

withdrawal at

| Report No.: | TW2311061-01E | |
|--|--|--|
| Applicant: | MICRO COMPUTER (HK) TECH LIMITED | |
| Product: | Wireless Mouse | |
| Model No.: | MM-A01, MM-A02, MM-A03, MM-A04, MM-A05, MM-A06, MM-A07, MM-A08, MM-A09, MM-A10 | |
| Trademark: | W MINISFORUM | |
| Test Standards: | FCC Part 15.249 | |
| Test result: | It is herewith confirmed and found to comply with the requirements set up by ANSI C63.10 & FCC Part 15 Subpart C, Paragraph 15.249 regulations for the evaluation of electromagnetic compatibility | |
| Approved By | | |
| Terry Tong | | |
| Terry Tang | | |
| Manager | | |
| Dated: | November 21, 2023 | |
| Results appearing herein relate only to the sample tested The technical reports is issued errors and omissions exempt and is subject to | | |

SHENZHEN TIMEWAY TESTING LABORATORIES

Zone C, 1st Floor, Block B, Jun Xiang Da Building, Zhongshan Park Road West, Tong Le Village, Nanshan District, Shenzhen, China Tel (755) 83448688, Fax (755) 83442996, E-Mail:info@timeway-lab.com



Special Statement:

FCC-Registration No.: 744189

The EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications commission. The acceptance letter from the FCC is maintained in our files. Registration No.: 744189.

Industry Canada (IC) — Registration No.: 5205A

The EMC Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 5205A.

A2LA (Certification Number:5013.01)

The EMC Laboratory has been accredited by the American Association for Laboratory Accreditation (A2LA). Certification Number:5013.01

CAB identifier: CN0033

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1.0 General Details

1.1 Test Lab Details

Name:SHENZHEN TIMEWAY TESTING LABORATORIES.Address:Zone C, 1st Floor, Block B, Jun Xiang Da Building, Zhongshan Park Road West, Tong Le
Village, Nanshan District, Shenzhen, ChinaTelephone:(755) 83448688

Telephone: (755) 83448688 Fax: (755) 83442996

Site on File with the Federal Communications Commission – United Sates

Registration Number: 744189

For 3m Anechoic Chamber

1.2 Applicant Details

Applicant: MICRO COMPUTER (HK) TECH LIMITED
Address: RM 18, 28/F, SHUI ON CENTRE, 6-8 HARBOUR ROAD, WATERFRONT WAN CHAI, HK
Telephone: 0755-84659450
Fax: 0755-

1.3 Description of EUT

| 1 | |
|-----------------------------|---|
| Product: | Wireless Mouse |
| Manufacturer: | MICRO COMPUTER (HK) TECH LIMITED |
| Address: | RM 18, 28/F, SHUI ON CENTRE, 6-8 HARBOUR ROAD, WATERFRONT |
| | WAN CHAI, HK |
| Trademark: | Minisforum |
| Model Number: | MM-A01 |
| Additional Model Name | MM-A02, MM-A03, MM-A04, MM-A05, MM-A06, MM-A07, MM-A08, |
| | MM-A09, MM-A10 |
| Rating: | Input: DC5V, 2A |
| Battery: | DC3.7V, 400mAh Li-ion battery |
| Hardware Version: | MMA01-V1.1 |
| Software Version: | MMA01-V1.1 |
| Serial No.: | MMAXXXX20231205115B |
| Operation Frequency: | 2402-2480MHz |
| Modulation Type: | GFSK |
| Channel Number: | 40 |
| Channel Separation: | 2MHz |
| Antenna Designation | PCB antenna with gain 2.34dB maximum (Get from the antenna specification) |
| | |

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- 1.4 Submitted Sample: 2 Samples
- 1.5 Test Duration 2023-11-08 to 2023-11-21
- 1.6 Test Uncertainty

Conducted Emissions Uncertainty =3.6dB Radiated Emissions below 1GHz Uncertainty =4.7dB Radiated Emissions above 1GHz Uncertainty =6.0dB Conducted Power Uncertainty =6.0dB Occupied Channel Bandwidth Uncertainty =5% Conducted Emissions Uncertainty =3.6dB Note: The measurement uncertainty is for coverage factor of k=2 and a level of confidence of 95%.

1.7 Test Engineer

Andy - Xing

The sample tested by

Print Name: Andy Xing

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| 2.0 Test Equipment | | | | | |
|--------------------|--------------|------------------|--------------|--------------|------------|
| Instrument Type | Manufacturer | Model | Serial No. | Date of Cal. | Due Date |
| ESPI Test Receiver | R&S | ESPI 3 | 100379 | 2023-07-14 | 2024-07-13 |
| LISN | R&S | EZH3-Z5 | 100294 | 2023-07-14 | 2024-07-13 |
| LISN | R&S | EZH3-Z5 | 100253 | 2023-07-14 | 2024-07-13 |
| Impuls-Begrenzer | R&S | ESH3-Z2 | 100281 | 2023-07-14 | 2024-07-13 |
| Loop Antenna | EMCO | 6507 | 00078608 | 2022-07-18 | 2025-07-17 |
| Spectrum | R&S | FSIQ26 | 100292 | 2023-07-14 | 2024-07-13 |
| Horn Antenna | A-INFO | LB-180400-KF | J211060660 | 2022-07-18 | 2025-07-17 |
| Horn Antenna | R&S | BBHA 9120D | 9120D-631 | 2022-07-18 | 2024-07-17 |
| Power meter | Anritsu | ML2487A | 6K00003613 | 2023-07-14 | 2024-07-13 |
| Power sensor | Anritsu | MA2491A | 32263 | 2023-07-14 | 2024-07-13 |
| Bilog Antenna | Schwarebeck | VULB9163 | 9163/340 | 2022-07-18 | 2025-07-17 |
| 9*6*6 Anechoic | | | N/A | 2022-07-26 | 2025-07-25 |
| EMI Test Receiver | RS | ESVB | 826156/011 | 2023-07-14 | 2024-07-13 |
| EMI Test Receiver | RS | ESCS 30 | 834115/006 | 2023-07-14 | 2024-07-13 |
| Spectrum | HP/Agilent | E4407B | MY50441392 | 2023-07-14 | 2024-07-13 |
| Spectrum | RS | FSP | 1164.4391.38 | 2023-07-14 | 2024-07-13 |
| RF Cable | Zhengdi | ZT26-NJ-NJ-8M/FA | | 2023-07-14 | 2024-07-13 |
| RF Cable | Zhengdi | 7m | | 2023-07-14 | 2024-07-13 |
| Pre-Amplifier | Schwarebeck | BBV9743 | #218 | 2023-07-14 | 2024-07-13 |
| Pre-Amplifier | HP/Agilent | 8449B | 3008A00160 | 2023-07-14 | 2024-07-13 |
| LISN | SCHAFFNER | NNB42 | 00012 | 2023-07-14 | 2024-07-13 |
| ESPI Test Receiver | R&S | ESPI 3 | 100379 | 2023-07-14 | 2024-07-13 |
| LISN | R&S | EZH3-Z5 | 100294 | 2023-07-14 | 2024-07-13 |

