TEST REPORT

Report No.	CISRR25101607201
Project No.	CISR251016072
FCC ID	2BST4-CD1031
Applicant	Huizhou Xinghe Vision Technology Co., Ltd
Address	3rd Floor, Building B, Leting Wire Factory, Desai 3rd Industrial Zone, Zhongkai Avenue, Chenjiang Sub-district, Zhongkai High-tech Zone, Huizhou City
Manufacturer	Huizhou Xinghe Vision Technology Co., Ltd
Address	3rd Floor, Building B, Leting Wire Factory, Desai 3rd Industrial Zone, Zhongkai Avenue, Chenjiang Sub-district, Zhongkai High-tech Zone, Huizhou City
Product Name	Constant power FPC card machine
Trade mark	-
Model/Type reference	CD1031
Listed Model(s)	CD1034,CD1038,CD1039,CD1040,CD1041,CD13,CD14
Standard	47 CFR Part 15.247
Date of sample receipt	October 22, 2025
Test date	October 22, 2025 to October 25, 2025
Issue date	October 28, 2025
Test result	**Complied**

Morgan Tan

Reviewed by: Morgan Tan

Hans Hu

Approved by: Hans Hu

The test results relate only to the tested samples.
The test report should not be reproduced except in full without the written approval of Shenzhen Bangce Testing Technology Co., Ltd.

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1. STANDARD AND APPLICABLE TEST METHODS

The tests were performed according to following standards:

47 CFR Part 15.247: Operation within the bands 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz

ANSI C63.10-2020: American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.

2. REPORT VERSION

Version No.	Issue date	Description
00	October 28, 2025	Original

3. TEST DESCRIPTION

No.	Test Item	Standard Requirement	Result
1	Antenna Requirement	47 CFR 15.203	Pass
2	Conducted Emission at AC power line	47 CFR 15.207(a)	Pass
3	6dB Bandwidth	47 CFR 15.247(a)(2)	Pass
4	Maximum Conducted Output Power	47 CFR 15.247(b)(3)	Pass
5	Power Spectral Density	47 CFR 15.247(e)	Pass
6	Conducted band edge and spurious emission	47 CFR 15.247(d)	Pass
7	Radiated band edge emission	47 CFR 15.247(d), 15.209, 15.205	Pass
8	Radiated Spurious Emission (below 1GHz)	47 CFR 15.247(d), 15.209, 15.205	Pass
9	Radiated Spurious Emission (Above 1GHz)	47 CFR 15.247(d), 15.209, 15.205	Pass

Note:

– The measurement uncertainty is not included in the test result.

4. SUMMARY

4.1. Product Description *

Main unit information:	
Product Name:	Constant power FPC card machine
Trade mark:	-
Model No.:	CD1031
Listed Model(s):	CD1034,CD1038,CD1039,CD1040,CD1041,CD13,CD14
Model difference:	The difference between different models is that in this application, due to different sales channels and different model names.
Power supply:	DC 5V
Accessory unit (AU) information:	
AU-1	-

4.2. Radio Specification Description *

Modulation type:	802.11b: DSSS(CCK, DQPSK, DBPSK); 802.11g/n(HT20): OFDM(BPSK, QPSK, 16QAM, 64QAM)
Operation frequency:	802.11b/g/n(HT20): 2412MHz to 2462MHz;
Channel number:	802.11b/g/n(HT20): 11 Channels;
Channel separation:	5MHz
Antenna type:	FPC Antenna
Antenna gain:	3dBi

Note:

1) *: As the above information is provided by the applicant, all relevant results and conclusions of this report are based solely on such information. Bangce lab shall not be liable for the authenticity, integrity, and resulting outcomes of the information, and/or the validity of the conclusions herein.
2) Operation frequency list as follow:

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2412	5	2432	9	2452
2	2417	6	2437	10	2457
3	2422	7	2442	11	2462
4	2427	8	2447	/	/

4.3. Modification of EUT

No modifications are made to the EUT during all test items.

4.4. Deviation from standards

None

4.5. Testing Site

Laboratory Name	Shenzhen Bangce Testing Technology Co., Ltd.
Laboratory Location	101, building 10, Yunli Intelligent Park, Shutianpu community, Matian Street, Guangming District, Shenzhen，Guangdong, China
Contact information	Tel: 86-755-2319 6848, email: service@cis-cn.net Website: http://www.cis-cn.net/
FCC registration number	736346
FCC designation number	CN1372

5. TEST CONFIGURATION

5.1. Test frequency list

Lowest Channel (LCH) (MHz)	Middle Channel (MCH) (MHz)	Highest Channel (HCH) (MHz)
2412	2437	2462

5.2. Descriptions of test mode

No	Test mode	Description
TM1	802.11b mode	Keep the EUT in 802.11b transmitting mode at lowest, middle and highest channel.
TM2	802.11g mode	Keep the EUT in 802.11g transmitting mode at lowest, middle and highest channel.
TM3	802.11n(HT20) mode	Keep the EUT in 802.11n(HT20) transmitting mode at lowest, middle and highest channel.
TM4	Link mode	Keep the EUT in WiFi linking mode with AE.
TM5	Charging mode	Keep the EUT in charging status.

5.3. Support unit used in test configuration

The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application.

The following peripheral devices and interface cables were connected during the measurement:

Item	Equipment name	Trade Name	Model No.
1	Adapter	Guangdong Sangu Technology Co. ltd	SG-0501000AU
2	iPhone	Foxconn	iPhone 14

5.4. Test sample information

Type	Sample No.
Engineer sample	CISR251016072-S01
Normal sample	CISR251016072-S02

5.5. Environmental conditions

Type	Requirement
Temperature:	15~35°C
Relative Humidity:	25~75%
Air Pressure:	860~1060mbar

5.6. Statement of the measurement uncertainty

No.	Test Items	Measurement Uncertainty
1	Conducted Emission at AC power line (150kHz ~ 30MHz)	3.52dB
2	Bandwidth	0.19%
3	Conducted output power	1.38dB
4	Power spectral density	1.39dB
5	Conducted spurious emission	1.40dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=1.96.

5.7. Equipment Used during the Test

Conducted Emission at AC power line

Item	Equipment name	Manufacturer	Model	Serial No.	Calibration date	Due date
1	8*4*3 Shielding room	SKET	8m*4m*3 m	CIS-EE012	2024-09-02	2027-09-01
2	EMI Test Receiver	ROHDE&SCHWARZ	ESPI7	CIS-EE043	2025-01-08	2026-01-07
3	LISN	SCHWARZBECK	NSLK 8127	CIS-EE044	2025-01-08	2026-01-07
4	LISN-AE	ETS	3810/2NM	CIS-EE075	2025-01-08	2026-01-07
5	RF Cable	SKET	-	CIS-EE071	2025-01-08	2026-01-07
6	Power Strip	BULL	GNIN-413	CIS-EE087	2025-01-08	2026-01-07
7	Test software	FARAD	EZ-CON	CIS-EE095	/	/
8	Thermohygrometer	DeLi	8866	CIS-EE069	2025-01-11	2026-01-10

Maximum Conducted Output Power
Power Spectral Density
Emissions in non-restricted frequency bands
6dB Bandwidth

Item	Equipment name	Manufacturer	Model	Serial No.	Calibration date	Due date
1	Spectrum analyzer	R&S	FSV-40N	102130	2025-01-08	2026-01-07
2	Vector Signal Generator	Agilent	N5182A	MY50142364	2025-01-08	2026-01-07
3	Power Meter	WCS	WCS-PM	WCSPM230405A	2025-01-08	2026-01-07

Band edge emissions (Radiated)
Emissions in frequency bands (below 1GHz)
Emissions in frequency bands (above 1GHz)

Item	Equipment name	Manufacturer	Model	Serial No.	Calibration date	Due date
1	9*6*6 anechoic chamber	SKET	9.3*6.3*6	N/A	2024-09-02	2027-09-01
2	Spectrum analyzer	Agilent	N9020A	MY50530263	2025-01-08	2026-01-07
3	Spectrum analyzer	R&S	FSV-40N	102130	2025-01-08	2026-01-07
4	Bilog Antenna	Schwarzbeck	VULB 9163	1463	2023-01-09	2026-01-08
5	Horn Antenna	SCHWARZBECK	BBHA 9120 D	2487	2023-01-09	2026-01-08
6	Active Loop Antenna	SCHWARZBECK	FMZB 1519B	/	2023-01-09	2026-01-08
7	RF Cable	Tonscend	Cable 1	/	2025-01-08	2026-01-07

8	RF Cable	Tonscend	Cable 2	/	2025-01-08	2026-01-07
9	RF Cable	SKET	Cable 3	/	2025-01-08	2026-01-07
10	L.I.S.N.#1	Schwarzbeck	NSLK8127	/	2025-01-08	2026-01-07
11	L.I.S.N.#2	ROHDE&SCHWARZ	ENV216	/	2025-01-08	2026-01-07
12	Horn Antenna	SCHWARZBECK	BBHA9170	1130	2023-01-09	2026-01-08
13	Preamplifier	Tonscend	TAP18040048	AP21C806126	2025-01-08	2026-01-07
14	Variable-frequency power source	Pinhong	PH1110	/	2025-01-08	2026-01-07
15	6dB Attenuator	SKET	DC-6G	/	2025-01-08	2026-01-07
16	Antenna tower	SKT	Bk-4AT-BS	AT2021040101-V1	2025-01-08	2026-01-07

6. TEST RESULTS

6.1. Evaluation Results (Evaluation)

6.1.1. Antenna Requirement

Test Requirement:	Refer to 47 CFR Part 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.

6.1.1.1. Test Result

Pass

6.1.1.2. Conclusion:

The EUT antenna is FPC Antenna. It comply with the standard requirement. In case of replacement of broken antenna the same antenna type must be used.Antenna structure please refer to the EUT internal photographs antenna photo.

6.2. Radio Spectrum Matter Test Results (RF)

6.2.1. Conducted Emission at AC power line

Test Requirement:	Refer to 47 CFR 15.207(a), Except as shown in paragraphs (b)and (c)of this section, 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 or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 μH/50 ohms line impedance stabilization network (LISN).
Test Limit:	

Frequency of emission (MHz)	Conducted limit (dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

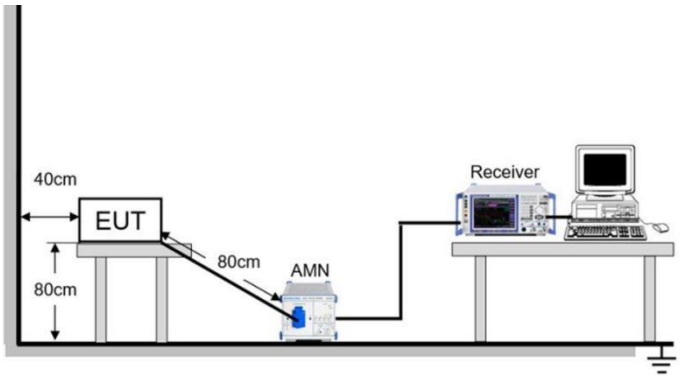
*Decreases with the logarithm of the frequency.

Test Method:	ANSI C63.10-2020 section 6.2
Procedure:	1>. The EUT was setup according to ANSI C63.10 requirements. 2>. The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface. 3>. The EUT and simulators are connected to the main power through a line impedances stabilization network (LISN). The LISN provides a 50 ohm /50uH coupling impedance for the measuring equipment. 4>. The peripheral devices are also connected to the main power through a LISN. (Refer to the block diagram of the test setup and photographs) 5>. Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source. 6>. The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length. 7>. Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz. 8>. During the above scans, the emissions were maximized by cable manipulation.

6.2.1.1. E.U.T. Operation

Operating Environment:					
Temperature:	22.5 °C	Humidity:	56.8 %	Atmospheric Pressure:	102.9 kPa
Pre test mode:	TM4				
Final test mode:	TM4				

6.2.1.2. Test Setup Diagram

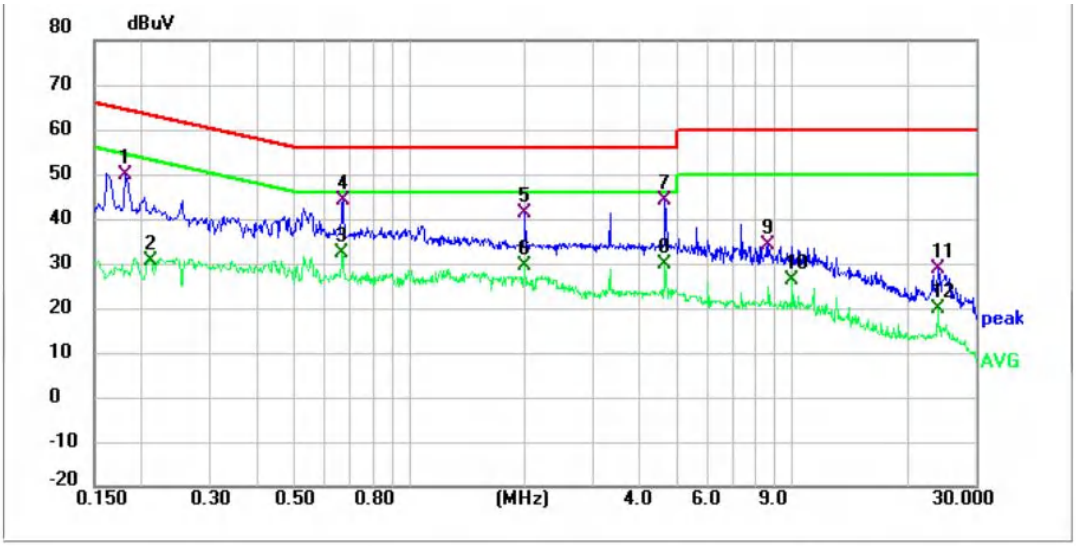


6.2.1.3. Test Result

Pass

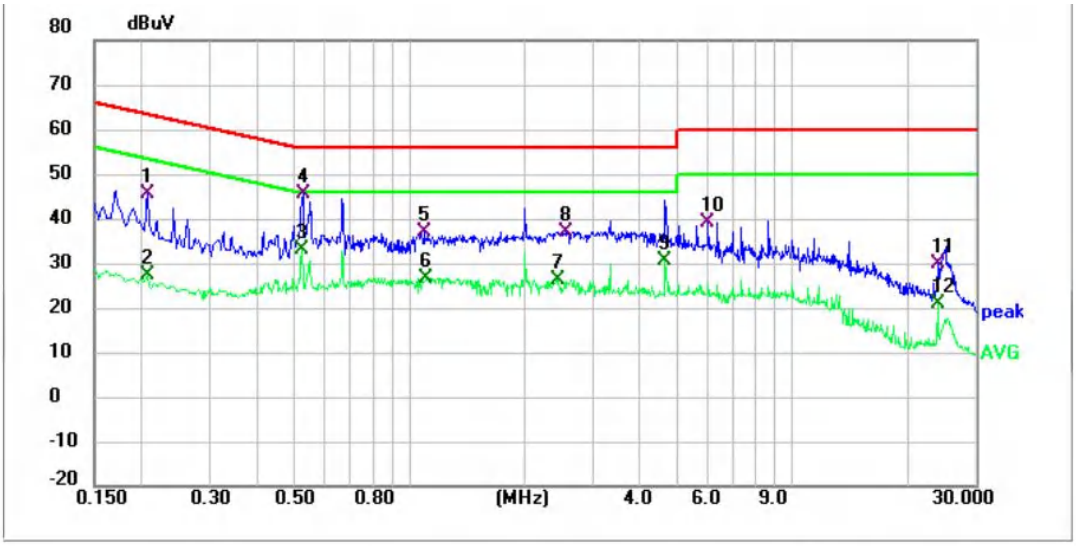
6.2.1.4. Test Data

Mode4 / Line: Line



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1819	39.52	10.18	49.70	64.40	14.70	QP
2	0.2100	20.42	10.18	30.60	53.21	22.61	AVG
3	0.6660	21.99	10.19	32.18	46.00	13.82	AVG
4	0.6700	33.85	10.19	44.04	56.00	11.96	QP
5	2.0020	30.96	10.26	41.22	56.00	14.78	QP
6	2.0020	19.13	10.26	29.39	46.00	16.61	AVG
7 *	4.6700	33.73	10.37	44.10	56.00	11.90	QP
8	4.6700	19.47	10.37	29.84	46.00	16.16	AVG
9	8.6740	23.79	10.37	34.16	60.00	25.84	QP
10	10.0100	15.87	10.38	26.25	50.00	23.75	AVG
11	24.0020	17.71	10.99	28.70	60.00	31.30	QP
12	24.0020	8.75	10.99	19.74	50.00	30.26	AVG

