



File reference No.: 2022-03-24

Applicant: Eastern Times Technology Co.,Ltd

Product: 3 MODES MECHANICAL GAMING KEYBOARD

Model No.: K616-RGB, ET-8559, ET-8549, ET-8550, ET-8552, ET-8553,

ET-8560, ET-8641, ET-8643, K616

Trademark: 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

Approved By

Terry Tang

Manager

Dated: March 24, 2022

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

Date: 2022-03-24



# Test Report Conclusion

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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: 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

Product: 3 MODES MECHANICAL GAMING KEYBOARD

Manufacturer: Eastern Times Technology Co.,Ltd

Address: Building D, Nan An Industrial Area, Youganpu Village, Fenggang Town,

Dongguan City, Guangdong, China.

Trademark: REDRAGON

Additional Trademark: N/A

Model Number: K616-RGB

Additional Model Name ET-8559, ET-8549, ET-8550, ET-8552, ET-8553, ET-8560, ET-8641, ET-8643,

K616

Serial No.: RDK616-RGB21070100244

Rating: DC5.0V, 660mA or DC3.7V, 210mA Battery: DC3.8V, 1600mAh Li-ion battery

Modulation Type: GFSK

Operation Frequency: 2402-2480MHz

Channel Separate: 1MHz Channel Number: 79

Antenna Designation PCB antenna with gain -1.85dBi maximum (Declared by the Manufacturer)

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1.4 Submitted Sample: 1 pc

1.5 Test Duration

2022-03-03 to 2022-03-24

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

Print Name: Terry Tang

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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	2021-06-18	2022-06-17
LISN	R&S	EZH3-Z5	100294	2021-06-18	2022-06-17
LISN	R&S	EZH3-Z5	100253	2021-06-18	2022-06-17
Impuls-Begrenzer	R&S	ESH3-Z2	100281	2021-06-18	2022-06-17
Loop Antenna	EMCO	6507	00078608	2021-06-18	2024-06-17
Spectrum	R&S	FSIQ26	100292	2021-06-18	2022-06-17
Horn Antenna	A-INFO	LB-180400-KF	J211060660	2021-07-02	2024-07-01
Horn Antenna	R&S	BBHA 9120D	9120D-631	2021-07-02	2024-07-01
Power meter	Anritsu	ML2487A	6K00003613	2021-06-18	2022-06-17
Power sensor	Anritsu	MA2491A	32263	2021-06-18	2022-06-17
Bilog Antenna	Schwarebeck	VULB9163	9163/340	2021-07-02	2024-07-01
9*6*6 Anechoic			N/A	2021-07-02	2022-07-01
EMI Test Receiver	RS	ESVB	826156/011	2021-06-18	2022-06-17
EMI Test Receiver	RS	ESH3	860904/006	2021-06-18	2022-06-17
Spectrum	HP/Agilent	ESA-L1500A	US37451154	2021-06-18	2022-06-17
Spectrum	HP/Agilent	E4407B	MY50441392	2021-06-18	2022-06-17
Spectrum	RS	FSP	1164.4391.38	2022-01-15	2023-01-14
RF Cable	Zhengdi	ZT26-NJ-NJ-8M/FA		2021-06-18	2022-06-17
RF Cable	Zhengdi	7m		2021-06-18	2022-06-17
RF Switch	EM	EMSW18	060391	2021-06-18	2022-06-17
Pre-Amplifier	Schwarebeck	BBV9743	#218	2021-06-18	2022-06-17
Pre-Amplifier	HP/Agilent	8449B	3008A00160	2021-06-18	2022-06-17
LISN	SCHAFFNER	NNB42	00012	2022-01-05	2023-01-04

## 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 E	UT has	been	tested	accord	ling to	o the	following	specifications:

Standard	Test Type	Result	Notes
FCC Part 15, Paragraph 15.203	Antenna Requirement	Pass	Complies
FCC Part 15, Paragraph 15.207	Conducted Emission Test	Pass	Complies
FCC Part 15 Subpart C Paragraph 15.249(a) & 15.249(b) Limit	Field Strength of Fundamental	Pass	Complies
FCC Part 15, Paragraph 15.209	Radiated Emission Test	Pass	Complies
FCC Part 15 Subpart C Paragraph 15.249(d) Limit	Band Edge Test	Pass	Complies