2.2 Automation Test Software

For Conducted Emission Test

| Name | Version |
|--------|-------------------|
| EZ-EMC | Ver.EMC-CON 3A1.1 |

For Radiated Emissions

| Name | Version |
|---|---------|
| EMI Test Software BL410-EV18.91 | V18.905 |
| EMI Test Software BL410-EV18.806 High Frequency | V18.06 |

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adopt any other remedies which may be appropriate.



The EUT has been tested according to the following specifications:

3.0 Technical Details

3.1 Summary of test results

| The EOT has been tested according to the following specifications. | | | | |
|--|-------------------------------------|--------|----------|--|
| Standard | Test Type | Result | Notes | |
| FCC Part 15, Paragraph 15.203 | Antenna Requirement | Pass | Complies | |
| FCC Part 15, Paragraph 15.207 | Conducted Emission Test | Pass | Complies | |
| FCC Part 15 Subpart C Paragraph 15.249(a) & 15.249(b) Limit | Field Strength of Fundamental | Pass | Complies | |
| FCC Part 15, Paragraph 15.209 | Radiated Emission Test | Pass | Complies | |
| FCC Part 15 Subpart C Paragraph 15.249(d) Limit | Band Edge Test | Pass | Complies | |
| FCC Part 15.215(c) | 20dB bandwidth | Pass | Complies | |

3.2 Test Standards

FCC Part 15 Subpart C, Paragraph 15.249, ANSI C63.4 :2014 and ANSI C63.10 :2013

4.0 EUT Modification

No modification by SHENZHEN TIMEWAY TESTING LABORATORIES

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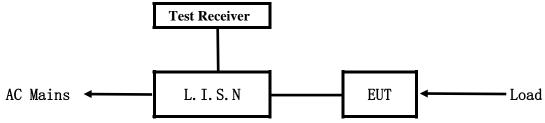
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5.0 Power Line Conducted Emission Test

5.1 Schematics of the test

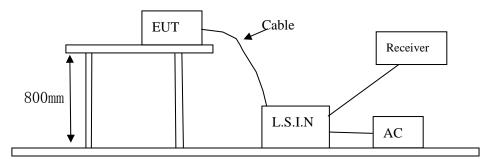


EUT: Equipment Under Test

5.2 Test Method and test Procedure

The EUT was tested according to ANSI C63.10-2013. The Frequency spectrum from 0.15MHz to 30MHz was investigated. The LISN used was 500hm/50uH as specified by section 5.1 of ANSI C63.10–2013. Test Voltage: 120V~, 60Hz

Block diagram of Test setup



5.3 Configuration of the EUT

The EUT was configured according to ANSI C63.10-2013. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below. 16 channels are provided to the EUT

| A. | EUT |
|----|-----|
| | - |

| Device | Manufacturer | Model | FCC ID |
|----------------|-------------------------------------|--|-------------|
| Wireless Mouse | MICRO COMPUTER (HK) TECH LIMITED | MM-A01, MM-A02, MM-A03, MM-A04, MM-A05, MM-A06, MM-A07, MM-A08, MM-A09, MM-A10 | 2A49R-MMA01 |

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B. Internal Device

| Internal Device | | | |
|-----------------|--------------|-------|------------|
| Device | Manufacturer | Model | FCC ID/DOC |
| N/A | | | |

C. Peripherals

| Device | Manufacturer | Model | Rating |
|--------------|--------------|-----------------|-----------------------------------|
| Power Supply | KEYU | KA23-0502000DEU | Input: 100-240V~, 50/60Hz, 0.35A; |
| | | | Output: DC5V, 2A |
| PC | ThinkPad | R4 | DC19.5V, 2.31A |

5.4 EUT Operating Condition

Operating condition is according to ANSI C63.10-2013

A Setup the EUT and simulators as shown on follow

B Enable AF signal and confirm EUT active to normal condition

5.5 Power line conducted Emission Limit according to Paragraph 15.207

| Frequency | Limits (dB µ V) | | |
|-------------------|------------------|---------------|--|
| (MHz) | Quasi-peak Level | Average Level | |
| $0.15~\sim~0.50$ | 66.0~56.0* | 56.0~46.0* | |
| $0.50~\sim~5.00$ | 56.0 | 46.0 | |
| $5.00 \sim 30.00$ | 60.0 | 50.0 | |

Notes: 1. *Decreasing linearly with logarithm of frequency.

2. The tighter limit shall apply at the transition frequencies

5.6 Test Results:

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Conducted Emission on Live Terminal (150kHz to 30MHz) A: **EUT Operating Environment** Temperature: 25°C Humidity: 65%RH Atmospheric Pressure: 101 kPa **EUT set Condition: Charging and Keep Transmitting Results: Pass** Please refer to following diagram for individual dBu¥ 80.0 70 FCC Part15 CE-Class C_QP 60 FCC Part 5 CE-Class C_AVe 50 40 peal do. 30 20 10 0 -10 -20 0.150 (MHz) 30.000

| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB) | Level (dBuV) | Limit (dBuV) | Margin (dB) | Detector | P/F |
|-----|--------------------|-------------------|----------------|----------------------|--------------------|----------------|----------|-----|
| 1 | 0.1617 | 46.04 | 9.78 | 55.82 | 65.38 | -9.56 | QP | Р |
| 2 | 0.1617 | 30.18 | 9.78 | 39.96 | <mark>55.38</mark> | -15.42 | AVG | Ρ |
| 3 | 0.2163 | 36.00 | 9.75 | 45.75 | 62.96 | -17.21 | QP | Ρ |
| 4 | 0.2163 | 24.38 | 9.75 | 34.13 | <mark>52.96</mark> | -18.83 | AVG | Ρ |
| 5 | 0.8130 | 21.83 | 9.78 | 31 <mark>.</mark> 61 | 56.00 | -24.39 | QP | Р |
| 6 | 0.8130 | 20.34 | 9.78 | 30.12 | 46.00 | -15.88 | AVG | Р |
| 7 | 16.4277 | 19.83 | 10.47 | 30.30 | 60.00 | -29.70 | QP | Р |
| 8 | 16.4277 | 14.76 | 10.47 | 25.23 | 50.00 | -24.77 | AVG | Р |

