-2.30	74.0	-24.80	Peak	154.00	100	Horizontal	Pass
5**	12440.063	40.06	-2.30	54.0	-13.94	AV	154.00	100	Horizontal	Pass
6	16171.950	53.00	-0.45	74.0	-21.00	Peak	160.00	300	Horizontal	Pass
6**	16171.950	43.00	-0.45	54.0	-11.00	AV	160.00	300	Horizontal	Pass

1 GHz to 18 GHz, ANT V 802.11g CHANNEL 11

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1329.100	44.14	-17.19	74.0	-29.86	Peak	137.00	200	Vertical	Pass
1**	1329.100	32.89	-17.19	54.0	-21.11	AV	137.00	200	Vertical	Pass
2	2470.700	98.21	-12.71	74.0	24.21	Peak	71.00	200	Vertical	N/A
2**	2470.700	89.44	-12.71	54.0	35.44	AV	71.00	200	Vertical	N/A
3	2658.600	53.63	-12.65	74.0	-20.37	Peak	207.00	200	Vertical	Pass
3**	2658.600	42.74	-12.65	54.0	-11.26	AV	207.00	200	Vertical	Pass
4	7825.500	52.59	1.83	74.0	-21.41	Peak	110.00	400	Vertical	Pass
4**	7825.500	43.62	1.83	54.0	-10.38	AV	110.00	400	Vertical	Pass
5	12433.412	49.67	-2.40	74.0	-24.33	Peak	129.00	200	Vertical	Pass
5**	12433.412	40.86	-2.40	54.0	-13.14	AV	129.00	200	Vertical	Pass
6	16508.213	52.62	0.00	74.0	-21.38	Peak	158.00	300	Vertical	Pass
6**	16508.213	43.45	0.00	54.0	-10.55	AV	158.00	300	Vertical	Pass

1 GHz to 18 GHz, ANT H 802.11g CHANNEL 12

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1000.100	41.73	-18.66	74.0	-32.27	Peak	271.00	100	Horizontal	Pass
1**	1000.100	33.09	-18.66	54.0	-20.91	AV	271.00	100	Horizontal	Pass
2	2463.700	104.40	-12.69	74.0	30.40	Peak	27.00	200	Horizontal	N/A
2**	2463.700	96.48	-12.69	54.0	42.48	AV	27.00	200	Horizontal	N/A
3	5273.250	50.64	-3.14	74.0	-23.36	Peak	56.00	200	Horizontal	Pass
3**	5273.250	40.93	-3.14	54.0	-13.07	AV	56.00	200	Horizontal	Pass
4	7836.500	52.80	2.11	74.0	-21.20	Peak	124.00	400	Horizontal	Pass
4**	7836.500	43.84	2.11	54.0	-10.16	AV	124.00	400	Horizontal	Pass
5	10671.875	49.03	-4.79	74.0	-24.97	Peak	280.00	100	Horizontal	Pass
5**	10671.875	38.55	-4.79	54.0	-15.45	AV	280.00	100	Horizontal	Pass
6	17306.739	52.25	2.00	74.0	-21.75	Peak	0.00	200	Horizontal	Pass
6**	17306.739	44.18	2.00	54.0	-9.82	AV	0.00	200	Horizontal	Pass

1 GHz to 18 GHz, ANT V 802.11g CHANNEL 12

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1599.500	41.55	-17.70	74.0	-32.45	Peak	158.00	400	Vertical	Pass
1**	1599.500	33.04	-17.70	54.0	-20.96	AV	158.00	400	Vertical	Pass
2	2466.100	103.02	-12.73	74.0	29.02	Peak	107.00	200	Vertical	N/A
2**	2466.100	95.84	-12.73	54.0	41.84	AV	107.00	200	Vertical	N/A
3	4454.250	48.31	-4.18	74.0	-25.69	Peak	134.00	200	Vertical	Pass
3**	4454.250	40.17	-4.18	54.0	-13.83	AV	134.00	200	Vertical	Pass
4	7874.750	52.42	2.10	74.0	-21.58	Peak	82.00	400	Vertical	Pass
4**	7874.750	43.30	2.10	54.0	-10.70	AV	82.00	400	Vertical	Pass
5	12924.562	48.93	-1.77	74.0	-25.07	Peak	70.00	100	Vertical	Pass
5**	12924.562	39.04	-1.77	54.0	-14.96	AV	70.00	100	Vertical	Pass
6	17461.350	52.37	3.09	74.0	-21.63	Peak	0.00	100	Vertical	Pass
6**	17461.350	42.88	3.09	54.0	-11.12	AV	0.00	100	Vertical	Pass

1 GHz to 18 GHz, ANT H 802.11g CHANNEL 13

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1390.700	42.13	-17.25	74.0	-31.87	Peak	151.00	400	Horizontal	Pass
1**	1390.700	32.10	-17.25	54.0	-21.90	AV	151.00	400	Horizontal	Pass
2	2470.500	102.59	-12.70	74.0	28.59	Peak	309.00	150	Horizontal	N/A
2**	2470.500	95.32	-12.70	54.0	41.32	AV	309.00	150	Horizontal	N/A
3	4482.250	48.24	-3.67	74.0	-25.76	Peak	278.00	150	Horizontal	Pass
3**	4482.250	39.12	-3.67	54.0	-14.88	AV	278.00	150	Horizontal	Pass
4	7456.000	52.43	1.15	74.0	-21.57	Peak	360.00	300	Horizontal	Pass
4**	7456.000	44.38	1.15	54.0	-9.62	AV	360.00	300	Horizontal	Pass
5	11120.987	49.23	-4.48	74.0	-24.77	Peak	336.00	400	Horizontal	Pass
5**	11120.987	40.06	-4.48	54.0	-13.94	AV	336.00	400	Horizontal	Pass
6	17258.963	52.96	1.94	74.0	-21.04	Peak	22.00	300	Horizontal	Pass
6**	17258.963	42.97	1.94	54.0	-11.03	AV	22.00	300	Horizontal	Pass

1 GHz to 18 GHz, ANT V 802.11g CHANNEL 13

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1585.000	41.76	-17.48	74.0	-32.24	Peak	0.00	100	Vertical	Pass
1**	1585.000	32.66	-17.48	54.0	-21.34	AV	0.00	100	Vertical	Pass
2	2465.700	101.44	-12.74	74.0	27.44	Peak	105.00	200	Vertical	N/A
2**	2465.700	93.99	-12.74	54.0	39.99	AV	105.00	200	Vertical	N/A
3	2657.300	51.90	-12.44	74.0	-22.10	Peak	0.00	200	Vertical	Pass
3**	2657.300	41.90	-12.44	54.0	-12.10	AV	0.00	200	Vertical	Pass
4	5333.000	54.74	-3.57	74.0	-19.26	Peak	212.00	300	Vertical	Pass
4**	5333.000	41.29	-3.57	54.0	-12.71	AV	212.00	300	Vertical	Pass
5	11796.912	49.76	-3.56	74.0	-24.24	Peak	0.00	100	Vertical	Pass
5**	11796.912	39.37	-3.56	54.0	-14.63	AV	0.00	100	Vertical	Pass
6	17286.001	52.62	1.99	74.0	-21.38	Peak	7.00	300	Vertical	Pass
6**	17286.001	43.16	1.99	54.0	-10.84	AV	7.00	300	Vertical	Pass

1 GHz to 18 GHz, ANT H 802.11n20 CHANNEL 1

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1000.100	42.92	-18.66	74.0	-31.08	Peak	228.00	400	Horizontal	Pass
1**	1000.100	30.00	-18.66	54.0	-24.00	AV	228.00	400	Horizontal	Pass
2	2410.900	103.70	-13.47	74.0	29.70	Peak	349.00	100	Horizontal	N/A
2**	2410.900	96.12	-13.47	54.0	42.12	AV	349.00	100	Horizontal	N/A
3	2998.200	49.78	-10.49	74.0	-24.22	Peak	49.00	200	Horizontal	Pass
3**	2998.200	40.33	-10.49	54.0	-13.67	AV	49.00	200	Horizontal	Pass
4	7462.250	53.11	1.10	74.0	-20.89	Peak	21.00	100	Horizontal	Pass
4**	7462.250	44.20	1.10	54.0	-9.80	AV	21.00	100	Horizontal	Pass
5	11415.725	49.00	-4.11	74.0	-25.00	Peak	353.00	100	Horizontal	Pass
5**	11415.725	40.16	-4.11	54.0	-13.84	AV	353.00	100	Horizontal	Pass
6	16528.426	53.37	0.02	74.0	-20.63	Peak	8.00	100	Horizontal	Pass
6**	16528.426	43.21	0.02	54.0	-10.79	AV	8.00	100	Horizontal	Pass