#### 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

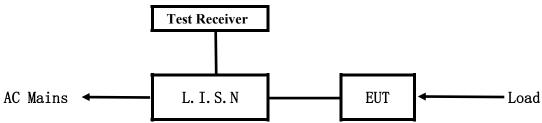
No modification by SHENZHEN TIMEWAY TESTING LABORATORIES

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#### 5. Power Line Conducted Emission Test

## 5.1 Schematics of the test

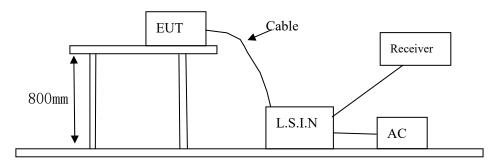


**EUT: Equipment Under Test** 

## 5.2 Test Method and test Procedure

The EUT was tested according to ANSI C63.10-2013. The Frequency spectrum from 0.15MHz to 30MHz was investigated. The LISN used was 50ohm/50uH as specified by section 5.1 of ANSI C63.10 –2013.

Test Voltage: 120V~, 60Hz Block diagram of Test setup



## 5.3 Configuration of the EUT

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

79 channels are provided to the EUT

## A. EUT

Device	Manufacturer	Model	FCC ID
3 MODES	Eastern Times	K616-RGB, ET-8559, ET-8549,	
MECHANICAL		ET-8550, ET-8552, ET-8553, ET-8560,	TUVET-8559
GAMING KEYBOARD	Technology Co.,Ltd	ET-8641, ET-8643, K616	

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#### B. Internal Device

Device	Manufacturer	Model	FCC ID/DOC
N/A			

## C. Peripherals

Device	Manufacturer	Model	Rating
Power Supply	KEYU	KA23-0502000DEU	Input: 100-240V~, 50/60Hz, 0.35A;
			Output: DC5V, 2A

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

<u> </u>						
Frequency	Limits (dB µ V)					
(MHz)	Quasi-peak Level	Average Level				
$0.15 \sim 0.50$	66.0~56.0*	56.0~46.0*				
$0.50 \sim 5.00$	56.0	46.0				
5.00 ~ 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:

Pass

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## A: Conducted Emission on Live Terminal (150kHz to 30MHz)

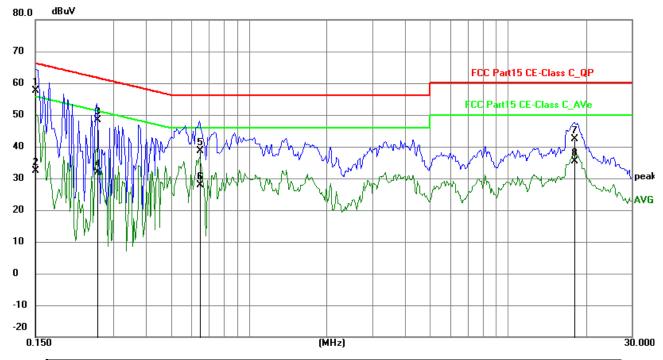
**EUT Operating Environment** 

Temperature: 25°C Humidity: 65%RH Atmospheric Pressure: 101 kPa

**EUT set Condition: Communication by BT** 

**Results: Pass** 

Please refer to following diagram for individual



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1500	47.89	9.79	57.68	66.00	-8.32	QP	Р
2	0.1500	22.71	9.79	32.50	56.00	-23.50	AVG	Р
3	0.2592	38.64	9.75	48.39	61.46	-13.07	QP	Р
4	0.2592	22.18	9.75	31.93	51.46	-19.53	AVG	Р
5	0.6453	28.82	9.78	38.60	56.00	-17.40	QP Q	Р
6	0.6453	18.15	9.78	27.93	46.00	-18.07	AVG	Р
7	17.9682	31.80	10.56	42.36	60.00	-17.64	QP	Р
8	17.9682	24.78	10.56	35.34	50.00	-14.66	AVG	Р

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## B: Conducted Emission on Neutral Terminal (150kHz to 30MHz)