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B: Conducted Emission on Neutral Terminal (150kHz to 30MHz) **EUT Operating Environment** Temperature: 25℃ Humidity: 65%RH Atmospheric Pressure: 101 kPa EUT set Condition: Charging and Keep Transmitting **Results: Pass** Please refer to following diagram for individual dBu¥ 80.0 70 FCC Part15 CE-Class C_QP 60 FCC Part 5 CE-Class C_AVe 50 40 neak 30 AVG 20 10 0 -10 -20 30.000 0.150 (MHz)

| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB) | Level (dBuV) | Limit (dBuV) | Margin (dB) | Detector | P/F |
|-----|--------------------|-------------------|----------------|-----------------|-----------------|----------------|----------|-----|
| 1 | 0.1617 | 39.04 | 9.78 | 48.82 | 65.38 | -16.56 | QP | Р |
| 2 | 0.1617 | 21.05 | 9.78 | 30.83 | 55.38 | -24.55 | AVG | Ρ |
| 3 | 0.2514 | 26.42 | 9.75 | 36.17 | 61.71 | -25.54 | QP | Ρ |
| 4 | 0.2514 | 10.33 | 9.75 | 20.08 | 51.71 | -31.63 | AVG | Р |
| 5 | 2.8215 | 20.90 | 9.84 | 30.74 | 56.00 | -25.26 | QP | Ρ |
| 6 | 2.8215 | 9.12 | 9.84 | 18.96 | 46.00 | -27.04 | AVG | Р |
| 7 | 15.6984 | 25.41 | 10.42 | 35.83 | 60.00 | -24.17 | QP | Р |
| 8 | 15.6984 | 15.30 | 10.42 | 25.72 | 50.00 | -24.28 | AVG | Ρ |

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6 Radiated Emission Test

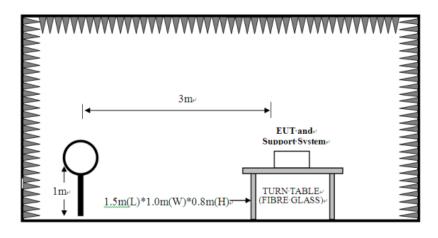
- 6.1 Test Method and test Procedure:
- The EUT was tested according to ANSI C63.10-2013. The radiated test was performed at Timeway EMC Laboratory. This site is on file with the FCC laboratory division, Registration No. 744189
- (2) The EUT, peripherals were put on the turntable which table size is 1m x 1.5 m, table high 0.8 m. All set up is according to ANSI C63.10-2013.
- (3) The frequency spectrum from 9kHz to 25 GHz was investigated. The frequency spectrum is set as follows:

| Frequency | Detector | RBW | VBW | Value |
|--------------|------------|--------|--------|------------|
| 9KHz-150KHz | Quasi-peak | 200Hz | 600Hz | Quasi-peak |
| 150KHz-30MHz | Quasi-peak | 9KHz | 30KHz | Quasi-peak |
| 30MHz-1GHz | Quasi-peak | 120KHz | 300KHz | Quasi-peak |
| Above 1GHz | Peak | 1MHz | 3MHz | Peak |
| Above IGHZ | Peak | 1MHz | 10Hz | Average |

(Note: for Fundamental frequency radiated emission measurement, RBW=3MHz, VBW=10MHz). Measurements were made at 3 meters.

- (4) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.
- (5) The antenna polarization: Vertical polarization and Horizontal polarization.Block diagram of Test setup

For radiated emissions from 9kHz to 30MHz

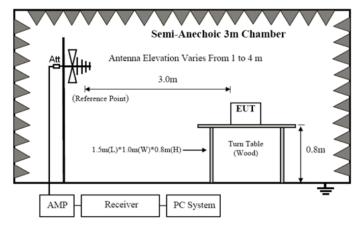


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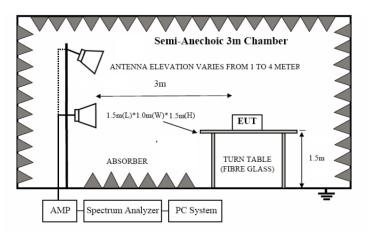
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For radiated emissions from 30MHz to1GHz



For radiated emissions above 1GHz



- 6.2 Configuration of the EUT Same as section 5.3 of this report
- 6.3 EUT Operating Condition Same as section 5.4 of this report.
- 6.4 Radiated Emission Limit

All emission from a digital device, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strength specified below:

| A FCC Part 15 Subpart C Paragraph 15.249(a) Limit |
|---|
|---|

| Fundamental Frequency | Field Stre | ength of Fundamental (3m) | Field Strength of Harmonics (3m) | | | |
|-----------------------|------------|---------------------------|----------------------------------|--------|--|--|
| (MHz) | mV/m | dBuV/m | uV/m | dBuV/m | | |

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| 2400-2483.5 | | 50 | 94 (Average) | 114 (Peak) | 500 | 54 (Average) | 74 (Peak) |
|-------------|--------------------|------------|----------------------------|------------|-----|--------------|-----------|
| Note: | 1. RF Field Streng | gth (dBuV) | $= 20 \log \text{RF Volt}$ | age (uV) | | | |

2.Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

3. The emission limit in this paragraph is based on measurement instrumentation employing an average detector.

B. Frequencies in restricted band are complied to limit on Paragraph 15.209.

| 1 | 1 | 81 |
|-----------------------|--------------|-----------------------------------|
| Frequency Range (MHz) | Distance (m) | Field strength (dB μ V/m) |
| 0.009-0.490 | 3 | 20log(2400/F(kHz)) +40log (300/3) |
| 0.490-1.705 | 3 | 20log(24000/F(kHz)) +40log (30/3) |
| 1.705-30 | 3 | 69.5 |
| 30-80 | 3 | 40.0 |
| 88-216 | 3 | 43.5 |
| 216-960 | 3 | 46.0 |
| Above 960 | 3 | 54.0 |
| | | |

Note: 1. RF Voltage $(dBuV) = 20 \log RF$ Voltage (uV)

2. In the Above Table, the tighter limit applies at the band edges.

3. Distance refers to the distance in meters between the measuring instrument antenna and the EUT

4. All scanning using PK detector. And the final emission level was get using QP detector for frequency range from 30-1000MHz.As to 1G-25G, the final emission level got using PK. For fundamental measurement, PK detector used.

