



Report No.: FCC1912274 File Reference No.: 2020-01-10

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

Product: Wireless Bluetooth Mouse

Model No.: IMACM212W-WM

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: January 10, 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

Report No.: FCC1912274 Page 2 of 56

Date: 2020-01-10



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

Report No.: FCC1912274

Date: 2020-01-10



Test Report Conclusion

Content

1.0	General Details	4
1.1	Test Lab Details	4
1.2	Applicant Details	4
1.3	Description of EUT	4
1.4	Submitted Sample	4
1.5	Test Duration.	5
1.6	Test Uncertainty	5
1.7	Test By	5
2.0	List of Measurement Equipment	6
3.0	Technical Details	7
3.1	Summary of Test Results	7
3.2	Test Standards	7
4.0	EUT Modification.	7
5.0	Power Line Conducted Emission Test.	8
5.1	Schematics of the Test.	8
5.2	Test Method and Test Procedure	8
5.3	Configuration of the EUT	8
5.4	EUT Operating Condition	9
5.5	Conducted Emission Limit.	9
5.6	Test Result	9
6.0	Radiated Emission test	10
6.1	Test Method and Test Procedure	10
6.2	Configuration of the EUT	10
6.3	EUT Operation Condition.	10
6.4	Radiated Emission Limit	11
6.5	Test Result	12
7.0	Band Edge	28
7.1	Test Method and Test Procedure	28
7.2	Radiated Test Setup.	28
7.3	Configuration of the EUT	28
7.4	EUT Operating Condition.	28
7.5	Band Edge Limit.	28
7.6	Band Edge Test Result.	29
8.0	Antenna Requirement	37
9.0	20dB bandwidth measurement.	38
10.0	FCC ID Label	50
11.0	Photo of Test Setup and EUT View.	51

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

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Report No.: FCC1912274 Page 4 of 56

Date: 2020-01-10



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: -Fax: --

1.3 Description of EUT

Product: Wireless Bluetooth Mouse

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

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

Shenzhen, China

Brand Name: N/A

Model Number: IMACM212W-WM

Additional Model Name N/A

Input Voltage: DC3.0V, 2pcs AAA batteries

Modulation Type: Bluetooth BRD/EDR : GFSK, Л/4D-QPSK, 8DPSK;

BLE: GFSK

Operation Frequency 2402-2480MHz

Channel Separation 1MHz for Bluetooth BRD/EDR; 2MHz for BLE

Antenna Designation PCB antenna with gain 0dBi Max

1.4 Submitted Sample

1 Sample

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

Report No.: FCC1912274 Page 5 of 56

Date: 2020-01-10



1.5 Test Duration

2019-12-27 to 2020-01-09

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

Page 6 of 56 Report No.: FCC1912274

Date: 2020-01-10



2.0 Test Equipment	Manufacturer	M - 4 - 1	C! - 1 N -	D-tfC-1	Des a Des
71		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	Power meter Anritsu		.2487A 6K00003613		2020-08-21
Power sensor	Anritsu	MA2491A	MA2491A 32263		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	2019-01-20	2020-01-19
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

Report No.: FCC1912274 Page 7 of 56

Date: 2020-01-10



3.0 Technical Details

3.1 Summary of test results

The E	UT has	been	tested	accord	ling to	o 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

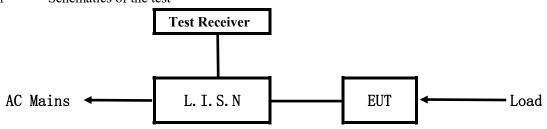
Report No.: FCC1912274

Date: 2020-01-10



5. Power Line Conducted Emission Test

5.1 Schematics of the test

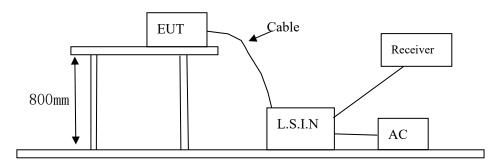


EUT: Equipment Under Test

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 Bluetooth Mouse	Star Technology Industrial Co., Ltd.	IMACM212W-WM	ZJEIMACM212

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

Report No.: FCC1912274 Page 9 of 56

Date: 2020-01-10



B. Internal Device

Device	Manufacturer	Model	FCC ID/SDOC
N/A			

C. Peripherals

Device	Manufacturer	Model	FCC ID/SDOC/DOC

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

Engage ov (MHz)	Class A Lir	nits (dB µ V)	Class B Limits (dB µ V)		
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 AAA battery, this test item not applicable.

Page 10 of 56

Report No.: FCC1912274

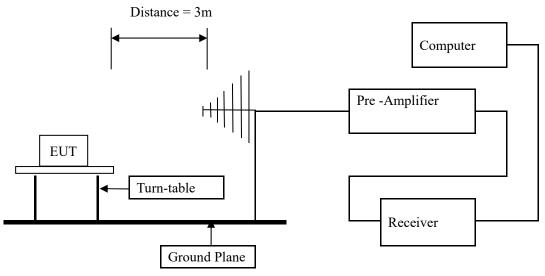
Date: 2020-01-10



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.

Report No.: FCC1912274 Page 11 of 56

Date: 2020-01-10



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 Fundame	ental (3m)	Field S	trength of Harmo	nics (3m)
(MHz)	mV/m	dBu	V/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 (dB µ V/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 $(dBuV) = 20 \log RF \text{ Voltage } (uV)$
- 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. New battery were used during tests.
- 6. X,Y,Z axis of eut all have been tested, only worse case is reported.

Report No.: FCC1912274 Page 12 of 56

Date: 2020-01-10



6.5 Test result

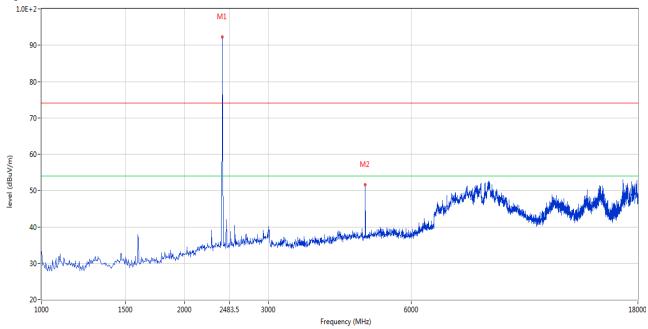
A Fundamental & Harmonics Radiated Emission Data

BLE Mode

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

Horizontal

FCC_FCC Part 15B Class B 1GHz-18GHz - 2



No.	Frequency	Results	Factor	Limit	Over	Detector	Table (o)	Height	ANT	Verdict
	(MHz)	(dBuV/m	(dB)	(dBuV/m	Limit			(cm)		
))	(dB)					
1	2402.149	92.34	-3.57	94.0	-1.66	Peak	269.00	100	Н	Pass
2	4802.799	51.61	3.12	54.0	-2.39	Peak	287.00	100	Н	Pass