Mode4 / Line: Neutral



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.2060	35.55	10.14	45.69	63.37	17.68	QP
2	0.2060	17.28	10.14	27.42	53.37	25.95	AVG
3	0.5220	22.88	10.12	33.00	46.00	13.00	AVG
4 *	0.5260	35.24	10.12	45.36	56.00	10.64	QP
5	1.0900	26.83	10.16	36.99	56.00	19.01	QP
6	1.1100	16.45	10.16	26.61	46.00	19.39	AVG
7	2.4380	16.12	10.25	26.37	46.00	19.63	AVG
8	2.5700	26.79	10.26	37.05	56.00	18.95	QP
9	4.6700	20.23	10.36	30.59	46.00	15.41	AVG
10	6.0060	28.77	10.37	39.14	60.00	20.86	QP
11	23.9980	18.87	10.97	29.84	60.00	30.16	QP
12	23.9980	9.75	10.97	20.72	50.00	29.28	AVG

Note:
1>. Level = Reading +Factor (Voltage Division Coefficient + Cable Loss + Attenuator Factor)
2>. Margin = Limit - Level

6.2.2. 6dB Bandwidth

Test Requirement:	47 CFR 15.247(a)(2)
Test Limit:	Refer to 47 CFR 15.247(a)(2), Systems using digital modulation techniques may operate in the 902-928 MHz, and 2400-2483.5 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.
Test Method:	ANSI C63.10-2020, section 11.8
Procedure:	**11.8.1 Option 1** The steps for the first option are as follows: a) Set RBW = shall be in the range of 1% to 5% of the OBW but not less than 100 kHz. b) Set the VBW ≥ [3 × RBW]. c) Detector = peak. d) Trace mode = max-hold. e) Sweep = No faster than coupled (auto) time. f) Allow the trace to stabilize. g) Measure the maximum width of the emission by placing two markers, one at the lowest frequency and the other at the highest frequency of the envelope of the spectral display, such that each marker is at or slightly below the "−6 dB down amplitude". If a marker is below this "−6 dB down amplitude" value, then it shall be as close as possible to this value. **11.8.2 Option 2** The automatic bandwidth measurement capability of an instrument may be employed using the X dB bandwidth mode with X set to 6 dB, if the functionality described in 11.8.1 (i.e., RBW = 100 kHz, VBW ≥ 3 × RBW, and peak detector with maximum hold) is implemented by the instrumentation function. When using this capability, care shall be taken so that the bandwidth measurement is not influenced by any intermediate power nulls in the fundamental emission that might be ≥ 6 dB.

6.2.2.1. E.U.T. Operation

Operating Environment:					
Temperature:	22.7 °C	Humidity:	56.1 %	Atmospheric Pressure:	103.1 kPa
Pre test mode:	TM1, TM2, TM3				
Final test mode:	TM1, TM2, TM3				

6.2.2.2. Test Setup Diagram

6.2.2.3. Test Result

Pass

6.2.2.4. Test Data

Please Refer to Appendix for Details.

6.2.3. Maximum Conducted Output Power

Test Requirement:	47 CFR 15.247(b)(3)
Test Limit:	Refer to 47 CFR 15.247(b)(3), 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. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.
Test Method:	ANSI C63.10-2020 section 11.9.1
Procedure:	ANSI C63.10-2020, section 11.9.1 Maximum peak conducted output power

6.2.3.1. E.U.T. Operation

Operating Environment:					
Temperature:	23.2 °C	Humidity:	55.3 %	Atmospheric Pressure:	103.1 kPa
Pre test mode:	TM1, TM2, TM3				
Final test mode:	TM1, TM2, TM3				

6.2.3.2. Test Setup Diagram

6.2.3.3. Test Result

Pass

6.2.3.4. Test Data

Please Refer to Appendix for Details.

6.2.4. Power Spectral Density

Test Requirement:	47 CFR 15.247(e)
Test Limit:	Refer to 47 CFR 15.247(e), For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.
Test Method:	ANSI C63.10-2020, section 11.10
Procedure:	ANSI C63.10-2020, section 11.10, Maximum power spectral density level in the fundamental emission

6.2.4.1. E.U.T. Operation

Operating Environment:					
Temperature:	23.3 °C	Humidity:	56.6 %	Atmospheric Pressure:	103.1 kPa
Pre test mode:	TM1, TM2, TM3				
Final test mode:	TM1, TM2, TM3				

6.2.4.2. Test Setup Diagram

6.2.4.3. Test Result

Pass

6.2.4.4. Test Data

Please Refer to Appendix for Details.

6.2.5. Conducted band edge and spurious emission

Test Requirement:	47 CFR 15.247(d)
Test Limit:	Refer to 47 CFR 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, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in § 15.209(a) is not required.
Test Method:	ANSI C63.10-2020 section 11.11
Procedure:	ANSI C63.10-2020 Section 11.11.1, Section 11.11.2, Section 11.11.3

6.2.5.1. E.U.T. Operation

Operating Environment:					
Temperature:	22.8 °C	Humidity:	55.6 %	Atmospheric Pressure:	103.1 kPa
Pre test mode:	TM1, TM2, TM3				
Final test mode:	TM1, TM2, TM3				

6.2.5.2. Test Setup Diagram

6.2.5.3. Test Result

Pass

6.2.5.4. Test Data

Please Refer to Appendix for Details.

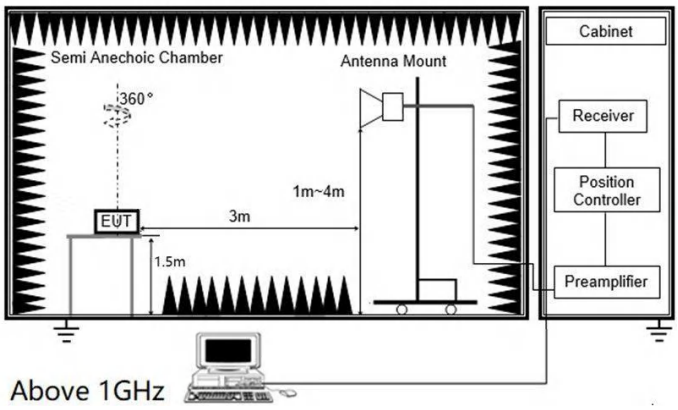
6.2.6. Radiated band edge emission

<table>
<tr><td>Test Requirement:</td><td>Refer to 47 CFR 15.247(d), In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a)(see § 15.205(c)).`</td></tr>
<tr><td>Test Limit:</td><td>
<table>
<tr><th>Frequency (MHz)</th><th>Field strength (microvolts/meter)</th><th>Measurement distance (meters)</th></tr>
<tr><td>0.009-0.490</td><td>2400/F(kHz)</td><td>300</td></tr>
<tr><td>0.490-1.705</td><td>24000/F(kHz)</td><td>30</td></tr>
<tr><td>1.705-30.0</td><td>30</td><td>30</td></tr>
<tr><td>30-88</td><td>100 **</td><td>3</td></tr>
<tr><td>88-216</td><td>150 **</td><td>3</td></tr>
<tr><td>216-960</td><td>200 **</td><td>3</td></tr>
<tr><td>Above 960</td><td>500</td><td>3</td></tr>
</table>
** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.
In the emission table above, the tighter limit applies at the band edges.
The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.
</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.10-2020 section 6.10</td></tr>
<tr><td>Procedure:</td><td>1>. EUT was setup and tested according to ANSI C63.10 .
2>. The EUT is placed on a turn table which is 1.5 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level.
3>. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.
4>. The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. Thisis repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10 on radiated measurement.
5>. Use the following spectrum analyzer settings:
a) Span shall wide enough to fully capture the emission being measured
b) Set RBW=1MHz, VBW=3MHz for >1GHz, Sweep time=auto, Detector=peak, Trace=max hold for Peak measurement
For average measurement: use duty cycle correction factor method (DCCF), Average level = Peak level + DCCF</td></tr>
</table>

6.2.6.1. E.U.T. Operation

Operating Environment:					
Temperature:	23.9 °C	Humidity:	55.1 %	Atmospheric Pressure:	103 kPa
Pre test mode:	TM1, TM2, TM3				
Final test mode:	All of the listed pre-test mode were tested, only the data of the worst mode (TM1) is recorded in the report				

6.2.6.2. Test Setup Diagram

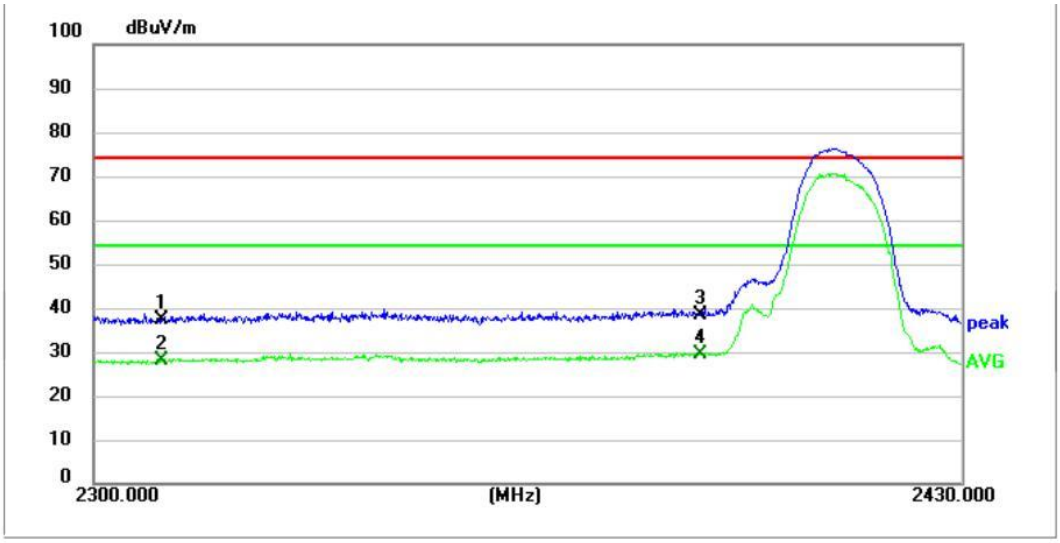


6.2.6.3. Test Result

Pass

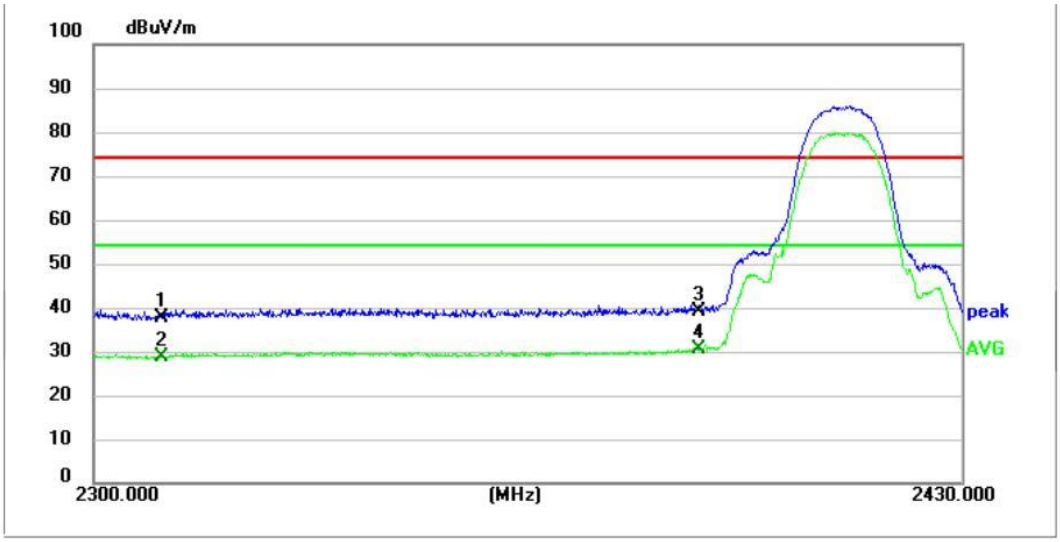
6.2.6.4. Test Data

Mode1 / Polarization: Horizontal / CH: L



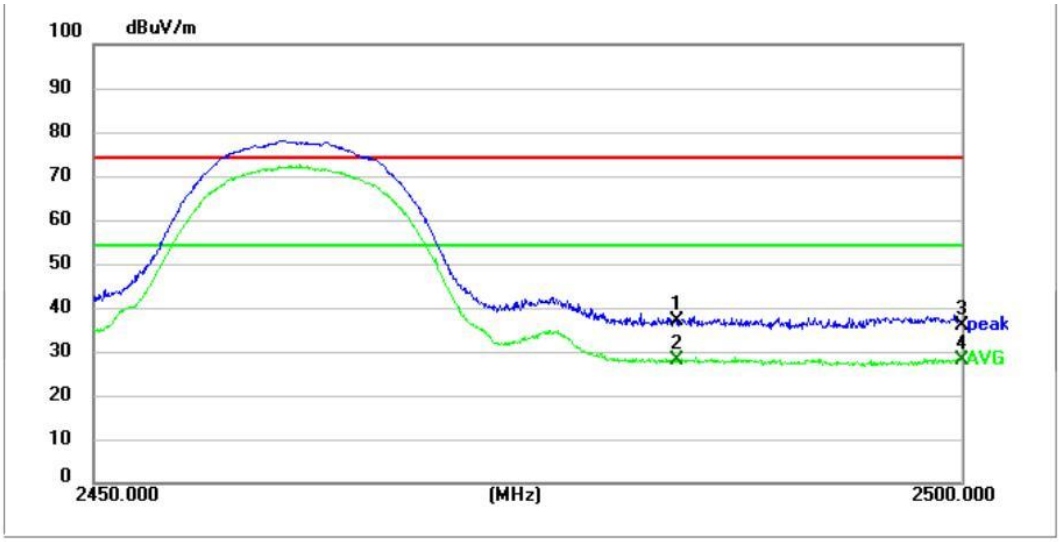
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2310.0000	54.90	-17.52	37.38	74.00	36.62	peak
2	2310.0000	45.64	-17.52	28.12	54.00	25.88	AVG
3	2390.0000	55.72	-17.32	38.40	74.00	35.60	peak
4 *	2390.0000	46.73	-17.32	29.41	54.00	24.59	AVG