5. This is a handhold device. The radiated emissions should be tested under 3-axes position (Lying, Side, and Stand), After pre-test. It was found that the worse radiated emission was get at the lying position.

6. Battery fully charged was used during the test.

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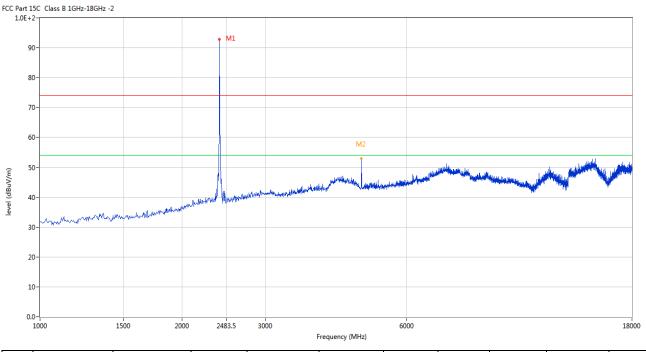


6.5 Test result

A Fundamental & Harmonics Radiated Emission Data

Please refer to the following test plots for details: Low Channel-2402MHz

Horizontal

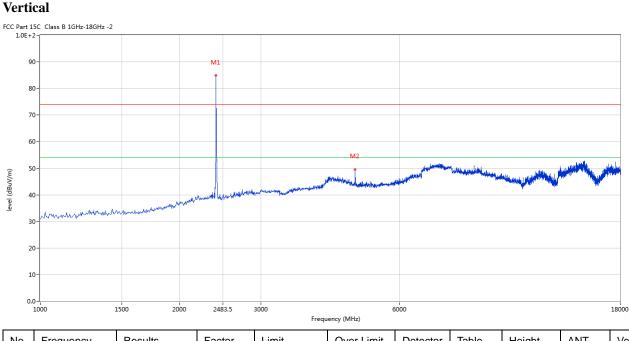


| No | э. | Frequency | Results | Factor | Limit | Over Limit | Detector | Table | Height | ANT | Verdict |
|----|----|-----------|----------|--------|----------|------------|----------|--------|--------|------------|---------|
| | | (MHz) | (dBuV/m) | (dB) | (dBuV/m) | (dB) | | (o) | (cm) | | |
| 1 | | 2402 | 92.75 | -3.57 | 114.0 | -21.25 | Peak | 324.00 | 100 | Horizontal | Pass |
| 2 | | 4802.799 | 52.87 | 3.12 | 74.0 | -21.13 | Peak | 265.00 | 100 | Horizontal | Pass |

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| No. | Frequency | Results | Factor | Limit | Over Limit | Detector | Table | Height | ANT | Verdict |
|-----|-----------|----------|--------|----------|------------|----------|--------|--------|----------|---------|
| | (MHz) | (dBuV/m) | (dB) | (dBuV/m) | (dB) | | (o) | (cm) | | |
| 1 | 2402 | 84.86 | -3.57 | 114.0 | -29.14 | Peak | 6.00 | 100 | Vertical | Pass |
| 2 | 4802.799 | 49.54 | 3.12 | 74.0 | -24.46 | Peak | 349.00 | 100 | Vertical | Pass |

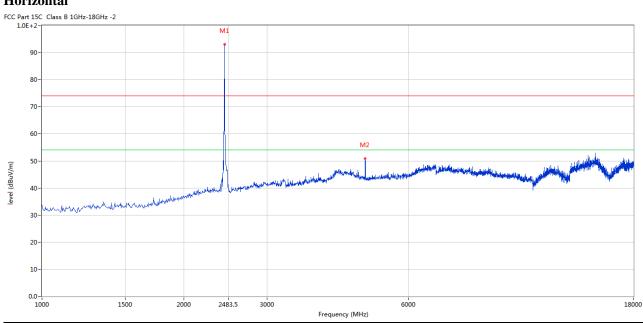
The report refers only to the sample tested and does not apply to the bulk.

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Please refer to the following test plots for details: Middle Channel-2440MHz

Horizontal

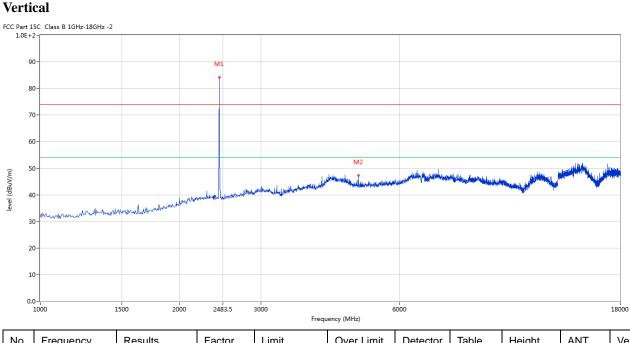


| No. | Frequency | Results | Factor | Limit | Over Limit | Detector | Table | Height | ANT | Verdict |
|-----|-----------|----------|--------|----------|------------|----------|--------|--------|------------|---------|
| | (MHz) | (dBuV/m) | (dB) | (dBuV/m) | (dB) | | (o) | (cm) | | |
| 1 | 2440 | 92.03 | -3.57 | 114.0 | -21.97 | Peak | 253.00 | 100 | Horizontal | Pass |
| 2 | 4879.280 | 50.83 | 3.69 | 74.0 | -23.17 | Peak | 6.00 | 100 | Horizontal | Pass |

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| No. | Frequency | Results | Factor | Limit | Over Limit | Detector | Table | Height | ANT | Verdict |
|-----|-----------|----------|--------|----------|------------|----------|--------|--------|----------|---------|
| | (MHz) | (dBuV/m) | (dB) | (dBuV/m) | (dB) | | (o) | (cm) | | |
| 1 | 2440 | 84.13 | -3.57 | 114.0 | -29.87 | Peak | 9.00 | 100 | Vertical | Pass |
| 2 | 4879.280 | 47.23 | 3.20 | 74.0 | -26.77 | Peak | 339.00 | 100 | Vertical | Pass |

