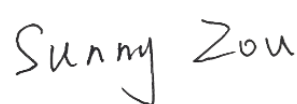


TEST REPORT

Applicant: FJ Dynamics Co., Ltd.
Address: Floor 21, Das Tower, No. 28, 1st South Keji Road,
High-tech Zone, Yuehai Subdistrict, Nanshan
District, Shenzhen, China
Equipment Type: FJD Robotic Line Marker
Model Name: RLM02
Brand Name: 
FCC ID: 2A2LL-RLM02
Test Standard: 47 CFR Part 15 Subpart C
(refer to section 3.1)
Sample Arrival Date: Jul. 28, 2025
Test Date: Aug. 01, 2025 - Aug. 04, 2025
Date of Issue: Sep. 02, 2025

ISSUED BY:

Shenzhen BALUN Technology Co., Ltd.

Tested by: Yang Wenxuan**Checked by:** Ye Hongji**Approved by:** Sunny Zou
(Technical Director)

Revision History

Version	Issue Date	Revisions
<u>Rev. 01</u>	<u>Aug. 28, 2025</u>	<u>Initial Issue</u>
<u>Rev. 02</u>	<u>Sep. 02, 2025</u>	<u>Updated the internal photos</u>

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1 GENERAL INFORMATION

1.1 Test Laboratory

Name	Shenzhen BALUN Technology Co., Ltd.
Address	Block B, 1/F, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
Phone Number	+86 755 6685 0100

1.2 Test Location

Name	Shenzhen BALUN Technology Co., Ltd.
Location	☒ Block B, 1/F, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
	☐ 1/F, Building B, Ganghongji High-tech Intelligent Industrial Park, No. 1008, Songbai Road, Yangguang Community, Xili Sub-district, Nanshan District, Shenzhen, Guangdong Province, P. R. China
Accreditation Certificate	The laboratory is a testing organization accredited by FCC as a accredited testing laboratory. The designation number is CN1196.

2 PRODUCT INFORMATION

2.1 Applicant Information

Applicant	FJ Dynamics Co., Ltd.
Address	Floor 21, Das Tower, No. 28, 1st South Keji Road, High-tech Zone, Yuehai Subdistrict, Nanshan District, Shenzhen, China

2.2 Manufacturer Information

Manufacturer	FJ Dynamics Co., Ltd.
Address	Floor 21, Das Tower, No. 28, 1st South Keji Road, High-tech Zone, Yuehai Subdistrict, Nanshan District, Shenzhen, China

2.3 General Description for Equipment under Test (EUT)

EUT Name	FJD Robotic Line Marker
Model Name Under Test	RLM02
Series Model Name	N/A
Description of Model name differentiation	N/A
Hardware Version	v1.0.0.3
Software Version	V2.1
Dimensions (Approx.)	N/A
Weight (Approx.)	N/A

2.4 Technical Information

Network and Wireless connectivity	WIFI 802.11a, 802.11b, 802.11g, 802.11n, 802.11ac and 802.11ax
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The requirement for the following technical information of the EUT was tested in this report:

Frequency Range	802.11b/g/n/ax(20 MHz): 2.412 GHz - 2.462 GHz $f_c = 2412 \text{ MHz} + (N-1)*5 \text{ MHz}$, where - f_c = "Operating Frequency" in MHz, - N = "Channel Number" with the range from 1 to 11.	
Modulation Technology	DSSS, OFDM, OFDMA	
Product Type	☒ Mobile ☐ Portable ☐ Fix Location	
Antenna System (eg., MIMO, Smart Antenna)	Cyclic Delay Diversity (CDD) for 802.11b/g Multi Input Multi Output (MIMO) for 802.11n/ax	
Categorization as Correlated or Completely Uncorrelated	Categorization as Correlated for 802.11b/g Categorization as Uncorrelated for 802.11n/ax	
Antenna Type	SISO-Antenna 0 SISO-Antenna 1	PIFA Antenna
Antenna Gain	SISO-Antenna 0	1.6 dBi
	SISO-Antenna 1	5.2 dBi
Total directional gain	For power spectral density (PSD) measurements	Correlated: 6.60 dBi Formulas: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / NANT]$ dBi Uncorrelated: 3.76 dBi Formulas: Directional gain = $10 \log[(10^{G1/10} + 10^{G2/10} + \dots + 10^{GN/10}) / NANT]$ dBi
	For power measurements	Correlated: 6.60 dBi Formulas: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / NANT]$ dBi Uncorrelated: 3.76 dBi Formulas: Directional gain = $10 \log[(10^{G1/10} + 10^{G2/10} + \dots + 10^{GN/10}) / NANT]$ dBi
	For Conducted	Correlated: 6.60 dBi

	Out-of-Band and Spurious Measurements	Formulas: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / NANT]$ dBi Uncorrelated: 3.76 dBi Formulas: Directional gain = $10 \log[(10^{G1/10} + 10^{G2/10} + \dots + 10^{GN/10}) / NANT]$ dBi
About the Product		Only the WIFI 802.11b, 802.11g, 802.11n (HT20) and 802.11ax (HE20) was tested in this report.

Mode	Antenna		
	SISO-Antenna 0	SISO-Antenna 1	MIMO
802.11b	√	√	√
802.11g	√	√	√
802.11n20	√	√	√
802.11ax20	√	√	√
Note: All the configurations were tested, but only the worst data was shown in this report.			

802.11ax RU configuration table					
Mode	Full RU (SU)	RU_26	RU_52	RU_106	RU_242
802.11ax20	√	--	--	--	--

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
OFDMA (802.11ax-20 MHz)	BPSK	4
	QPSK	16/24/17/26
	16QAM	33/49/34/52
	64QAM	65/73/81/69/77/86
	256QAM	98/108/103/115
	1024QAM	122/135/129/143

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/11n20/11ax20	1/6/6.5/4 Mbps	1/6/11
Occupied Bandwidth	11b/11g/11n20/11ax20	1/6/6.5/4 Mbps	1/6/11
Conducted Spurious Emission	11b/11g/11n20/11ax20	1/6/6.5/4 Mbps	1/6/11
Conducted Emission	11b/11g/11n20/11ax20	1/6/6.5/4 Mbps	1/6/11
Radiated Spurious Emission	11b/11g/11n20/11ax20	1/6/6.5/4 Mbps	1/6/11
Band Edge	11b/11g/11n20/11ax20	1/6/6.5/4 Mbps	1/6/11
Power spectral density (PSD)	11b/11g/11n20/11ax20	1/6/6.5/4 Mbps	1/6/11

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

3 SUMMARY OF TEST RESULTS

3.1 Test Standards

No.	Identity	Document Title
1	47 CFR Part 15, Subpart C	Intentional radiators of radio frequency equipment
2	KDB Publication 662911 D01v02r01	Emissions Testing of Transmitters with Multiple Outputs in the Same Band (e.g., MIMO, Smart Antenna, etc)
3	ANSI C63.10-2013	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices
4	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 ^{Note1}
2	Output Power	15.247 (b)	ANNEX A.1	Pass
3	Occupied 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	N/A ^{Note2}
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

Note 1: The EUT has a permanently and irreplaceable attached antenna, which complies with the requirement FCC 15.203.

Note 2: The EUT only powered by battery, so the Conducted Emission 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	46% to 68%	
Atmospheric Pressure	100 kPa to 102 kPa	
Temperature	NT (Normal Temperature)	+21.1°C to +25.3°C
Working Voltage of the EUT	NV (Normal Voltage)	14.4 V

4.2 Test Equipment List

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
Spectrum Analyzer	KEYSIGHT	N9020A	MY56060183	2025.06.16	2026.06.15
Power Sensor	KEYSIGHT	U2063XA	MY58000247	2025.06.16	2026.06.15
Spectrum Analyzer	KEYSIGHT	N9020A	MY50531259	2025.06.16	2026.06.15
Signaling Unit	ROHDE&SCHWARZ	CMW500	171150	2025.04.28	2026.04.27
Test Antenna-Horn	SCHWARZBECK	BBHA 9120D	02460	2024.05.16	2027.05.15
Test Antenna-Horn	A-INFO	LB-180400KF	J211060273	2024.06.15	2027.06.14
Anechoic Chamber	RAINFORD	9m*6m*6m	140	2024.07.28	2027.07.27
Amplifier	COM-MV	LSCX_LNA1-12G-01	7210214	2025.06.17	2026.06.16
Amplifier	COM-MV	XKu_LNA7-18G-01	7210209	2025.06.17	2026.06.16
EMI Receiver	ROHDE&SCHWARZ	ESRP	101036	2025.06.16	2026.06.15
Test Antenna-Bi-Log	SCHWARZBECK	VULB 9168	9168-01162	2023.08.04	2026.08.03
Test Antenna-Loop	SCHWARZBECK	FMZB 1519	1519-037	2024.01.23	2027.01.22
Amplifier	COM-MV	ZT30-1000M	B2018054558	2024.11.28	2025.11.27
Anechoic Chamber	EMC Electronic Co., Ltd	20.10*11.60*7.35m	130	2024.07.13	2027.07.12

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	V22.930	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	0.8℃
Humidity	4%

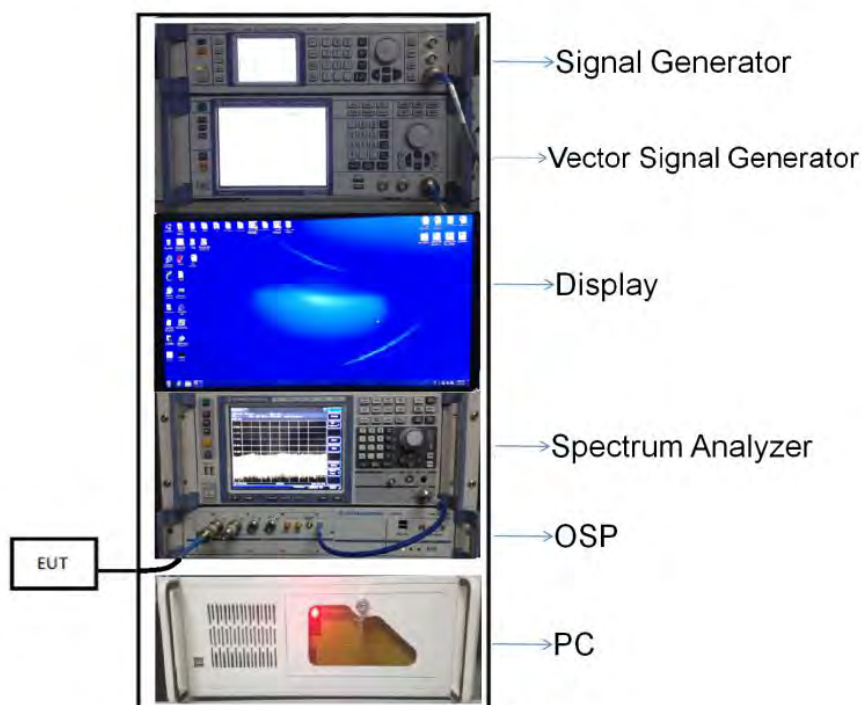
4.5 Description of Test Setup

4.5.1 For Antenna Port Test

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

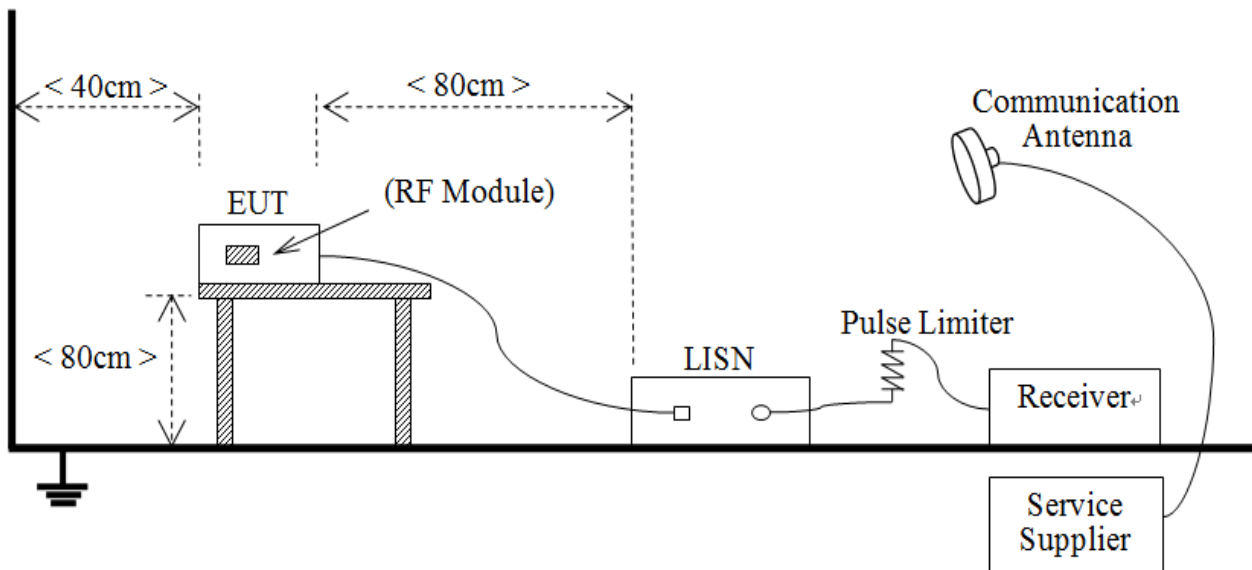
For example: the measurement value is 10 dBm and the cable 0.5dBm used, then the final result of EUT:

Conducted value (dBm) = 10 dBm + 0.5 dB = 10.5 dBm



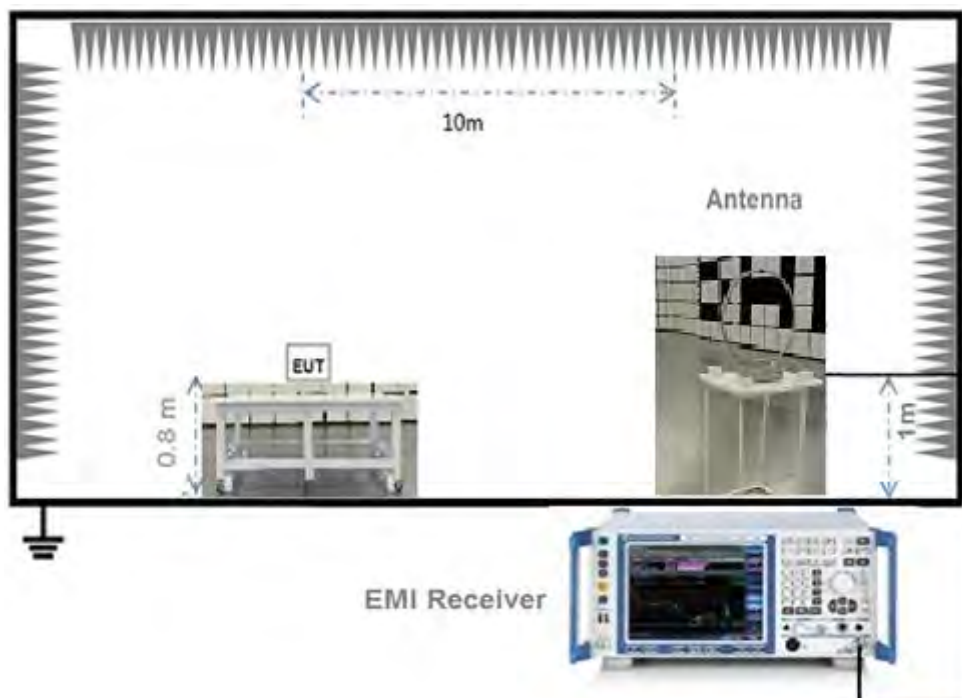
(Diagram 1)

4.5.2 For AC Power Supply Port Test



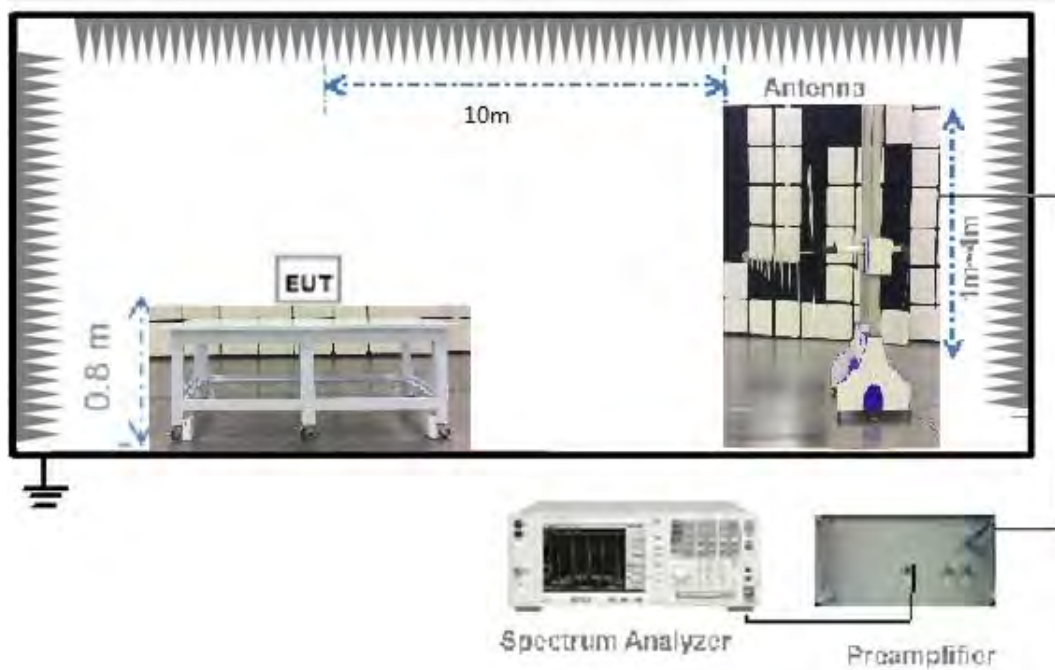
(Diagram 2)

4.5.3 For Radiated Test (Below 30 MHz)



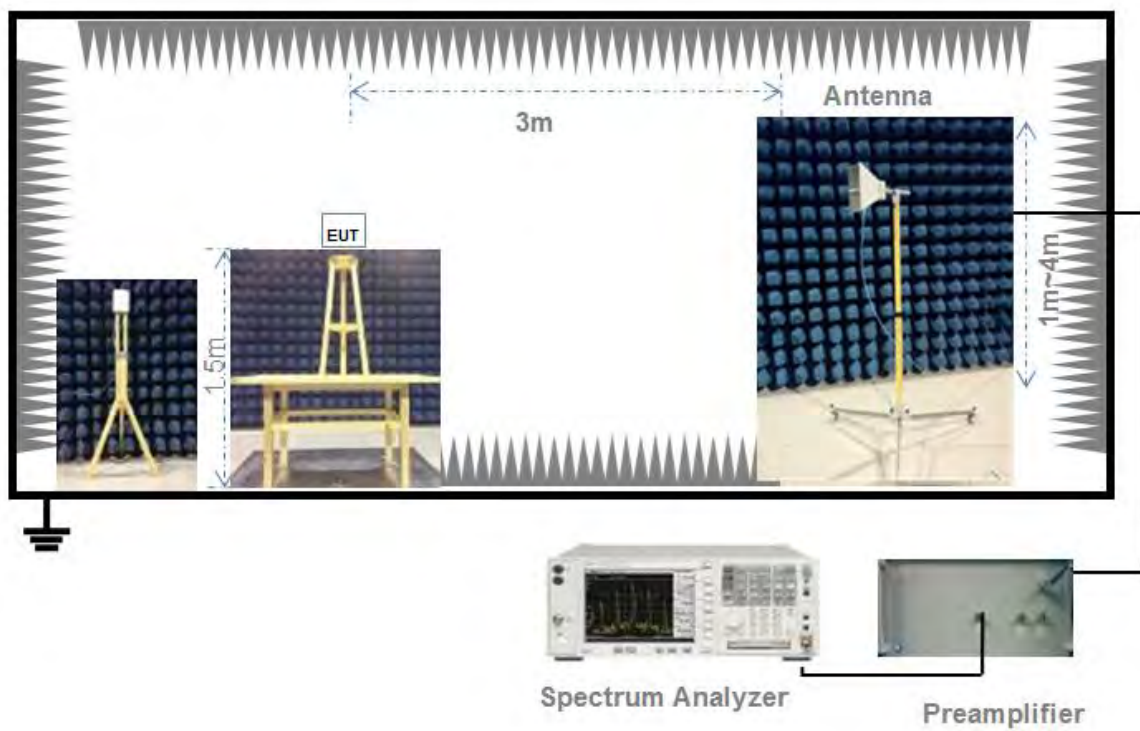
(Diagram 3)

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:

$$E = \text{EIRP} - 20\log D + 104.8$$

where:

E = electric field strength in dB μ V/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.