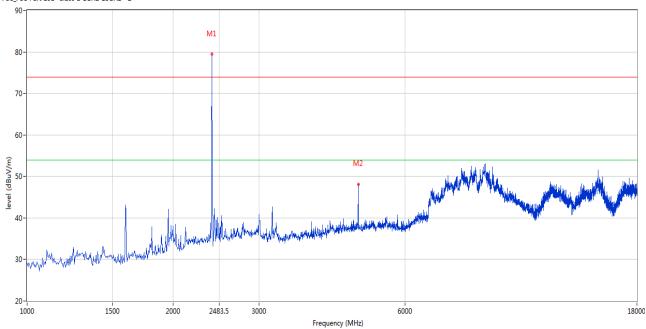
Report No.: FCC1912274 Page 13 of 56

Date: 2020-01-10



Vertical

FCC_FCC Part 15B Class B 1GHz-18GHz - 2



No.	Frequency	Results	Factor	Limit	Over	Detector	Table (o)	Height	ANT	Verdict
	(MHz)	(dBuV/m	(dB)	(dBuV/m	Limit			(cm)		
))	(dB)					
1	2402.149	79.48	-3.57	94.0	-14.52	Peak	5.00	100	V	Pass
2	4802.799	48.14	3.12	54.0	-5.86	Peak	147.00	100	V	Pass

Report No.: FCC1912274 Page 14 of 56

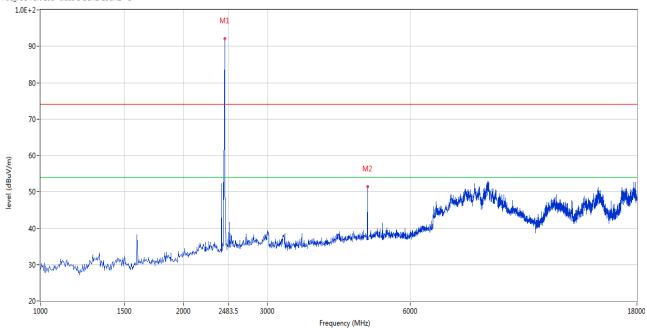
Date: 2020-01-10



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

Horizontal





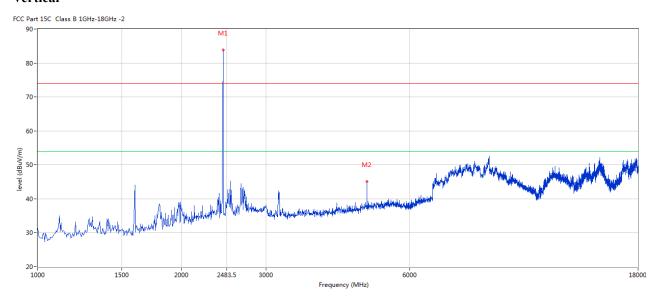
No.	Frequency	Results	Factor	Limit	Over	Detector	Table (o)	Height	ANT	Verdict
	(MHz)	(dBuV/m	(dB)	(dBuV/m	Limit			(cm)		
))	(dB)					
1	2440.390	92.10	-3.57	94.0	-1.90	Peak	272.00	100	Н	N/A
2	4879.280	51.47	3.20	54.0	-2.53	Peak	109.00	100	Н	Pass

Report No.: FCC1912274 Page 15 of 56

Date: 2020-01-10



Vertical



No.	Frequency	Results	Factor	Limit	Over	Detector	Table (o)	Height	ANT	Verdict
	(MHz)	(dBuV/m	(dB)	(dBuV/m	Limit			(cm)		
))	(dB)					
1	2440.390	83.82	-3.57	94.0	-10.18	Peak	97.00	100	V	N/A
2	4879.280	45.10	3.20	54.0	-8.90	Peak	88.00	100	V	Pass

Report No.: FCC1912274 Page 16 of 56

Date: 2020-01-10



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

Horizontal

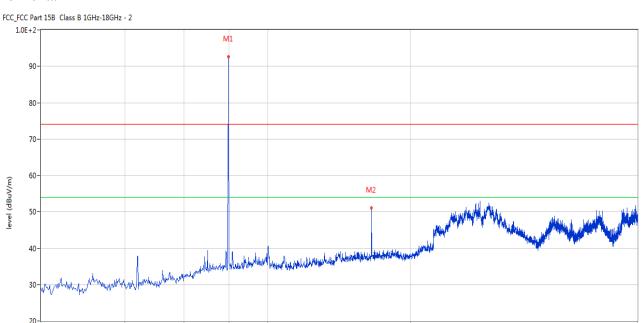
1000

1500

2000

2483.5

3000



No.	Frequency	Results	Factor	Limit	Over	Detector	Table (o)	Height	ANT	Verdict
	(MHz)	(dBuV/m	(dB)	(dBuV/m	Limit			(cm)		
))	(dB)					
1	2479.630	92.64	-3.57	94.0	-1.36	Peak	279.00	100	Н	Pass
2	4960.010	50.99	3.36	54.0	-3.01	Peak	265.00	100	Н	Pass

Frequency (MHz)

6000

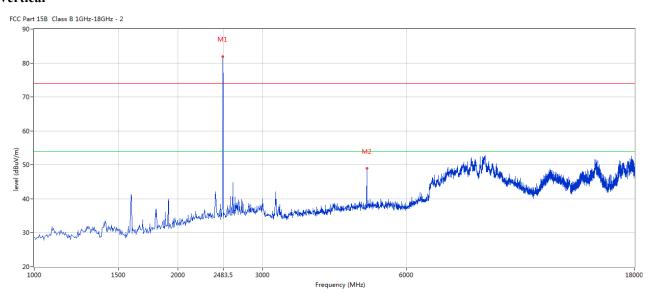
18000

Report No.: FCC1912274 Page 17 of 56

Date: 2020-01-10



Vertical



No.	Frequency	Results	Factor	Limit	Over	Detector	Table (o)	Height	ANT	Verdict
	(MHz)	(dBuV/m	(dB)	(dBuV/m	Limit			(cm)		
))	(dB)					
1	2479.630	81.96	-3.57	94.0	-12.04	Peak	13.00	100	V	Pass
2	4960.010	48.92	3.36	54.0	-5.08	Peak	77.00	100	V	Pass

For emission above 18GHz, It is only the floor noise. No necessary to take down.

Note: (1) For Radiated emission below 30MHz and above 18GHz, it is only the floor noise

- (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.

Report No.: FCC1912274 Page 18 of 56

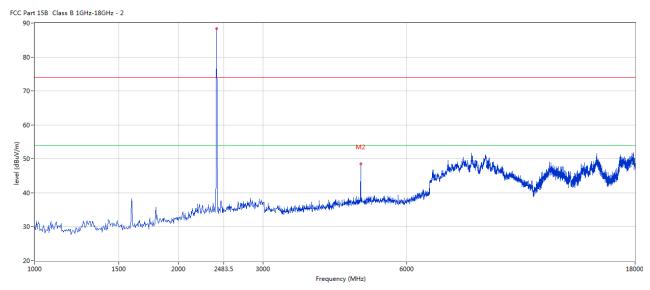
Date: 2020-01-10



BT BDR/EDR Mode (GFSK Modulation was the worst case)

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

Horizontal



No.	Frequency	Results	Factor	Limit	Over	Detector	Table (o)	Height	ANT	Verdict
	(MHz)	(dBuV/m	(dB)	(dBuV/m	Limit			(cm)		
))	(dB)					
1	2402.149	88.31	-3.57	94.0	-5.69	Peak	273.00	100	Н	Pass
2	4802.799	48.56	3.12	54.0	-5.44	Peak	273.00	100	Н	Pass