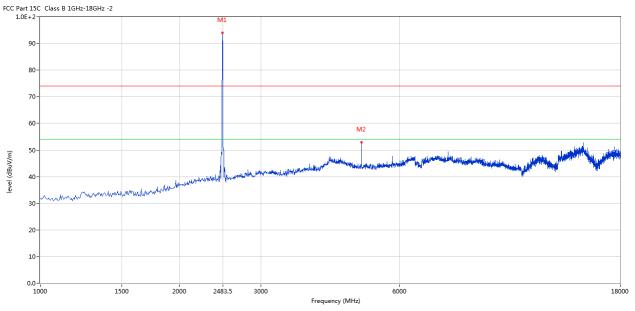
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Please refer to the following test plots for details: High Channel-2480MHz

Horizontal

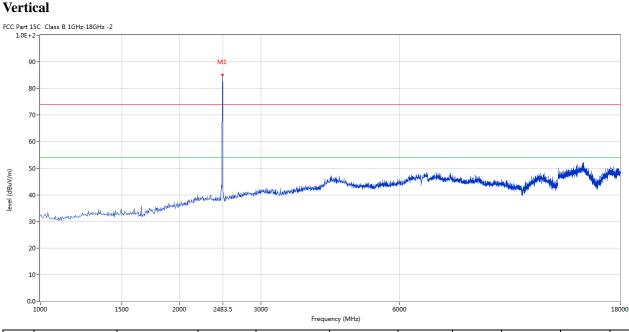


| No. | Frequency | Results | Factor | Limit | Over Limit | Detector | Table | Height | ANT | Verdict |
|-----|-----------|----------|--------|----------|------------|----------|--------|--------|------------|---------|
| | (MHz) | (dBuV/m) | (dB) | (dBuV/m) | (dB) | | (o) | (cm) | | |
| 1 | 2480 | 92.93 | -3.57 | 114.0 | -21.07 | Peak | 206.00 | 100 | Horizontal | Pass |
| 2 | 4960.010 | 52.85 | 3.36 | 74.0 | -21.15 | Peak | 269.00 | 100 | Horizontal | Pass |

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| | No. | Frequency | Results | Factor | Limit | Over Limit | Detector | Table | Height | ANT | Verdict |
|---|-----|-----------|----------|--------|----------|------------|----------|-------|--------|----------|---------|
| | | (MHz) | (dBuV/m) | (dB) | (dBuV/m) | (dB) | | (o) | (cm) | | |
| ĺ | 1 | 2480 | 85.05 | -3.57 | 114.0 | -28.95 | Peak | 0.00 | 100 | Vertical | Pass |

Note: (1) Emission Level = Reading Level + Antenna Factor + Cable Loss-Amplifier

(2) Margin=Emission-Limits

(3) According to section 15.35(b), the peak limit is 20dB higher than the average limit

(4) For test purpose, keep EUT continuous transmitting

(5) For emission above 18GHz and Below 30MHz, It is only the floor noise and less than the limit for more than 20dB. No necessary to take down.

(6) the measured PK value less than the AV limit.

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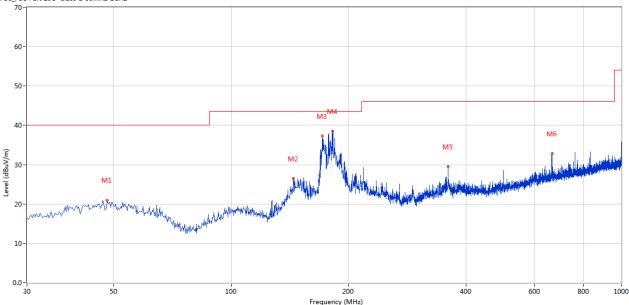
B. General Radiated Emission Data Radiated Emission In Horizontal (30MHz----1000MHz)

EUT set Condition: Keep Tx transmitting

Results: Pass

Please refer to following diagram for individual

FCC_FCC Part 15C Class B 30MHz-1GHz



| No. | Frequency | Results | Factor | Limit | Margin | Detector | Table | Height | Antenna | Verdict |
|-----|-----------|----------|--------|----------|--------|----------|----------|--------|------------|---------|
| | (MHz) | (dBuV/m) | (dB) | (dBuV/m) | (dB) | | (Degree) | (cm) | | |
| 1 | 48.183 | 20.99 | -11.26 | 40.0 | 19.01 | Peak | 237.00 | 100 | Horizontal | Pass |
| 2 | 144.674 | 26.45 | -17.18 | 43.5 | 17.05 | Peak | 286.00 | 100 | Horizontal | Pass |
| 3 | 171.342 | 37.32 | -15.88 | 43.5 | 6.18 | Peak | 281.00 | 100 | Horizontal | Pass |
| 4 | 182.252 | 38.50 | -15.00 | 43.5 | 5.00 | Peak | 275.00 | 100 | Horizontal | Pass |
| 5 | 359.960 | 29.58 | -9.46 | 46.0 | 16.42 | Peak | 359.00 | 100 | Horizontal | Pass |
| 6 | 665.676 | 32.85 | -4.49 | 46.0 | 13.15 | Peak | 292.00 | 100 | Horizontal | Pass |

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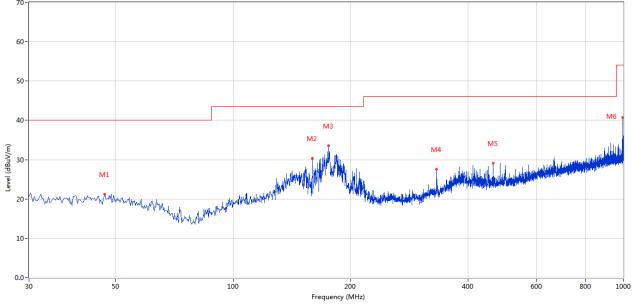
Radiated Emission In Vertical (30MHz----1000MHz)