The EUT shall be transmitted at its maximum power control level.

Maximum conducted (average) output power (Reporting Only)

a) As an alternative to spectrum analyzer or EMI receiver measurements, measurements may be performed 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 signal.
- 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 $10\log(1/x)$, where x is the duty cycle.

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 $RBW \geq OBW$ if possible; otherwise, set RBW to the largest available value.

Set $VBW \geq RBW$. 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 $T \leq 16.7$ microseconds.)

5.2.4 Test Result

Please refer to ANNEX A.1.

5.3 Occupied 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 $\geq 3 \times$ 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 $\geq 3 \times$ 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 $\geq 98\%$). 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 $\geq 3 \times$ 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 $[10 \log (\text{OBW/RBW})]$ 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 50 μ H/50 Ω line impedance stabilization network (LISN).

Frequency range (MHz)	Conducted Limit (dB μ V)	
	Quai-peak	Average
0.15 - 0.50	66 to 56	56 to 46
0.50 - 5	56	46
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 ($\mu\text{V}/\text{m}$)	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:

$$E = \text{EIRP} - 20\log D + 104.8$$

where:

E = electric field strength in dB μ V/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 $\geq 3 \times$ 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 $\geq 3 \times$ RBW.
- e) Detector = RMS, if $\text{span}/(\# \text{ of points in sweep}) \leq (\text{RBW}/2)$. 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 $f \geq 1$ GHz, 100 kHz for $f < 1$ GHz

VBW $\geq$ 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 $f \geq 1$ GHz, 100 kHz for $f < 1$ GHz

VBW $\geq$ 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: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.

Set the VBW $\geq 3 \text{ RBW}$.

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	Duty Factor
802.11b	8.402	8.504	98.80%	0.05
802.11g	1.385	1.495	92.64%	0.33
802.11n-20 MHz	1.3	1.405	92.53%	0.34
802.11ax-20 MHz	1.015	1.12	90.63%	0.43

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Peak Power Test Data

802.11b Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	18.26	66.99	30	1000	Pass
Middle	18.56	71.78			Pass
High	18.24	66.68			Pass

802.11g Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	26.00	398.11	30	1000	Pass
Middle	26.28	424.62			Pass
High	25.91	389.94			Pass

802.11n-20 MHz Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	26.06	403.65	30	1000	Pass
Middle	26.05	402.72			Pass
High	25.74	374.97			Pass

802.11ax-20 MHz(SU) Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	27.87	612.35	30	1000	Pass
Middle	28.04	636.80			Pass
High	27.84	608.14			Pass

Average Power Test Data

802.11b Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	15.29	33.81	30	1000	Pass
Middle	15.47	35.24			Pass
High	15.29	33.81			Pass

802.11g Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	17.74	59.43	30	1000	Pass
Middle	18.02	63.39			Pass
High	17.68	58.61			Pass

802.11n-20 MHz Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	17.78	59.98	30	1000	Pass
Middle	17.78	59.98			Pass
High	17.53	56.62			Pass

802.11ax-20 MHz(SU) Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	17.96	62.52	30	1000	Pass
Middle	18.07	64.12			Pass
High	17.88	61.38			Pass

SISO-Antenna 1Peak Power Test Data

802.11b Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	15.02	31.77	30	1000	Pass
Middle	14.34	27.16			Pass
High	14.18	26.18			Pass

802.11g Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	22.51	178.24	30	1000	Pass
Middle	22.00	158.49			Pass
High	21.56	143.22			Pass

802.11n-20 MHz Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	22.51	178.24	30	1000	Pass
Middle	21.90	154.88			Pass
High	21.39	137.72			Pass

802.11ax-20 MHz(SU) Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	24.50	281.84	30	1000	Pass
Middle	23.99	250.61			Pass
High	23.72	235.50			Pass

Average Power Test Data

802.11b Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	11.67	14.69	30	1000	Pass
Middle	11.35	13.65			Pass
High	11.18	13.12			Pass

802.11g Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	14.25	26.61	30	1000	Pass
Middle	13.78	23.88			Pass
High	13.34	21.58			Pass

802.11n-20 MHz Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	14.21	26.36	30	1000	Pass
Middle	13.69	23.39			Pass
High	13.18	20.80			Pass

802.11ax-20 MHz(SU) Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	14.49	28.12	30	1000	Pass
Middle	13.99	25.06			Pass
High	13.73	23.60			Pass

MIMO-Antenna 0Peak Power Test Data

802.11b Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	15.17	32.89	30	1000	Pass
Middle	15.36	34.36			Pass
High	15.16	32.81			Pass

802.11g Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	22.74	187.93	30	1000	Pass
Middle	23.03	200.91			Pass
High	22.89	194.54			Pass

802.11n-20 MHz Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	23.04	201.37	30	1000	Pass
Middle	22.82	191.43			Pass
High	22.54	179.47			Pass

802.11ax-20 MHz(SU) Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	24.65	291.74	30	1000	Pass
Middle	24.94	311.89			Pass
High	24.83	304.09			Pass

Average Power Test Data

802.11b Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	12.25	16.79	30	1000	Pass
Middle	12.43	17.50			Pass
High	12.17	16.48			Pass

802.11g Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	14.64	29.11	30	1000	Pass
Middle	15.00	31.62			Pass
High	14.58	28.71			Pass

802.11n-20 MHz Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	14.74	29.79	30	1000	Pass
Middle	14.70	29.51			Pass
High	14.44	27.80			Pass

802.11ax-20 MHz(SU) Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	14.78	30.06	30	1000	Pass
Middle	14.88	30.76			Pass
High	14.76	29.92			Pass

MIMO-Antenna 1Peak Power Test Data

802.11b Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	11.94	15.63	30	1000	Pass
Middle	11.10	12.88			Pass
High	10.95	12.45			Pass

802.11g Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	19.41	87.30	30	1000	Pass
Middle	18.75	74.99			Pass
High	18.33	68.08			Pass

802.11n-20 MHz Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	19.27	84.53	30	1000	Pass
Middle	18.61	72.61			Pass
High	18.35	68.39			Pass

802.11ax-20 MHz(SU) Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	21.24	133.05	30	1000	Pass
Middle	20.95	124.45			Pass
High	20.52	112.72			Pass

Average Power Test Data

802.11b Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	8.57	7.19	30	1000	Pass
Middle	8.33	6.81			Pass
High	8.12	6.49			Pass

802.11g Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	11.19	13.15	30	1000	Pass
Middle	10.60	11.48			Pass
High	10.23	10.54			Pass

802.11n-20 MHz Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	11.07	12.79	30	1000	Pass
Middle	10.53	11.30			Pass
High	10.02	10.05			Pass

802.11ax-20 MHz(SU) Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	11.39	13.77	30	1000	Pass
Middle	10.88	12.25			Pass
High	10.65	11.61			Pass

MIMOPeak Power Test Data

802.11b Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	16.86	48.52	30	1000	Pass
Middle	16.74	47.24			Pass
High	16.56	45.25			Pass

802.11g Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	24.40	275.23	30	1000	Pass
Middle	24.41	275.90			Pass
High	24.19	262.61			Pass

802.11n-20 MHz Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	24.56	285.90	30	1000	Pass
Middle	24.22	264.04			Pass
High	23.94	247.86			Pass

802.11ax-20 MHz(SU) Mode:

Channel	Measured Output Peak Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	26.28	424.79	30	1000	Pass
Middle	26.40	436.34			Pass
High	26.20	416.81			Pass

Average Power Test Data

802.11b Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	13.80	23.98	30	1000	Pass
Middle	13.86	24.31			Pass
High	13.61	22.97			Pass

802.11g Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	16.26	42.26	30	1000	Pass
Middle	16.35	43.10			Pass
High	15.94	39.25			Pass

802.11n-20 MHz Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	16.29	42.58	30	1000	Pass
Middle	16.11	40.81			Pass
High	15.78	37.84			Pass

802.11ax-20 MHz(SU) Mode:

Channel	Measured Output Average Power		Limit		Verdict
	dBm	mW	dBm	mW	
Low	16.42	43.83	30	1000	Pass
Middle	16.34	43.01			Pass
High	16.18	41.54			Pass

A.2 Occupied Bandwidth

Note¹: All the configurations were pre tested, only the worst configuration has been reported in this report.

Note²: All antenna were pre tested, but only the worst case has been reported in this report.

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Test Data

802.11b Mode:

Channel	6 dB Bandwidth (MHz)	99% Bandwidth (MHz)	6 dB Bandwidth Limits (kHz)
Low	7.150000	11.199000	≥500
Middle	7.650000	11.194000	≥500
High	7.650000	11.236000	≥500

802.11g Mode:

Channel	6 dB Bandwidth (MHz)	99% Bandwidth (MHz)	6 dB Bandwidth Limits (kHz)
Low	16.450000	17.738000	≥500
Middle	16.450000	17.700000	≥500
High	16.400000	17.663000	≥500

802.11n-20MHz Mode:

Channel	6 dB Bandwidth (MHz)	99% Bandwidth (MHz)	6 dB Bandwidth Limits (kHz)
Low	17.650000	18.621000	≥500
Middle	17.650000	18.641000	≥500
High	17.650000	18.637000	≥500

802.11ax-20 MHz(SU) Mode:

Channel	6 dB Bandwidth (MHz)	99% Bandwidth (MHz)	6 dB Bandwidth Limits (kHz)
Low	18.850000	19.130000	≥500
Middle	18.800000	19.122000	≥500
High	18.900000	19.115000	≥500

Test Plots

6 dB Bandwidth

802.11b LOW CHANNEL



802.11b MIDDLE CHANNEL



802.11b HIGH CHANNEL



802.11g LOW CHANNEL



802.11g MIDDLE CHANNEL



802.11g HIGH CHANNEL



802.11n-20 MHz LOW CHANNEL



802.11n-20 MHz MIDDLE CHANNEL



802.11n-20 MHz HIGH CHANNEL



802.11ax-20 MHz(SU) LOW CHANNEL



802.11ax-20 MHz(SU) MIDDLE CHANNEL

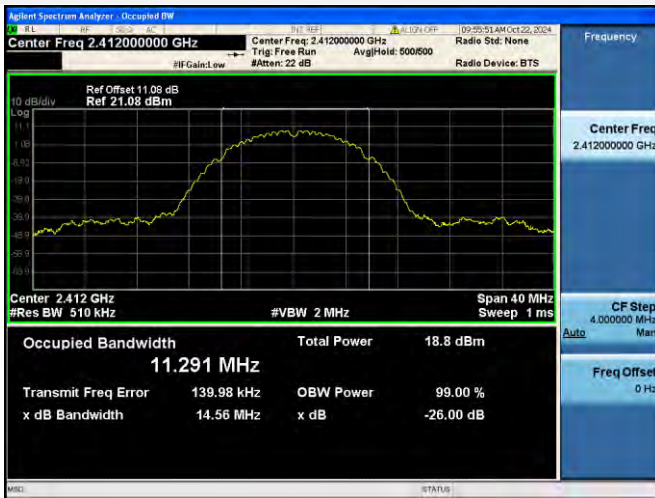


802.11ax-20 MHz(SU) HIGH CHANNEL

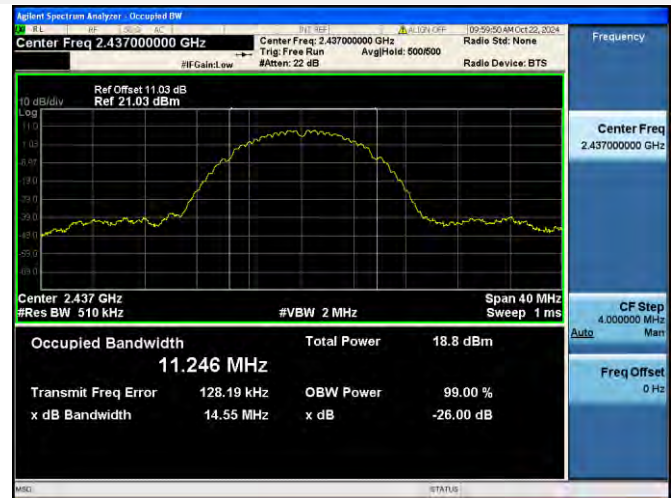


99% Bandwidth

802.11b LOW CHANNEL



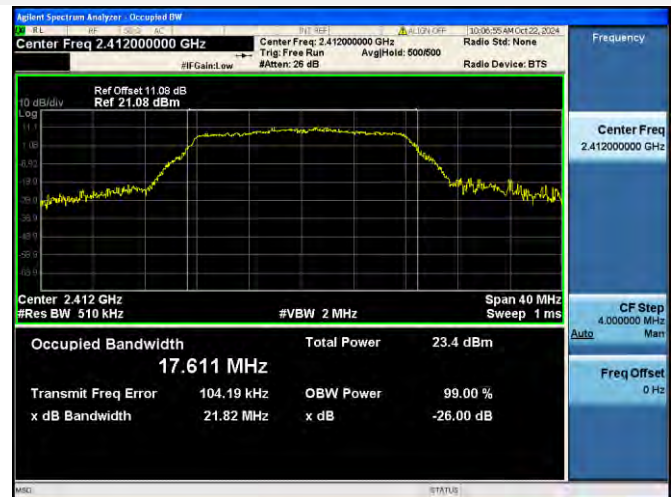
802.11b MIDDLE CHANNEL



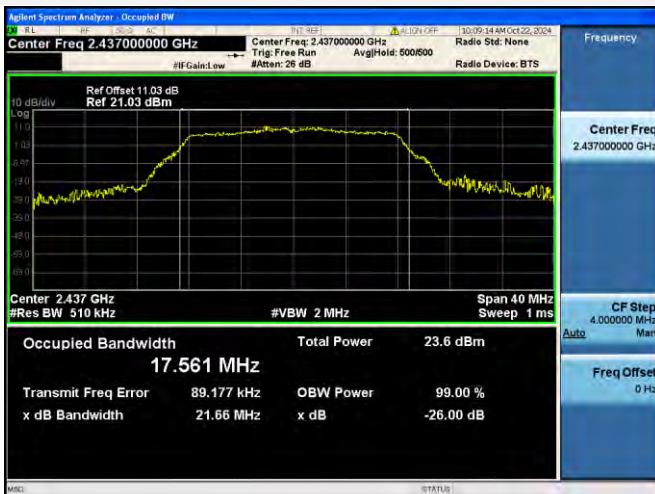
802.11b HIGH CHANNEL



802.11g LOW CHANNEL



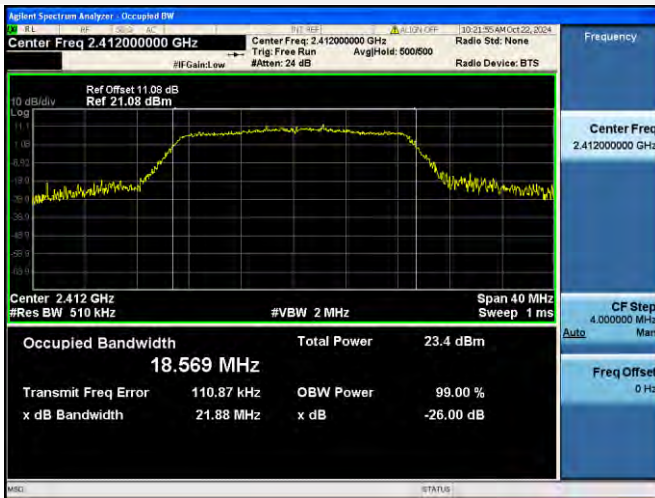
802.11g MIDDLE CHANNEL



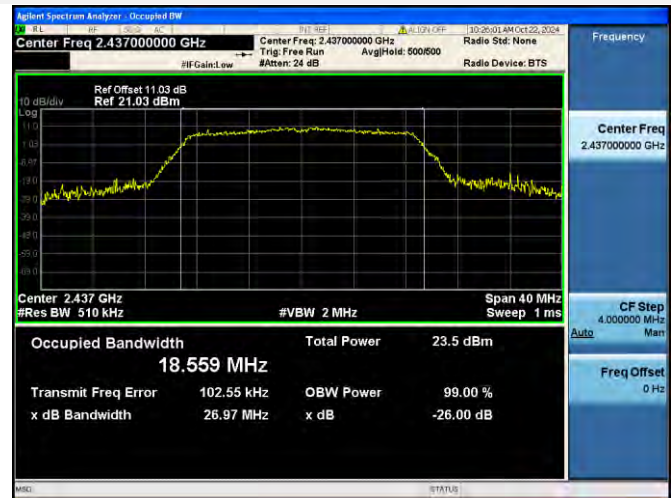
802.11g HIGH CHANNEL



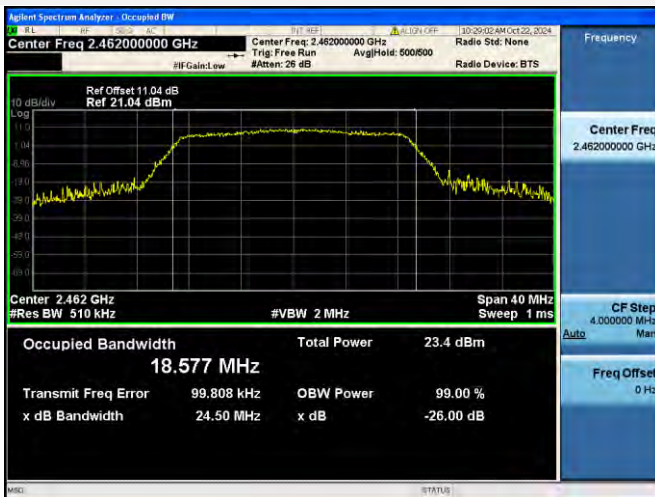
802.11n-20 MHz LOW CHANNEL



802.11n-20 MHz MIDDLE CHANNEL



802.11n-20 MHz HIGH CHANNEL



802.11ax-20 MHz(SU) LOW CHANNEL



802.11ax-20 MHz(SU) MIDDLE CHANNEL



802.11ax-20 MHz(SU) HIGH CHANNEL



A.3 Conducted Spurious Emissions

Note ¹: All the configurations were pre tested, only the worst configuration has been reported in this report.