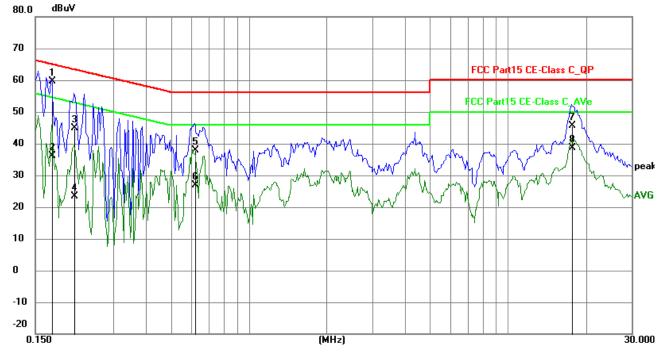
**EUT Operating Environment** 

Temperature: 25°C Humidity: 65%RH Atmospheric Pressure: 101 kPa

**EUT set Condition: Communication by BT** 

**Results: Pass** 

Please refer to following diagram for individual



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1734	49.74	9.77	59.51	64.80	-5.29	QP	Р
2	0.1734	26.46	9.77	36.23	54.80	-18.57	AVG	Р
3	0.2124	35.07	9.75	44.82	63.11	-18.29	QP	Р
4	0.2124	13.64	9.75	23.39	53.11	-29.72	AVG	Р
5	0.6180	28.13	9.78	37.91	56.00	-18.09	QP	Р
6	0.6180	17.00	9.78	26.78	46.00	-19.22	AVG	Р
7	17.5860	35.20	10.54	45.74	60.00	-14.26	QP	Р
8	17.5860	28.06	10.54	38.60	50.00	-11.40	AVG	Р

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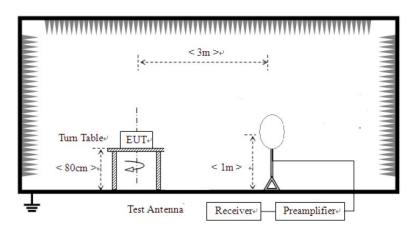


## **6** Radiated Emission Test

- 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**

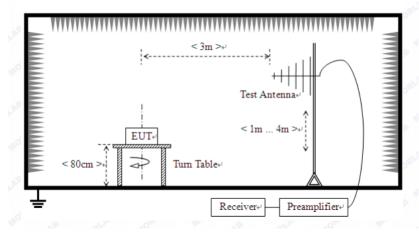
For radiated emissions from 9kHz to 30MHz



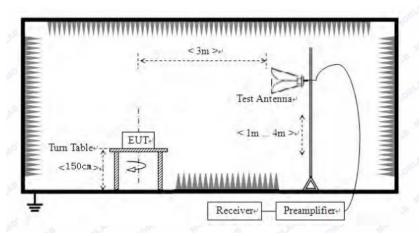
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For radiated emissions from 30MHz to1GHz



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.

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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	ength of Fundame	ental (3m)	Field Strength of Harmonics (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.

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

Frequency Range (MHz)	Distance (m)	Field strength (dB μ V/m)
0.009-0.490	3	20log(2400/F(kHz)) +40log (300/3)
0.490-1.705	3	20log(24000/F(kHz)) +40log (30/3)
1.705-30	3	69.5
30-88	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 from 9kHz to 30MHz, the emission level is much less than the limit for more than 20dB. No necessary to take down the record.
- 6. Battery full charged during tests.

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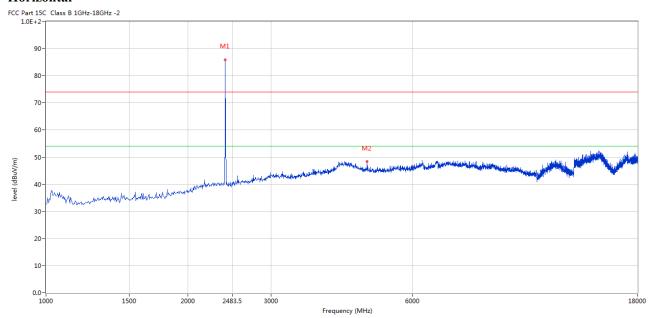


## 6.5 Test result

## A Fundamental & Harmonics Radiated Emission Data

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

#### Horizontal



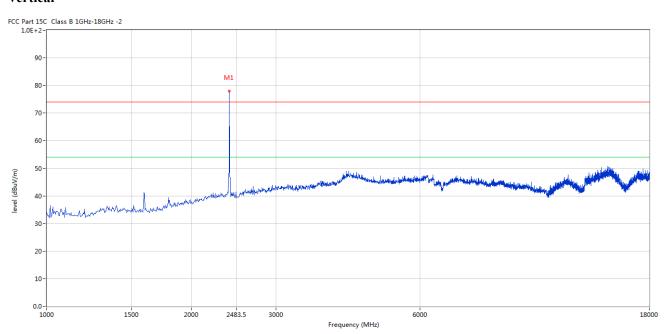
No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(0)	(cm)		
1	2402.010	86.76	-3.57	114.0	-27.24	Peak	216.00	100	Horizontal	Pass
2	4802.799	48.36	3.12	74.0	-25.64	Peak	19.00	100	Horizontal	Pass

