



Report No.: TW2202199E File reference No.: 2022-03-09

Applicant: Shenzhen SQT Electronics Co.,Ltd

Product: Wireless Keyboard

Model No.: SK-679AG, SK-606AG, G100, A2080I

Trademark: 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 C63.10 & FCC Part 15 Subpart C,

Paragraph 15.249 regulations for the evaluation of

electromagnetic compatibility

Approved By

Terry Tong

**Terry Tang** 

Manager

Dated: March 09, 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.: TW2202199E Page 2 of 38

Date: 2022-03-09



# **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: 2022-03-09



# Test Report Conclusion

1 'an	tant
v .com	tent
0011	

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	11
6.3	EUT Operation Condition.	11
6.4	Radiated Emission Limit	11
6.5	Test Result	13
7.0	Band Edge	21
7.1	Test Method and Test Procedure.	21
7.2	Radiated Test Setup.	21
7.3	Configuration of the EUT	21
7.4	EUT Operating Condition.	21
7.5	Band Edge Limit.	21
7.6	Band Edge Test Result.	22
8.0	Antenna Requirement.	26
9.0	20dB bandwidth measurement.	27
10.0	FCC ID Label	30
11.0	Photo of Test Setup and EUT View.	31

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.: TW2202199E Page 4 of 38

Date: 2022-03-09



#### 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 SQT Electronics Co.,Ltd

Address: ZhengChengFeng TechnologyZone Xinsha Road,ShaYi Village, Sha jing Town, Baoan Area,

Shenzhen, China

Telephone: 0755-27568078 Fax: 0755-27568223

## 1.3 Description of EUT

Product: Wireless Keyboard

Manufacturer: Shenzhen SQT Electronics Co.,Ltd

Address: ZhengChengFeng TechnologyZone Xinsha Road,ShaYi Village, Sha jing

Town, Baoan Area, Shenzhen, China

Trademark: N/A

Model Number: SK-679AG

Additional Model Name SK-606AG, G100, A2080I

Rating: DC1.5V, 12mA

Battery 1pc 1.5V AAA Battery

Modulation Type: GFSK

Operation Frequency: 2408-2474MHz

Channel Number: 34
Channel Separation: 2MHz

Hardware Version: MA1386J-3

Software Version: MA1386J-3\_K+M\_V01test15\_5.HEX CS: 0xA6D4

Serial No.: SMK679395210901744

Antenna Designation PCB antenna with gain -0.61dBi Max (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.

Report No.: TW2202199E Page 5 of 38

Date: 2022-03-09



1.4 Submitted Sample: 1 pc

1.5 Test Duration

2022-02-28 to 2022-03-09

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

The sample tested by

Print Name: Andy Xing

Page 6 of 38

Report No.: TW2202199E

Date: 2022-03-09



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	2022-01-14	2023-01-13
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

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.: TW2202199E Page 7 of 38

Date: 2022-03-09



## 3.0 Technical Details

# 3.1 Summary of test results

The EUT has been tested according to the following specifications:

Standard	Test Type	Result	Notes
FCC Part 15, Paragraph 15.203	Antenna Requirement	Pass	Complies
FCC Part 15, Paragraph 15.207	Conducted Emission Test	N/A	N/A
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

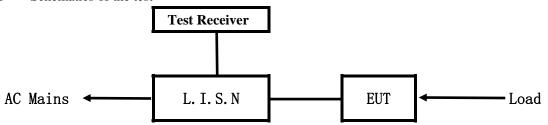
No modification by SHENZHEN TIMEWAY TESTING LABORATORIES

Date: 2022-03-09



## 5. Power Line Conducted Emission Test

## 5.1 Schematics of the test

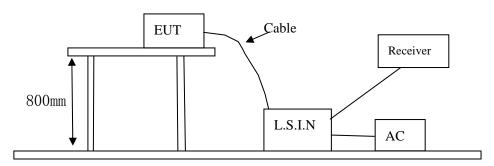


**EUT: Equipment Under Test** 

## 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.

Test Voltage: 120V~, 60Hz 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.