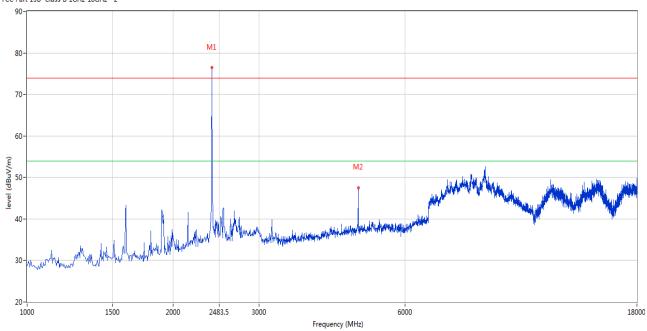
Report No.: FCC1912274 Page 19 of 56

Date: 2020-01-10



Vertical

FCC Part 15B Class B 1GHz-18GHz - 2



No.	Frequency	Results	Factor (dB)	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)		(dBuV/m)	(dB)		(o)	(cm)		
1	2402.149	76.50	-3.57	94.0	-17.50	Peak	178.00	100	V	N/A
2	4802.799	47.54	3.12	54.0	-6.46	Peak	64.00	100	٧	Pass

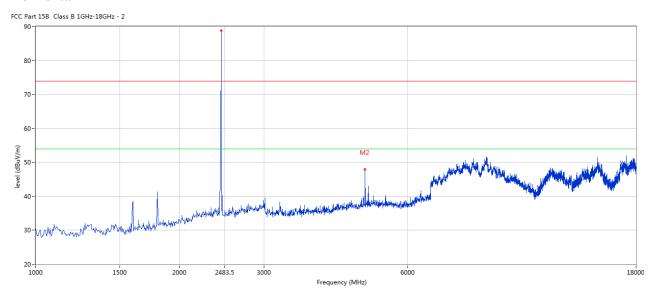
Report No.: FCC1912274 Page 20 of 56

Date: 2020-01-10



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

Horizontal



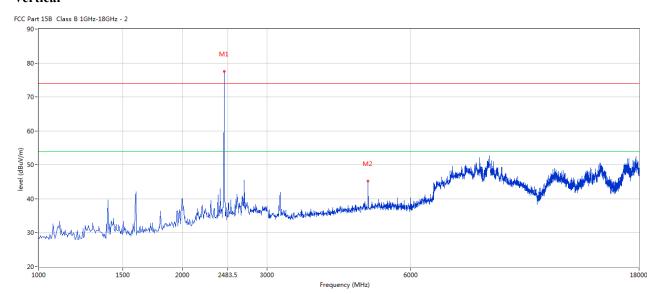
No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2441	88.75	-3.57	94.0	-5.25	Peak	277.00	100	Н	Pass
2	4879.280	47.93	3.20	54.0	-6.07	Peak	117.00	100	Н	Pass

Report No.: FCC1912274 Page 21 of 56

Date: 2020-01-10



Vertical



No.	Frequency	Results	Factor	Limit	Over	Detector	Table (o)	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	Limit (dB)			(cm)		
1	2441	77.57	-3.57	94.0	-16.43	Peak	9.00	100	V	Pass
2	4879.280	45.28	3.20	54.0	-8.72	Peak	65.00	100	V	Pass

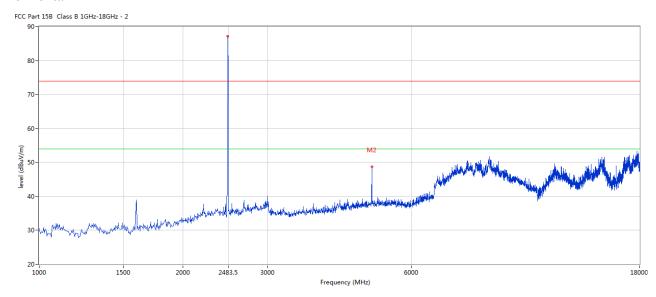
Report No.: FCC1912274 Page 22 of 56

Date: 2020-01-10



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

Horizontal



No.	Frequency	Results	Factor	Limit	Over	Detector	Table (o)	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	Limit (dB)			(cm)		
1	2479.630	87.17	-3.57	94.0	-6.83	Peak	291.00	100	Н	N/A
2	4960.010	48.68	3.36	54.0	-5.32	Peak	277.00	100	Н	Pass

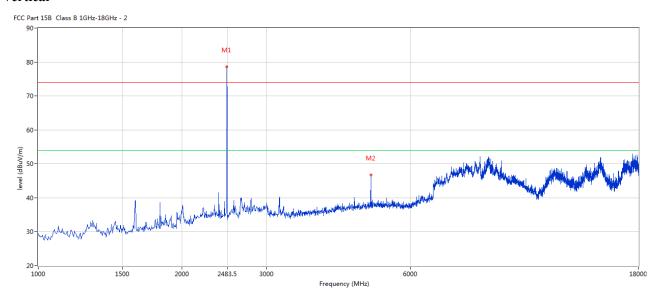
Page 23 of 56

Report No.: FCC1912274

Date: 2020-01-10



Vertical



No.	Frequency	Results	Factor	Limit	Over	Detector	Table (o)	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	Limit (dB)			(cm)		
1	2479.630	78.57	-3.57	94.0	-25.43	Peak	57.00	100	V	N/A
2	4960.010	46.74	3.36	54.0	-7.26	Peak	66.00	100	V	Pass

For emission above 18GHz, It is only the floor noise. No necessary to take down.

Note:

- (1) For Radiated emission below 30MHz and above 18GHz, it is only the floor noise
- (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.

Report No.: FCC1912274 Page 24 of 56

Date: 2020-01-10



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

EUT set Condition: Keep Tx transmitting

Mode: BLE

Results: Pass

0.0

Please refer to following diagram for individual

FCC_FCC Part 15C Class B 30MHz-1GHz

70

60

50

M1 M2

20

10

No.	Frequency	Results	Factor	Limit	Over	Detector	Table (o)	Height	ANT	Verdict
	(MHz)	(dBuV/m	(dB)	(dBuV/m	Limit			(cm)		
))	(dB)					
1	203.102	22.15	-13.44	43.5	-21.35	Peak	100.00	200	Н	Pass
2	235.831	23.17	-12.45	46.0	-22.83	Peak	101.00	100	Н	Pass
3	319.958	25.81	-10.60	46.0	-20.19	Peak	0.00	200	Н	Pass
4	398.508	28.23	-8.65	46.0	-17.77	Peak	0.00	200	Н	Pass
5	599.733	28.47	-4.98	46.0	-17.53	Peak	0.00	200	Н	Pass

Frequency (MHz)