Note ²: All antenna were pre tested, but only the worst case has been reported in this report.

SISO-Antenna 0

Test Data

802.11b Mode:

Channel	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low	-37.74	7.55	-12.45	Pass
Middle	-37.98	7.57	-12.43	Pass
High	-38.76	7.78	-12.23	Pass

802.11g Mode:

Channel	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low	-37.04	5.93	-14.07	Pass
Middle	-38.33	5.96	-14.05	Pass
High	-37.29	5.05	-14.95	Pass

802.11n-20MHz Mode:

Channel	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low	-38.64	5.55	-14.45	Pass
Middle	-38.39	5.49	-14.51	Pass
High	-37.89	5.84	-14.16	Pass

802.11ax-20 MHz(SU) Mode:

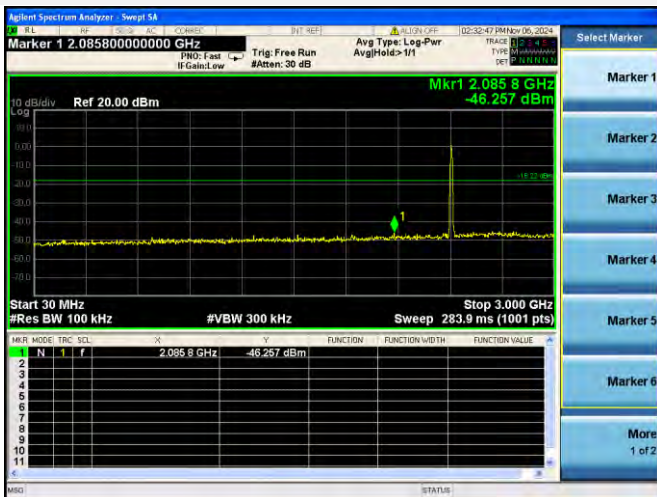
Channel	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low	-38.23	6.15	-13.85	Pass
Middle	-38.00	6.30	-13.70	Pass
High	-35.45	5.72	-14.28	Pass

Test Plots

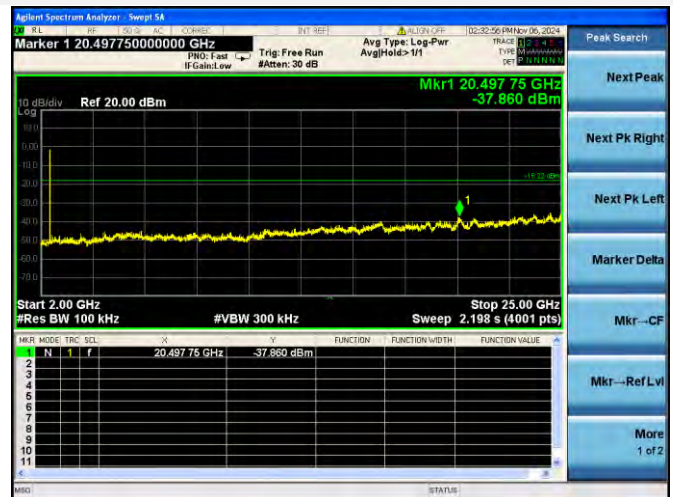
802.11b LOW CHANNEL CARRIER LEVEL



802.11b LOW CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



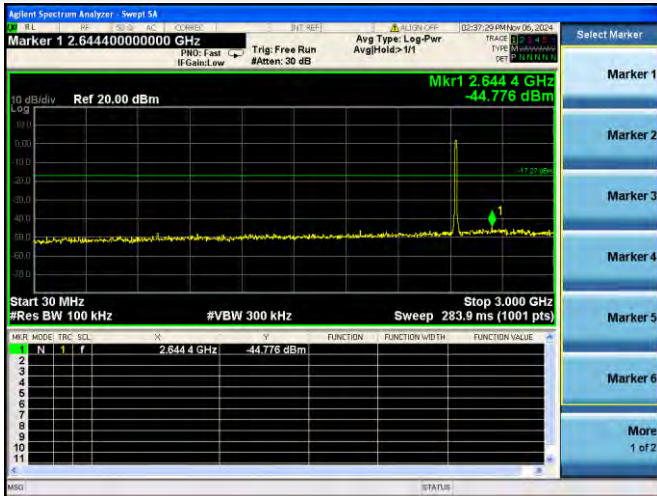
802.11b LOW CHANNEL, SPURIOUS 2 GHz ~ 25 GHz



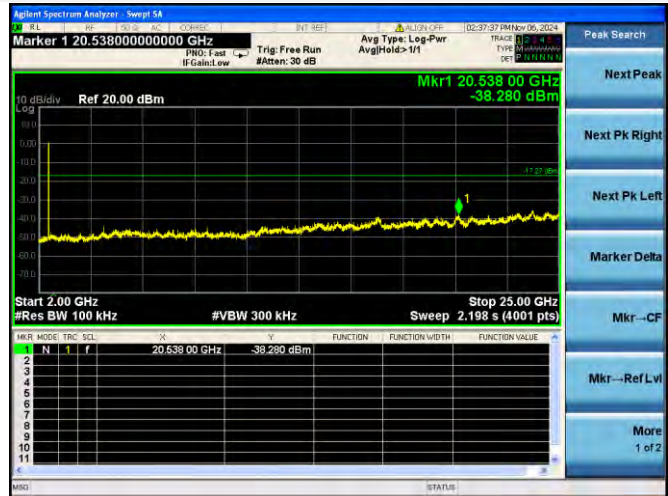
802.11b MIDDLE CHANNEL CARRIER LEVEL



802.11b MIDDLE CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



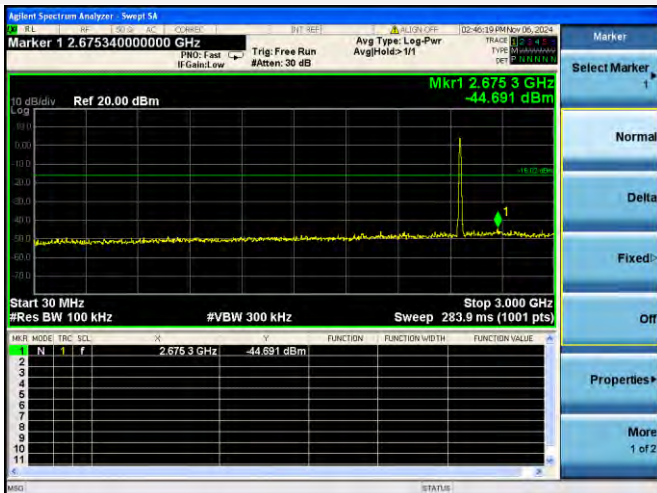
802.11b MIDDLE CHANNEL, SPURIOUS 2 GHz ~ 25 GHz



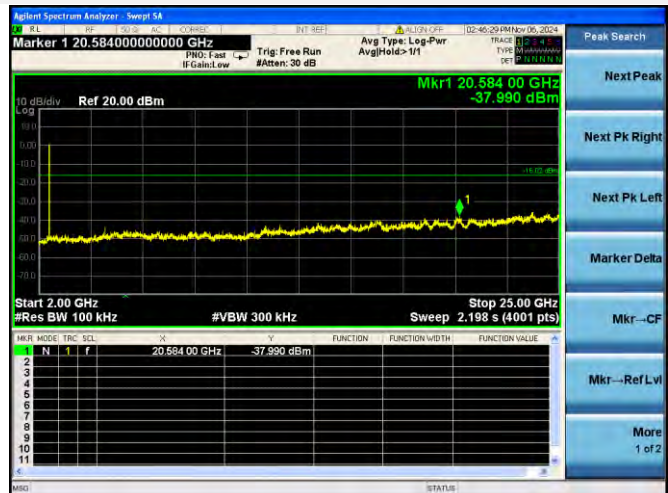
802.11b HIGH CHANNEL CARRIER LEVEL



802.11b HIGH CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



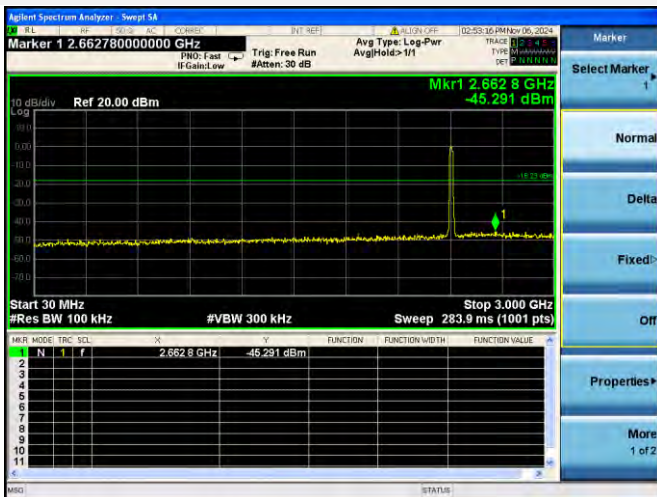
802.11b HIGH CHANNEL, SPURIOUS 2 GHz ~ 25 GHz



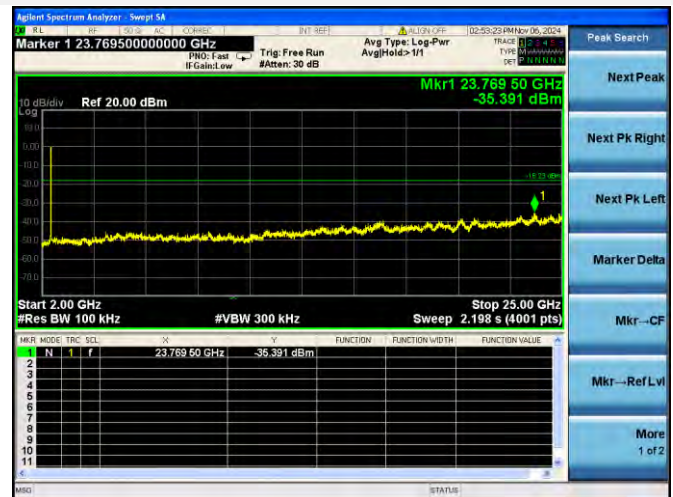
802.11g LOW CHANNEL CARRIER LEVEL



802.11g LOW CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



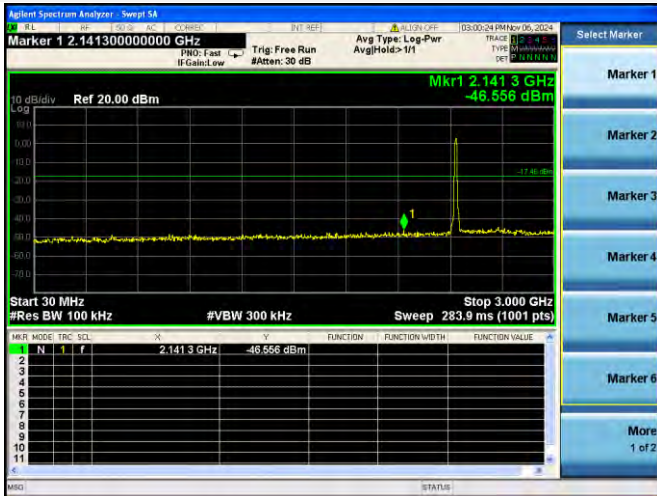
802.11g LOW CHANNEL, SPURIOUS 2 GHz ~ 25 GHz



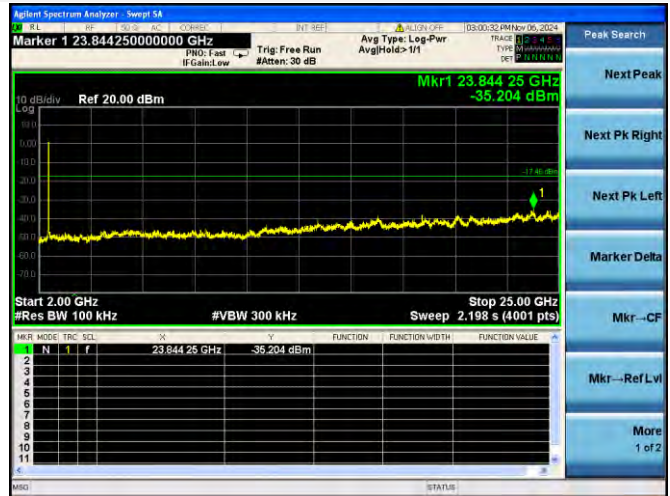
802.11g MIDDLE CHANNEL CARRIER LEVEL



802.11g MIDDLE CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



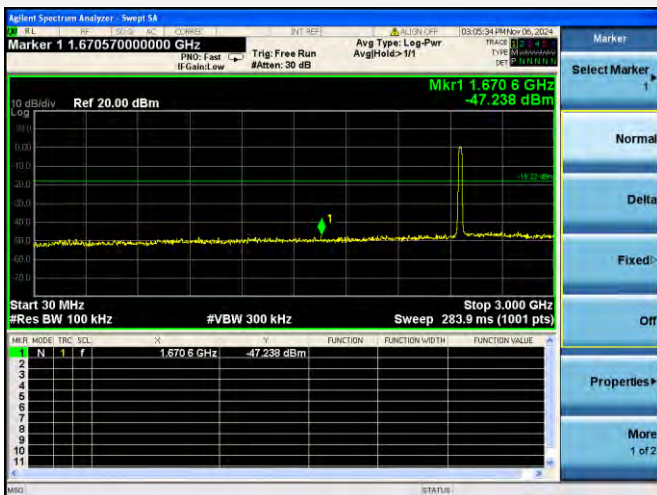
802.11g MIDDLE CHANNEL, SPURIOUS 2 GHz ~ 25 GHz



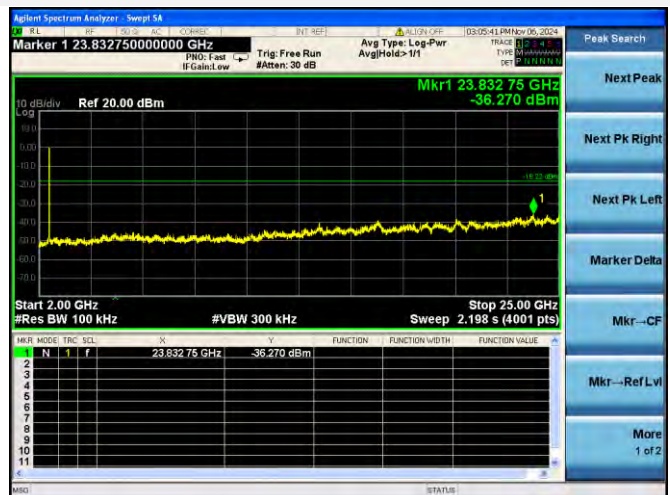
802.11g HIGH CHANNEL CARRIER LEVEL



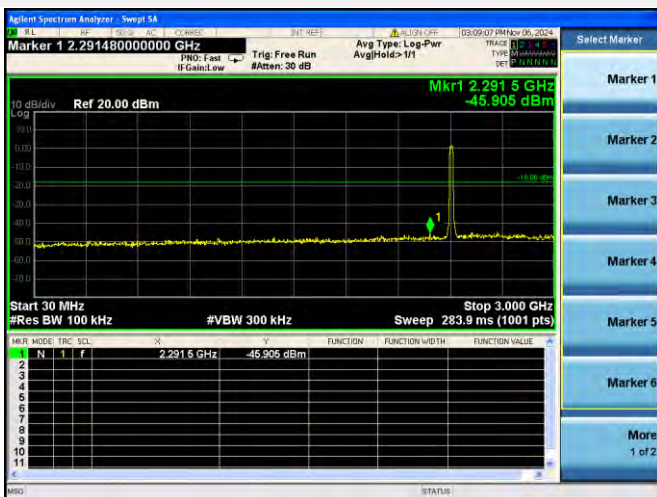
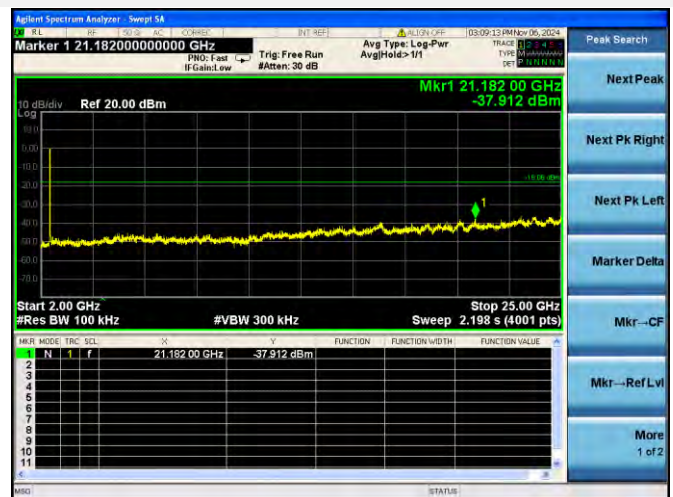
802.11g HIGH CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



