

Report No.: File Reference No.:	TW2010203E 2021-02-03
Applicant:	Eastern Times Technology Co.,Ltd
Product:	GAMING MOUSE
Model No.:	M602-KS, DS-2880
Brand Name:	REDRAGON
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
Ferry Tang Manager	-
Dated:	February 03, 2021
	rein relate only to the sample tested s 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**:

The testing quality ability of our laboratory meet with "Quality Law of People's Republic of China" Clause 19.

The testing quality system of our laboratory meet with ISO/IEC-17025 requirements, which is approved by CNAS. This approval result is accepted by MRA of APLAC.

Our test facility is recognized, certified, or accredited by the following organizations:

# CNAS-LAB Code: L2292

The EMC Laboratory has been assessed and in compliance with CNAS-CL01 accreditation criteria for testing Laboratories (identical to ISO/IEC 17025:2005 General Requirements) for the Competence of testing Laboratories.

# 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

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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, China
Telephone:	(755) 83448688
Fax:	(755) 83442996
Site on File with	the Federal Communications Commission – United Sates
Registration Nur	nber: 744189
For 3m Anechoid	e Chamber

## 1.2 Applicant Details

Applicant:	Eastern Times Technology Co.,Ltd
Address:	Building D,Nan An Industrial Area, Youganpu Village, Fenggang Town, Dongguan
	City,Guangdong,China.
Telephone:	
Fax:	

## 1.3 Description of EUT

1	
Product:	GAMING MOUSE
Manufacturer:	Eastern Times Technology Co.,Ltd
Address:	Building D,Nan An Industrial Area,Youganpu Village,Fenggang
	Town,Dongguan City,Guangdong,China.
Brand Name:	REDRAGON
Model Number:	M602-KS
Additional Model Name	DS-2880
Hardware Version:	V1.0
Software Version:	CheckSum 8194
Serial No.:	RDM602-KS21020400001
Input Voltage:	DC3.7V, 14mA (Built-in Li-ion battery)
Modulation Type:	GFSK
Operation Frequency	2402-2480MHz

#### Channel List:

Channel	1	2	3	4	5	6	7	8
Frequency (MHz)	2402	2426	2441	2463	2407	2422	2445	2466
Channel	9	10	11	12	13	14	15	16
Frequency (MHz)	2414	2436	2459	2473	2419	2439	2453	2480

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Antenna Designation

PCB antenna with gain 3.85dBi Max

- 1.4 Submitted Sample 2 Samples
- 1.5 Test Duration 2020-10-29 to 2021-02-03
- 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

The sample tested by



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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	2020-06-23	2021-06-22
LISN	R&S	EZH3-Z5	100294	2020-06-23	2021-06-22
LISN	R&S	EZH3-Z5	100253	2020-06-23	2021-06-22
Impuls-Begrenzer	R&S	ESH3-Z2	100281	2020-06-23	2021-06-22
Loop Antenna	EMCO	6507	00078608	2018-06-25	2021-06-24
Spectrum	R&S	FSIQ26	100292	2020-06-23	2021-06-22
Horn Antenna	A-INFO	LB-180400-KF	J211060660	2020-06-23	2021-06-22
Horn Antenna	R&S	BBHA 9120D	9120D-631	2018-07-09	2021-07-08
Power meter	Anritsu	ML2487A	6K00003613	2020-06-23	2021-06-22
Power sensor	Anritsu	MA2491A	32263	2020-06-23	2021-06-22
Bilog Antenna	Schwarebeck	VULB9163	9163/340	2018-07-04	2021-07-03
9*6*6 Anechoic			N/A	2018-02-07	2021-02-06
EMI Test Receiver	RS	ESVB	826156/011	2020-06-23	2021-06-22
EMI Test Receiver	RS	ESH3	860904/006	2020-06-23	2021-06-22
Spectrum	HP/Agilent	ESA-L1500A	US37451154	2020-06-23	2021-06-22
Spectrum	HP/Agilent	E4407B	MY50441392	2020-06-23	2021-06-22
Spectrum	RS	FSP	1164.4391.38	2020-01-16	2021-01-15
RF Cable	Zhengdi	ZT26-NJ-NJ-8 M/FA		2020-06-23	2021-06-22
RF Cable	Zhengdi	7m		2020-06-23	2021-06-22
RF Switch	EM	EMSW18	060391	2020-06-23	2021-06-22
Pre-Amplifier	Schwarebeck	BBV9743	#218	2020-06-23	2021-06-22
Pre-Amplifier	HP/Agilent	8449B	3008A00160	2020-06-23	2021-06-22
LISN	SCHAFFNER	NNB42	00012	2021-01-06	2022-01-05

## 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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## **3.0** Technical Details

#### 3.1 Summary of test results

The EUT has been tested according to the following specifications:					
Standard	Test Type	Result	Notes		
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		

#### 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

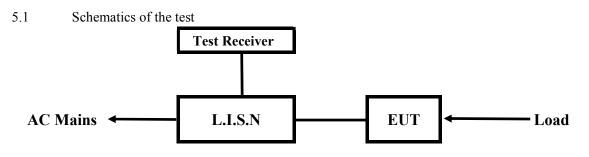
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## 5. Power Line Conducted Emission Test