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## Vertical



No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table (o)	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)			(cm)		
1	2402.010	77.98	-3.57	114.0	-36.02	Peak	157.00	100	Vertical	Pass

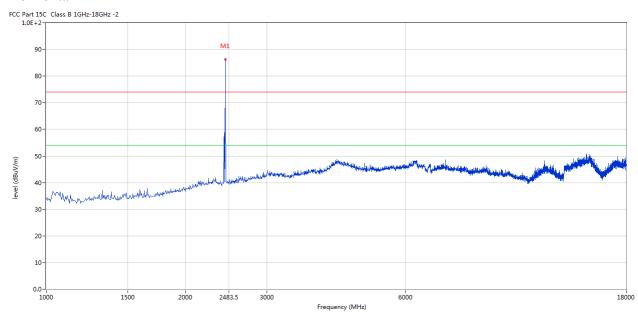
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Please refer to the following test plots for details: Middle Channel-2441MHz

#### Horizontal



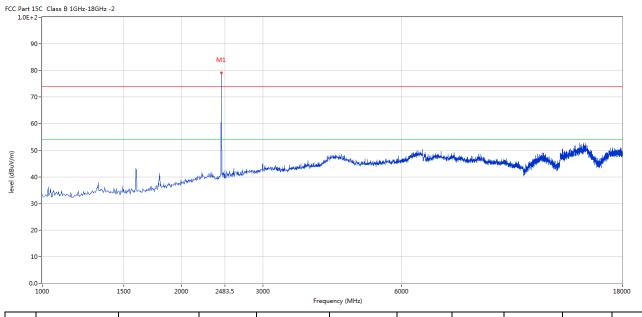
No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2441.075	86.27	-3.57	114.0	-27.73	Peak	204.00	100	Horizontal	Pass

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## Vertical



١	۱o.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
		(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1		2441.075	79.08	-3.57	114.0	-34.92	Peak	174.00	100	Vertical	Pass

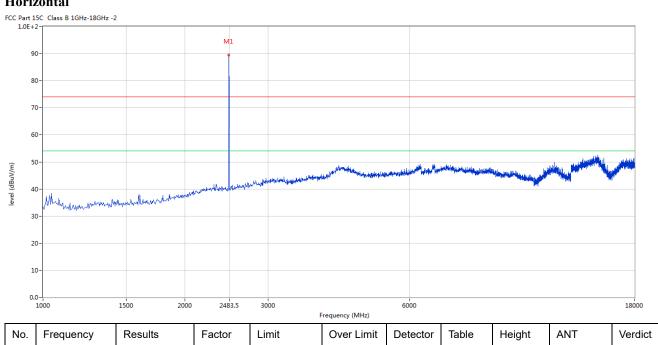
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Please refer to the following test plots for details: High Channel-2480MHz

#### Horizontal



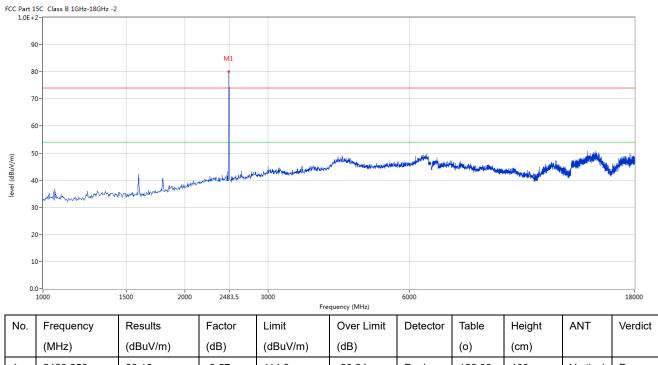
Ī	No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
		(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
Ī	1	2480.050	88.98	-3.57	114.0	-25.02	Peak	256.00	100	Horizontal	Pass

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## Vertical



2480.050 186.00 Pass 80.16 -3.57 114.0 -33.84 Peak 100 Vertical

Note: (2) Emission Level = Reading Level + Antenna Factor + Cable Loss-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
- (5) For emission above 18GHz and Below 30MHz, It is only the floor noise. No necessary to take down.
- (6) the measured PK value less than the AV limit.