802.11g HIGH CHANNEL, SPURIOUS 2 GHz ~ 25 GHz



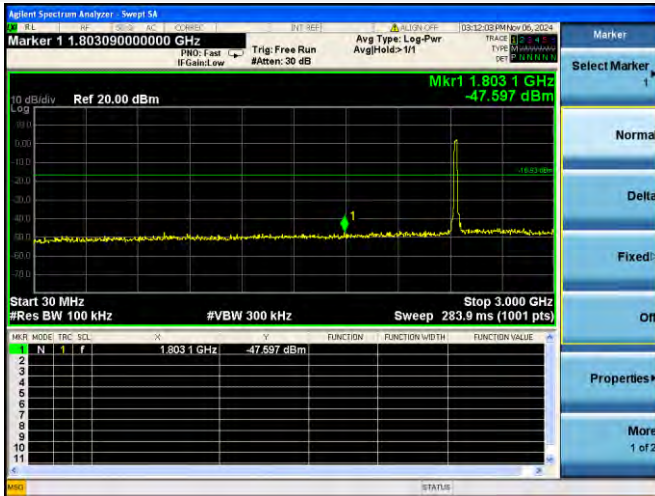
802.11n-20 MHz LOW CHANNEL CARRIER LEVEL

802.11n-20 MHz LOW CHANNEL, SPURIOUS
30 MHz ~ 3 GHz802.11n-20 MHz LOW CHANNEL, SPURIOUS
2 GHz ~ 25 GHz

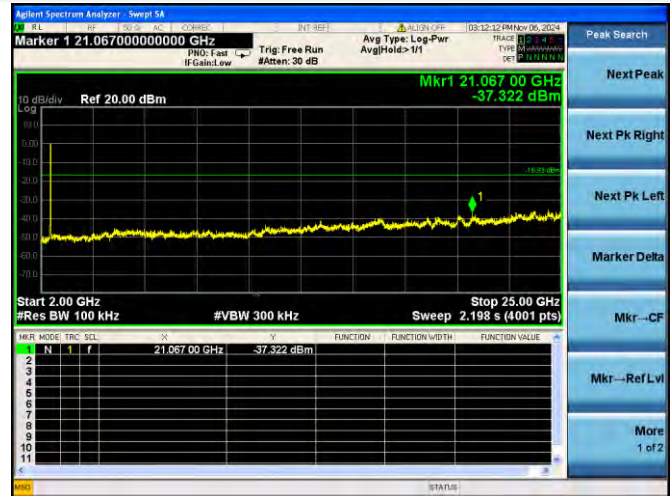
802.11n-20 MHz MIDDLE CHANNEL CARRIER LEVEL



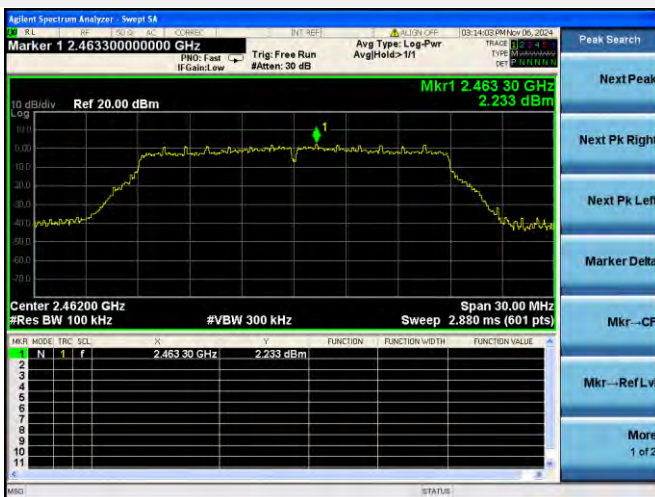
802.11n-20 MHz MIDDLE CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



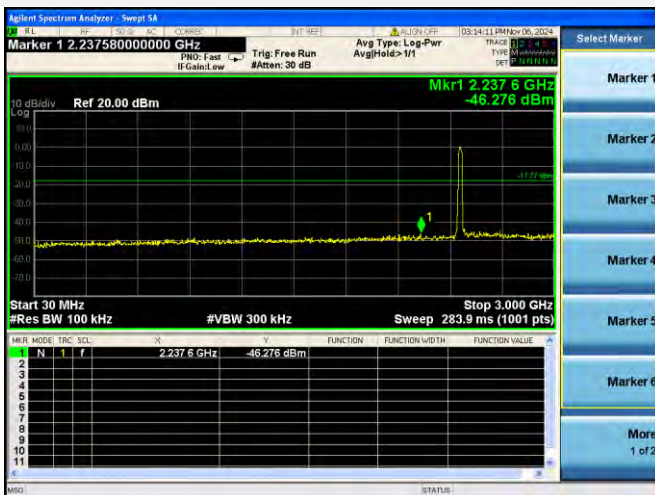
802.11n-20 MHz MIDDLE CHANNEL, SPURIOUS 2 GHz ~ 25 GHz



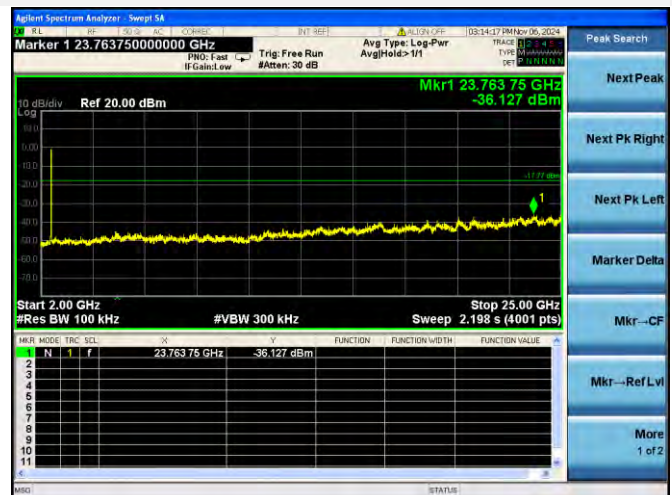
802.11n-20 MHz HIGH CHANNEL CARRIER LEVEL



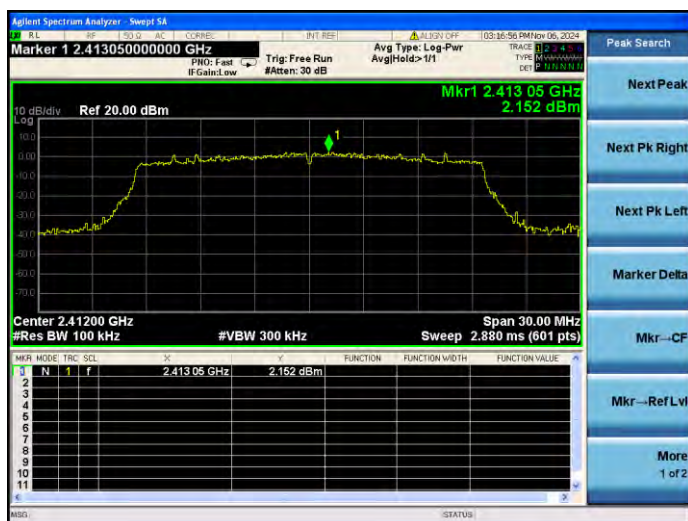
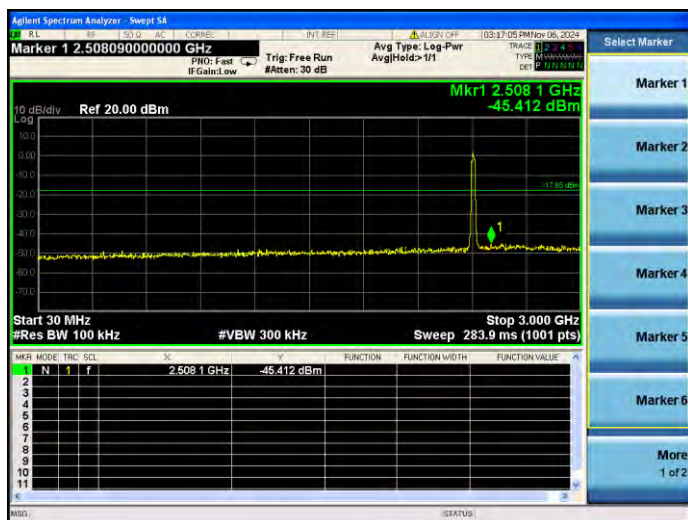
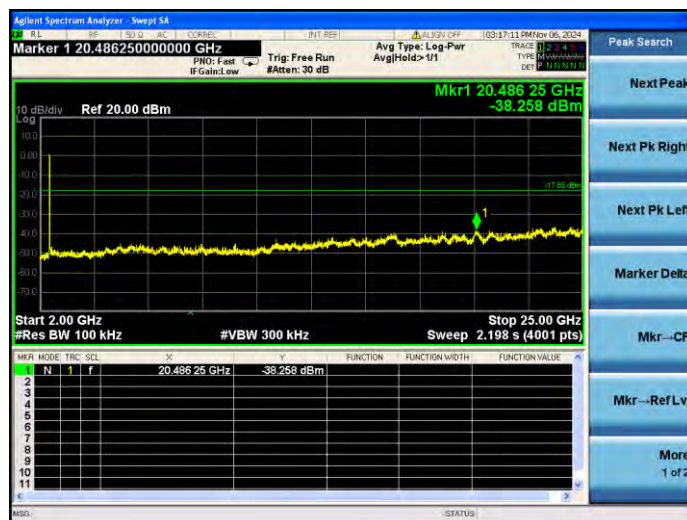
802.11n-20 MHz HIGH CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



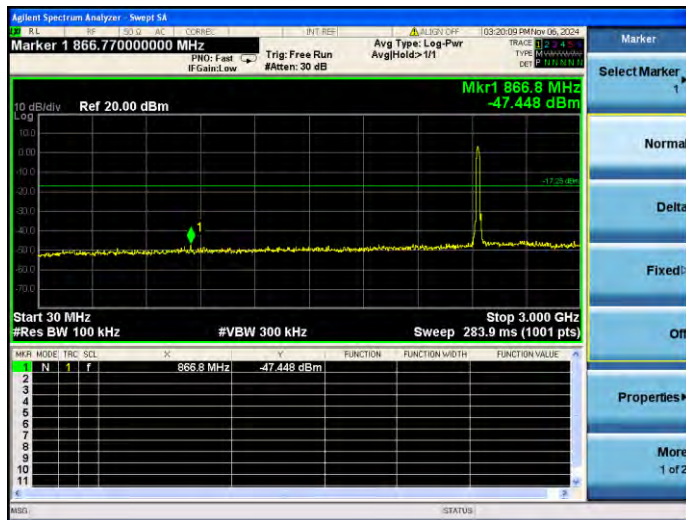
802.11n-20 MHz HIGH CHANNEL, SPURIOUS 2 GHz ~ 25 GHz



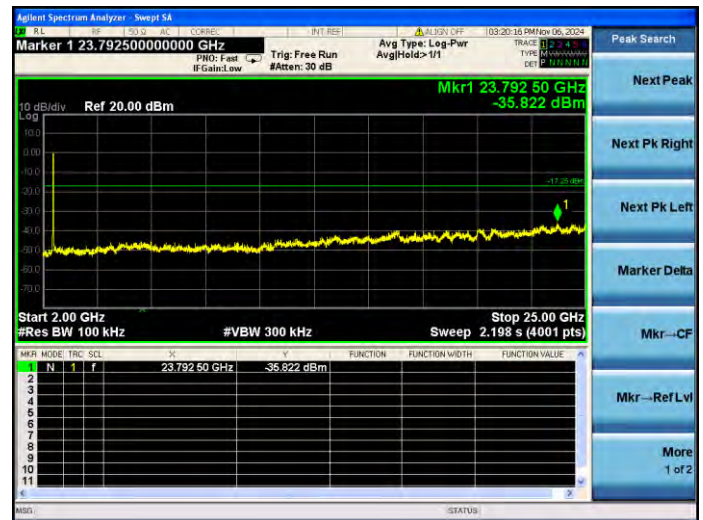
802.11ax-20 MHz(SU) LOW CHANNEL CARRIER LEVEL

802.11ax-20 MHz(SU) LOW CHANNEL, SPURIOUS
30 MHz ~ 3 GHz802.11ax-20 MHz(SU) LOW CHANNEL, SPURIOUS
2 GHz ~ 25 GHz802.11ax-20 MHz(SU) MIDDLE CHANNEL CARRIER
LEVEL

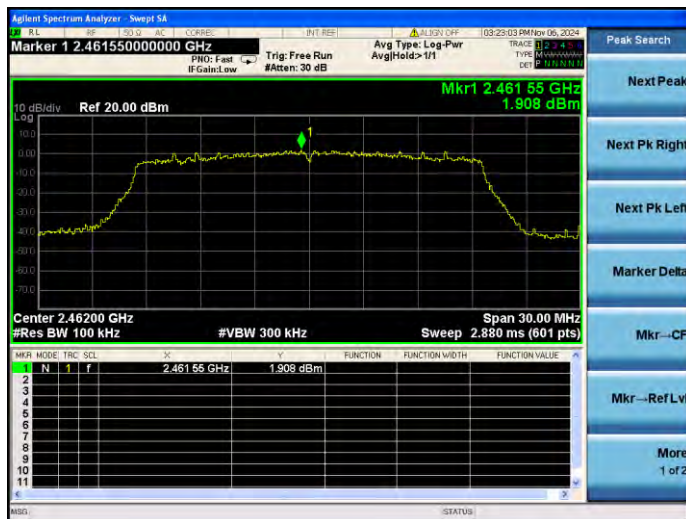
802.11ax-20 MHz(SU) MIDDLE CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



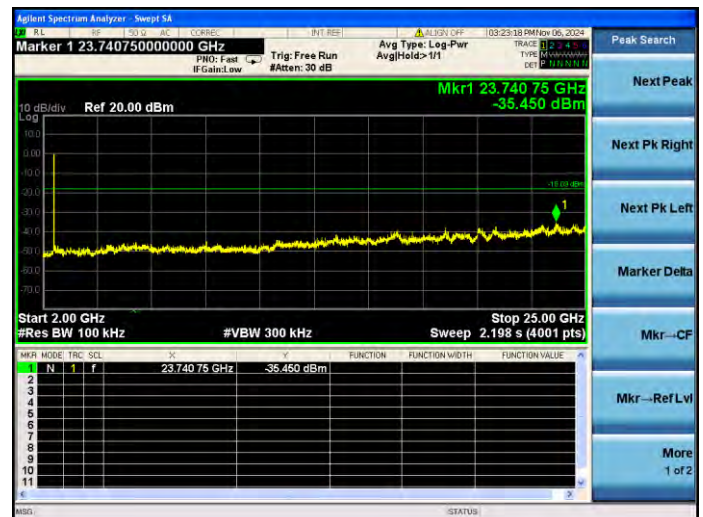
802.11ax-20 MHz(SU) MIDDLE CHANNEL, SPURIOUS 2 GHz ~ 25 GHz



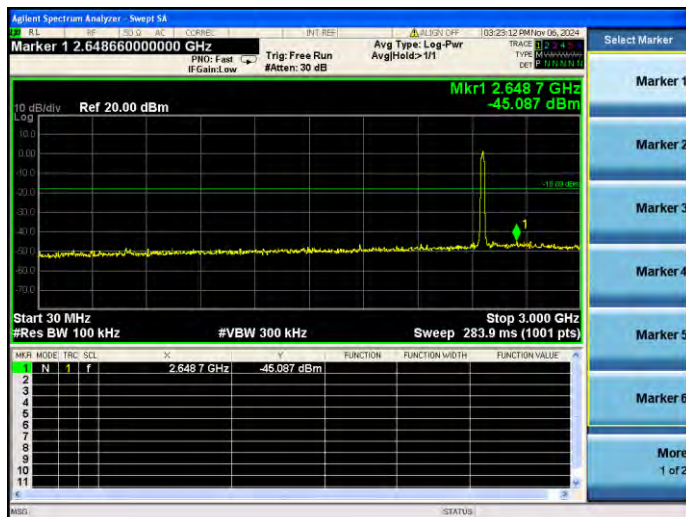
802.11ax-20 MHz(SU) HIGH CHANNEL CARRIER LEVEL



802.11ax-20 MHz(SU) HIGH CHANNEL, SPURIOUS 2 GHz ~ 25 GHz



802.11ax-20 MHz(SU) HIGH CHANNEL, SPURIOUS 30 MHz ~ 3 GHz



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

Note¹: The 99% OBW of the fundamental emission is without 2 MHz of the authorized band.

Note²: All the configurations were pre tested, only the worst configuration has been reported in this report.

Note³: All antenna were pre tested, but only the worst case has been reported in this report.

