

File reference No.: 2022-08-29

Applicant: Eastern Times Technology Co.,Ltd

Product: WIRED/2.4G/BT MECHANICAL GAMING KEYBOARD

Model No.: K632RGB-PRO, ET-8805, K632W-RGB-PRO,

K632NB-RGB-PRO

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 long

Terry Tang

Manager

Dated: August 29, 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

Report No.: TW2208121-02E Page 2 of 34

Date: 2022-08-29



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 17025:2017 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

23

23

23

23

24

28

29

32

Report No.: TW2208121-02E

Date: 2022-08-29

Content

7.2

7.3

7.4

7.5

7.6

8.0

9.0

10.0

11.0



Test Report Conclusion

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	12
6.1	Test Method and Test Procedure.	12
6.2	Configuration of the EUT	13
6.3	EUT Operation Condition.	13
6.4	Radiated Emission Limit.	14
6.5	Test Result.	15
7.0	Band Edge	23
7.1	Test Method and Test Procedure.	23

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.

Radiated Test Setup.

Configuration of the EUT.....

EUT Operating Condition.

Band Edge Limit.....

Band Edge Test Result.

Antenna Requirement

20dB bandwidth measurement....

FCC ID Label.....

Photo of Test Setup and EUT View....

In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.

Date: 2022-08-29



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: WIRED/2.4G/BT 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: K632RGB-PRO

Additional Model Name ET-8805, K632W-RGB-PRO, K632NB-RGB-PRO

Hardware Version: 8805-A TX V1 US

Software Version: 3CB4

Serial No.: RDK632RGB-PRO22071500502
Rating: DC5.0V, 700mA or DC3.7V, 250mA
Battery: DC3.7V, 1600mAh Li-ion battery

Modulation Type: GFSK

Operation Frequency: 2402-2480MHz

Channel Separate: 1MHz Channel Number: 79

Antenna Designation PCB antenna with gain 2.34dBi maximum (Get from the antenna specification)

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.

In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.

Report No.: TW2208121-02E Page 5 of 34

Date: 2022-08-29



1.4 Submitted Sample: 1 pc

1.5 Test Duration 2022-08-06 to 2022-08-29

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

Page 6 of 34

Report No.: TW2208121-02E

Date: 2022-08-29



2.0 Test Equipment							
Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date		
ESPI Test Receiver	R&S	ESPI 3	100379	2022-07-15	2023-07-14		
LISN	R&S	EZH3-Z5	100294	2022-07-18	2023-07-17		
LISN	R&S	EZH3-Z5	100253	2022-07-18	2023-07-17		
Impuls-Begrenzer	R&S	ESH3-Z2	100281	2022-07-18	2023-07-17		
Loop Antenna	EMCO	6507	00078608	2022-07-18	2025-07-17		
Spectrum	R&S	FSIQ26	100292	2022-07-15	2023-07-14		
Horn Antenna	A-INFO	LB-180400-KF	J211060660	2022-07-18	2025-07-17		
Horn Antenna	R&S	BBHA 9120D	9120D-631	2022-07-18	2024-07-17		
Power meter	Anritsu	ML2487A	6K00003613	2022-07-18	2023-07-17		
Power sensor	Anritsu	MA2491A	32263	2022-07-18	2023-07-17		
Bilog Antenna	Schwarebeck	VULB9163	9163/340	2022-07-18	2025-07-17		
9*6*6 Anechoic			N/A	2022-07-26	2025-07-25		
EMI Test Receiver	RS	ESVB	826156/011	2022-07-15	2023-07-14		
EMI Test Receiver	RS	ESCS 30	834115/006	2022-07-15	2023-07-14		
Spectrum	HP/Agilent	E4407B	MY50441392	2022-07-15	2023-07-14		
Spectrum	RS	FSP	1164.4391.38	2022-07-15	2023-07-14		
RF Cable	Zhengdi	ZT26-NJ-NJ-8M/FA	1	2022-07-15	2023-07-14		
RF Cable	Zhengdi	7m		2022-07-15	2023-07-14		
Pre-Amplifier	Schwarebeck	BBV9743	#218	2022-07-15	2023-07-14		
Pre-Amplifier	HP/Agilent	8449B	3008A00160	2022-07-15	2023-07-14		
LISN	SCHAFFNER	NNB42	00012	2022-08-18	2023-07-17		

