

# RF TEST REPORT

For

**Shenzhen Olin Precision Mould Plastic Co.,Ltd**

**Product Name: Wireless Mouse**

**Test Model(s).: U6P**

**Report Reference No.** : DACE241104020RL001

**FCC ID** : 2BL2O-U6P

**Applicant's Name** : Shenzhen Olin Precision Mould Plastic Co.,Ltd

**Address** : East Building 2, Huazhan Technology Park, No.30 ,Tianfu Road, Tianliao Community, Gongming Street, Guangming New District, Shenzhen

**Testing Laboratory** : Shenzhen DACE Testing Technology Co., Ltd.

**Address** : 102, Building H1, & 1/F., Building H, Hongfa Science & Technology Park, Tangtou Community, Shiyan Subdistrict, Bao'an District, Shenzhen, Guangdong, China

**Test Specification Standard** : 47 CFR Part 15.249

**Date of Receipt** : November 4, 2024

**Date of Test** : November 4, 2024 to November 13, 2024

**Date of Issue** : November 13, 2024

**Result** : Pass

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## Apply for company information

<b>Applicant's Name</b>	:	Shenzhen Olin Precision Mould Plastic Co.,Ltd
<b>Address</b>	:	East Building 2, Huazhan Technology Park, No.30 ,Tianfu Road, Tianliao Community, Gongming Street, Guangming New District, Shenzhen
<b>Product Name</b>	:	Wireless Mouse
<b>Test Model(s)</b>	:	U6P
<b>Test Specification Standard(s)</b>	:	47 CFR Part 15.249

**NOTE1:**

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

Compiled by:

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Stone Yin / Project Engineer

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## Revision History Of Report

Version	Description	REPORT No.	Issue Date
V1.0	Original	DACE241104020RL001	November 13, 2024

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## 1 TEST SUMMARY

### 1.1 Test Standards

The tests were performed according to following standards:

**47 CFR Part 15.249:** Operation within the bands 902-928 MHz, 2400-2483.5 MHz, 5725-5875 MHZ, and 24.0-24.25 GHz

### 1.2 Summary of Test Result

Item	Standard	Method	Requirement	Result
Antenna requirement	47 CFR Part 15.249	/	47 CFR Part 15.203	Pass
Conducted Emission at AC power line	47 CFR Part 15.249	ANSI C63.10-2013 section 6.2	47 CFR 15.207(a)	Pass
Occupied Bandwidth	47 CFR Part 15.249	ANSI C63.10-2013, section 6.9.2	47 CFR 15.215(c)	Pass
Field strength of fundamental	47 CFR Part 15.249	ANSI C63.10-2013 section 6.6	47 CFR 15.249(a) 47 CFR 15.249(b)(1)	Pass
Band edge emissions (Radiated)	47 CFR Part 15.249	ANSI C63.10-2013 section 6.6.4	47 CFR 15.249(d)	Pass
Emissions in frequency bands (below 1GHz)	47 CFR Part 15.249	ANSI C63.10-2013 section 6.5	47 CFR 15.249(a) 47 CFR 15.249(d) 47 CFR 15.249(e)	Pass
Emissions in frequency bands (above 1GHz)	47 CFR Part 15.249	ANSI C63.10-2013 section 6.6	47 CFR 15.249(a) 47 CFR 15.249(d) 47 CFR 15.249(e)	Pass

## 2 GENERAL INFORMATION

### 2.1 Client Information

**Applicant's Name** : Shenzhen Olin Precision Mould Plastic Co.,Ltd  
**Address** : East Building 2, Huazhan Technology Park, No.30 ,Tianfu Road, Tianliao Community, Gongming Street, Guangming New District, Shenzhen

**Manufacturer** : Shenzhen Olin Precision Mould Plastic Co.,Ltd  
**Address** : East Building 2, Huazhan Technology Park, No.30 ,Tianfu Road, Tianliao Community, Gongming Street, Guangming New District, Shenzhen

### 2.2 Description of Device (EUT)\*

Product Name:	Wireless Mouse
Model/Type reference:	U6P
Series Model:	N/A
Trade Mark:	UINEER
Power Supply:	DC3.0V from AAA*2 battery
Operation Frequency:	2402-2480MHz
Number of Channels:	40
Modulation Type:	GFSK
Antenna Type:	PCB ANT
Antenna Gain:	1.74dBi
Hardware Version:	V4
Software Version:	N/A

#### Operation Frequency each of channel

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2402MHz	11	2422MHz	21	2442MHz	31	2462MHz
2	2404MHz	12	2424MHz	22	2444MHz	32	2464MHz
3	2406MHz	13	2426MHz	23	2446MHz	33	2466MHz
4	2408MHz	14	2428MHz	24	2448MHz	34	2468MHz
5	2410MHz	15	2430MHz	25	2450MHz	35	2470MHz
6	2412MHz	16	2432MHz	26	2452MHz	36	2472MHz
7	2414MHz	17	2434MHz	27	2454MHz	37	2474MHz
8	2416MHz	18	2436MHz	28	2456MHz	38	2476MHz
9	2418MHz	19	2438MHz	29	2458MHz	39	2448MHz
10	2420MHz	20	2440MHz	30	2460MHz	40	2480MHz

### 2.3 Description of Test Modes

No	Title	Description
TM1	2.4G	Continuous transmission using GFSK modulation signal

## 2.4 Description of Support Units

The EUT was tested as an independent device.

## 2.5 Equipments Used During The Test

Conducted Emission at AC power line					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Pulse Limiter	SCHWARZ BECK	VTSD 9561-F Pulse limiter 10dB	561-G071	2023-12-12	2024-12-11
50ΩCoaxial Switch	Anritsu	MP59B	M20531	/	/
Test Receiver	Rohde & Schwarz	ESPI TEST RECEIVER	1164.6607K03-102109-MH	2024-06-12	2025-06-11
L.I.S.N	R&S	ESH3-Z5	831.5518.52	2023-12-12	2024-12-11
L.I.S.N	SCHWARZ BECK	NSLK 8126	05055	2024-06-14	2025-06-13
Pulse Limiter	CYBERTEK	EM5010A	/	2024-09-27	2025-09-26
EMI test software	EZ -EMC	EZ	V1.1.42	/	/

Occupied Bandwidth					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
RF Test Software	Tachoy Information	RTS-01	V1.0.0	/	/
Power divider	MIDWEST	PWD-2533	SMA-79	2023-05-11	2026-05-10
RF Sensor Unit	Tachoy Information	TR1029-2	000001	/	/
Signal Generator	Keysight	N5181A	MY48180415	2023-12-11	2024-12-10
Signal Generator	Keysight	N5182A	MY50143455	2023-12-12	2024-12-11
Spectrum Analyzer	Keysight	N9020A	MY53420323	2023-12-12	2024-12-11

**Field strength of fundamental****Band edge emissions (Radiated)****Emissions in frequency bands (below 1GHz)****Emissions in frequency bands (above 1GHz)**

Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
EMI Test software	Farad	EZ -EMC	V1.1.42	/	/
Positioning Controller	/	MF-7802	/	/	/
Amplifier(18-40G)	COM-POWER	AH-1840	10100008-1	2022-04-05	2025-04-04
Horn antenna	COM-POWER	AH-1840 (18-40G)	10100008	2023-04-05	2025-04-04
Loop antenna	ZHINAN	ZN30900C	ZN30900C	2024-06-14	2026-06-13
Cable(LF)#2	Schwarzbeck	/	/	2024-02-19	2025-02-18
Cable(LF)#1	Schwarzbeck	/	/	2024-02-19	2025-02-18
Cable(HF)#2	Schwarzbeck	AK9515E	96250	2024-03-20	2025-03-19
Cable(HF)#1	Schwarzbeck	SYV-50-3-1	/	2024-03-20	2025-03-19
Power amplifier(LF)	Schwarzbeck	BBV9743	9743-151	2024-06-12	2025-06-11
Power amplifier(HF)	Schwarzbeck	BBV9718	9718-282	2024-06-12	2025-06-11
Spectrum Analyzer	R&S	FSP30	1321.3008K40 -101729-jR	2024-06-12	2025-06-11
Test Receiver	R&S	ESCI 3	1166.5950K03 -101431-jq	2024-06-13	2025-06-12
Horn Antenna	Sunol Sciences	DRH-118	A091114	2023-05-13	2025-05-12
Broadband Antenna	Sunol Sciences	JB6 Antenna	A090414	2024-09-28	2026-09-27

## 2.6 Statement Of The Measurement Uncertainty

Test Item	Measurement Uncertainty
Conducted Disturbance (0.15~30MHz)	±3.41dB
Occupied Bandwidth	±3.63%
Radiated Emission (Above 1GHz)	±5.46dB
Radiated Emission (Below 1GHz)	±5.79dB

Note: (1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

## 2.7 Identification of Testing Laboratory

Company Name:	Shenzhen DACE Testing Technology Co., Ltd.
Address:	101-102 Building H5 & 1/F., Building H, Hongfa Science & Technology Park, Tangtou, Shiyan, Bao'an District, Shenzhen, Guangdong, China
Phone Number:	+86-13267178997
Fax Number:	86-755-29113252

### Identification of the Responsible Testing Location

Company Name:	Shenzhen DACE Testing Technology Co., Ltd.
Address:	101-102 Building H5 & 1/F., Building H, Hongfa Science & Technology Park, Tangtou, Shiyan, Bao'an District, Shenzhen, Guangdong, China
Phone Number:	+86-13267178997
Fax Number:	86-755-29113252
FCC Registration Number:	0032847402
Designation Number:	CN1342
Test Firm Registration No.:	778666
A2LA Certificate Number:	6270.01

## 2.8 Announcement

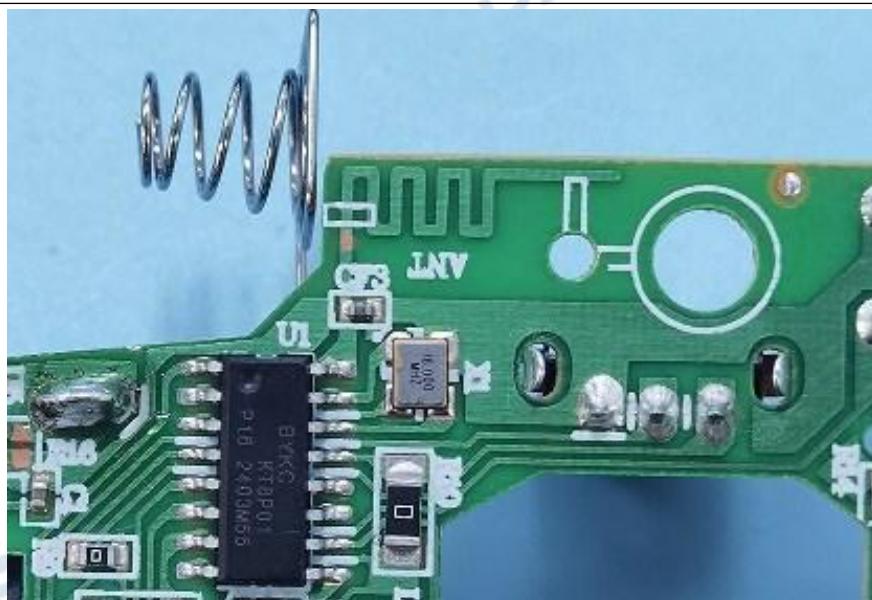
- (1) The test report reference to the report template version v0.
- (2) The test report is invalid if not marked with the signatures of the persons responsible for preparing, reviewing and approving the test report.
- (3) The test report is invalid if there is any evidence and/or falsification.
- (4) This document may not be altered or revised in any way unless done so by DACE and all revisions are duly noted in the revisions section.
- (5) Content of the test report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.
- (6) We hereby declare that the laboratory is only responsible for the data released by the laboratory, except for the part provided by the applicant (information with \*\*" provided by applicant). the laboratory is not responsible for the accuracy of the information provided by the client. When the information provided by the customer may affect the effectiveness of the results, the responsibility lies with the customer, and the laboratory does not assume any responsibility.

