

TEST REPORT

Report No.	CISRR250922202
Project No.	CISR250922202
FCC ID	2BON2-Q7D
Applicant	Shenzhen Hechuangweishi Technology Co., LTD.
Address	No.203 Building A, No.54-6 Guanlan Road, Xinxhe Community Fucheng Street Longhua District, Shenzhen City,China
Manufacturer	Shenzhen Hechuangweishi Technology Co., LTD.
Address	No.203 Building A, No.54-6 Guanlan Road, Xinxhe Community Fucheng Street Longhua District, Shenzhen City,China
Product Name	Smart Camera Clock
Trademark	-
Model/Type reference	Q7D
Listed Model(s)	Q7
Standard	47 CFR Part 15.247
Test date	September 25, 2025 to September 27, 2025
Issue date	September 28, 2025
Test result	Complied

Lucas Huang

Prepared by: Lucas Huang



The test results relate only to the tested samples.

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1. REPORT VERSION

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

2. 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.

3. SUMMARY

3.1. Product Description *

Main unit information:	
Product Name:	Smart Camera Clock
Trade Mark:	-
Model No.:	Q7D
Listed Model(s):	Q7
Model difference:	The model of the series is the same product, named differently because of different sales regions
Power supply:	DC 5V
Hardware version:	-
Software version:	-
Accessory unit (AU) information:	
Battery information:	DC 3.7V

3.2. 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:	3.26dBi

Note:

- 1) *: Since the above information is provided by the applicant relevant results or conclusions of this report are only made for these information, Bangce is not responsible for the authenticity, integrity and results of the information and/or the validity of the conclusion.
- 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	/	/

3.3. Modification of EUT

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

3.4. Deviation from standards

None

3.5. 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

4. TEST CONFIGURATION

4.1. Test frequency list

4.2. 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 mode status

4.3. 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

4.4. Test sample information

Type	Sample No.
Engineer sample	CISRR250922202-S01
Normal sample	CISRR250922202-S02

4.5. Environmental conditions

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

4.6. 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
6	Radiated Band Edge Emission	3.76dB for 30MHz-1GHz 3.80dB for above 1GHz
7	Radiated Spurious Emission	3.76dB for 30MHz-1GHz 3.80dB for above 1GHz

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

4.7. 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*3m	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	MXG RF Signal Generator	Agilent	N5181A	MY50145362	2025-01-08	2026-01-07
2	Spectrum analyzer	R&S	FSV-40N	102130	2025-01-08	2026-01-07
3	Vector Signal Generator	Agilent	N5182A	MY50142364	2025-01-08	2026-01-07
4	Power Meter	WCS	WCS-PM	WCSPM23040 5A	2025-01-08	2026-01-07

Emissions in frequency bands (below 1GHz) Emissions in frequency bands (above 1GHz) Band edge emissions (Radiated)						
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	NSLK812 7	/	2025-01-08	2026-01-07
11	L.I.S.N.#2	ROHDE&SCHWA RZ	ENV216	/	2025-01-08	2026-01-07
12	Horn Antenna	SCHWARZBECK	BBHA917 0	1130	2023-01-09	2026-01-08
13	Preamplifier	Tonscend	TAP1804 0048	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	AT202104010 1-V1	2025-01-08	2026-01-07

5. TEST RESULTS

5.1. Evaluation Results (Evaluation)

5.1.1. 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.
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5.1.1.1. Test Result

Pass

5.1.1.2. Conclusion:

The EUT antenna is FPC antenna(3.26dBi), the directional gain of the antenna less than 6dBi. 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.
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5.2. Radio Spectrum Matter Test Results (RF)

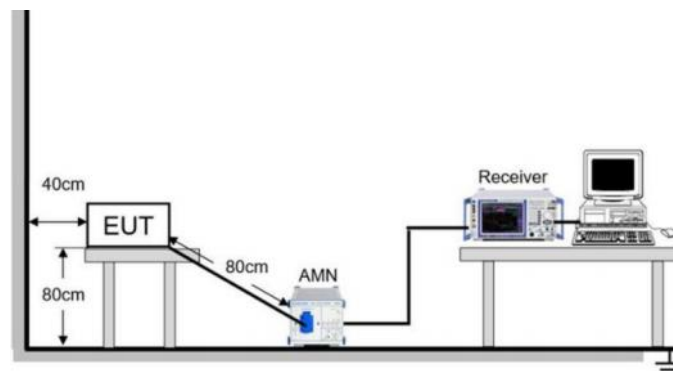
5.2.1. Conducted Emission at AC power line

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 μ H/50 ohms line impedance stabilization network (LISN).		
Test Limit:	Frequency of emission (MHz)	Conducted limit (dB μ V)	
		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.		

5.2.1.1. E.U.T. Operation

Operating Environment:					
Temperature:	23.4 °C	Humidity:	55.4 %	Atmospheric Pressure:	102.1 kPa
Pre test mode:	TM5				
Final test mode:	TM5				

5.2.1.2. Test Setup Diagram

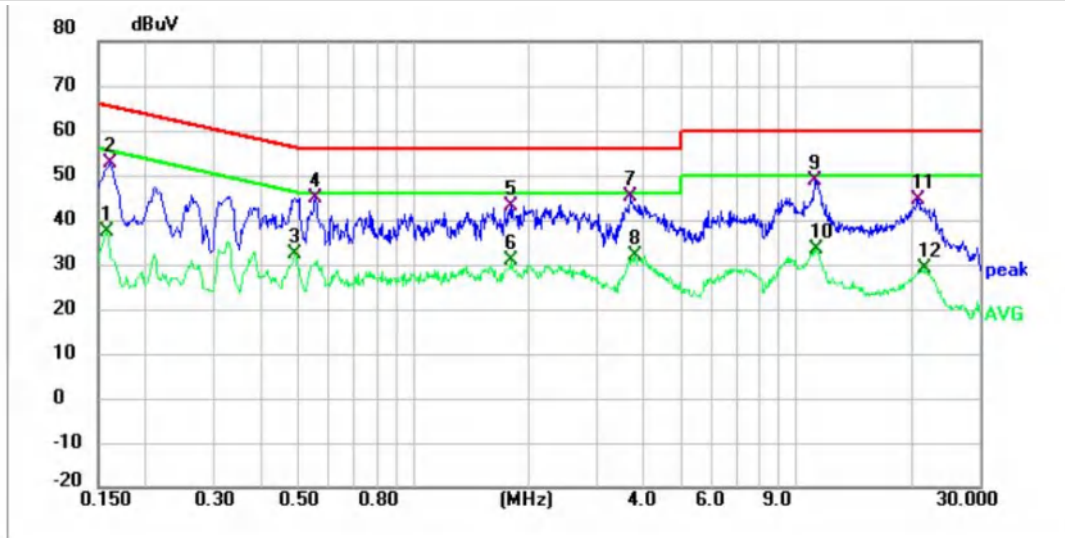


5.2.1.3. Test Result

Pass

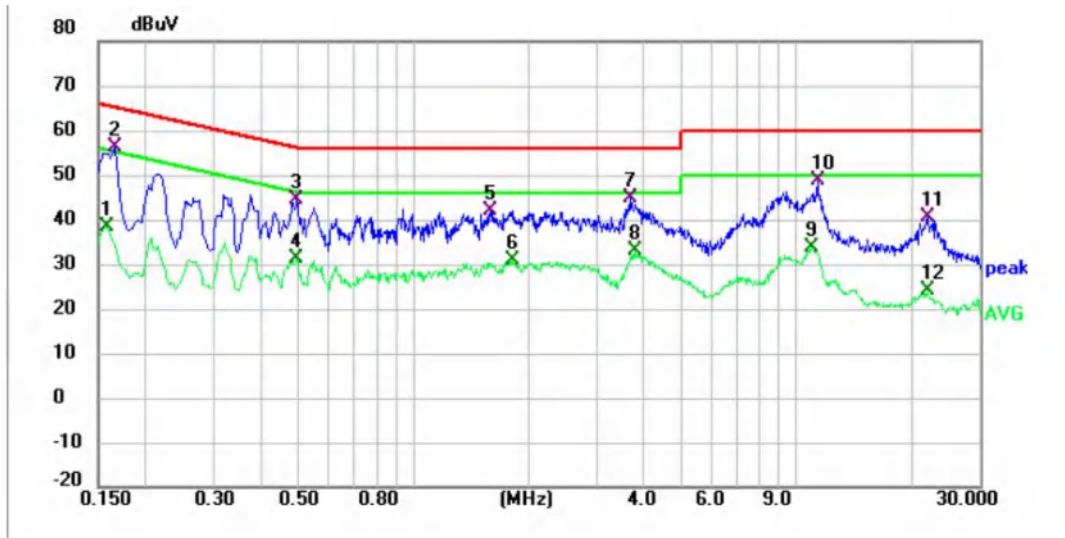
5.2.1.4. Test Data

TM5 / Line: Line



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1580	27.02	10.20	37.22	55.57	18.35	AVG
2	0.1620	42.64	10.19	52.83	65.36	12.53	QP
3	0.4900	22.08	10.16	32.24	46.17	13.93	AVG
4	0.5540	34.83	10.17	45.00	56.00	11.00	QP
5	1.8020	32.63	10.25	42.88	56.00	13.12	QP
6	1.8020	20.52	10.25	30.77	46.00	15.23	AVG
7 *	3.6740	35.02	10.33	45.35	56.00	10.65	QP
8	3.7900	21.47	10.34	31.81	46.00	14.19	AVG
9	11.1940	38.42	10.43	48.85	60.00	11.15	QP
10	11.2580	23.08	10.43	33.51	50.00	16.49	AVG
11	20.8620	33.42	10.97	44.39	60.00	15.61	QP
12	21.7139	18.18	10.99	29.17	50.00	20.83	AVG

TM5 / Line: Neutral



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1580	28.14	10.16	38.30	55.57	17.27	AVG
2 *	0.1660	46.23	10.15	56.38	65.16	8.78	QP
3	0.4940	34.21	10.12	44.33	56.10	11.77	QP
4	0.4940	21.25	10.12	31.37	46.10	14.73	AVG
5	1.5859	31.92	10.20	42.12	56.00	13.88	QP
6	1.8220	20.54	10.22	30.76	46.00	15.24	AVG
7	3.6780	34.43	10.32	44.75	56.00	11.25	QP
8	3.8100	22.80	10.32	33.12	46.00	12.88	AVG
9	10.9100	23.42	10.40	33.82	50.00	16.18	AVG
10	11.3180	38.19	10.41	48.60	60.00	11.40	QP
11	21.9580	29.47	10.97	40.44	60.00	19.56	QP
12	21.9580	13.01	10.97	23.98	50.00	26.02	AVG

Note:

1>. Level = Reading +Factor (Voltage Division Coefficient + Cable Loss + Attenuator Factor)

2>. Margin = Limit - Level

5.2.2. 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 $\geq [3 \times \text{RBW}]$. 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 $\geq 3 \times \text{RBW}$, 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.

5.2.2.1. E.U.T. Operation

Operating Environment:					
Temperature:	22 °C	Humidity:	55.3 %	Atmospheric Pressure:	103 kPa
Pre test mode:	TM1, TM2, TM3				
Final test mode:	TM1, TM2, TM3				

5.2.2.2. Test Setup Diagram



5.2.2.3. Test Result

Pass

5.2.2.4. Test Data

Please Refer to Appendix for Details.

5.2.3. 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

5.2.3.1. E.U.T. Operation

Operating Environment:					
Temperature:	23 °C	Humidity:	55.1 %	Atmospheric Pressure:	103 kPa
Pre test mode:	TM1, TM2, TM3				
Final test mode:	TM1, TM2, TM3				

5.2.3.2. Test Setup Diagram



5.2.3.3. Test Result

Pass

5.2.3.4. Test Data

Please Refer to Appendix for Details.

5.2.4. 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

5.2.4.1. E.U.T. Operation

Operating Environment:					
Temperature:	22.7 °C	Humidity:	56.3 %	Atmospheric Pressure:	103 kPa
Pre test mode:	TM1, TM2, TM3				
Final test mode:	TM1, TM2, TM3				

5.2.4.2. Test Setup Diagram



5.2.4.3. Test Result

Pass

5.2.4.4. Test Data

Please Refer to Appendix for Details.

5.2.5. 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

5.2.5.1. E.U.T. Operation

Operating Environment:					
Temperature:	22.2 °C	Humidity:	55.1 %	Atmospheric Pressure:	103 kPa
Pre test mode:	TM1, TM2, TM3				
Final test mode:	TM1, TM2, TM3				

5.2.5.2. Test Setup Diagram



5.2.5.3. Test Result

Pass

5.2.5.4. Test Data

Please Refer to Appendix for Details.

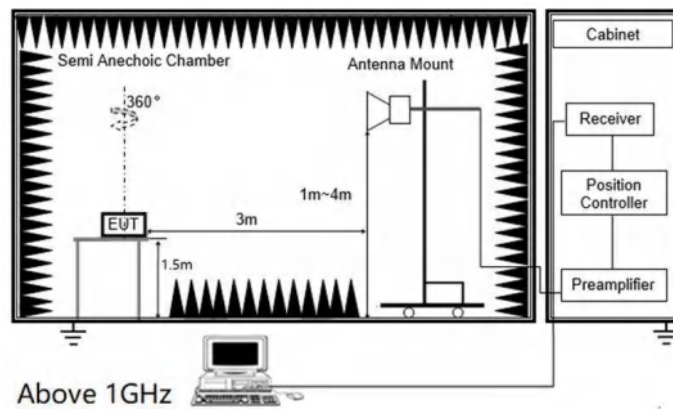
5.2.6. Radiated band edge emission

Test Requirement:	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)).`		
Test Limit:	Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
	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
** 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.			
Test Method:	ANSI C63.10-2020 section 6.10		
Procedure:	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. This is 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		

5.2.6.1. E.U.T. Operation

Operating Environment:					
Temperature:	21.3 °C	Humidity:	72.7 %	Atmospheric Pressure:	102.1 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				