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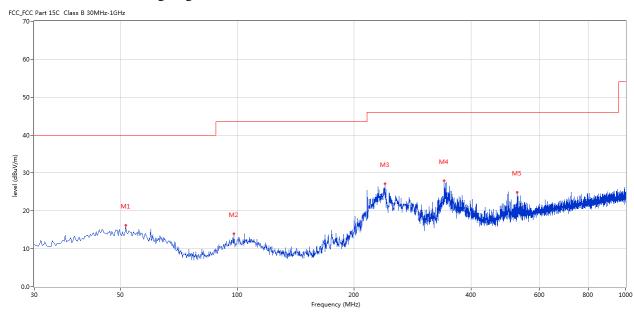


# B. General Radiated Emission Data Radiated Emission In Horizontal (30MHz----1000MHz)

EUT set Condition: Keep Tx transmitting

**Results:** Pass

Please refer to following diagram for individual



No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(0)	(cm)		
1	51.577	16.24	-11.41	40.0	-23.76	Peak	44.00	100	Horizontal	Pass
2	97.883	13.97	-13.75	43.5	-29.53	Peak	72.00	100	Horizontal	Pass
3	239.710	27.12	-12.33	46.0	-18.88	Peak	285.00	100	Horizontal	Pass
4	341.050	27.91	-9.75	46.0	-18.09	Peak	288.00	100	Horizontal	Pass
5	524.819	24.91	-6.57	46.0	-21.09	Peak	121.00	100	Horizontal	Pass

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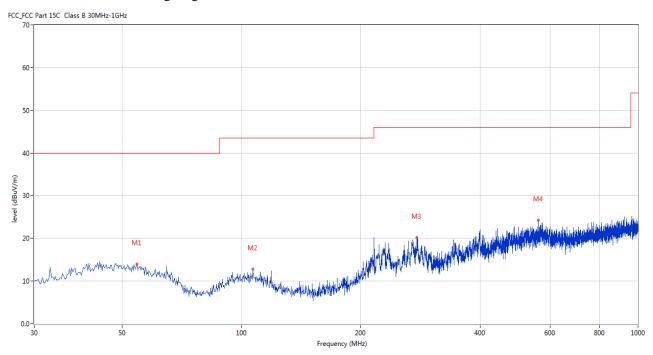


## Radiated Emission In Vertical (30MHz----1000MHz)

EUT set Condition: Keep Tx transmitting

Results: Pass

Please refer to following diagram for individual



No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table (o)	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)			(cm)		
1	54.486	13.98	-11.66	40.0	-26.02	Peak	344.00	100	Vertical	Pass
2	106.853	12.74	-13.38	43.5	-30.76	Peak	334.00	100	Vertical	Pass
3	277.046	20.12	-11.54	46.0	-25.88	Peak	326.00	100	Vertical	Pass
4	561.185	24.27	-6.30	46.0	-21.73	Peak	360.00	100	Vertical	Pass

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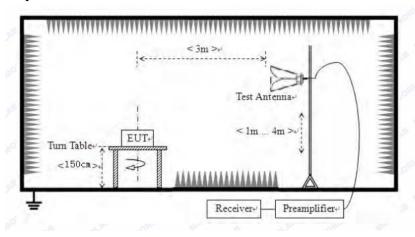


## 7. Band Edge

#### 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 for PK value. RBW=1MHz, VBW=10Hz and Peak detector used for AV value.
- (3) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.
- (4) The antenna polarization: Vertical polarization and Horizontal polarization.

## 7. 2 Radiated Test Setup



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

## 7.3 Configuration of The EUT

Same as section 5.3 of this report

## 7.4 EUT Operating Condition

Same as section 5.4 of this report.

