



Report No.: FCC2004231 File Reference No.: 2020-06-04

Applicant: Shenzhen Star Sources Electronic Technology Co., Ltd.

Product: Wireless Mouse

Model No.: IMAC-M211W, ST-211

Brand Name: N/A

Test Standards: FCC Part 15.249

Test Result: It is herewith confirmed and found to comply with the requirements set up by ANSI C63.4&FCC Part 15 Subpart

C, Paragraph 15.249 regulations for the evaluation of

electromagnetic compatibility

Approved By

Jack Chung

Jack Chung

Manager

Dated: June 04, 2020

Results appearing herein relate only to the sample tested The technical reports is issued errors and omissions exempt and is subject to withdrawal at

# 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

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# **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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# Test Report Conclusion

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11.0

Photo of Test Setup and EUT View.

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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 Number: 744189 For 3m Anechoic Chamber

# 1.2 Applicant Details

Applicant: Shenzhen Star Sources Electronic Technology Co., Ltd.

Address: Room1102, Block 1st, Yi Luan Building, Xixiang Road 230, BaoAn District, Shenzhen, China

Telephone: +86-755-86397260 Fax: +86-755-26609516

#### 1.3 Description of EUT

Product: Wireless Mouse

Manufacturer: Star Technology Industrial Co., Ltd.

Address: Room1102, Block 1st, Yi Luan Building, Xixiang Road 230, BaoAn District,

Shenzhen, China

Brand Name: N/A

Model Number: IMAC-M211W

Additional Model Name ST-211

Input Voltage: DC3V, 2pcs AAA batteries

Modulation Type: GFSK

Operation Frequency 2402.65-2480.65MHz

Channel List:

Channel	1	2	3	4	5	6	7	8
Frequency (MHz)	2402.65	2426.65	2441.65	2463.65	2407.65	2422.65	2445.65	2466.65
Channel	9	10	11	12	13	14	15	16
Frequency (MHz)	2414.65	2436.65	2459.65	2473.65	2419.65	2439.65	2453.65	2480.65

Antenna Designation PCB antenna with gain 3.85dBi Max

#### 1.4 Submitted Sample

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2 Samples

1.5 Test Duration

2020-05-18 to 2020-06-01

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

Terry Tang

The sample tested by

Print Name: Terry Tang

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Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
ESPI Test Receiver	R&S	ESPI 3	100379	2019-06-21	2020-06-20
LISN	R&S	EZH3-Z5	100294	2019-06-21	2020-06-20
LISN	R&S	EZH3-Z5	100253	2019-06-21	2020-06-20
Ultra Broadband ANT	R&S	HL562	100157	2019-06-21	2020-06-20
Impuls-Begrenzer	R&S	ESH3-Z2	100281	2019-06-21	2020-06-20
Loop Antenna	EMCO	6507	00078608	2018-06-25	2021-06-24
Spectrum	R&S	FSIQ26	100292	2019-06-21	2020-06-20
Horn Antenna	A-INFO	LB-180400-KF	J211060660	2019-06-21	2021-06-20
Horn Antenna	R&S	BBHA 9120D	9120D-631	2018-07-09	2021-07-08
Power meter	Anritsu	ML2487A	6K00003613	2019-08-22	2020-08-21
Power sensor	Anritsu	MA2491A	32263	2019-08-22	2020-08-21
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	2019-06-21	2020-06-20
EMI Test Receiver	RS	ESH3	860904/006	2019-06-21	2020-06-20
Spectrum	HP/Agilent	ESA-L1500A	US37451154	2019-06-21	2020-06-20
Spectrum	HP/Agilent	E4407B	MY50441392	2019-06-21	2020-06-20
Spectrum	RS	FSP	1164.4391.38	2020-01-16	2021-01-15
RF Cable	Zhengdi	ZT26-NJ-NJ-8 M/FA		2019-06-21	2020-06-20
RF Cable	Zhengdi	7m		2019-06-21	2020-06-20
RF Switch	EM	EMSW18	060391	2019-06-21	2020-06-20
Pre-Amplifier	Schwarebeck	BBV9743	#218	2019-06-21	2020-06-20
Pre-Amplifier	HP/Agilent	8449B	3008A00160	2019-06-21	2020-06-20
LISN	SCHAFFNER	NNB42	00012	2020-01-07	2021-01-06