1000

Report No.: FCC1912274 Page 25 of 56

Date: 2020-01-10



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

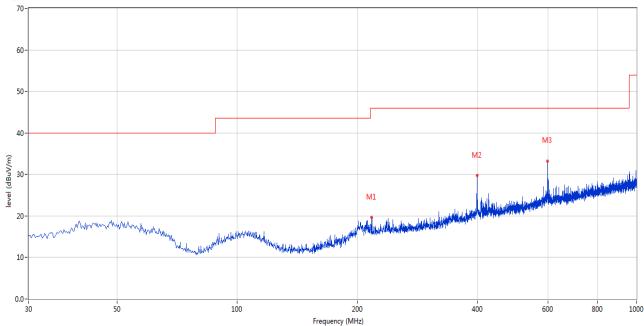
EUT set Condition: Keep Tx transmitting

Mode: BLE

Results: Pass

Please refer to following diagram for individual





No.	Frequency	Results	Factor (dB)	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)		(dBuV/m)	(dB)		(o)	(cm)		
1	217.163	19.64	-13.49	46.0	-26.36	Peak	155.00	200	V	Pass
2	398.265	29.67	-8.67	46.0	-16.33	Peak	158.00	100	V	Pass
3	599.248	33.27	-5.04	46.0	-12.73	Peak	63.00	100	V	Pass

Report No.: FCC1912274 Page 26 of 56

Date: 2020-01-10



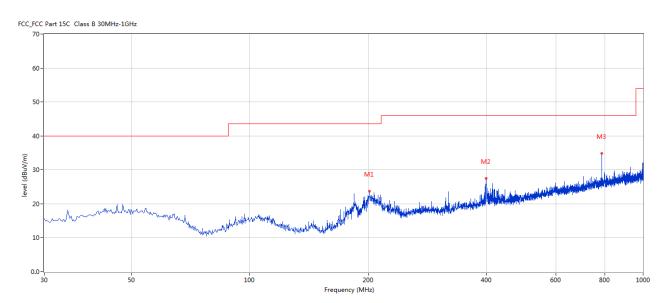
Radiated Emission In Horizontal (30MHz----1000MHz)

EUT set Condition: Keep Tx transmitting

Mode: Bluetooth BDR/EDR (GFSK Modulation was the worst case)

Results: Pass

Please refer to following diagram for individual



No.	Frequen	Results	Factor	Limit	Over	Detector	Table (o)	Height	ANT	Verdict
	cy (MHz)	(dBuV/m)	(dB)	(dBuV/m)	Limit (dB)			(cm)		
1	201.405	23.68	-13.42	43.5	-19.82	Peak	74.00	100	Н	Pass
2	399.235	27.45	-8.60	46.0	-18.55	Peak	360.00	200	Н	Pass
3	785.684	34.78	-3.08	46.0	-11.22	Peak	107.00	100	Н	Pass

Report No.: FCC1912274 Page 27 of 56

Date: 2020-01-10



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

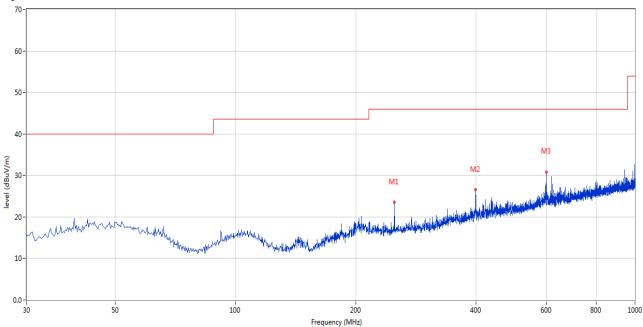
EUT set Condition: Keep Tx transmitting

Mode: Bluetooth BDR/EDR (GFSK Modulation was the worst case)

Results: Pass

Please refer to following diagram for individual





No.	Frequency	Results	Factor (dB)	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)		(dBuV/m)	(dB)		(o)	(cm)		
1	249.893	23.59	-12.08	46.0	-22.41	Peak	33.00	100	V	Pass
2	398.750	26.55	-8.63	46.0	-19.45	Peak	63.00	100	V	Pass
3	599.975	30.83	-4.95	46.0	-15.17	Peak	128.00	100	٧	Pass

Report No.: FCC1912274

Date: 2020-01-10

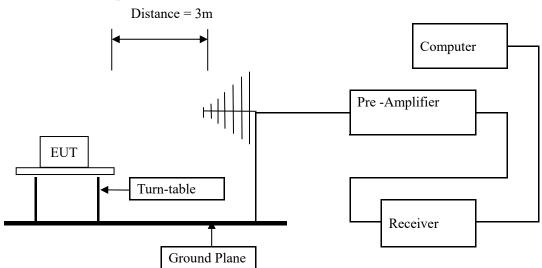


7. Band Edge

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.

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

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Report No.: FCC1912274 Page 29 of 56

Date: 2020-01-10



7.6 Test Result

BLE Mode

	Pro	duct:	Wi	reless Bl	luetooth Mo	use	Pola	rity		Horizon	ıtal
	M	lode]	Keeping	Transmittin	g	Test Vo	oltage		DC3.0	V
-	Гетр	erature		24	deg. C,		Hum	idity		56% R	Н
	Test	Result:			Pass			-			
		5B Class B 1GHz-18GH	łz - 2								
1.	.0E+2-										
	90-									M	
										/ \	
	80-										
	_									<u> </u>	
	70-									$\overline{}$	
									/	"∖	
	60-								mW/v/		
	50-							Amr			Na.
		1							J.		N _u
	40-	1		. A		in the			M ^e		Nu I
	#										Marmil
	30-)									241
						Frequency (M	Hz)				
No	٥.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
		(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1		2390	48.44	-3.53	54.0	-5.56	Peak	150.00	100	Н	Pass
	*	2400	38.14	-3.57	54.0	-15.86	AV	189.00	100	Н	Pass
2*		2400	68.89	-3.57	74.0	-5.11	Peak	189.00	100	Н	Pass

Report No.: FCC1912274 Page 30 of 56

Date: 2020-01-10



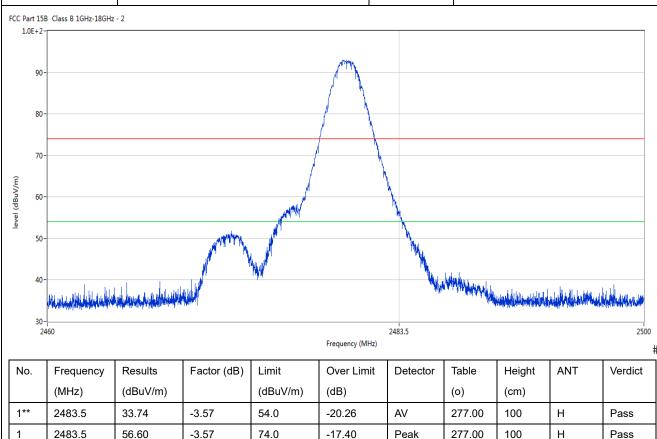
]	Product:	Wi	reless B	luetooth Mo	use	Detect	or		Vertical	
	Mode		Keeping	Transmittin	g	Test Vol	tage		DC3.0V	
Te	mperature		24	deg. C,		Humid	ity		56% RH	
Te	est Result:			Pass						
_FCC F 1.0E+	Part 15B Class B 1GHz-18G	Hz - 2								
9	00-									
8	30-								/html	
7	70-									
6	50-								-	
	10-							ryhddi.	1	
3	2360				Frequency (N	Hz)				
	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdic
О.	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
0.	(IVII IZ)	 	-3.53	54.0	-8.14	Peak	120.00	100	V	Pass
lo.	2390	45.86	-3.55	34.0			1			
		45.86 33.60	-3.57	54.0	-20.40	AV	45.00	100	٧	Pass