### 3 Evaluation Results (Evaluation)

#### 3.1 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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##### 3.1.1 Conclusion:



## 4 Radio Spectrum Matter Test Results (RF)

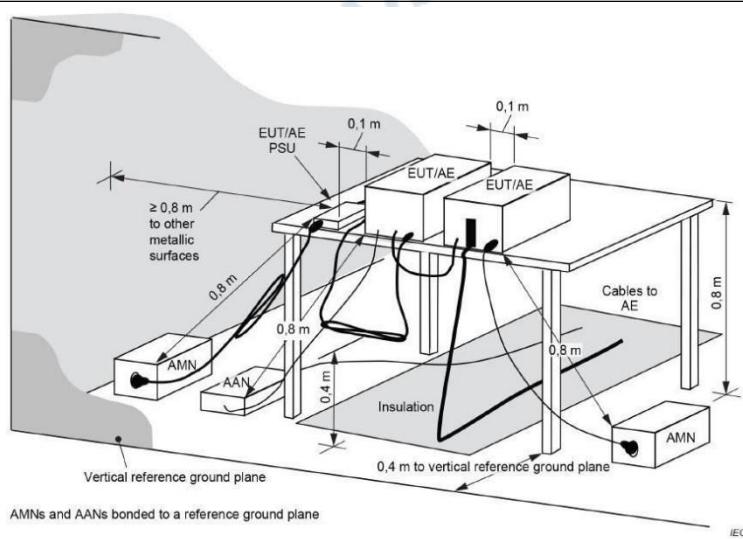
### 4.1 Conducted Emission at AC power line

Test Requirement:	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 $\mu$ H/50 ohms line impedance stabilization network (LISN).																	
Test Limit:	<table border="1"> <thead> <tr> <th>Frequency of emission (MHz)</th> <th colspan="2">Conducted limit (dB<math>\mu</math>V)</th> </tr> <tr> <th></th> <th>Quasi-peak</th> <th>Average</th> </tr> </thead> <tbody> <tr> <td>0.15-0.5</td> <td>66 to 56*</td> <td>56 to 46*</td> </tr> <tr> <td>0.5-5</td> <td>56</td> <td>46</td> </tr> <tr> <td>5-30</td> <td>60</td> <td>50</td> </tr> </tbody> </table>			Frequency of emission (MHz)	Conducted limit (dB $\mu$ V)			Quasi-peak	Average	0.15-0.5	66 to 56*	56 to 46*	0.5-5	56	46	5-30	60	50
Frequency of emission (MHz)	Conducted limit (dB $\mu$ 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 C63.10-2013 section 6.2																	
Procedure:	Refer to ANSI C63.10-2013 section 6.2, standard test method for ac power-line conducted emissions from unlicensed wireless devices																	

#### 4.1.1 E.U.T. Operation:

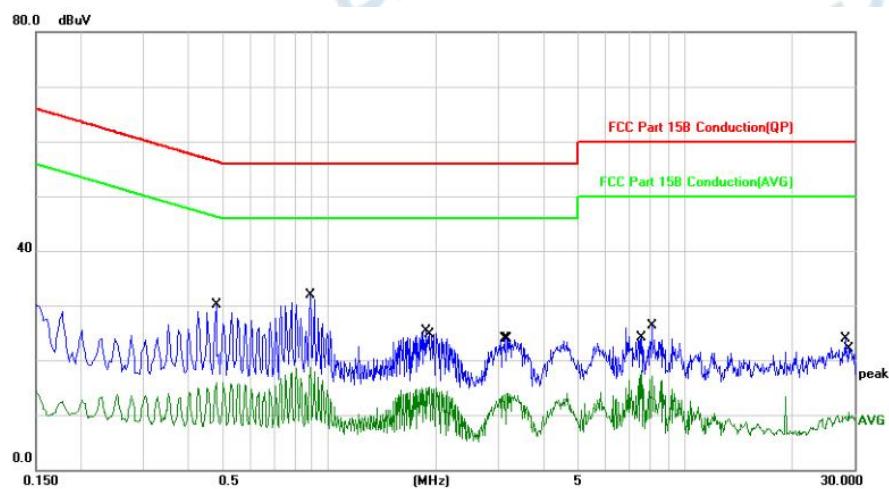
Operating Environment:			
Temperature:	22.5 °C	Humidity:	53 %
Pretest mode:	TM1		
Final test mode:	TM1		

#### 4.1.2 Test Setup Diagram:



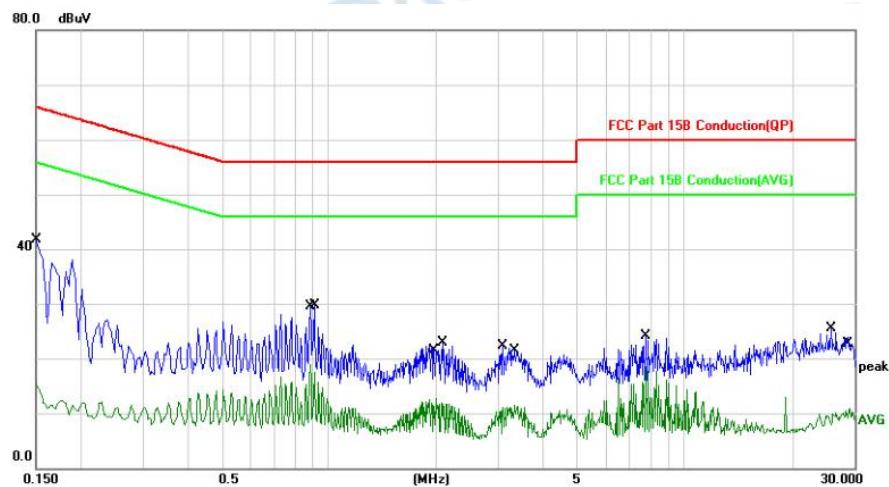
**4.1.3 Test Data:**

TM1 / Line / Band: 2.4G / BW: 3 / CH: L



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1	0.4820	19.97	10.08	30.05	56.30	-26.25	QP		
2	0.4820	5.91	10.08	15.99	46.30	-30.31	AVG		
3	*	0.8860	21.85	10.08	31.93	56.00	-24.07	QP	
4		0.8860	8.60	10.08	18.68	46.00	-27.32	AVG	
5		1.8700	15.37	10.01	25.38	56.00	-30.62	QP	
6		1.9220	5.05	10.00	15.05	46.00	-30.95	AVG	
7		3.1099	13.89	10.08	23.97	56.00	-32.03	QP	
8		3.1619	3.91	10.08	13.99	46.00	-32.01	AVG	
9		7.5260	7.88	10.25	18.13	50.00	-31.87	AVG	
10		8.0980	16.02	10.28	26.30	60.00	-33.70	QP	
11		28.2940	12.87	11.04	23.91	60.00	-36.09	QP	
12		28.7940	-0.52	11.07	10.55	50.00	-39.45	AVG	

TM1 / Line: Neutral / Band: 2.4G / BW: 3 / CH: L



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dB	Detector	Comment
1	*	0.1500	31.51	10.10	41.61	65.99	-24.38	QP
2		0.1500	5.20	10.10	15.30	55.99	-40.69	AVG
3		0.8860	8.88	10.08	18.96	46.00	-27.04	AVG
4		0.9100	19.62	10.08	29.70	56.00	-26.30	QP
5		1.9980	2.79	9.99	12.78	46.00	-33.22	AVG
6		2.0980	12.90	10.01	22.91	56.00	-33.09	QP
7		3.0860	12.19	10.08	22.27	56.00	-33.73	QP
8		3.3380	1.33	10.10	11.43	46.00	-34.57	AVG
9		7.7700	13.80	10.27	24.07	60.00	-35.93	QP
10		7.7700	8.19	10.27	18.46	50.00	-31.54	AVG
11		25.7420	14.60	10.87	25.47	60.00	-34.53	QP
12		29.1340	-0.21	11.09	10.88	50.00	-39.12	AVG

## 4.2 Occupied Bandwidth

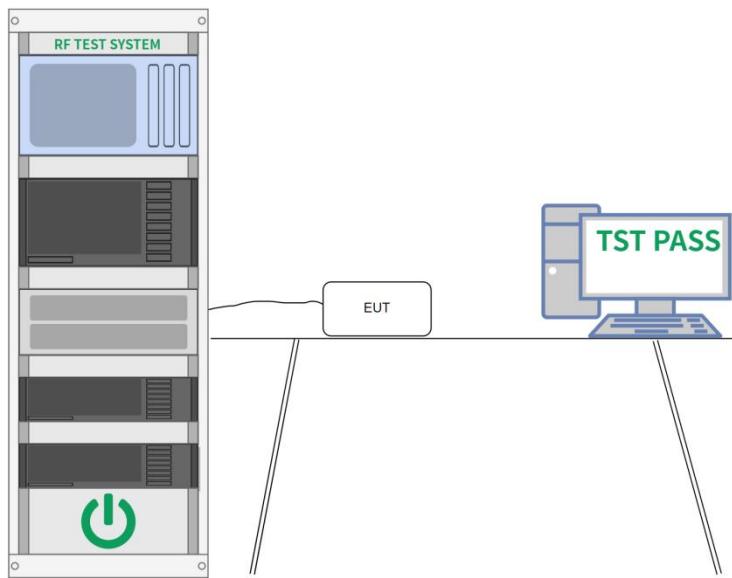
Test Requirement:	47 CFR 15.215(c)
Test Limit:	Refer to 47 CFR 15.215(c), intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.
Test Method:	ANSI C63.10-2013, section 6.9.2
Procedure:	<p>a) The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the EMI receiver or spectrum analyzer shall be between two times and five times the OBW.</p> <p>b) The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW and video bandwidth (VBW) shall be approximately three times RBW, unless otherwise specified by the applicable requirement.</p> <p>c) Set the reference level of the instrument as required, keeping the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than <math>[10 \log (\text{OBW}/\text{RBW})]</math> below the reference level. Specific guidance is given in 4.1.5.2.</p> <p>d) Steps a) through c) might require iteration to adjust within the specified tolerances.</p> <p>e) The dynamic range of the instrument at the selected RBW shall be more than 10 dB below the target “-xx dB down” requirement; that is, if the requirement calls for measuring the -20 dB OBW, the instrument noise floor at the selected RBW shall be at least 30 dB below the reference value.</p> <p>f) Set detection mode to peak and trace mode to max hold.</p> <p>g) Determine the reference value: Set the EUT to transmit an unmodulated carrier or modulated signal, as applicable. Allow the trace to stabilize. Set the spectrum analyzer marker to the highest level of the displayed trace (this is the reference value).</p> <p>h) Determine the “-xx dB down amplitude” using <math>[(\text{reference value}) - \text{xx}]</math>. Alternatively, this calculation may be made by using the marker-delta function of the instrument.</p> <p>i) If the reference value is determined by an unmodulated carrier, then turn the EUT modulation ON, and either clear the existing trace or start a new trace on the spectrum analyzer and allow the new trace to stabilize. Otherwise, the trace from step g) shall be used for step j).</p> <p>j) Place 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 “-xx dB down amplitude” determined in step h). If a marker is below this “-xx dB down amplitude” value, then it shall be as close as possible to this value. The occupied bandwidth is the frequency difference between the two markers. Alternatively, set a marker at the lowest frequency of the envelope of the spectral display, such that the marker is at or slightly below the “-xx dB down amplitude” determined in step h). Reset the marker-delta function and move the marker to the other side of the emission until the delta marker amplitude is at the same level as the reference marker amplitude. The marker-delta frequency reading at this point is the specified emission bandwidth.</p> <p>k) The occupied bandwidth shall be reported by providing plot(s) of the measuring instrument display; the plot axes and the scale units per division shall be clearly labeled. Tabular data may be reported in addition to the plot(s).</p>