## 7.5 Band Edge Limit

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

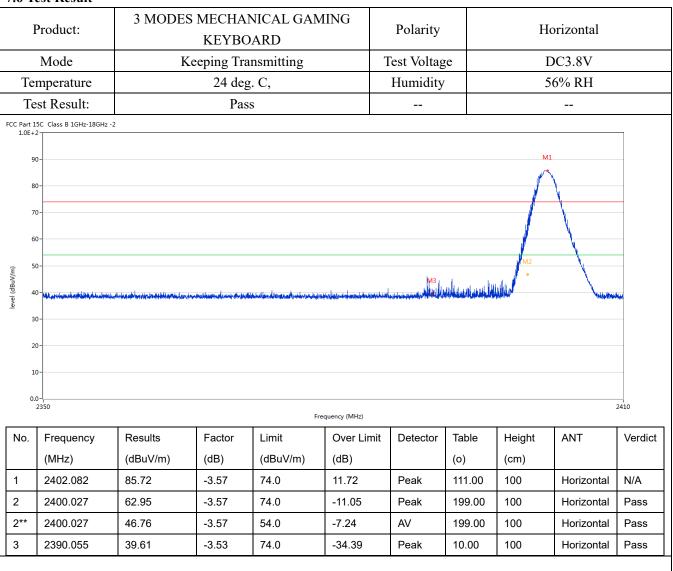
The report refers only to the sample tested and does not apply to the bulk.

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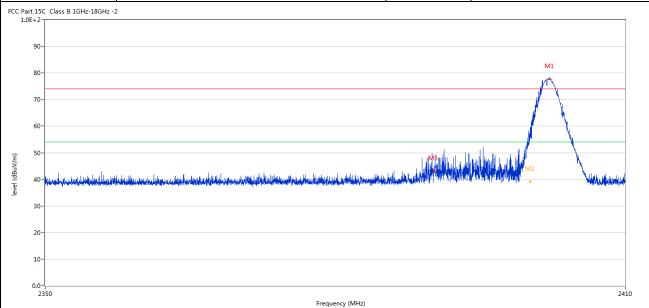
## 7.6 Test Result



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Product:	3 MODES MECHANICAL GAMING KEYBOARD	Detector	Vertical
Mode	Keeping Transmitting	Test Voltage	DC3.8V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass		

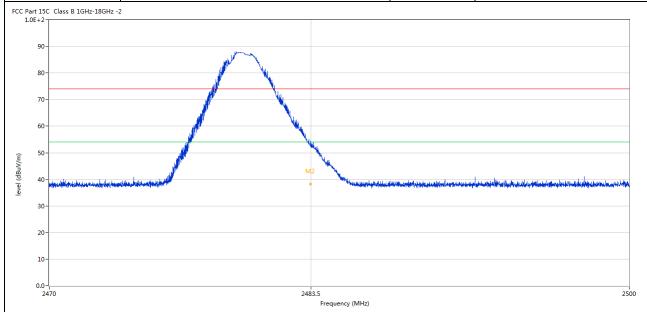


Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
2402.097	77.74	-3.57	74.0	3.74	Peak	153.00	100	Vertical	N/A
2400.072	55.35	-3.57	74.0	-18.65	Peak	153.00	100	Vertical	Pass
2400.072	39.20	-3.57	54.0	-14.80	AV	153.00	100	Vertical	Pass
2390.010	43.08	-3.53	74.0	-30.92	Peak	101.00	100	Vertical	Pass
	(MHz) 2402.097 2400.072 2400.072	(MHz) (dBuV/m) 2402.097 77.74 2400.072 55.35 2400.072 39.20	(MHz) (dBuV/m) (dB) 2402.097 77.74 -3.57 2400.072 55.35 -3.57 2400.072 39.20 -3.57	(MHz)     (dBuV/m)     (dB)     (dBuV/m)       2402.097     77.74     -3.57     74.0       2400.072     55.35     -3.57     74.0       2400.072     39.20     -3.57     54.0	(MHz)     (dBuV/m)     (dB)     (dBuV/m)     (dB)       2402.097     77.74     -3.57     74.0     3.74       2400.072     55.35     -3.57     74.0     -18.65       2400.072     39.20     -3.57     54.0     -14.80	(MHz)     (dBuV/m)     (dB)     (dBuV/m)     (dB)       2402.097     77.74     -3.57     74.0     3.74     Peak       2400.072     55.35     -3.57     74.0     -18.65     Peak       2400.072     39.20     -3.57     54.0     -14.80     AV	(MHz)     (dBuV/m)     (dB)     (dBuV/m)     (dB)     (o)       2402.097     77.74     -3.57     74.0     3.74     Peak     153.00       2400.072     55.35     -3.57     74.0     -18.65     Peak     153.00       2400.072     39.20     -3.57     54.0     -14.80     AV     153.00	(MHz)     (dBuV/m)     (dB)     (dBuV/m)     (dB)     (o)     (cm)       2402.097     77.74     -3.57     74.0     3.74     Peak     153.00     100       2400.072     55.35     -3.57     74.0     -18.65     Peak     153.00     100       2400.072     39.20     -3.57     54.0     -14.80     AV     153.00     100	(MHz)         (dBuV/m)         (dB)         (dB)         (dB)         (o)         (cm)           2402.097         77.74         -3.57         74.0         3.74         Peak         153.00         100         Vertical           2400.072         55.35         -3.57         74.0         -18.65         Peak         153.00         100         Vertical           2400.072         39.20         -3.57         54.0         -14.80         AV         153.00         100         Vertical