Page 31 of 56 Report No.: FCC1912274

STING LAN	
THE STATE OF THE S	

Date: 2020-01-10

Product:	Wireless Bluetooth Mouse	Polarity	Horizontal
Mode	Keeping Transmitting	Test Voltage	DC3.0V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass		1



	No.	Frequency	Results	Factor (dB)	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
		(MHz)	(dBuV/m)		(dBuV/m)	(dB)		(o)	(cm)		
	1**	2483.5	33.74	-3.57	54.0	-20.26	AV	277.00	100	Н	Pass
	1	2483.5	56.60	-3.57	74.0	-17.40	Peak	277.00	100	Н	Pass
Г											

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

Report No.: FCC1912274 Page 32 of 56

Date: 2020-01-10



Pro	oduct:	Wir	eless Bl	uetooth Mo	use	Detect	or		Vertical	
N	/lode	K	Leeping '	Transmitting	g	Test Volt	age		DC3.0V	
Temp	perature		24 0	deg. C,		Humid	ity		56% RH	
Test	Result:		I	Pass						
2483	3.5MHz	PK (dBμV	7/m)		-	Limi		7	4 dBμV/n	n
2483	3.5MHz	AV (dBμV	7/m)		-	Limit	:	5	4 dBμV/n	n
Part 15B 90-	Class B 1GHz-18GHz - 2									
80-										
70-					\uparrow					
60-					/ \	\				
60-					/ \					
50-				مميليون		M1				
40-			Japan Marin	A HARDON MARKAN		M1		A. Marin Marinia		
40-			Market and a second	A A A A A A A A A A A A A A A A A A A	Frequency (MHz)	2483.5				250
30- 2460	Frequency	Results	Factor	Limit	Frequency (MHz) Over Limit	2483.5	Table	Height	ANT	
50- 40- 2460	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	1	2483.5	Table (o)	Height (cm)	ANT	250 Verdict

Report No.: FCC1912274 Page 33 of 56

Date: 2020-01-10



Bluetooth BDR/EDR Mode (GFSK Modulation was the worst case): Only worst data reported

P	roduct:	W	ireless B	luetooth Mo	ouse	Pol	arity		Horizon	tal
	Mode		Keeping	Transmittin	g	Test V	/oltage		DC3.0	V
Ten	nperature		24	deg. C,		Hun	nidity		56% R	Н
Tes	st Result:			Pass						
CC Part 15	B Class B 1GHz-18GHz - 2	2				•	•			
70- (m//m) (m//m) 50-	s 1 ss. 1840 ss. 4st. d st. July 2	ر دا الله هدارات، درار را دامالا	1, d.ol.	Male to restrict to		.449				
30-	And the second of the second o	ole ali Mendelli Genera si Ali Massicha	A Marie and A Company I Co		where the Marchael Laborat					2410
2360			_		Frequency (MHz	:)				#
2360	Frequency	Results	Factor	Limit	Over	Detector	Table (o)	Height	ANT	Verdict
2360 No.			(dB)	(dBuV/m)	Limit (dB)			(cm)		
2360	(MHz)	(dBuV/m)	()			I	159.00	100	Н	Pass
2360	, ,	(dBuV/m) 44.58	-3.53	54.0	-9.42	Peak	139.00		11	Pass
2360 No.	(MHz)	, ,	· '	54.0 54.0	-9.42 -10.17	AV	182.00	100	Н	Pass

Page 34 of 56

Report No.: FCC1912274

Date: 2020-01-10



Pr	oduct:	Wii	reless Blu	etooth Mous	se	Detector	r	,	Vertical	
N	Mode	k	Keeping T	ransmitting		Test Volta	ge	I	DC3.0V	
Tem	perature		24 d	eg. C,		Humidit	y	5	56% RH	
Test	t Result:		P	ass						
FCC Part 15B	Class B 1GHz-18GHz - 2									
70- 60- 60- 50- 40-	r Minum Ahul Ti.									AutuMaaA
Vege		COMPANY MARKET PARTY	Nilderbert Jaura bestacht ist.	card of the authorisity of the co-						
30- 2360		CAMPANA A ARAN MANANA	 	an all haddard da	Frequency (MHz)					2410
30- 2360	Frequency	Results	Factor	Limit	Frequency (MHz) Over Limit	Detector	Table	Height	ANT	
2360	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	· ·	Detector	Table (o)	Height (cm)	ANT	1
2360					Over Limit	Detector Peak		_	ANT	1

Page 35 of 56 Report No.: FCC1912274

Date: 2020-01-10



Pı	roduct:	Wi	reless Bl	uetooth Mo	use	Polari	ty	I	Torizontal	
]	Mode	F	Keeping '	Transmitting	g	Test Vol	tage		DC3.0V	
Ten	nperature		24 (deg. C,		Humid	ity		56% RH	
Tes	t Result:		I	Pass						
CC Part 15E	3 Class B 1GHz-18GHz - 2									
80-										
70-						\				
(m/\mu) 60 - 60 - 60 - 60 - 60 - 60 - 60 - 60				- January -	/	M1				
50-			A CONTRACTOR OF THE PARTY OF TH							
		Herbigharian bankan banka		NAME OF THE PROPERTY OF THE PR		N _u				
30 - 2460					Frequency (MHz)	2483.5				2500
	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
No.		(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
No.	(MHz)	(ubuv/III)	(ub)	(/						

Report No.: FCC1912274 Page 36 of 56

Date: 2020-01-10



11	oduct:	Win	eless Bl	uetooth Mo	use	Detect	or		Vertical	
N	Mode	K	Leeping '	Transmitting	g	Test Volt	age		DC3.0V	
Tem	perature		24 (deg. C,		Humid	ity		56% RH	
Test	Result:		I	Pass						
2483	3.5MHz	PK (dBμV	7/m)		-	Limit		7	4 dBμV/n	n
2483	3.5MHz	AV (dBμV	7/m)		-	Limit		5	4 dBμV/n	n
90-	Class B 1GHz-18GHz - 2									
80-					<u> </u>					
					$\overline{}$					
70-										
					, A					
60-					/					
50-						4				
		1 1, ,				M1	1			
40-				All Market Marke		M1	M.huc.Juk.hu	hallan hallanda	Mayoliu.	
			hapter to		Frequency (MHz)	M1 2483.5	Milhidi Lilakuli	When he was a second	V ^N MALANIHAA	250
30- 2460	Frequency	Results	Factor	Limit	Frequency (MHz) Over Limit	Market	Table	Height	ANT	250 Verdict
30-	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	· ·	2483.5	Table (o)	Height (cm)	ANT	

Report No.: FCC1912274 Page 37 of 56

Date: 2020-01-10



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 0dBi Max. It fulfills the requirement of this section.