## A. EUT

Device	Manufacturer	Model	FCC ID
Wireless Keyboard	Shenzhen SQT Electronics Co.,Ltd	SK-679AG, SK-606AG, G100, A2080I	WOX-SK-679AG

Report No.: TW2202199E Page 9 of 38

Date: 2022-03-09



## B. Internal Device

Device	Manufacturer	Model	FCC ID/DOC
N/A			

## C. Peripherals

Device	Manufacturer	Model	Rating
N/A			

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 15.207

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 ~ 0.00	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:

N/A

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

Date: 2022-03-09

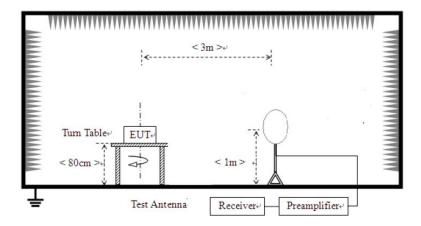


## **6** Radiated Emission Test

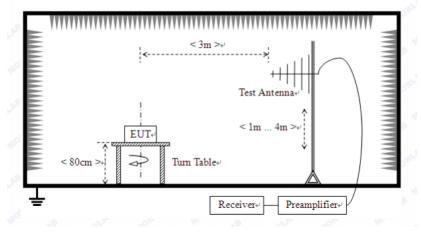
- 6.1 Test Method and test Procedure:
- (1) The EUT was tested according to ANSI C63.10-2013. The radiated test was performed at Timeway EMC Laboratory. This site is on file with the FCC laboratory division, Registration No. 744189
- (2) The EUT, peripherals were put on the turntable which table size 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



For radiated emissions from 30MHz to1GHz



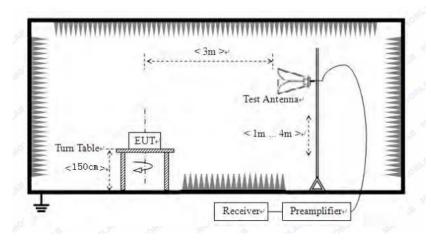
The report refers only to the sample tested and does not apply to the bulk.

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.

Date: 2022-03-09



For radiated emissions above 1GHz



- 6.2 Configuration of The EUT

  Same as section 5.3 of this report
- 6.3 EUT Operating Condition
  Same as section 5.4 of this report.
- 6.4 Radiated Emission Limit

All emission from a digital device, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strength specified below:

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

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

Note:

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

Report No.: TW2202199E Page 12 of 38

Date: 2022-03-09



# 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
30-80	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. This is a handhold device. The radiated emissions should be tested under 3-axes position (Lying, Side, and Stand), After pre-test. It was found that the worse radiated emission was get at the lying position.
- 5. 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.
- 6. 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.
- 7. New battery was used during tests.

Report No.: TW2202199E Page 13 of 38

Date: 2022-03-09

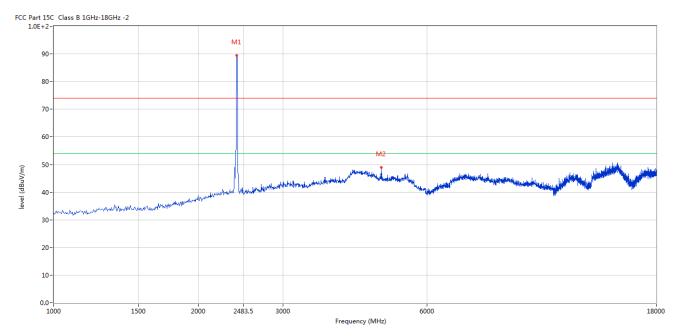


## 6.5 Test result

# A Fundamental & Harmonics Radiated Emission Data

Please refer to the following test plots for details: Low Channel-2408MHz

## Horizontal



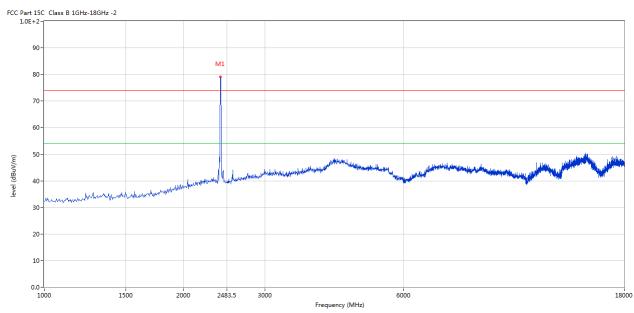
No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table (o)	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)			(cm)		
1	2407.398	89.56	-3.57	114.0	-24.44	Peak	67.00	100	Horizontal	Pass
2	4815.546	48.95	3.14	74.0	-25.05	Peak	301.00	100	Horizontal	Pass