### 4.2.1 E.U.T. Operation:

Operating Environment:				
Temperature:	22.5 °C	Humidity:	53 %	Atmospheric Pressure: 102 kPa
Pretest mode:	TM1			

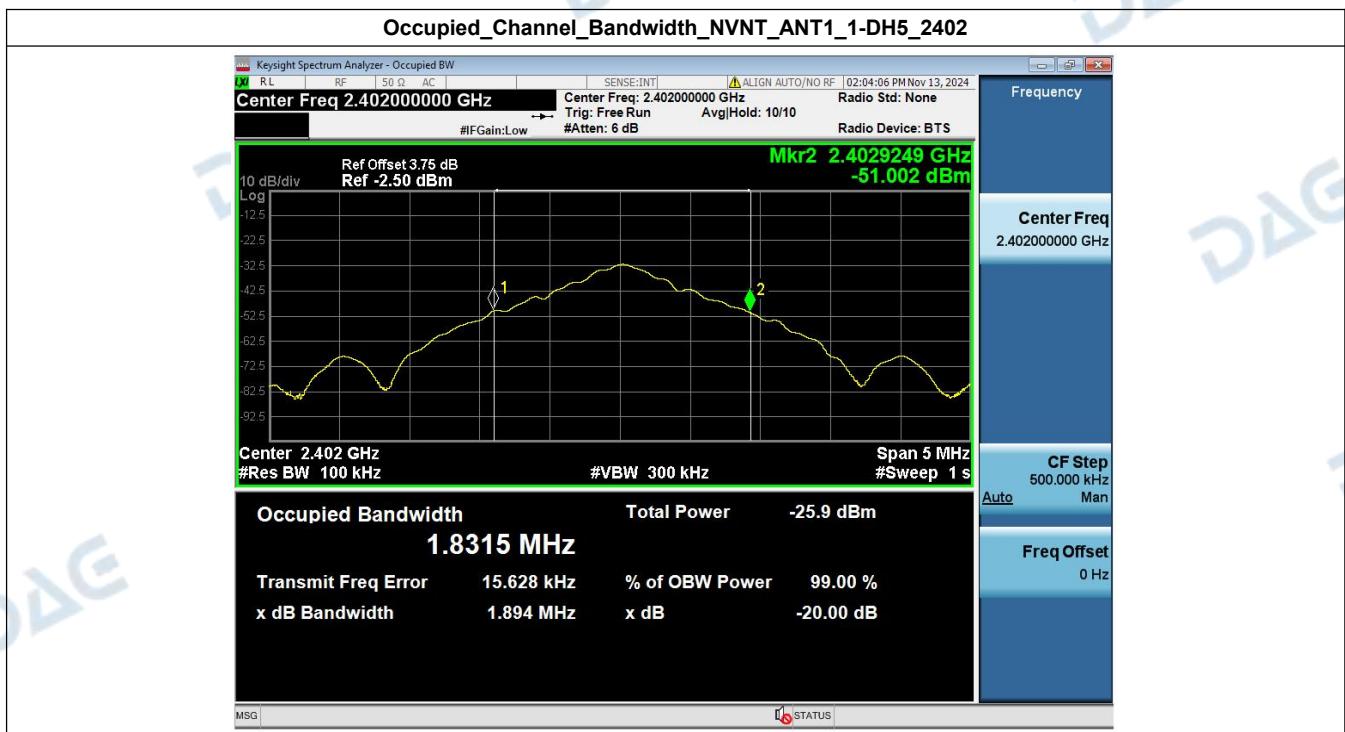
Final test mode: TM1

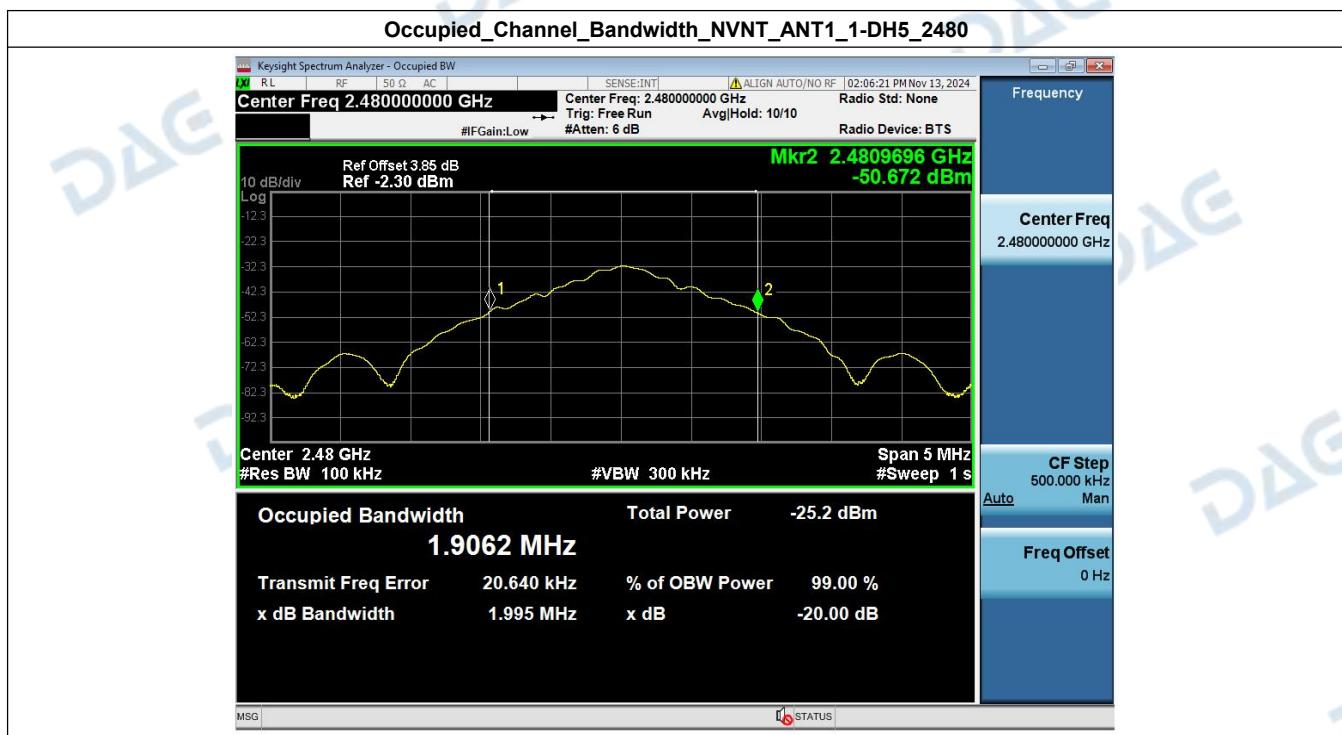
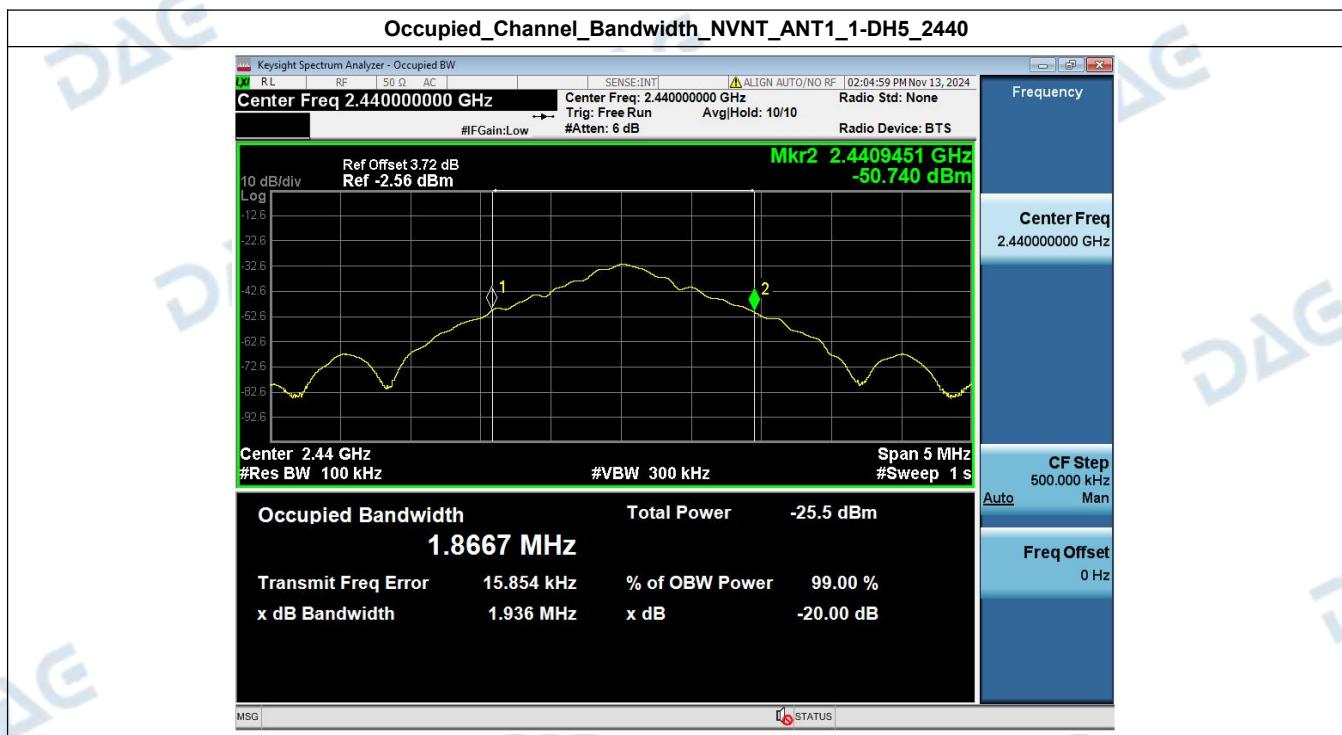
#### 4.2.2 Test Setup Diagram:



#### 4.2.3 Test Data:

Condition	Antenna	Modulation	Frequency (MHz)	-20dB BW(MHz)
NVNT	ANT1	GFSK	2402.00	1.894
NVNT	ANT1	GFSK	2440.00	1.936
NVNT	ANT1	GFSK	2480.00	1.995