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#### 3.0 Technical Details

# 3.1 Summary of test results

The EUT has	been teste	d according	to the	following	specifications:

Standard	Test Type	Result	Notes
FCC Part 15, Paragraph 15.207	Conducted Emission Test	N/A	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 and RSS-210	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

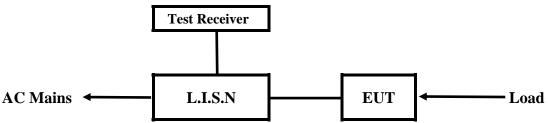
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#### 5. Power Line Conducted Emission Test

#### 5.1 Schematics of the test

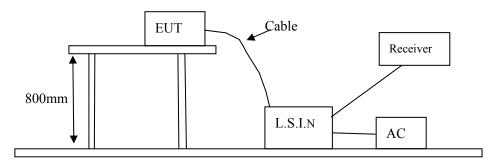


**EUT: Equipment Under Test** 

# 5.2 Test Method and test Procedure

The EUT was tested according to ANSI C63.4-2014. The Frequency spectrum From 0.15MHz to 30MHz was investigated. The LISN used was 50ohm/50uH as specified by section 5.1 of ANSI C63.4-2014.

# Block diagram of Test setup



# 5.3 Configuration of The EUT

The EUT was configured according to ANSI C63.4-2014. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

One channels are provided to the EUT

#### A. EUT

Device	Manufacturer	Model	FCC ID
Wireless Mouse	Star Technology Industrial Co., Ltd.	IMAC-M211W, ST-211	ZJEIMAC-M211W

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#### B. Internal Device

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 C63.4 -2014

- 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 15.107 and 15.207

_						
Frequency(MHz)	Class A Li	mits (dBµV)	Class B Limits (dBµV)			
	Frequency(MHZ)	Quasi-peak Level	Average Level	Quasi-peak Level	Average Level	
	$0.15 \sim 0.50$	79.0	66.0	66.0~56.0*	56.0~46.0*	
	$0.50 \sim 5.00$	73.0	60.0	56.0	46.0	
	5.00 ~ 30.00	73.0	60.0	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: N/A

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

Note: EUT powered by AA battery, this test item not applicable.

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

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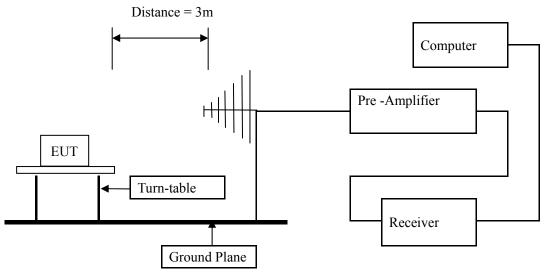
Date: 2020-06-04



#### **6** Radiated Emission Test

- 6.1 Test Method and test Procedure:
- (1) 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**



- 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.

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#### 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	ld Strength of Fundamental (3m)			Field Strength of Harmonics (3m)		
(MHz)	mV/m	dBuV/m		uV/m	dBu	V/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.

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

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

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. New battery was used during tests.X,Y,Z axies all have been tested ,only worse case is reported.

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#### 6.5 Test result

#### A Fundamental & Harmonics Radiated Emission Data

Product:	Wireless Mouse	Test Mode:	Keep transmitting-Low Channel
Test Item:	Fundamental Radiated Emission	Temperature:	25℃
	Data		
Test Voltage:	DC3.0V	Humidity:	56%
Test Result:	Pass		