1 GHz to 18 GHz, ANT V 802.11n20 CHANNEL 1

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1494.500	42.64	-17.49	74.0	-31.36	Peak	215.00	300	Vertical	Pass
1**	1494.500	32.01	-17.49	54.0	-21.99	AV	215.00	300	Vertical	Pass
2	2412.700	98.87	-13.42	74.0	24.87	Peak	115.00	100	Vertical	N/A
2**	2412.700	90.21	-13.42	54.0	36.21	AV	115.00	100	Vertical	N/A
3	2657.400	53.31	-12.46	74.0	-20.69	Peak	354.00	100	Vertical	Pass
3**	2657.400	42.41	-12.46	54.0	-11.59	AV	354.00	100	Vertical	Pass
4	7937.750	52.88	0.74	74.0	-21.12	Peak	339.00	100	Vertical	Pass
4**	7937.750	42.24	0.74	54.0	-11.76	AV	339.00	100	Vertical	Pass
5	10681.375	48.99	-4.79	74.0	-25.01	Peak	67.00	100	Vertical	Pass
5**	10681.375	38.71	-4.79	54.0	-15.29	AV	67.00	100	Vertical	Pass
6	17080.724	52.51	1.16	74.0	-21.49	Peak	10.00	100	Vertical	Pass
6**	17080.724	43.54	1.16	54.0	-10.46	AV	10.00	100	Vertical	Pass

1 GHz to 18 GHz, ANT H 802.11n20 CHANNEL 6

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1572.100	42.16	-17.59	74.0	-31.84	Peak	68.00	400	Horizontal	Pass
1**	1572.100	32.19	-17.59	54.0	-21.81	AV	68.00	400	Horizontal	Pass
2	2435.100	104.27	-12.08	74.0	30.27	Peak	350.00	100	Horizontal	N/A
2**	2435.100	96.79	-12.08	54.0	42.79	AV	350.00	100	Horizontal	N/A
3	2602.400	49.42	-11.72	74.0	-24.58	Peak	34.00	150	Horizontal	Pass
3**	2602.400	39.70	-11.72	54.0	-14.30	AV	34.00	150	Horizontal	Pass
4	7846.000	53.09	1.29	74.0	-20.91	Peak	120.00	100	Horizontal	Pass
4**	7846.000	43.16	1.29	54.0	-10.84	AV	120.00	100	Horizontal	Pass
5	12661.888	49.00	-2.31	74.0	-25.00	Peak	165.00	100	Horizontal	Pass
5**	12661.888	40.50	-2.31	54.0	-13.50	AV	165.00	100	Horizontal	Pass
6	17281.012	53.21	1.98	74.0	-20.79	Peak	84.00	100	Horizontal	Pass
6**	17281.012	43.26	1.98	54.0	-10.74	AV	84.00	100	Horizontal	Pass

1 GHz to 18 GHz, ANT V 802.11n20 CHANNEL 6

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1332.700	42.87	-17.57	74.0	-31.13	Peak	284.00	400	Vertical	Pass
1**	1332.700	35.10	-17.57	54.0	-18.90	AV	284.00	400	Vertical	Pass
2	2435.000	98.66	-12.09	74.0	24.66	Peak	105.00	200	Vertical	N/A
2**	2435.000	90.99	-12.09	54.0	36.99	AV	105.00	200	Vertical	N/A
3	2656.700	52.08	-12.33	74.0	-21.92	Peak	359.00	100	Vertical	Pass
3**	2656.700	40.93	-12.33	54.0	-13.07	AV	359.00	100	Vertical	Pass
4	7828.500	53.08	1.91	74.0	-20.92	Peak	73.00	300	Vertical	Pass
4**	7828.500	44.03	1.91	54.0	-9.97	AV	73.00	300	Vertical	Pass
5	11962.213	48.89	-3.63	74.0	-25.11	Peak	116.00	300	Vertical	Pass
5**	11962.213	38.47	-3.63	54.0	-15.53	AV	116.00	300	Vertical	Pass
6	17067.075	52.69	1.05	74.0	-21.31	Peak	279.00	200	Vertical	Pass
6**	17067.075	43.50	1.05	54.0	-10.50	AV	279.00	200	Vertical	Pass

1 GHz to 18 GHz, ANT H 802.11n20 CHANNEL 11

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1470.000	42.24	-17.49	74.0	-31.76	Peak	340.00	200	Horizontal	Pass
1**	1470.000	32.35	-17.49	54.0	-21.65	AV	340.00	200	Horizontal	Pass
2	2459.200	104.69	-12.65	74.0	30.69	Peak	354.00	100	Horizontal	N/A
2**	2459.200	97.34	-12.65	54.0	43.34	AV	354.00	100	Horizontal	N/A
3	2889.900	50.30	-10.08	74.0	-23.70	Peak	256.00	400	Horizontal	Pass
3**	2889.900	40.38	-10.08	54.0	-13.62	AV	256.00	400	Horizontal	Pass
4	7452.750	52.88	0.98	74.0	-21.12	Peak	128.00	400	Horizontal	Pass
4**	7452.750	44.03	0.98	54.0	-9.97	AV	128.00	400	Horizontal	Pass
5	12438.638	49.40	-2.32	74.0	-24.60	Peak	163.00	200	Horizontal	Pass
5**	12438.638	40.43	-2.32	54.0	-13.57	AV	163.00	200	Horizontal	Pass
6	17034.262	52.39	0.80	74.0	-21.61	Peak	313.00	200	Horizontal	Pass
6**	17034.262	43.17	0.80	54.0	-10.83	AV	313.00	200	Horizontal	Pass

1 GHz to 18 GHz, ANT V 802.11n20 CHANNEL 11

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1491.100	42.86	-17.37	74.0	-31.14	Peak	200.00	300	Vertical	Pass
1**	1491.100	32.56	-17.37	54.0	-21.44	AV	200.00	300	Vertical	Pass
2	2459.700	98.25	-12.64	74.0	24.25	Peak	69.00	150	Vertical	N/A
2**	2459.700	90.08	-12.64	54.0	36.08	AV	69.00	150	Vertical	N/A
3	2657.800	52.94	-12.54	74.0	-21.06	Peak	354.00	200	Vertical	Pass
3**	2657.800	40.68	-12.54	54.0	-13.32	AV	354.00	200	Vertical	Pass
4	7834.500	52.71	2.22	74.0	-21.29	Peak	4.00	100	Vertical	Pass
4**	7834.500	44.26	2.22	54.0	-9.74	AV	4.00	100	Vertical	Pass
5	11183.688	49.24	-4.17	74.0	-24.76	Peak	179.00	400	Vertical	Pass
5**	11183.688	39.00	-4.17	54.0	-15.00	AV	179.00	400	Vertical	Pass
6	17242.950	52.88	1.86	74.0	-21.12	Peak	114.00	400	Vertical	Pass
6**	17242.950	42.46	1.86	54.0	-11.54	AV	114.00	400	Vertical	Pass

1 GHz to 18 GHz, ANT H 802.11n20 CHANNEL 12

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1260.200	41.63	-17.62	74.0	-32.37	Peak	107.00	200	Horizontal	Pass
1**	1260.200	31.72	-17.62	54.0	-22.28	AV	107.00	200	Horizontal	Pass
2	2468.600	105.21	-12.68	74.0	31.21	Peak	310.00	200	Horizontal	N/A
2**	2468.600	96.81	-12.68	54.0	42.81	AV	310.00	200	Horizontal	N/A
3	5262.500	50.66	-3.72	74.0	-23.34	Peak	77.00	200	Horizontal	Pass
3**	5262.500	40.94	-3.72	54.0	-13.06	AV	77.00	200	Horizontal	Pass
4	7452.250	52.80	0.92	74.0	-21.20	Peak	277.00	400	Horizontal	Pass
4**	7452.250	43.26	0.92	54.0	-10.74	AV	277.00	400	Horizontal	Pass
5	12449.800	49.38	-2.16	74.0	-24.62	Peak	70.00	100	Horizontal	Pass
5**	12449.800	40.42	-2.16	54.0	-13.58	AV	70.00	100	Horizontal	Pass
6	16514.775	52.92	0.01	74.0	-21.08	Peak	244.00	300	Horizontal	Pass
6**	16514.775	43.42	0.01	54.0	-10.58	AV	244.00	300	Horizontal	Pass

1 GHz to 18 GHz, ANT V 802.11n20 CHANNEL 12

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1499.700	41.28	-17.29	74.0	-32.72	Peak	270.00	200	Vertical	Pass
1**	1499.700	33.32	-17.29	54.0	-20.68	AV	270.00	200	Vertical	Pass
2	2465.800	102.63	-12.74	74.0	28.63	Peak	105.00	200	Vertical	N/A
2**	2465.800	95.10	-12.74	54.0	41.10	AV	105.00	200	Vertical	N/A
3	2660.600	52.23	-12.55	74.0	-21.77	Peak	198.00	200	Vertical	Pass
3**	2660.600	41.12	-12.55	54.0	-12.88	AV	198.00	200	Vertical	Pass
4	7695.750	52.88	1.77	74.0	-21.12	Peak	56.00	200	Vertical	Pass
4**	7695.750	42.66	1.77	54.0	-11.34	AV	56.00	200	Vertical	Pass
5	12655.475	49.03	-2.30	74.0	-24.97	Peak	255.00	200	Vertical	Pass
5**	12655.475	40.40	-2.30	54.0	-13.60	AV	255.00	200	Vertical	Pass
6	17289.937	52.63	2.00	74.0	-21.37	Peak	34.00	300	Vertical	Pass
6**	17289.937	43.17	2.00	54.0	-10.83	AV	34.00	300	Vertical	Pass