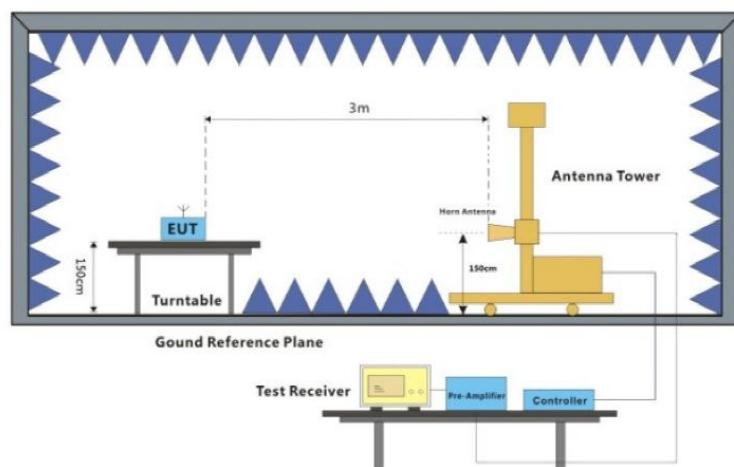
### 4.3 Field strength of fundamental

Test Requirement:	Except as provided in paragraph (b) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:		
	Fundamental frequency	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (microvolts/meter)
	902-928 MHz	50	500
	2400-2483.5 MHz	50	500
	5725-5875 MHz	50	500
	24.0-24.25 GHz	250	2500
	The field strength of emissions in this band shall not exceed 2500 millivolts/meter.		
Test Method:	ANSI C63.10-2013 section 6.6		
Procedure:	ANSI C63.10-2013 section 6.6		

#### 4.3.1 E.U.T. Operation:

Operating Environment:				
Temperature:	22.5 °C	Humidity:	53 %	Atmospheric Pressure:
Pretest mode:				TM1
Final test mode:				TM1

#### 4.3.2 Test Setup Diagram:



#### 4.3.3 Test Data:

Frequency (MHz)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dBuV/m)	Detector (PK/AV)	Polarization (H/V)
2402	78.26	114.00	-35.74	PK	H
2402	78.64	94.00	-15.36	PK	V
2440	78.57	114.00	-35.43	PK	H
2440	78.33	94.00	-15.67	PK	V
2480	77.98	114.00	-36.02	PK	H
2480	78.60	94.00	-15.40	PK	V

Note: Margin = Emission Level – Limit; For fundamental frequency, RBW>20dB BW, VBW>=3XRBW

#### 4.4 Band edge emissions (Radiated)

Test Requirement:	Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in § 15.209, whichever is the lesser attenuation.		
Test Limit:	Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in § 15.209, whichever is the lesser attenuation.		
		Frequency (MHz)	Field strength (microvolts/meter)
		0.009-0.490	2400/F(kHz)
		0.490-1.705	24000/F(kHz)
		1.705-30.0	30
		30-88	100 **
		88-216	150 **
		216-960	200 **
		Above 960	500
		Measurement distance (meters)	
		300	30
		30	30
		3	3
		3	3
		3	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.

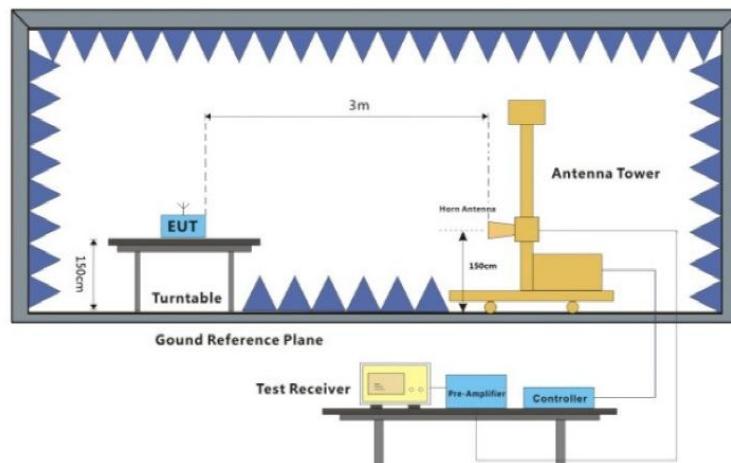
Test Method: ANSI C63.10-2013 section 6.6.4

Procedure: ANSI C63.10-2013 section 6.6.4

##### 4.4.1 E.U.T. Operation:

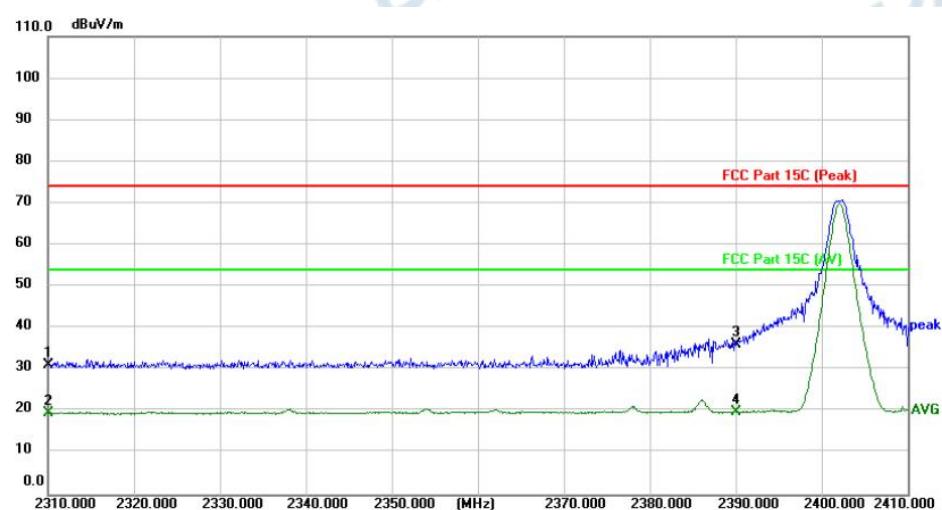
Operating Environment:				
Temperature:	22.5 °C	Humidity:	53 %	Atmospheric Pressure: 102 kPa
Pretest mode:	TM1			
Final test mode:	TM1			

##### 4.4.2 Test Setup Diagram:



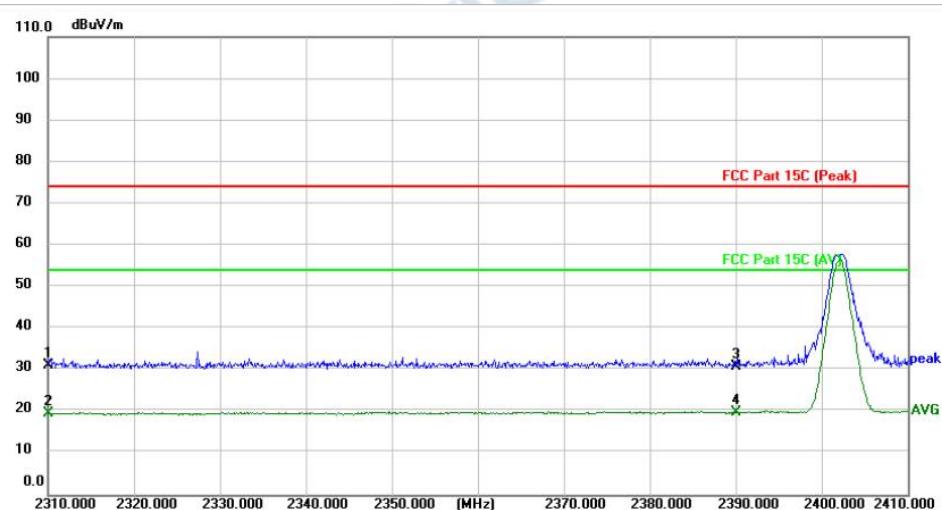
#### 4.4.3 Test Data:

TM1 / Polarization: Horizontal / Band: 2.4G / BW: 3 / CH: L



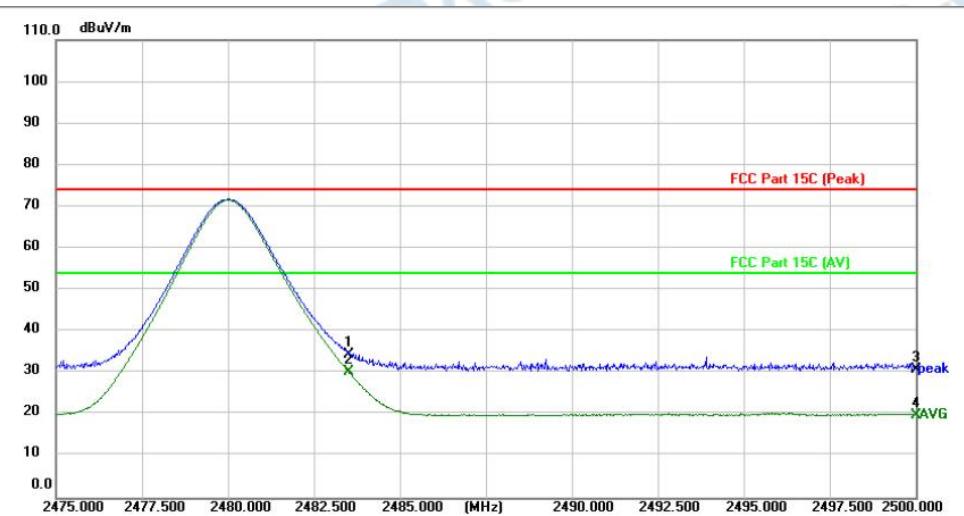
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	2310.000	34.82	-3.63	31.19	74.00	-42.81	peak	150		P	
2	2310.000	23.29	-3.63	19.66	54.00	-34.34	AVG	150		P	
3	2390.000	39.50	-3.42	36.08	74.00	-37.92	peak	150		P	
4 *	2390.000	23.25	-3.42	19.83	54.00	-34.17	AVG	150		P	

TM1 / Polarization: Vertical / Band: 2.4G / BW: 3 / CH: L



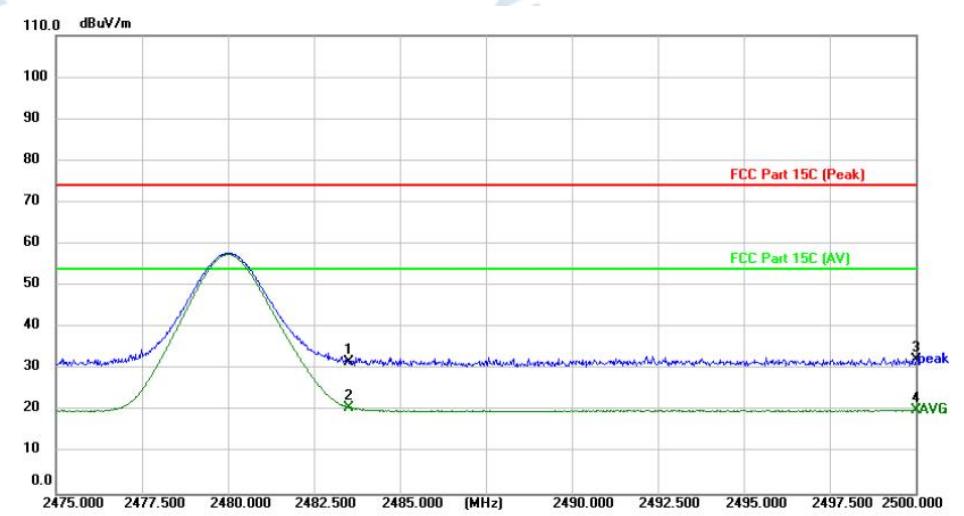
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	2310.000	34.75	-3.63	31.12	74.00	-42.88	peak	150		P	
2	2310.000	23.23	-3.63	19.60	54.00	-34.40	AVG	150		P	
3	2390.000	34.34	-3.42	30.92	74.00	-43.08	peak	150		P	
4 *	2390.000	23.29	-3.42	19.87	54.00	-34.13	AVG	150		P	

## TM1 / Polarization: Horizontal / Band: 2.4G / BW: 3 / CH: H



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	2483.500	37.82	-3.17	34.65	74.00	-39.35	peak	150		P	
2 *	2483.500	33.63	-3.17	30.46	54.00	-23.54	AVG	150		P	
3	2500.000	34.14	-3.13	31.01	74.00	-42.99	peak	150		P	
4	2500.000	23.20	-3.13	20.07	54.00	-33.93	AVG	150		P	

## TM1 / Polarization: Vertical / Band: 2.4G / BW: 3 / CH: H



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	2483.500	34.87	-3.17	31.70	74.00	-42.30	peak	150		P	
2 *	2483.500	24.05	-3.17	20.88	54.00	-33.12	AVG	150		P	
3	2500.000	35.32	-3.13	32.19	74.00	-41.81	peak	150		P	
4	2500.000	23.33	-3.13	20.20	54.00	-33.80	AVG	150		P	

1. Margin = Measurement Level - Limit ; Measurement Level=Test receiver reading + correction factor
2. The test software will only record the worst test angle and height, and only the worst case will be recorded in the test report.