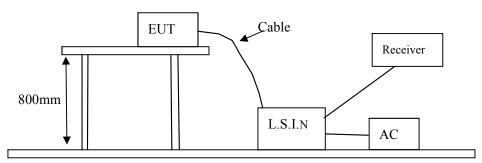


EUT: Equipment Under Test

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. AC120V 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. One channels are provided to the EUT

Device	Manufacturer	Model	FCC ID	
GAMING MOUSE	Eastern Times Technology Co.,Ltd	M602-KS, DS-2880	TUVDS-2880	

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#### B. Internal Device

Ъ.				
	Device	Manufacturer	Model	FCC ID/SDOC
	N/A			

#### C. Peripherals

Device	Manufacturer	Model	Rating

# 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

	Limits (dBµV)			
Frequency(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:

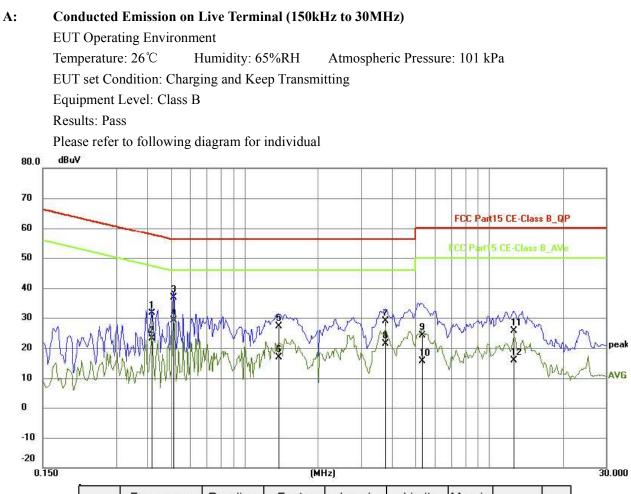
The frequency spectrum from 0.15MHz to 30MHz was investigated. All reading are quasi-peak values with a resolution bandwidth of 9kHz.

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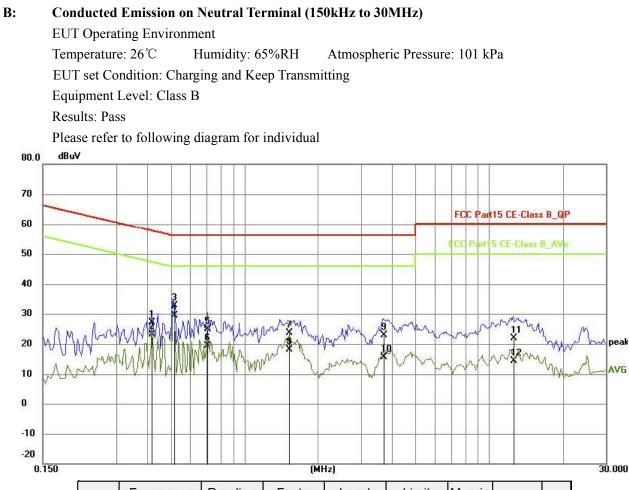


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.4191	21.92	9.76	31.68	57.47	-25.79	QP	Ρ
2	0.4191	13.43	9.76	23. <mark>1</mark> 9	47.47	-24.28	AVG	Ρ
3	0.5127	27.03	9.77	36.80	56.00	-19.20	QP	Ρ
4	0.5127	19.44	9.77	29.21	46.00	-16.79	AVG	Ρ
5	1.3746	17.40	9.79	27.19	56.00	-28.81	QP	Ρ
6	1.3746	7.19	9.79	16.98	46.00	-29.02	AVG	P
7	3.7605	18.98	9.88	28.86	56.00	-27.14	QP	P
8	3.7605	1 <mark>1.41</mark>	9.88	21.29	46.00	-24.71	AVG	Ρ
9	5.3282	14.19	9.94	24.13	60.00	-35.87	QP	Р
10	5.3282	5.65	9.94	15.59	50.00	-34.41	AVG	Ρ
11	12.6135	15.26	10.27	25.53	60.00	-34.47	QP	P
12	12.6135	5.57	10.27	15.84	50.00	-34.16	AVG	P

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No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.4191	17.39	9.76	27.15	57.47	-30.32	QP	Ρ
2	0.4191	13.43	9.76	23.19	47.47	-24.28	AVG	Ρ
3	0.5166	23.00	9. <b>77</b>	32.77	56.00	-23.23	QP	Ρ
4	0.5166	19.60	9.77	29.37	46.00	-16.63	AVG	Ρ
5	0.7077	15.11	9.78	24.89	56.00	-31.11	QP	Ρ
6	0.7077	9.60	9. <mark>78</mark>	19.38	46.00	-26.62	AVG	Ρ
7	1.5267	13.95	9.80	23.75	56.00	-32.25	QP	Ρ
8	1.5267	8.36	9.80	18.16	46.00	-27.84	AVG	Ρ
9	3.7059	12.96	9.87	22.83	56.00	-33.17	QP	Ρ
10	3.7059	5.80	9.87	15.67	46.00	-30.33	AVG	Ρ
11	12.5433	11.69	10.27	21.96	60.00	-38. <mark>0</mark> 4	QP	Ρ
12	12.5433	4.16	10.27	14.43	50.00	-35.57	AVG	Ρ

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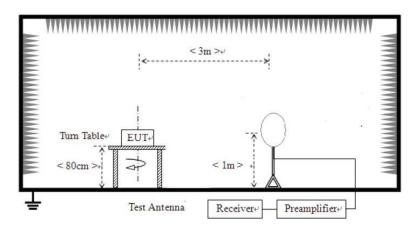