Frequency	Emission PK/AV	Horiz /	Limits PK/AV	Margin
(MHz)	(dBuV/m)	Vert	(dBuV/m)	(dB)
2402.65	81.97 (PK)	Н	114/94	-12.03
2402.65	74.61 (PK)	V	114/94	-19.39
4805.3	47.01 (PK)	Н	74/54	-6.99
4805.3		V	74/54	
7207.95		H/V	74/54	
9610.6		H/V	74/54	
12013.25		H/V	74/54	
14415.9		H/V	74/54	
16818.55		H/V	74/54	
19221.2		H/V	74/54	
21623.85		H/V	74/54	
24026.5		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:	Wireless Mouse	Test Mode:	Keep transmitting-Middle Channel
Test Item:	Fundamental Radiated Emission	Temperature:	25℃
	Data		
Test Voltage:	DC3.0V	Humidity:	56%
Test Result:	Pass		

Frequency	Emission PK/AV	Horiz /	Limits PK/AV	Margin
(MHz)	(dBuV/m)	Vert	(dBuV/m)	(dB)
2441.65	80.12 (PK)	Н	114/94	-13.88
2441.65	73.70 (PK)	V	114/94	-20.30
4883.3		Н	74/54	
4883.3		V	74/54	
7324.95		H/V	74/54	
9766.6		H/V	74/54	
12208.25		H/V	74/54	
14649.9		H/V	74/54	
17091.55		H/V	74/54	
19533.2		H/V	74/54	
21974.85		H/V	74/54	
24416.5		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:	Wireless Mouse	Test Mode:	Keep transmitting-High Channel
Test Item:	Fundamental Radiated Emission	Temperature:	25℃
	Data		
Test Voltage:	DC3.0V	Humidity:	56%
Test Result:	Pass		

Frequency	Emission PK/AV	Horiz /	Limits PK/AV	Margin
(MHz)	(dBuV/m)	Vert	(dBuV/m)	(dB)
2480.65	82.02 (PK)	Н	114/94	-11.98
2480.65	77.54 (PK)	V	114/94	-16.46
4961.3		Н	74/54	
4961.3		V	74/54	
7441.95		Н	74/54	
7441.95		V	74/54	
9922.6		H/V	74/54	
12403.25		H/V	74/54	
14883.9		H/V	74/54	
17364.55		H/V	74/54	
19845.2		H/V	74/54	
22325.85		H/V	74/54	
24806.5		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.

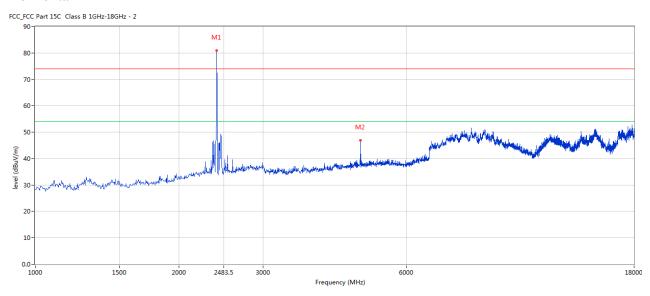
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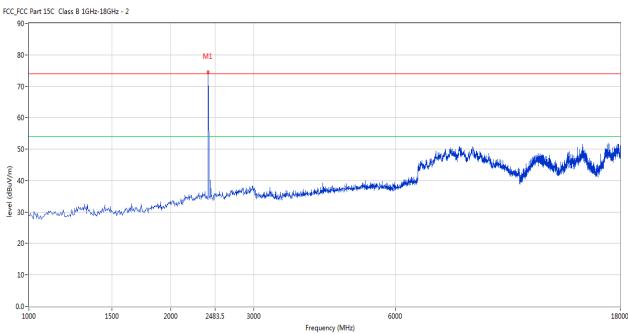