5.2.6.2. Test Setup Diagram

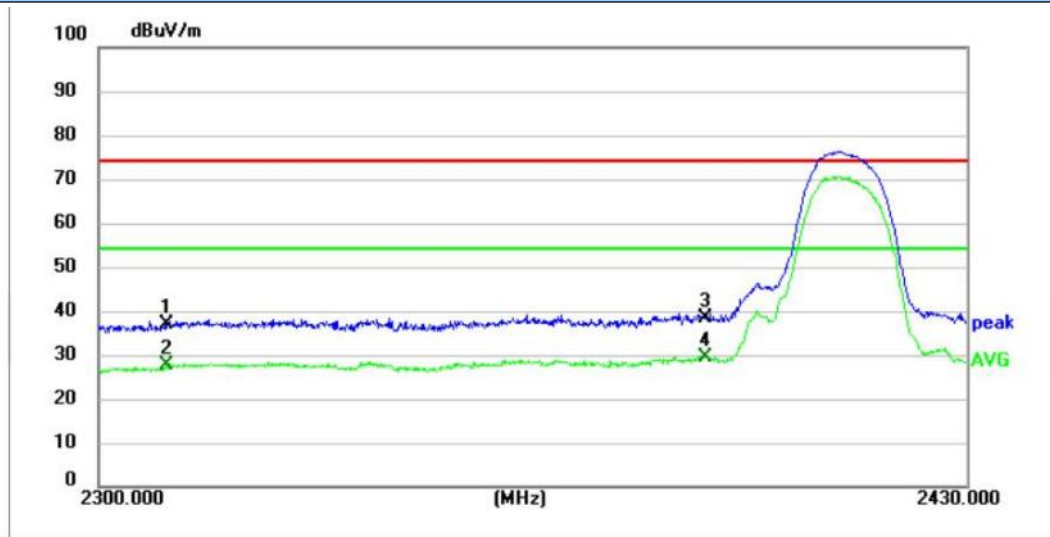


5.2.6.3. Test Result

Pass

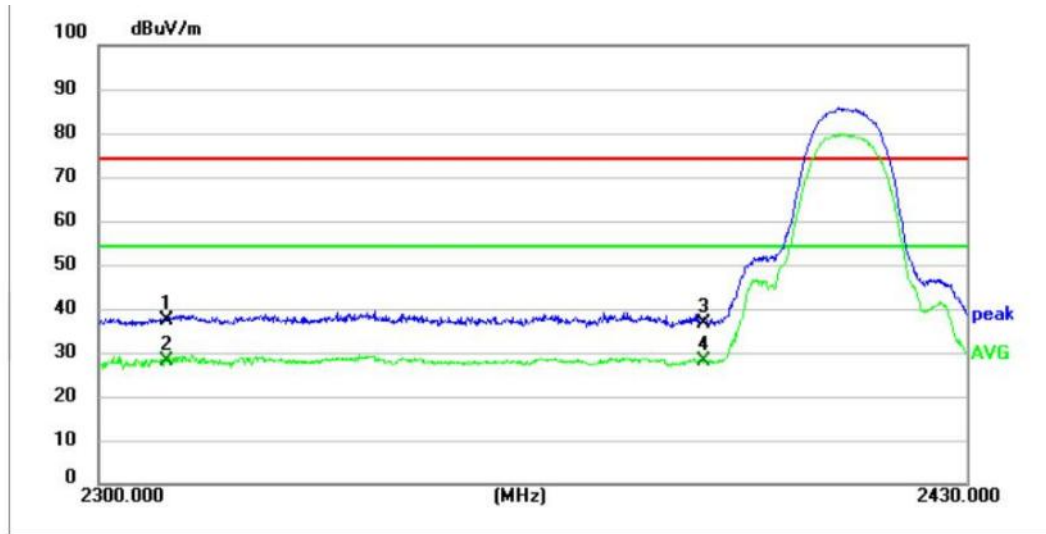
5.2.6.4. Test Data

TM1 / Polarization: Horizontal / CH: L



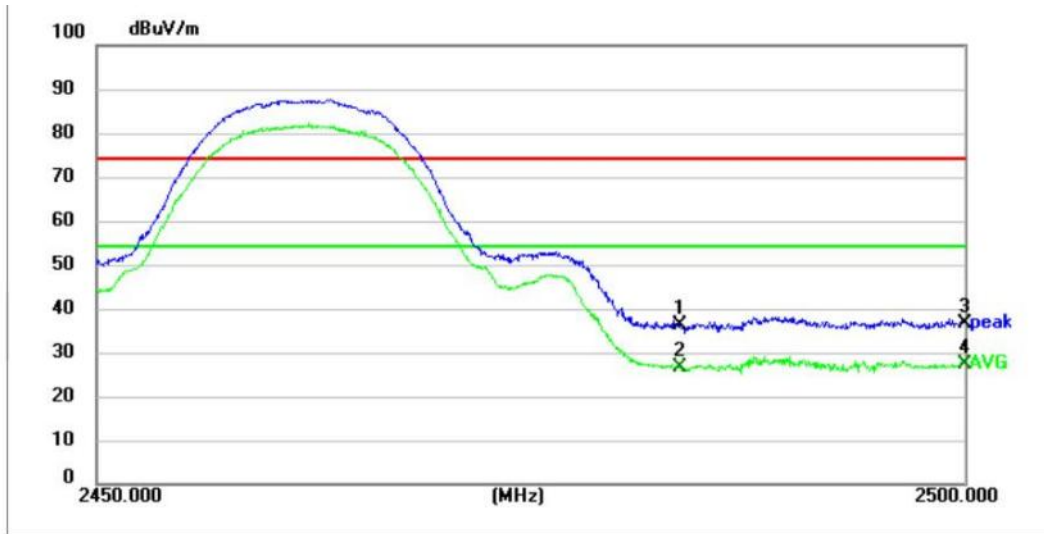
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2310.0000	54.40	-17.52	36.88	74.00	37.12	peak
2	2310.0000	45.14	-17.52	27.62	54.00	26.38	AVG
3	2390.0000	55.72	-17.32	38.40	74.00	35.60	peak
4 *	2390.0000	46.73	-17.32	29.41	54.00	24.59	AVG

TM1 / Polarization: Vertical / CH: L



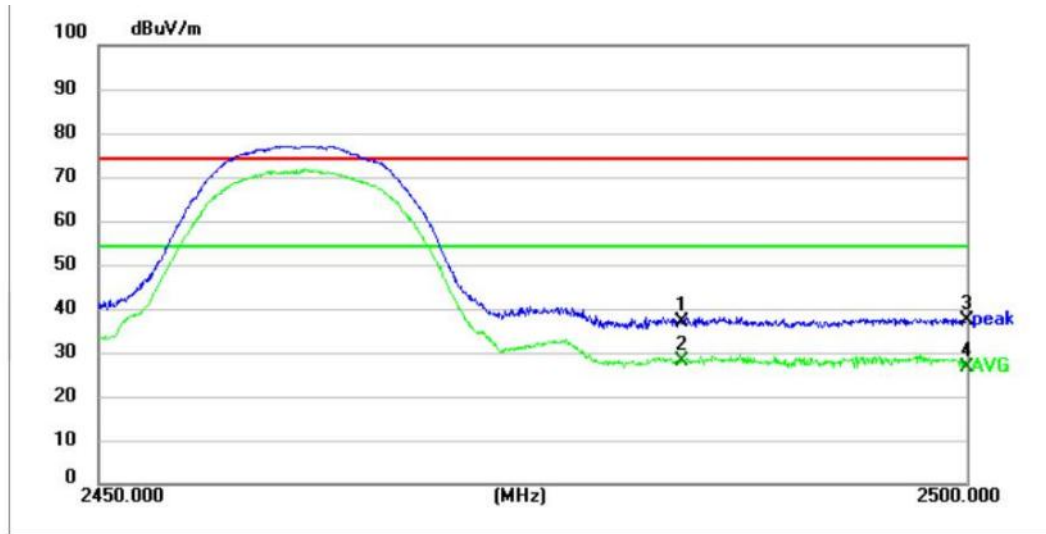
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2310.0000	54.81	-17.52	37.29	74.00	36.71	peak
2 *	2310.0000	45.73	-17.52	28.21	54.00	25.79	AVG
3	2390.0000	53.99	-17.32	36.67	74.00	37.33	peak
4	2390.0000	45.29	-17.32	27.97	54.00	26.03	AVG

TM1 / Polarization: Horizontal / CH: H



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2483.5000	53.23	-17.03	36.20	74.00	37.80	peak
2	2483.5000	43.81	-17.03	26.78	54.00	27.22	AVG
3	2500.0000	53.40	-16.94	36.46	74.00	37.54	peak
4 *	2500.0000	44.18	-16.94	27.24	54.00	26.76	AVG

TM1 / Polarization: Vertical / 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	54.34	-16.94	37.40	74.00	36.60	peak
4	2500.0000	43.54	-16.94	26.60	54.00	27.40	AVG

Note:

- 1) Level= Reading + Factor; Factor =Antenna Factor+ Cable Loss- Preamp Factor
- 2) Margin = Limit - Level

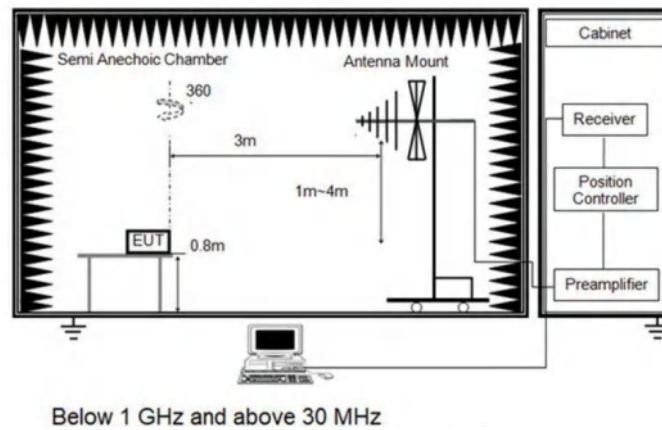
5.2.7. Radiated Spurious Emission (below 1GHz)

Test Requirement:	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)).`		
Test Limit:	Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
	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
** 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.			
Test Method:	ANSI C63.10-2020 section 6.6.4		
Procedure:	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.		

5.2.7.1. E.U.T. Operation

Operating Environment:					
Temperature:	21.3 °C	Humidity:	72.7 %	Atmospheric Pressure:	102.1 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				

5.2.7.2. Test Setup Diagram



5.2.7.3. Test Result

Pass

5.2.7.4. Test Data

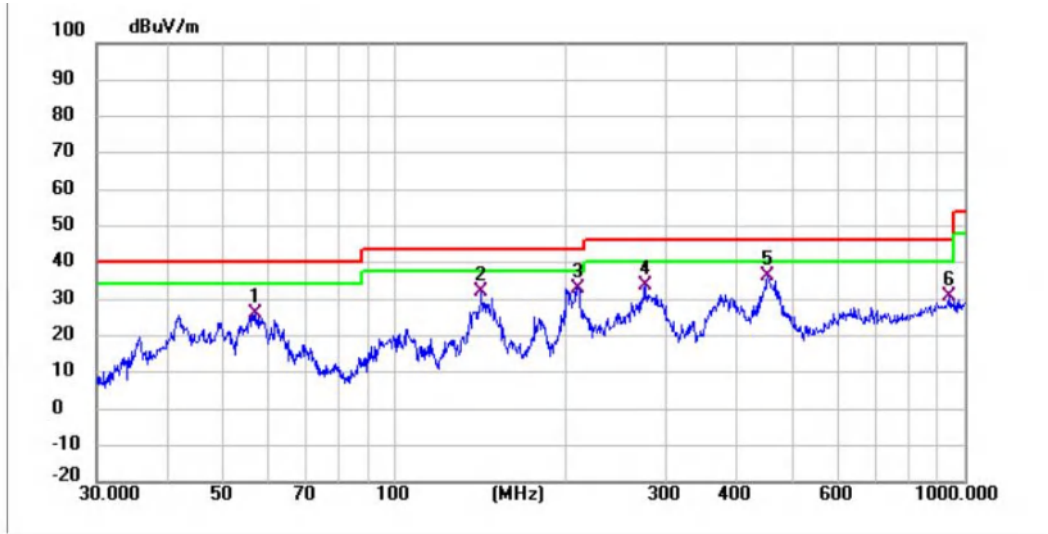
For 30 MHz ~ 1000 MHz

TM1 / Polarization: Horizontal / CH: L



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	51.4806	54.40	-29.41	24.99	40.00	15.01	QP
2	134.0880	57.40	-33.43	23.97	43.50	19.53	QP
3 *	171.9944	60.08	-31.19	28.89	43.50	14.61	QP
4	275.1570	57.04	-26.96	30.08	46.00	15.92	QP
5	362.9843	53.22	-24.40	28.82	46.00	17.18	QP
6	684.7453	44.45	-16.52	27.93	46.00	18.07	QP

TM1 / Polarization: Vertical / CH: L



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	57.1914	56.56	-30.39	26.17	40.00	13.83	QP
2	142.3240	65.28	-33.39	31.89	43.50	11.61	QP
3	210.0481	61.72	-28.66	33.06	43.50	10.44	QP
4	275.1570	60.54	-26.96	33.58	46.00	12.42	QP
5 *	451.1350	58.70	-22.35	36.35	46.00	9.65	QP
6	938.8324	44.88	-14.05	30.83	46.00	15.17	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- Preamplifier Factor)

3>. Margin = Limit – Level

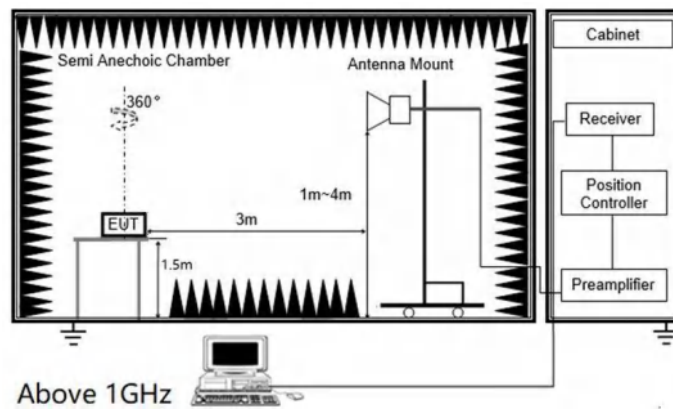
5.2.8. Radiated Spurious Emission (Above 1GHz)

Test Requirement:	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)).`		
Test Limit:	Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
	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
** 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.			
Test Method:	ANSI C63.10-2020 section 6.6.4		
Procedure:	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		

5.2.8.1. E.U.T. Operation

Operating Environment:					
Temperature:	21.3 °C	Humidity:	72.7 %	Atmospheric Pressure:	102.1 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				