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

Page 7 of 34

Report No.: TW2208121-02E

Date: 2022-08-29



3.0 Technical Details

3.1 Summary of test results

The EUT has been	ı tested accordin	g to the following	specifications:
		A	, 50000

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

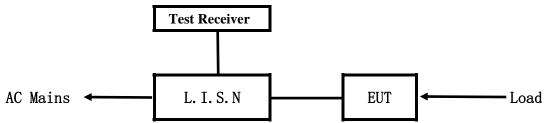
No modification by SHENZHEN TIMEWAY TESTING LABORATORIES

Date: 2022-08-29



5. Power Line Conducted Emission Test

5.1 Schematics of the test

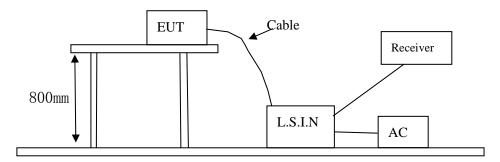


EUT: Equipment Under Test

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
WIRED/2.4G/BT	Fastorn Times	K632RGB-PRO, ET-8805,	
MECHANICAL	Eastern Times	K632W-RGB-PRO,	TUVET-8805A
GAMING KEYBOARD	Technology Co.,Ltd	K632NB-RGB-PRO	

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.

Report No.: TW2208121-02E Page 9 of 34

Date: 2022-08-29



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

Date: 2022-08-29



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

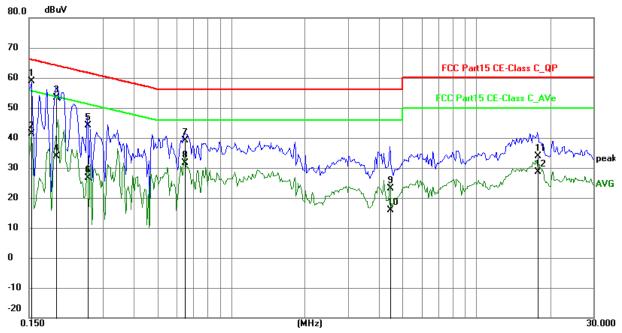
EUT Operating Environment

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

EUT set Condition: Charging and 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	0.1539	49.04	9.78	58.82	65.79	-6.97	QP	Р
2	0.1539	31.53	9.78	41.31	55.79	-14.48	AVG	Р
3	0.1929	43.56	9.75	53.31	63.91	-10.60	QP	Р
4	0.1929	24.04	9.75	33.79	53.91	-20.12	AVG	Р
5	0.2592	34.29	9.75	44.04	61.46	-17.42	QP	Р
6	0.2592	16.84	9.75	26.59	51.46	-24.87	AVG	Р
7	0.6492	29.29	9.78	39.07	56.00	-16.93	QP	Р
8	0.6492	21.86	9.78	31.64	46.00	-14.36	AVG	Р
9	4.4312	13.11	9.91	23.02	56.00	-32.98	QP	Р
10	4.4312	6.05	9.91	15.96	46.00	-30.04	AVG	Р
11	17.7771	23.22	10.55	33.77	60.00	-26.23	QP	Р
12	17.7771	18.18	10.55	28.73	50.00	-21.27	AVG	Р

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.

In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.