SISO-Antenna 0

Test Data

802.11b Mode:

Channel	Measured Max. Band Edge Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low Channel	-44.88	7.55	-12.45	Pass
High Channel	-47.55	7.78	-12.23	Pass

802.11g Mode:

Channel	Measured Max. Band Edge Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low Channel	-26.41	5.93	-14.07	Pass
High Channel	-33.96	5.05	-14.95	Pass

802.11n-20 MHz Mode:

Channel	Measured Max. Band Edge Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low Channel	-25.38	5.55	-14.45	Pass
High Channel	-33.39	5.84	-14.16	Pass

802.11ax-20 MHz(SU) Mode:

Channel	Measured Max. Band Edge Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low Channel	-25.21	6.15	-13.85	Pass
High Channel	-33.70	5.72	-14.28	Pass

Test Plots

802.11b LOW CHANNEL, CARRIER LEVEL



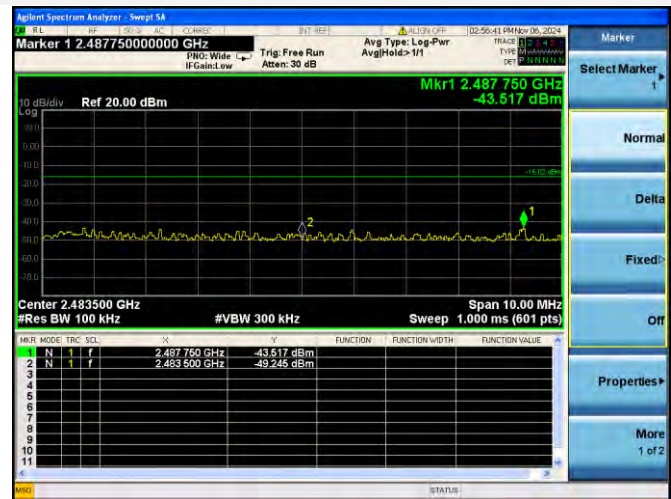
802.11b LOW CHANNEL, BAND EDGE



802.11b HIGH CHANNEL, CARRIER LEVEL



802.11b HIGH CHANNEL, BAND EDGE



802.11g LOW CHANNEL, CARRIER LEVEL



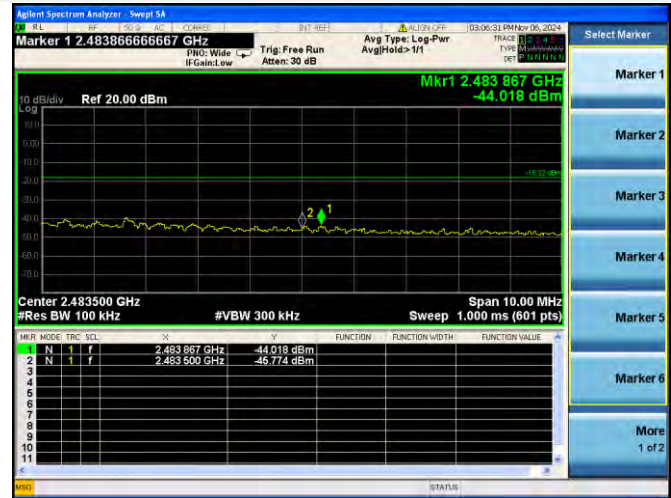
802.11g LOW CHANNEL, BAND EDGE



802.11g HIGH CHANNEL, CARRIER LEVEL



802.11g HIGH CHANNEL, BAND EDGE



802.11n-20 MHz LOW CHANNEL, CARRIER LEVEL



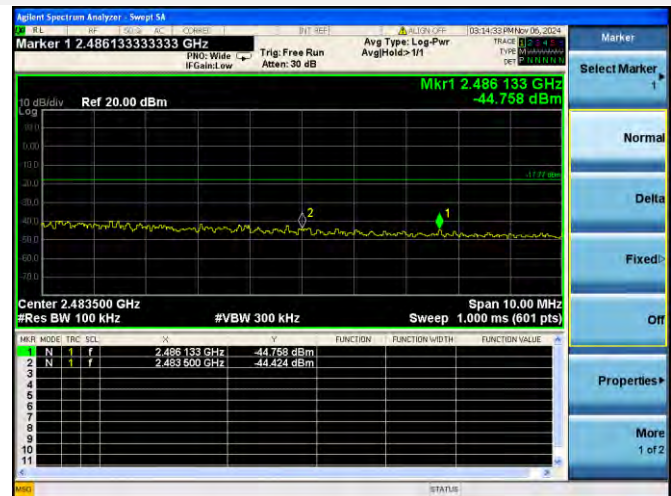
802.11n-20 MHz LOW CHANNEL, BAND EDGE



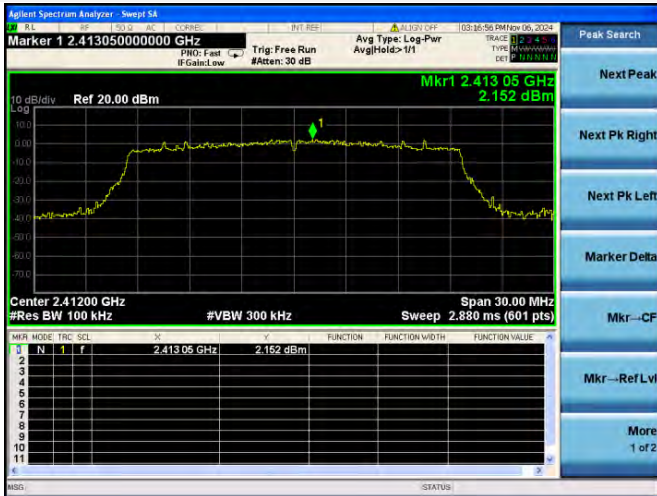
802.11n-20 MHz HIGH CHANNEL, CARRIER LEVEL



802.11n-20 MHz HIGH CHANNEL, BAND EDGE



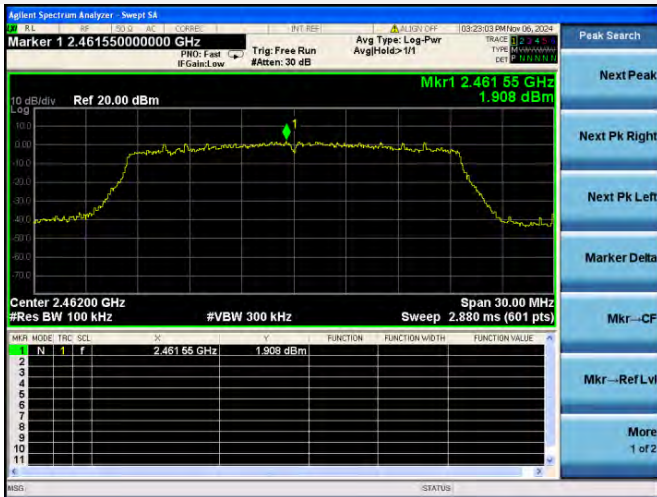
802.11ax-20 MHz(SU) LOW CHANNEL, CARRIER LEVEL



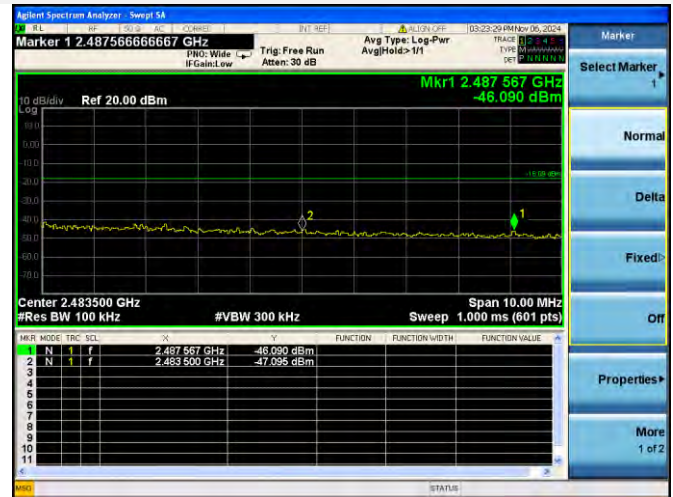
802.11ax-20 MHz(SU) LOW CHANNEL, BAND EDGE



802.11ax-20 MHz(SU) HIGH CHANNEL, CARRIER LEVEL



802.11ax-20 MHz(SU) HIGH CHANNEL, BAND EDGE



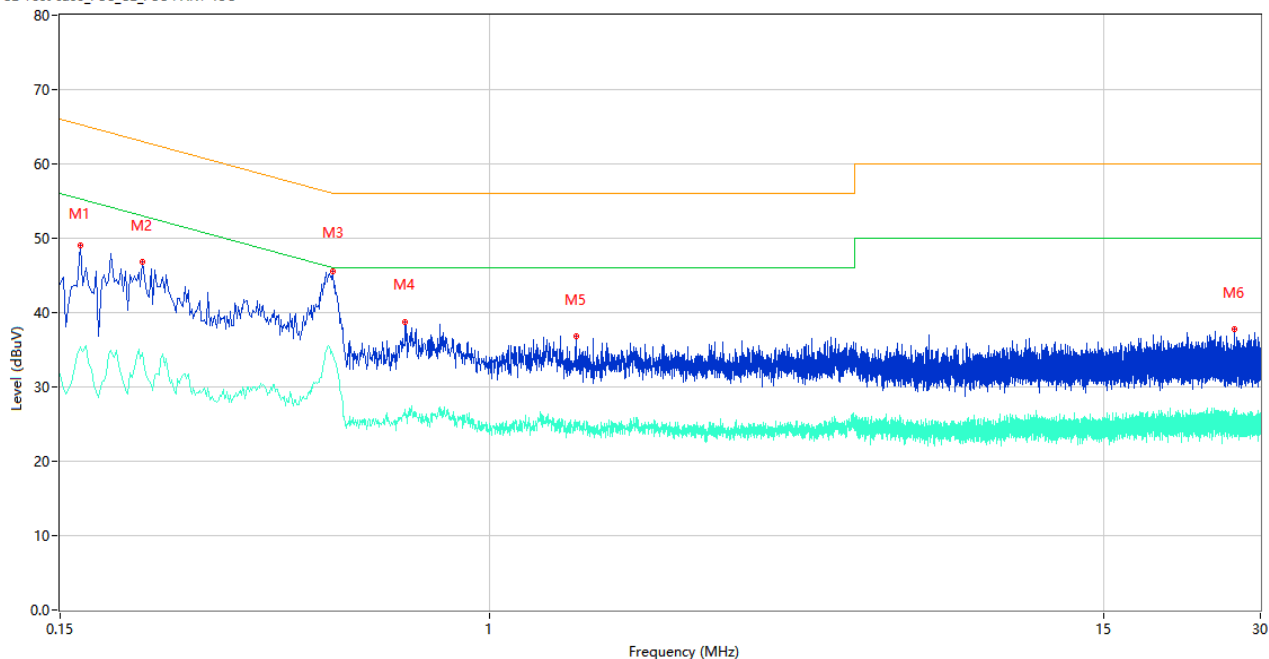
A.5 Conducted Emissions

Note: Not applicable.

Dipole Antenna

PHASE L

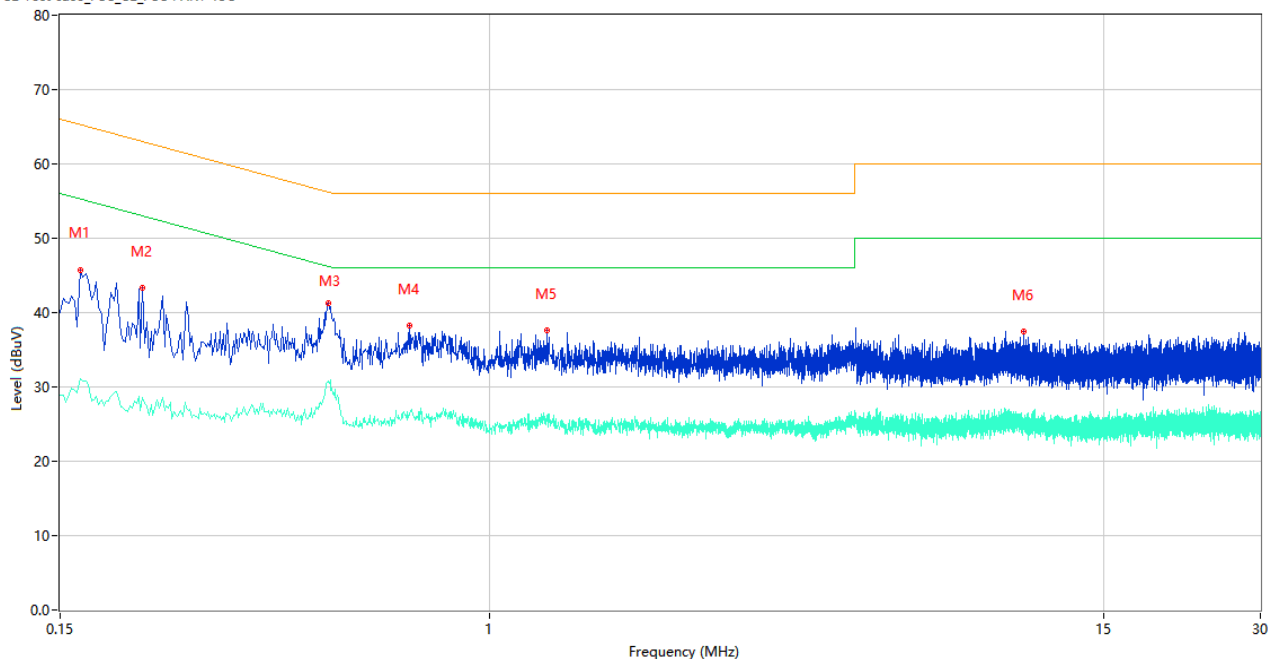
CE Test case_FCC_CE_FCC PART 15C



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.164	49.00	9.78	65.26	16.26	Peak	L	Pass
1**	0.164	35.46	9.78	55.26	19.80	AV	L	Pass
2	0.216	46.76	9.77	62.97	16.21	Peak	L	Pass
2**	0.216	34.53	9.77	52.97	18.44	AV	L	Pass
3	0.500	45.54	9.98	56.00	10.46	Peak	L	Pass
3**	0.500	34.42	9.98	46.00	11.58	AV	L	Pass
4	0.688	38.77	10.55	56.00	17.23	Peak	L	Pass
4**	0.688	26.29	10.55	46.00	19.71	AV	L	Pass
5	1.462	36.81	10.11	56.00	19.19	Peak	L	Pass
5**	1.462	25.23	10.11	46.00	20.77	AV	L	Pass
6	26.740	37.73	10.82	60.00	22.27	Peak	L	Pass
6**	26.740	24.33	10.82	50.00	25.67	AV	L	Pass

PHASE N

CE Test case_FCC_CE_FCC PART 15C



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.164	45.73	9.78	65.26	19.53	Peak	N	Pass
1**	0.164	31.09	9.78	55.26	24.17	AV	N	Pass
2	0.216	43.33	9.77	62.97	19.64	Peak	N	Pass
2**	0.216	28.58	9.77	52.97	24.39	AV	N	Pass
3	0.490	41.21	9.99	56.17	14.96	Peak	N	Pass
3**	0.490	30.81	9.99	46.17	15.36	AV	N	Pass
4	0.700	38.25	10.65	56.00	17.75	Peak	N	Pass
4**	0.700	26.51	10.65	46.00	19.49	AV	N	Pass
5	1.284	37.54	10.49	56.00	18.46	Peak	N	Pass
5**	1.284	25.69	10.49	46.00	20.31	AV	N	Pass
6	10.548	37.51	10.27	60.00	22.49	Peak	N	Pass
6**	10.548	25.78	10.27	50.00	24.22	AV	N	Pass

A.6 Radiated Emission

Note¹: The symbol of “--” in the table which means not application.

Note²: 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.

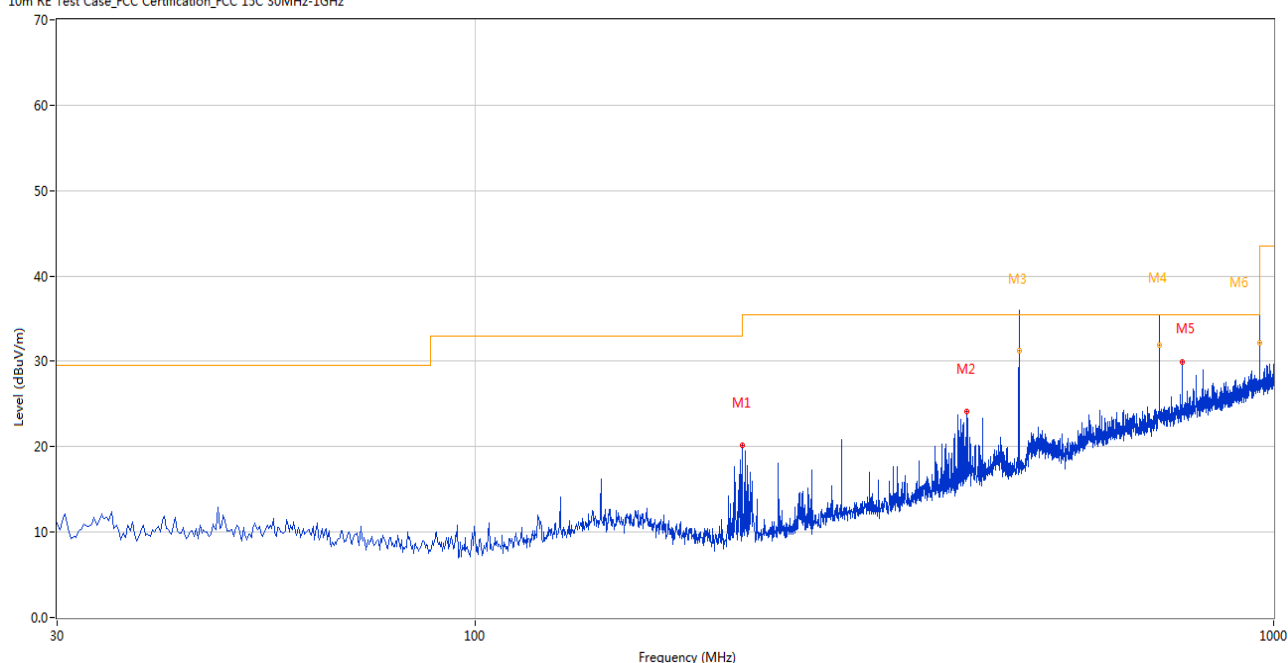
Note³: The low frequency, which started from 9 kHz to 30 MHz, was pre-scanned and the result which was 20 dB lower than the limit line per 15.31(o) was not reported.