#### 4.5 Emissions in frequency bands (below 1GHz)

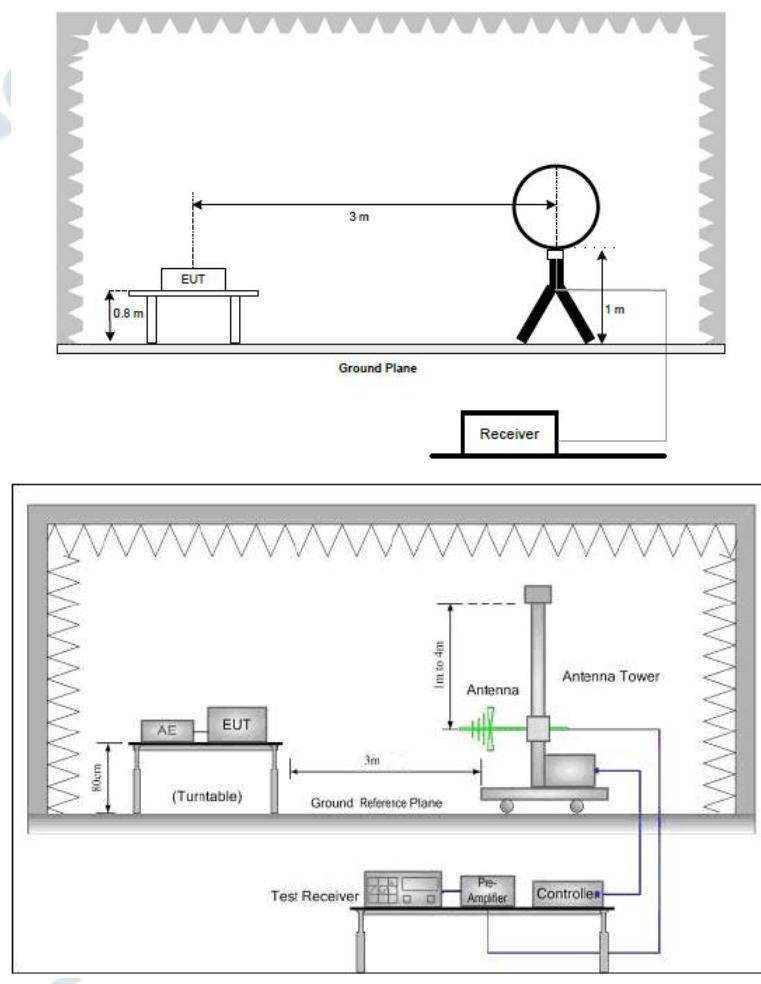
Test Requirement:	47 CFR 15.249(a) 47 CFR 15.249(d) 47 CFR 15.249(e)		
Test Limit:	Except as provided in paragraph (b) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:		
		Fundamental frequency	Field strength of fundamental (millivolts/meter)
		902-928 MHz	50
		2400-2483.5 MHz	50
		5725-5875 MHz	50
		24.0-24.25 GHz	250
Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in § 15.209, whichever is the lesser attenuation.			
		Frequency (MHz)	Field strength (microvolts/meter)
		0.009-0.490	2400/F(kHz)
		0.490-1.705	24000/F(kHz)
		1.705-30.0	30
		30-88	100 **
		88-216	150 **
		216-960	200 **
		Above 960	500
			Measurement distance (meters)
			300
			30
			30
			3
			3
			3
			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.			
As shown in § 15.35(b), for frequencies above 1000 MHz, the field strength limits in paragraphs (a) and (b) of this section are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For point-to-point operation under paragraph (b) of this section, the peak field strength shall not exceed 2500 millivolts/meter at 3 meters along the antenna azimuth.			
Test Method:	ANSI C63.10-2013 section 6.5		
Procedure:	ANSI C63.10-2013 section 6.5		

##### 4.5.1 E.U.T. Operation:

Operating Environment:				
Temperature:	22.5 °C	Humidity:	53 %	Atmospheric Pressure: 102 kPa
Pretest mode:	TM1			

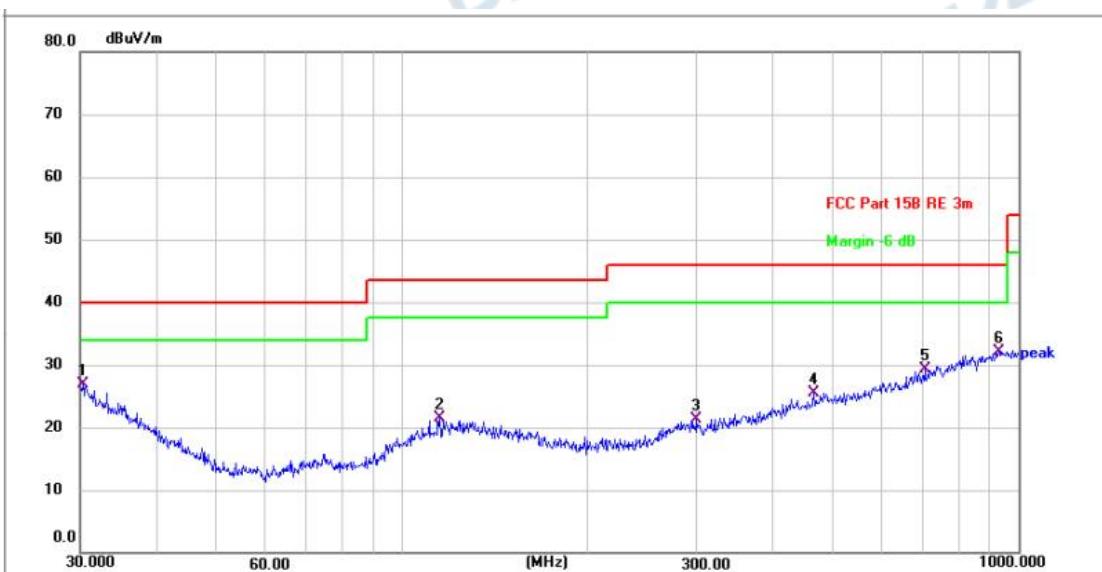
Final test mode:	TM1
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#### 4.5.2 Test Setup Diagram:



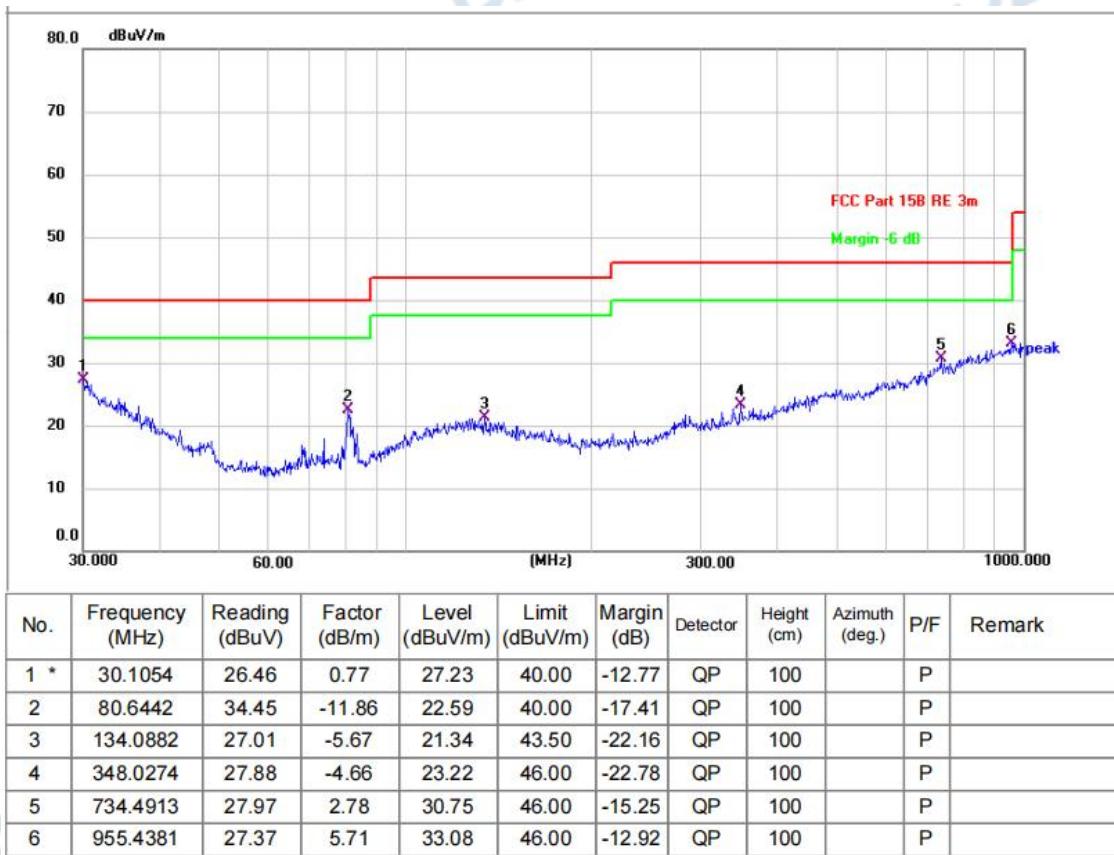
**4.5.3 Test Data:**

TM1 / Polarization: Horizontal / Band: 2.4G / BW: 3 / CH: L



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1 *	30.3173	26.29	0.62	26.91	40.00	-13.09	QP	100		P	
2	114.9169	27.21	-5.79	21.42	43.50	-22.08	QP	100		P	
3	300.3672	27.02	-5.74	21.28	46.00	-24.72	QP	100		P	
4	465.5994	27.20	-1.71	25.49	46.00	-20.51	QP	100		P	
5	704.2261	27.13	2.08	29.21	46.00	-16.79	QP	100		P	
6	929.0082	26.28	5.81	32.09	46.00	-13.91	QP	100		P	

TM1 / Polarization: Vertical / Band: 2.4G / BW: 3 / CH: L



#### 4.6 Emissions in frequency bands (above 1GHz)

Test Requirement:	47 CFR 15.249(a) 47 CFR 15.249(d) 47 CFR 15.249(e)		
Test Limit:	Except as provided in paragraph (b) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:		
		Field strength of fundamental (millivolts/meter)	Field strength of harmonics (microvolts/meter)
902-928 MHz	50	500	
2400-2483.5 MHz	50	500	
5725-5875 MHz	50	500	
24.0-24.25 GHz	250	2500	
Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in § 15.209, whichever is the lesser attenuation.			
		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. As shown in § 15.35(b), for frequencies above 1000 MHz, the field strength limits in paragraphs (a) and (b) of this section are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For point-to-point operation under paragraph (b) of this section, the peak field strength shall not exceed 2500 millivolts/meter at 3 meters along the antenna azimuth.