1 GHz to 18 GHz, ANT H 802.11n20 CHANNEL 13

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1489.100	41.98	-17.34	74.0	-32.02	Peak	292.00	200	Horizontal	Pass
1**	1489.100	31.68	-17.34	54.0	-22.32	AV	292.00	200	Horizontal	Pass
2	2468.700	105.10	-12.68	74.0	31.10	Peak	314.00	200	Horizontal	N/A
2**	2468.700	96.69	-12.68	54.0	42.69	AV	314.00	200	Horizontal	N/A
3	5177.000	50.45	-2.56	74.0	-23.55	Peak	195.00	200	Horizontal	Pass
3**	5177.000	41.59	-2.56	54.0	-12.41	AV	195.00	200	Horizontal	Pass
4	7837.000	52.70	2.08	74.0	-21.30	Peak	162.00	100	Horizontal	Pass
4**	7837.000	43.40	2.08	54.0	-10.60	AV	162.00	100	Horizontal	Pass
5	12907.237	49.30	-1.86	74.0	-24.70	Peak	36.00	300	Horizontal	Pass
5**	12907.237	39.82	-1.86	54.0	-14.18	AV	36.00	300	Horizontal	Pass
6	17269.199	53.09	1.96	74.0	-20.91	Peak	360.00	400	Horizontal	Pass
6**	17269.199	44.00	1.96	54.0	-10.00	AV	360.00	400	Horizontal	Pass

1 GHz to 18 GHz, ANT V 802.11n20 CHANNEL 13

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1559.600	41.92	-17.74	74.0	-32.08	Peak	236.00	100	Vertical	Pass
1**	1559.600	31.40	-17.74	54.0	-22.60	AV	236.00	100	Vertical	Pass
2	2466.100	102.17	-12.73	74.0	28.17	Peak	117.00	150	Vertical	N/A
2**	2466.100	93.99	-12.73	54.0	39.99	AV	117.00	150	Vertical	N/A
3	4438.250	48.70	-4.41	74.0	-25.30	Peak	241.00	150	Vertical	Pass
3**	4438.250	37.47	-4.41	54.0	-16.53	AV	241.00	150	Vertical	Pass
4	7833.250	52.66	2.27	74.0	-21.34	Peak	267.00	300	Vertical	Pass
4**	7833.250	43.77	2.27	54.0	-10.23	AV	267.00	300	Vertical	Pass
5	12437.450	49.16	-2.34	74.0	-24.84	Peak	353.00	400	Vertical	Pass
5**	12437.450	40.35	-2.34	54.0	-13.65	AV	353.00	400	Vertical	Pass
6	16521.338	52.96	0.01	74.0	-21.04	Peak	224.00	300	Vertical	Pass
6**	16521.338	43.78	0.01	54.0	-10.22	AV	224.00	300	Vertical	Pass

A.7 Band Edge (Restricted-band band-edge)

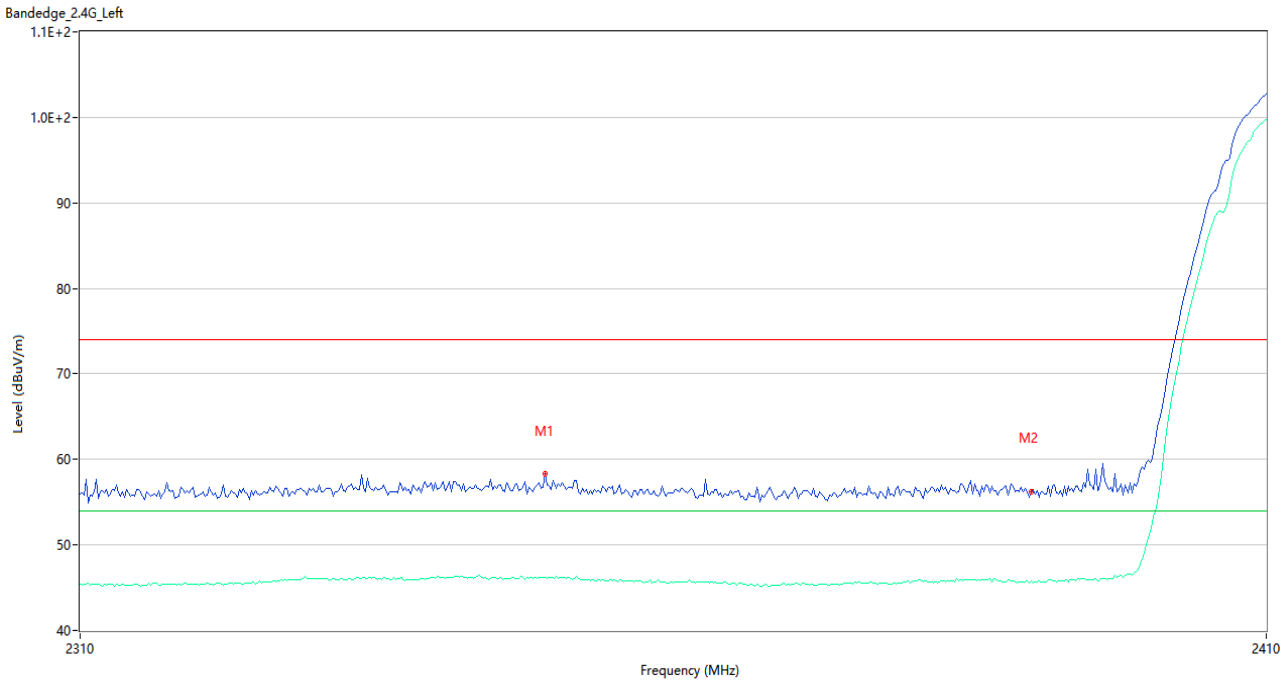
Note [1]: The lowest and highest channels are tested to verify the band edge emissions. Please refer to the following the plots for emissions values.

Note [2]: The test data all are tested in the vertical and horizontal antenna which the trace is max hold. So these plots have shown the worst case.

Note [3]: According the ANSI C63.10-2013, where limits are specified for both average and peak (or quasi-peak) detector functions, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement.