Date: 2022-08-29



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

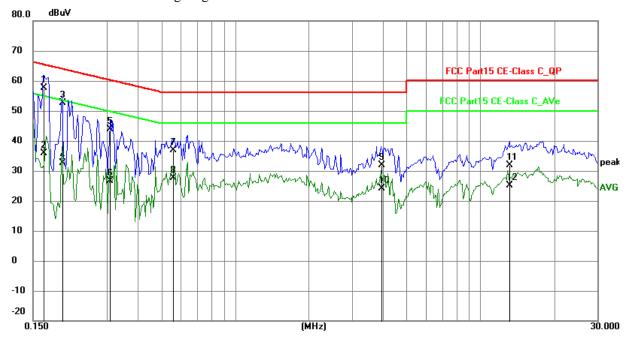
EUT Operating Environment

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

EUT set Condition: Charging and 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	0.1655	47.79	9.77	57.56	65.18	-7.62	QP	Р
2	0.1655	26.08	9.77	35.85	55.18	-19.33	AVG	Р
3	0.1968	42.78	9.75	52.53	63.74	-11.21	QP	Р
4	0.1968	22.78	9.75	32.53	53.74	-21.21	AVG	Р
5	0.3099	34.01	9.76	43.77	59.97	-16.20	QP	Р
6	0.3099	16.89	9.76	26.65	49.97	-23.32	AVG	Р
7	0.5556	27.14	9.77	36.91	56.00	-19.09	QP	Р
8	0.5556	17.84	9.77	27.61	46.00	-18.39	AVG	Р
9	3.9430	21.90	9.88	31.78	56.00	-24.22	QP	Р
10	3.9430	14.34	9.88	24.22	46.00	-21.78	AVG	Р
11	13.1907	21.69	10.30	31.99	60.00	-28.01	QP	Р
12	13.1907	14.94	10.30	25.24	50.00	-24.76	AVG	Р

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.

In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.

Report No.: TW2208121-02E Page 12 of 34

Date: 2022-08-29

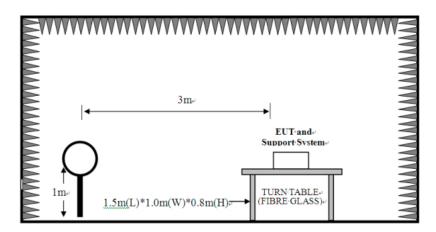


6 Radiated Emission Test

- 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



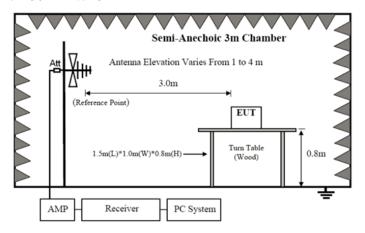
Page 13 of 34

Report No.: TW2208121-02E

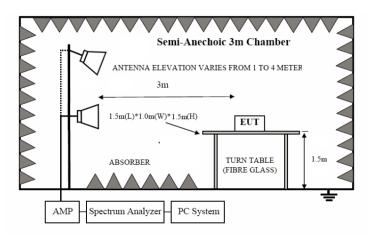
Date: 2022-08-29



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.

Report No.: TW2208121-02E Page 14 of 34

Date: 2022-08-29



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	ntal (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 $(dBuV) = 20 \log RF \text{ Voltage } (uV)$
- 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. 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.