Note⁴: 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

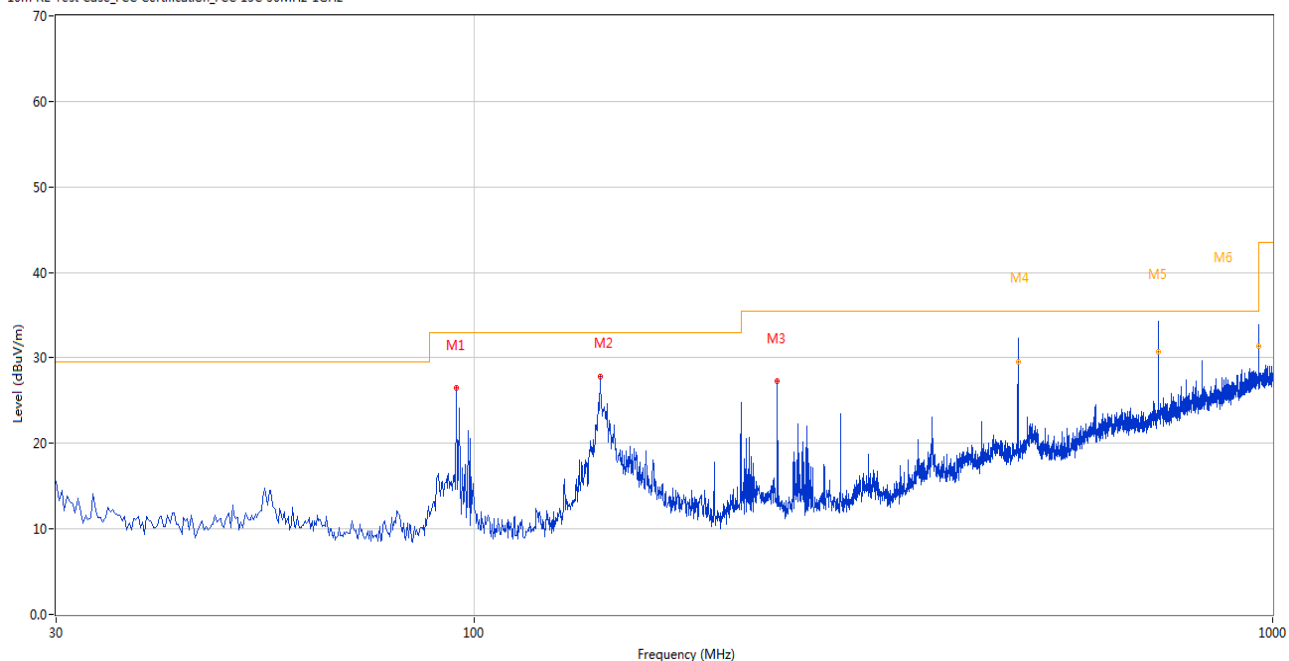
10m RE Test Case_FCC Certification_FCC 15C 30MHz-1GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	215.951	20.19	-29.25	33.0	12.81	Peak	193.00	200	Horizontal	Pass
2	412.812	24.08	-22.43	35.5	11.42	Peak	112.00	200	Horizontal	Pass
3	479.968	36.03	-20.84	35.5	-0.53	Peak	134.00	200	Horizontal	N/A
3*	479.968	31.27	-20.84	35.5	4.23	QP	134.00	200	Horizontal	Pass
4	719.983	35.50	-14.45	35.5	0.00	Peak	74.00	200	Horizontal	N/A
4*	719.983	31.88	-14.45	35.5	3.62	QP	74.00	200	Horizontal	Pass
5	767.986	29.94	-13.07	35.5	5.56	Peak	345.00	200	Horizontal	Pass
6	959.998	35.94	-9.90	35.5	-0.44	Peak	63.00	200	Horizontal	N/A
6*	959.998	32.21	-9.90	35.5	3.29	QP	63.00	200	Horizontal	Pass

30 MHz to 1 GHz, ANT V

10m RE Test Case_FCC Certification_FCC 15C 30MHz-1GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	95.216	26.54	-30.22	33.0	6.46	Peak	188.00	100	Vertical	Pass
2	143.947	27.80	-26.57	33.0	5.20	Peak	42.00	100	Vertical	Pass
3	239.953	27.31	-28.10	35.5	8.19	Peak	291.00	100	Vertical	Pass
4	479.968	33.31	-20.84	35.5	2.19	Peak	107.00	100	Vertical	N/A
4*	479.968	29.49	-20.84	35.5	6.01	QP	107.00	100	Vertical	Pass
5	719.983	34.30	-14.45	35.5	1.20	Peak	178.00	100	Vertical	N/A
5*	719.983	30.77	-14.45	35.5	4.73	QP	178.00	100	Vertical	Pass
6	959.998	33.85	-9.90	35.5	1.65	Peak	123.00	100	Vertical	N/A
6*	959.998	31.32	-9.90	35.5	4.18	QP	123.00	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.

Note ³: All antenna were pre tested, but only the worst case has been reported in this report.

Note ⁴: All the configurations were pre tested, only the worst configuration has been reported in this report.

SISO-Antenna 0

1 GHz to 18 GHz, ANT H 802.11b Low Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1330.060	43.92	74.0	30.08	Peak	238.00	400	Horizontal	Pass
1**	1330.060	35.89	54.0	18.11	AV	238.00	400	Horizontal	Pass
2	2999.709	49.42	74.0	24.58	Peak	129.00	200	Horizontal	Pass
2**	2999.709	38.50	54.0	15.50	AV	129.00	200	Horizontal	Pass
3	4931.390	53.02	74.0	20.98	Peak	239.00	200	Horizontal	Pass
3**	4931.390	44.21	54.0	9.79	AV	239.00	200	Horizontal	Pass
4	6807.555	54.62	74.0	19.38	Peak	128.00	400	Horizontal	Pass
4**	6807.555	44.18	54.0	9.82	AV	128.00	400	Horizontal	Pass
5	13414.858	54.11	74.0	19.89	Peak	178.00	400	Horizontal	Pass
5**	13414.858	45.17	54.0	8.83	AV	178.00	400	Horizontal	Pass
6	17428.942	56.91	74.0	17.09	Peak	209.00	100	Horizontal	Pass
6**	17428.942	49.80	54.0	4.20	AV	209.00	100	Horizontal	Pass

1 GHz to 18 GHz, ANT V 802.11b Low Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1333.362	46.92	74.0	27.08	Peak	323.00	200	Vertical	Pass
1**	1333.362	37.06	54.0	16.94	AV	323.00	200	Vertical	Pass
2	2983.907	51.74	74.0	22.26	Peak	257.00	400	Vertical	Pass
2**	2983.907	44.42	54.0	9.58	AV	257.00	400	Vertical	Pass
3	4858.090	48.92	74.0	25.08	Peak	25.00	200	Vertical	Pass
3**	4858.090	38.38	54.0	15.62	AV	25.00	200	Vertical	Pass
4	6609.690	53.59	74.0	20.41	Peak	221.00	300	Vertical	Pass
4**	6609.690	43.30	54.0	10.70	AV	221.00	300	Vertical	Pass
5	13435.783	56.35	74.0	17.65	Peak	134.00	400	Vertical	Pass
5**	13435.783	43.51	54.0	10.49	AV	134.00	400	Vertical	Pass
6	17419.741	57.40	74.0	16.60	Peak	160.00	400	Vertical	Pass
6**	17419.741	45.59	54.0	8.41	AV	160.00	400	Vertical	Pass

1 GHz to 18 GHz, ANT H 802.11b Middle Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1326.835	46.16	74.0	27.84	Peak	292.00	400	Horizontal	Pass
1**	1326.835	35.25	54.0	18.75	AV	292.00	400	Horizontal	Pass
2	2995.806	49.02	74.0	24.98	Peak	12.00	100	Horizontal	Pass
2**	2995.806	41.40	54.0	12.60	AV	12.00	100	Horizontal	Pass
3	4934.800	49.69	74.0	24.31	Peak	137.00	200	Horizontal	Pass
3**	4934.800	41.20	54.0	12.80	AV	137.00	200	Horizontal	Pass
4	6807.361	54.19	74.0	19.81	Peak	5.00	400	Horizontal	Pass
4**	6807.361	45.68	54.0	8.32	AV	5.00	400	Horizontal	Pass
5	13410.688	57.00	74.0	17.00	Peak	261.00	300	Horizontal	Pass
5**	13410.688	48.22	54.0	5.78	AV	261.00	300	Horizontal	Pass
6	17422.241	57.96	74.0	16.04	Peak	270.00	200	Horizontal	Pass
6**	17422.241	49.49	54.0	4.51	AV	270.00	200	Horizontal	Pass

1 GHz to 18 GHz, ANT V 802.11b Middle Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1334.715	46.41	74.0	27.59	Peak	114.00	400	Vertical	Pass
1**	1334.715	35.72	54.0	18.28	AV	114.00	400	Vertical	Pass
2	2980.278	49.25	74.0	24.75	Peak	153.00	200	Vertical	Pass
2**	2980.278	41.69	54.0	12.31	AV	153.00	200	Vertical	Pass
3	4852.880	51.78	74.0	22.22	Peak	176.00	200	Vertical	Pass
3**	4852.880	39.19	54.0	14.81	AV	176.00	200	Vertical	Pass
4	6606.196	52.85	74.0	21.15	Peak	228.00	300	Vertical	Pass
4**	6606.196	47.41	54.0	6.59	AV	228.00	300	Vertical	Pass
5	13436.211	53.58	74.0	20.42	Peak	307.00	100	Vertical	Pass
5**	13436.211	48.50	54.0	5.50	AV	307.00	100	Vertical	Pass
6	17413.625	56.61	74.0	17.39	Peak	307.00	300	Vertical	Pass
6**	17413.625	46.79	54.0	7.21	AV	307.00	300	Vertical	Pass

1 GHz to 18 GHz, ANT H 802.11b High Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1332.596	43.71	74.0	30.29	Peak	96.00	100	Horizontal	Pass
1**	1332.596	38.57	54.0	15.43	AV	96.00	100	Horizontal	Pass
2	2992.741	49.25	74.0	24.75	Peak	92.00	400	Horizontal	Pass
2**	2992.741	43.21	54.0	10.79	AV	92.00	400	Horizontal	Pass
3	4936.802	51.59	74.0	22.41	Peak	108.00	200	Horizontal	Pass
3**	4936.802	38.89	54.0	15.11	AV	108.00	200	Horizontal	Pass
4	6805.014	54.96	74.0	19.04	Peak	5.00	400	Horizontal	Pass
4**	6805.014	43.61	54.0	10.39	AV	5.00	400	Horizontal	Pass
5	13411.749	56.59	74.0	17.41	Peak	255.00	300	Horizontal	Pass
5**	13411.749	45.59	54.0	8.41	AV	255.00	300	Horizontal	Pass
6	17422.869	54.93	74.0	19.07	Peak	241.00	200	Horizontal	Pass
6**	17422.869	48.58	54.0	5.42	AV	241.00	200	Horizontal	Pass

1 GHz to 18 GHz, ANT V 802.11b High Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1332.145	43.82	74.0	30.18	Peak	78.00	400	Vertical	Pass
1**	1332.145	40.19	54.0	13.81	AV	78.00	400	Vertical	Pass
2	2979.170	52.68	74.0	21.32	Peak	331.00	200	Vertical	Pass
2**	2979.170	38.89	54.0	15.11	AV	331.00	200	Vertical	Pass
3	4857.132	48.78	74.0	25.22	Peak	4.00	200	Vertical	Pass
3**	4857.132	39.73	54.0	14.27	AV	4.00	200	Vertical	Pass
4	6608.742	53.96	74.0	20.04	Peak	174.00	400	Vertical	Pass
4**	6608.742	47.19	54.0	6.81	AV	174.00	400	Vertical	Pass
5	13437.723	57.71	74.0	16.29	Peak	186.00	200	Vertical	Pass
5**	13437.723	44.49	54.0	9.51	AV	186.00	200	Vertical	Pass
6	17413.379	59.86	74.0	14.14	Peak	255.00	400	Vertical	Pass
6**	17413.379	48.88	54.0	5.12	AV	255.00	400	Vertical	Pass

1 GHz to 18 GHz, ANT H 802.11g Low Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1325.971	47.09	74.0	26.91	Peak	45.00	200	Horizontal	Pass
1**	1325.971	36.01	54.0	17.99	AV	45.00	200	Horizontal	Pass
2	2999.533	48.87	74.0	25.13	Peak	50.00	300	Horizontal	Pass
2**	2999.533	39.58	54.0	14.42	AV	50.00	300	Horizontal	Pass
3	4930.874	50.23	74.0	23.77	Peak	168.00	200	Horizontal	Pass
3**	4930.874	40.94	54.0	13.06	AV	168.00	200	Horizontal	Pass
4	6808.194	55.89	74.0	18.11	Peak	189.00	200	Horizontal	Pass
4**	6808.194	46.08	54.0	7.92	AV	189.00	200	Horizontal	Pass
5	13407.706	54.11	74.0	19.89	Peak	31.00	200	Horizontal	Pass
5**	13407.706	45.50	54.0	8.50	AV	31.00	200	Horizontal	Pass
6	17424.654	58.56	74.0	15.44	Peak	351.00	300	Horizontal	Pass
6**	17424.654	49.58	54.0	4.42	AV	351.00	300	Horizontal	Pass

1 GHz to 18 GHz, ANT V 802.11g Low Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1330.421	47.68	74.0	26.32	Peak	281.00	300	Vertical	Pass
1**	1330.421	35.96	54.0	18.04	AV	281.00	300	Vertical	Pass
2	2980.367	48.10	74.0	25.90	Peak	352.00	200	Vertical	Pass
2**	2980.367	43.08	54.0	10.92	AV	352.00	200	Vertical	Pass
3	4852.523	49.86	74.0	24.14	Peak	83.00	200	Vertical	Pass
3**	4852.523	37.81	54.0	16.19	AV	83.00	200	Vertical	Pass
4	6603.946	51.48	74.0	22.52	Peak	155.00	300	Vertical	Pass
4**	6603.946	46.45	54.0	7.55	AV	155.00	300	Vertical	Pass
5	13436.638	54.89	74.0	19.11	Peak	298.00	300	Vertical	Pass
5**	13436.638	47.13	54.0	6.87	AV	298.00	300	Vertical	Pass
6	17413.694	57.04	74.0	16.96	Peak	230.00	200	Vertical	Pass
6**	17413.694	44.50	54.0	9.50	AV	230.00	200	Vertical	Pass

1 GHz to 18 GHz, ANT H 802.11g Middle Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1332.197	47.22	74.0	26.78	Peak	259.00	400	Horizontal	Pass
1**	1332.197	39.34	54.0	14.66	AV	259.00	400	Horizontal	Pass
2	2996.288	50.66	74.0	23.34	Peak	122.00	300	Horizontal	Pass
2**	2996.288	39.66	54.0	14.34	AV	122.00	300	Horizontal	Pass
3	4932.216	50.68	74.0	23.32	Peak	199.00	200	Horizontal	Pass
3**	4932.216	43.83	54.0	10.17	AV	199.00	200	Horizontal	Pass
4	6804.185	51.64	74.0	22.36	Peak	100.00	100	Horizontal	Pass
4**	6804.185	47.29	54.0	6.71	AV	100.00	100	Horizontal	Pass
5	13411.701	55.76	74.0	18.24	Peak	233.00	300	Horizontal	Pass
5**	13411.701	48.88	54.0	5.12	AV	233.00	300	Horizontal	Pass
6	17426.324	53.66	74.0	20.34	Peak	220.00	200	Horizontal	Pass
6**	17426.324	46.60	54.0	7.40	AV	220.00	200	Horizontal	Pass

1 GHz to 18 GHz, ANT V 802.11g Middle Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1331.186	43.40	74.0	30.60	Peak	339.00	300	Vertical	Pass
1**	1331.186	35.39	54.0	18.61	AV	339.00	300	Vertical	Pass
2	2979.560	49.64	74.0	24.36	Peak	342.00	400	Vertical	Pass
2**	2979.560	41.14	54.0	12.86	AV	342.00	400	Vertical	Pass
3	4851.009	46.60	74.0	27.40	Peak	88.00	200	Vertical	Pass
3**	4851.009	39.23	54.0	14.77	AV	88.00	200	Vertical	Pass
4	6610.530	55.75	74.0	18.25	Peak	109.00	300	Vertical	Pass
4**	6610.530	46.49	54.0	7.51	AV	109.00	300	Vertical	Pass
5	13437.647	56.82	74.0	17.18	Peak	158.00	200	Vertical	Pass
5**	13437.647	48.05	54.0	5.95	AV	158.00	200	Vertical	Pass
6	17416.391	54.78	74.0	19.22	Peak	177.00	100	Vertical	Pass
6**	17416.391	46.59	54.0	7.41	AV	177.00	100	Vertical	Pass

1 GHz to 18 GHz, ANT H 802.11g High Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1325.772	46.88	74.0	27.12	Peak	267.00	200	Horizontal	Pass
1**	1325.772	39.69	54.0	14.31	AV	267.00	200	Horizontal	Pass
2	2995.690	47.80	74.0	26.20	Peak	219.00	100	Horizontal	Pass
2**	2995.690	40.45	54.0	13.55	AV	219.00	100	Horizontal	Pass
3	4934.822	49.35	74.0	24.65	Peak	272.00	200	Horizontal	Pass
3**	4934.822	39.22	54.0	14.78	AV	272.00	200	Horizontal	Pass
4	6808.912	52.89	74.0	21.11	Peak	69.00	100	Horizontal	Pass
4**	6808.912	43.14	54.0	10.86	AV	69.00	100	Horizontal	Pass
5	13409.006	57.51	74.0	16.49	Peak	99.00	100	Horizontal	Pass
5**	13409.006	48.31	54.0	5.69	AV	99.00	100	Horizontal	Pass
6	17426.314	53.59	74.0	20.41	Peak	56.00	100	Horizontal	Pass
6**	17426.314	50.10	54.0	3.90	AV	56.00	100	Horizontal	Pass