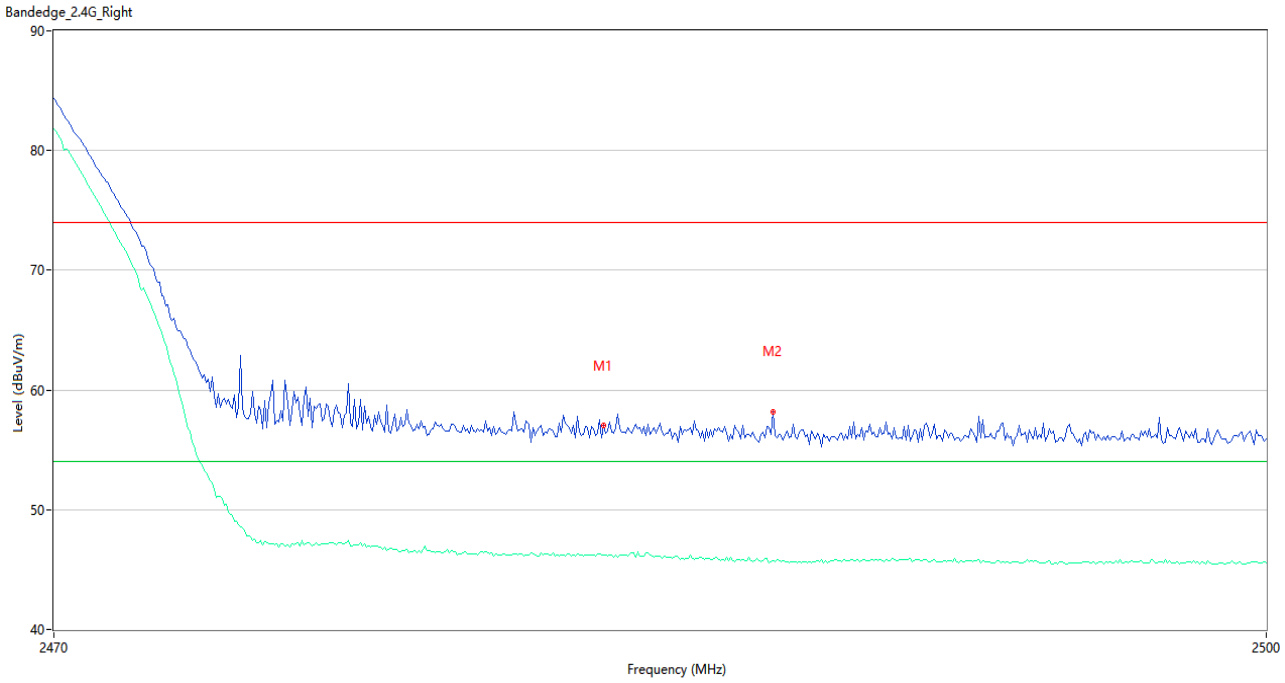
Test Data and Plots

802.11b CHANNEL 1



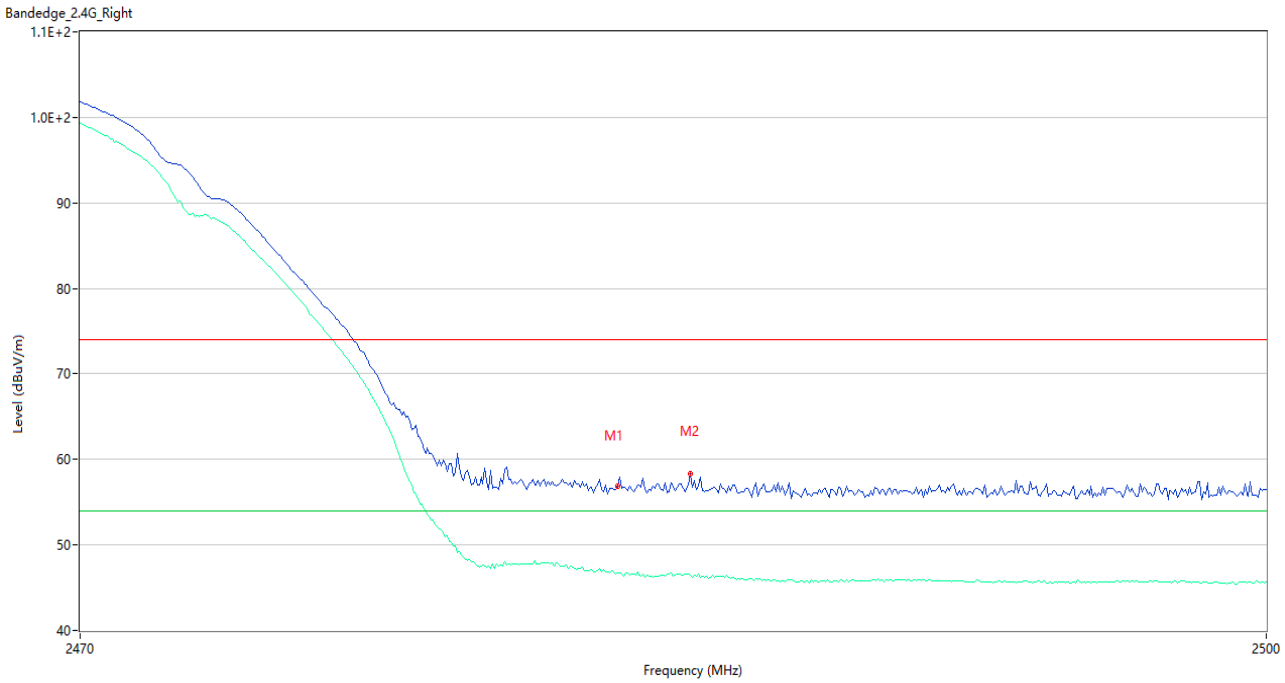
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2348.667	58.38	2.57	74.0	-15.62	Peak	96.00	200	Vertical	Pass
1**	2348.667	46.17	2.57	54.0	-7.83	AV	96.00	200	Vertical	Pass
2	2389.833	56.23	1.64	74.0	-17.77	Peak	87.00	150	Vertical	Pass
2**	2389.833	45.80	1.64	54.0	-8.20	AV	87.00	150	Vertical	Pass

802.11b CHANNEL 11



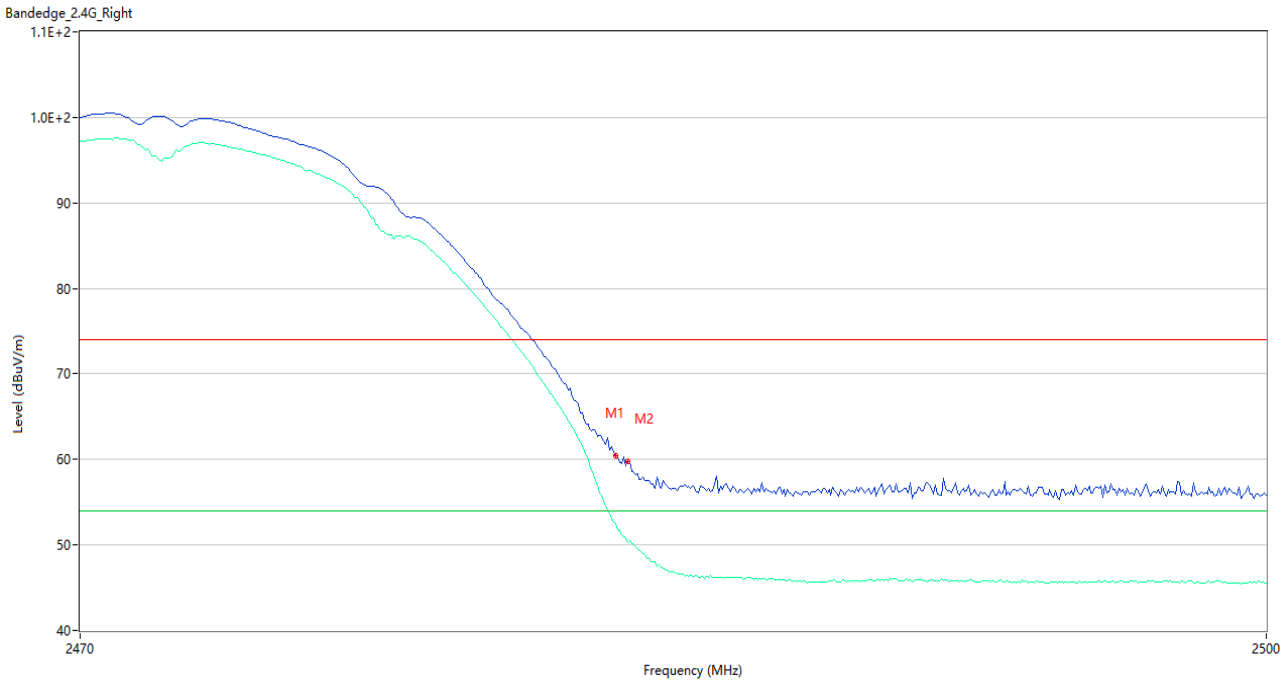
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2483.550	57.06	1.98	74.0	-16.94	Peak	128.00	150	Vertical	Pass
1**	2483.550	46.18	1.98	54.0	-7.82	AV	128.00	150	Vertical	Pass
2	2487.750	58.22	1.74	74.0	-15.78	Peak	150.00	200	Vertical	Pass
2**	2487.750	45.71	1.74	54.0	-8.29	AV	150.00	200	Vertical	Pass

802.11b CHANNEL 12



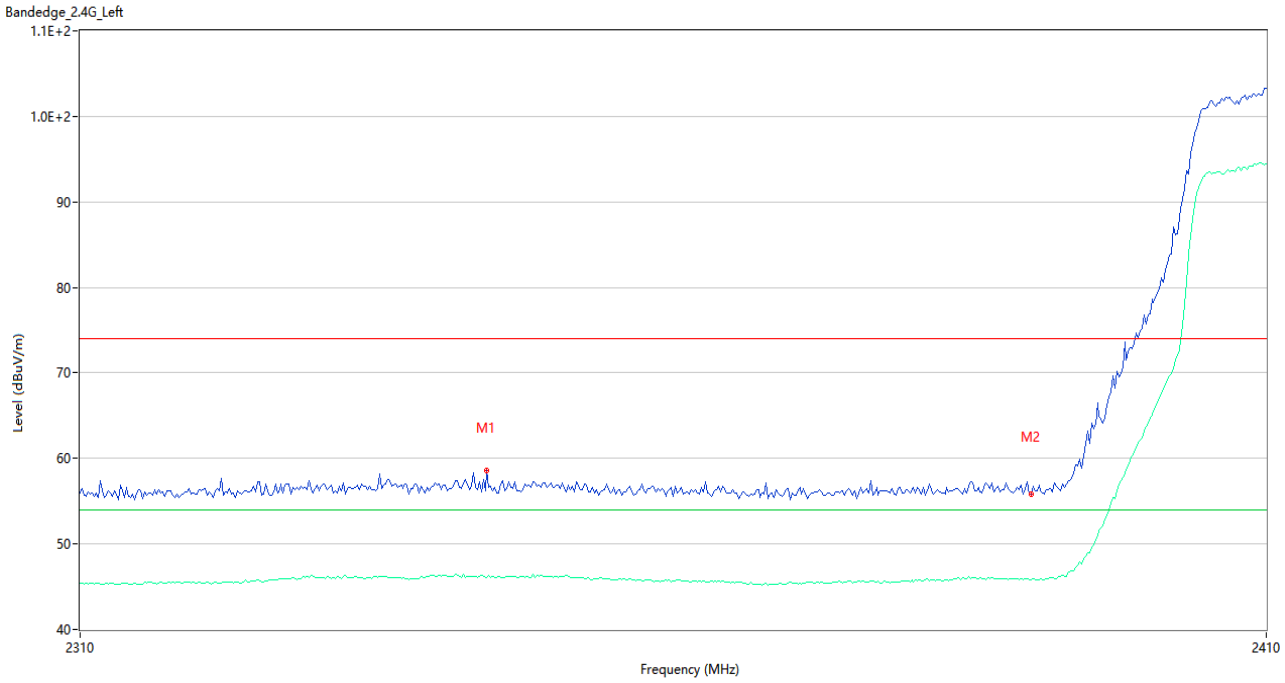
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2483.550	56.59	1.98	74.0	-17.41	Peak	191.00	150	Horizontal	Pass
1**	2483.550	46.70	1.98	54.0	-7.30	AV	191.00	150	Horizontal	Pass
2	2485.400	58.37	1.89	74.0	-15.63	Peak	300.00	100	Horizontal	Pass
2**	2485.400	46.48	1.89	54.0	-7.52	AV	300.00	100	Horizontal	Pass