### 6 Radiated Emission Test

- 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 30 MHz to 25 GHz was investigated. All readings from 30 MHz to 1 GHz are quasi-peak values with a resolution bandwidth of 120 kHz. All readings are above 1 GHz, peak values with a resolution bandwidth of 1 MHz (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

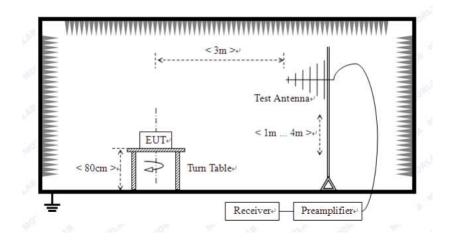


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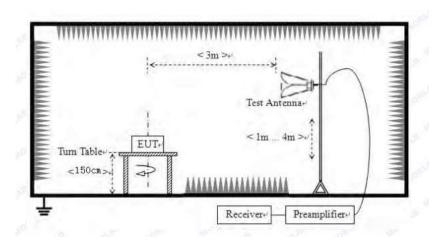
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For radiated emissions from 30MHz to1GHz



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:

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

Fundamental Frequency	Field Strength of Fundamental (3m)			Field S	trength of Harmo	nics (3m)
(MHz)	mV/m	dBuV/m		uV/m	dBuV/m	
2400-2483.5	50	94 (Average)	114 (Peak)	500	54 (Average)	74 (Peak)

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

1	1	81
Frequency Range (MHz)	Distance (m)	Field strength (dBµV/m)
30-88	3	40.0
88-216	3	43.5
216-960	3	46.0
Above 960	3	54.0

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

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. For radiated emissions below 30MHz and above 18GHz, it was the floor noise.

6. Battery fully charged was used during tests.X,Y,Z axis of EUT all have been tested,only worse case is reported.

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## 6.5 Test result

## A Fundamental & Harmonics Radiated Emission Data

Product:	GAMING MOUSE	Test Mode:	Keep transmitting-Low Channel
Test Item:	Fundamental Radiated Emission	Temperature:	25°C
	Data		
Test Voltage:	DC3.7V	Humidity:	56%
Test Result:	Pass		

Frequency (MHz)	Emission PK/AV (dBuV/m)	Horiz / Vert	Limits PK/AV (dBuV/m)	Margin (dB)
2402	86.75 (PK)	Н	114/94	-7.25
2402	80.01 (PK)	V	114/94	-13.99
4804		Н	74/54	
4804	52.53 (PK)	V	74/54	-1.47
7206	51.57 (PK)	H/V	74/54	-2.43
9608		H/V	74/54	
12010		H/V	74/54	
14412		H/V	74/54	
16814		H/V	74/54	
19216		H/V	74/54	
21618		H/V	74/54	
24020		H/V	74/54	

Note: (1) PK= Peak, AV= Average

(2) Emission Level = Reading Level + Antenna Factor + Cable Loss - Pre-Amplifier

(3)Margin=Emission-Limits

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

(5) For test purpose, keep EUT continuous transmitting

(6) The PK emission level less than the AV limit. No necessary to record the AV emission level.

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

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Product:	GAMING MOUSE	Test Mode:	Keep transmitting-Middle Channel
Test Item:	Fundamental Radiated Emission	Temperature:	25°C
	Data		
Test Voltage:	DC3.7V	Humidity:	56%
Test Result:	Pass		

Frequency	Emission PK/AV	Horiz /	Limits PK/AV	Margin
(MHz)	(dBuV/m)	Vert	(dBuV/m)	(dB)
2441	84.92 (PK)	Н	114/94	-9.08
2441	79.34 (PK)	V	114/94	-14.66
4882	50.07 (PK)	Н	74/54	-3.93
4882	52.17 (PK)	V	74/54	-1.83
7323		H/V	74/54	
9764		H/V	74/54	
12205		H/V	74/54	
14646		H/V	74/54	
17087		H/V	74/54	
19528		H/V	74/54	
21969		H/V	74/54	
24410		H/V	74/54	

Note: (1) PK= Peak, AV= Average

(2) Emission Level = Reading Level + Antenna Factor + Cable Loss - Pre-Amplifier

(3)Margin=Emission-Limits

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

(5) For test purpose, keep EUT continuous transmitting

(6) The PK emission level less than the AV limit. No necessary to record the AV emission level.

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Product:	GAMING MOUSE	Test Mode:	Keep transmitting-High Channel
Test Item:	Fundamental Radiated Emission	Temperature:	25°C
	Data		
Test Voltage:	DC3.7V	Humidity:	56%
Test Result:	Pass		

Frequency	Emission PK/AV	Horiz /	Limits PK/AV	Margin
(MHz)	(dBuV/m)	Vert	(dBuV/m)	(dB)
2480	87.80 (PK)	Н	114/94	-6.20
2480	86.16 (PK)	V	114/94	-7.84
4960	49.03 (PK)	Н	74/54	-4.97
4960	52.95 (PK)	V	74/54	-1.05
7440		Н	74/54	
7440		V	74/54	
9920		H/V	74/54	
12400		H/V	74/54	
14880		H/V	74/54	
17360		H/V	74/54	
19840		H/V	74/54	
22320		H/V	74/54	
24800		H/V	74/54	

Note: (1) PK= Peak, AV= Average

(2) Emission Level = Reading Level + Antenna Factor + Cable Loss - Pre-Amplifier

(3)Margin=Emission-Limits

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

(5) For test purpose, keep EUT continuous transmitting

(6) The PK emission level less than the AV limit. No necessary to record the AV emission level.