Report No.: TW2208121-02E Page 15 of 34

Date: 2022-08-29

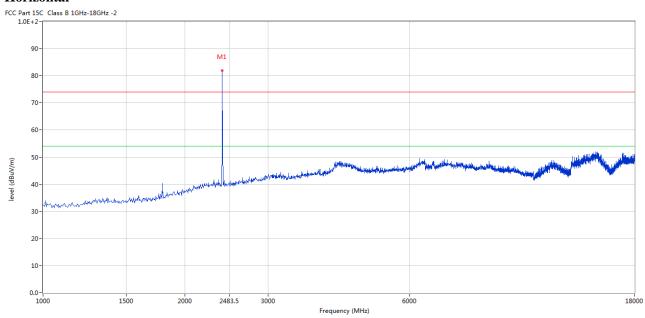


6.5 Test result

A Fundamental & Harmonics Radiated Emission Data

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

Horizontal



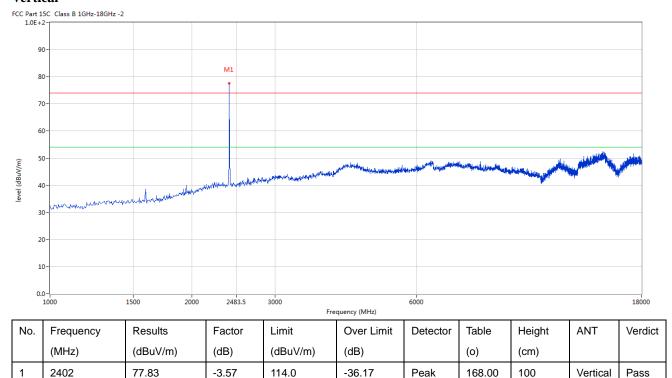
No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2402	81.63	-3.57	114.0	-32.37	Peak	80.00	100	Horizontal	Pass

Report No.: TW2208121-02E Page 16 of 34

Date: 2022-08-29



Vertical



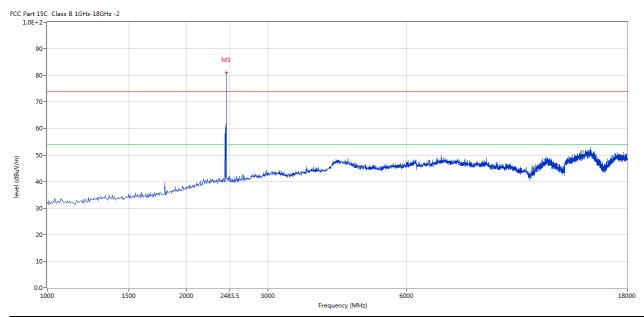
Report No.: TW2208121-02E Page 17 of 34

Date: 2022-08-29



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

Horizontal



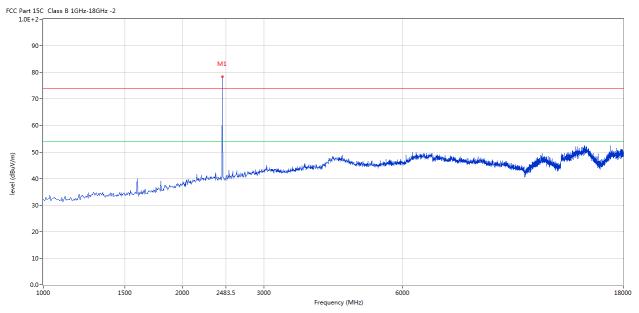
No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2441	80.92	-3.57	114.0	-33.08	Peak	90.00	100	Horizontal	Pass

Report No.: TW2208121-02E Page 18 of 34

Date: 2022-08-29



Vertical



No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2441	78.33	-3.57	114.0	-35.67	Peak	160.00	100	Vertical	Pass

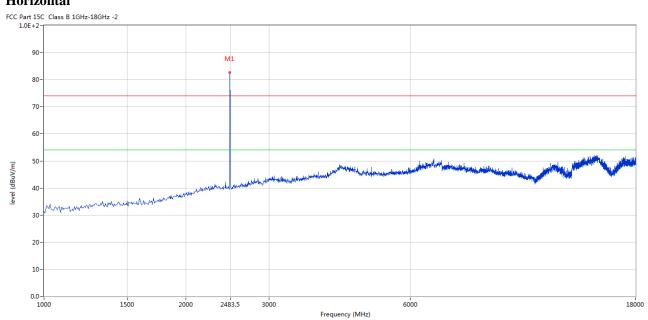
Report No.: TW2208121-02E Page 19 of 34

Date: 2022-08-29



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

Horizontal



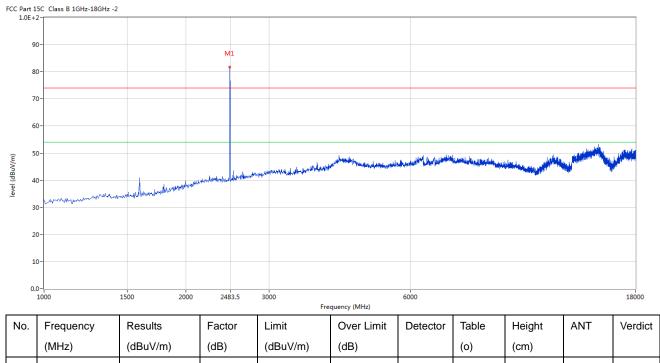
No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2480	82.89	-3.57	114.0	-31.11	Peak	332.00	100	Horizontal	Pass