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Product:	3 MODES MECHANICAL GAMING KEYBOARD	Polarity	Horizontal
Mode	Keeping Transmitting	Test Voltage	DC3.8V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass		



No.	Frequency	Results	Factor	Limit	Over	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	Limit (dB)		(o)	(cm)		
1	2479.553	87.89	-3.57	74.0	13.89	Peak	242.00	100	Horizontal	N/A
2	2483.474	54.38	-3.57	74.0	-19.62	Peak	138.00	100	Horizontal	Pass
2**	2483.474	38.21	-3.57	54.0	-15.79	AV	138.00	100	Horizontal	Pass

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	Product:	3 MODE		ANICAL GA OARD	MING	Detecto	r	V	ertical				
	Mode		Keeping T	ransmitting		Test Volta	age	DC3.8V					
Te	emperature		24 de	eg. C,		Humidit	ty	50	5% RH				
Te	est Result: Pass												
CC Part	15C Class B 1GHz-18GHz -	2											
8	90-		and the second	W.									
level (dBuV/m)	60- 50- 40- 30- 20-	المعلقة المستعددة المستعدد المستعد		No.	i di karaja projekta policio din la 1988	يتدفا يوره وبالموروانية المتعادلة ال	Kibbarja mbaysa Kibbb	ind ad paragraphy highlian	ent and the part of the land	and blocked			
level (dBuV/m)	40- <b>14-14-14-14-14-14-14-14-14-14-14-14-14-1</b>	Heald interference who also had been a second or the second of the secon		2483.5		d Live design yele yele yele yele yele yele yele yel	Kabharju maryaddah	ind at a strong of the light has	ng paglacal al superpodulati	2500			
level (dBuV/m)	40-44-44-44-44-44-44-44-44-44-44-44-44-4	Results	Factor	2483.5	equency (MHz)  Over Limit	Detector	Table	Height	ANT				
level (dBuV/m)	40-44-44-44-44-44-44-44-44-44-44-44-44-4	Results (dBuV/m)	Factor (dB)	2483.5 Fn	equency (MHz)								
level (dBuV/m)	40-440-440-440-440-440-440-440-440-440-			2483.5 Fn	equency (MHz)  Over Limit		Table	Height		2500  Verdic			

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

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## 8.0 Antenna Requirement

## **Applicable Standard**

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

This product has a PCB antenna with gain -1.85dBi maximum. It fulfills the requirement of this section.

Test Result: Pass

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GFSK Modulation		AODEC 3.4	IECHANI	CALCAL	(INIC							
Product:	3 MODES MECHANICAL GAMING KEYBOARD						de:	Keep transmitting				
Mode			oing Trans		Test Volt	age	DC3.8V					
Temperature		•	24 deg. (			Humidi		569	% RH			
Test Result:			Pass			Detecto	or	]	PK			
20dB Bandwidth			1.479MF	łz								
<b>(</b>		Delta 1	[T1]		RBW	30 k	Hz R	F Att	20 dB			
Ref Lvl				.19 dB	VBW	100 k						
10 dBm		1	.478957	792 MHz	SWT	8.5 m	ıs U:	nit	dBm	1		
10						<b>v</b> <sub>1</sub>	[T1]	-21	.09 dBm	A		
					2			2.40126	954 GHz			
0				N	wŽ	<u></u> 1	[T1]	-1	.19 dB			
			J/m		~/~	<b>▽</b> 2	[T1]	1.47895	792 MHz			
-10			1 /	$\mathcal{N}$		~_		2.40207	515 GHz			
		1				M	7					
-20 -D1 -22.4	3 dBm	M				Min				1м		
		. ~ ~					<b>~</b>					
-30	مہرمر	<u></u>					V	my .				
	*							Mu.				
-40									M			
									Vilvi			
-50												
-60												
-70												
-80												
-90 Center 2.				<u> </u>	kHz/				ın 3 MHz	]		