EUT set Condition: Keep Tx transmitting

Results: Pass

Please refer to following diagram for individual

FCC_FCC Part 15C Class B 30MHz-1GHz



| No. | Frequency | Results | Factor | Limit | Margin | Detector | Table | Height | Antenna | Verdict |
|-----|-----------|----------|--------|----------|--------|----------|----------|--------|----------|---------|
| | (MHz) | (dBuV/m) | (dB) | (dBuV/m) | (dB) | | (Degree) | (cm) | | |
| 1 | 46.971 | 21.22 | -11.45 | 40.0 | 18.78 | Peak | 281.00 | 100 | Vertical | Pass |
| 2 | 159.705 | 30.41 | -16.38 | 43.5 | 13.09 | Peak | 283.00 | 100 | Vertical | Pass |
| 3 | 175.949 | 33.52 | -15.62 | 43.5 | 9.98 | Peak | 268.00 | 100 | Vertical | Pass |
| 4 | 332.564 | 27.64 | -10.09 | 46.0 | 18.36 | Peak | 177.00 | 100 | Vertical | Pass |
| 5 | 463.482 | 29.15 | -7.78 | 46.0 | 16.85 | Peak | 357.00 | 100 | Vertical | Pass |
| 6 | 995.394 | 40.80 | -1.26 | 54.0 | 13.20 | Peak | 322.00 | 100 | Vertical | Pass |

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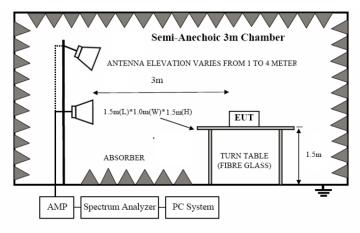


7. Band Edge

7.1 Test Method and test Procedure:

- The EUT was tested according to ANSI C63.10–2013. The radiated test was performed at Timeway EMC Laboratory. This site is on file with the FCC laboratory division, Registration No. 744189
- (2) Set Spectrum as RBW=1MHz, VBW=3MHz and Peak detector used for PK value. RBW=1MHz, VBW=10Hz and Peak detector used for AV value.
- (3) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.
- (4) The antenna polarization: Vertical polarization and Horizontal polarization.

7.2 Radiated Test Setup



For the actual test configuration, please refer to the related items - Photos of Testing

7.3 Configuration of the EUT

Same as section 5.3 of this report

7.4 EUT Operating Condition

Same as section 5.4 of this report.

7.5 Band Edge Limit

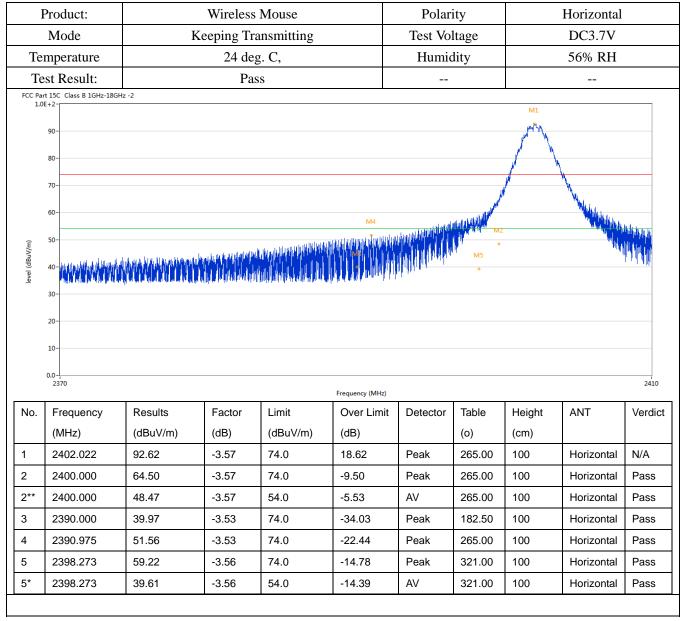
Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

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7.6 Test Result



The report refers only to the sample tested and does not apply to the bulk.

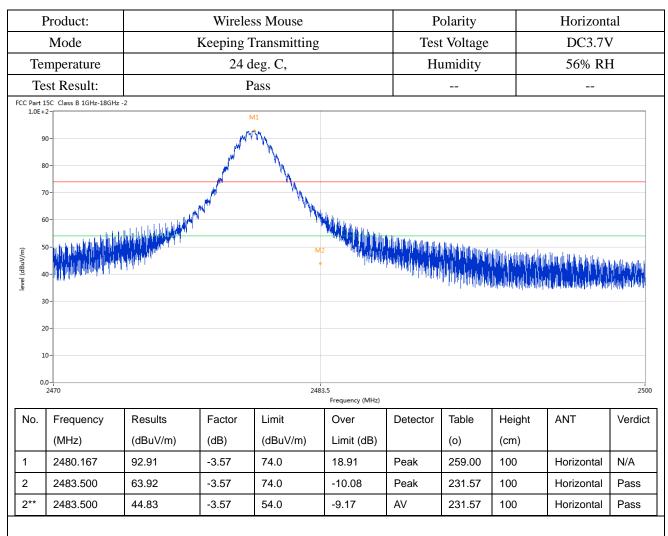
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| Product: | | Wireless Mouse | | | | Detector | | Vertical | | |
|--------------------------------|--|---|---|---|---|--------------------------|-----------------------------------|---------------------------|----------------------------------|------------------------|
| | Mode | Keeping Transmitting 24 deg. C, | | | | Test Voltage Humidity | | DC3.7V | | |
| Te | emperature | | | | | | | | 56% RH | |
| Te | est Result: | | Pass | | | | | | | |
| 106+2 | | | | | | | | | | |
| | 90- | | | | | | | MI | | |
| | | | | | | | | $ \longrightarrow $ | | |
| , | 70- | | | | | | / | () | 1 | |
| 6 | 60- | | | | | 1 | M5 | | | |
| e : | 50- | | | | M4 | | M2 | | | uluttin |
| | | | | | | | | | | ¹ a built b |
| 3 | 40- 40 ///////////////////////////////// 30- 20- | uladi lani e la fancini di latt | alandan katal | | | | | | | |
| 3 | 20- 10- | และสมไหรและสมสุดสุดสุดสุดสุดสุดสุดสุดสุดสุดสุดสุดสุดส | | | | | | | J.P. | |
| 3 | 20 - | aladalaya katan katil fili | | | Frequency (MHz) | | | | ļp: | 2 |
| 3 2 1 0 | 30- 20- 10- | Results | Factor | Limit | Frequency (MHz) Over Limit | Detector | Table | Height | ANT | |
| 3 2 1 0 | 30- 20- 10- .0- 2370 | | | 1 | | Detector | Table (o) | Height (cm) | ANT | |
| 2 1 0 No. | 20- 10- 2370 Frequency | Results | Factor | Limit | Over Limit | Detector Peak | | - | ANT | |
| 2 1 0 No. | 20- 10- 2370 Frequency (MHz) | Results (dBuV/m) | Factor (dB) | Limit (dBuV/m) | Over Limit (dB) | | (0) | (cm) | | Verdi |
| No. | 20- 10- 2370 Frequency (MHz) 2402.052 | Results (dBuV/m) 84.53 | Factor (dB) -3.57 | Limit (dBuV/m) 74.0 | Over Limit (dB) 10.53 | Peak | (o) 181.00 | (cm) 100 | Vertical | Verdi |
| 5 2 1 | 20- 10- 2370 Frequency (MHz) 2402.052 2400.000 | Results (dBuV/m) 84.53 57.22 | Factor (dB) -3.57 -3.57 | Limit (dBuV/m) 74.0 74.0 | Over Limit (dB) 10.53 -16.78 | Peak Peak | (0) 181.00 181.00 | (cm) 100 100 | Vertical Vertical | Verdi N/A Pass |
| 1 0 No. 1 2 2** | 20- 10- 2370 Frequency (MHz) 2402.052 2400.000 2400.000 | Results (dBuV/m) 84.53 57.22 42.73 | Factor (dB) -3.57 -3.57 -3.57 | Limit (dBuV/m) 74.0 74.0 54.0 | Over Limit (dB) 10.53 -16.78 -11.27 | Peak Peak AV | (o) 181.00 181.00 181.00 | (cm) 100 100 100 | Vertical Vertical Vertical | Pass Pass |