802.11b CHANNEL 13



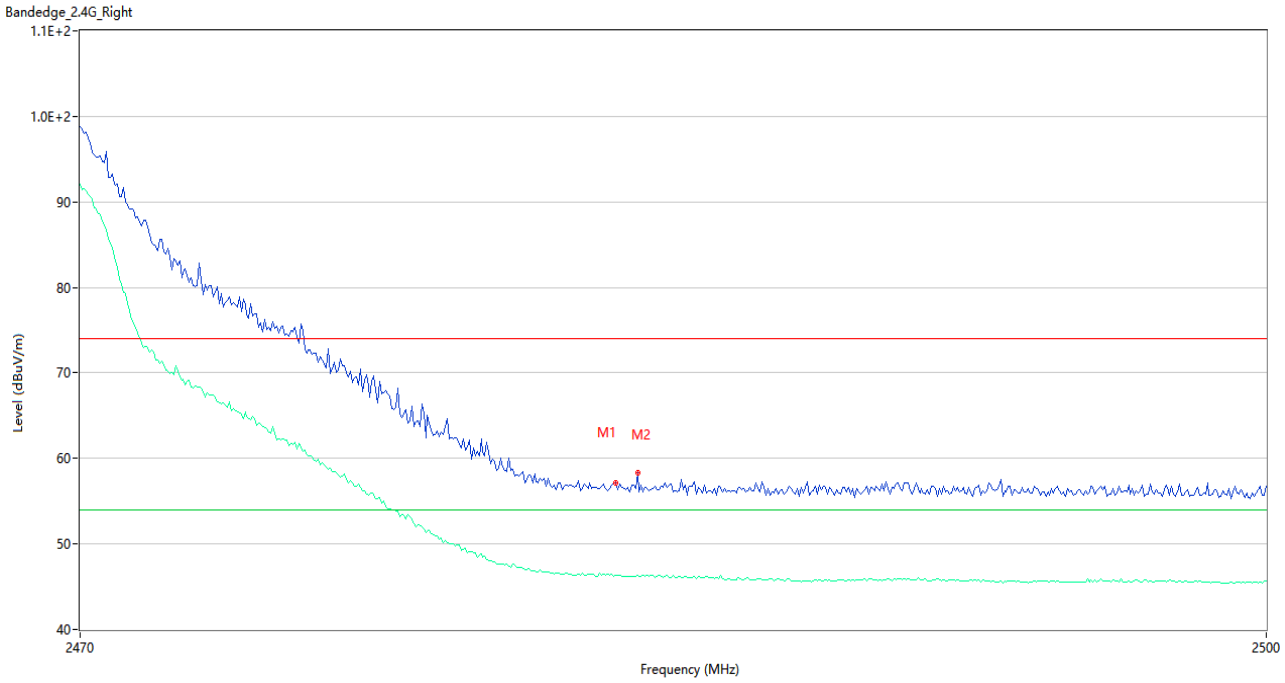
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2483.500	60.44	1.98	74.0	-13.56	Peak	99.00	200	Horizontal	Pass
1**	2483.500	52.51	1.98	54.0	-1.49	AV	99.00	200	Horizontal	Pass
2	2483.800	59.72	1.99	74.0	-14.28	Peak	109.00	100	Horizontal	Pass
2**	2483.800	50.34	1.99	54.0	-3.66	AV	109.00	100	Horizontal	Pass

802.11g CHANNEL 1



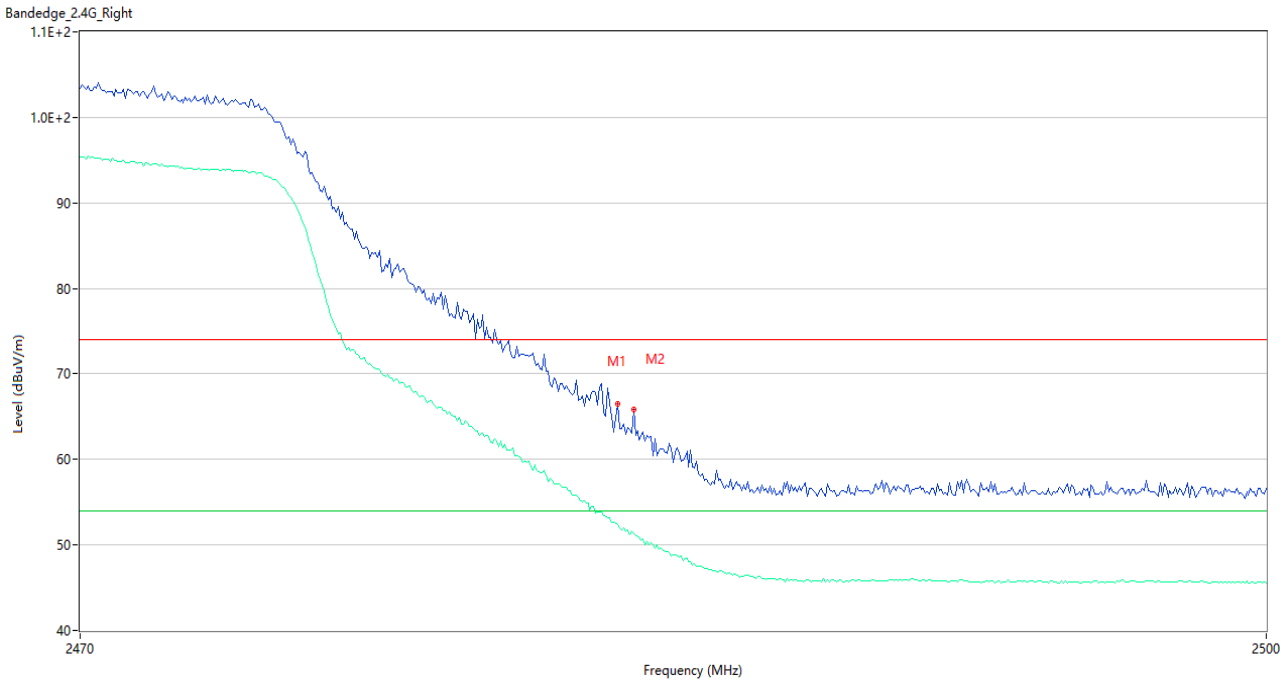
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2343.833	58.62	2.47	74.0	-15.38	Peak	333.00	150	Vertical	Pass
1**	2343.833	46.11	2.47	54.0	-7.89	AV	333.00	150	Vertical	Pass
2	2389.833	55.88	1.64	74.0	-18.12	Peak	207.00	150	Vertical	Pass
2**	2389.833	45.85	1.64	54.0	-8.15	AV	207.00	150	Vertical	Pass

802.11g CHANNEL 11



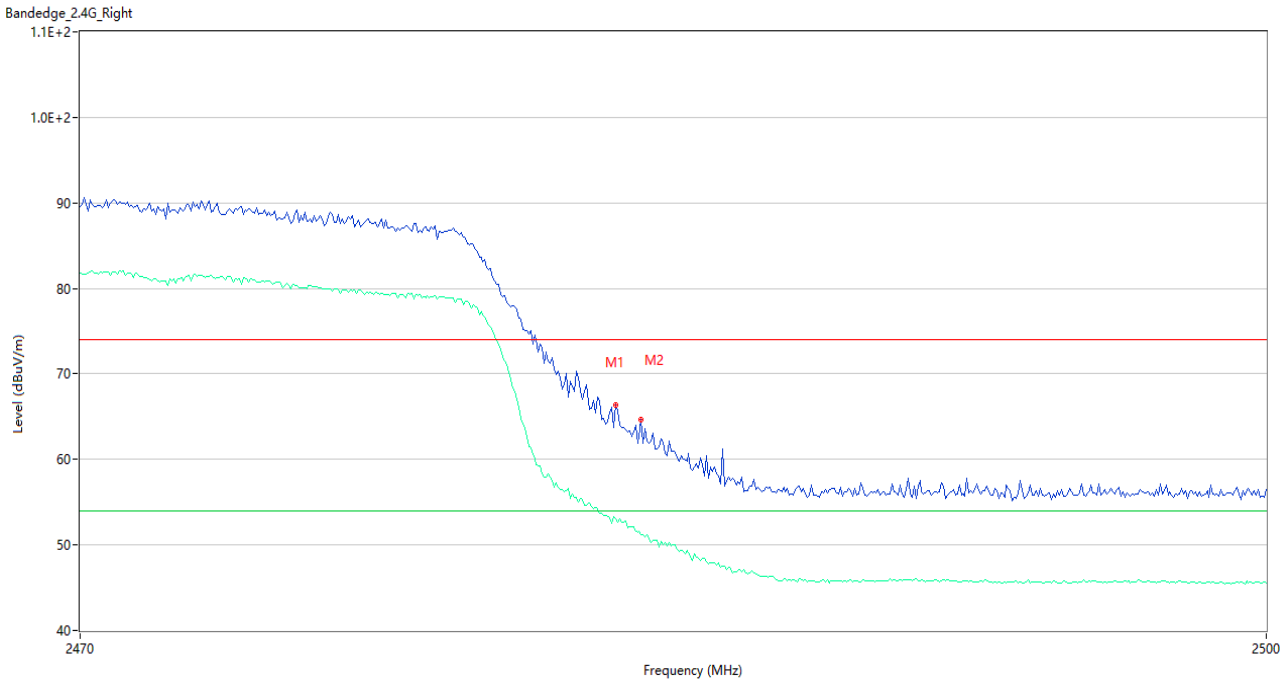
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2483.500	57.16	1.98	74.0	-16.84	Peak	347.00	100	Vertical	Pass
1**	2483.500	46.38	1.98	54.0	-7.62	AV	347.00	100	Vertical	Pass
2	2484.050	58.39	1.99	74.0	-15.61	Peak	195.00	150	Vertical	Pass
2**	2484.050	46.29	1.99	54.0	-7.71	AV	195.00	150	Vertical	Pass