Test Result: Pass

Page 38 of 56

Report No.: FCC1912274



Product:	Wireless Bluetooth Mouse				Test Mode:		Keep transmitting			
Mode	Keepi	ng Transm	itting		Te	est Voltage		DC3.0V		
Temperature		24 deg. C,			I	Humidity	lity 56%		6% RH	
Test Result:		Pass				Detector		PI	ζ	
OdB Bandwidth]	.094MHz							•	
	Marker	1 [T1 n	dB]	RI	ЗW	30 ki	Iz RI	7 Att	10 dB	
Nef Lvl	ndB	20.	00 dB	VI	∃W	100 kF	łz			
0 dBm	BW 1	.094188	38 MHz	SI	TW	8.5 ms	5 Ur	nit	dBm	l
						v ₁	[T1]	-8	.18 dBm	
-10								2.40200	902 GHz	
-10			/ \m/	M		ndB		20	.00 dB	
20		ہم	V	V	_	BW ∇_{T}	[T1]	1.09418 -28	838 MHz	
-20					7	/ \		2.40147	395 GHz	
		Å ⊥V				\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	[T1]	-27	.99 dBm	
-30	/	\checkmark						2.40256	814 GHz	11
						ľ	\			
-40	M /						And Very	$\sqrt{}$		
-50	V						V.V.	V		
-60									What	
-70										
-80										
-90										
Center 2.4	02 GHz		300 }	cHz/				Sna	n 3 MHz	J

Page 39 of 56

Report No.: FCC1912274



Product:	Wireless Bluetooth Mouse	Test Mode:	Keep transmitting		
Mode	Keeping Transmitting	Test Voltage	DC3.0V		
Temperature	24 deg. C,	Humidity	56% RH		
Test Result:	Pass	Detector	PK		
20dB Bandwidth	1.094MHz				
Ref Lvl	Marker 1 [T1 ndB] ndB 20.00 dB	RBW 30 kHz VBW 100 kHz			
0 dBm	BW 1.09418838 MHz	SWT 8.5 ms	Unit dBm		
-10		ndi BW	2.44000902 GHz 2.000 dB 1.09418838 MHz -28.81 dBm		
-30	T/		2.43947395 GHz T1] -28.06 dBm 2.44056814 GHz		
1MAX -40		\	1MA		
-50		,			
-60			1,		
-70					
-80					
-90					
-100 Center 2	.44 GHz 300 k	Hz/	Span 3 MHz		
Date: 9.	JAN.2020 13:38:41				

Page 40 of 56

Report No.: FCC1912274



Product:	Wireless Bluetooth Mouse				T	est Mode:		Keep transmitting			
Mode		Keeping Transmitting				Te	est Voltage	2	DC3.0V		
Temperature	24 deg. C,]	Humidity		56% RH			
Test Result:			Pass				Detector]	PK	
20dB Bandwidth		1.	.094MHz								
r e		Marker	1 [T1 n	ndB]	RE	ЗW	30 k	Hz R	F Att	10 dB	
Ref Lvl		ndB	20.	00 dB	VE	ЗW	100 k	Hz			
0 dBm		BW 1	L.094188	338 MHz	SW	T	8.5 m	ıs U:	nit	dBr	n
							v ₁	[T1]	-8	3.30 dBr	A
					1				2.48000	301 GHz	
-10				/\m/	1~		ndI	8	20	.00 dB	
			^	0 0	$V \setminus$		BW ▼ _T		1.09418		
-20			$\overline{}$		\		/ [^] \	[T1]	2.47947	395 GHz	
			T.L.				VST.	[T1]	-25	.88 dBr	
-30			J						2.48056	814 GHz	
1MAX							(1			1MA
-40	/	$\overline{}$						\	\wedge		_
		4							\bigvee		
-50	A	V						-			/
-60 MM)	ALL	_
										Sin Cry	
-70											
-80											1
-90											
-100]
Center 2	2.48 GH	Z		300	kHz/				Spa	an 3 MHz	:
Date: 9	.JAN.20	20 13:	40:49								

Page 41 of 56 Report No.: FCC1912274

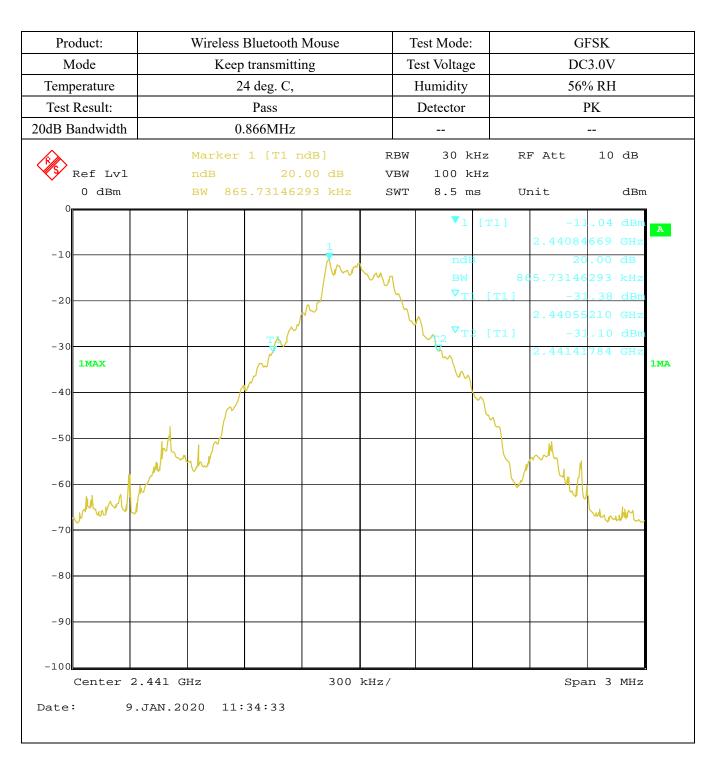


Product:	Wireless Bluetooth Mouse				Test Mode:		GFSK				
Mode	Keep transmitting				Test Voltage		DC3.0V				
Temperature			24 deg. C,]	Humidity		56% RH		
Test Result:			Pass				Detector			PK	
0dB Bandwidth			0.872MHz								
<u> </u>		Marke	r 1 [T1 r	ndB]	RI	ЗW	30 ki	Iz RI	7 Att	10 dB	
Ref Lvl		ndB	20	.00 dB	VI	ЗW	100 kF	Iz			
0 dBm		BW 8	71.743486	697 kHz	SV	VТ	8.5 ms	s Uı	nit	dBm	
0							\mathbf{v}_1	[T1]	-11	1.34 dBm	
				1					2.40184	669 GHz	A
-10				100			ndB		20	0.00 dB	
					\mathcal{M}		BW ∇ _{T1}	87	1.74348		
-20				\mathcal{N}		7	VT1	[T1]	2.40155	.64 dBm	
			~			V	$\bigvee_{\mathbf{T} \in \mathcal{T}} \nabla_{\mathbf{T} 2}$	[T1]	-31		
-30			TAJ				Vr2		2.40242	385 GHz	
1MAX			\ \tag{\tau}				W.				1M2
-40			- 					^			
			J'					\			
-50								$\overline{}$			
		W							m		
-60	W								V		
Mumm	'								/	william	
-70											
-80											
-90											
-100	400				1 :					2	
Center 2	.402 G	HZ		300	kHz/				Spa	an 3 MHz	