Please refer to the following test plots for details: Low Channel

#### **Horizontal**



#### Vertical



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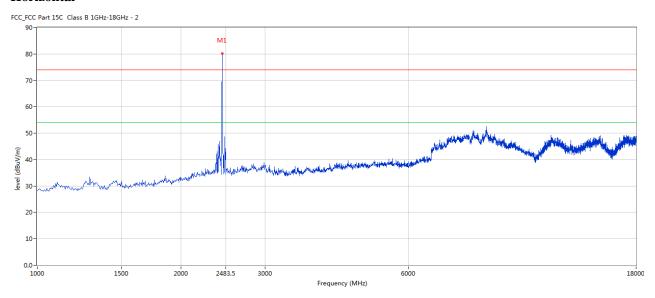
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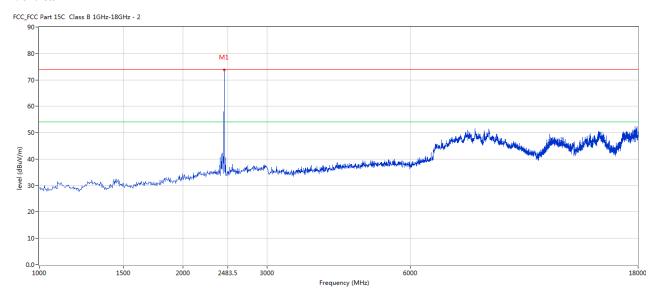


Please refer to the following test plots for details: Middle Channel

#### **Horizontal**



#### Vertical



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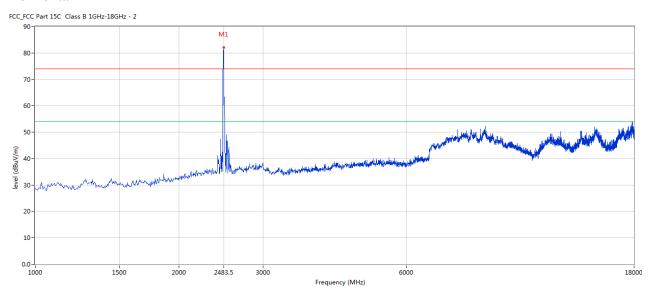
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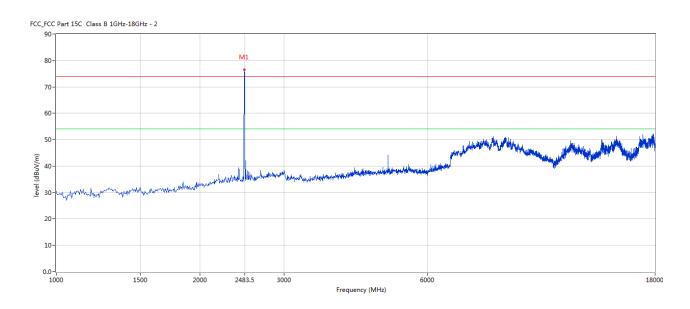


# Please refer to the following test plots for details: High Channel

#### **Horizontal**



#### Vertical



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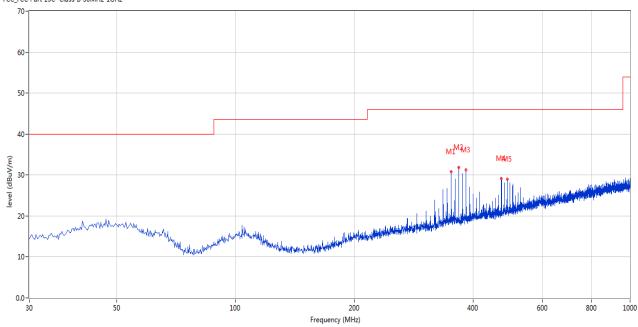
# B. General Radiated Emission Data Radiated Emission In Horizontal (30MHz----1000MHz)

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 (dB)	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)		(dBuV/m)	(dB)		(o)	(cm)		
1	351.960	30.82	-9.45	46.0	-15.18	Peak	97.00	100	Н	Pass
2	367.961	31.85	-9.50	46.0	-14.15	Peak	118.00	100	Н	Pass
3	383.962	31.22	-9.16	46.0	-14.78	Peak	73.00	100	Н	Pass
4	471.967	29.12	-7.64	46.0	-16.88	Peak	100.00	200	Н	Pass
5	488.210	28.98	-7.13	46.0	-17.02	Peak	108.00	200	Н	Pass