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Product:	3 MODES MECHANICAL GAMING KEYBOARD Keeping Transmitting					Test Mo	de:	Keep transmitting				
Mode						Test Volt	tage	DC3.8V				
Temperature		2	4 deg. C,			Humid	ity		56%	6 RH		
Test Result:			Pass			Detect	or		I	PK		
0dB Bandwidth		1.	.323MHz									
Ref Lvl 10 dBm		Delta 1		81 dB 529 MHz	RB VB SW	W 100	kHz kHz ms		F Att	20 dB dBm	L	
10					2			1]	-21 2.44033	.37 dBm	A	
-10			<b></b>	~~	سلر_			'1] '1]	1.32264	.40 dBm		
-20 -D1 -22.	4 dBm	1	$\mathcal{N}$			The state of the s	1		2.44107	515 GHz	1M	
-30			•					Y	<b>\</b>		1,10	
-40									4	My. M		
-50										<b>V</b>		
-60												
-70												
-80												
-90 Center 2	445 5	-		222	kHz/					n 3 MHz	]	

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Product:	3 MODES MECHANICAL GAMING KEYBOARD Keeping Transmitting					Test Mode: Test Voltage			Keep transmitting DC3.8V				
Mode													
Temperature		24	4 deg. C,			I	Humidity			56%	6 RH		
Test Result:			Pass				Detector			P	PΚ		
0dB Bandwidth		1.	184MHz										
Ref Lvl		Delta 1		24 dB		BW BW	30 k 100 k		RF	Att	20	dВ	
10 dBm		1	.184368	74 MHz	sı	TW	8.5 m	s	Un	it		dBm	
10					2		<b>v</b> <sub>1</sub>	[T1]	2	-22 2.47940		dBm GHz	A
-10				~	Ž	1	<b>1</b> ∇2	[T1]	1	0 1.18436 2-	874	dB MHz dBm	
-20						\ 		_	2	2.48007	515	GHz	
-30 -30	54 dBm		<b>V</b>										1M
-40	momon							\m	~\				
-50										~ \		$\sim$	
-60													
-70													
-80													
-90													
Center 2	.48 GHz	z		300	kHz/					Spa	n 3	MHz	

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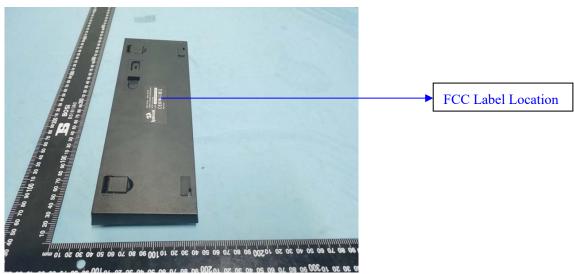
## 10.0 FCC ID Label

#### FCC ID: TUVET-8559

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation

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

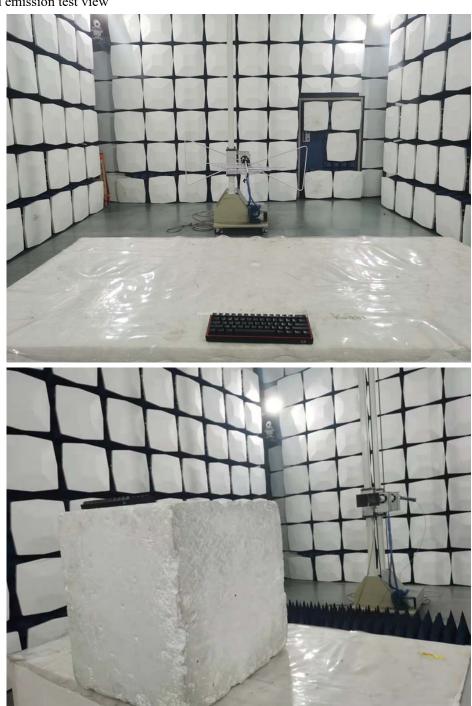
#### 11.1 Conducted test View--



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## Radiated emission test view



## Photographs – EUT

Please refer test report TW2203034-01E

## -- End of the report--

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

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