Mode1 / Polarization: Vertical / CH: L



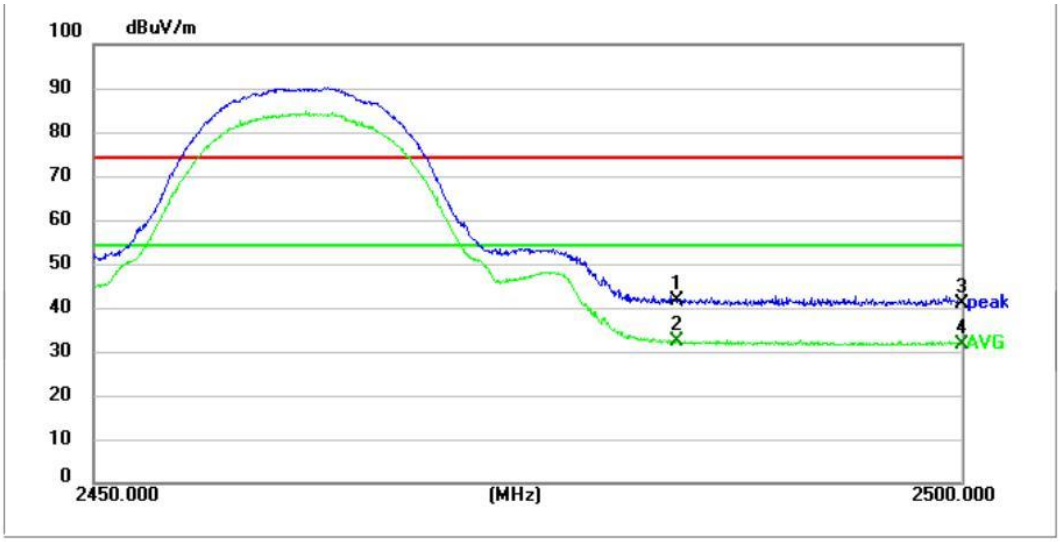
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2310.0000	55.31	-17.52	37.79	74.00	36.21	peak
2	2310.0000	46.23	-17.52	28.71	54.00	25.29	AVG
3	2390.0000	56.49	-17.32	39.17	74.00	34.83	peak
4 *	2390.0000	47.79	-17.32	30.47	54.00	23.53	AVG

Mode1 / Polarization: Horizontal / CH: H



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2483.5000	54.00	-17.03	36.97	74.00	37.03	peak
2	2483.5000	44.97	-17.03	27.94	54.00	26.06	AVG
3	2500.0000	52.84	-16.94	35.90	74.00	38.10	peak
4 *	2500.0000	45.04	-16.94	28.10	54.00	25.90	AVG

Mode1 / Polarization: Vertical / CH: H



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2483.5000	58.73	-17.03	41.70	74.00	32.30	peak
2 *	2483.5000	49.31	-17.03	32.28	54.00	21.72	AVG
3	2500.0000	57.90	-16.94	40.96	74.00	33.04	peak
4	2500.0000	48.68	-16.94	31.74	54.00	22.26	AVG

6.2.7. Radiated Spurious Emission (below 1GHz)

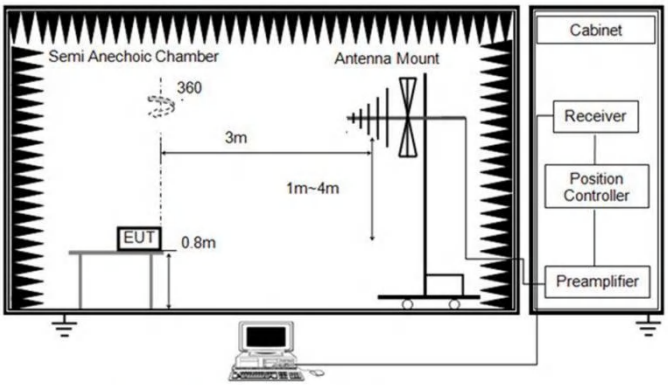
<table>
<tr><td>Test Requirement:</td><td>Refer to 47 CFR 15.247(d), In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a)(see § 15.205(c)).`</td></tr>
<tr><td>Test Limit:</td><td>
<table>
<tr><th>Frequency (MHz)</th><th>Field strength (microvolts/meter)</th><th>Measurement distance (meters)</th></tr>
<tr><td>0.009-0.490</td><td>2400/F(kHz)</td><td>300</td></tr>
<tr><td>0.490-1.705</td><td>24000/F(kHz)</td><td>30</td></tr>
<tr><td>1.705-30.0</td><td>30</td><td>30</td></tr>
<tr><td>30-88</td><td>100 **</td><td>3</td></tr>
<tr><td>88-216</td><td>150 **</td><td>3</td></tr>
<tr><td>216-960</td><td>200 **</td><td>3</td></tr>
<tr><td>Above 960</td><td>500</td><td>3</td></tr>
</table>
** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.
In the emission table above, the tighter limit applies at the band edges.
The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.
</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.10-2020 section 6.6.4</td></tr>
<tr><td>Procedure:</td><td>1>. The EUT was setup and tested according to ANSI C63.10.
2>. The EUT is placed on a turn table which is 0.8 meter above ground for below 1 GHz, and 1.5 m for above 1 GHz. The turn table is rotated 360 degrees to determine the position of the maximum emission level.
3>. The EUT was set 3 meters from the receiving antenna, which was mounted on the top of a variable height antenna tower.
4>. For each suspected emission, the EUT was arranged to its worst case and then tune the Antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level to comply with the guidelines.
5>. Set to the maximum power setting and enable the EUT transmit continuously.
6>. Use the following spectrum analyzer settings
a) Span shall wide enough to fully capture the emission being measured;
b) RBW=120 kHz, VBW=300 kHz, Sweep=auto, Detector function=peak, Trace=max hold;

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.</td></tr>
</table>

6.2.7.1. E.U.T. Operation

<table>
<tr><td colspan="6">Operating Environment:</td></tr>
<tr><td>Temperature:</td><td>23.9 °C</td><td>Humidity:</td><td>55.1 %</td><td>Atmospheric Pressure:</td><td>103 kPa</td></tr>
<tr><td colspan="2">Pre test mode:</td><td colspan="4">TM1, TM2, TM3, TM4, TM5</td></tr>
<tr><td colspan="2">Final test mode:</td><td colspan="4">All of the listed pre-test mode were tested, only the data of the worst mode (TM1) is recorded in the report</td></tr>
</table>

6.2.7.2. Test Setup Diagram



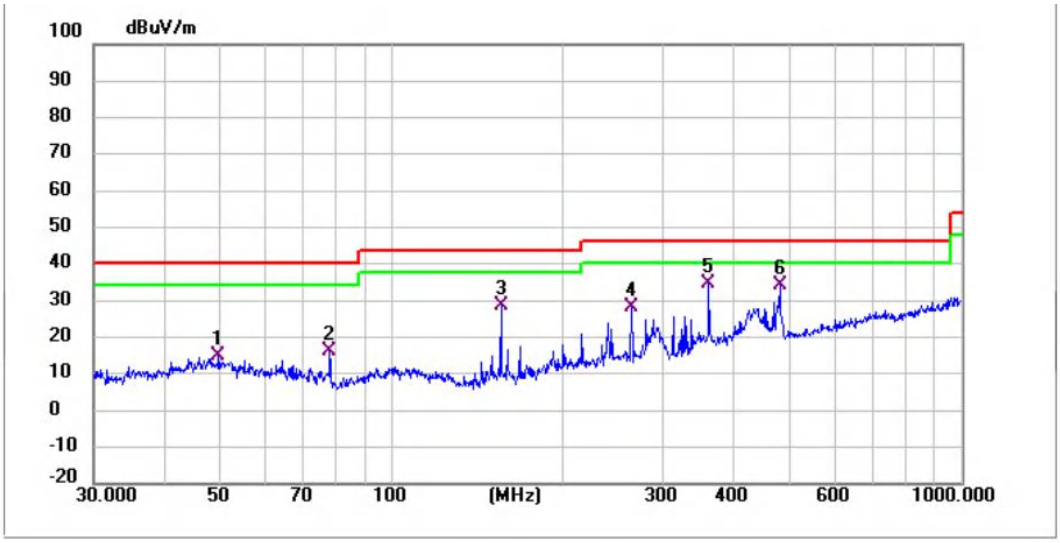
Below 1 GHz and above 30 MHz

6.2.7.3. Test Result

Pass

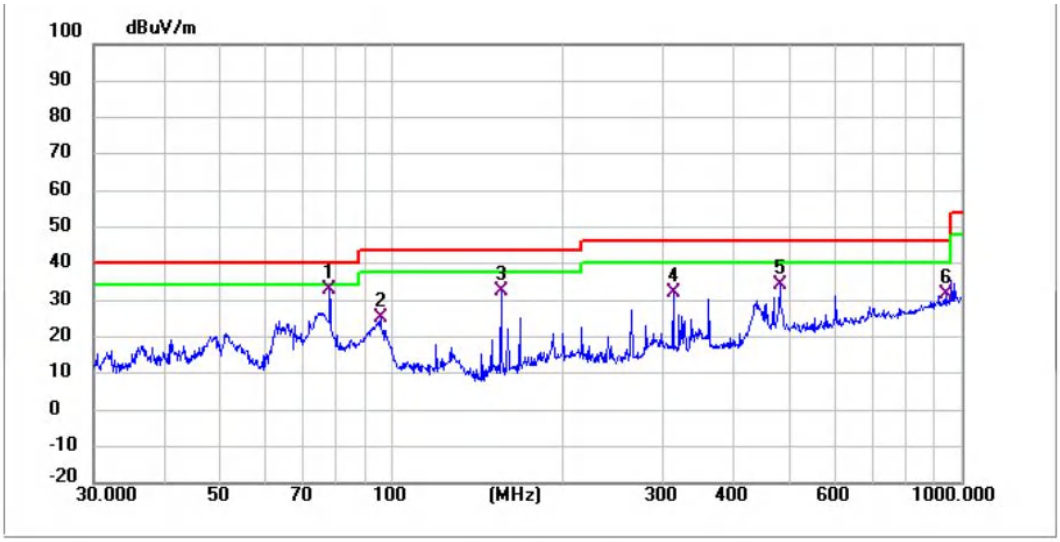
6.2.7.4. Test Data

Mode1 / Polarization: Horizontal / CH: L



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	49.7066	43.94	-29.12	14.82	40.00	25.18	QP
2	77.8653	50.68	-34.52	16.16	40.00	23.84	QP
3	155.9101	62.01	-33.17	28.84	43.50	14.66	QP
4	263.8190	56.41	-28.36	28.05	46.00	17.95	QP
5 *	360.4476	59.98	-25.54	34.44	46.00	11.56	QP
6	480.5276	56.74	-22.56	34.18	46.00	11.82	QP

Mode1 / Polarization: Vertical / CH: L



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	77.8653	67.61	-34.52	33.09	40.00	6.91	QP
2	95.7622	57.36	-32.03	25.33	43.50	18.17	QP
3	155.9100	65.70	-33.17	32.53	43.50	10.97	QP
4	312.1792	58.87	-26.84	32.03	46.00	13.97	QP
5	480.5276	56.76	-22.56	34.20	46.00	11.80	QP
6	938.8325	45.88	-14.39	31.49	46.00	14.51	QP

Note:
1>. For 9 kHz ~ 30 MHz Measurement
The EUT was pre-scanned this frequency band, found the radiated level 20dB lower than the limit, so don't show data on this report.
2>. Level= Reading + Factor (Antenna Factor+ Cable Loss- Preamp Factor)
3>. Margin = Limit – Level

6.2.8. Radiated Spurious Emission (Above 1GHz)

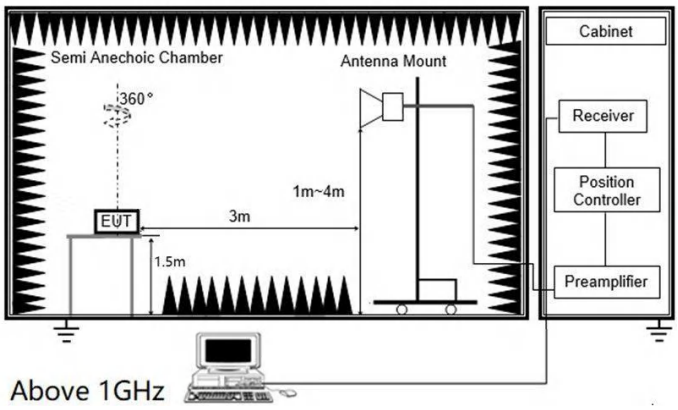
<table>
<tr><td>Test Requirement:</td><td>Refer to 47 CFR 15.247(d), in addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a)(see § 15.205(c)).`</td></tr>
<tr><td>Test Limit:</td><td>
<table>
<tr><td>Frequency (MHz)</td><td>Field strength (microvolts/meter)</td><td>Measurement distance (meters)</td></tr>
<tr><td>0.009-0.490</td><td>2400/F(kHz)</td><td>300</td></tr>
<tr><td>0.490-1.705</td><td>24000/F(kHz)</td><td>30</td></tr>
<tr><td>1.705-30.0</td><td>30</td><td>30</td></tr>
<tr><td>30-88</td><td>100 **</td><td>3</td></tr>
<tr><td>88-216</td><td>150 **</td><td>3</td></tr>
<tr><td>216-960</td><td>200 **</td><td>3</td></tr>
<tr><td>Above 960</td><td>500</td><td>3</td></tr>
</table>
** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.
In the emission table above, the tighter limit applies at the band edges.
The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.
</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.10-2020 section 6.6.4</td></tr>
<tr><td>Procedure:</td><td>1>. The EUT was setup and tested according to ANSI C63.10.
2>. The EUT is placed on a turn table which is 0.8 meter above ground for 1.5 m for above 1 GHz. The turn table is rotated 360 degrees to determine the position of the maximum emission level.
3>. The EUT was set 3 meters from the receiving antenna, which was mounted on the top of a variable height antenna tower.
4>. For each suspected emission, the EUT was arranged to its worst case and then tune the Antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level to comply with the guidelines.
5>. Set to the maximum power setting and enable the EUT transmit continuously.
6>. Use the following spectrum analyzer settings
a) Span shall wide enough to fully capture the emission being measured;
b) Set RBW=1MHz, VBW=3MHz, Sweep time=auto, Detector=peak, Trace=max hold for Peak measurement