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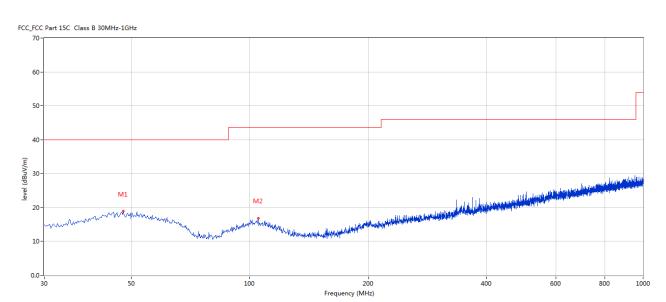


# Radiated Emission In Vertical (30MHz----1000MHz)

EUT set Condition: Keep Tx transmitting

Results: Pass

Please refer to following diagram for individual



No.	Frequency	Results	Factor	Limit	Over	Detector	Table (o)	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	Limit (dB)			(cm)		
1	47.698	18.90	-11.34	40.0	-21.10	Peak	86.00	200	٧	Pass
2	104.914	16.89	-13.23	43.5	-26.61	Peak	347.00	200	V	Pass

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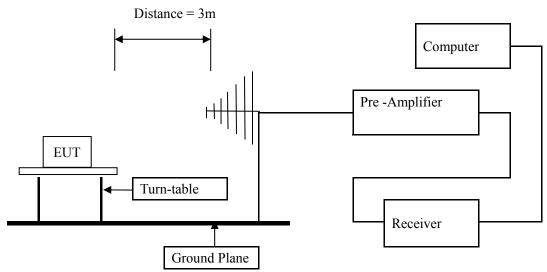


#### 7. Band Edge

#### 7.1 Test Method and test Procedure:

- (1) 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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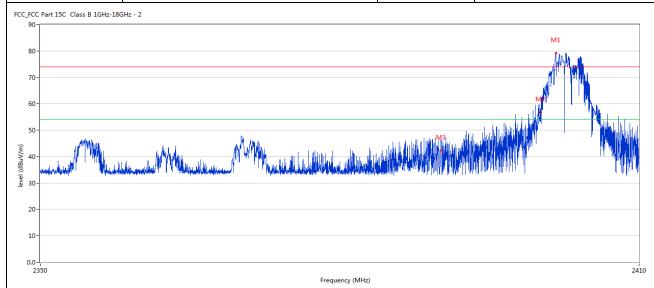
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#### 7.6 Test Result

Product:	Wireless Mouse	Polarity	Horizontal
Mode	Keeping Transmitting	Test Voltage	DC3.0V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass		



No.	Frequency	Results	Factor	Limit	Over	Detector	Table (o)	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	Limit			(cm)		
					(dB)					
2	2400.042	58.40	-3.57	74.0	-15.60	Peak	360.00	100	Н	Pass
2**	2400.042	41.25	-3.57	54.0	-12.75	AV	360.00	100	Н	Pass
3	2390.005	42.30	-3.53	54.0	-11.70	Peak	150.00	100	Н	Pass