Report No.: TW2208121-02E Page 20 of 34

Date: 2022-08-29



Vertical



278.00 Pass 2480 81.40 -3.57 114.0 -32.60 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.

Report No.: TW2208121-02E Page 21 of 34

Date: 2022-08-29

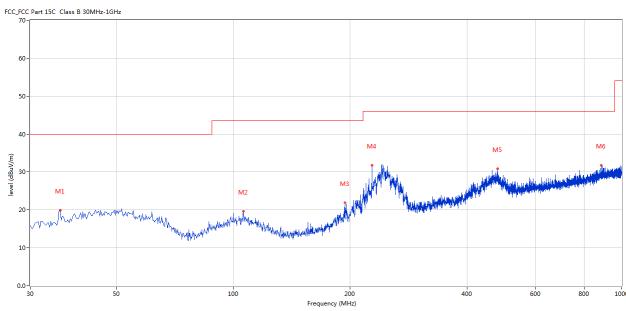


B. General Radiated Emission Data Radiated Emission In Horizontal (30MHz----1000MHz)

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)		(o)	(cm)		
1	35.819	19.94	-13.76	40.0	-20.06	Peak	259.00	100	Horizontal	Pass
2	106.126	19.69	-13.32	43.5	-23.81	Peak	171.00	100	Horizontal	Pass
3	193.889	21.92	-13.85	43.5	-21.58	Peak	270.00	100	Horizontal	Pass
4	227.588	31.81	-12.79	46.0	-14.19	Peak	267.00	100	Horizontal	Pass
5	478.513	30.85	-7.46	46.0	-15.15	Peak	87.00	100	Horizontal	Pass
6	885.569	31.76	-2.03	46.0	-14.24	Peak	0.00	100	Horizontal	Pass

Report No.: TW2208121-02E Page 22 of 34

Date: 2022-08-29

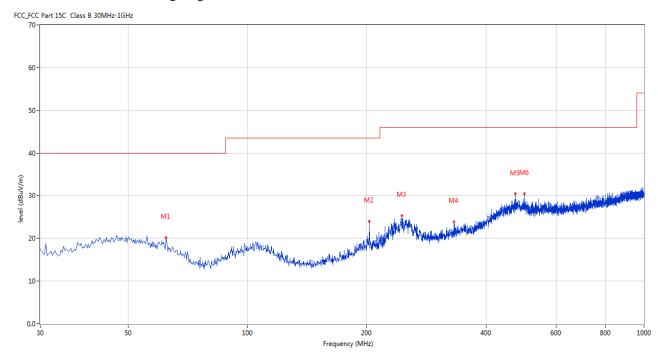


Radiated Emission In Vertical (30MHz----1000MHz)

EUT set Condition: Keep Tx transmitting

Results: Pass

Please refer to following diagram for individual



No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	62.244	20.14	-13.27	40.0	-19.86	Peak	0.00	200	Vertical	Pass
2	202.859	23.98	-13.42	43.5	-19.52	Peak	326.00	200	Vertical	Pass
3	245.044	25.30	-12.22	46.0	-20.70	Peak	203.00	200	Vertical	Pass
4	332.079	23.84	-10.11	46.0	-22.16	Peak	326.00	200	Vertical	Pass
5	473.179	30.39	-7.58	46.0	-15.61	Peak	0.00	200	Vertical	Pass
6	499.848	30.44	-6.90	46.0	-15.56	Peak	182.00	100	Vertical	Pass

Date: 2022-08-29

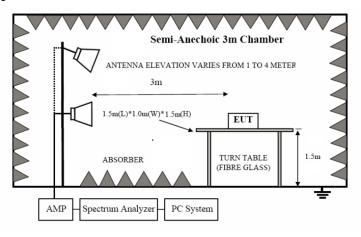


7. Band Edge

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.