802.11g CHANNEL 12



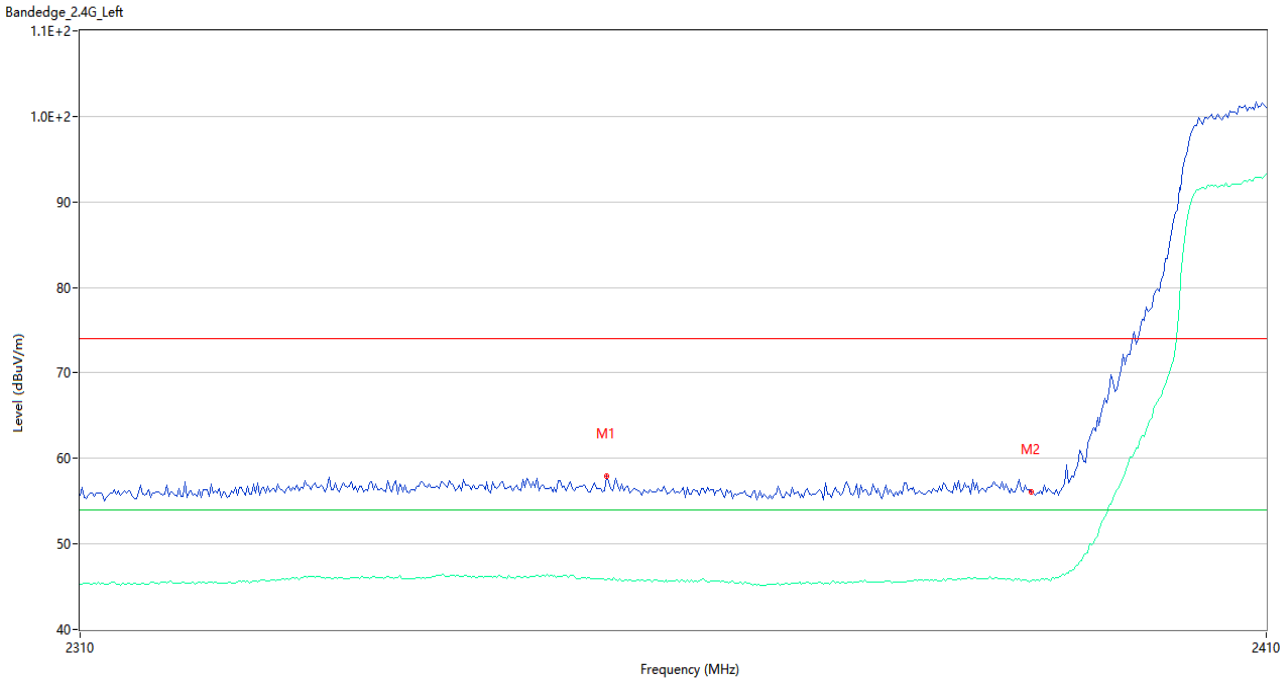
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2483.550	66.50	1.98	74.0	-7.50	Peak	120.00	200	Horizontal	Pass
1**	2483.550	52.34	1.98	54.0	-1.66	AV	120.00	200	Horizontal	Pass
2	2483.950	65.80	1.99	74.0	-8.20	Peak	108.00	100	Horizontal	Pass
2**	2483.950	51.39	1.99	54.0	-2.61	AV	108.00	100	Horizontal	Pass

802.11g CHANNEL 13



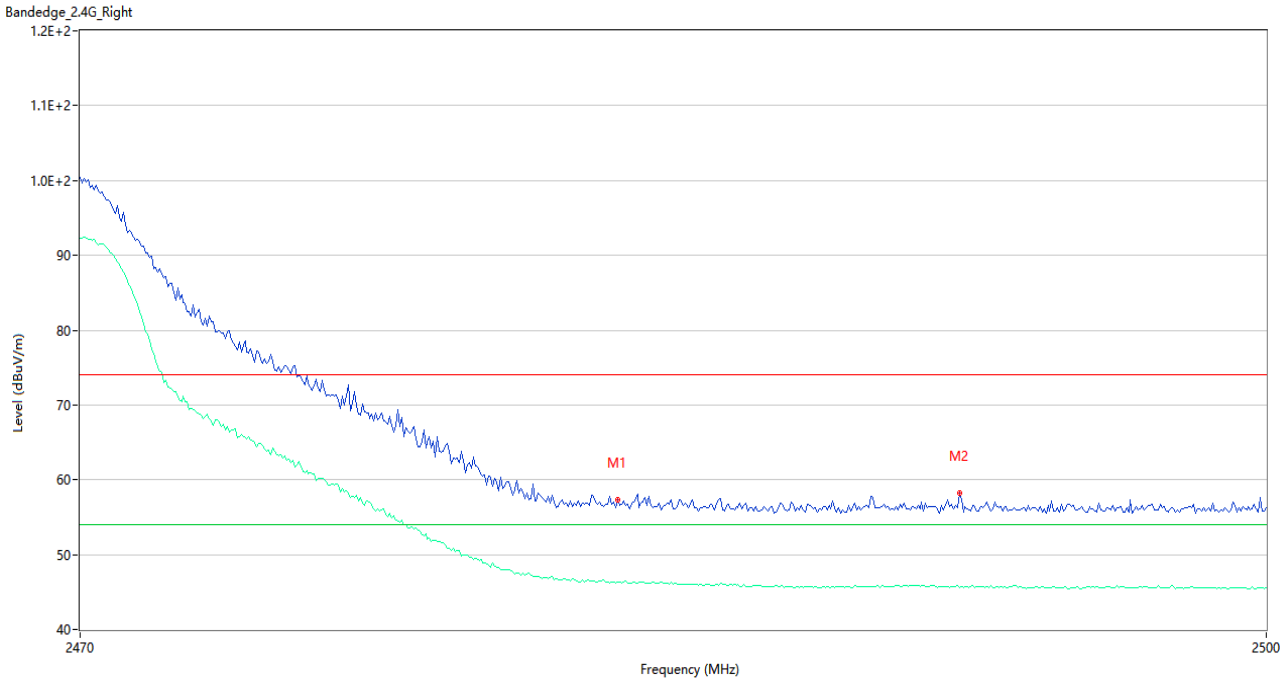
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2483.500	66.39	1.98	74.0	-7.61	Peak	307.00	200	Horizontal	Pass
1**	2483.500	52.89	1.98	54.0	-1.11	AV	307.00	200	Horizontal	Pass
2	2484.150	64.67	2.00	74.0	-9.33	Peak	310.00	100	Horizontal	Pass
2**	2484.150	51.23	2.00	54.0	-2.77	AV	310.00	100	Horizontal	Pass