5.2.8.2. Test Setup Diagram



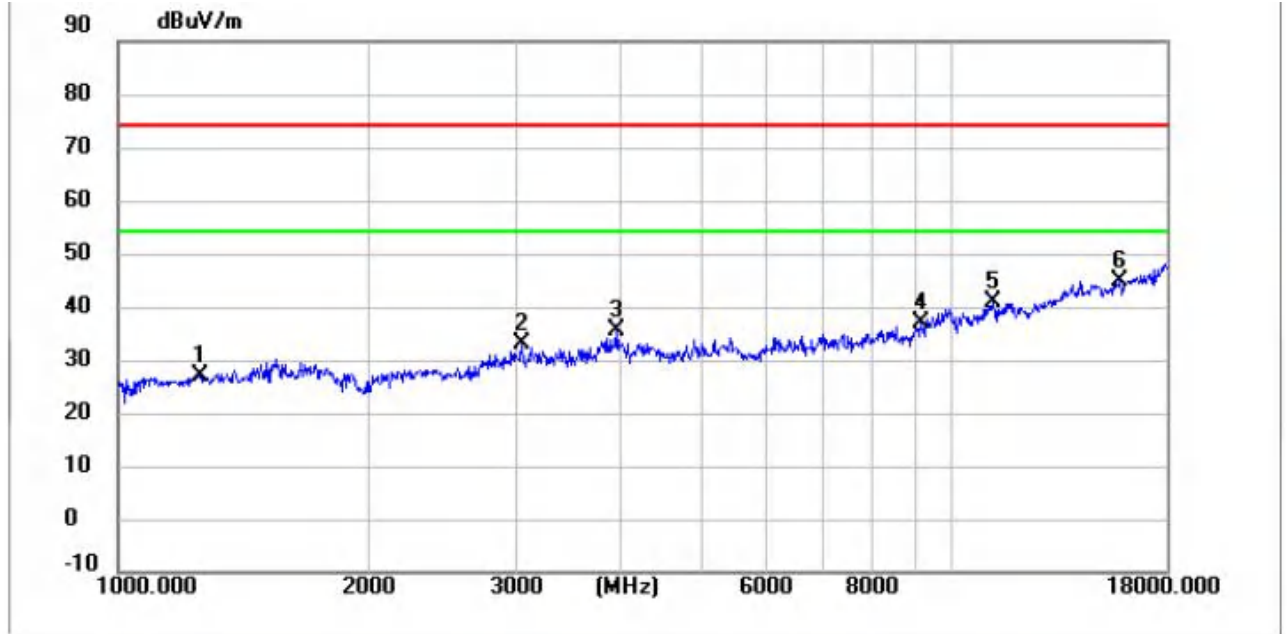
5.2.8.3. Test Result

Pass

5.2.8.4. Test Data

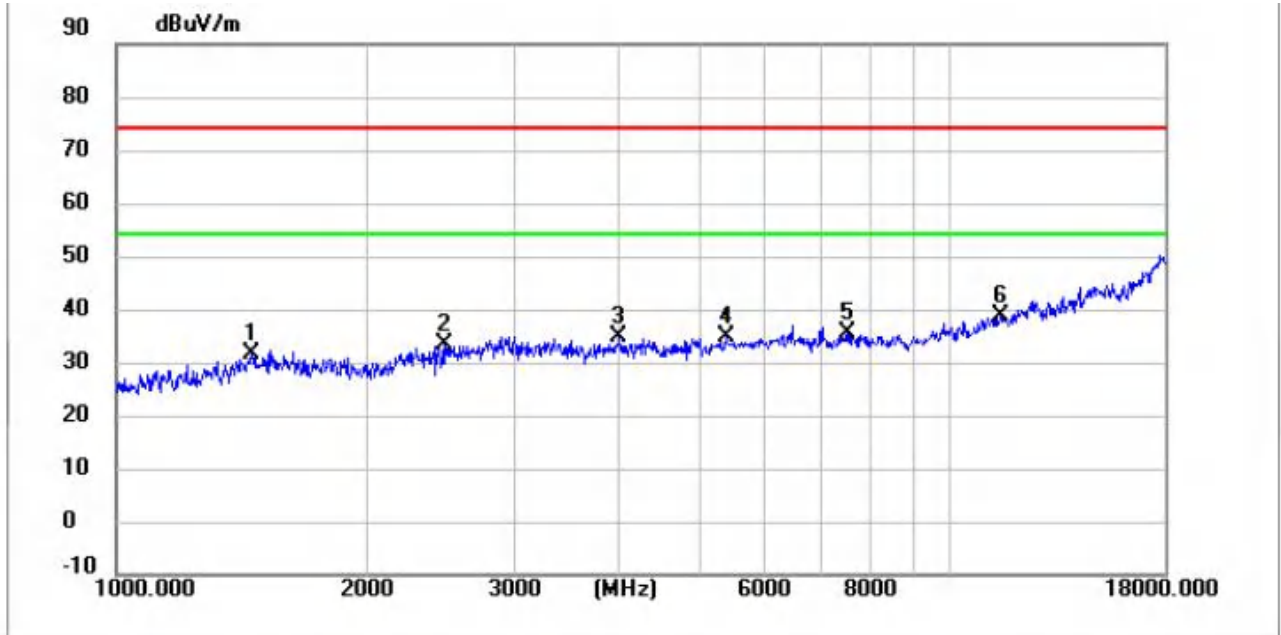
For 1 GHz ~ 25 GHz

TM1 / Polarization: Horizontal / CH: L



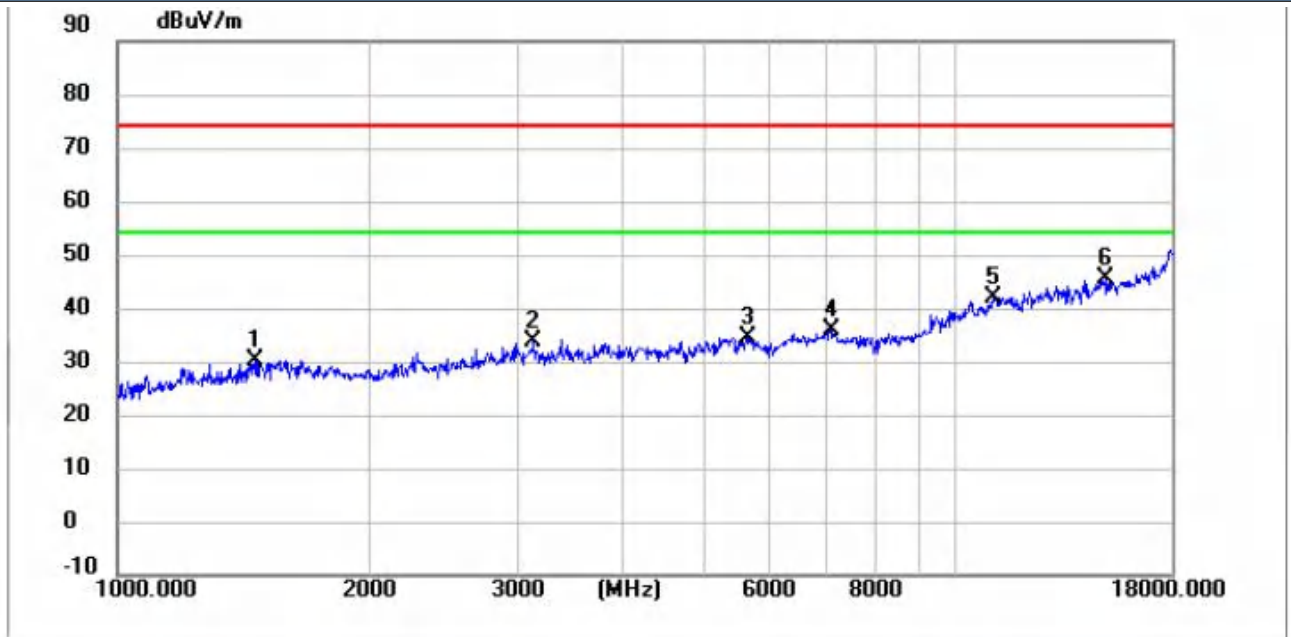
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1260.1000	48.38	-21.35	27.03	74.00	46.97	peak
2	3043.4000	47.56	-14.53	33.03	74.00	40.97	peak
3	3961.4000	48.05	-12.39	35.66	74.00	38.34	peak
4	9165.1000	28.08	8.84	36.92	74.00	37.08	peak
5	11169.4000	27.42	13.61	41.03	74.00	32.97	peak
6 *	15883.5000	28.31	16.45	44.76	74.00	29.24	peak

TM1 / Polarization: Vertical / CH: L



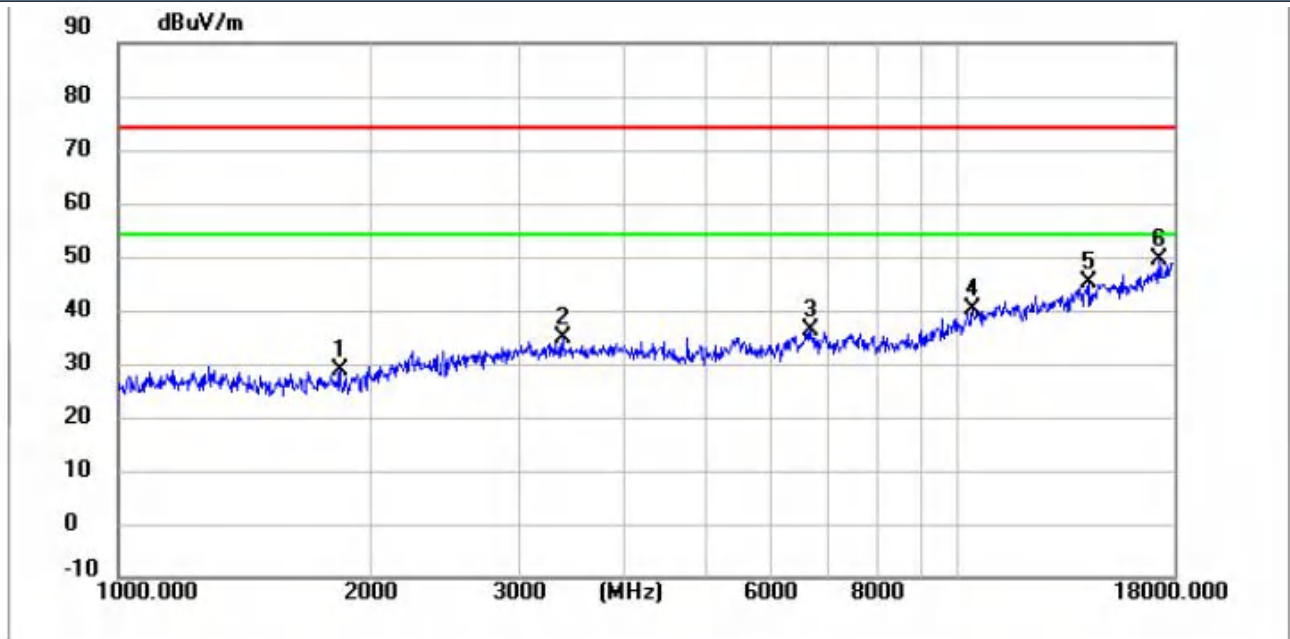
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1455.6000	52.40	-20.81	31.59	74.00	42.41	peak
2	2473.9000	50.49	-17.08	33.41	74.00	40.59	peak
3	4015.8000	47.08	-12.29	34.79	74.00	39.21	peak
4	5392.8000	41.28	-6.50	34.78	74.00	39.22	peak
5	7531.4000	30.08	5.39	35.47	74.00	38.53	peak
6 *	11475.4000	24.91	14.01	38.92	74.00	35.08	peak

TM1 / Polarization: Horizontal / CH: M



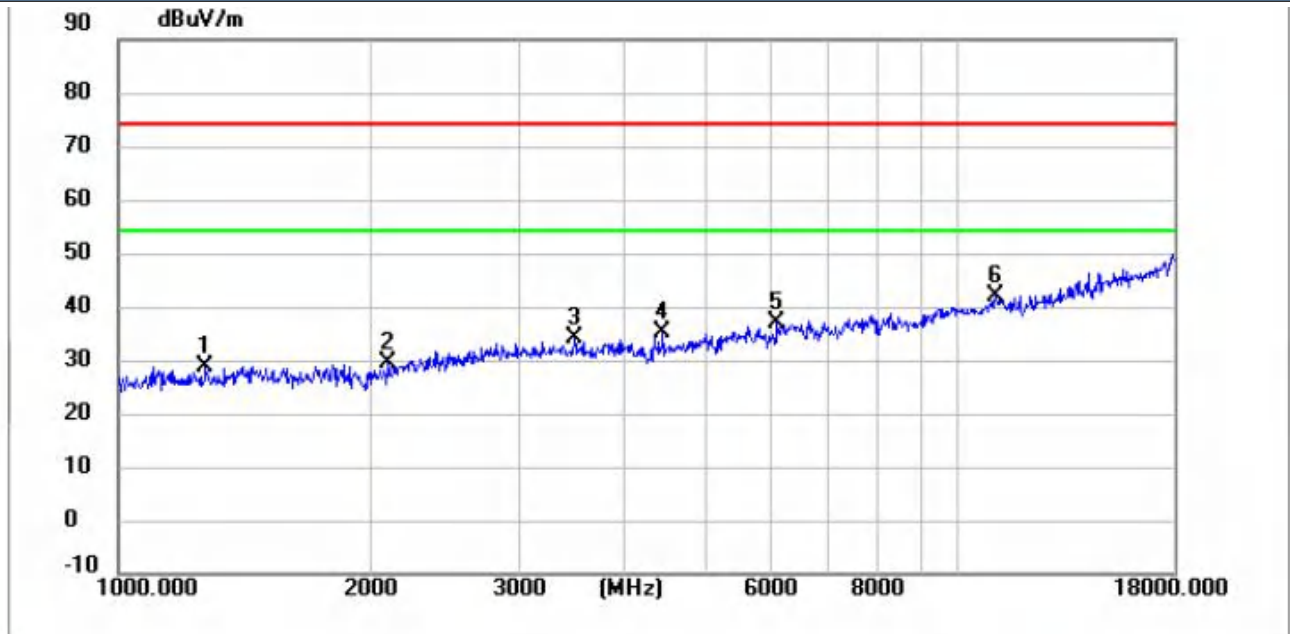
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1460.7000	50.92	-20.80	30.12	74.00	43.88	peak
2	3138.6000	47.95	-14.27	33.68	74.00	40.32	peak
3	5661.4000	41.04	-6.42	34.62	74.00	39.38	peak
4	7080.9000	31.92	3.96	35.88	74.00	38.12	peak
5	11053.8000	28.55	13.42	41.97	74.00	32.03	peak
6 *	15013.1000	27.90	17.69	45.59	74.00	28.41	peak