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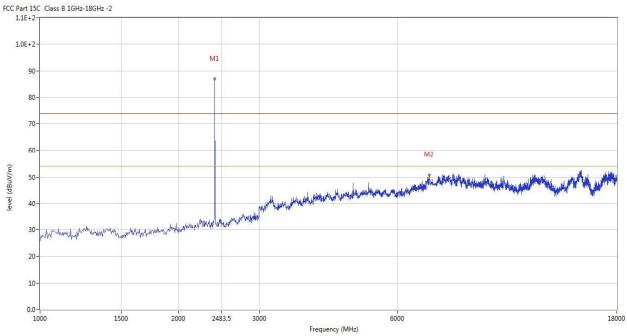
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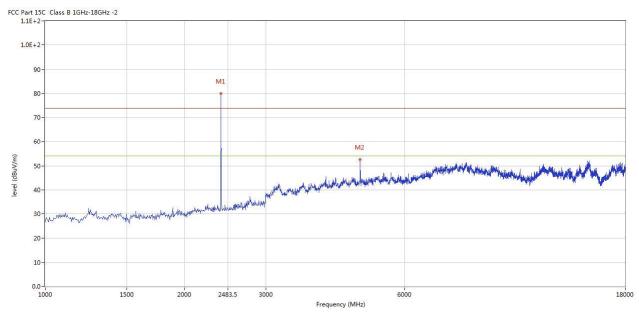


#### Please refer to the following test plots for details: Low Channel

#### Horizontal



#### Vertical



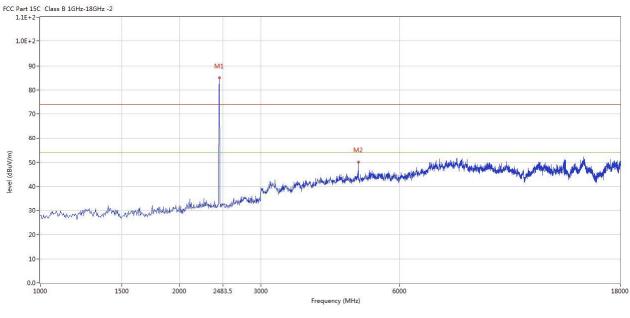
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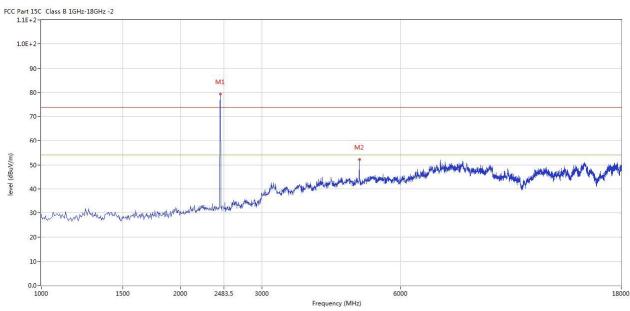


# Please refer to the following test plots for details: Middle Channel





## Vertical



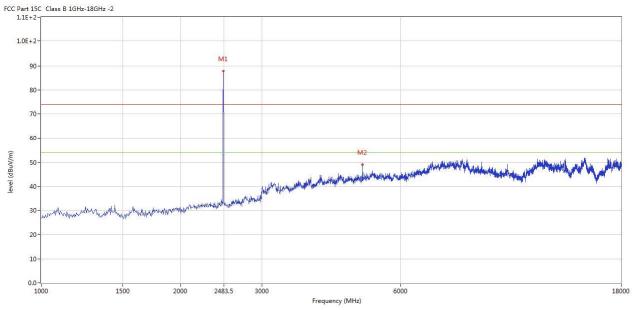
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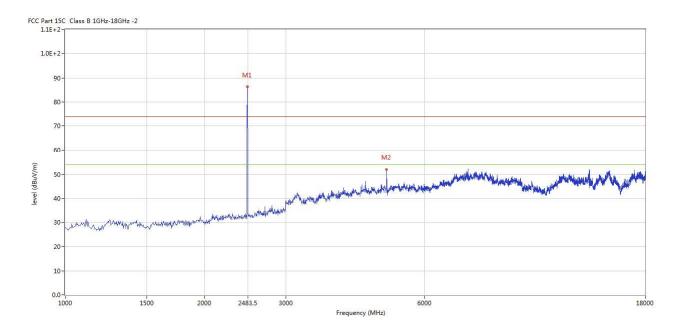


# Please refer to the following test plots for details: High Channel

Horizontal



#### Vertical



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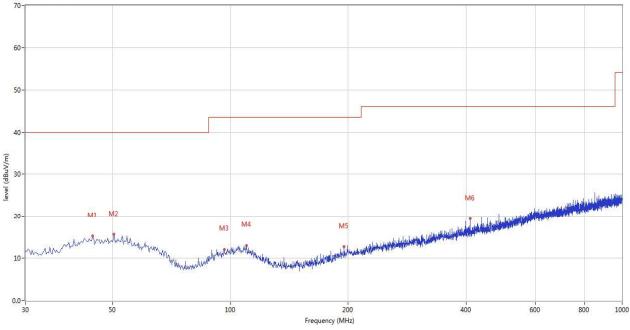
# B. General Radiated Emission Data Radiated Emission In Horizontal (30MHz----1000MHz)