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| | Product: | | Wireless | Mouse | | Detec | tor | | Vertical | |
|--|--|---------------------------------|---|----------------------------|--|--------------------|--|--|--|------------------------------|
| ModeKeeping TransmittinTemperature24 deg. C, | | | | ansmitting | itting Test Voltage | | | DC3.7V | | |
| | | | | g. C, | Humidity | | | 56% RH | | |
| Test Result: Pass | | | | 88 | | | | | | |
| CC Part 1.0E | 15C Class B 1GHz-18GHz +2- | -2 | | | | | | | | |
| | | | | | | | | | | |
| | 90- | | M1 | *** | | | | | | |
| | 80- | | | | | | | | | |
| | 70- | | | N. | | | | | | |
| | 60- | | 1 | | | | | | | |
| | | | A CONTRACT OF A | | | | | | | |
| | 50 | Martin Contract I had been well | | | | | | | | |
| (m//m | 50- | | • | | NAME AND A DESCRIPTION OF A | lan atalan sa tara | | | | |
| vel (dBuV/m) | 50- 40- | | | M2 | | | | r prill nich sin patalappi | i a da antici da di sectore da che sec | dian da al ann a |
| level (dBuV/m | AL AL ALLAL ALLA ALLA ALLA ALLA | | | M2 | | | a a far an | Y gold of the prostation of the second s | | Halla Hara Lahiha Ja |
| level (dBuV/m | 40 | | | M2 | | | i di kana da ka ka Na tu ka guna na ka ka Na tu ka guna na ka ka | Y pritrié w ja postoli pr ka hore ani at piete an | ih de datuer et et du | |
| level (dBuV/m | 40- | | • | M2 | | | a file da altera ante a se da Un file a gonnalizza da da Un file a gonnalizza da da | n for få andra for medalen spil And medane ett på for medalen som | | |
| level (dBuV/m | 40 | | | M2 | | | ili an | Medinaka terpetakipu Vatao saturnaka sa | | hine des ladies |
| level (dBuV/m | 40 | | | M2 | | | a da filo da seguna da casa da Tilo Y da casa da casa Tilo Y da casa | Y ni h ni h na hadah ni Katana satati dalam | | |
| level (dBuV/m | 40 | | | M2 0 2483.5 | an a | | | Mind network a natadiya Astrone catatinada | | 250 |
| level (dBuV/m | 40 | Results | Factor | M2 | | Detector | Table | Height | ANT | |
| level (dBuV/m | 40 | Results (dBuV/m) | Factor (dB) | 2483.5 | Frequency (MHz) | Detector | Table (0) | Height (cm) | ANT | |
| level (dBuV/m | 40- 30- 20- 10- 2470 Frequency | | | 2483.: | 5 Frequency (MHz) | Detector Peak | | - | ANT | |
| No. | 40- 30- 20- 10- 2470 Frequency (MHz) | (dBuV/m) | (dB) | 2483. Limit (dBuV/m) | 5 Frequency (MHz) Over Limit (dB) | | (o) | (cm) | | 250 Verdic N/A Pass |

Note: The PK emission level less than the AV limit. No necessary to record the AV emission level.

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8.0 Antenna Requirement

Applicable Standard

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.

This product has a PCB antenna with gain 2.34dBi maximum. It fulfills the requirement of this section. Test Result: Pass

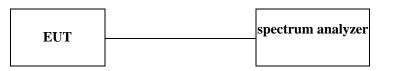
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9.0 20dB Bandwidth Measurement

Test Configuration



Test Procedure

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100kHz RBW and 300kHz VBW.

The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB.