802.11n20 CHANNEL 1



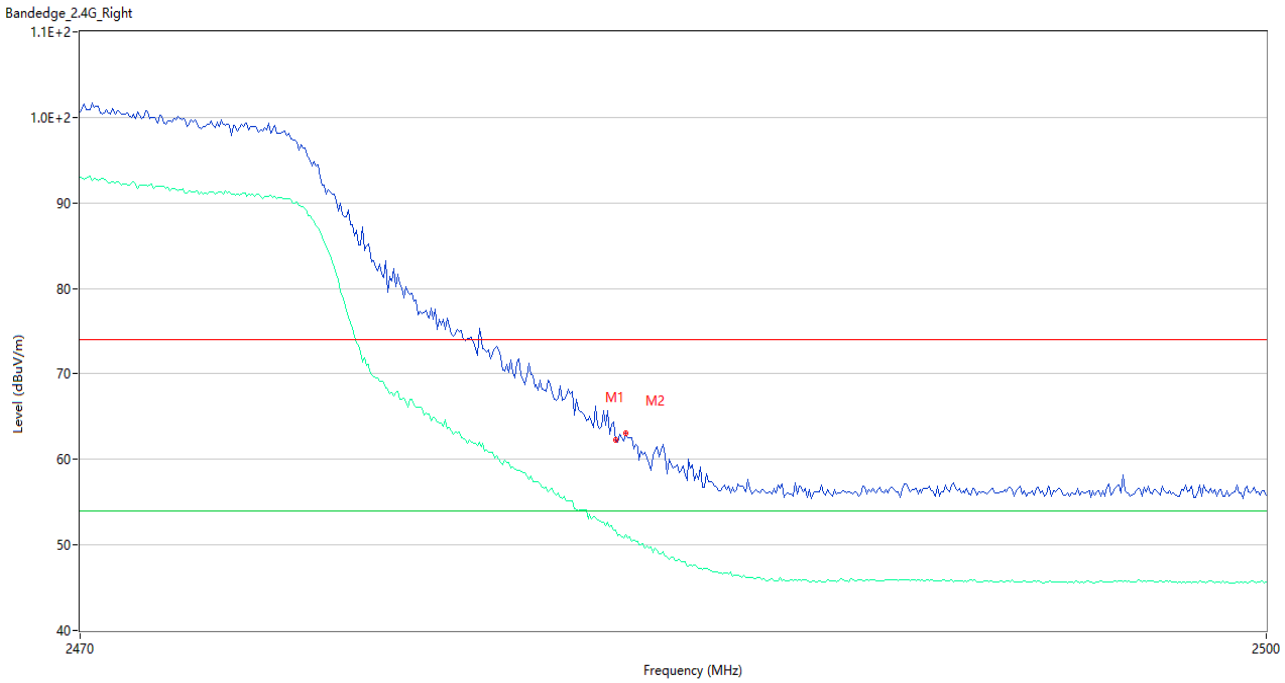
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2353.833	57.94	2.18	74.0	-16.06	Peak	345.00	200	Vertical	Pass
1**	2353.833	45.80	2.18	54.0	-8.20	AV	345.00	200	Vertical	Pass
2	2389.833	56.12	1.64	74.0	-17.88	Peak	177.00	100	Vertical	Pass
2**	2389.833	45.71	1.64	54.0	-8.29	AV	177.00	100	Vertical	Pass

802.11n20 CHANNEL 11



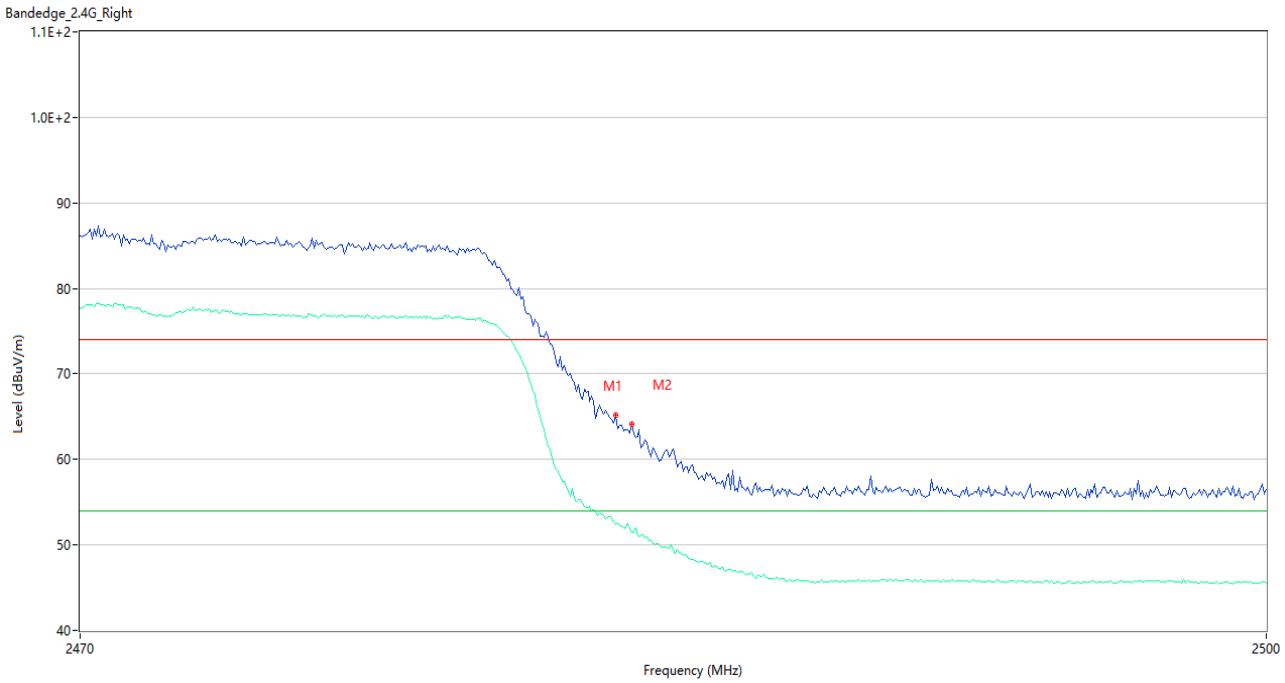
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2483.550	57.36	1.98	74.0	-16.64	Peak	34.00	200	Vertical	Pass
1**	2483.550	46.31	1.98	54.0	-7.69	AV	34.00	200	Vertical	Pass
2	2492.200	58.18	1.88	74.0	-15.82	Peak	208.00	200	Vertical	Pass
2**	2492.200	45.64	1.88	54.0	-8.36	AV	208.00	200	Vertical	Pass

802.11n20 CHANNEL 12



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2483.500	62.32	1.98	74.0	-11.68	Peak	39.00	150	Horizontal	Pass
1**	2483.500	52.08	1.98	54.0	-1.92	AV	39.00	150	Horizontal	Pass
2	2483.750	63.10	1.99	74.0	-10.90	Peak	310.00	150	Horizontal	Pass
2**	2483.750	51.21	1.99	54.0	-2.79	AV	310.00	150	Horizontal	Pass

802.11n20 CHANNEL 13



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2483.500	65.15	1.98	74.0	-8.85	Peak	33.00	150	Horizontal	Pass
1**	2483.500	52.43	1.98	54.0	-1.57	AV	33.00	150	Horizontal	Pass
2	2483.900	64.11	1.99	74.0	-9.89	Peak	35.00	150	Horizontal	Pass
2**	2483.900	51.50	1.99	54.0	-2.50	AV	35.00	150	Horizontal	Pass

A.8 Power Spectral Density (PSD)

Test Data

802.11b Mode:

Channel	Spectral power density (dBm/3kHz)	Limit (dBm/3kHz)
1	-15.51	8
6	-14.63	8
11	-15.48	8
12	-14.52	8
13	-15.74	8

802.11g Mode:

Channel	Spectral power density (dBm/3kHz)	Limit (dBm/3kHz)
1	-18.89	8
6	-17.81	8
11	-18.20	8
12	-19.84	8
13	-33.05	8

802.11n-20 MHz Mode:

Channel	Spectral power density (dBm/3kHz)	Limit (dBm/3kHz)
1	-19.05	8
6	-18.44	8
11	-19.14	8
12	-22.30	8
13	-33.66	8