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	Over Limit	Detector	Table (o)	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)			(cm)		
1	44.546	15.29	-11.44	40.0	-24.71	Peak	360.00	200	Horizontal	Pass
2	50.365	15.71	-11.39	40.0	-24.29	Peak	131.00	200	Horizontal	Pass
3	96.428	12.12	-14.08	43.5	-31.38	Peak	360.00	200	Horizontal	Pass
4	110.005	13.06	-13.60	43.5	-30.44	Peak	360.00	200	Horizontal	Pass
5	195.101	12.73	-13.78	43.5	-30.77	Peak	123.00	200	Horizontal	Pass
6	408.933	19.44	-8.38	46.0	-26.56	Peak	17.00	100	Horizontal	Pass

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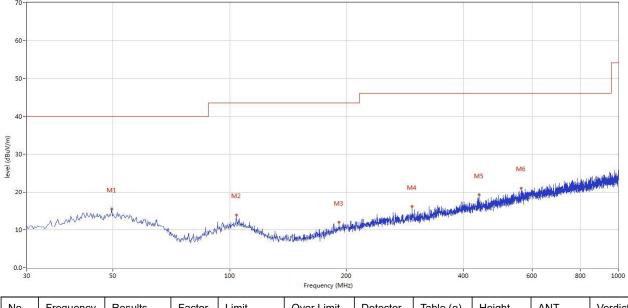
## Radiated Emission In Vertical (30MHz----1000MHz)

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	Over Limit	Detector	Table (o)	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)			(cm)		
1	49.638	15.50	-11.32	40.0	-24.50	Peak	360.00	100	Vertical	Pass
2	103.944	13.92	-13.33	43.5	-29.58	Peak	243.00	100	Vertical	Pass
3	190.980	12.07	-14.24	43.5	-31.43	Peak	88.00	100	Vertical	Pass
4	294.744	16.16	-11.18	46.0	-29.84	Peak	202.00	100	Vertical	Pass
5	438.510	19.28	-8.01	46.0	-26.72	Peak	316.00	100	Vertical	Pass
6	561.912	21.07	-6.22	46.0	-24.93	Peak	145.00	100	Vertical	Pass

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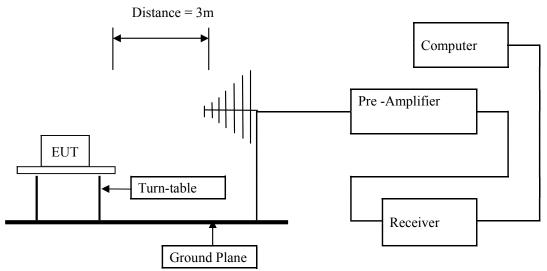


## 7. Band Edge

## 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
- (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

Product:			GAMING MOUSE			Po	Polarity		Horizontal		
	Mode		Keepir	ng Transmit	ting	Test	Test Voltage		DC3.7V		
T	Temperature		2	24 deg. C,		Hu	midity	56% RH			
	Fest Result:			Pass							
	rt 15C Class B 1GHz-18GH E+2-r	łz -2				•					
1.0	E+2-										
	90-										
	80-								$\wedge$		
	70-							13			
	(079310)							/			
Ê	60-										
2	50-								\		
(dBu								1	1		
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level (dBu	30-	สามชื่อรังการใน <mark>ไม่มูโ</mark> มหายไม	anglandihad sitili linda	and and devise that discon	ing becker at the fathering	a the second	athatillea a the antipe a the antipe antipe a the antipe antipe a the antipe antipe a the antipe and a second a	ward		handen henselaspickopal	
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level (abu	30- 20- 10-	ar	mphrithed still bedge	and coll desired differen	Frequency (N		arbeli ille a fransfördeligt	www		241	
level (dBr	30- 20- 10- 2360		Factor	Limit			Table (o)	Height	ANT		
	30- 20- 10- 2360				Frequency (N	1Hz)		Height (cm)	ANT	241	
No	30- 20- 10- 2360 . Frequency	Results	Factor	Limit	Frequency (N Over Limit	1Hz)		_	ANT	241	
No	30- 20- 10- Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Frequency (M Over Limit (dB)	Hz) Detector	Table (o)	(cm)		241 Verdict	

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

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	Product:		GAM	ING MOUS	SE	Dete	ctor		Vertical	
	Mode		Keeping Transmitting			Test Vo	oltage		DC3.7V	
Т	emperature		2	4 deg. C,		Humi	dity	56% RH		
]	Fest Result:	lt: Pass								
	rt 15C Class B 1GHz-18GH; E+2-	-2				•				3
1.0	E+2-									
	90-									
	80-								$\wedge$	
	70-							/		
	60-							/		
(m/v)	50-									
2	79380								$\mathbf{A}$	
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level (dt	30- 20-	addalaradiointernational	<b>ารสมพัฒนาไ</b> ประการสาร	in the second	erier is blandet rige styler	Regel Vin Belgelander (der	ىلەلەيمىرىنى ئەتەرىيىنى ئەتەرىيىرىنى ئەتەرىيىرىنى مەلەرىيىرىنى ئەتەرىيىرىنى ئەتەرىيىرىنى ئەتەرىيىرىنى ئەتەرىيىرىنى	and the second se	have	ana
level (dl	30 - 20 - 10 -	<del>สปาราสารสารสารสารสารสารสารสารสารสารสารสาร</del> สาร	- <u>estadio de la seco</u> lación	ille and open set of the set of t	arran si aban site rega ender	Nega Usha Balan sa gala da gadeen	ne destinations and an	la real and a second and a second a se	ha	
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level (dE NO	30 - 20 - 10 - 2360	Results	Factor	Limit			Table (o)	Height	ANT	
	30 - 20 - 10 - 2360				Frequency (M	Hz)	Table (o)	Height (cm)	ANT	2410
	30- 20- 10- 0.0- 2350 . Frequency	Results	Factor	Limit	Frequency (M Over Limit	Hz)	Table (o)	-	ANT	2410