Page 42 of 56

Report No.: FCC1912274





Page 43 of 56

Report No.: FCC1912274



Product:	Wireless Bluetooth Mouse				Test Mode:		GFSK			
Mode	Keep transmitting			ı	Test Voltage	е	DC3.0V			
Temperature		24 deg. C,				Humidity		56% RH		
Test Result:			Pass			Detector]	PK	
20dB Bandwidth		0.	872MHz							
Ref Lvl		ndB		00 dB	RBW VBW	100 k	Hz	F Att	10 dB	
0 dBm		BW 871	L.743486	97 kHz	SWI	8.5 m	ıs Uı	nit	dBm	
-10				1		▼ ₁	[T1]	-11 2.47985	.28 dBm 271 GHz	A
-20					m/	BW ∇_{T}	87 L [T1]	1.74348		
-30			TA TA	,	· ·	V _{T2} ∇ _T	2 [T1]	2.47955 -31 2.48042	210 GHz .42 dBm 385 GHz	
1MAX -40		ſ	<i></i>			Thy and the second	\n			1MA
-50										
-60	a market	W						M		
-70 MM								W	Muhur	
-80										
-90										
-100 Center 2	2.48 GH:	Z		300	kHz/	1		Spa	an 3 MHz	l
Date: 9	.JAN.20	20 13:	27:50							

Page 44 of 56

Report No.: FCC1912274



Product:	Wireless Bluetooth Mouse Keep transmitting			Т	Test Mode: Test Voltage Humidity		Л/4D-QPSK DC3.0V 56% RH		
Mode				Т					
Temperature	24 deg. C,								
Test Result:		Pass			Detector]	PK	
20dB Bandwidth		1.242MHz							
	Marke	er 1 [T1 n	dB]	RBW	30 ki	Hz RI	F Att	10 dB	
Ref Lvl 0 dBm	ndB BW	20. 1.242484	00 dB 97 MHz	VBW SWT	100 ki 11.5 ms		nit	dBm	
0					v ₁	[T1]	-11	.32 dBm	Α
-10			1				2.40184	369 GHz	
			Ň /		ndB BW		20 1.24248	.00 dB 497 MHz	
			, I	M	lacksquare	[T1]	-31	.28 dBm	
-20		\wedge	~~~	0			2.40136	273 GHz	
		T			$\nabla_{\mathbf{T}_2}$	[T1]	-31	.63 dBm	
-30					Ÿ _\		2.40260	521 GHz	1MA
-40	0 0						^		
-50		₩			1		~~/		
-60								Jun.	
-70									
-80									
-90									
-100	402 GII-		400	1-11 /			G	70 A NOTE:	
Center 2.	4UZ GHZ		400	KHZ/			Spa	n 4 MHz	

Page 45 of 56

Report No.: FCC1912274

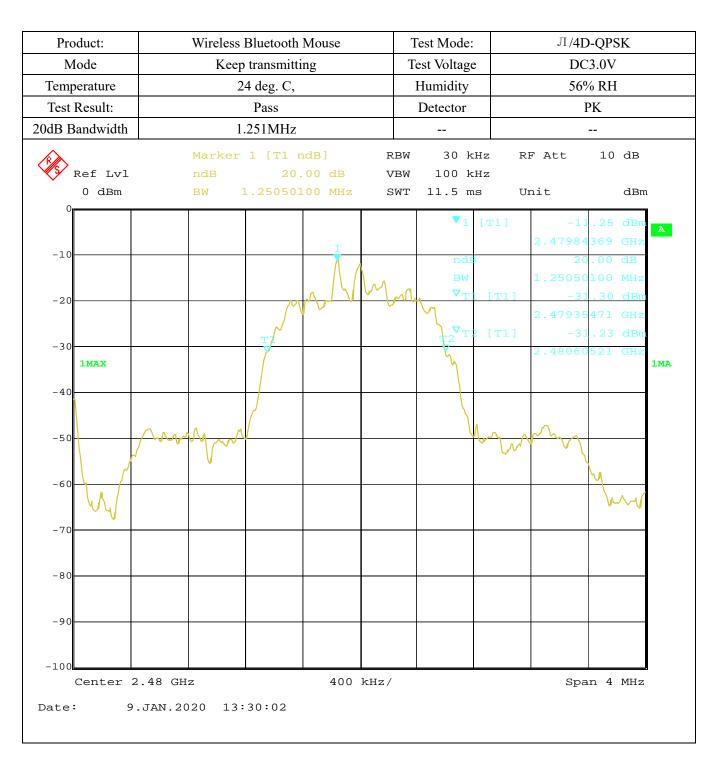


Product:	Wireless Bluetooth Mouse	Test Mode:	Л/4D-QPSK		
Mode	Keep transmitting	Test Voltage	DC3.0V 56% RH		
Temperature	24 deg. C,	Humidity			
Test Result:	Pass	Detector	PK		
20dB Bandwidth	1.251MHz				
Ref Lvl	Marker 1 [T1 ndB] ndB 20.00 dB BW 1.25050100 MHz	RBW 30 kHz VBW 100 kHz SWT 11.5 ms			
-10 -20 -30 -30 -1MAX -40 -50 -60		$\begin{array}{c} & & \\$	T1] -11.54 dBm A 2.44084369 GHz 20.00 dB 1.25050100 MHz -31.59 dBm 2.44035471 GHz -31.75 dBm 2.44160521 GHz 1MA		
-80					
-100 Center 2.441 Date: 9.JAN.	GHz 400	kHz/	Span 4 MHz		