For average measurement: use duty cycle correction factor method (DCCF)
Average level = Peak level + DCCF</td></tr>
</table>

6.2.8.1. E.U.T. Operation

Operating Environment:					
Temperature:	23.9 °C	Humidity:	55.1 %	Atmospheric Pressure:	103 kPa
Pre test mode:	TM1, TM2, TM3, TM4, TM5				
Final test mode:	All of the listed pre-test mode were tested, only the data of the worst mode (TM1) is recorded in the report				

6.2.8.2. Test Setup Diagram

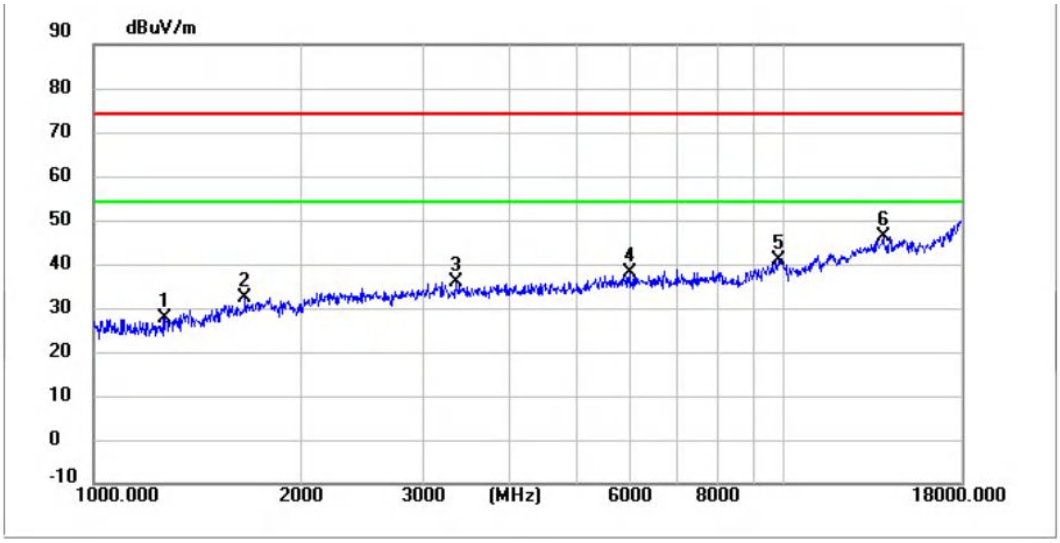


6.2.8.3. Test Result

Pass

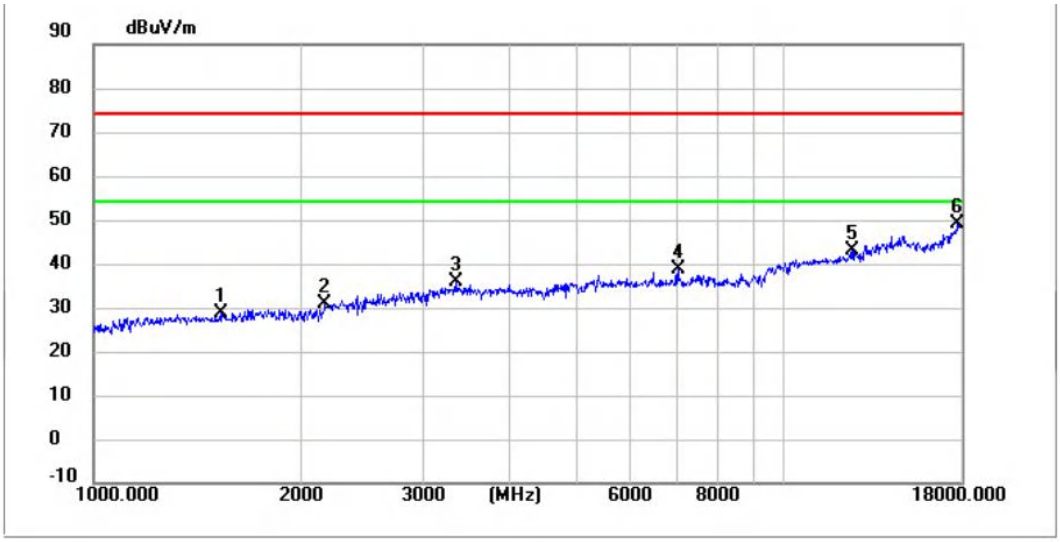
6.2.8.4. Test Data

Mode1 / Polarization: Horizontal / CH: L



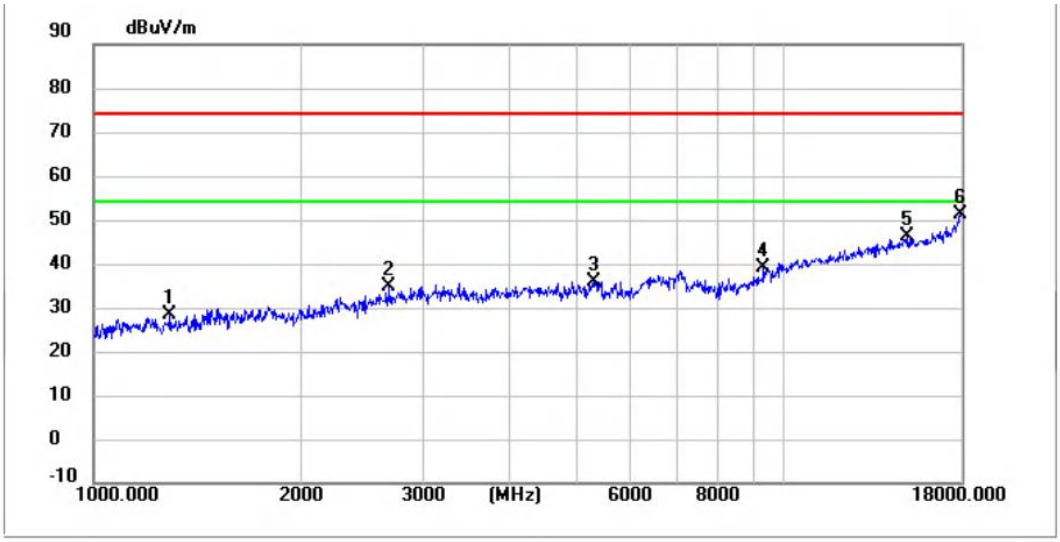
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1272.0000	48.90	-21.33	27.57	74.00	46.43	peak
2	1661.3000	52.73	-20.30	32.43	74.00	41.57	peak
3	3346.0000	49.72	-13.86	35.86	74.00	38.14	peak
4	5967.4000	44.06	-5.99	38.07	74.00	35.93	peak
5	9787.3000	30.37	10.55	40.92	74.00	33.08	peak
6 *	13886.0000	28.15	18.12	46.27	74.00	27.73	peak

Mode1 / Polarization: Vertical / CH: L



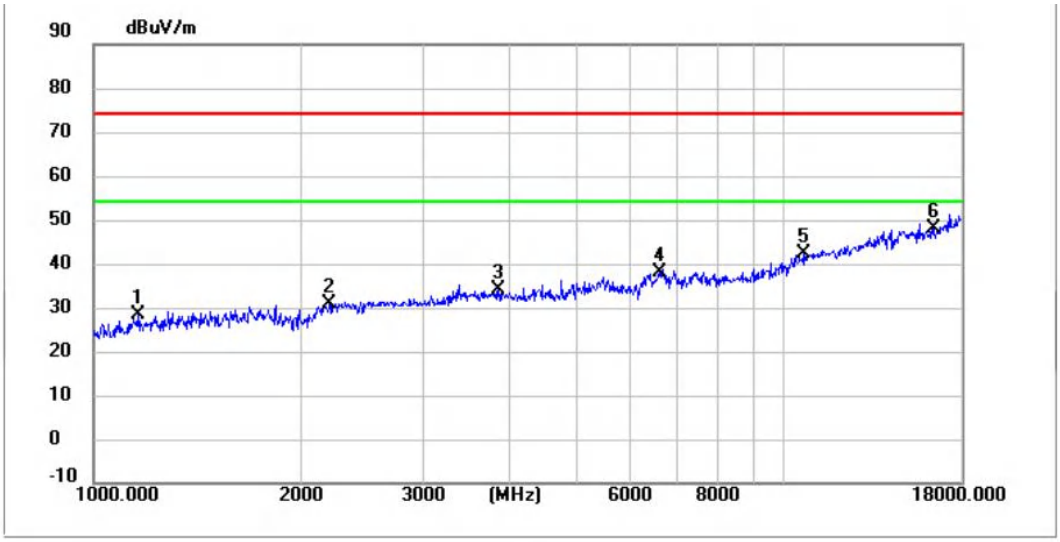
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1530.4000	49.50	-20.68	28.82	74.00	45.18	peak
2	2166.2000	48.96	-17.96	31.00	74.00	43.00	peak
3	3340.9000	49.82	-13.87	35.95	74.00	38.05	peak
4	7018.0000	34.99	3.73	38.72	74.00	35.28	peak
5	12509.0000	28.02	15.02	43.04	74.00	30.96	peak
6 *	17804.5000	26.65	22.59	49.24	74.00	24.76	peak

Mode1 / Polarization: Horizontal / CH: M



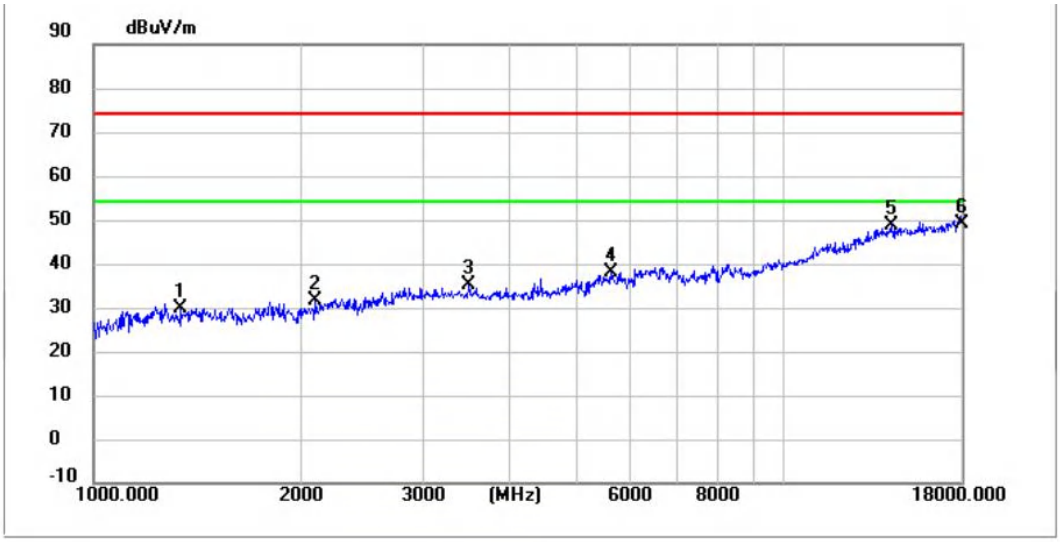
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1290.7000	49.61	-21.30	28.31	74.00	45.69	peak
2	2684.7000	50.57	-15.80	34.77	74.00	39.23	peak
3	5287.4000	43.62	-7.67	35.95	74.00	38.05	peak
4	9321.5000	29.70	9.43	39.13	74.00	34.87	peak
5	15013.1000	28.40	17.69	46.09	74.00	27.91	peak
6 *	17964.3000	27.39	23.86	51.25	74.00	22.75	peak

Mode1 / Polarization: Vertical / CH: M



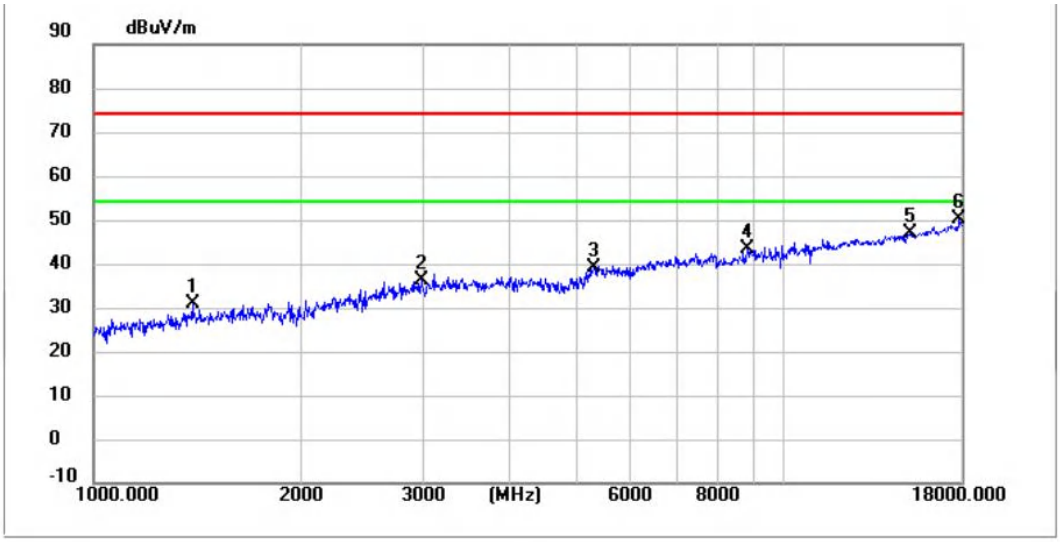
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1164.9000	49.99	-21.60	28.39	74.00	45.61	peak
2	2195.1000	48.85	-17.80	31.05	74.00	42.95	peak
3	3859.4000	46.66	-12.68	33.98	74.00	40.02	peak
4	6586.2000	38.07	-0.03	38.04	74.00	35.96	peak
5	10678.1000	30.10	12.39	42.49	74.00	31.51	peak
6 *	16454.7000	31.19	16.89	48.08	74.00	25.92	peak

Mode1 / Polarization: Horizontal / CH: H



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1340.0000	51.21	-21.22	29.99	74.00	44.01	peak
2	2096.5000	49.57	-18.13	31.44	74.00	42.56	peak
3	3497.3000	48.98	-13.76	35.22	74.00	38.78	peak
4	5608.7000	44.75	-6.62	38.13	74.00	35.87	peak
5	14254.9000	30.17	18.54	48.71	74.00	25.29	peak
6 *	18000.0000	24.90	24.13	49.03	74.00	24.97	peak

Mode1 / Polarization: Vertical / CH: H



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1392.7000	51.99	-21.12	30.87	74.00	43.13	peak
2	2987.3000	50.83	-14.67	36.16	74.00	37.84	peak
3	5290.8000	46.70	-7.65	39.05	74.00	34.95	peak
4	8838.7000	35.69	7.80	43.49	74.00	30.51	peak
5	15215.4000	29.26	17.67	46.93	74.00	27.07	peak
6 *	17938.8000	26.55	23.67	50.22	74.00	23.78	peak

Note:
1>. Level= Reading + Factor (Antenna Factor+ Cable Loss- Preamp Factor)
2>. Margin = Limit – Level
3>. Average measurement was not performed if peak level is lower than average limit (54dBuV/m) above 1GHz.