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

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	Pr	oduct:		GAM	NG MOUS	Е	Pola	arity		Horizontal	
	Ν	Aode		Keepin	g Transmitti	ing	Test V	oltage	DC3.7V		
	Гem	perature		24	4 deg. C,		Hum	idity		56% RH	
,	Test	Result:	Pass			-	-				
	art 15C 1E+2-	Class B 1GHz-18GHz	-2								1
1.0	DE+2-										
	90-					$\sim$					
	80-					-/					
70-											
	60-										
(E)						/					
level (dBuV/m)	50-				1	1					
leve	40-	40- 30- alter wind previous and an and an and an and an and an and an and a start and a start and a start and a start a					/	C			
	30-							and the second and th			
	20-	and the second state of th	a planter with a select of								and the real of the line
	10-										
	0.0-										
	246	i0				Frequency (MI	2483.5 Hz)				2500
		Frequency	Results	Factor	Limit	Over Limit	Detector	Table (o)	Height	ANT	Verdict
No	).		l		(dBuV/m)	(dB)			(cm)		
No	).	(MHz)	(dBuV/m)	(dB)	(abav,iii)						

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

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	Pro	oduct:		GAMI	NG MOUS	E	Detec	tor		Vertical	
	М	lode		Keepin	g Transmitti	ng	Test Vol	Test Voltage		DC3.7V	
,	Temp	berature		24	4 deg. C,		Humic	lity	ty 5		
	Test	Result:			Pass						
	art 15C C	Class B 1GHz-18GHz	-2					•			
1.	.0E+2-										
	90-					$\wedge$					
	80-					-/					
	70-						N .				
	60-										
level (dBuV/m)	50-	0-									
	40-										
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<u>0</u>	20- 10- 0.0-						2483.5				2500
ev	20- 10-					Frequency (MH	2483.5 z)				2500
No	20- 10- 0.0- 2460		Results	Factor	Limit	Frequency (MH Over Limit		Table (o)	Height	ANT	2500 Verdict
	20- 10- 0.0- 2460 0.		Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	2.4 66.0	z)	Table (o)	Height (cm)	ANT	

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. The antenna gain is 3.85 Max. It fulfills the requirement of this section. Test Result: Pass

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Mode Keeping Transmitting Test Voltage DC3.7V   Temperature 24 deg. C, Humidity 56% RH   Test Result: Pass Detector PK   20dB Bandwidth 2.515MHz     Ref Lvl ndB 20.00 dB VBW 300 kHz   10 dBm BW 2.51503006 MHz SWT 5 ms Unit d   -10 -10 -10 -17 2.4002 503 G   -20 -10 -10 -1 -1 -1   -30 -40 -1 -1 -1 -1   -30 -30 -40 -40 -40 -40 -40	
Test Result:     Pass     Detector     PK       20dB Bandwidth     2.515MHz         Marker 1 [T1 ndB]     RBW     100 kHz     RF Att     20 d       Ref Lv1     ndB     20.00 dB     VBW     300 kHz     10       10 dBm     BW     2.51503006 MHz     SWT     5 ms     Unit     d       10     dBm     BW     2.51503006 MHz     SWT     5 ms     Unit     d       10     dBm     BW     2.51503006 MHz     SWT     5 ms     Unit     d       10     dBW     2.51503006 MHz     SWT     5 ms     Unit     d       2.40001 603 cs     -10	
20dB Bandwidth     2.515MHz         Marker 1 [T1 ndB]     RBW     100 kHz     RF Att     20 d       Nef Lv1     ndB     20.00 dB     VBW     300 kHz     0       10 dBm     BW     2.51503006 MHz     SWT     5 ms     Unit     d       10     dBm     BW     2.51503006 MHz     SWT     5 ms     Unit     d       10     dF	
Marker 1 [T1 ndB] Ref Lvl 10 dBm BW 2.51503006 MHz SWT 5 ms Unit C 10 C	
Ref Lvl     ndB     20.00 dB     VBW     300 kHz       10 dBm     BW     2.51503006 MHz     SWT     5 ms     Unit     d       10	
10 dBm BW 2.51503006 MHz SWT 5 ms Unit d	В
0   1   [T1]   3,17 d     2.40201503 G   2.40201503 G     1   1   2.40201503 G     1   1   1   1     1   1	Bm
0 nds 20.00 df   BW 2.51503006 MI   -10 TI (T1) -13.78 df   -20 TI (T1) -13.81 df   -20 TI (T1) -15.81 df   -30 TI (T1) -15.81 df   -40 TI (T1) -15.81 df	A
-10 -20 -20 1MAX -40	B Hz
-30 MAX -40 -40	Hz
	Hz 1M
	~
-60	
-70	
-80	
-90 Center 2.402 GHz 500 kHz/ Span 5 M	Hz