Report No.: TW2202199E Page 14 of 38

Date: 2022-03-09



## Vertical



No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table (o)	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)			(cm)		
1	2407.398	79.03	-3.57	114.0	-34.97	Peak	158.00	100	Vertical	Pass

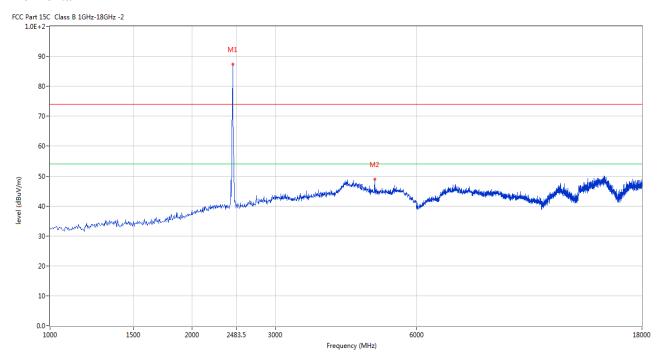
Report No.: TW2202199E Page 15 of 38

Date: 2022-03-09



Please refer to the following test plots for details: Middle Channel-2440MHz

#### **Horizontal**



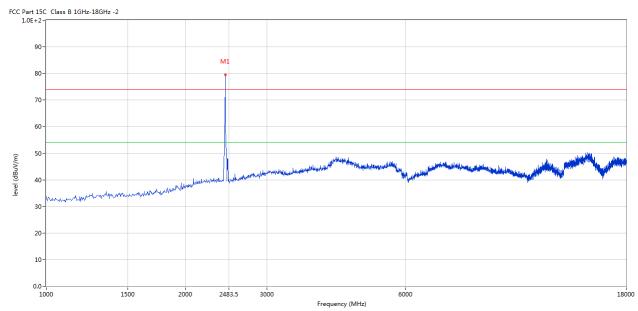
No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table (o)	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)			(cm)		
1	2440.390	87.34	-3.57	114.0	-26.66	Peak	124.00	100	Horizontal	Pass
2	4879.280	48.94	3.20	74.0	-25.06	Peak	0.00	100	Horizontal	Pass

Report No.: TW2202199E Page 16 of 38

Date: 2022-03-09



## Vertical



No.	Frequency	Results	Factor	Limit	Over	Detector	Table (o)	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	Limit (dB)			(cm)		
1	2440.390	79.53	-3.57	114.0	-34.47	Peak	78.00	100	Vertical	Pass

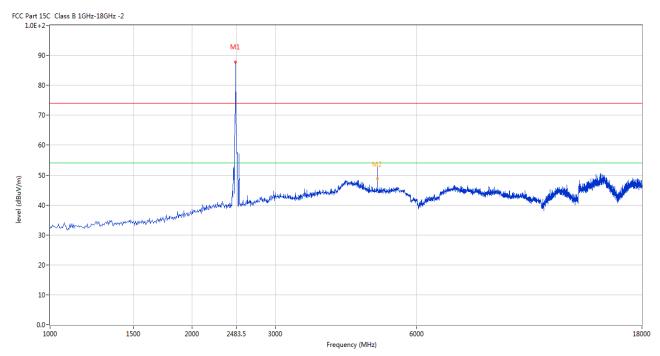
Report No.: TW2202199E Page 17 of 38

Date: 2022-03-09



Please refer to the following test plots for details: High Channel-2474MHz

## Horizontal



No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table (o)	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)			(cm)		
1	2474.381	90.83	-3.57	114.0	-23.17	Peak	86.00	100	Horizontal	Pass
2	4947.263	53.40	3.33	74.0	-20.60	Peak	86.00	100	Horizontal	Pass
2**	4947.263	48.71	3.33	54.0	-5.29	AV	86.00	100	Horizontal	Pass