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Pro	duct:		Wirele	ess Mouse		Detect	tor		Vertical	
Me	lode		Keeping	Transmitting	g	Test Vol	tage	I	DC3.0V	
Temp	erature		24 (	deg. C,		Humid	lity	5	56% RH	
Test I	Result:		I	Pass						
FCC Part 15	5C Class B 1GHz-18	BGHz - 2								
30-									M1	
70-										
50-								М	12	<u>k</u>
50-										
	ALL						1	أملا فاخران ويراب		
		one and the second	ألالت والمعلاب التحريض المتاركة	MM	ويتقارن أيث بالإدرية لذنون تكار	والمرابع المتعارف والمتعارف والمتعارف				
40-	many of pilling 18 September 18	onentene atrophogic blildwick	المادية والمادية والم	1 <sup>1</sup> 1 <sup>1</sup> 1 1 <sup>11</sup> 1 1 <sub>1</sub> 11 1 <sub>1</sub> 111 1 <sub>1</sub> 11 1 <sub>1</sub> 111 1 <sub>1</sub> 11 1 <sub>1</sub> 111 1 <sub>1</sub> 11 1 <sub>1</sub> 111 1 <sub>1</sub> 11 1 <sub>1</sub> 111 1 <sub>1</sub> 11 1 <sub>1</sub> 111 1 <sub>1</sub>	وينطار مرأطنانا ويبريط أوباجناهك و	المرافاة إخاريس أتنهب				
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40 -	want of the part of Marian	necessary of received in the Hattle	deridakaringan estemble en A	4 <sup>th</sup> /hWhlendensoireann	<u>ત્યમેલ પ્</u> રોથીમાં માના <u>ક્રીને ફ્રમ્મો મે</u> લ્લ	المتعادلة المتعادد والمتعادد والمتعاد والمتعادد والمتعادد والمتعادد والمتعادد والمتعادد والمتعاد				
10 -	nonneal de printing de Malanana	mandene attribused the Manda	perighericism ilmedendland V	g 1944 g Hille gudgesseers street arment	وينظره عيرأها ينافعهم وأفرقهم بالخرار	المتعادلة		A A A A A A A A A A A A A A A A A A A		
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0-	nonework of the Athlesense	mandeur at instead, while therete	perigalories in will and brillians del	g 1 g 1 g 1 g 1 g 1 g 1 g 1 g 1 g 1 g 1	gude og bledensker Frequency (MHz					2
0-	Frequency	Results	Factor	Limit	Frequency (MHz		Table (o)	Height	ANT	Verdict
00- 00- 00- 00- 2350	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)		2)		Height (cm)	ANT	
0- 0- 0- 0- 2350					Over	2)			ANT	
20- 10- 2350 O. F	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	Over Limit (dB)	Detector	Table (o)	(cm)		Verdict

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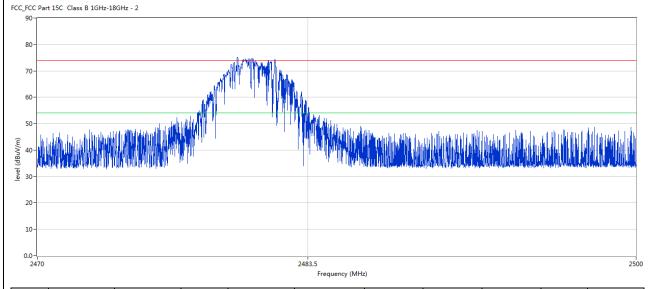
Pro	oduct:		Wirele	ess Mouse		Polarit	ty	Н	Iorizonta	ıl
M	1ode		Keeping	Transmitting	g	Test Volt	tage	]	DC3.0V	
Temp	perature		24	deg. C,		Humidi	ity	4	56% RH	
Test	Result:			Pass						
80 - 70 -	15C Class B 1GHz-1	8GHz - 2								
				1 1, 1, 1	11.					
50-										
50- 40- 30-										
30- 20-					M2					
50 - 40 - 30 -					M2 2483.5 Frequency (MHz)					250
30- 10- 2470	Frequency	Results	Factor	Limit	2483.5 Frequency (MHz)	Detector	Table (o)	Height	ANT	25d Verdict
50- 50- 40- 20- 10- 2470	(MHz)	(dBuV/m)	(dB)	Limit (dBuV/m)	Over Limit (dB)	Detector		(cm)		
20- 10- 2470 No.				Limit	2483.5 Frequency (MHz)		Table (o)  116.00  116.00	_	ANT H	

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Product:	Wire	less Mouse	Detector	Vertical
Mode	Keeping	g Transmitting	Test Voltage	DC3.0V
Temperature	24	4 deg. C,	Humidity	56% RH
Test Result:		Pass		1
2483.5MHz	PK (dBμV/m)		Limit	$74 \ dB\mu V/m$
2483.5MHz	AV (dBμV/m)		Limit	54 dBμV/m



	No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table (o)	Height	ANT	Verdict
		(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)			(cm)		
	2**	2483.482	38.11	-3.57	54.0	-15.89	AV	147.00	100	٧	Pass
ĺ	2	2483.482	53.53	-3.57	74.0	-20.47	Peak	147.00	100	V	Pass