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Product:	GAMING MOUSE	Test Mode:	Keep transmitting
Mode	Keeping Transmitting	Test Voltage	DC3.7V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	РК
20dB Bandwidth	2.705MHz		
Real Contractions of the second secon	Marker 1 [T1 ndB]	RBW 100 kHz	
Ref Lvl	ndB 20.00 dB	VBW 300 kHz	
10 dBm 10 <b>m</b>	BW 2.70541082 MHz	SWT 5 ms	Unit dBm
10		<b>V</b> 1 [5	[1] C.81 dBm
			2.44102505 GHz
0		ndB	20.00 dB
			2.70541082 MHz
-10			2.43963226 GHz
	12/1		<b>(1</b> ) <sup>2</sup> −19.06 dBm
-20			2.44233768 GHz
1MAX	Wall V		1MA
-30			
1 million			
-40			
-50			
-60			
-70			
, 0			
-80			
-90 Center 2.44	1 GHz 500 kH		Span 5 MHz
Date: 3.FEB	3.2021 09:24:58		

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Marker ndB	ng Transmi 24 deg. C, Pass 2.886MHz 1 [T1 r 20. 2.885771	ndB] .00 dB	I	est Voltage Humidity Detector  100 k 300 k 5 m	Hz Ri Hz	DC3 56% Pl 	RH K 20 dB dBm	
Marker ndB	Pass 2.886MHz 1 [T1 r 20.	.00 dB	RBW VBW	Detector  100 k 300 k 5 m	Hz s Ui	P)  F Att nit	K - 20 dB dBm .12 dBm	
Marker ndB	2.886MHz 1 [T1 r 20.	.00 dB	RBW VBW	 100 k 300 k 5 m	Hz s Ui	- F Att nit	20 dB dBm	
Marker ndB	1 [T1 r 20.	.00 dB	VBW	100 k 300 k 5 m	Hz s Ui	F Att nit	20 dB dBm .12 dBm	
ndB	20.	.00 dB	VBW	300 k 5 m	Hz s Ui	nit	dBm	
				5 m	s U	C	.12 dBm	
BW		154 MHz	SWT	<b>▼</b> 1		C	.12 dBm	
		$\sim$		±	[T1]	C 2.48003		
		$\sim$		ndł		2.48003		A
		$\sim$	$\sim$	ndE			507 GHz	
		5				20	.00 dB	1
			V	BW		2.88577	154 MHz	1
T 1 miles	1					2.47855	210 GHz	1
÷ 🝟					2 [T1]	-22	.22 dBm	1
7						Jun Andra 3	788 GHz	l
p.r						Í Y	Ming	1MA
								1
							, v	1
								1
								1
								1
								1
								1
								1
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								1
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								1
								1
GHz	1	500	kHz/			Spa	n 5 MHz	
						-		
		Hz 2021 09:25:47			Г П П П П П П П П П П П П П П П П П П П	Image: Second	нд бо кнд/ ра	Hz 500 KHz/ Span 5 MHz

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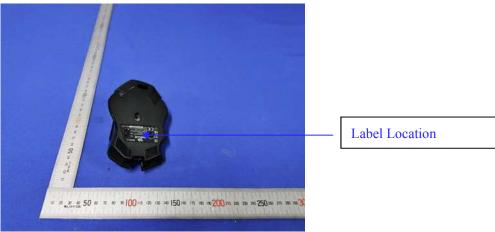
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### 10.0 FCC ID Label

## FCC ID: TUVDS-2880

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:



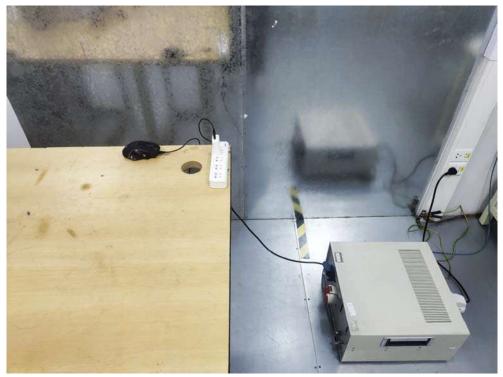
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#### 11.0 Photo of testing

11.1 Conducted test view



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## 11.2 Radiated emission test view