Page 46 of 56

Report No.: FCC1912274

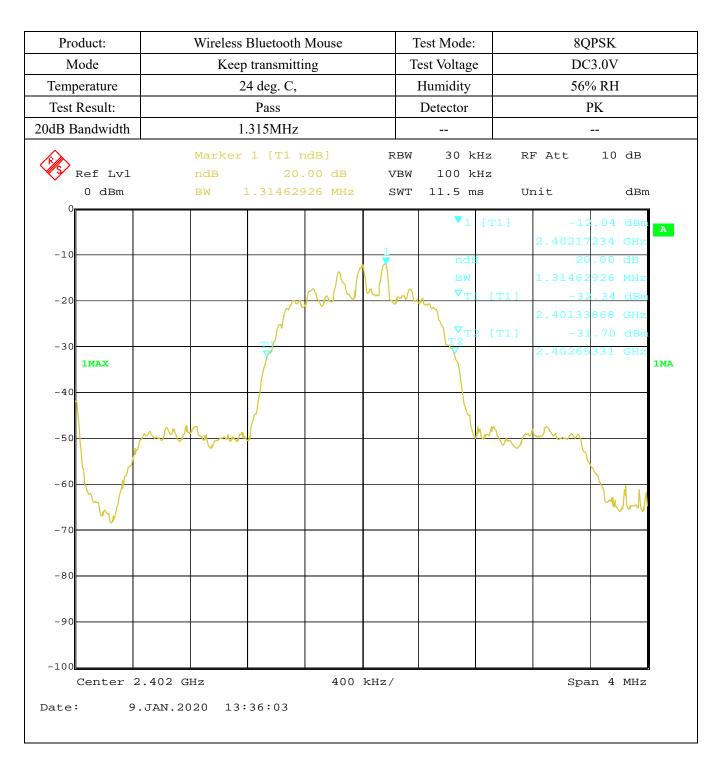




Page 47 of 56

Report No.: FCC1912274

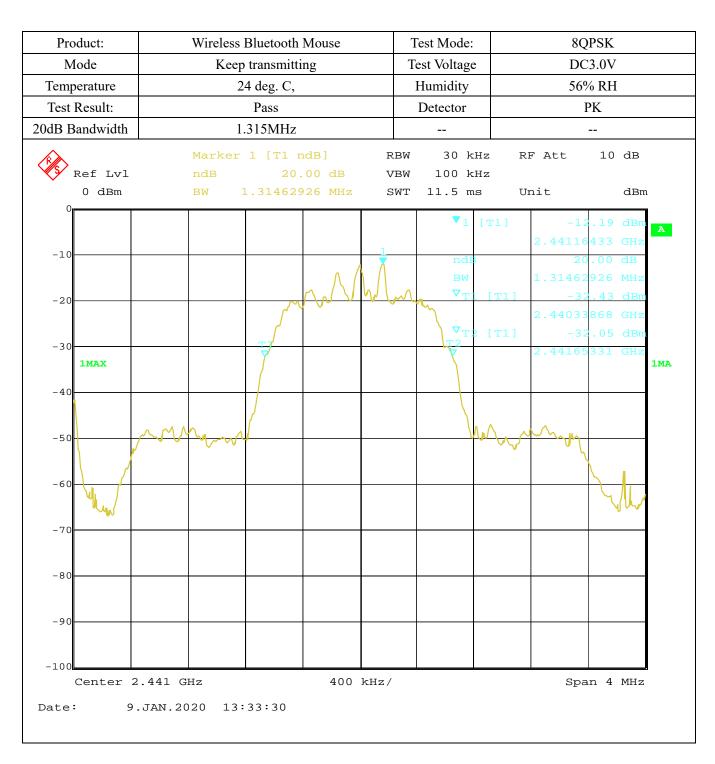




Page 48 of 56

Report No.: FCC1912274





Page 49 of 56

Report No.: FCC1912274



Product:	Wireless Bluetooth M	louse T	Test Mode:	8QPSK DC3.0V 56% RH		
Mode	Keep transmitting	g To	est Voltage			
Temperature	24 deg. C,		Humidity			
Test Result:	Pass		Detector	PI	ζ	
0dB Bandwidth	1.307MHz				•	
Ref Lvl	Marker 1 [T1 nd ndB 20.0 BW 1.3066132	0 dB VBW	30 kHz 100 kHz 11.5 ms	RF Att Unit	10 dB	
-10 -20 -30 1MAX -40			V1 [T] ndi BW VT) [5	2.480164 20. 1.306613 [1] -31. 2.479346	77 dBm 33 GHz 00 dB 23 MHz 34 dBm 69 GHz 55 dBm 31 GHz 1MA	
-60 -70					Munu	
-90						
-100 Center 2.48 Date: 9.JAN	GHz (.2020 13:31:50	400 kHz/		Span	. 4 MHz	

Report No.: FCC1912274 Page 50 of 56

Date: 2020-01-10

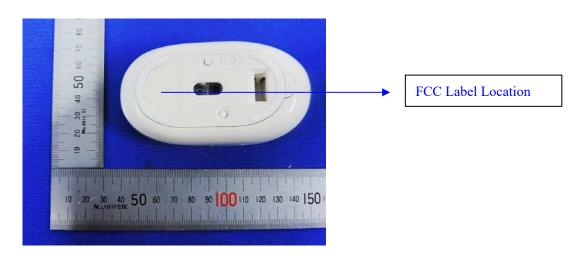


10.0 FCC ID Label

FCC ID: ZJEIMACM212

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:



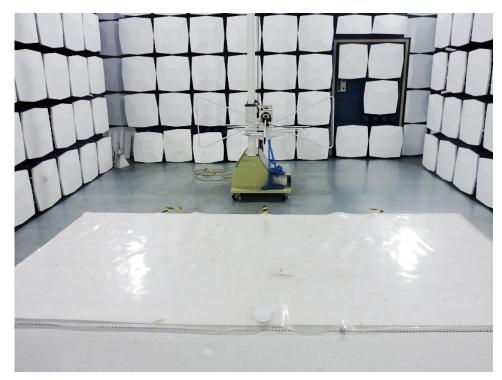
Report No.: FCC1912274

Date: 2020-01-10



11.0 Photo of testing

11.1 Radiated emission test view





The report refers only to the sample tested and does not apply to the bulk. This report is issued in confidence to the client and it will be strictly treated as such by the SHENZHEN TIMEWAY TESTING LABORATORIES. It may not be reproduced rather in its entirety or in part and it may not be used for adverting. The client to whom the report is issued may, however, show or send it . or a certified copy there of prepared by the SHENZHEN TIMEWAY TESTING LABORATORIES. to his customer. Supplier or others persons directly concerned. SHENZHEN TIMEWAY TESTING LABORATORIES. will not, without the consent of the client enter into any discussion of correspondence with any third party concerning the contents of the report.

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Page 52 of 56

Report No.: FCC1912274

Date: 2020-01-10



11.2 Photographs – EUT

Outside View





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Report No.: FCC1912274

Date: 2020-01-10



11.3 Photographs – EUT

Outside View





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Page 54 of 56

Report No.: FCC1912274

Date: 2020-01-10



Inside view





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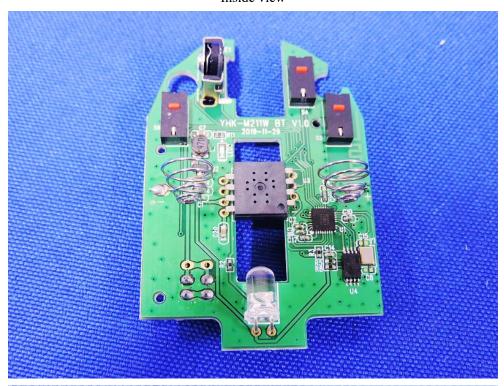
Page 55 of 56

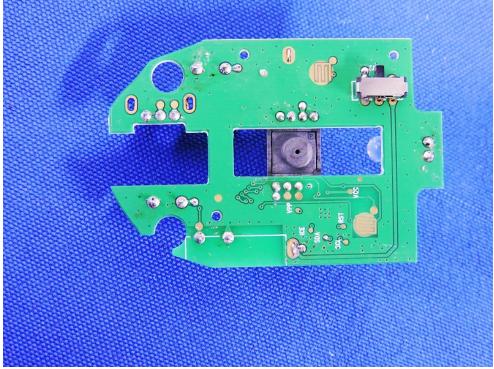
Report No.: FCC1912274

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Inside view





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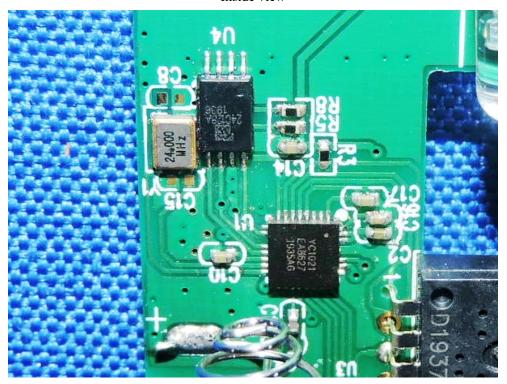
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Page 56 of 56 Report No.: FCC1912274



Inside view



-- End of the report--