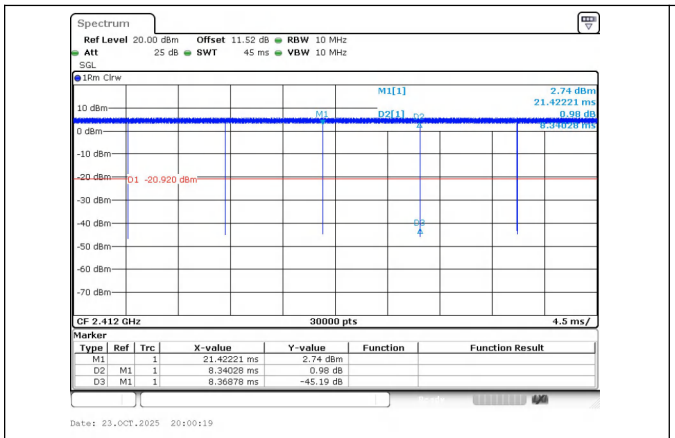
7. Appendix Report

7.1. Duty Cycle

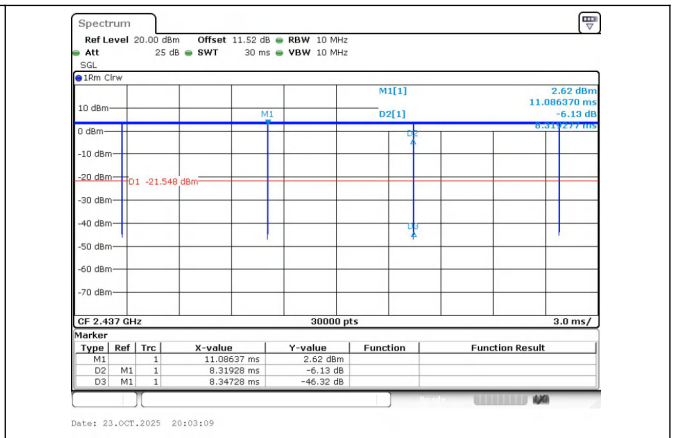
Test Result

Mode	Data rates	Channel	Antenna	On Time (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle (linear)	Duty Cycle Factor (dB)	1/T
IEEE 802.11b	1	1	1	8.340	8.369	99.66	0.9966	0.0148	0.1199
		6		8.319	8.347	99.66	0.9966	0.0148	0.1202
		11		8.340	8.369	99.66	0.9966	0.0148	0.1199
IEEE 802.11g		1		1.396	1.429	97.69	0.9769	0.1015	0.7163
		6		1.396	1.430	97.62	0.9762	0.1046	0.7163
		11		1.396	1.429	97.69	0.9769	0.1015	0.7163
IEEE 802.11n_20	MCS 0	1		1.304	1.337	97.53	0.9753	0.1086	0.7669
		6		1.304	1.337	97.53	0.9753	0.1086	0.7669
		11		1.292	1.326	97.44	0.9744	0.1126	0.7740

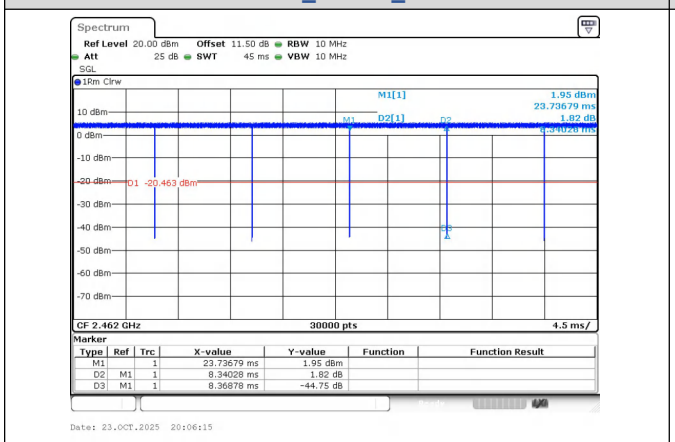
Test Graphs



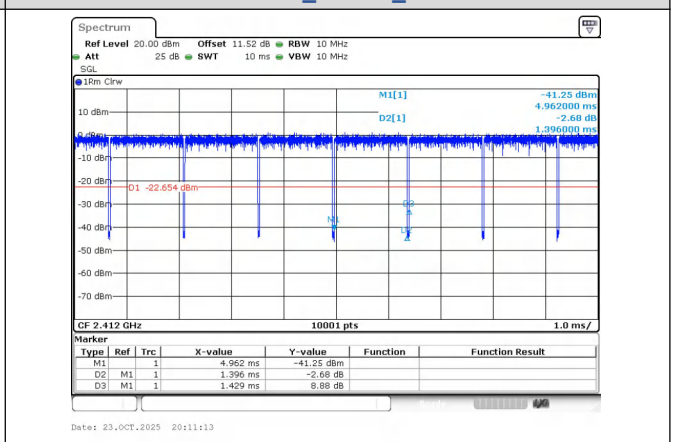
IEEE 802.11b_20MHz_Channel 1



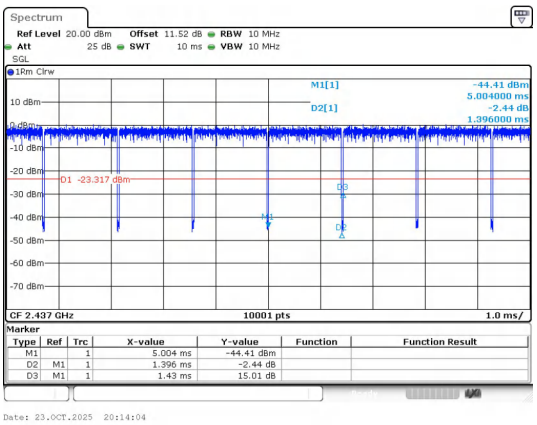
IEEE 802.11b_20MHz_Channel 6



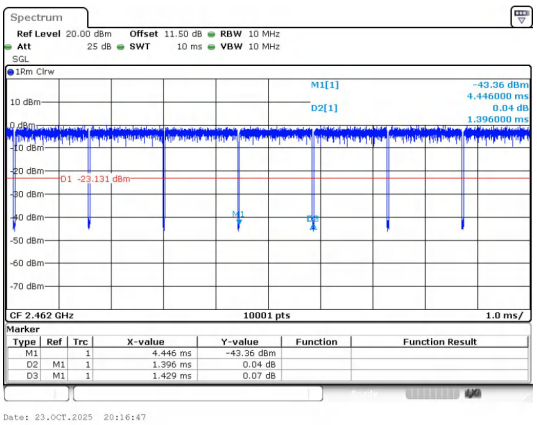
IEEE 802.11b_20MHz_Channel 11



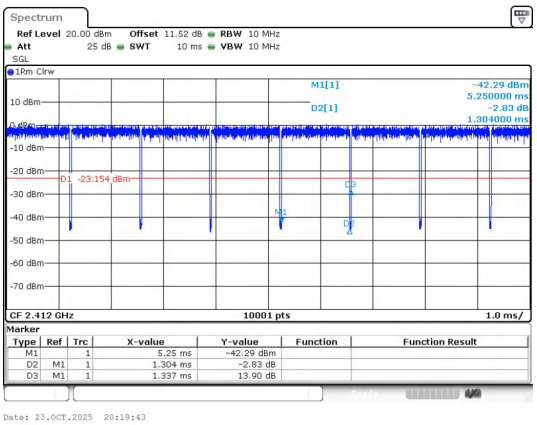
IEEE 802.11g_20MHz_Channel 1



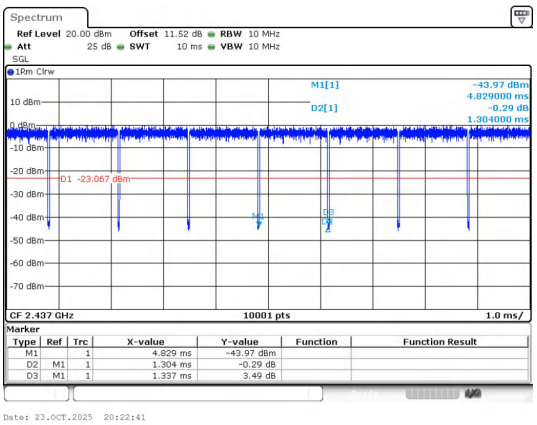
IEEE 802.11g_20MHz_Channel 6



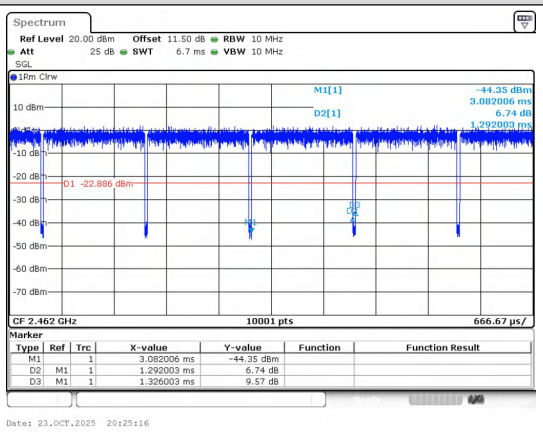
IEEE 802.11g_20MHz_Channel 11



IEEE 802.11n_20MHz_Channel 1



IEEE 802.11n_20MHz_Channel 6



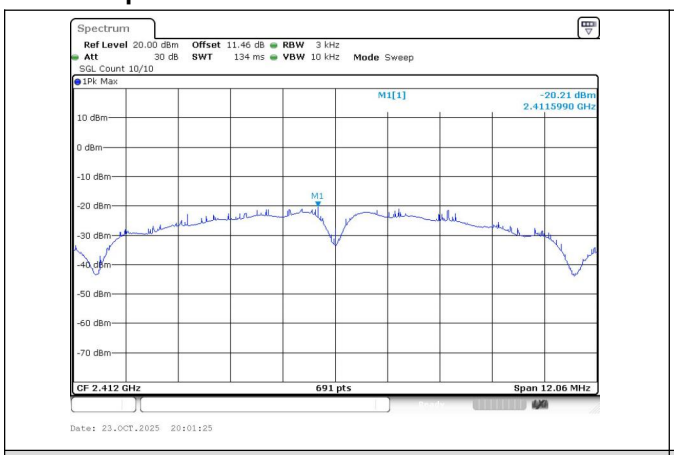
IEEE 802.11n_20MHz_Channel 11

7.2. Power Spectral Density

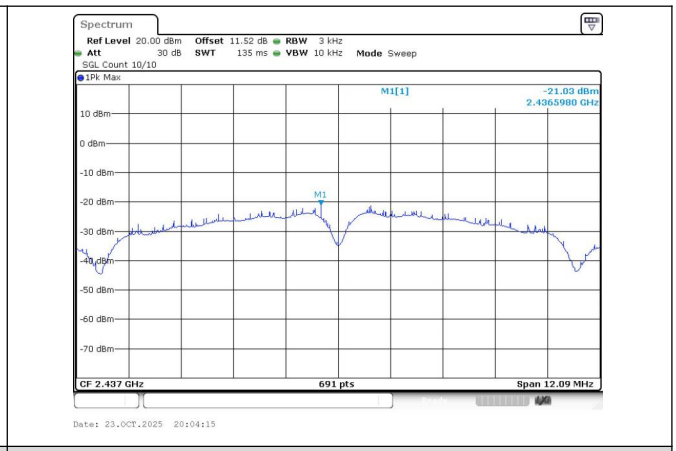
Test Result

Mode	Channel	PSD (dBm/3kHz) Ant. 0	Limit (dBm/3kHz)	Result
IEEE 802.11b	1	-20.210	≤8	PASS
	6	-21.030		PASS
	11	-19.640		PASS
IEEE 802.11g	1	-24.630		PASS
	6	-27.920		PASS
	11	-26.860		PASS
IEEE 802.11n_20	1	-24.410		PASS
	6	-28.730		PASS
	11	-24.940		PASS