TM1 / Polarization: Vertical / CH: M



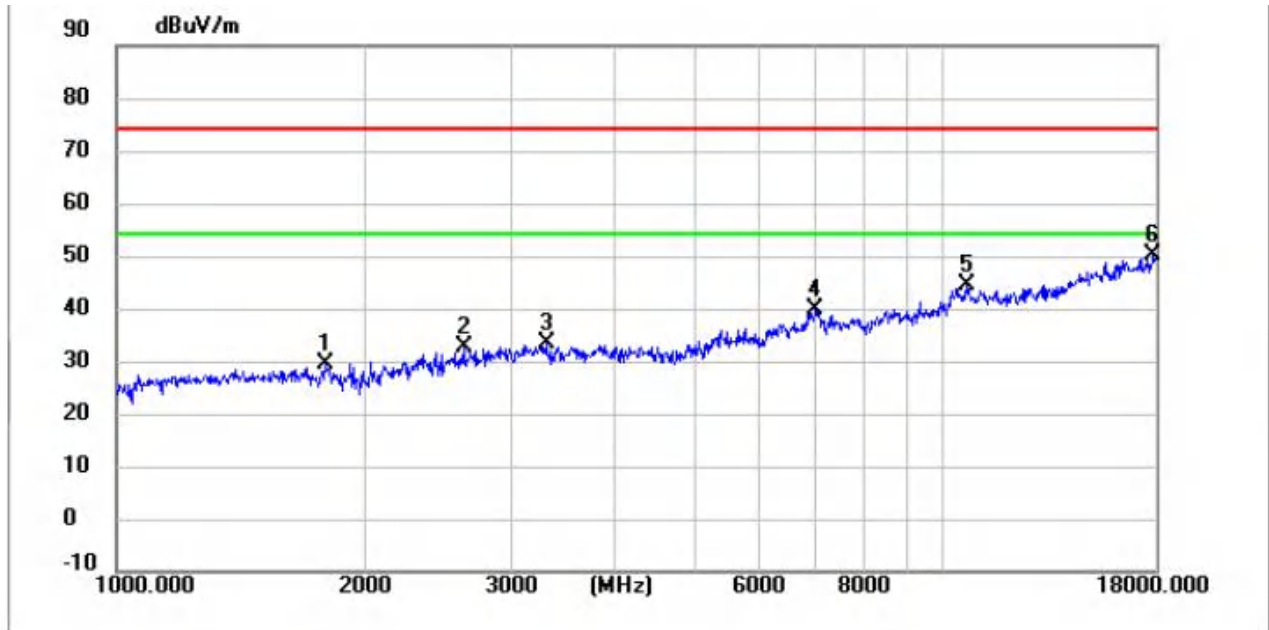
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1839.8000	48.30	-19.44	28.86	74.00	45.14	peak
2	3381.7000	48.45	-13.73	34.72	74.00	39.28	peak
3	6676.3000	35.35	0.82	36.17	74.00	37.83	peak
4	10392.5000	28.35	11.74	40.09	74.00	33.91	peak
5	14254.9000	26.56	18.54	45.10	74.00	28.90	peak
6 *	17384.6000	29.74	19.63	49.37	74.00	24.63	peak

TM1 / Polarization: Horizontal / CH: H



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1272.0000	50.07	-21.33	28.74	74.00	45.26	peak
2	2096.5000	47.57	-18.13	29.44	74.00	44.56	peak
3	3497.3000	47.98	-13.76	34.22	74.00	39.78	peak
4	4451.0000	46.14	-11.02	35.12	74.00	38.88	peak
5	6077.9000	41.89	-5.02	36.87	74.00	37.13	peak
6 *	11086.1000	28.63	13.46	42.09	74.00	31.91	peak

TM1 / Polarization: Vertical / CH: H



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1790.5000	49.10	-19.56	29.54	74.00	44.46	peak
2	2632.0000	48.84	-16.02	32.82	74.00	41.18	peak
3	3315.4000	47.29	-13.91	33.38	74.00	40.62	peak
4	7012.9000	36.14	3.71	39.85	74.00	34.15	peak
5	10679.8000	32.11	12.40	44.51	74.00	29.49	peak
6 *	17938.8000	26.55	23.67	50.22	74.00	23.78	peak

Note:

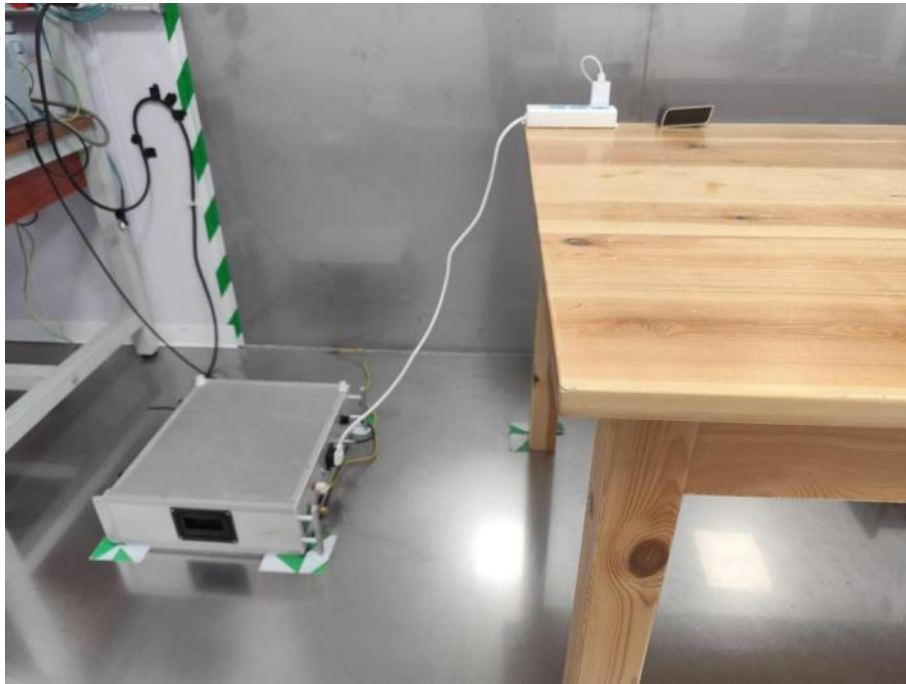
1>. Level= Reading + Factor (Antenna Factor+ Cable Loss- Preamp Factor)

2>. Margin = Limit – Level

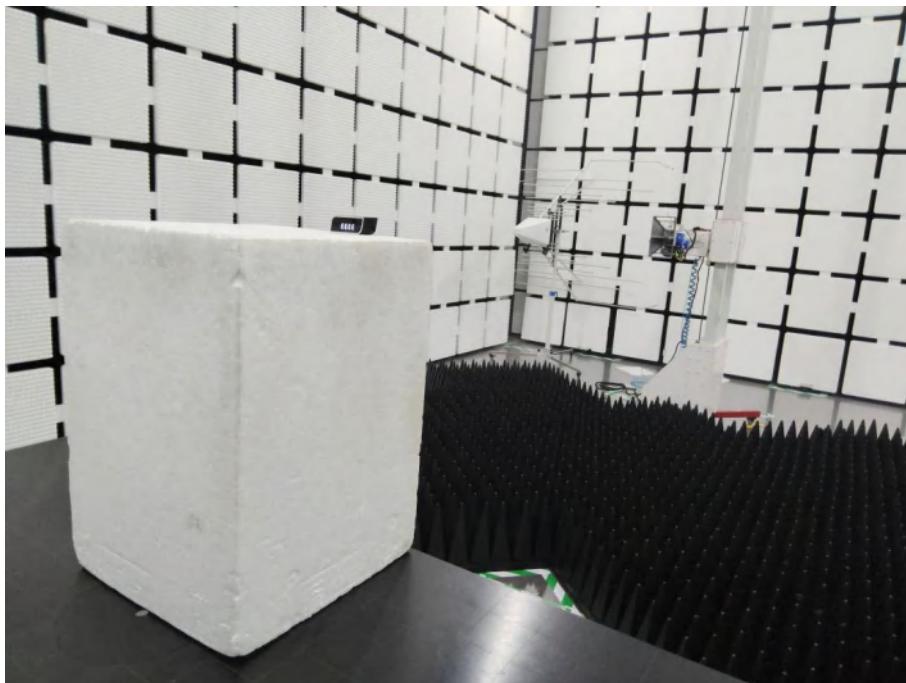
3>. Average measurement was not performed if peak level is lower than average limit (54dBuV/m) above 1GHz.

6. TEST SETUP PHOTOS

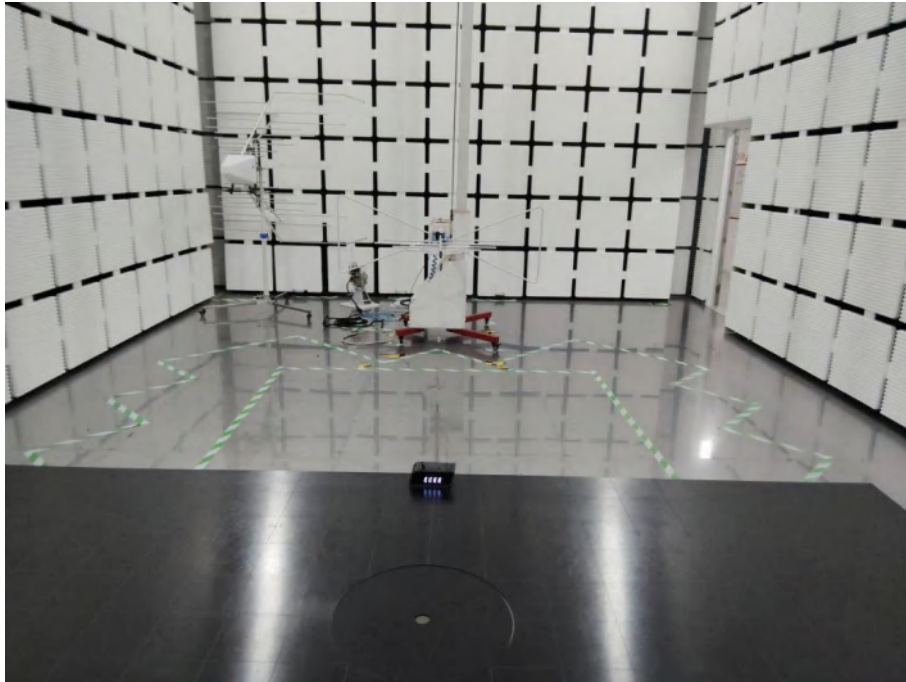
Conducted Emission at AC power line



Radiated band edge emission
Radiated Spurious Emission (Above 1GHz)



Radiated Spurious Emission (below 1GHz)