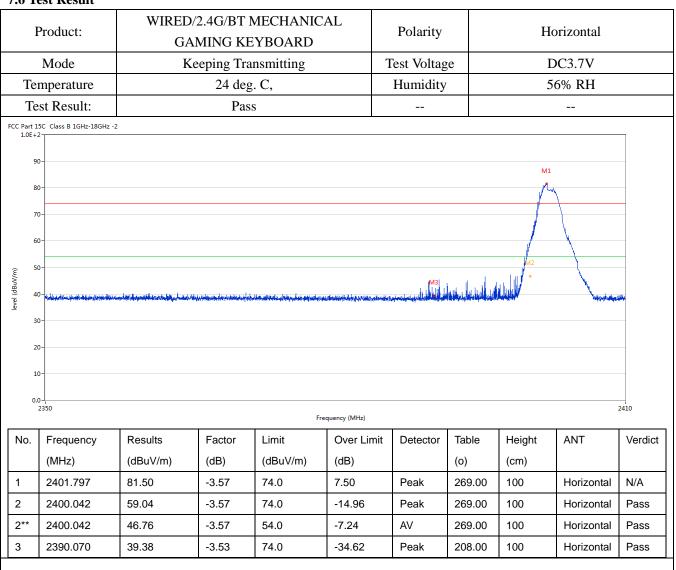
The report refers only to the sample tested and does not apply to the bulk.

Report No.: TW2208121-02E Page 24 of 34

Date: 2022-08-29



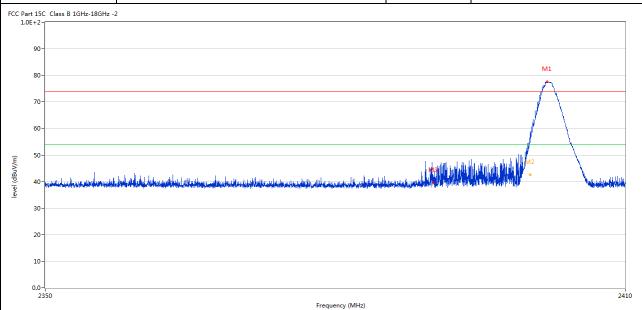
7.6 Test Result



Report No.: TW2208121-02E Page 25 of 34



Duoduoti	WIRED/2.4G/BT MECHANICAL	Datastan	Ventical
Product:	GAMING KEYBOARD	Detector	Vertical
Mode	Keeping Transmitting	Test Voltage	DC3.7V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass		

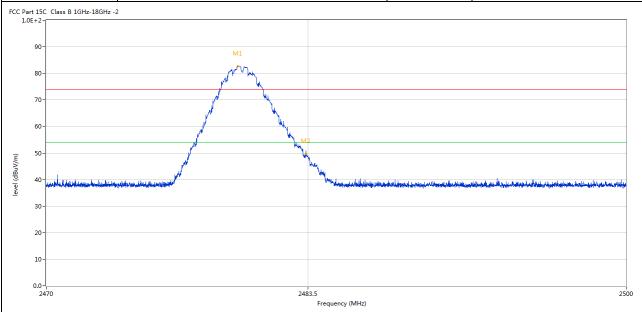


No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2401.842	77.50	-3.57	74.0	3.50	Peak	169.00	100	Vertical	N/A
2	2400.042	54.71	-3.57	74.0	-19.29	Peak	185.00	100	Vertical	Pass
2**	2400.042	42.52	-3.57	54.0	-11.48	AV	185.00	100	Vertical	Pass
3	2390.025	39.55	-3.53	74.0	-34.45	Peak	271.00	100	Vertical	Pass