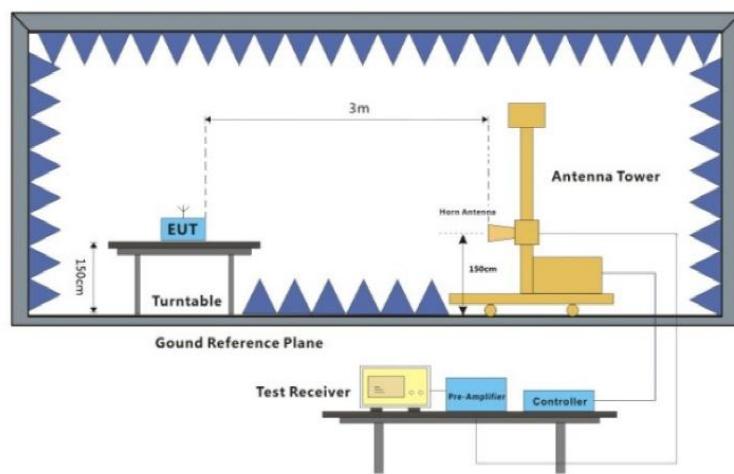
Test Method:	ANSI C63.10-2013 section 6.6		
Procedure:	ANSI C63.10-2013 section 6.6		

##### 4.6.1 E.U.T. Operation:

Operating Environment:				
Temperature:	22.5 °C	Humidity:	53 %	Atmospheric Pressure: 102 kPa
Pretest mode:	TM1			

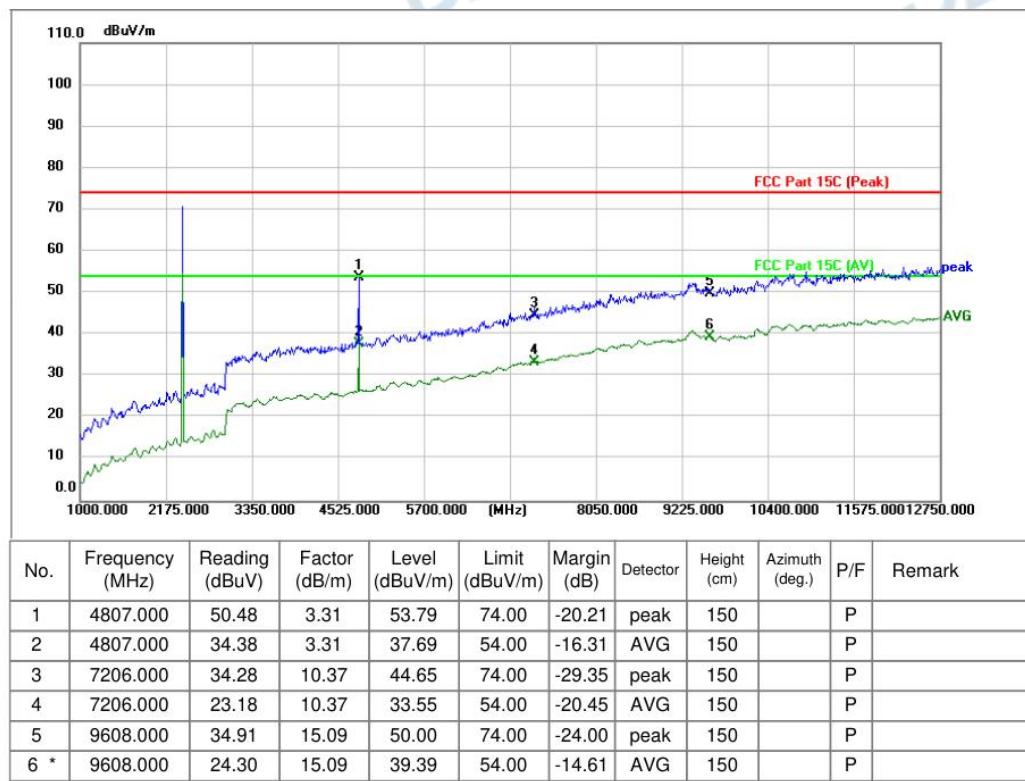
Final test mode:	TM1
------------------	-----

#### 4.6.2 Test Setup Diagram:

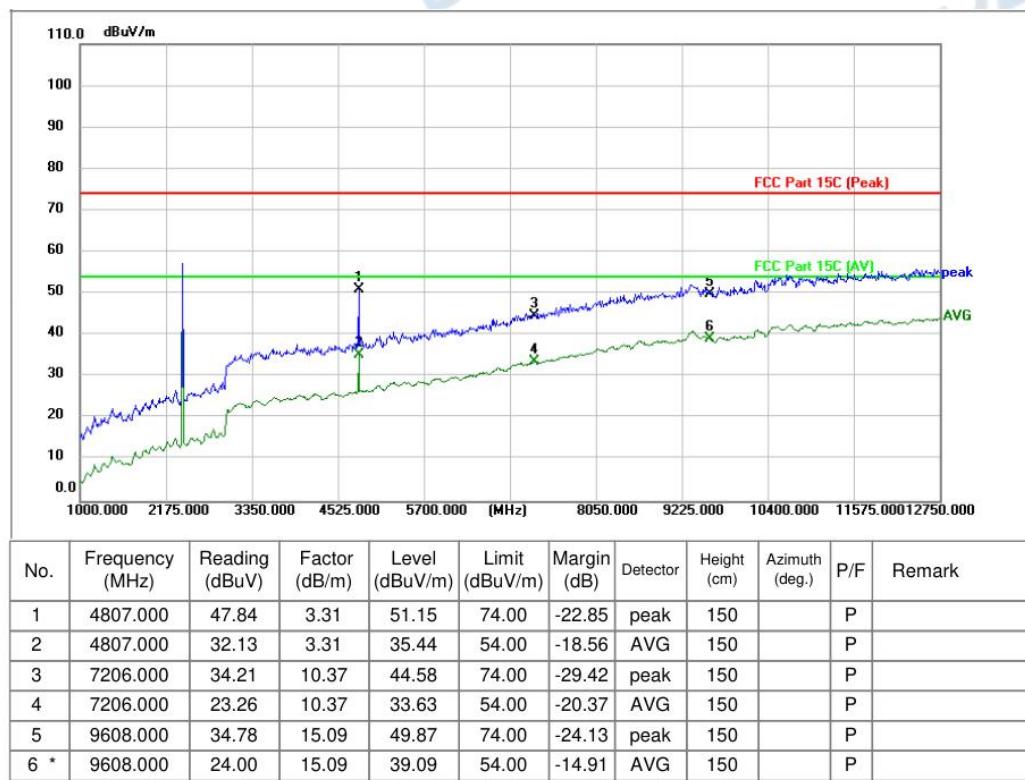


#### 4.6.3 Test Data:

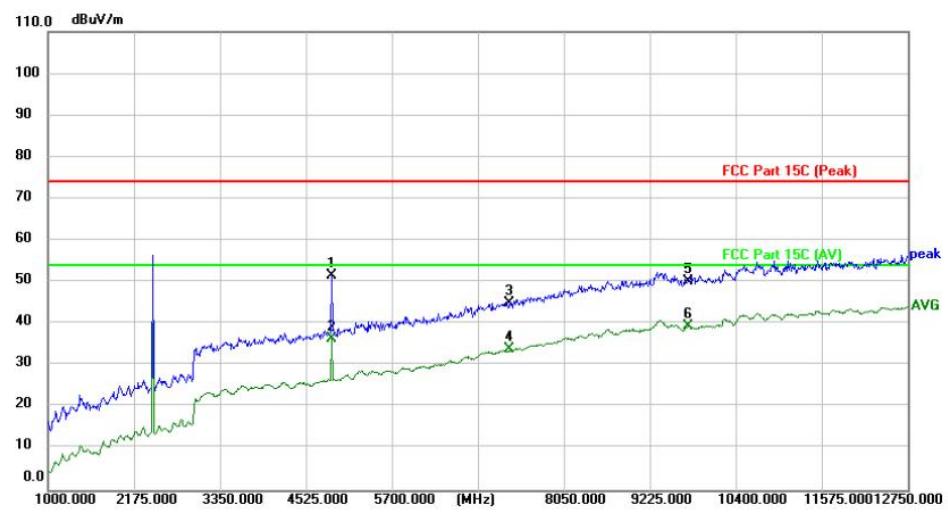
TM1 / Polarization: Horizontal / Band: 2.4G / BW: 3 / CH: L



TM1 / Polarization: Vertical / Band: 2.4G / BW: 3 / CH: L

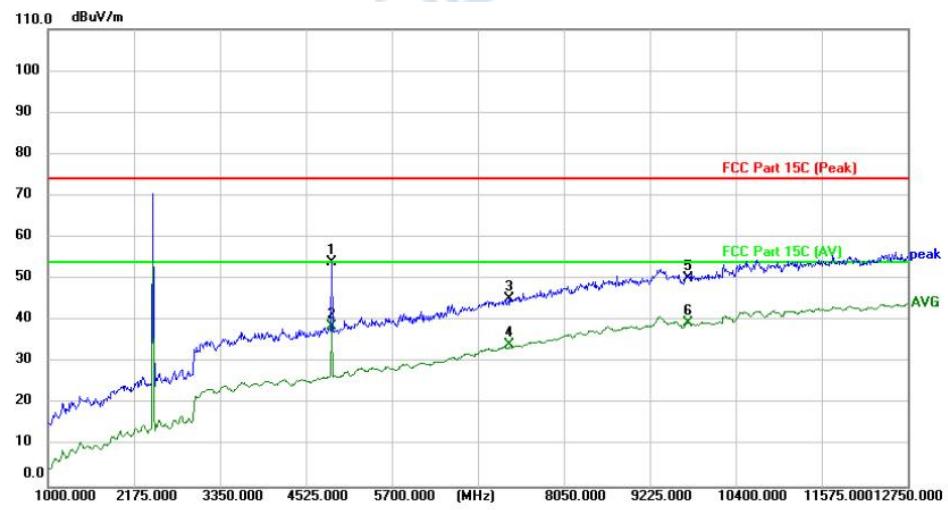


## TM1 / Polarization: Vertical / Band: 2.4G / BW: 3 / CH: M



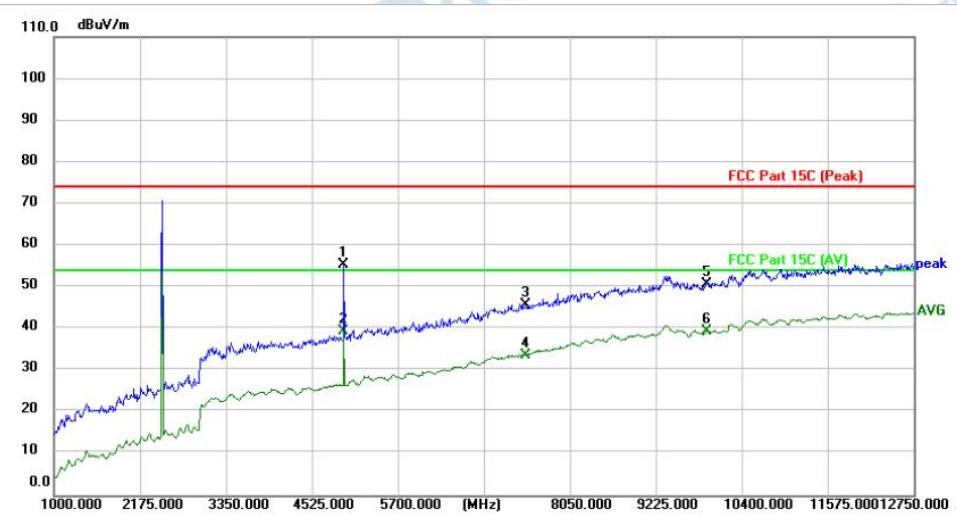
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	4877.500	47.92	3.55	51.47	74.00	-22.53	peak	150		P	
2	4877.500	32.80	3.55	36.35	54.00	-17.65	AVG	150		P	
3	7320.000	34.36	10.57	44.93	74.00	-29.07	peak	150		P	
4	7320.000	23.39	10.57	33.96	54.00	-20.04	AVG	150		P	
5	9760.000	35.19	15.09	50.28	74.00	-23.72	peak	150		P	
6 *	9760.000	24.27	15.09	39.36	54.00	-14.64	AVG	150		P	