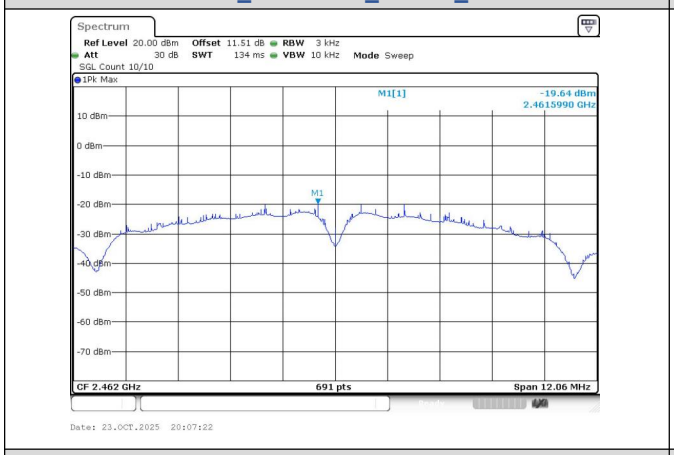
Test Graphs



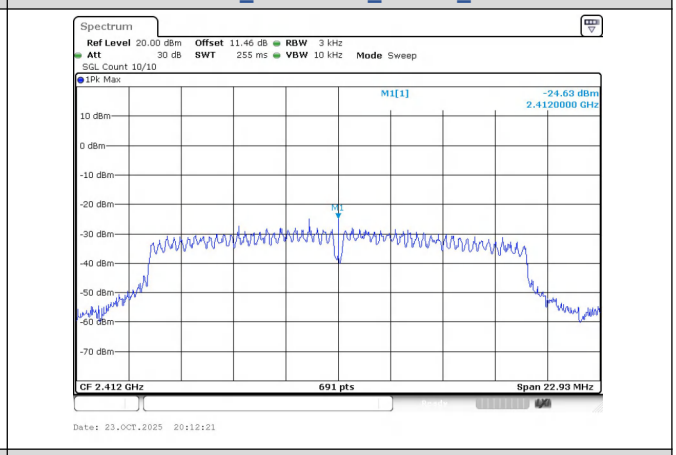
IEEE 802.11b_Channel 1_20MHz_Antenna 0



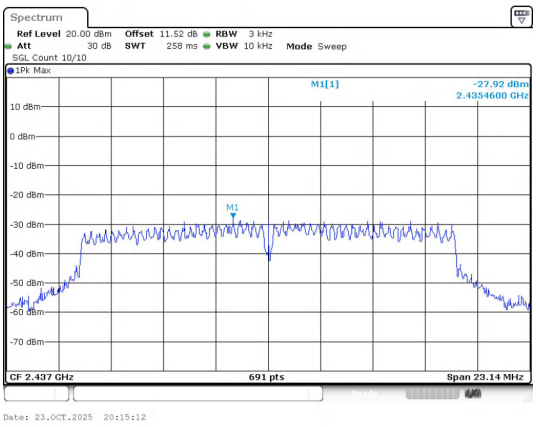
IEEE 802.11b_Channel 6_20MHz_Antenna 0



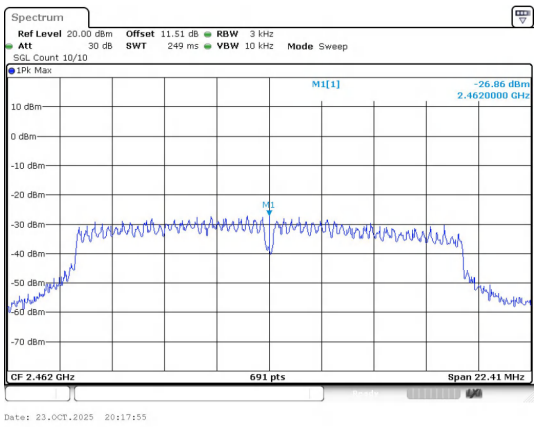
IEEE 802.11b_Channel 11_20MHz_Antenna 0



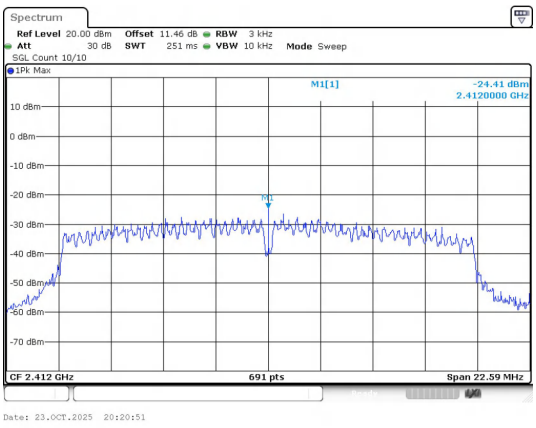
IEEE 802.11g_Channel 1_20MHz_Antenna 0



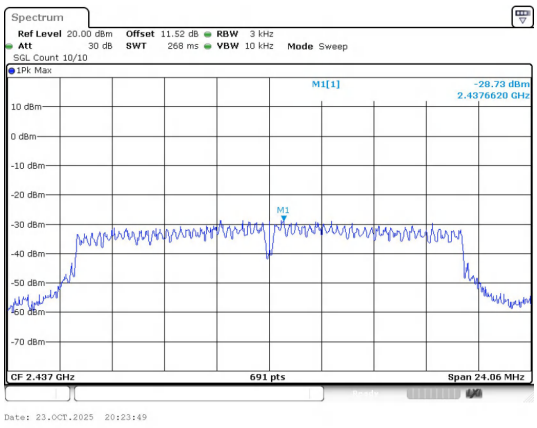
IEEE 802.11g_Channel 6_20MHz_Antenna 0



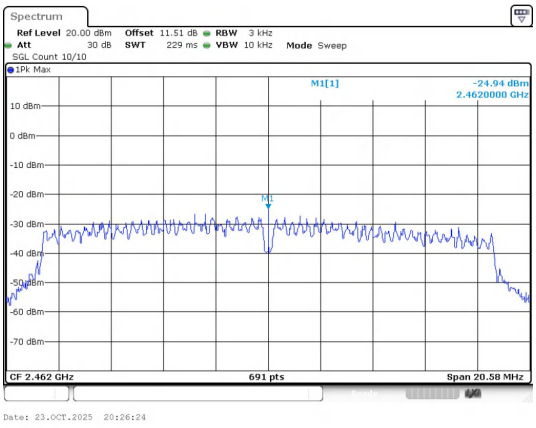
IEEE 802.11g_Channel 11_20MHz_Antenna 0



IEEE 802.11n_Channel 1_20MHz_Antenna 0



IEEE 802.11n_Channel 6_20MHz_Antenna 0



IEEE 802.11n_Channel 11_20MHz_Antenna 0

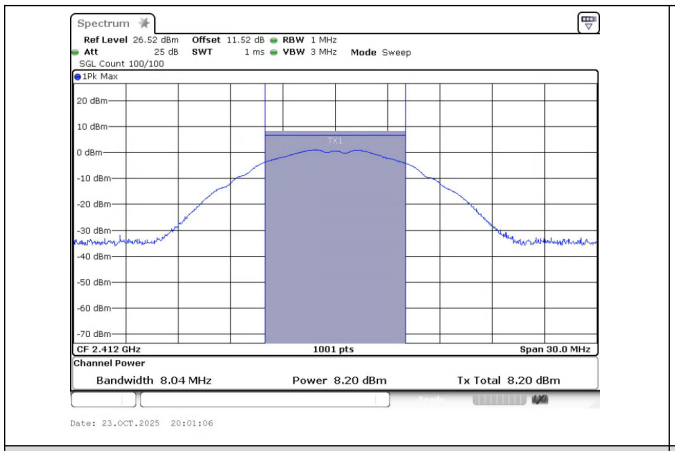
7.3. Conducted Output Power

Test Result

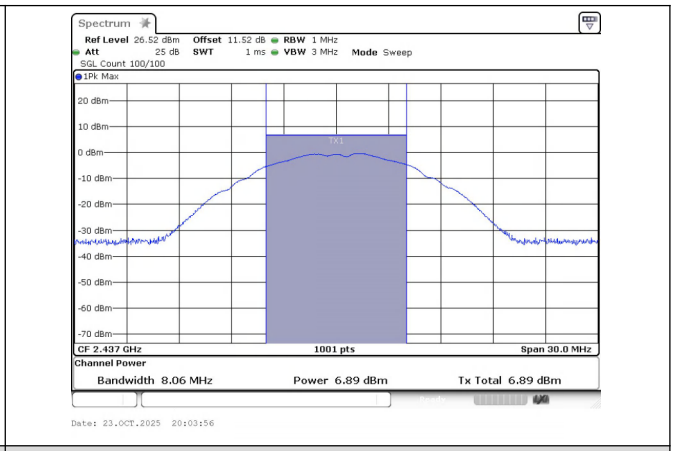
Conducted Output Power

Mode	Channel	Ant. 0 (dBm)	Limit (dBm)	Result
IEEE 802.11b	1	8.20	≤30	PASS
	6	6.89	≤30	PASS
	11	7.62	≤30	PASS
IEEE 802.11g	1	7.01	≤30	PASS
	6	6.48	≤30	PASS
	11	7.29	≤30	PASS
IEEE 802.11n_20	1	6.79	≤30	PASS
	6	6.38	≤30	PASS
	11	6.95	≤30	PASS

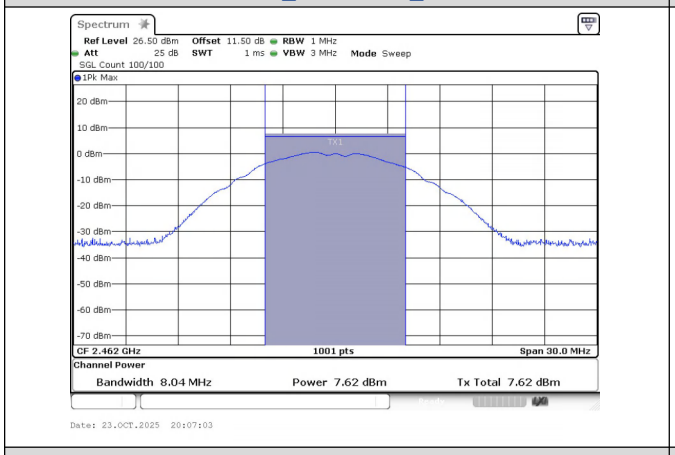
Test Graphs



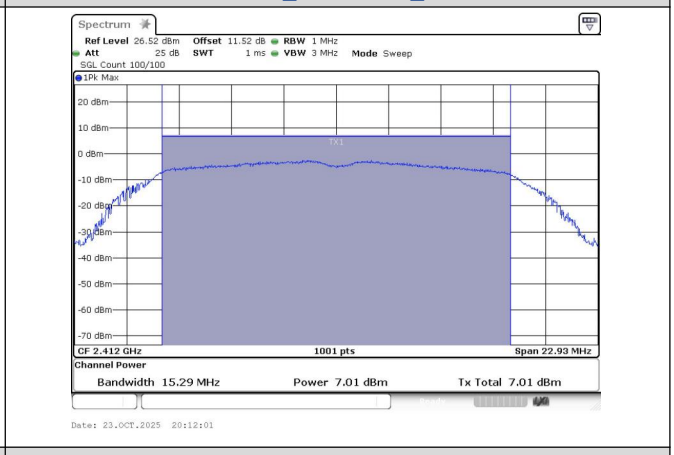
Conducted Output Power
IEEE 802.11b_Channel 1_Antenna 0



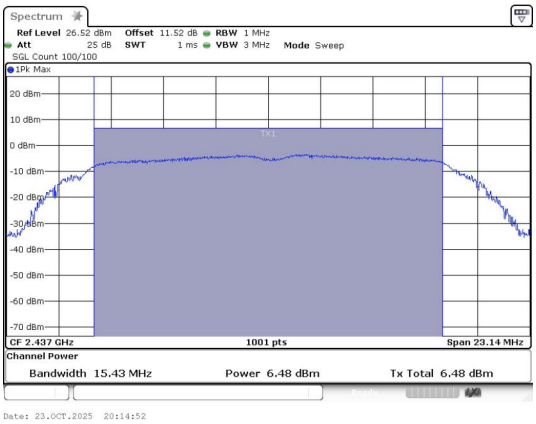
Conducted Output Power
IEEE 802.11b_Channel 6_Antenna 0



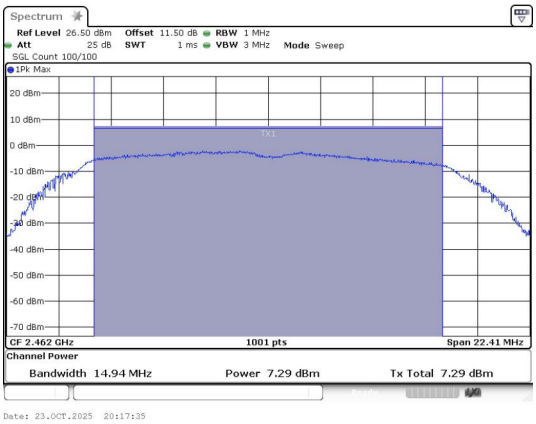
Conducted Output Power
IEEE 802.11b_Channel 11_Antenna 0



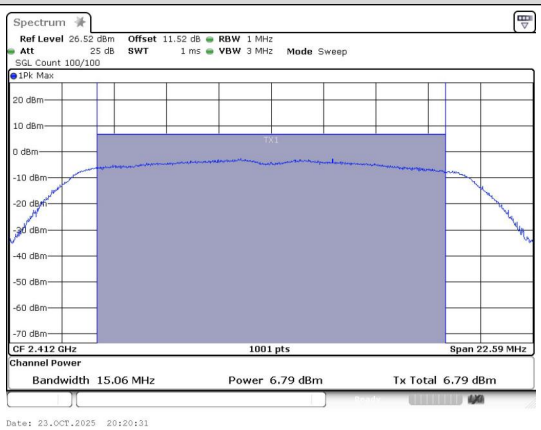
Conducted Output Power
IEEE 802.11g_Channel 1_Antenna 0



Conducted Output Power
IEEE 802.11g_Channel 6_Antenna 0

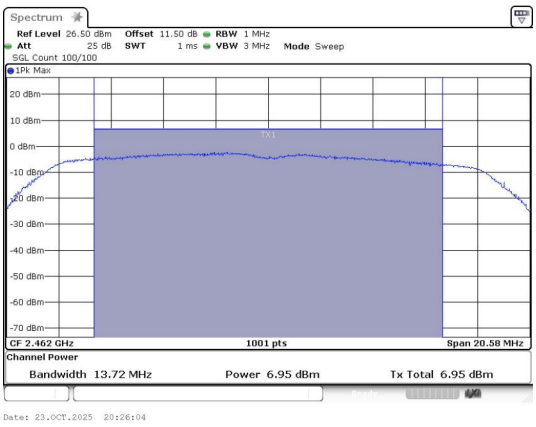


Conducted Output Power
IEEE 802.11g_Channel 11_Antenna 0



Conducted Output Power
IEEE 802.11n_20_Channel 1_Antenna 0

Conducted Output Power
IEEE 802.11n_20_Channel 6_Antenna 0



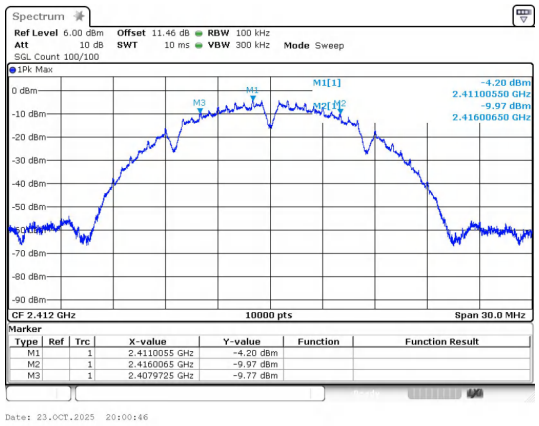
Conducted Output Power
IEEE 802.11n_20_Channel 11_Antenna 0

7.4. 6dB Bandwidth

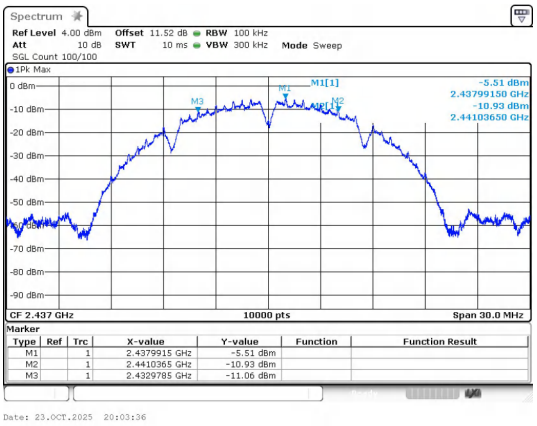
Test Result

Mode	Channel	Ant.	Center Frequency (MHz)	6 dB Bandwidth (MHz)	Limit (MHz)	Result
IEEE 802.11b	1	0	2412	8.040	≥0.5	PASS
	6		2437	8.060		PASS
	11		2462	8.040		PASS
IEEE 802.11g	1		2412	15.29		PASS
	6		2437	15.43		PASS
	11		2462	14.94		PASS
IEEE 802.11n_20	1		2412	15.06		PASS
	6		2437	16.04		PASS
	11		2462	13.72		PASS