1 GHz to 18 GHz, ANT V 802.11g High Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1330.065	44.04	74.0	29.96	Peak	138.00	100	Vertical	Pass
1**	1330.065	39.93	54.0	14.07	AV	138.00	100	Vertical	Pass
2	2985.572	53.24	74.0	20.76	Peak	62.00	400	Vertical	Pass
2**	2985.572	42.46	54.0	11.54	AV	62.00	400	Vertical	Pass
3	4853.470	51.30	74.0	22.70	Peak	173.00	200	Vertical	Pass
3**	4853.470	41.33	54.0	12.67	AV	173.00	200	Vertical	Pass
4	6604.888	52.46	74.0	21.54	Peak	128.00	400	Vertical	Pass
4**	6604.888	43.74	54.0	10.26	AV	128.00	400	Vertical	Pass
5	13433.897	55.51	74.0	18.49	Peak	12.00	400	Vertical	Pass
5**	13433.897	48.61	54.0	5.39	AV	12.00	400	Vertical	Pass
6	17419.150	54.39	74.0	19.61	Peak	291.00	100	Vertical	Pass
6**	17419.150	46.96	54.0	7.04	AV	291.00	100	Vertical	Pass

1 GHz to 18 GHz, ANT H 802.11n20 Low Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1328.518	44.39	74.0	29.61	Peak	332.00	200	Horizontal	Pass
1**	1328.518	39.73	54.0	14.27	AV	332.00	200	Horizontal	Pass
2	2993.452	49.57	74.0	24.43	Peak	10.00	200	Horizontal	Pass
2**	2993.452	41.56	54.0	12.44	AV	10.00	200	Horizontal	Pass
3	4936.580	51.26	74.0	22.74	Peak	200.00	200	Horizontal	Pass
3**	4936.580	41.90	54.0	12.10	AV	200.00	200	Horizontal	Pass
4	6804.453	56.15	74.0	17.85	Peak	243.00	200	Horizontal	Pass
4**	6804.453	41.96	54.0	12.04	AV	243.00	200	Horizontal	Pass
5	13412.245	53.72	74.0	20.28	Peak	182.00	100	Horizontal	Pass
5**	13412.245	46.74	54.0	7.26	AV	182.00	100	Horizontal	Pass
6	17428.640	54.06	74.0	19.94	Peak	1.00	100	Horizontal	Pass
6**	17428.640	49.29	54.0	4.71	AV	1.00	100	Horizontal	Pass

1 GHz to 18 GHz, ANT V 802.11n20 Low Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1329.917	42.93	74.0	31.07	Peak	317.00	100	Vertical	Pass
1**	1329.917	37.52	54.0	16.48	AV	317.00	100	Vertical	Pass
2	2981.686	51.78	74.0	22.22	Peak	251.00	200	Vertical	Pass
2**	2981.686	42.81	54.0	11.19	AV	251.00	200	Vertical	Pass
3	4853.820	49.11	74.0	24.89	Peak	279.00	200	Vertical	Pass
3**	4853.820	41.20	54.0	12.80	AV	279.00	200	Vertical	Pass
4	6608.343	52.42	74.0	21.58	Peak	294.00	400	Vertical	Pass
4**	6608.343	46.06	54.0	7.94	AV	294.00	400	Vertical	Pass
5	13435.298	56.90	74.0	17.10	Peak	130.00	100	Vertical	Pass
5**	13435.298	48.20	54.0	5.80	AV	130.00	100	Vertical	Pass
6	17413.493	54.53	74.0	19.47	Peak	120.00	300	Vertical	Pass
6**	17413.493	45.55	54.0	8.45	AV	120.00	300	Vertical	Pass

1 GHz to 18 GHz, ANT H 802.11n20 Middle Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1328.520	43.20	74.0	30.80	Peak	121.00	400	Horizontal	Pass
1**	1328.520	34.64	54.0	19.36	AV	121.00	400	Horizontal	Pass
2	2992.681	49.53	74.0	24.47	Peak	186.00	400	Horizontal	Pass
2**	2992.681	43.39	54.0	10.61	AV	186.00	400	Horizontal	Pass
3	4930.559	53.29	74.0	20.71	Peak	248.00	200	Horizontal	Pass
3**	4930.559	41.30	54.0	12.70	AV	248.00	200	Horizontal	Pass
4	6804.706	54.28	74.0	19.72	Peak	96.00	400	Horizontal	Pass
4**	6804.706	46.04	54.0	7.96	AV	96.00	400	Horizontal	Pass
5	13409.880	57.73	74.0	16.27	Peak	192.00	300	Horizontal	Pass
5**	13409.880	46.76	54.0	7.24	AV	192.00	300	Horizontal	Pass
6	17429.026	56.40	74.0	17.60	Peak	315.00	100	Horizontal	Pass
6**	17429.026	44.85	54.0	9.15	AV	315.00	100	Horizontal	Pass

1 GHz to 18 GHz, ANT V 802.11n20 Middle Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1331.382	45.36	74.0	28.64	Peak	262.00	100	Vertical	Pass
1**	1331.382	35.44	54.0	18.56	AV	262.00	100	Vertical	Pass
2	2981.127	51.82	74.0	22.18	Peak	53.00	300	Vertical	Pass
2**	2981.127	42.12	54.0	11.88	AV	53.00	300	Vertical	Pass
3	4852.479	49.28	74.0	24.72	Peak	232.00	200	Vertical	Pass
3**	4852.479	41.97	54.0	12.03	AV	232.00	200	Vertical	Pass
4	6605.967	53.51	74.0	20.49	Peak	27.00	200	Vertical	Pass
4**	6605.967	46.05	54.0	7.95	AV	27.00	200	Vertical	Pass
5	13436.220	58.23	74.0	15.77	Peak	42.00	400	Vertical	Pass
5**	13436.220	44.29	54.0	9.71	AV	42.00	400	Vertical	Pass
6	17413.199	55.83	74.0	18.17	Peak	86.00	200	Vertical	Pass
6**	17413.199	48.46	54.0	5.54	AV	86.00	200	Vertical	Pass

1 GHz to 18 GHz, ANT H 802.11n20 High Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1329.207	41.93	74.0	32.07	Peak	39.00	100	Horizontal	Pass
1**	1329.207	39.50	54.0	14.50	AV	39.00	100	Horizontal	Pass
2	2997.918	50.12	74.0	23.88	Peak	227.00	100	Horizontal	Pass
2**	2997.918	38.84	54.0	15.16	AV	227.00	100	Horizontal	Pass
3	4934.918	54.55	74.0	19.45	Peak	260.00	200	Horizontal	Pass
3**	4934.918	40.70	54.0	13.30	AV	260.00	200	Horizontal	Pass
4	6807.522	57.12	74.0	16.88	Peak	320.00	300	Horizontal	Pass
4**	6807.522	43.34	54.0	10.66	AV	320.00	300	Horizontal	Pass
5	13408.891	55.76	74.0	18.24	Peak	242.00	200	Horizontal	Pass
5**	13408.891	44.36	54.0	9.64	AV	242.00	200	Horizontal	Pass
6	17427.017	58.63	74.0	15.37	Peak	321.00	300	Horizontal	Pass
6**	17427.017	45.16	54.0	8.84	AV	321.00	300	Horizontal	Pass

1 GHz to 18 GHz, ANT V 802.11n20 High Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1330.247	43.19	74.0	30.81	Peak	301.00	400	Vertical	Pass
1**	1330.247	40.14	54.0	13.86	AV	301.00	400	Vertical	Pass
2	2984.576	52.31	74.0	21.69	Peak	25.00	200	Vertical	Pass
2**	2984.576	40.37	54.0	13.63	AV	25.00	200	Vertical	Pass
3	4853.266	52.08	74.0	21.92	Peak	145.00	200	Vertical	Pass
3**	4853.266	43.14	54.0	10.86	AV	145.00	200	Vertical	Pass
4	6608.286	53.98	74.0	20.02	Peak	123.00	100	Vertical	Pass
4**	6608.286	47.70	54.0	6.30	AV	123.00	100	Vertical	Pass
5	13433.895	55.93	74.0	18.07	Peak	100.00	200	Vertical	Pass
5**	13433.895	47.12	54.0	6.88	AV	100.00	200	Vertical	Pass
6	17420.677	59.73	74.0	14.27	Peak	223.00	200	Vertical	Pass
6**	17420.677	47.19	54.0	6.81	AV	223.00	200	Vertical	Pass

1 GHz to 18 GHz, ANT H 802.11ax20(SU) Low Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1330.934	43.81	74.0	30.19	Peak	59.00	100	Horizontal	Pass
1**	1330.934	34.81	54.0	19.19	AV	59.00	100	Horizontal	Pass
2	2998.253	51.68	74.0	22.32	Peak	86.00	400	Horizontal	Pass
2**	2998.253	41.57	54.0	12.43	AV	86.00	400	Horizontal	Pass
3	4937.984	49.62	74.0	24.38	Peak	181.00	200	Horizontal	Pass
3**	4937.984	41.13	54.0	12.87	AV	181.00	200	Horizontal	Pass
4	6804.211	56.00	74.0	18.00	Peak	320.00	300	Horizontal	Pass
4**	6804.211	43.35	54.0	10.65	AV	320.00	300	Horizontal	Pass
5	13411.319	54.57	74.0	19.43	Peak	235.00	300	Horizontal	Pass
5**	13411.319	47.92	54.0	6.08	AV	235.00	300	Horizontal	Pass
6	17424.149	58.86	74.0	15.14	Peak	357.00	300	Horizontal	Pass
6**	17424.149	48.24	54.0	5.76	AV	357.00	300	Horizontal	Pass

1 GHz to 18 GHz, ANT V802.11ax20(SU) Low Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1329.067	47.21	74.0	26.79	Peak	188.00	300	Vertical	Pass
1**	1329.067	39.81	54.0	14.19	AV	188.00	300	Vertical	Pass
2	2984.363	48.82	74.0	25.18	Peak	173.00	200	Vertical	Pass
2**	2984.363	39.39	54.0	14.61	AV	173.00	200	Vertical	Pass
3	4856.706	47.56	74.0	26.44	Peak	46.00	200	Vertical	Pass
3**	4856.706	40.02	54.0	13.98	AV	46.00	200	Vertical	Pass
4	6603.611	56.24	74.0	17.76	Peak	209.00	200	Vertical	Pass
4**	6603.611	47.60	54.0	6.40	AV	209.00	200	Vertical	Pass
5	13437.135	54.49	74.0	19.51	Peak	335.00	400	Vertical	Pass
5**	13437.135	45.76	54.0	8.24	AV	335.00	400	Vertical	Pass
6	17413.463	56.71	74.0	17.29	Peak	124.00	400	Vertical	Pass
6**	17413.463	49.41	54.0	4.59	AV	124.00	400	Vertical	Pass

1 GHz to 18 GHz, ANT H 802.11ax20(SU) Middle Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1332.991	46.26	74.0	27.74	Peak	98.00	200	Horizontal	Pass
1**	1332.991	37.47	54.0	16.53	AV	98.00	200	Horizontal	Pass
2	2998.161	51.02	74.0	22.98	Peak	124.00	400	Horizontal	Pass
2**	2998.161	42.02	54.0	11.98	AV	124.00	400	Horizontal	Pass
3	4935.186	53.10	74.0	20.90	Peak	318.00	200	Horizontal	Pass
3**	4935.186	43.83	54.0	10.17	AV	318.00	200	Horizontal	Pass
4	6806.792	57.27	74.0	16.73	Peak	336.00	400	Horizontal	Pass
4**	6806.792	44.16	54.0	9.84	AV	336.00	400	Horizontal	Pass
5	13407.918	58.08	74.0	15.92	Peak	307.00	100	Horizontal	Pass
5**	13407.918	44.52	54.0	9.48	AV	307.00	100	Horizontal	Pass
6	17427.476	54.91	74.0	19.09	Peak	159.00	400	Horizontal	Pass
6**	17427.476	49.02	54.0	4.98	AV	159.00	400	Horizontal	Pass

1 GHz to 18 GHz, ANT V 802.11ax20(SU) Middle Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1332.254	43.84	74.0	30.16	Peak	231.00	400	Vertical	Pass
1**	1332.254	38.00	54.0	16.00	AV	231.00	400	Vertical	Pass
2	2984.379	50.61	74.0	23.39	Peak	71.00	300	Vertical	Pass
2**	2984.379	40.22	54.0	13.78	AV	71.00	300	Vertical	Pass
3	4854.793	46.65	74.0	27.35	Peak	194.00	200	Vertical	Pass
3**	4854.793	41.65	54.0	12.35	AV	194.00	200	Vertical	Pass
4	6603.864	51.92	74.0	22.08	Peak	33.00	200	Vertical	Pass
4**	6603.864	45.76	54.0	8.24	AV	33.00	200	Vertical	Pass
5	13431.281	54.65	74.0	19.35	Peak	319.00	100	Vertical	Pass
5**	13431.281	48.46	54.0	5.54	AV	319.00	100	Vertical	Pass
6	17419.894	57.91	74.0	16.09	Peak	327.00	100	Vertical	Pass
6**	17419.894	49.92	54.0	4.08	AV	327.00	100	Vertical	Pass

1 GHz to 18 GHz, ANT H802.11ax20(SU) High Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1331.433	46.00	74.0	28.00	Peak	322.00	300	Horizontal	Pass
1**	1331.433	35.78	54.0	18.22	AV	322.00	300	Horizontal	Pass
2	2999.378	51.14	74.0	22.86	Peak	108.00	200	Horizontal	Pass
2**	2999.378	38.76	54.0	15.24	AV	108.00	200	Horizontal	Pass
3	4937.142	51.73	74.0	22.27	Peak	66.00	200	Horizontal	Pass
3**	4937.142	43.47	54.0	10.53	AV	66.00	200	Horizontal	Pass
4	6808.491	52.88	74.0	21.12	Peak	114.00	200	Horizontal	Pass
4**	6808.491	42.47	54.0	11.53	AV	114.00	200	Horizontal	Pass
5	13410.000	54.74	74.0	19.26	Peak	230.00	200	Horizontal	Pass
5**	13410.000	47.56	54.0	6.44	AV	230.00	200	Horizontal	Pass
6	17427.507	58.71	74.0	15.29	Peak	249.00	300	Horizontal	Pass
6**	17427.507	44.90	54.0	9.10	AV	249.00	300	Horizontal	Pass

1 GHz to 18 GHz, ANT V 802.11ax20(SU) High Channel

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1335.930	46.77	74.0	27.23	Peak	72.00	400	Vertical	Pass
1**	1335.930	38.66	54.0	15.34	AV	72.00	400	Vertical	Pass
2	2983.504	49.34	74.0	24.66	Peak	8.00	300	Vertical	Pass
2**	2983.504	38.77	54.0	15.23	AV	8.00	300	Vertical	Pass
3	4851.452	47.49	74.0	26.51	Peak	218.00	200	Vertical	Pass
3**	4851.452	42.55	54.0	11.45	AV	218.00	200	Vertical	Pass
4	6604.142	56.39	74.0	17.61	Peak	2.00	300	Vertical	Pass
4**	6604.142	47.92	54.0	6.08	AV	2.00	300	Vertical	Pass
5	13436.581	57.82	74.0	16.18	Peak	284.00	300	Vertical	Pass
5**	13436.581	44.03	54.0	9.97	AV	284.00	300	Vertical	Pass
6	17419.841	58.20	74.0	15.80	Peak	350.00	100	Vertical	Pass
6**	17419.841	45.06	54.0	8.94	AV	350.00	100	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.

Note ⁴: All antenna were pre tested, but only the worst case has been reported in this report.

Note ⁵: All the configurations were pre tested, only the worst configuration has been reported in this report.

Test Data

SISO-Antenna 0

802.11b LOW CHANNEL

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2384.565	57.47	74.0	16.53	Peak	173.00	100	Horizontal	Pass
1**	2384.565	47.43	54.0	6.57	AV	173.00	100	Horizontal	Pass
2	2390.000	53.39	74.0	20.61	Peak	261.00	200	Horizontal	Pass
2**	2390.000	44.52	54.0	9.48	AV	261.00	200	Horizontal	Pass

802.11b HIGH CHANNEL

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2483.500	56.83	74.0	17.17	Peak	309.00	300	Horizontal	Pass
1**	2483.500	45.5	54.0	8.50	AV	309.00	300	Horizontal	Pass
2	2487.270	56.42	74.0	17.58	Peak	199.00	100	Horizontal	Pass
2**	2487.270	44.26	54.0	9.74	AV	199.00	100	Horizontal	Pass

802.11g LOW CHANNEL

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2385.415	56.77	74.0	17.23	Peak	0.00	100	Horizontal	Pass
1**	2385.415	46.55	54.0	7.45	AV	0.00	100	Horizontal	Pass
2	2390.000	56.45	74.0	17.55	Peak	5.00	200	Horizontal	Pass
2**	2390.000	43.94	54.0	10.06	AV	5.00	200	Horizontal	Pass

802.11g HIGH CHANNEL

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2483.500	56.06	74.0	17.94	Peak	99.00	200	Horizontal	Pass
1**	2483.500	46.67	54.0	7.33	AV	99.00	200	Horizontal	Pass
2	2488.942	56.28	74.0	17.72	Peak	87.00	300	Horizontal	Pass
2**	2488.942	45.02	54.0	8.98	AV	87.00	300	Horizontal	Pass

802.11n20 LOW CHANNEL

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2384.771	57.09	74.0	16.91	Peak	162.00	300	Horizontal	Pass
1**	2384.771	48.31	54.0	5.69	AV	162.00	300	Horizontal	Pass
2	2390.000	54.16	74.0	19.84	Peak	343.00	200	Horizontal	Pass
2**	2390.000	43.79	54.0	10.21	AV	343.00	200	Horizontal	Pass

802.11n20 HIGH CHANNEL

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2483.500	55.62	74.0	18.38	Peak	308.00	100	Horizontal	Pass
1**	2483.500	47.44	54.0	6.56	AV	308.00	100	Horizontal	Pass
2	2486.908	58.04	74.0	15.96	Peak	77.00	300	Horizontal	Pass
2**	2486.908	46.68	54.0	7.32	AV	77.00	300	Horizontal	Pass

802.11ax20(SU) LOW CHANNEL

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2383.628	57.61	74.0	16.39	Peak	314.00	100	Horizontal	Pass
1**	2383.628	48.79	54.0	5.21	AV	314.00	100	Horizontal	Pass
2	2390.000	57.28	74.0	16.72	Peak	302.00	100	Horizontal	Pass
2**	2390.000	44.12	54.0	9.88	AV	302.00	100	Horizontal	Pass

802.11ax20(SU) HIGH CHANNEL

No.	Frequency (MHz)	Results (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	2483.500	55.35	74.0	18.65	Peak	212.00	100	Horizontal	Pass
1**	2483.500	46.62	54.0	7.38	AV	212.00	100	Horizontal	Pass
2	2487.229	56.8	74.0	17.20	Peak	133.00	100	Horizontal	Pass
2**	2487.229	45.76	54.0	8.24	AV	133.00	100	Horizontal	Pass

A.8 Power Spectral Density (PSD)

Note: All the configurations were pre tested, only the worst configuration has been reported in this report.