7. EXTERNAL AND INTERNAL PHOTOS

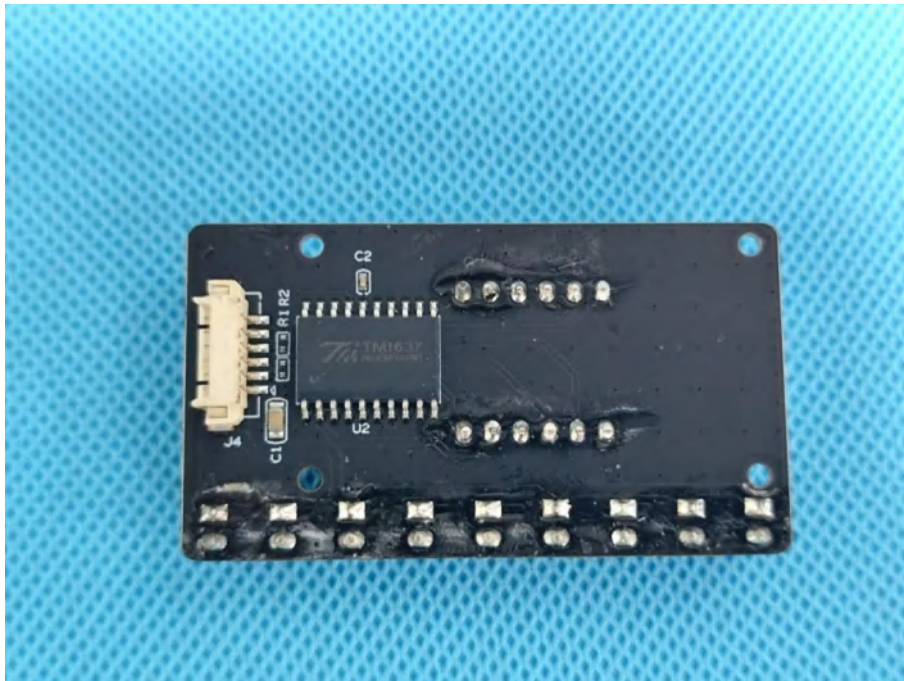
7.1. External Photos

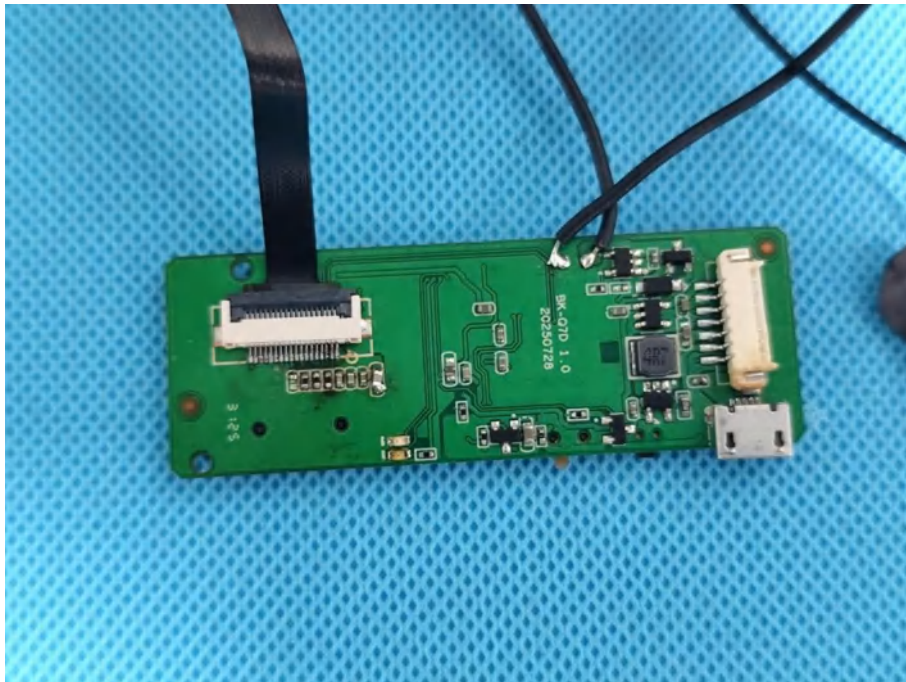


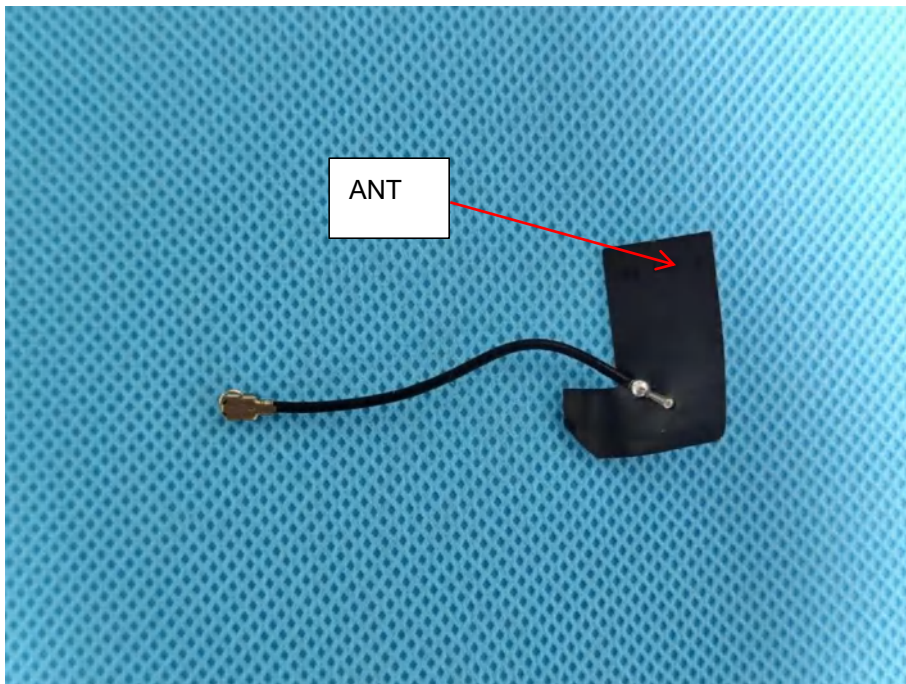
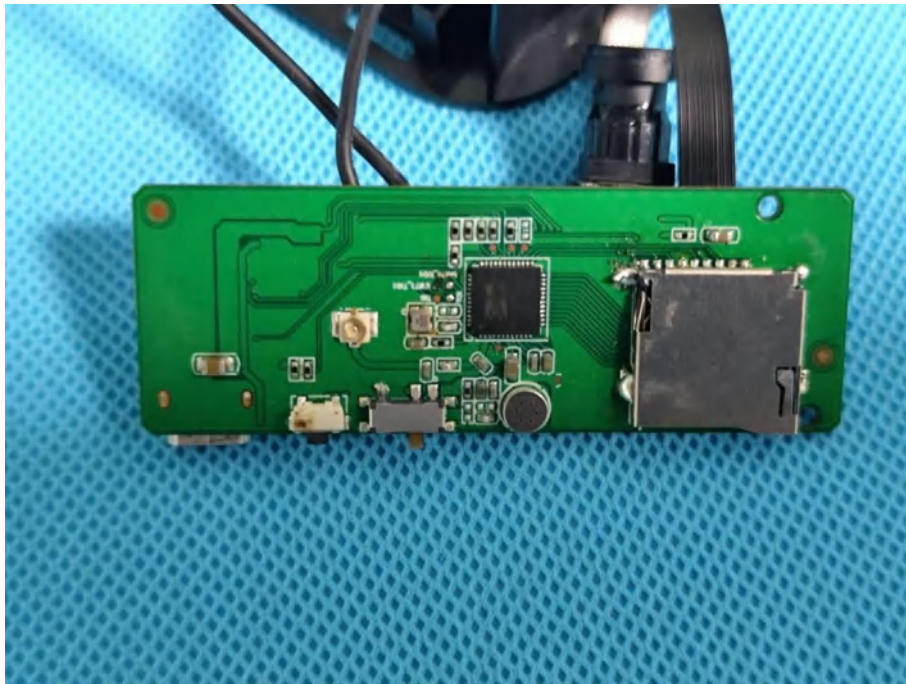




7.2. Internal Photos









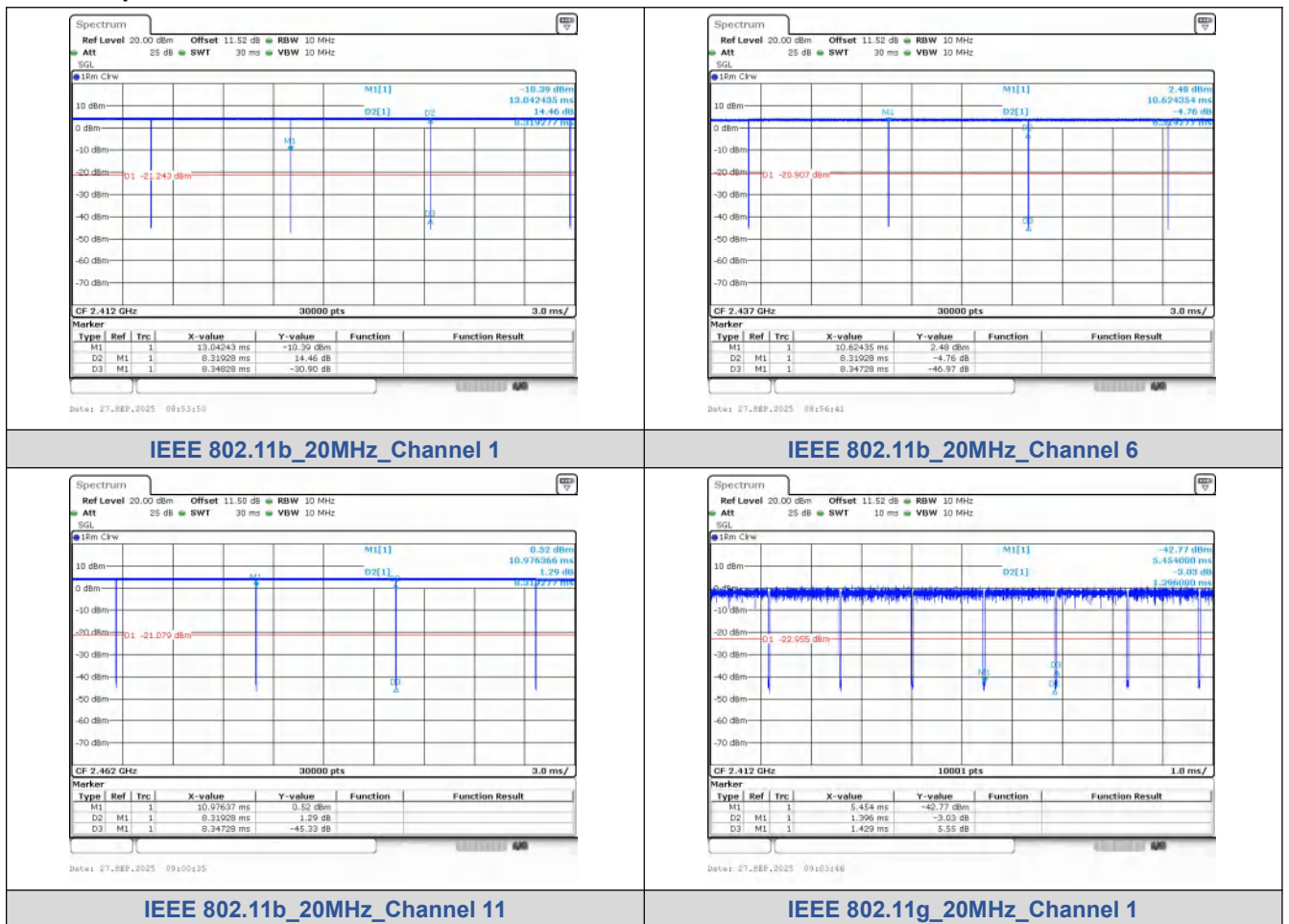
8. Appendix Report

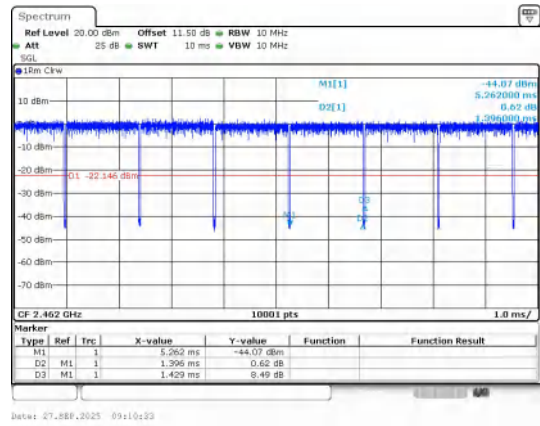
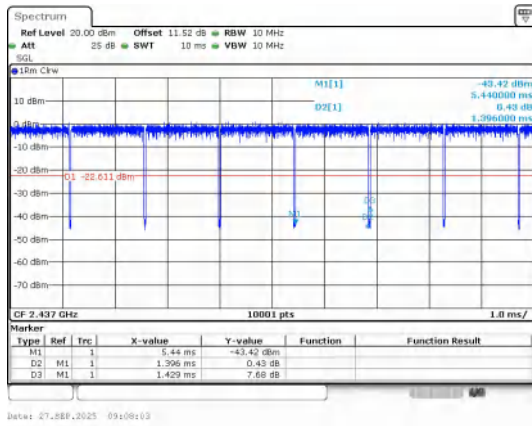
8.1. Duty Cycle

Test Result

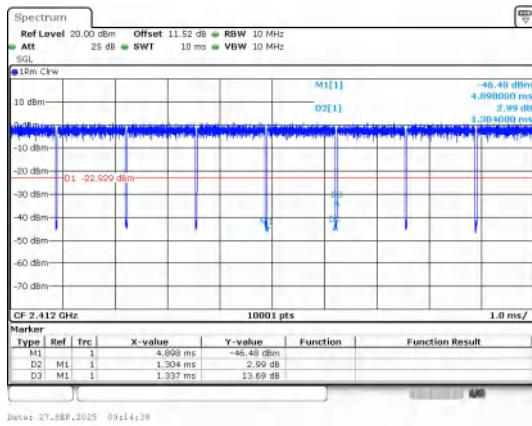
Mode	Data rates	Channel	Antenna	On Time (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle (linear)	Duty Cycle Factor (dB)	1/T
IEEE 802.11b	1	1	1	8.319	8.348	99.65	0.9965	0.0152	0.1202
		6		8.319	8.347	99.66	0.9966	0.0148	0.1202
		11		8.319	8.347	99.66	0.9966	0.0148	0.1202
1		1.396		1.429	97.69	0.9769	0.1015	0.7163	
6		1.396		1.429	97.69	0.9769	0.1015	0.7163	
11		1.396		1.429	97.69	0.9769	0.1015	0.7163	
IEEE 802.11g	MCS 0	1		1.304	1.337	97.53	0.9753	0.1086	0.7669
6		1.293		1.327	97.44	0.9744	0.1126	0.7734	
11		1.293		1.326	97.49	0.9749	0.1104	0.7734	