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#### 11.3 Photographs – EUT

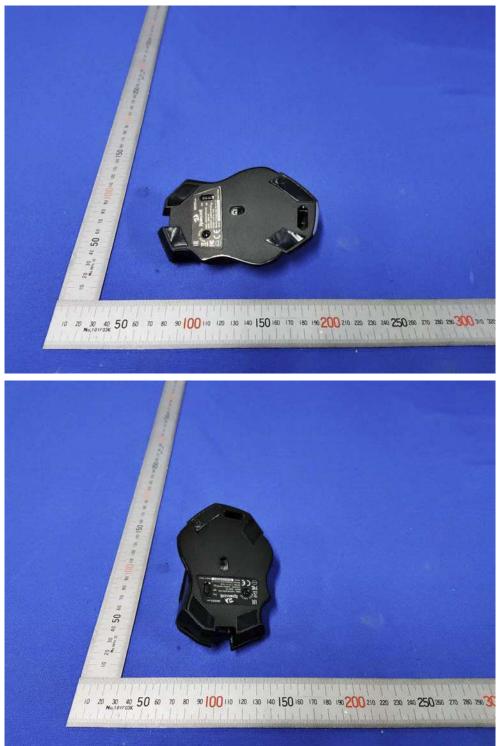


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Outside View



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Outside View

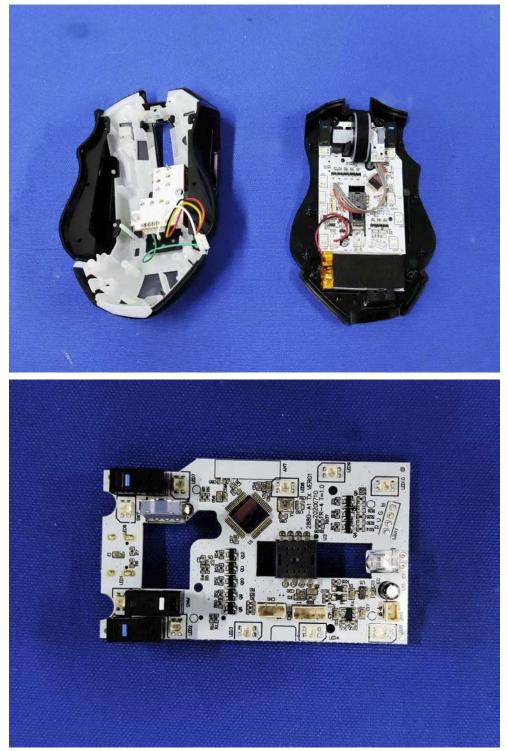


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Inside view

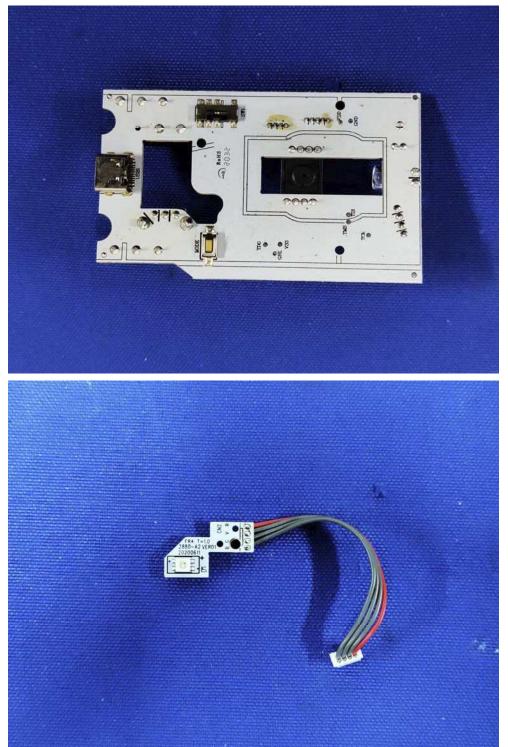


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Inside view

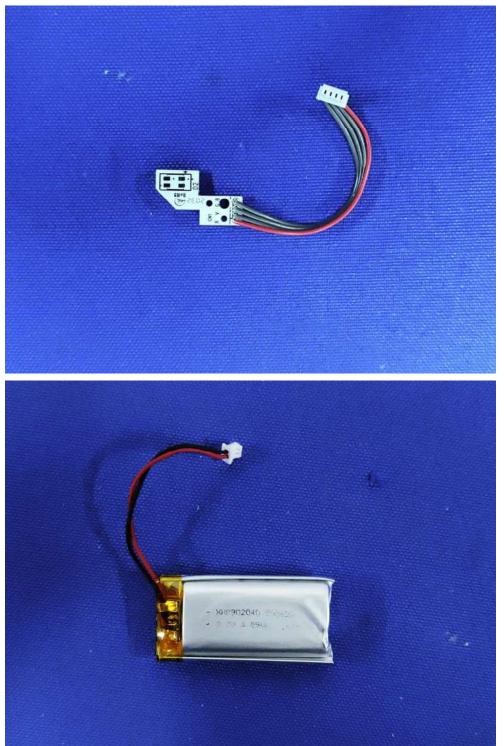


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Inside view

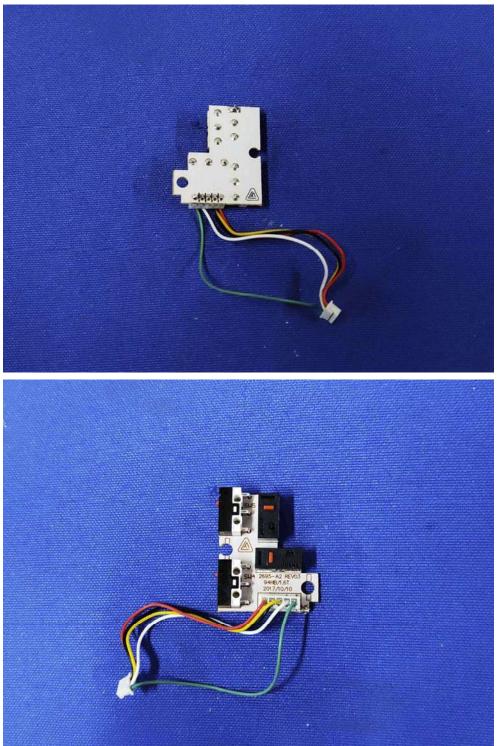


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Inside view



--End of the report--

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