Limit

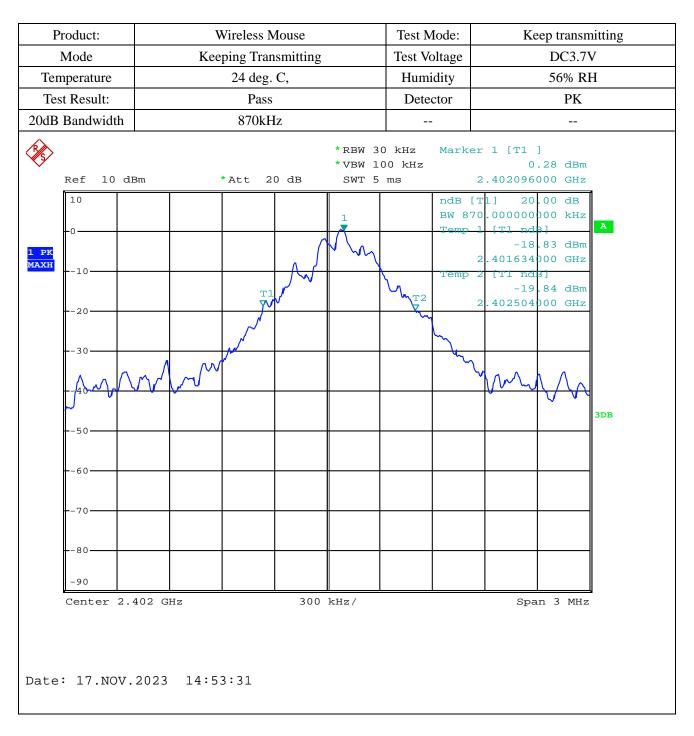
N/A

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Test Result



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| Product: | Wireless Mouse | Tes | t Mode: | Keep transmitting | |
|--|--|--|--|---------------------------------------|---|
| Mode | Keeping Transmittir | g Test | Voltage | DC3.7V | 7 |
| Temperature | | | | 56% RH | I |
| Test Result: | Pass | De | etector | РК | |
| 20dB Bandwidth | 0dB Bandwidth 870kHz | | | | |
| Ref 10 dl 10 -0 -10 -20 -30 -30 -60 -60 -60 -70 -80 -90 Center 2. | Bm *Att 20 dB Image: Constraint of the second sec | * RBW 30 kHz * VBW 100 kHz SWT 5 ms 1 1 1 1 1 1 1 1 1 1 1 1 1 | ndB [T] BW 870. Temp 1 2. Temp 2 | 1 [T1] -1.37 dBm 480078000 GHz | - |

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10.0 FCC ID Label

FCC ID: 2A49R-MMA01

The label must not be a stick-on paper label. The label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.

Mark Location:

| Comment | | |
|-----------------------------------|----------------------------|--------------------|
| MM-A01 | | |
| $I \rightarrow I = I = I = I = I$ | etooth+2.4G Wireless mouse | FCC Label Location |
| Made in China | | |
| | | |

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11.0 Photo of testing

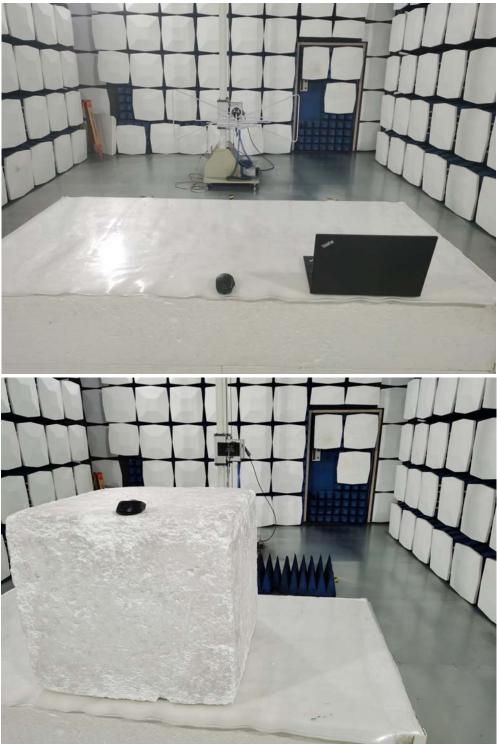
11.1 Conducted test View



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Radiated emission test view



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11.2 Photographs - EUT



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Outside View-Mouse



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Outside View-Mouse



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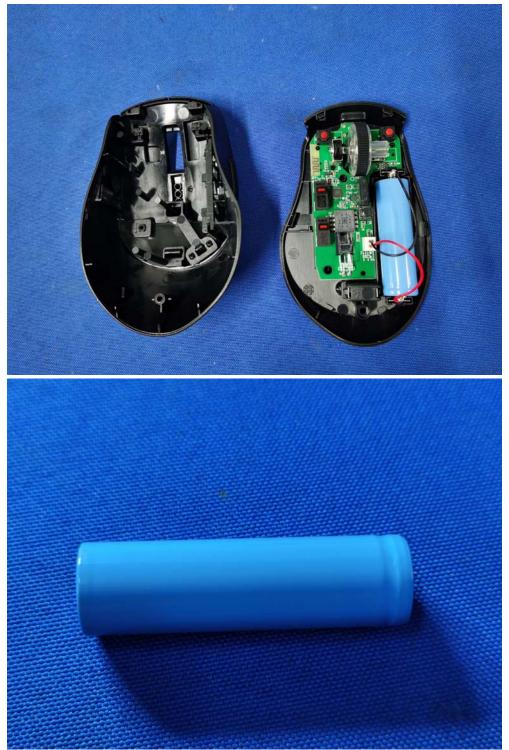
Outside View-Mouse



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Inside View-Mouse

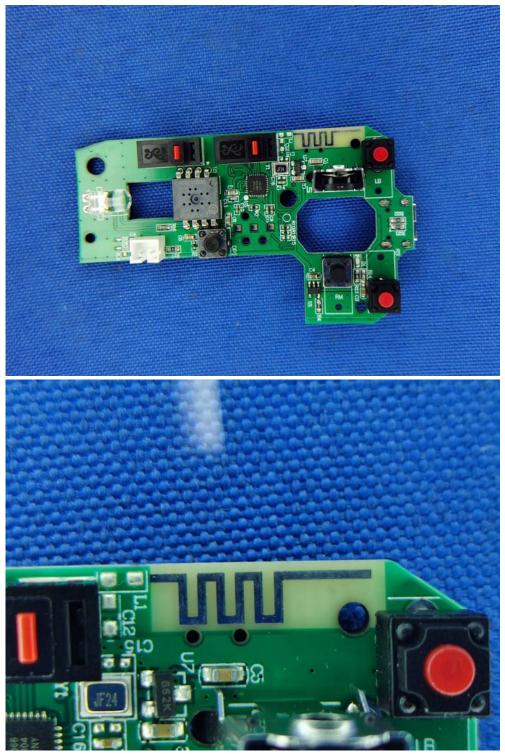


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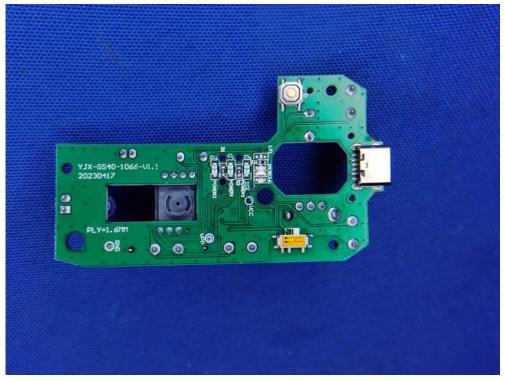
Inside View-Mouse



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Inside View-Mouse



--End of the report--

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