Test Graphs

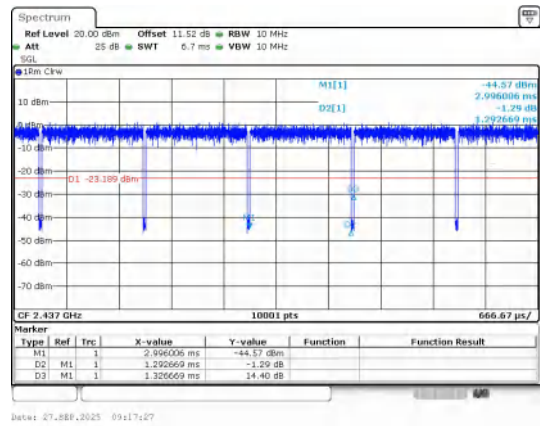




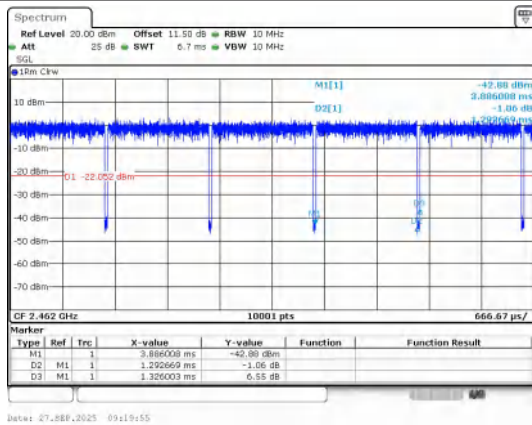
IEEE 802.11g_20MHz_Channel 6



IEEE 802.11g_20MHz_Channel 11



IEEE 802.11n_20MHz_Channel 1



IEEE 802.11n_20MHz_Channel 6

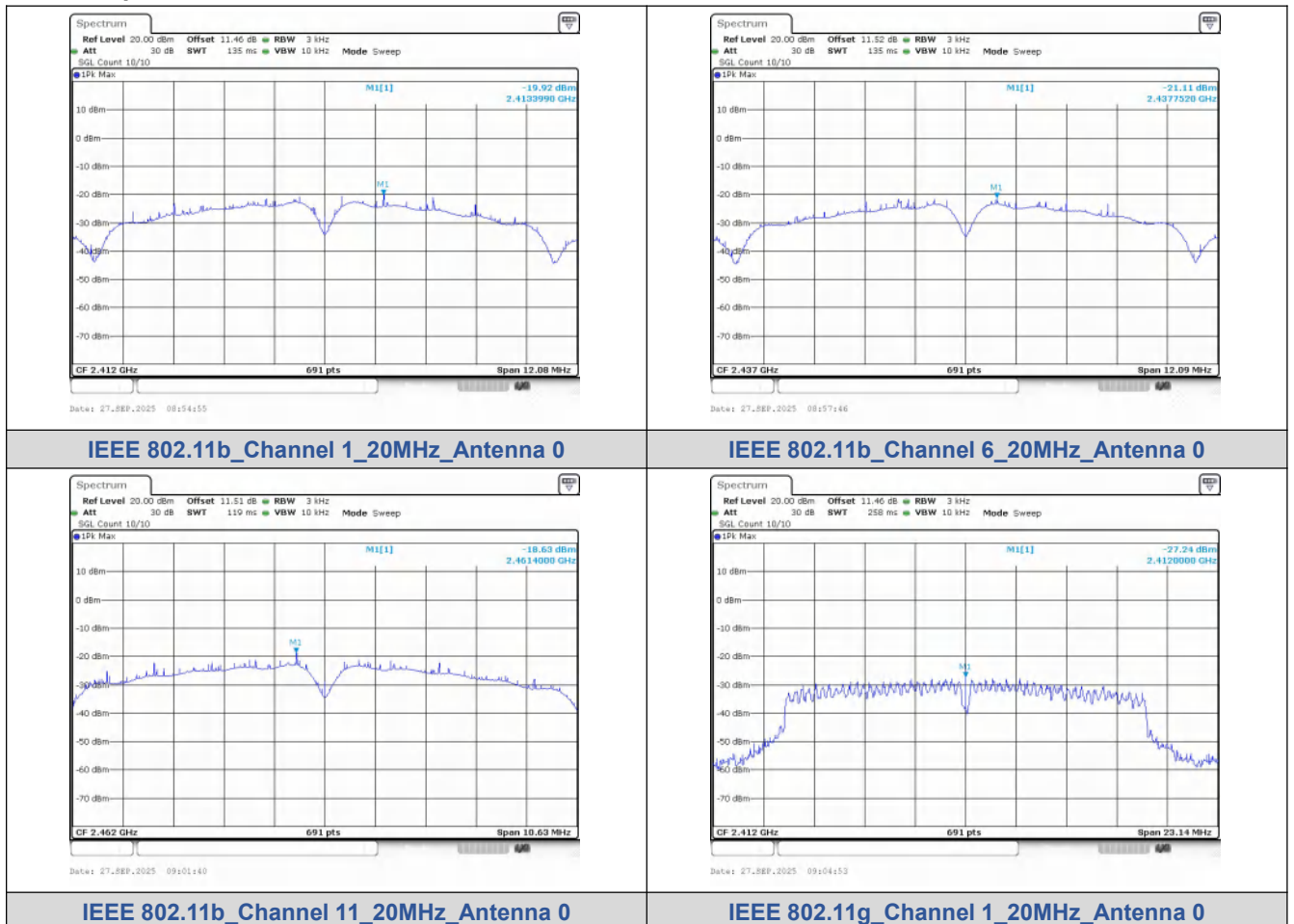
IEEE 802.11n_20MHz_Channel 11

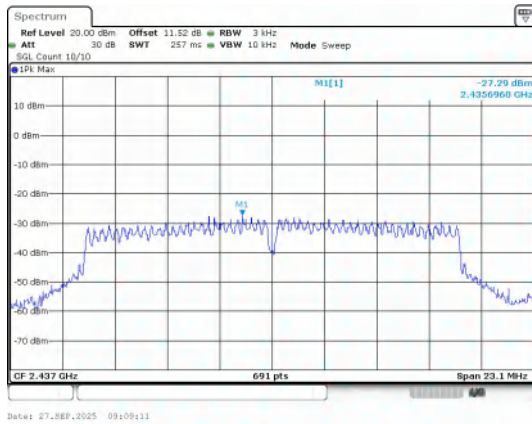
8.2. Power Spectral Density

Test Result

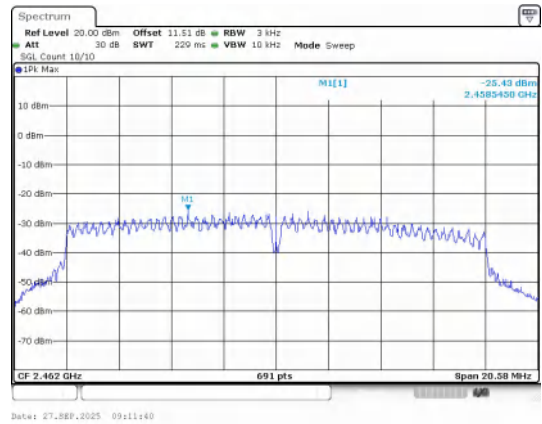
Mode	Channel	PSD (dBm/3kHz) Ant. 0	Limit (dBm/3kHz)	Result
IEEE 802.11b	1	-19.920	≤8	PASS
	6	-21.110		PASS
	11	-18.630		PASS
IEEE 802.11g	1	-27.240		PASS
	6	-27.290		PASS
	11	-25.430		PASS
IEEE 802.11n_20	1	-25.830		PASS
	6	-27.030		PASS
	11	-26.370		PASS

Test Graphs

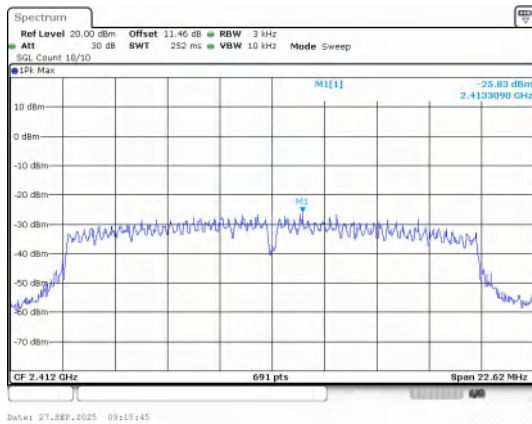




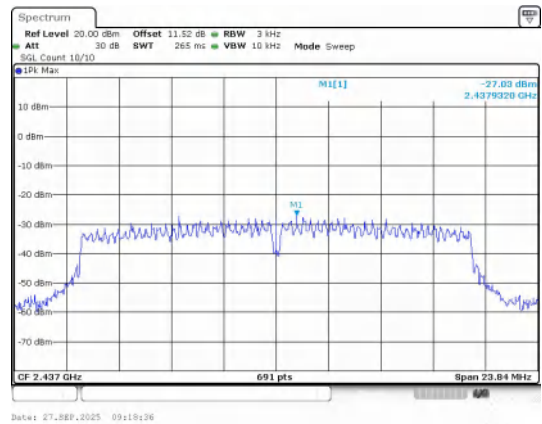
IEEE 802.11g_Channel 6_20MHz_Antenna 0



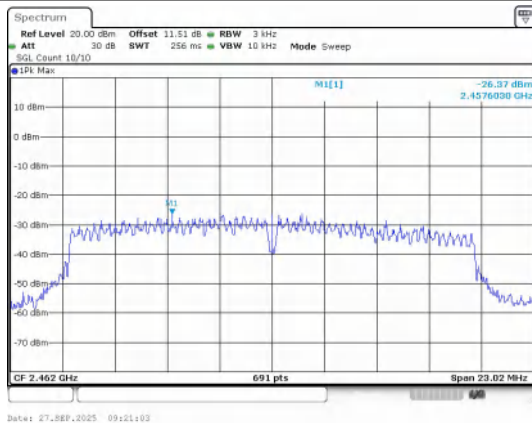
IEEE 802.11g_Channel 11_20MHz_Antenna 0



IEEE 802.11n_Channel 1_20MHz_Antenna 0



IEEE 802.11n_Channel 6_20MHz_Antenna 0



IEEE 802.11n_Channel 11_20MHz_Antenna 0

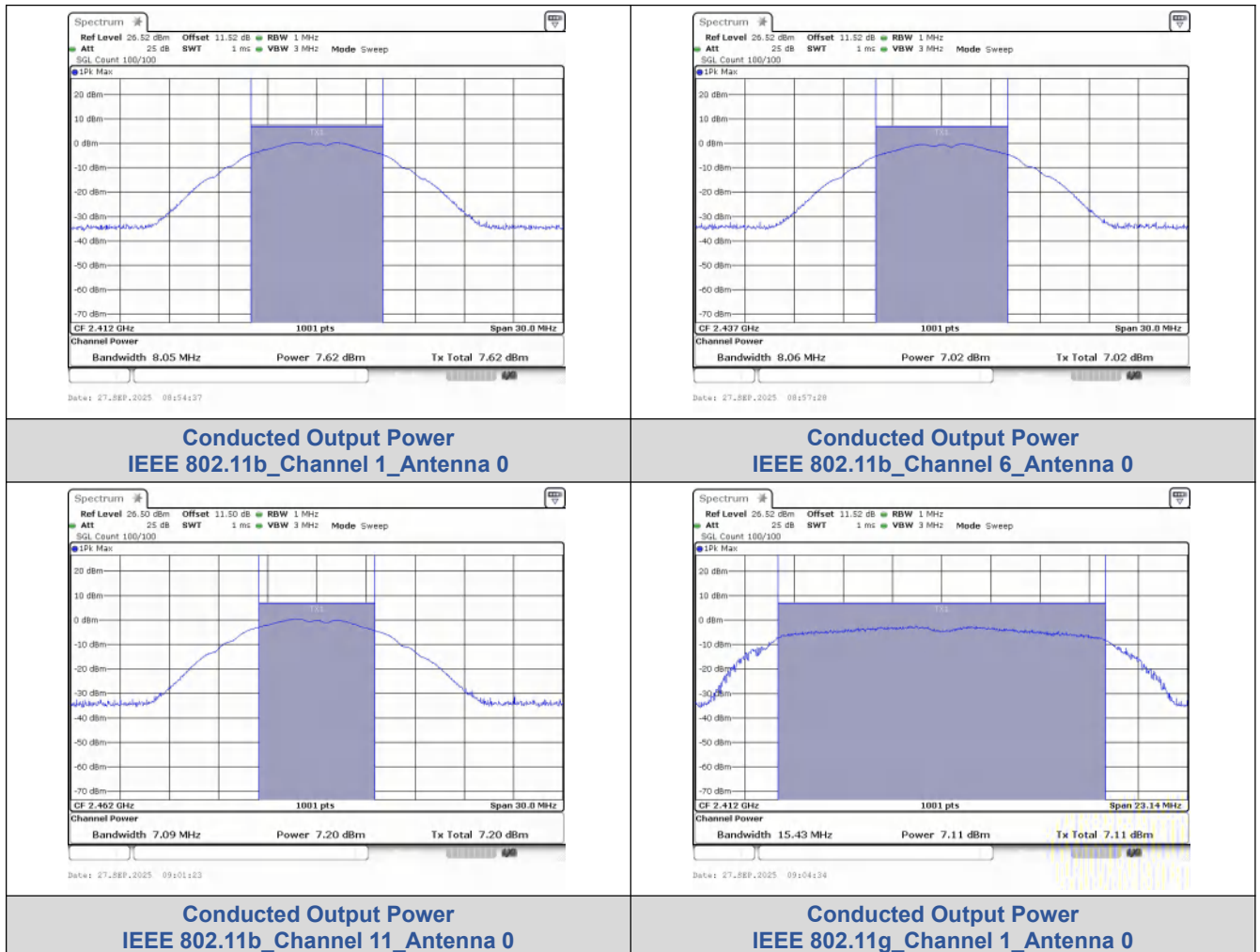
8.3. Conducted Output Power

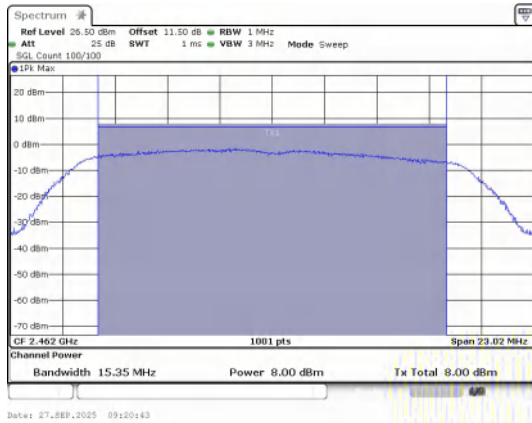
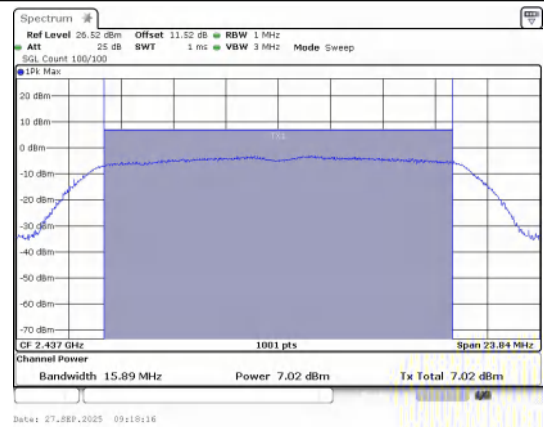
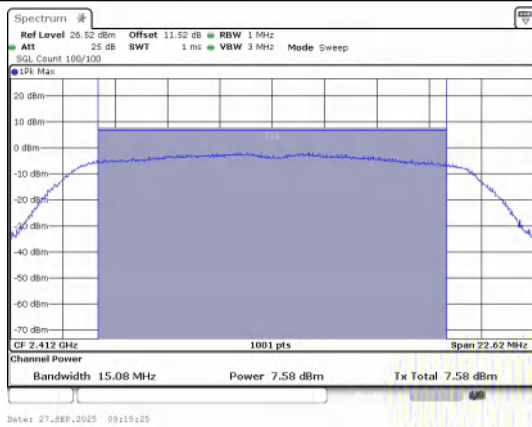
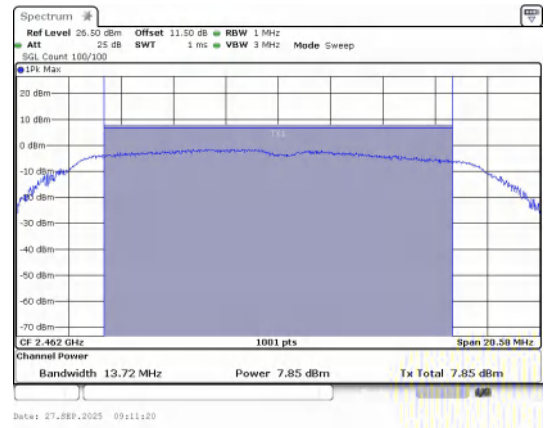
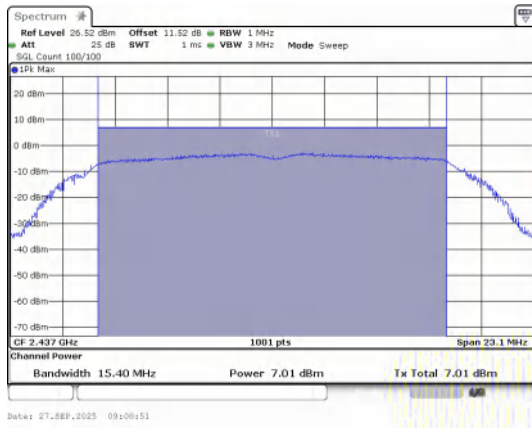
Test Result

Conducted Output Power

Mode	Channel	Ant. 0 (dBm)	Limit (dBm)	Result
IEEE 802.11b	1	7.62	≤30	PASS
	6	7.02	≤30	PASS
	11	7.20	≤30	PASS
IEEE 802.11g	1	7.11	≤30	PASS
	6	7.01	≤30	PASS
	11	7.85	≤30	PASS
IEEE 802.11n_20	1	7.58	≤30	PASS
	6	7.02	≤30	PASS
	11	8.00	≤30	PASS