## TM1 / Polarization: Horizontal / Band: 2.4G / BW: 3 / CH: M



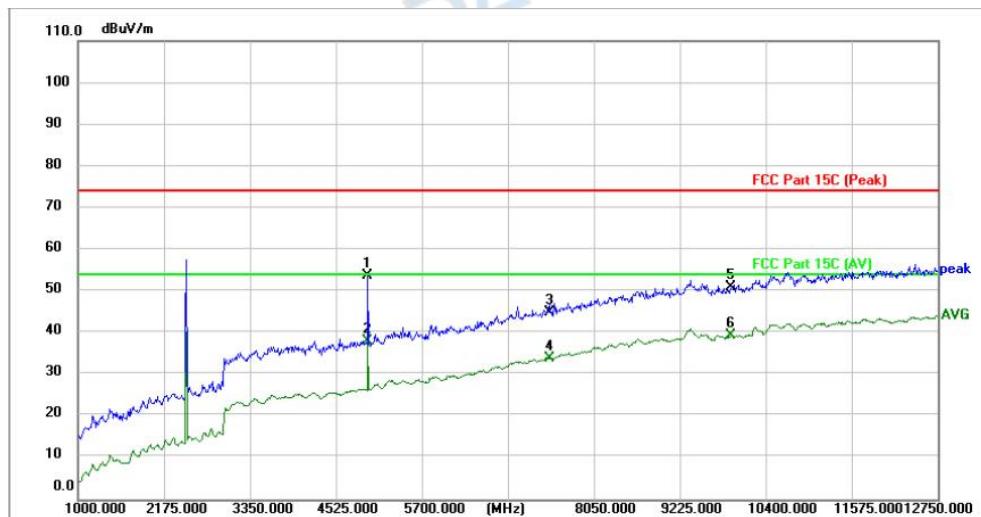
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	4877.500	50.40	3.55	53.95	74.00	-20.05	peak	150		P	
2	4877.500	35.01	3.55	38.56	54.00	-15.44	AVG	150		P	
3	7320.000	34.69	10.57	45.26	74.00	-28.74	peak	150		P	
4	7320.000	23.79	10.57	34.36	54.00	-19.64	AVG	150		P	
5	9760.000	34.98	15.09	50.07	74.00	-23.93	peak	150		P	
6 *	9760.000	24.36	15.09	39.45	54.00	-14.55	AVG	150		P	

## TM1 / Polarization: Horizontal / Band: 2.4G / BW: 3 / CH: H



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	4959.750	51.70	3.83	55.53	74.00	-18.47	peak	150		P	
2 *	4959.750	35.73	3.83	39.56	54.00	-14.44	AVG	150		P	
3	7440.000	35.01	10.78	45.79	74.00	-28.21	peak	150		P	
4	7440.000	23.02	10.78	33.80	54.00	-20.20	AVG	150		P	
5	9920.000	35.68	15.08	50.76	74.00	-23.24	peak	150		P	
6	9920.000	24.42	15.08	39.50	54.00	-14.50	AVG	150		P	

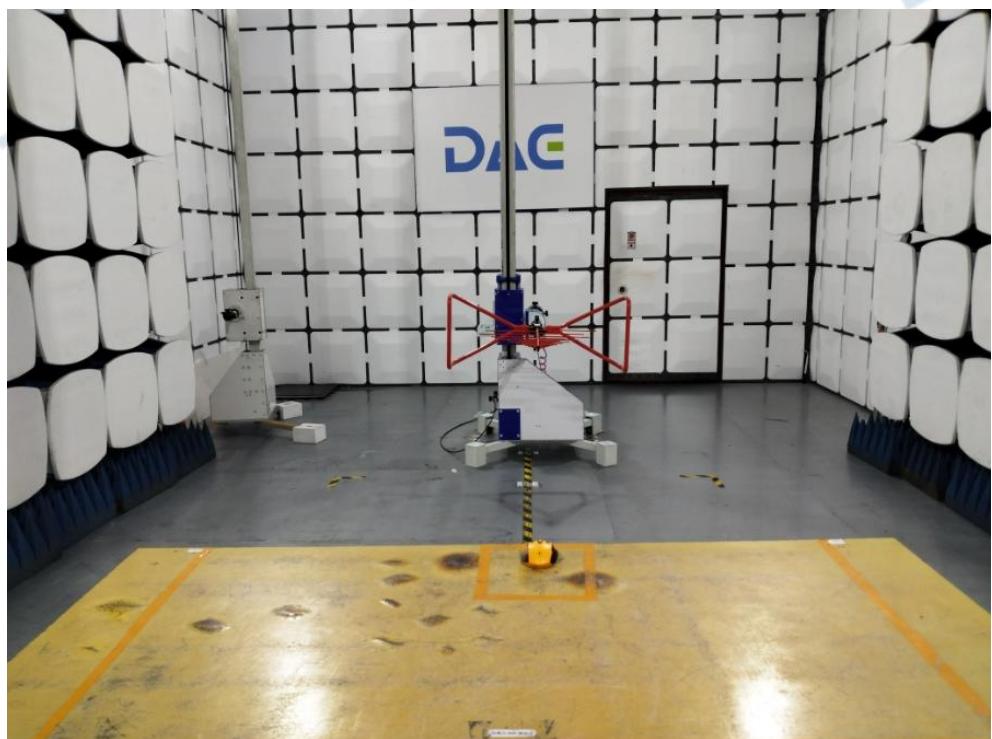
## TM1 / Polarization: Vertical / Band: 2.4G / BW: 3 / CH: H



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	4959.750	49.97	3.83	53.80	74.00	-20.20	peak	150		P	
2	4959.750	34.26	3.83	38.09	54.00	-15.91	AVG	150		P	
3	7440.000	34.13	10.78	44.91	74.00	-29.09	peak	150		P	
4	7440.000	23.07	10.78	33.85	54.00	-20.15	AVG	150		P	
5	9920.000	35.82	15.08	50.90	74.00	-23.10	peak	150		P	
6 *	9920.000	24.40	15.08	39.48	54.00	-14.52	AVG	150		P	

## 5 TEST SETUP PHOTOS

Emissions in frequency bands (below 1GHz)



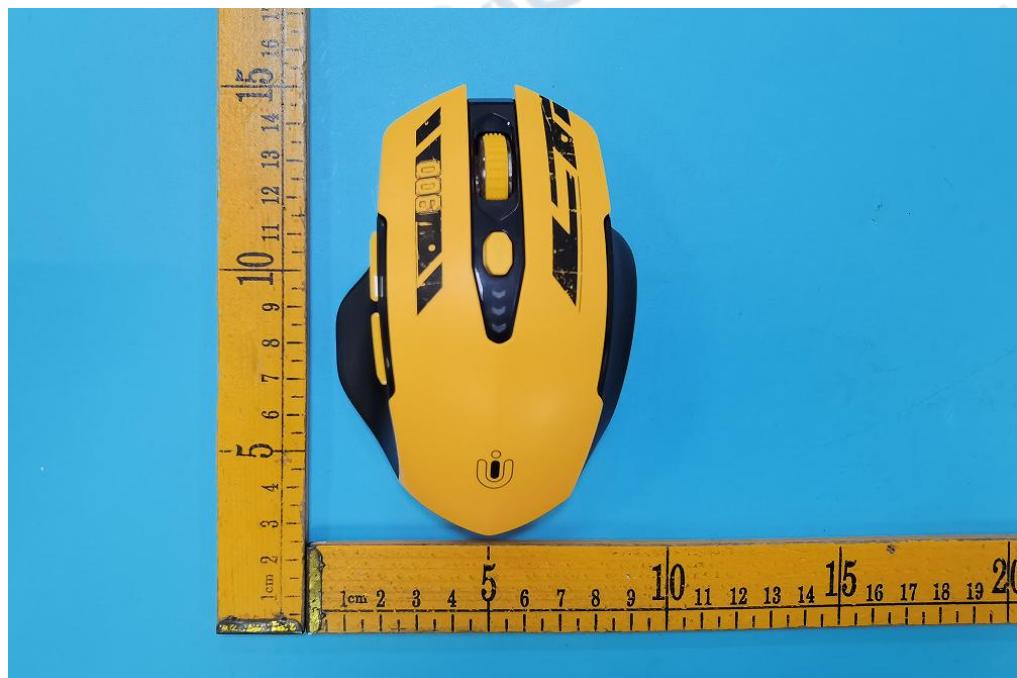
Emissions in frequency bands (above 1GHz)