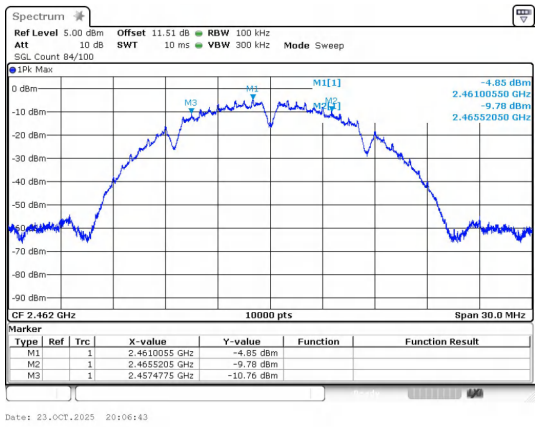
Test Graphs



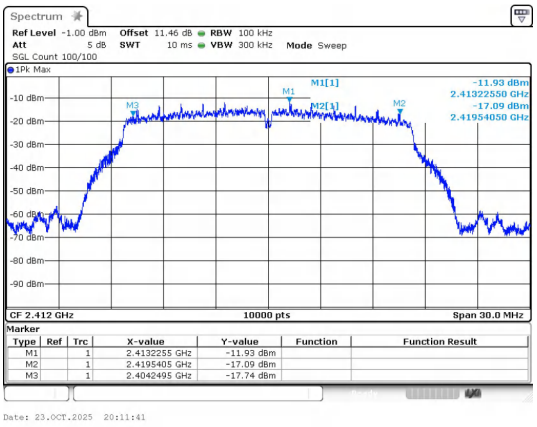
IEEE 802.11b_Channel 1_20MHz_Antenna 0



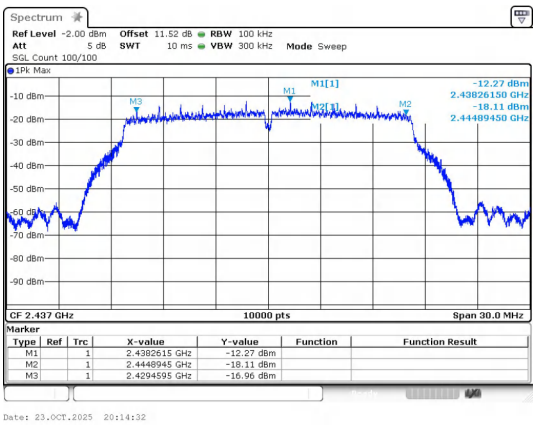
IEEE 802.11b_Channel 6_20MHz_Antenna 0



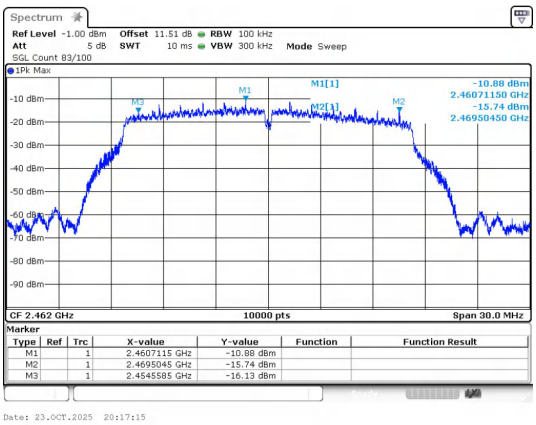
IEEE 802.11b_Channel 11_20MHz_Antenna 0



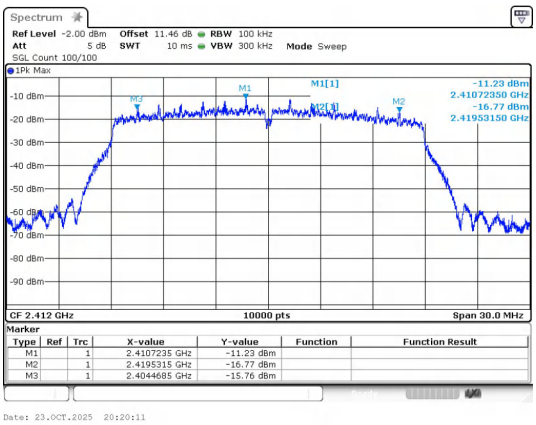
IEEE 802.11g_Channel 1_20MHz_Antenna 0



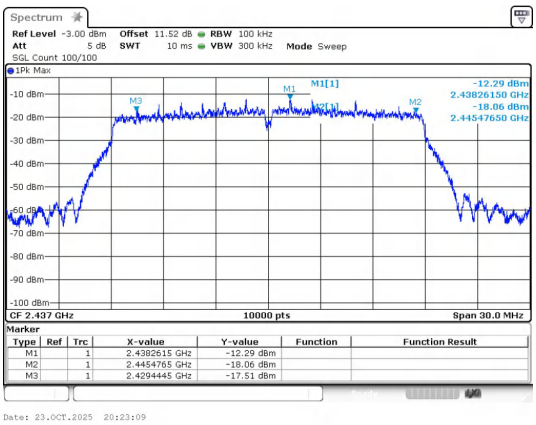
IEEE 802.11g_Channel 6_20MHz_Antenna 0



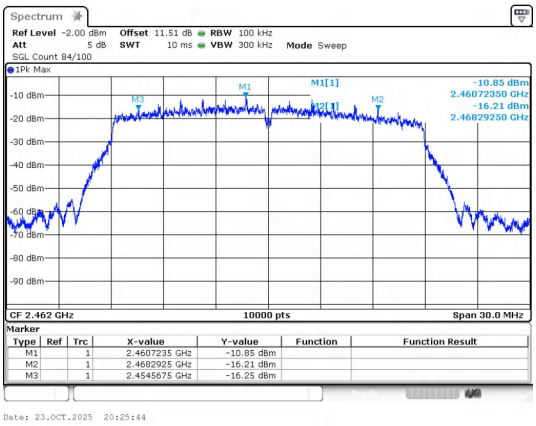
IEEE 802.11g_Channel 11_20MHz_Antenna 0



IEEE 802.11n_Channel 1_20MHz_Antenna 0



IEEE 802.11n_Channel 6_20MHz_Antenna 0



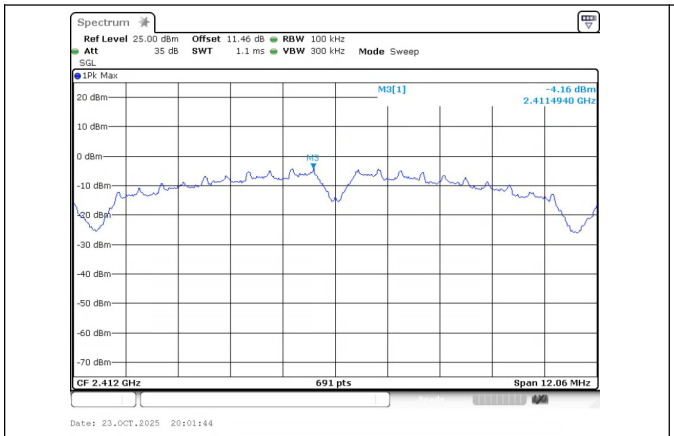
IEEE 802.11n_Channel 11_20MHz_Antenna 0

7.5. Conducted Out Of Band Emission

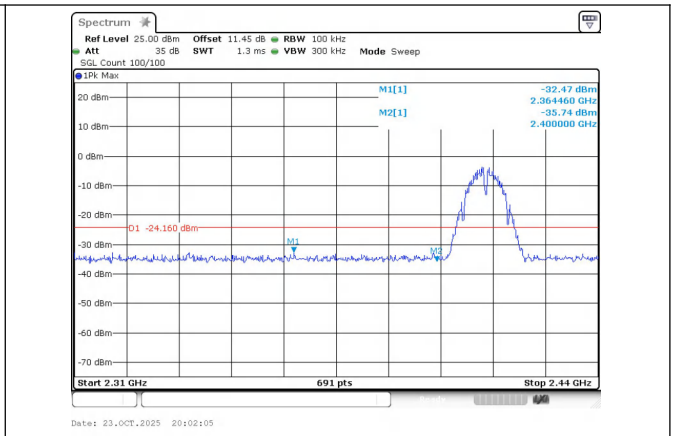
Test Result

Mode	Channel	Ant.	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
IEEE 802.11b	1	0	2364.46	-32.470	-24.16	-8.310	PASS
			2400.00	-35.740	-24.16	-11.580	PASS
			6959.60	-39.310	-24.16	-15.150	PASS
	6		21999.0	-38.029	-25.6	-12.429	PASS
	11		2483.50	-34.520	-24.67	-9.850	PASS
			22001.5	-39.358	-24.67	-14.688	PASS
IEEE 802.11g	1		2322.51	-32.790	-31.85	-0.940	PASS
			2400.00	-34.350	-31.85	-2.500	PASS
			6911.30	-38.662	-31.85	-6.812	PASS
	6		4882.09	-38.995	-32.36	-6.635	PASS
	11		2483.50	-34.020	-31.6	-2.420	PASS
			6953.76	-38.148	-31.6	-6.548	PASS
IEEE 802.11n_20	1		2357.69	-32.328	-31.23	-1.098	PASS
			2400.00	-34.350	-31.23	-3.120	PASS
			6896.30	-39.229	-31.23	-7.999	PASS
	6		6968.75	-38.521	-32.74	-5.781	PASS
	11		2483.50	-34.050	-31.0	-3.050	PASS
			6148.90	-38.966	-31.0	-7.966	PASS

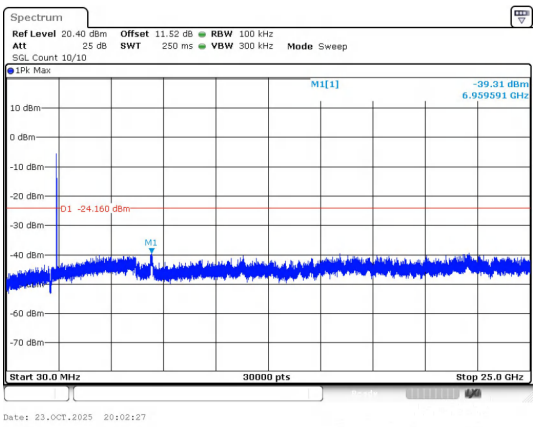
Test Graphs



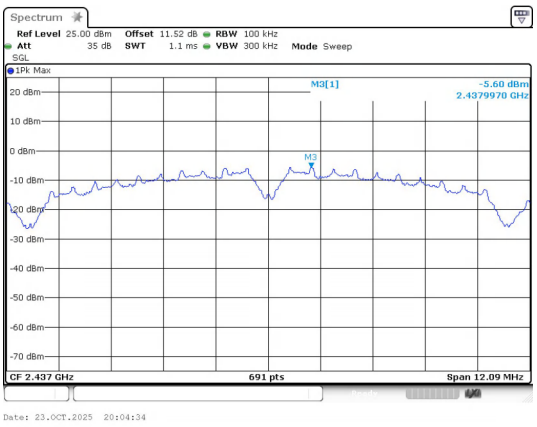
In-Band Reference Level
IEEE 802.11b_Channel 1_20MHz_Antenna 0



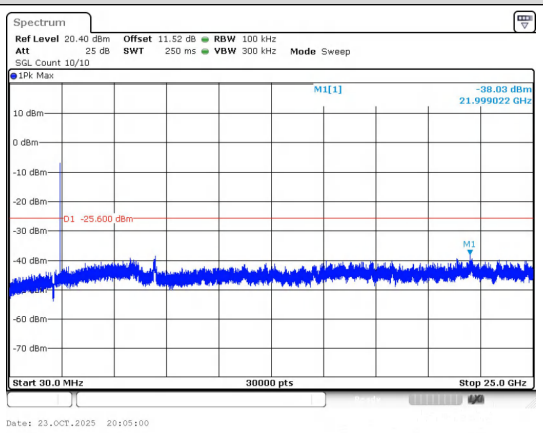
Out Of Band Emission
IEEE 802.11b_Channel 1_20MHz_Antenna 0



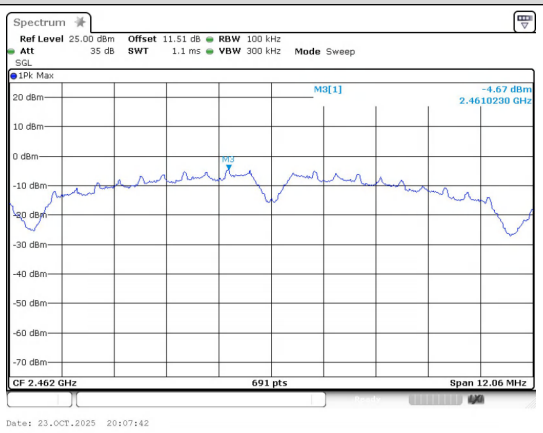
30.0 MHz - 25000.0 MHz
IEEE 802.11b_Channel 1_20MHz_Antenna 0



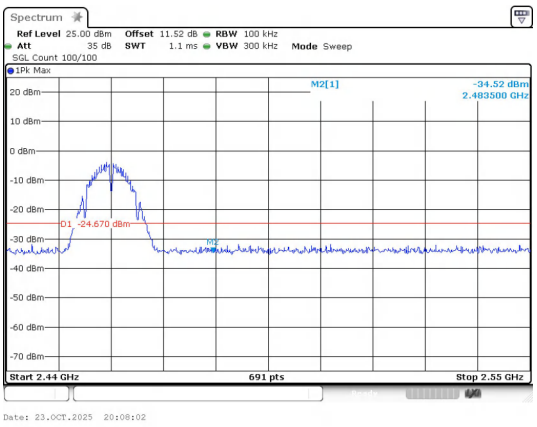
In-Band Reference Level
IEEE 802.11b_Channel 6_20MHz_Antenna 0



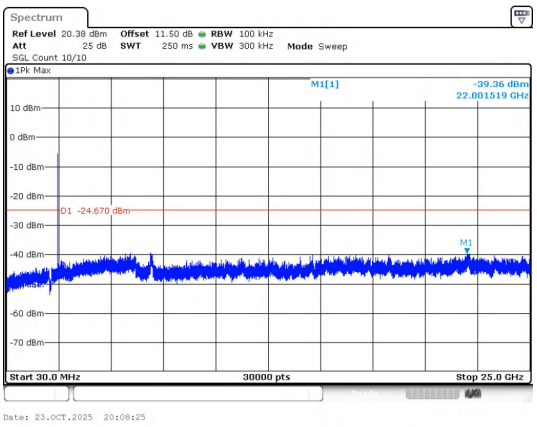
30.0 MHz - 25000.0 MHz
IEEE 802.11b_Channel 6_20MHz_Antenna 0