Test Graphs



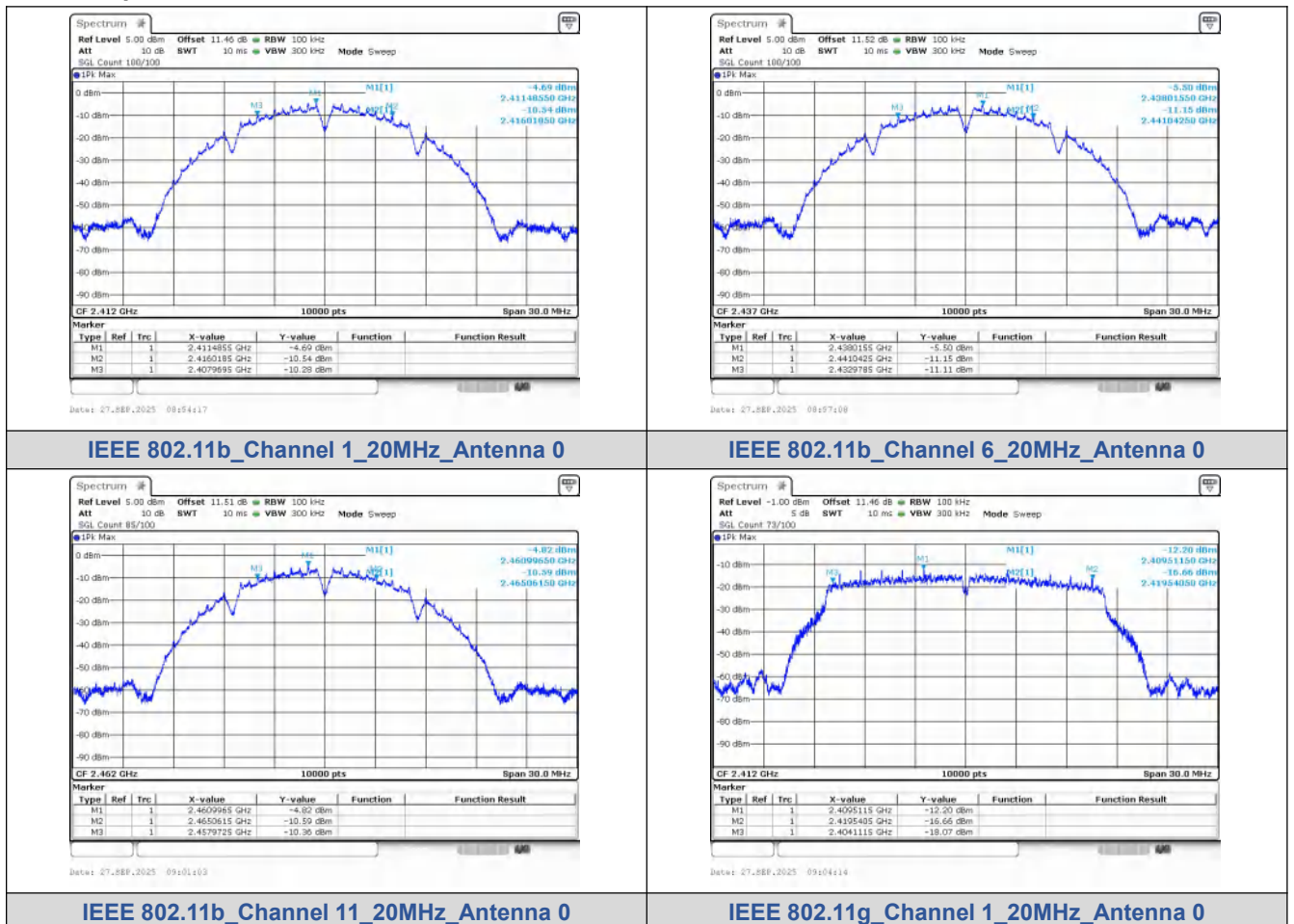


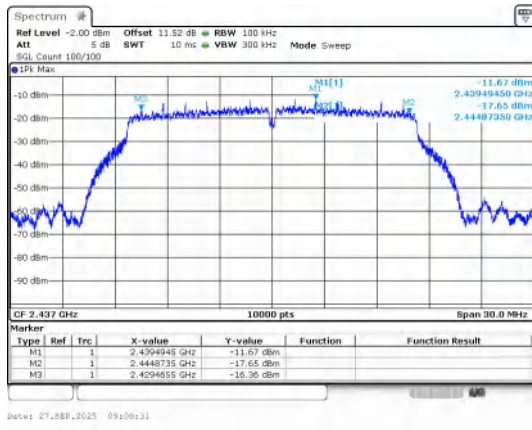
8.4. 6dB Bandwidth

Test Result

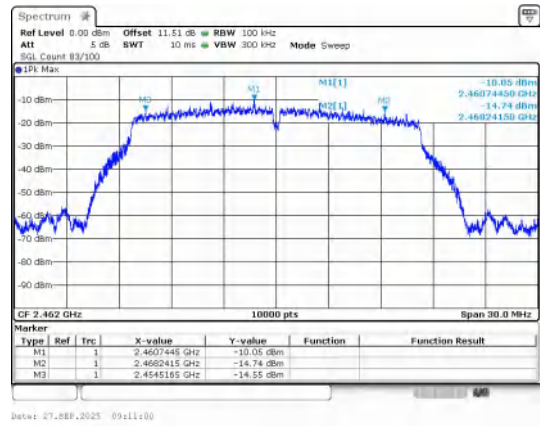
Mode	Channel	Ant.	Center Frequency (MHz)	6 dB Bandwidth (MHz)	Limit (MHz)	Result
IEEE 802.11b	1	0	2412	8.050	≥0.5	PASS
	6		2437	8.060		PASS
	11		2462	7.090		PASS
IEEE 802.11g	1		2412	15.43		PASS
	6		2437	15.40		PASS
	11		2462	13.72		PASS
IEEE 802.11n_20	1		2412	15.08		PASS
	6		2437	15.89		PASS
	11		2462	15.35		PASS

Test Graphs

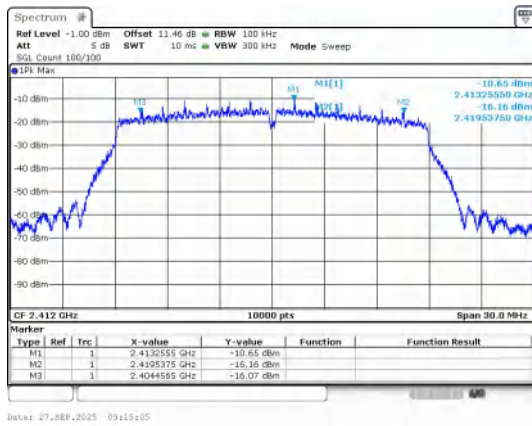




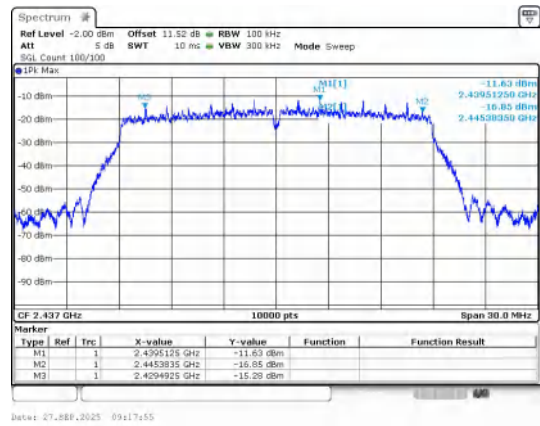
IEEE 802.11g_Channel 6_20MHz_Antenna 0



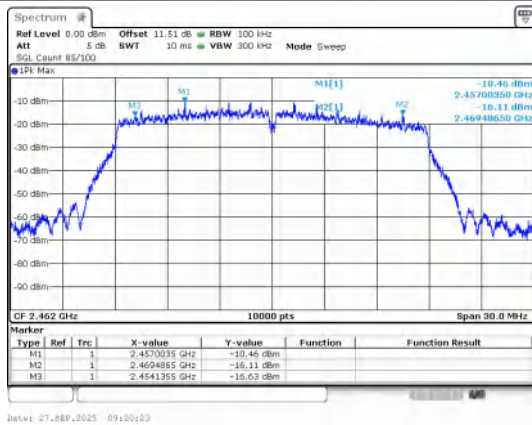
IEEE 802.11g_Channel 11_20MHz_Antenna 0



IEEE 802.11n_Channel 1_20MHz_Antenna 0



IEEE 802.11n_Channel 6_20MHz_Antenna 0



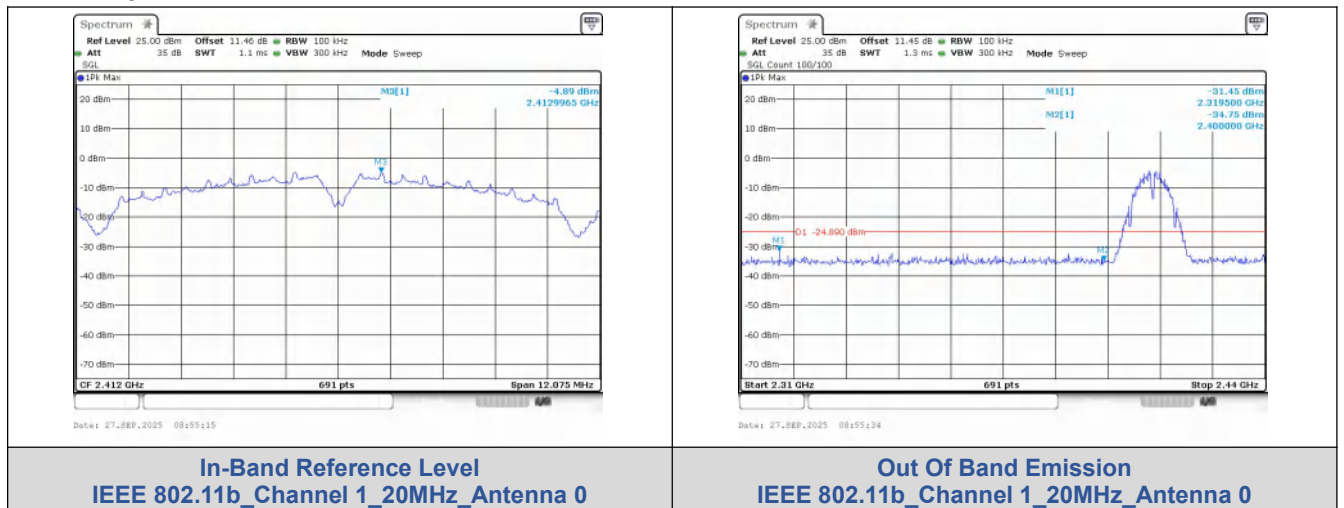
IEEE 802.11n_Channel 11_20MHz_Antenna 0

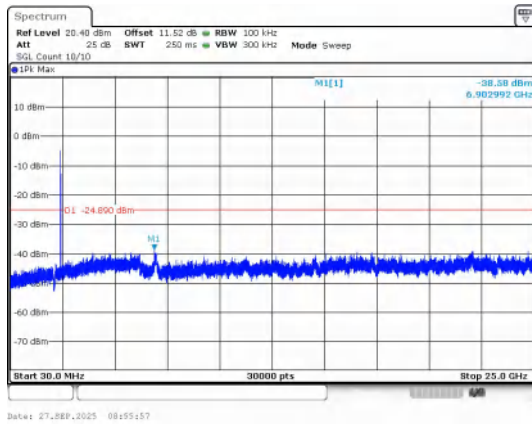
8.5. Conducted Out Of Band Emission

Test Result

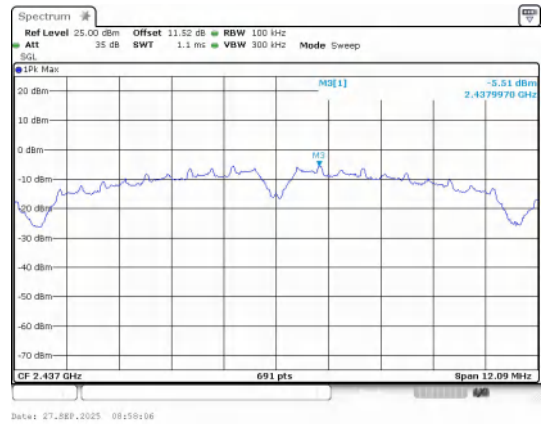
Mode	Channel	Ant.	OOB Emission Frequency (MHz)	OOB Emission Level (dBm)	Limit (dBm)	Over Limit (dB)	Result
IEEE 802.11b	1	0	2319.50	-31.448	-24.89	-6.558	PASS
			2400.00	-34.750	-24.89	-9.860	PASS
			6903.00	-38.576	-24.89	-13.686	PASS
	6		22069.8	-38.684	-25.51	-13.174	PASS
	11		2483.50	-33.180	-25.19	-7.990	PASS
			6950.44	-38.342	-25.19	-13.152	PASS
IEEE 802.11g			1	2391.18	-32.521	-30.89	-1.631
	2400.00			-34.870	-30.89	-3.980	PASS
	21976.5			-38.678	-30.89	-7.788	PASS
	6		6997.05	-38.128	-31.74	-6.388	PASS
	11		2483.50	-33.440	-29.8	-3.640	PASS
			6985.39	-38.568	-29.8	-8.768	PASS
IEEE 802.11n_20			1	2370.30	-31.793	-30.24	-1.553
	2400.00			-35.220	-30.24	-4.980	PASS
	6977.90			-38.311	-30.24	-8.071	PASS
	6		23334.9	-38.385	-31.1	-7.285	PASS
	11		2483.50	-33.890	-30.08	-3.810	PASS
			6925.47	-38.363	-30.08	-8.283	PASS

Test Graphs

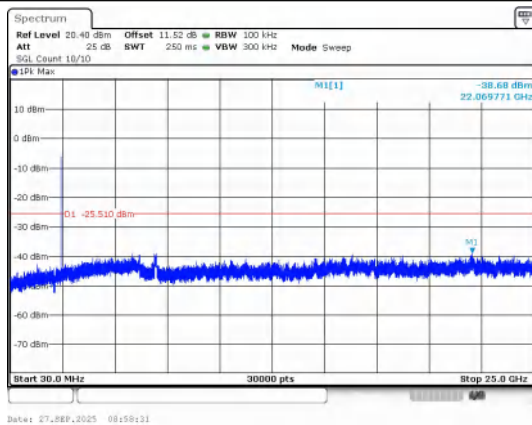




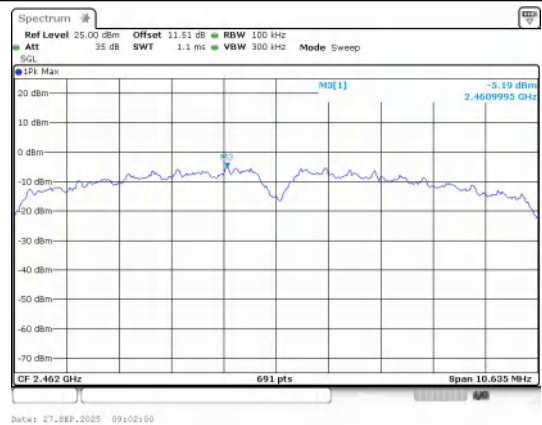
30.0 MHz - 25000.0 MHz
IEEE 802.11b_Channel 1_20MHz_Antenna 0



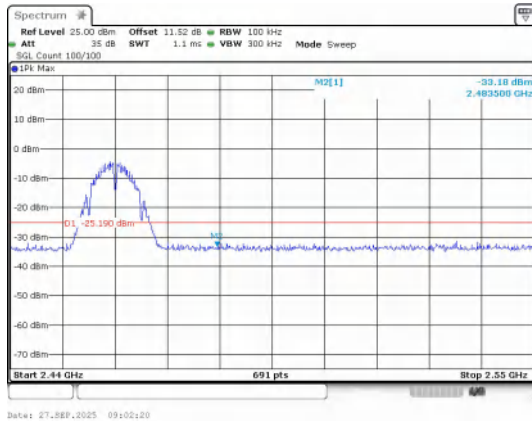
In-Band Reference Level
IEEE 802.11b_Channel 6_20MHz_Antenna 0