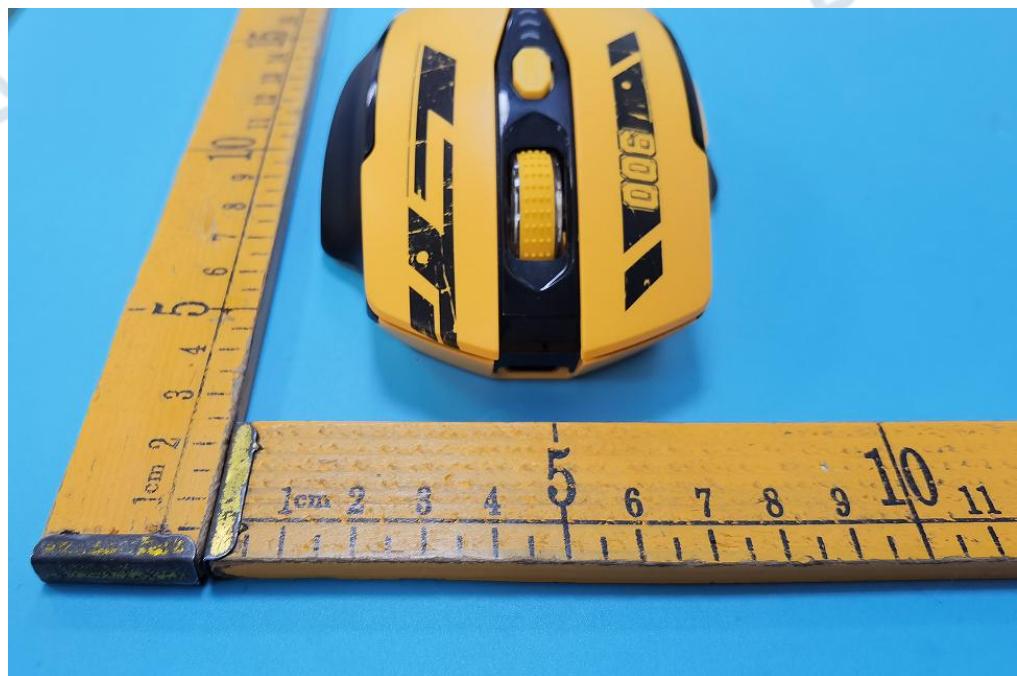
**Conducted Emission at AC power line**

## 6 PHOTOS OF THE EUT

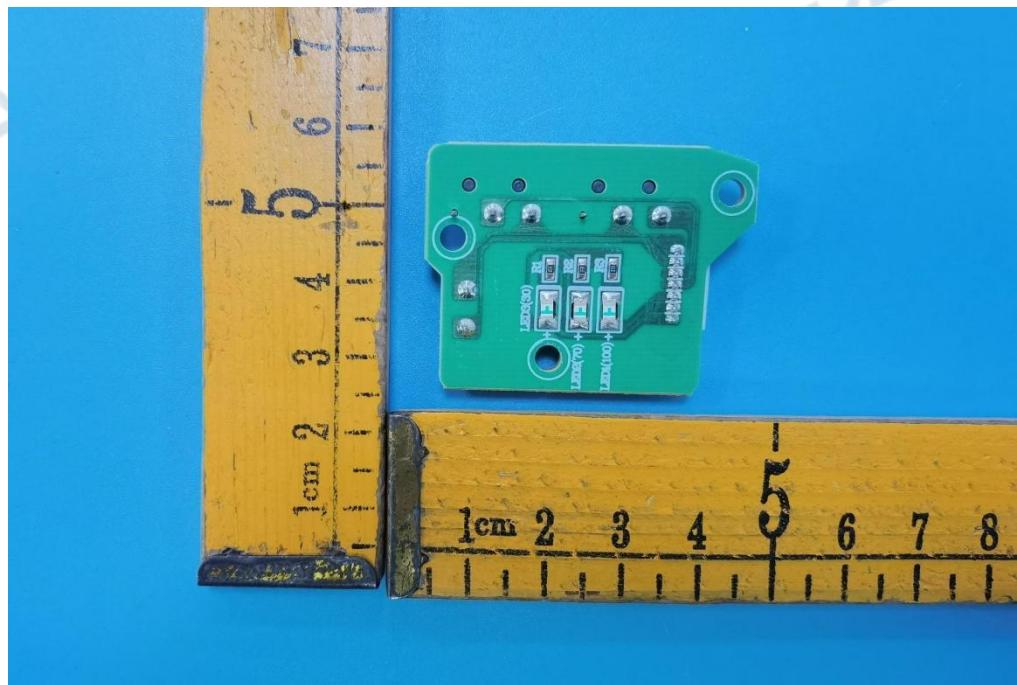
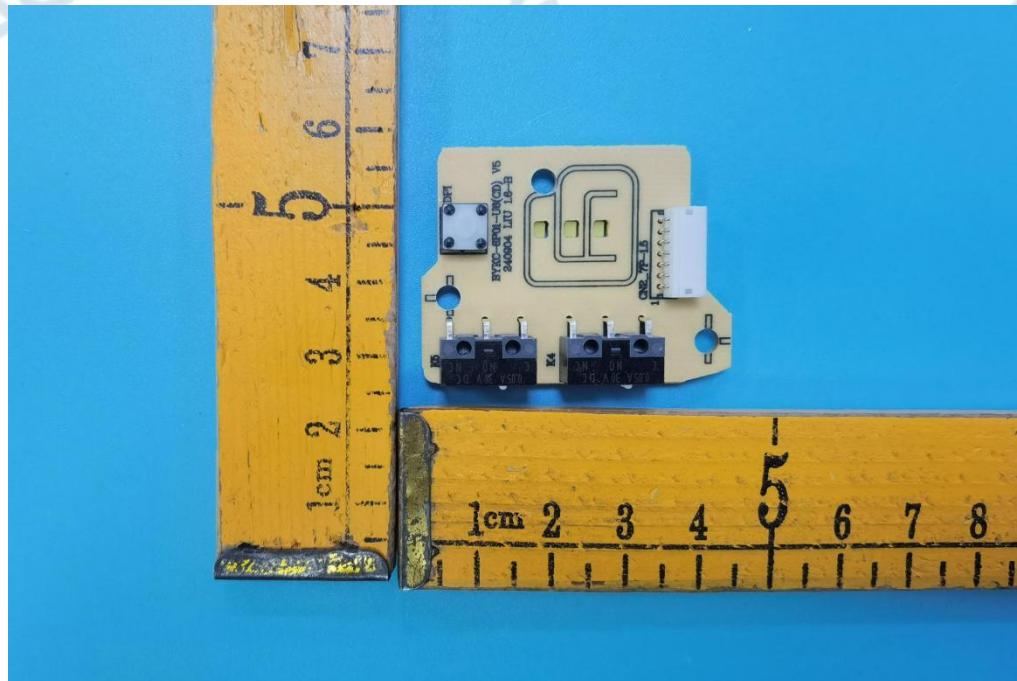
External

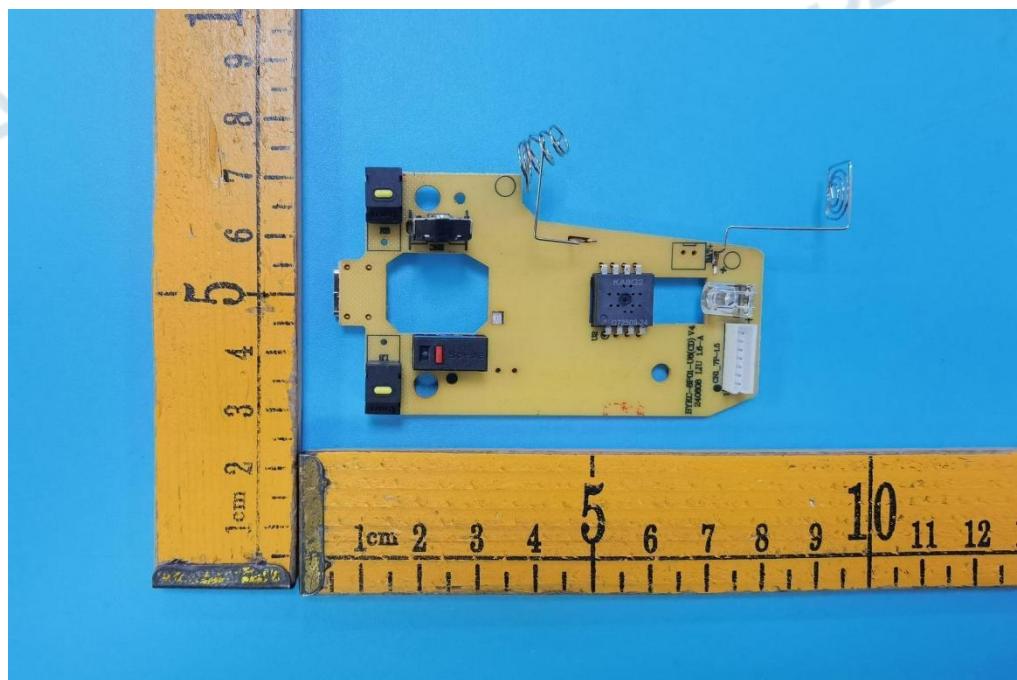


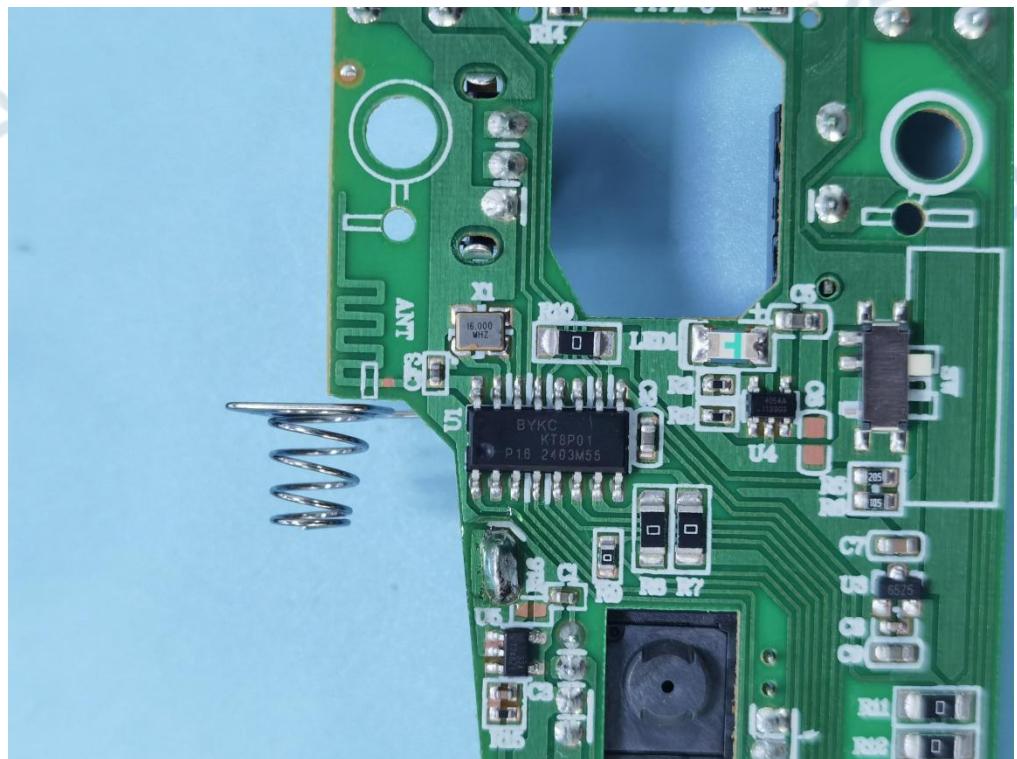
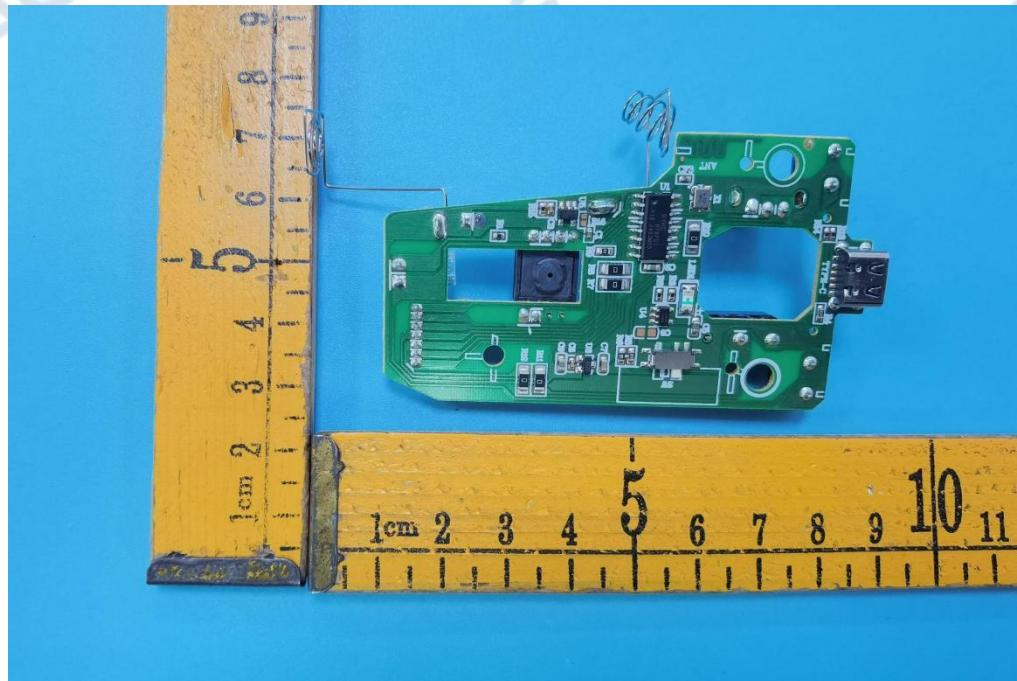




**Internal**







\*\*\*\*\* End of Report \*\*\*\*\*