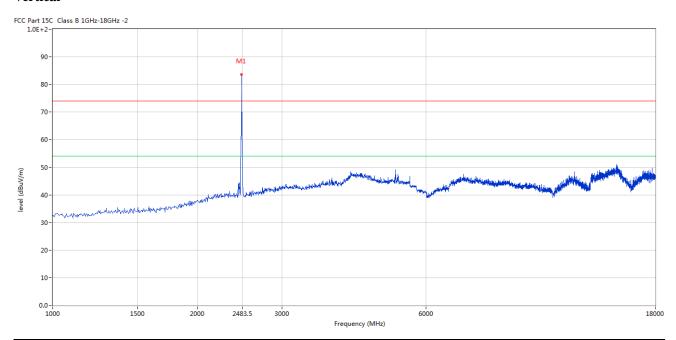
Page 18 of 38

Report No.: TW2202199E

Date: 2022-03-09



## Vertical



No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table (o)	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)			(cm)		
1	2474.381	84.17	-3.57	114.0	-29.83	Peak	86.00	100	Vertical	Pass

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.: TW2202199E Page 19 of 38

Date: 2022-03-09

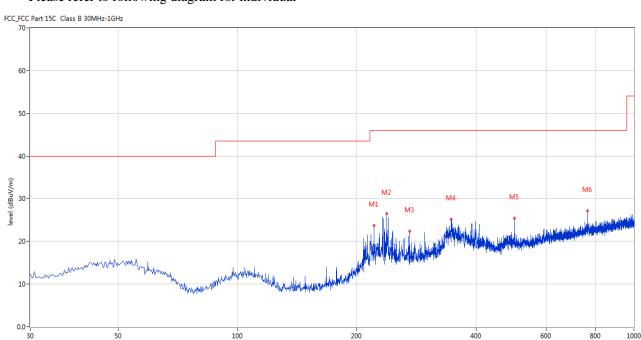


# B. General Radiated Emission Data Radiated Emission In Horizontal (30MHz----1000MHz)

EUT set Condition: Keep Tx transmitting

**Results:** Pass

Please refer to following diagram for individual



No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table (o)	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)			(cm)		
1	220.800	23.70	-13.29	46.0	-22.30	Peak	0.00	200	Horizontal	Pass
2	237.771	26.48	-12.44	46.0	-19.52	Peak	182.00	100	Horizontal	Pass
3	271.712	22.37	-11.71	46.0	-23.63	Peak	0.00	200	Horizontal	Pass
4	345.899	25.13	-9.49	46.0	-20.87	Peak	308.00	100	Horizontal	Pass
5	500.090	25.43	-6.91	46.0	-20.57	Peak	244.00	200	Horizontal	Pass
6	763.379	27.18	-3.28	46.0	-18.82	Peak	224.00	200	Horizontal	Pass

Frequency (MHz)

Report No.: TW2202199E Page 20 of 38

Date: 2022-03-09

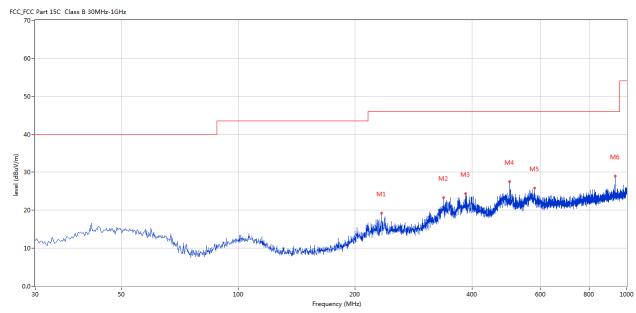


# Radiated Emission In Vertical (30MHz----1000MHz)

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	233.649	19.27	-12.53	46.0	-26.73	Peak	265.00	100	Vertical	Pass
2	337.413	23.30	-9.83	46.0	-22.70	Peak	307.00	100	Vertical	Pass
3	384.204	24.43	-9.17	46.0	-21.57	Peak	0.00	200	Vertical	Pass
4	500.090	27.56	-6.91	46.0	-18.44	Peak	208.00	100	Vertical	Pass
5	578.883	25.87	-5.50	46.0	-20.13	Peak	0.00	200	Vertical	Pass
6	933.087	28.95	-1.74	46.0	-17.05	Peak	310.00	100	Vertical	Pass

Date: 2022-03-09

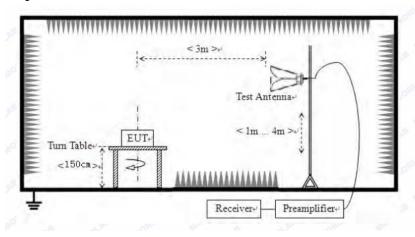


## 7. Band Edge

## 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.

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.