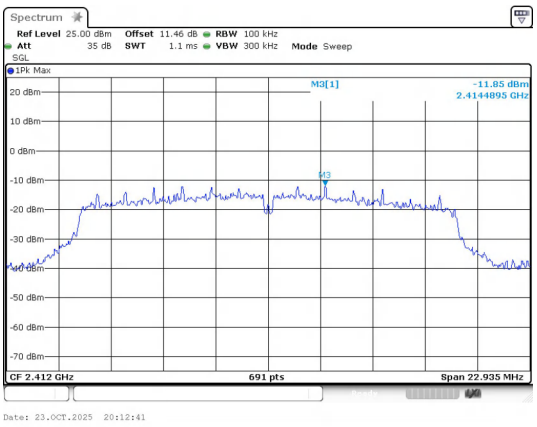
In-Band Reference Level
IEEE 802.11b_Channel 11_20MHz_Antenna 0



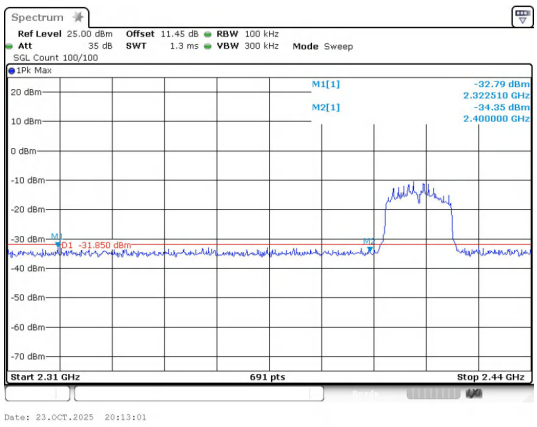
Out Of Band Emission
IEEE 802.11b_Channel 11_20MHz_Antenna 0



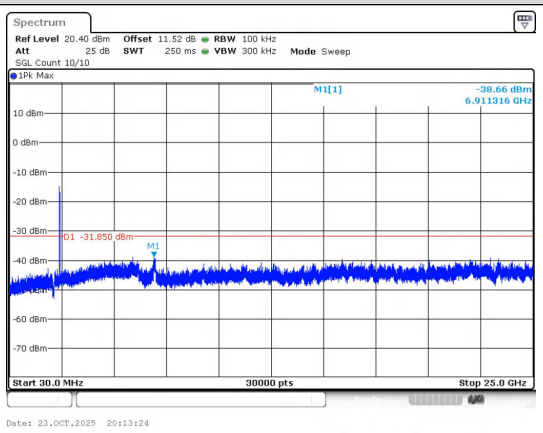
30.0 MHz - 25000.0 MHz
IEEE 802.11b_Channel 11_20MHz_Antenna 0



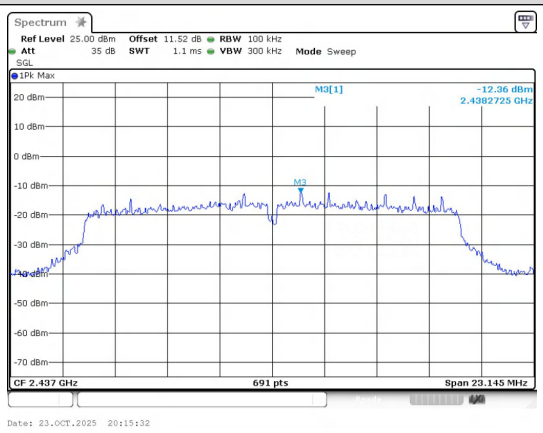
In-Band Reference Level
IEEE 802.11g_Channel 1_20MHz_Antenna 0



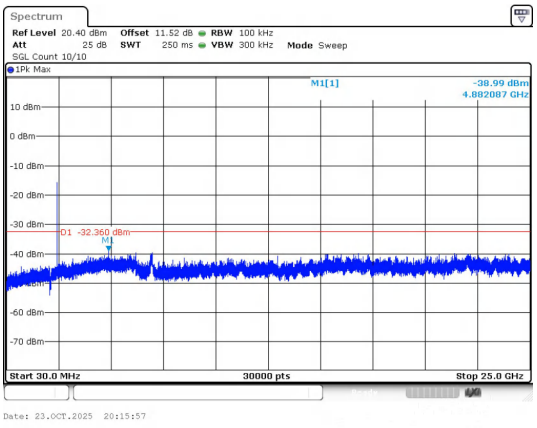
Out Of Band Emission
IEEE 802.11g_Channel 1_20MHz_Antenna 0



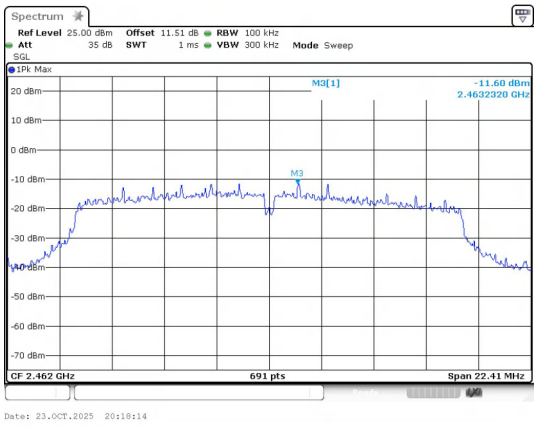
30.0 MHz - 25000.0 MHz
IEEE 802.11g_Channel 1_20MHz_Antenna 0



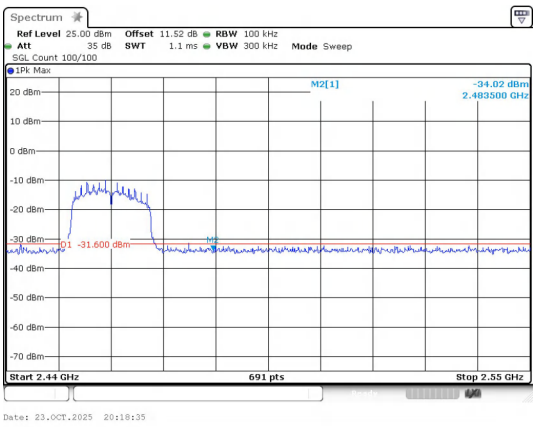
In-Band Reference Level
IEEE 802.11g_Channel 6_20MHz_Antenna 0



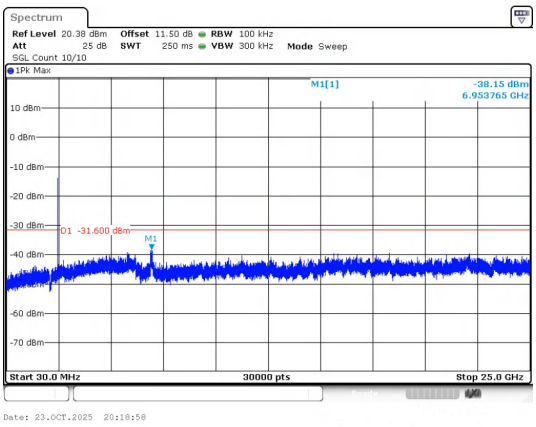
30.0 MHz - 25000.0 MHz
IEEE 802.11g_Channel 6_20MHz_Antenna 0



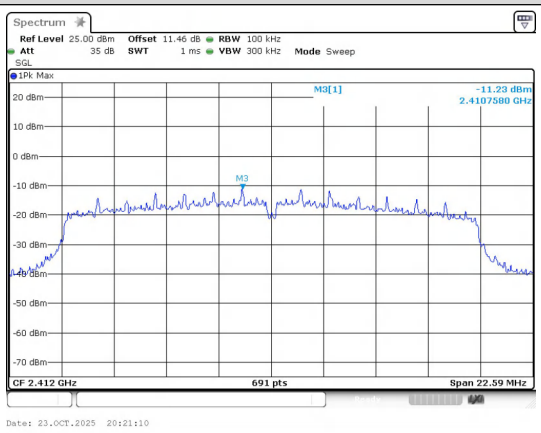
In-Band Reference Level
IEEE 802.11g_Channel 11_20MHz_Antenna 0



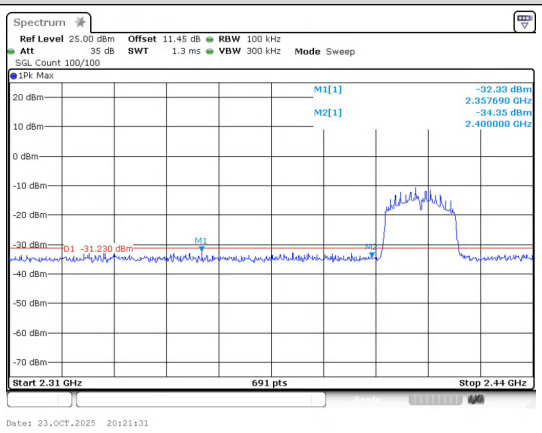
Out Of Band Emission
IEEE 802.11g_Channel 11_20MHz_Antenna 0



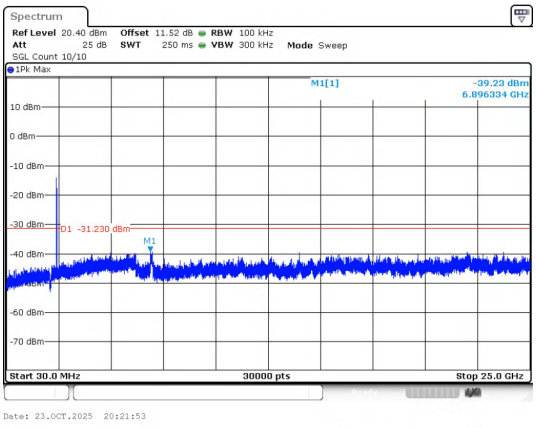
30.0 MHz - 25000.0 MHz
IEEE 802.11g_Channel 11_20MHz_Antenna 0



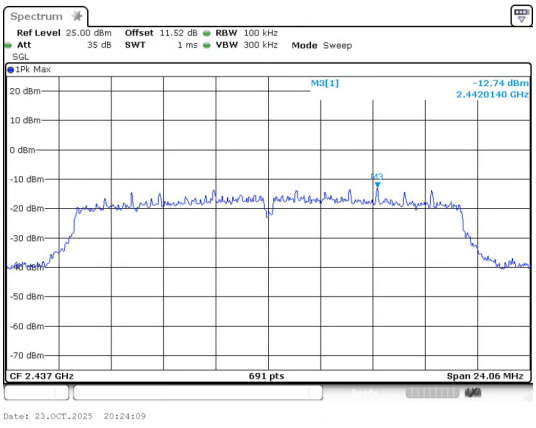
In-Band Reference Level
IEEE 802.11n_Channel 1_20MHz_Antenna 0



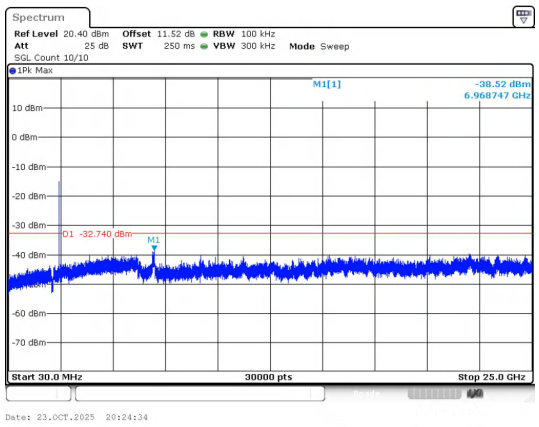
Out Of Band Emission
IEEE 802.11n_Channel 1_20MHz_Antenna 0



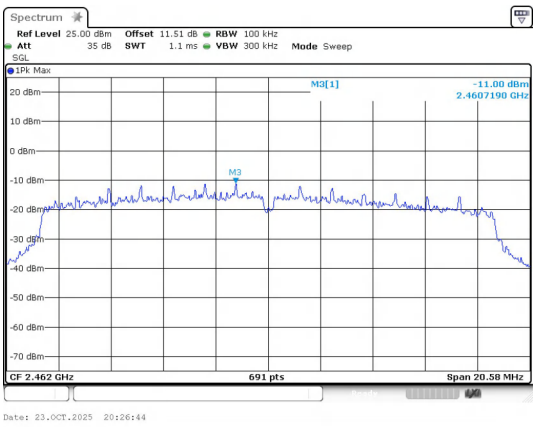
30.0 MHz - 25000.0 MHz
IEEE 802.11n_Channel 1_20MHz_Antenna 0



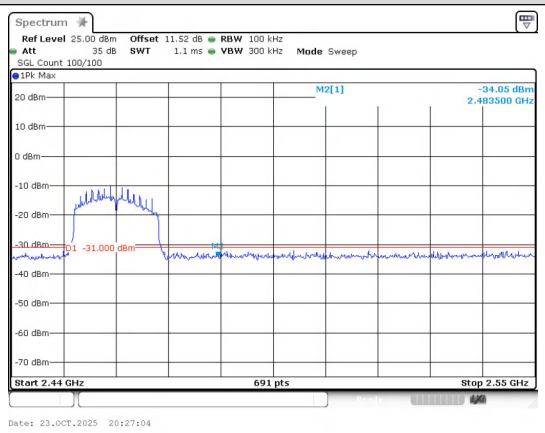
In-Band Reference Level
IEEE 802.11n_Channel 6_20MHz_Antenna 0



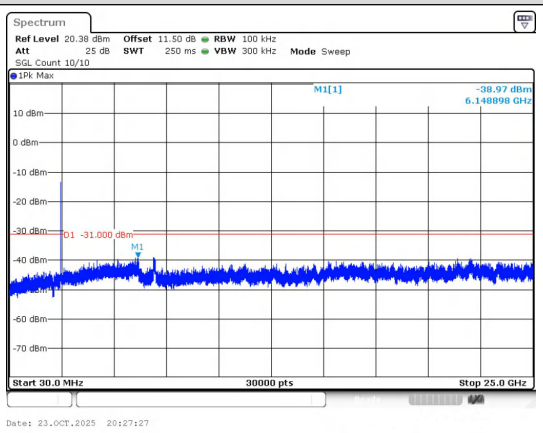
30.0 MHz - 25000.0 MHz
IEEE 802.11n_Channel 6_20MHz_Antenna 0



In-Band Reference Level
IEEE 802.11n_Channel 11_20MHz_Antenna 0



Out Of Band Emission
IEEE 802.11n_Channel 11_20MHz_Antenna 0



30.0 MHz - 25000.0 MHz
IEEE 802.11n_Channel 11_20MHz_Antenna 0

------End of the report-----