Report No.: TW2208121-02E Page 26 of 34



Product:	WIRED/2.4G/BT MECHANICAL GAMING KEYBOARD	Polarity	Horizontal
Mode	Keeping Transmitting	Test Voltage	DC3.7V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass		



No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)		(o)	(cm)		
1	2479.883	82.61	-3.57	74.0	8.61	Peak	79.00	100	Horizontal	N/A
2	2483.399	49.63	-3.57	74.0	-24.37	Peak	79.00	100	Horizontal	Pass

Page 27 of 34

Report No.: TW2208121-02E

Date: 2022-08-29



	Product:		WIRED/2.4G/BT MECHANICAL GAMING KEYBOARD					Vertical			
	Mode]	Keeping Transmitting					DC3.7V			
Temperature			24 deg. C,					50	6% RH		
Т	est Result:		Pa	ass							
CC Part :	15C Class B 1GHz-18GHz -	2									
ġ	90-										
8	30-		M1								
7	70-		1								
			g de la companya della companya della companya de la companya della companya dell	N. Committee							
6	50 -		1	\frac{1}{2}							
_	50-		/	M2							
	50-	A Marie Mari		M2	V. Jan Hitterikalıka	100 Maria (100 Maria (ور نام المار والمار	h de constitue de la constitue		Line & Mary	
(m/ybas) level	50-	adatus aniquibacida minor	/	M. M.	Von and introduction	top of the florida set of the second second	alah mendadi saharin	helpennetherflijke, bloconsk		A Marie Marie	
(ii/apan) isassi	10 - (1980 - 1981) 10 - (1980 - 1981)	andratics on right has been proported		M2	V var endistrate lebete	tro delikirikasi da da da k	المراجعة ا	kalematheeldilla,eeldeerdi	dding y billion dischal	A deces y Las	
(III/Ango)	10- ₁₀₋₁₀₋₁₀₋₁₀₋₁₀₋₁₀₋₁₀₋₁₀₋₁₀₋₁₀₋₁₀₋₁₀₋₁₀₋₁	andrews in the second of the s	/	Ma		المعادرة والمعادرة والمعاد	ورنب فرنباه والورب والخراب	helpeweikerhillheisbereife	disease de despuis		
(III/Ango)	10 - (1980 - 1981) 10 - (1980 - 1981)	ander the province in the second of	<i>}</i>	M M2	المحاطية والمخالفة المحاطية والمحاطية والمحاطية والمحاطية والمحاطية والمحاطية والمحاطية والمحاطية والمحاطية وا	الإندانسة والتعالم فالمتابع فا	المراجع في المراجع الم	k i promovidnost different discovered di	dlings spekified, het his		
(w/angp) layar 3	10- ₁₀₋₁₀₋₁₀₋₁₀₋₁₀₋₁₀₋₁₀₋₁₀₋₁₀₋₁₀₋₁₀₋₁₀₋₁₀₋₁	a de disson insidentida a survenida de la constantida de la constantida de la constantida de la constantida de	<i>f</i>	2483.5	Frequency (MHz)	lase, designi in colonia de constante	مرنب بلديان المراجع والمراجع	n them with other light side on the	ding debied display	2500	
(w/angp) layar 3	10 - 10 - 10 - 10 - 10 - 10 - 10 - 10 -	Results	Factor			Detector	Table	Height	ANT	2500	
(III/Angon) 44	10	and the state of t	Factor (dB)	F	Frequency (MHz)					2500	
(III/Angon) 44	10 10 10 10 10 10 10 10 10 10 10 10 10 1	Results		Limit	Frequency (MHz) Over Limit		Table	Height			