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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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Product:	Wireless Mouse			Test Mode:		Keep transmitting		
Mode	Keeping Transmitting		Test Voltage			DC3.0V		
Temperature	24 deg. C,			Humidity Detector		56% RH PK		
Test Result:	Pass 2.184MHz							
dB Bandwidth								
	Delta 1	[T1]	R	ВW	30 kl	Hz R	F Att	10 dB
Ref Lvl		-0.13 dB		B₩	100 ki			
0 dBm	2	2.18436874 MHz	S	ИT	14 ms	s U	nit	dBm
					<b>v</b> <sub>1</sub>	[T1]	-36	.01 dBm
-10							2.40163	026 GHz
-10		2			<u></u> 1	[T1]	-(	1.13 dB
20		Χİ			$\nabla_2$	[T1]	-16	874 MHz
-20					۸		2.40208	116 GHz
20		/ \  _ <b>,</b>			$\Lambda$			
-30	1,	W M	77	\_	$\sim$	<b>\</b> <sub>1</sub>		1
—D1 −36.15	5 dBm	<b>7</b> 0	V	<u> </u>		1		
-40								
								<i>ل</i> م
-50	ADAL					<u>~~</u>	V	M
-60								
70								
-80								
-90								
100								
Center 2.4	102677355 GH	z 500	kHz/				Spa	n 5 MHz

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Product:	Wireless Mouse		Test Mode:	Keep tra	ansmitting	
Mode	Keeping Transmitting		Test Voltage	DC3.0V		
Temperature	24 deg. C, Pass		Humidity	56% RH		
Test Result:			Detector	PK		
20dB Bandwidth	2.169MHz					
Ref Lvl	Delta 1 [T1]	0.93 dB	RBW 30 kH VBW 100 kH	Iz	10 dB	
0 dBm	2.1693	33868 MHz	SWT 14 ms	s Unit	dBm	
-10 -20 -30		7	<b>▲</b> 1 ▼2	[T1] ( 2.16933 [T1] -16	.31 dBm 130 GHz .93 dB 868 MHz .05 dBm 210 GHz	
1MAX —D1 -36.	05 dBm	1	M	<u></u>	1MA	
-40				\		
-60					$\sim$	
<b>'</b>						
-70						
-80						
-90						
-100 Center 2	.441718437 GHz	500 kHz	:/	Spa	ın 5 MHz	
Date: 29	9.MAY.2020 09:19:5	59				

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Product:	Wireless Mouse	Test Mode:	Keep transmitting DC3.0V 56% RH PK		
Mode	Keeping Transmitting	Test Voltage			
Temperature	24 deg. C,	Humidity			
Test Result:	Pass	Detector			
20dB Bandwidth	2.169MHz				
Ref Lvl	Delta 1 [T1] -0.52 dB	RBW 30 kHz VBW 100 kHz	RF Att 10 dB		
0 dBm	2.16933868 MHz	SWT 14 ms	Unit dBm		
-10		<b>▼</b> 1 [T:	2.47967936 GHz		
-20	2	<b>▲</b> 1 [T: ∇ <sub>2</sub> ] <sub>T:</sub>	2.16933868 MHz		
-30			2.48003006 GHz		
	dBm dBm		1MA		
-50	spill l		MM		
-60					
-70					
-80					
-90					
-100 Center 2.	480716433 GHz 500 B	cHz/	Span 5 MHz		
Date: 29.	MAY.2020 09:24:14				

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#### 10.0 FCC ID Label

#### FCC ID: ZJEIMAC-M211W

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:



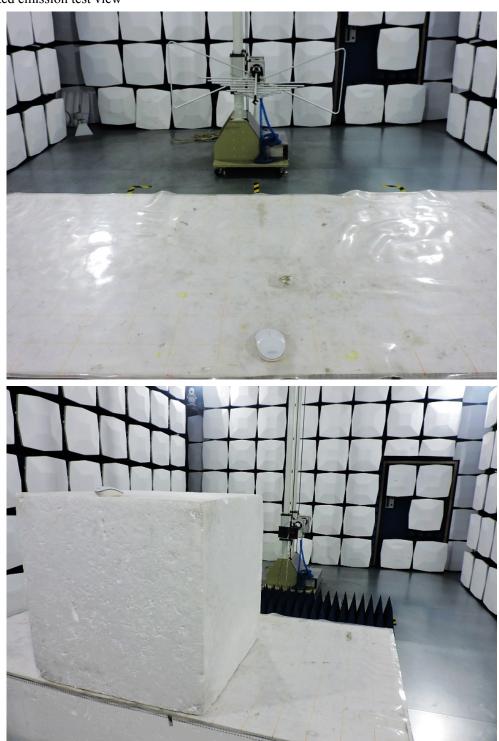
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# 11.0 Photo of testing

# 11.1 Radiated emission test view



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# 11.2 Photographs – EUT

#### Outside View





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Outside View





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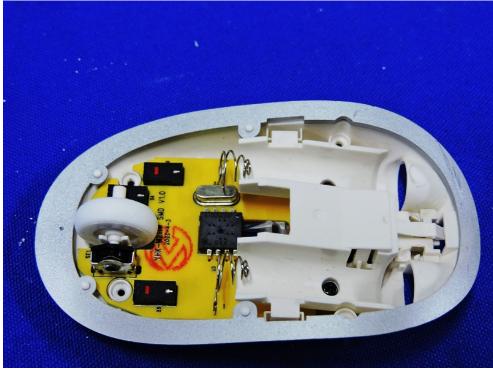
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Inside view





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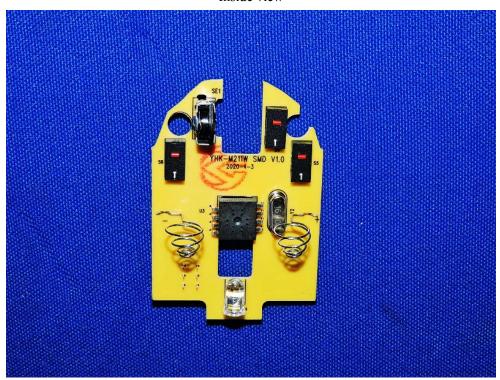
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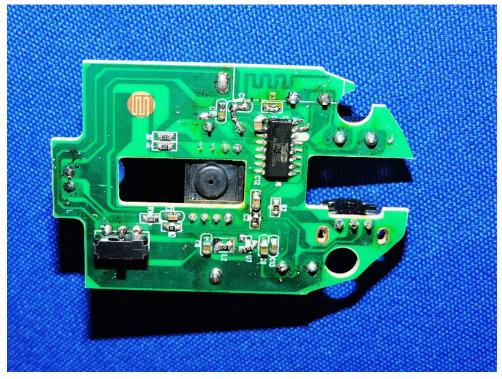
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Inside view





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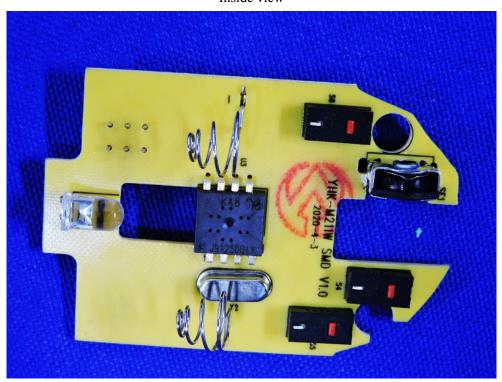
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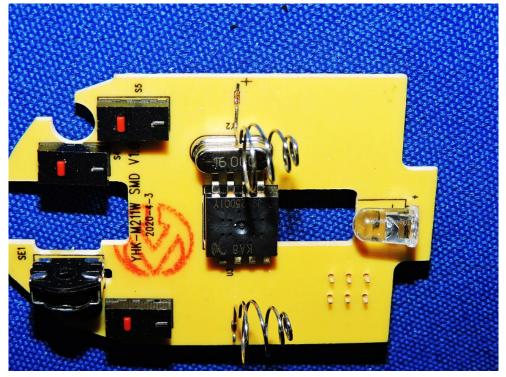
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Inside view





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