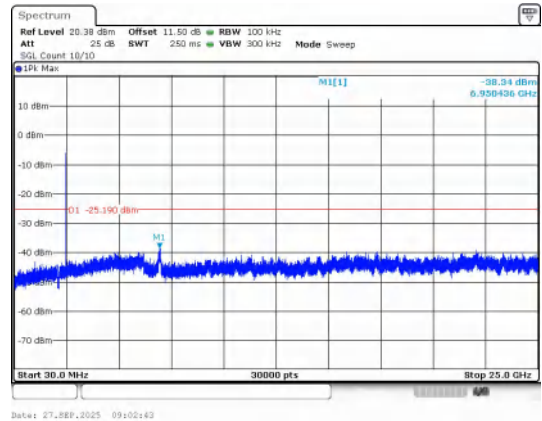
30.0 MHz - 25000.0 MHz
IEEE 802.11b_Channel 6_20MHz_Antenna 0



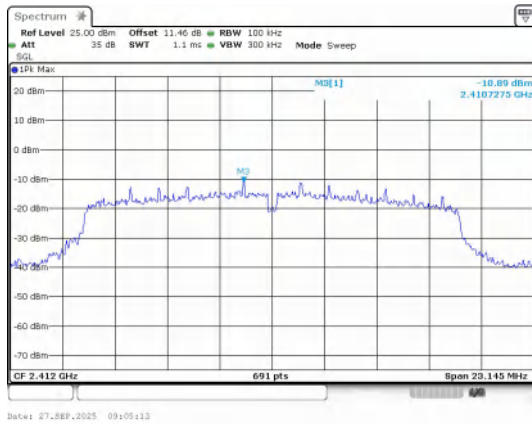
In-Band Reference Level
IEEE 802.11b_Channel 11_20MHz_Antenna 0



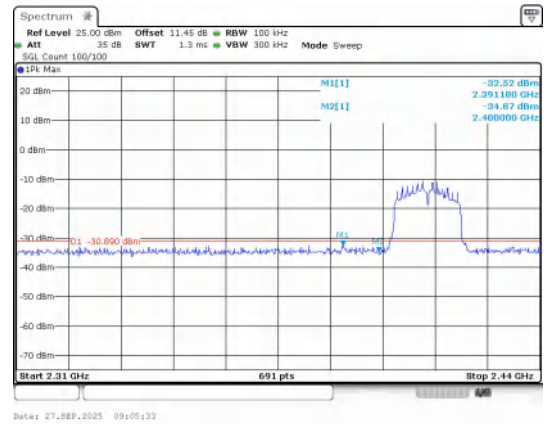
Out Of Band Emission
IEEE 802.11b_Channel 11_20MHz_Antenna 0



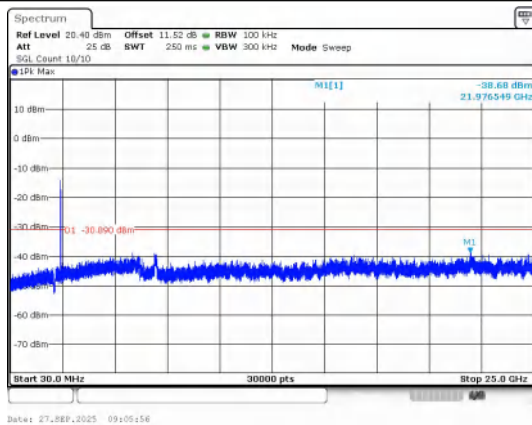
30.0 MHz - 25000.0 MHz
IEEE 802.11b_Channel 11_20MHz_Antenna 0



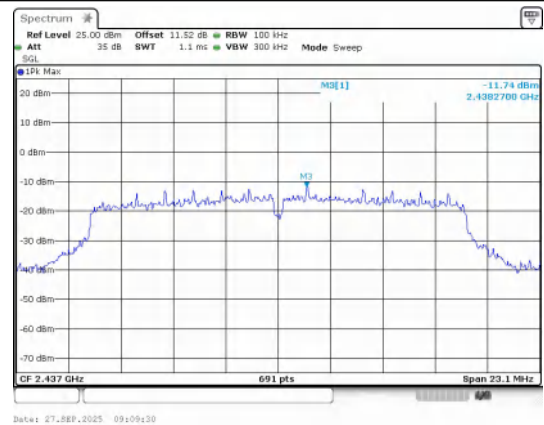
**In-Band Reference Level
IEEE 802.11g_Channel 1_20MHz_Antenna 0**



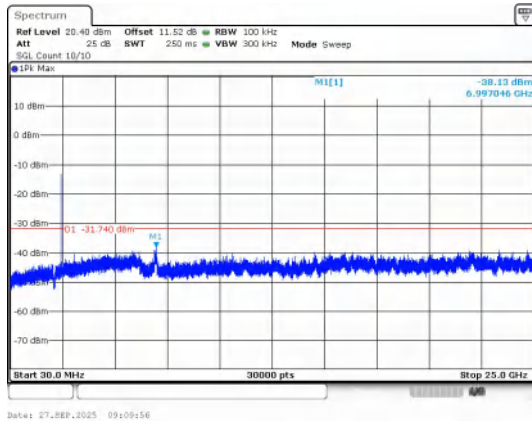
**Out Of Band Emission
IEEE 802.11g_Channel 1_20MHz_Antenna 0**



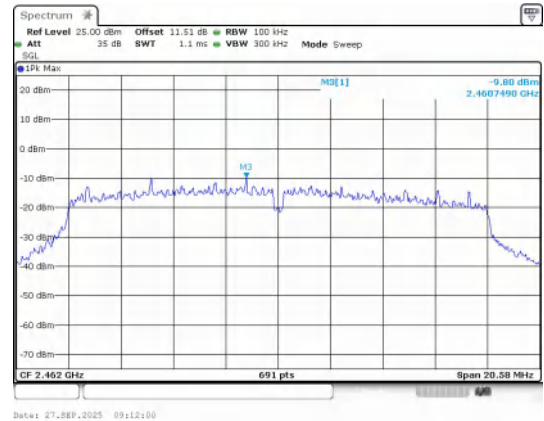
**30.0 MHz - 25000.0 MHz
IEEE 802.11g_Channel 1_20MHz_Antenna 0**



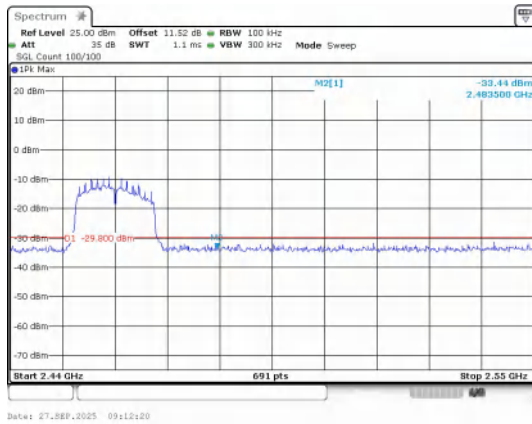
**In-Band Reference Level
IEEE 802.11g_Channel 6_20MHz_Antenna 0**



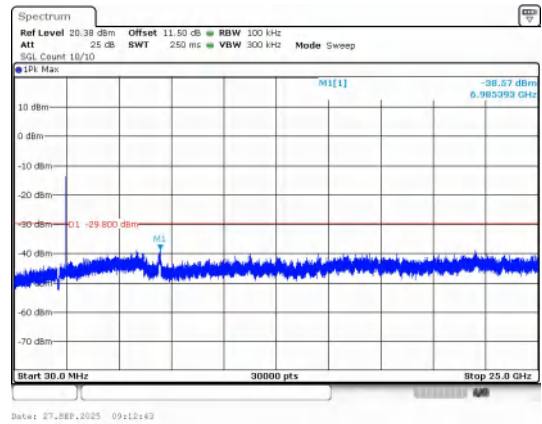
**30.0 MHz - 25000.0 MHz
IEEE 802.11g_Channel 6_20MHz_Antenna 0**



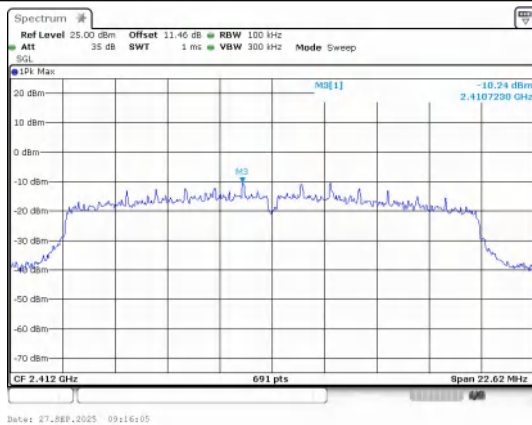
**In-Band Reference Level
IEEE 802.11g_Channel 11_20MHz_Antenna 0**



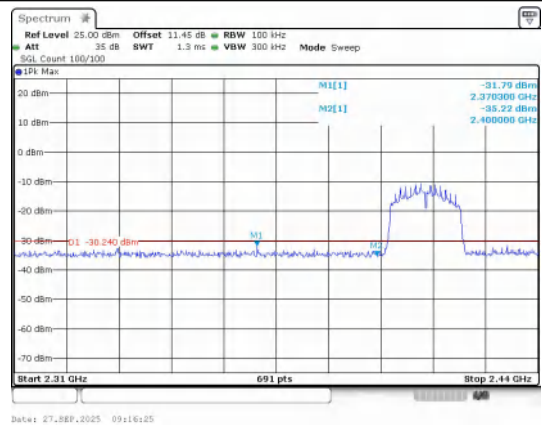
Out Of Band Emission
IEEE 802.11g_Channel 11_20MHz_Antenna 0



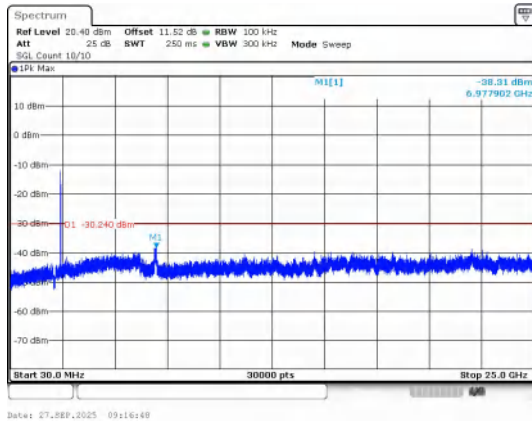
30.0 MHz - 25000.0 MHz
IEEE 802.11g_Channel 11_20MHz_Antenna 0



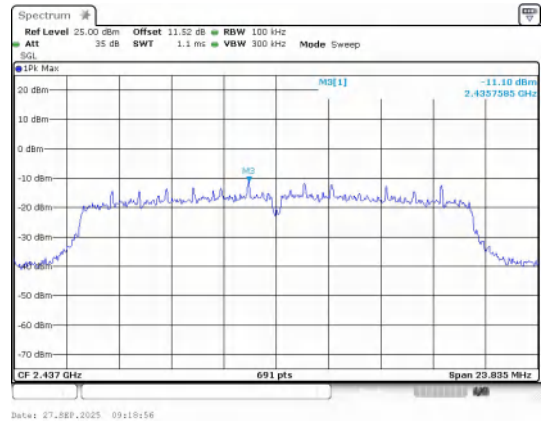
In-Band Reference Level
IEEE 802.11n_Channel 1_20MHz_Antenna 0



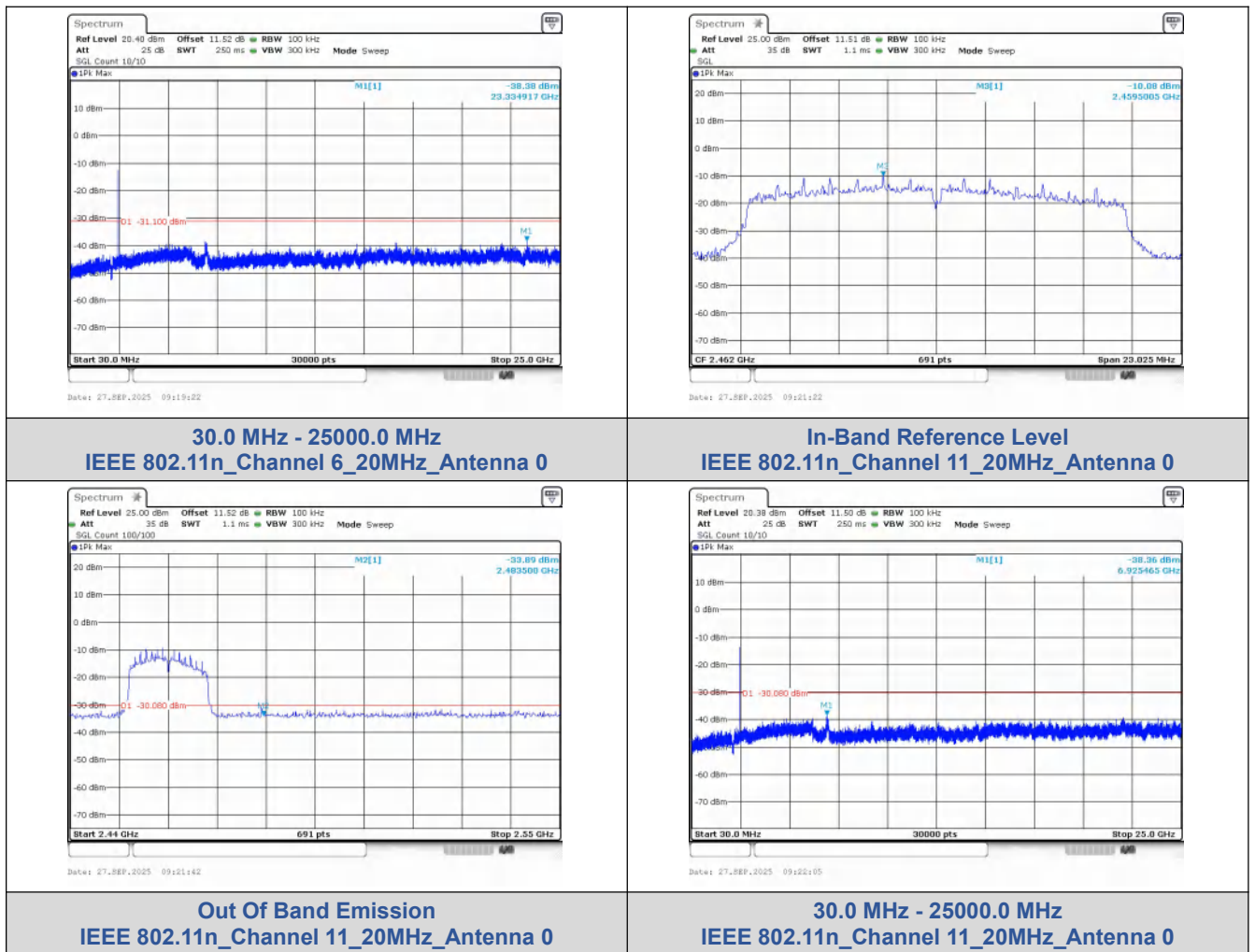
Out Of Band Emission
IEEE 802.11n_Channel 1_20MHz_Antenna 0



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



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