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

Date: 2022-08-29



Page 28 of 34

8.0 Antenna Requirement

Applicable Standard

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

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

Test Result: Pass

Page 29 of 34

Report No.: TW2208121-02E



GFSK Modulation	1								
Product:	WIRED/2.4 GAMI	4G/BT ME ING KEY		Test Mode:		Keep transmitting			
Mode	Keep	ing Trans	mitting		Test Voltage		DC3.7V		
Temperature		24 deg. C	2,		Humid	ity	50	6% RH	
Test Result:		Pass			Detector		PK		
20dB Bandwidth		985.97kH	[z						
Ref Lvl 10 dBm	ndB	1 [T1 r 20. 5.971943	00 dB	RBW VBW SWT	30 k 100 k 8.5 m	Hz	RF Att	20 dB	ı
0					▼1	[T1]	2.40200	1.79 dBm	A
-10				Many de	BW ▼ _{Ti}	_ [T1]		1389 kHz 1.63 dBm 2204 GHz	
-20					\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	2 [T1]			
-30					λ,	_			1M2
-40									
-50									
-60								\bigvee	
-70									
-80									
-90									

Page 30 of 34

Report No.: TW2208121-02E



Product:	WIRED/2.4G/BT MECHANICAL GAMING KEYBOARD Keeping Transmitting 24 deg. C,					Test Mode:		Keep transmitting			
Mode						Voltage		DC3.7V			
Temperature						Humidity		56% RH			
Test Result:		Pass			Detector			PK			
20dB Bandwidth	98	5.97kHz									
Ref Lvl 10 dBm	ndB	1 [T1 r 20. 5.971943	.00 dB	RI VI SV	ВW	30 kH: 100 kH: 8.5 ms	Z	F Att	20 dB		
10						V 1 [T1]	-1 2.44100	.77 dBm 301 GHz	Α	
-10				مهر	ļ	ndB BW ∇ _{T1}	98 [T1]	20 5.97194 -21	.00 dB 389 kHz .70 dBm		
-20		T1	J*		سر	▼ _{T2}	[T1]	2.44052	.02 dBm		
1MAX						W.		2.44150	802 GHz	1M2	
-40							\ <u>\</u> \				
-50								W	\		
-60									W		
-70											
-80											
-90 Center 2	2.441 GHz	ı	300	kHz/		ı		Spa	n 3 MHz		

Page 31 of 34

Report No.: TW2208121-02E



Product:	WIRED/2.4G/BT MECHANICAL GAMING KEYBOARD Keeping Transmitting					Test Mode: Test Voltage Humidity			Keep transmitting DC3.7V 56% RH			
Mode								2				
Temperature	24 deg. C,											
Test Result:			Pass			Detector			PK			
20dB Bandwidth		991	.98kMHz									
Ref Lvl 10 dBm		Marker ndB BW 991		00 dB	V	BW BW WT	30 kl 100 kl 8.5 ms	Hz	F Att	20 dB	ı	
10				1			v ₁	[T1]	-1 2.47999	.46 dBm	A	
-10					مكسر	1	ndB BW ∇ _{T1}	99 [T1]	20 1.98396 -21	.00 dB 794 kHz .61 dBm		
-20			T1V			4	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	[T1]	2.47951	603 GHz		
1MAX							Y	ή,	2.48050	802 GHz	1м2	
-40								7				
-50		V										
-60	/											
-70												
-80												
-90 Center 2	.48 GHz	3		300	kHz/				Spa	n 3 MHz	1	

Report No.: TW2208121-02E Page 32 of 34

Date: 2022-08-29



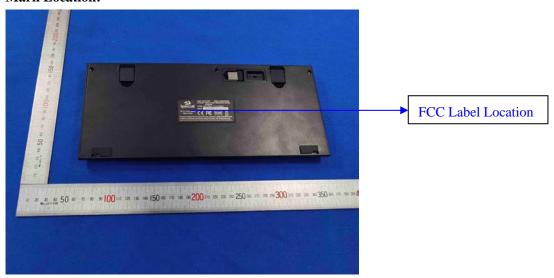
10.0 FCC ID Label

FCC ID: TUVET-8805A

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:



Report No.: TW2208121-02E Page 33 of 34

Date: 2022-08-29



11.0 Photo of testing

11.1 Conducted test View--



Date: 2022-08-29



Radiated emission test view



Photographs - EUT

Please refer test report TW2208121-01E

-- End of the report--

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.

In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to adopt any other remedies which may be appropriate.