Test Data

SISO-Antenna 0

802.11b Mode:

Channel	Spectral power density (dBm/3kHz)	Limit (dBm/3kHz)
Low	-6.93	8
Middle	-5.46	8
High	-7.66	8

802.11g Mode:

Channel	Spectral power density (dBm/3kHz)	Limit (dBm/3kHz)
Low	-7.29	8
Middle	-7.37	8
High	-7.52	8

802.11n-20 MHz Mode:

Channel	Spectral power density (dBm/3kHz)	Limit (dBm/3kHz)
Low	-6.43	8
Middle	-7.47	8
High	-7.01	8

802.11ax-20 MHz(SU) Mode:

Channel	Spectral power density (dBm/3kHz)	Limit (dBm/3kHz)
Low	-8.20	8
Middle	-6.38	8
High	-8.30	8

SISO-Antenna 1

802.11b Mode:

Channel	Spectral power density (dBm/3kHz)	Limit (dBm/3kHz)
Low	-10.83	8
Middle	-11.23	8
High	-10.75	8

802.11g Mode:

Channel	Spectral power density (dBm/3kHz)	Limit (dBm/3kHz)
Low	-11.29	8
Middle	-12.03	8
High	-12.09	8

802.11n-20 MHz Mode:

Channel	Spectral power density (dBm/3kHz)	Limit (dBm/3kHz)
Low	-10.57	8
Middle	-11.27	8
High	-11.68	8

802.11ax-20 MHz(SU) Mode:

Channel	Spectral power density (dBm/3kHz)	Limit (dBm/3kHz)
Low	-11.35	8
Middle	-12.05	8
High	-12.42	8

MIMO-Antenna 0

802.11b Mode:

Channel	Spectral power density (dBm/3kHz)	Limit (dBm/3kHz)
Low	-10.09	8
Middle	-8.63	8
High	-10.83	8

802.11g Mode:

Channel	Spectral power density (dBm/3kHz)	Limit (dBm/3kHz)
Low	-10.40	8
Middle	-10.51	8
High	-10.55	8

802.11n-20 MHz Mode:

Channel	Spectral power density (dBm/3kHz)	Limit (dBm/3kHz)
Low	-9.48	8
Middle	-10.57	8
High	-10.11	8

802.11ax-20 MHz(SU) Mode:

Channel	Spectral power density (dBm/3kHz)	Limit (dBm/3kHz)
Low	-11.38	8
Middle	-9.46	8
High	-11.31	8

MIMO-Antenna 1

802.11b Mode:

Channel	Spectral power density (dBm/3kHz)	Limit (dBm/3kHz)
Low	-14.01	8
Middle	-14.33	8
High	-13.82	8

802.11g Mode:

Channel	Spectral power density (dBm/3kHz)	Limit (dBm/3kHz)
Low	-14.33	8
Middle	-15.21	8
High	-15.15	8

802.11n-20 MHz Mode:

Channel	Spectral power density (dBm/3kHz)	Limit (dBm/3kHz)
Low	-13.75	8
Middle	-14.33	8
High	-14.81	8

802.11ax-20 MHz(SU) Mode:

Channel	Spectral power density (dBm/3kHz)	Limit (dBm/3kHz)
Low	-14.36	8
Middle	-15.05	8
High	-15.47	8

MIMO

802.11b Mode:

Channel	Spectral power density (dBm/3kHz)	Limit (dBm/3kHz)
Low	-8.61	8
Middle	-7.59	8
High	-9.06	8

802.11g Mode:

Channel	Spectral power density (dBm/3kHz)	Limit (dBm/3kHz)
Low	-8.92	8
Middle	-9.24	8
High	-9.26	8

802.11n-20 MHz Mode:

Channel	Spectral power density (dBm/3kHz)	Limit (dBm/3kHz)
Low	-8.10	8
Middle	-9.04	8
High	-8.84	8

802.11ax-20 MHz(SU) Mode:

Channel	Spectral power density (dBm/3kHz)	Limit (dBm/3kHz)
Low	-9.61	8
Middle	-8.40	8
High	-9.90	8

Test Plots

SISO-Antenna 0

802.11b LOW CHANNEL



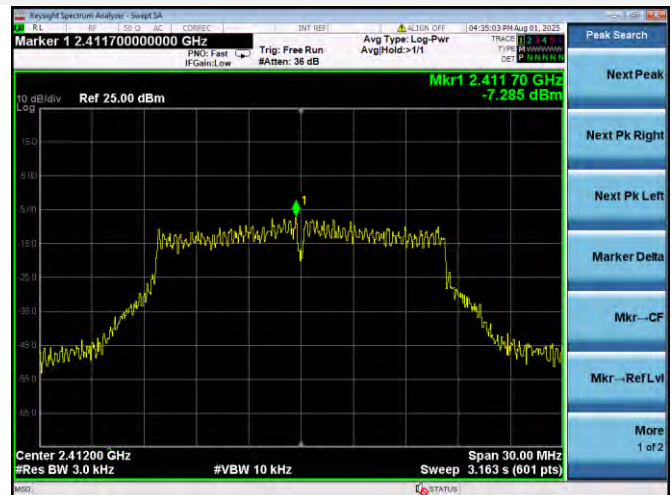
802.11b MIDDLE CHANNEL



802.11b HIGH CHANNEL



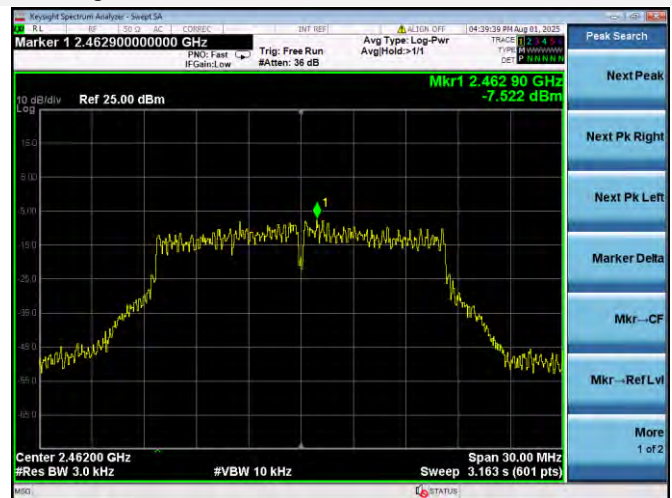
802.11g LOW CHANNEL



802.11g MIDDLE CHANNEL



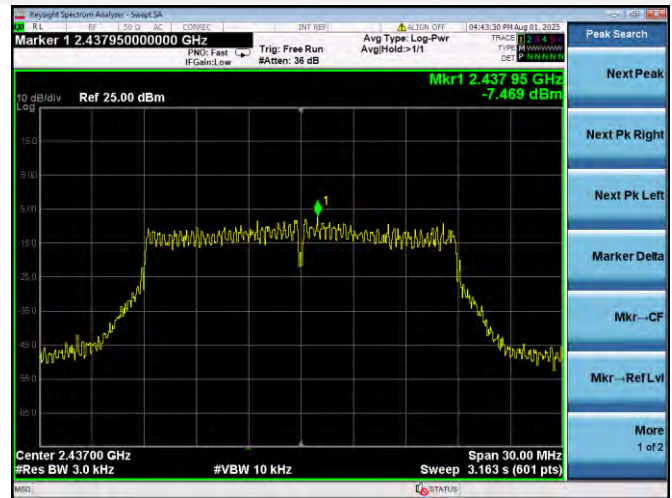
802.11g HIGH CHANNEL



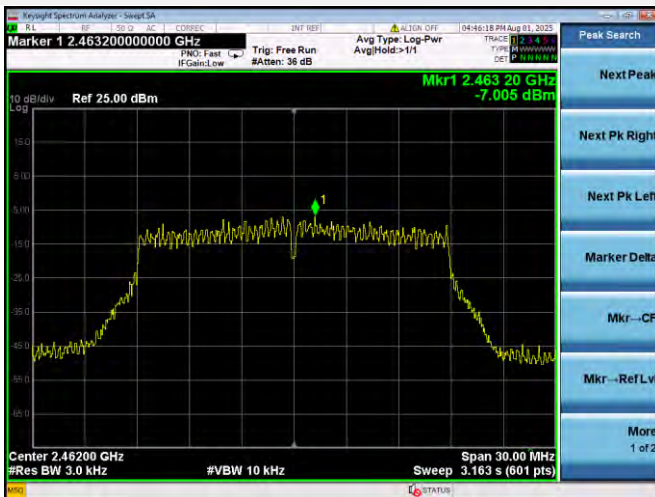
802.11n-20 MHz LOW CHANNEL



802.11n-20 MHz MIDDLE CHANNEL



802.11n-20 MHz HIGH CHANNEL



802.11ax-20 MHz(SU) LOW CHANNEL



802.11ax-20 MHz(SU) MIDDLE CHANNEL



802.11ax-20 MHz(SU) HIGH CHANNEL



SISO-Antenna 1

802.11b LOW CHANNEL



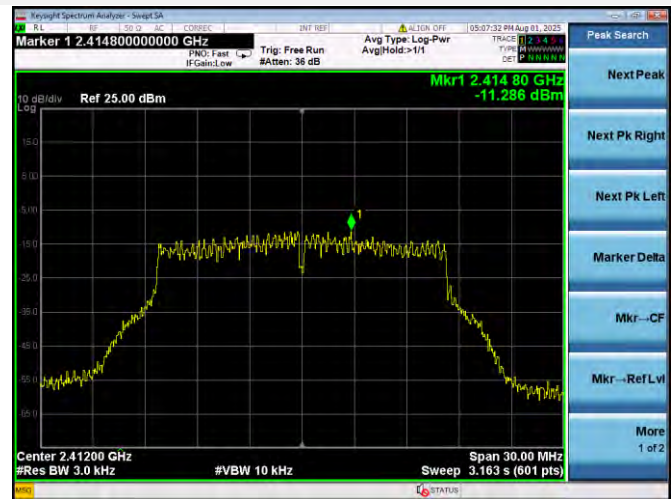
802.11b MIDDLE CHANNEL



802.11b HIGH CHANNEL



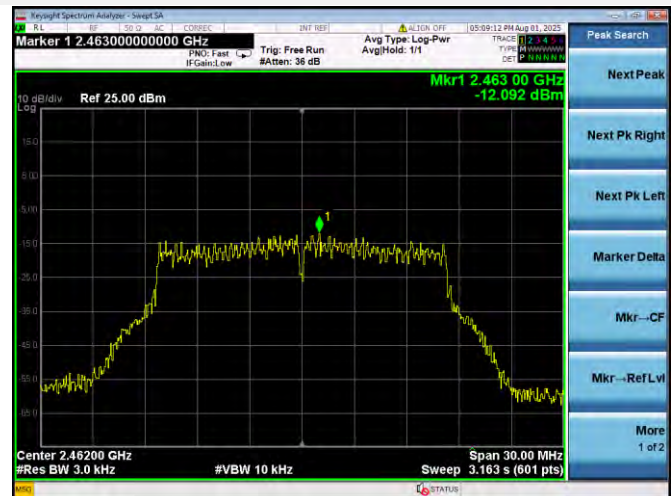
802.11g LOW CHANNEL



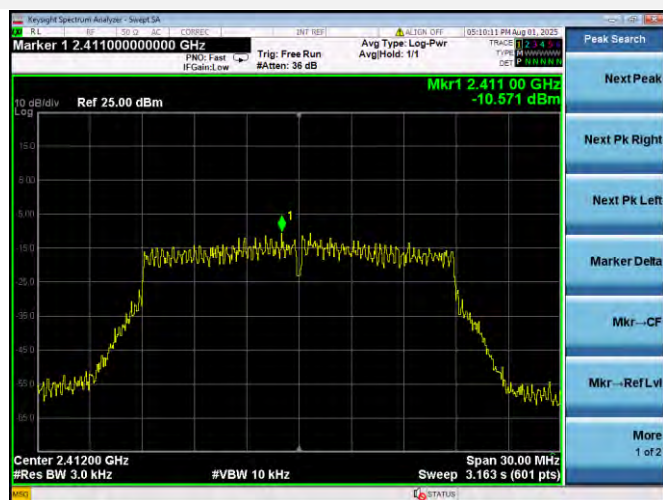
802.11g MIDDLE CHANNEL



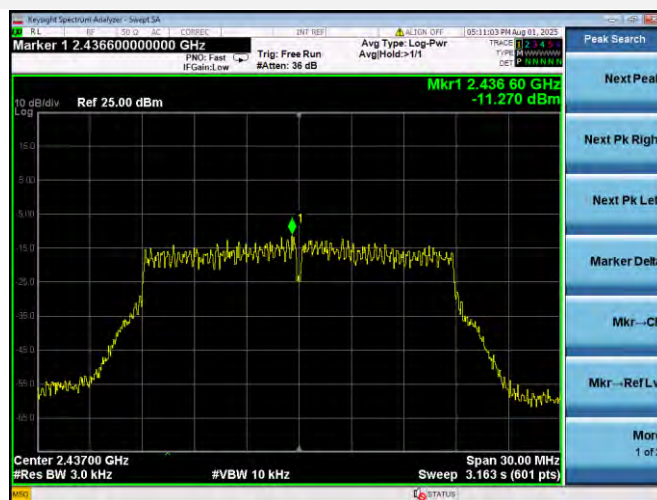
802.11g HIGH CHANNEL



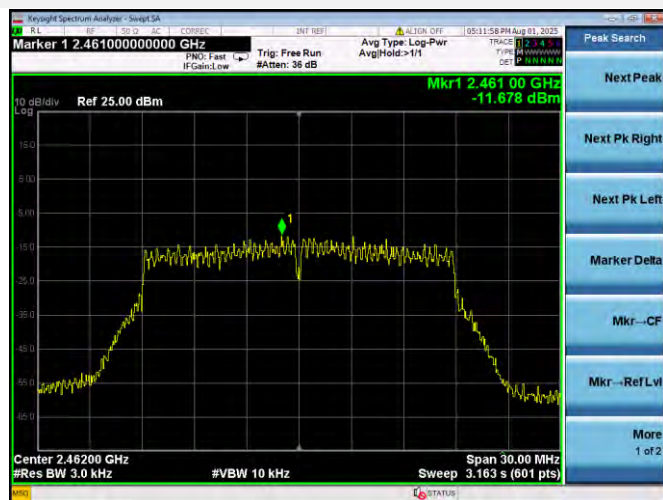
802.11n-20 MHz LOW CHANNEL



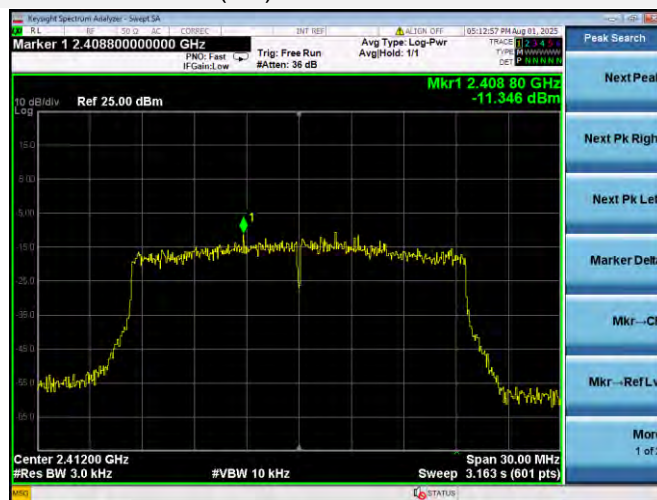
802.11n-20 MHz MIDDLE CHANNEL



802.11n-20 MHz HIGH CHANNEL



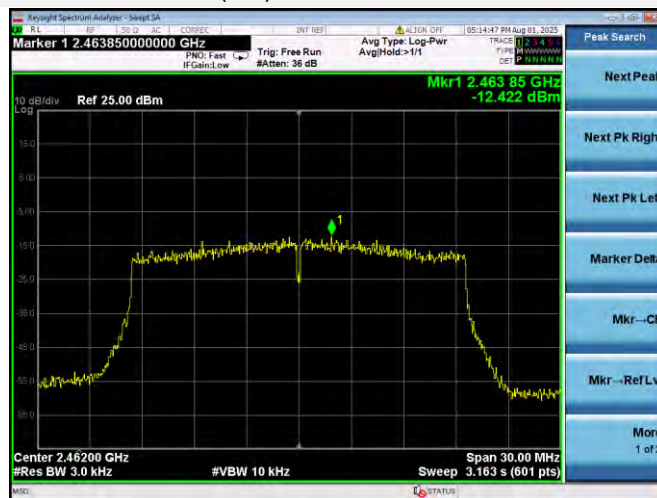
802.11ax-20 MHz(SU) LOW CHANNEL



802.11ax-20 MHz(SU) MIDDLE CHANNEL



802.11ax-20 MHz(SU) HIGH CHANNEL



ANNEX B TEST SETUP PHOTOS

Please refer the document “BL-SZ2571294-AR.PDF”.

ANNEX C EUT EXTERNAL PHOTOS

Please refer the document “BL-SZ2571294-AW.PDF”.

ANNEX D EUT INTERNAL PHOTOS

Please refer the document “BL-SZ2571294-AI.PDF”.

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--END OF REPORT--