Test Plots

802.11b CHANNEL 1

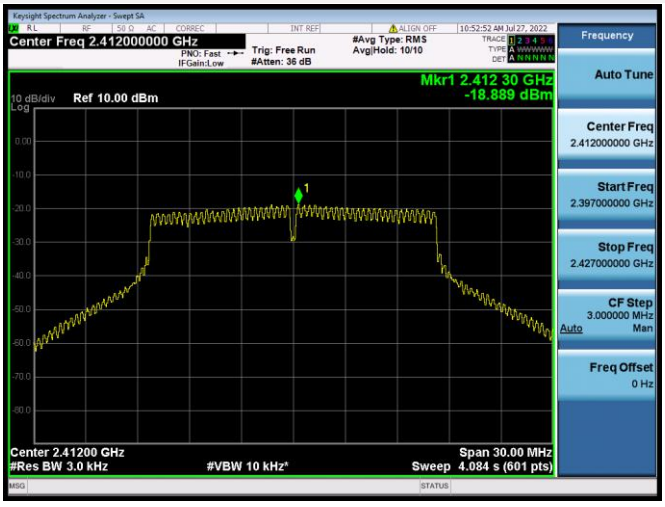
802.11b CHANNEL 6

802.11b CHANNEL 11

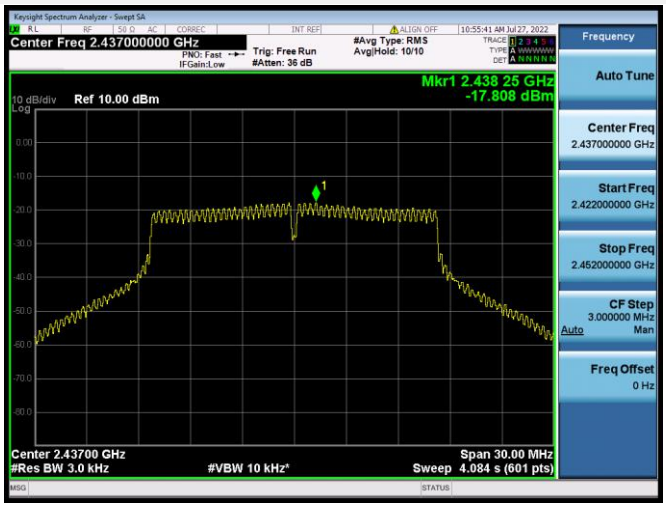
802.11b CHANNEL 12

802.11b CHANNEL 13

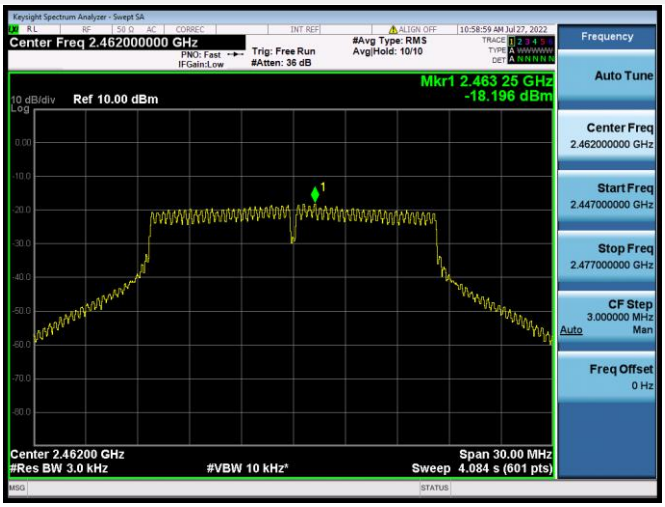
802.11g CHANNEL 1



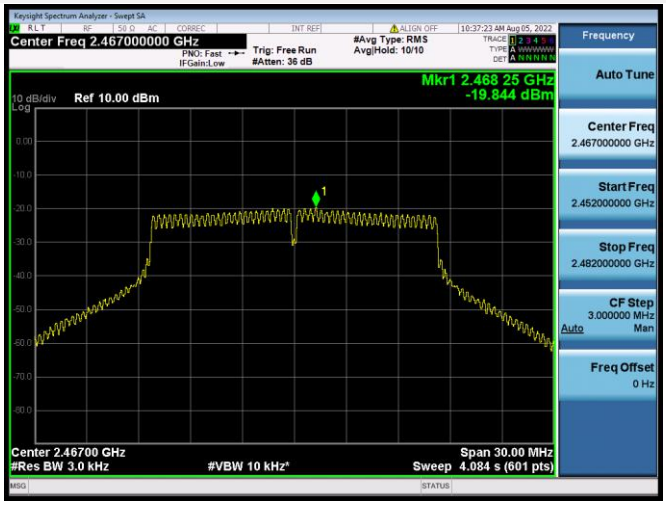
802.11g CHANNEL 6



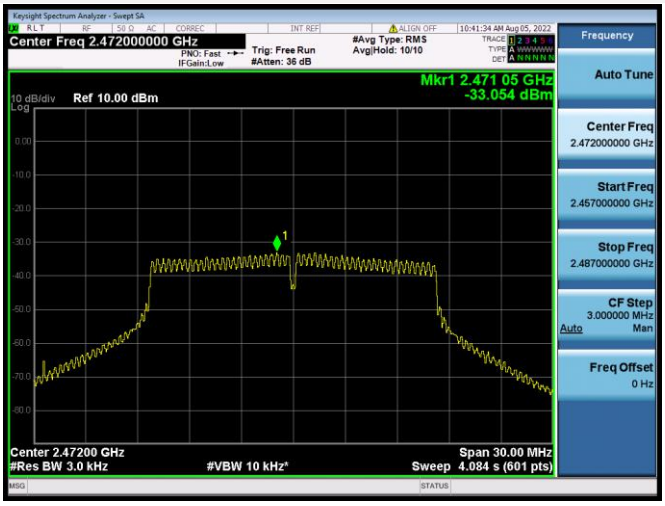
802.11g CHANNEL 11



802.11g CHANNEL 12

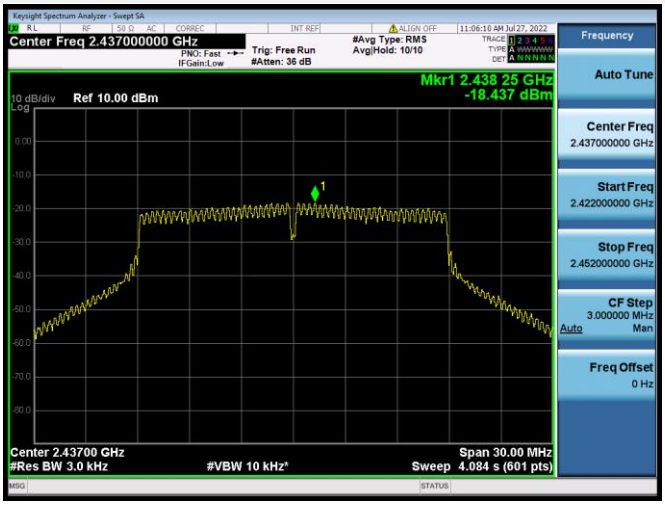


802.11g CHANNEL 13

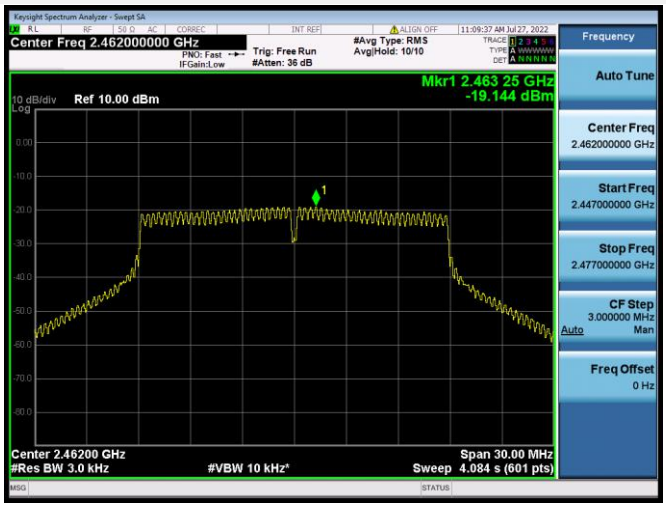


802.11n-20 MHz CHANNEL 1

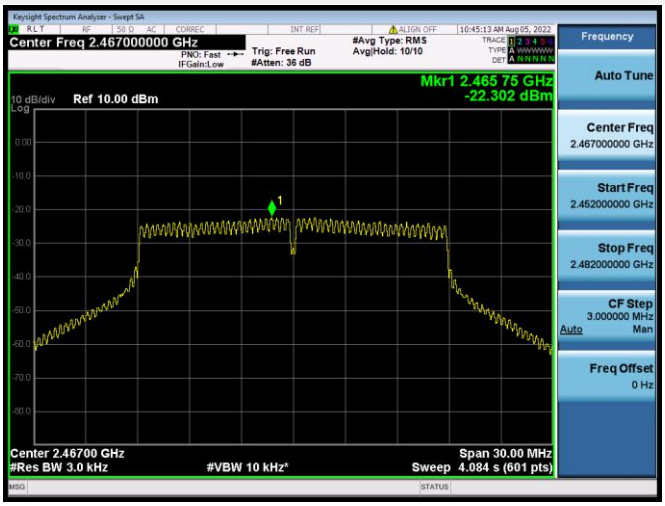
802.11n-20 MHz CHANNEL 6



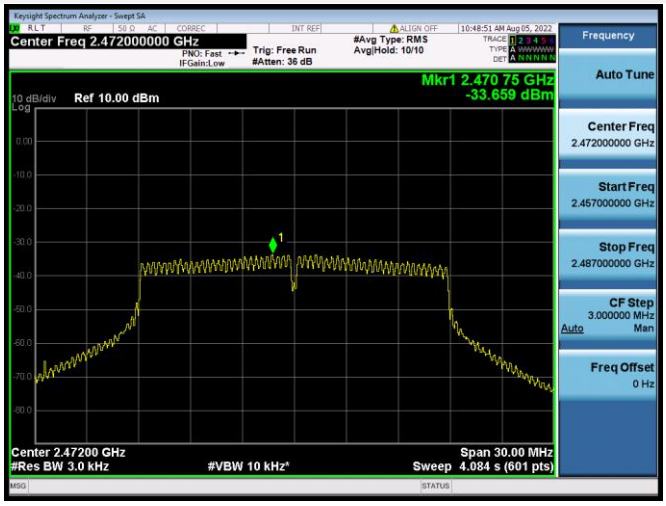
802.11n-20 MHz CHANNEL 11



802.11n-20 MHz CHANNEL 12



802.11n-20 MHz CHANNEL 13



ANNEX B TEST SETUP PHOTOS

Please refer the document “BL-SZ2270322-AR.PDF”.

ANNEX C EUT EXTERNAL PHOTOS

Please refer the document “BL-SZ2270322-AW.PDF”.

ANNEX D EUT INTERNAL PHOTOS

Please refer the document “BL-SZ2270322-AI.PDF”.

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--END OF REPORT--