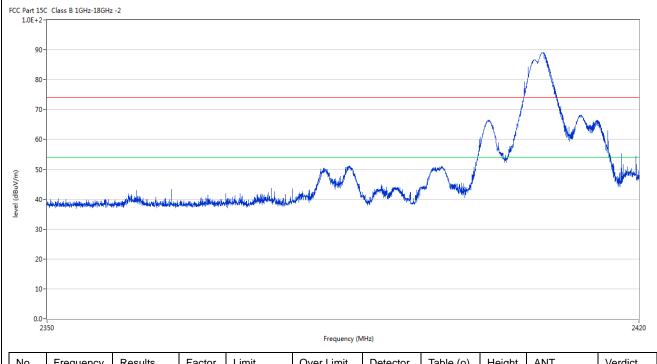
Report No.: TW2202199E Page 22 of 38

Date: 2022-03-09



## 7.6 Test Result

Product:	Wireless Keyboard	Polarity	Horizontal
Mode	Keeping Transmitting	Test Voltage	DC1.5V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass		

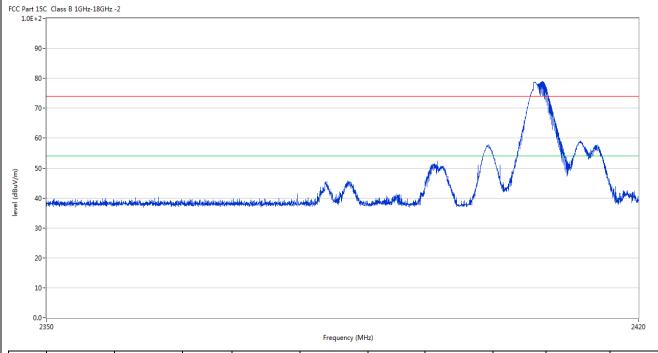


No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table (o)	Height	ANT	Verdict
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)			(cm)		
2	2400.015	43.89	-3.57	74.0	-30.11	Peak	88.00	100	Horizontal	Pass
3	2390.007	43.37	-3.54	74.0	-30.63	Peak	42.00	100	Horizontal	Pass

Report No.: TW2202199E Page 23 of 38



Product:	Wireless Keyboard	Detector	Vertical
Mode	Keeping Transmitting	Test Voltage	DC1.5V
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass		
FCC Part 15C Class B 1GHz-18GHz -2 1.0E+2-			



				1							
	No.	Frequency	Results	Factor	Limit	Over Limit	Detector	Table (o)	Height	ANT	Verdict
		(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dB)			(cm)		
	2	2400.007	39.86	-3.57	74.0	-34.14	Peak	271.00	100	Vertical	Pass
	3	2389.968	40.26	-3.53	74.0	-33.74	Peak	143.00	100	Vertical	Pass
Г											

Report No.: TW2202199E Page 24 of 38



Product: Wirel		Wirele	Wireless Keyboard		Pol	Polarity		Horizontal		
	Mode Keeping Transmittin			ng	Test `	Voltage	ge DC1.5V			
Temperature			24 deg. C,			Hur	nidity	56% RH		
To	est Result:			Pass						
1.0E	15C Class B 1GHz-18GHz +2- 90- 80- 70-									
(m/\ngp) level	60 - 40 - 30 - 20 - 10 - 2470					Many distribution of the same	Market Land of the State of the	edishili di kapilah dalam perior	judicid dende and a state of the	25c
(m//uBb) level	40- 30- 20-				2483.5 Frequency (MI		Mindon Landy Market		judichid sed bezanten elik j	250
(m/\mup(dBu/\mu)	30 - 20 -	Results	Factor	Limit	2483.5		Table (o)	Height	ANT	250 Verdic
level (dBuV/m)	30 - 20 - 10 - 2470	Results (dBuV/m)	Factor (dB)		2483.5 Frequency (MI	Hz)		Height (cm)	ANT	I

Report No.: TW2202199E Page 25 of 38

Date: 2022-03-09



	Product:		Wire	less Keyboa	ard			Vertical		
	Mode		Keeping Transmitting				Test Voltage		DC1.5V	
Temperature			24 deg. C,				Humidity		56% RH	
Test Result:			Pass							
	nt 15C Class B 1GHz-18GHz E+2	2 - 2								
level (dBuV/m)	60- 50- 40- 30- 20- 10- 0.0- 2470				2483.5 Frequency (Mi		Maria de la companio	A red lead of the seed	يا المام المام عبر المام ا	2500
	50- 40- 30- 20- 10- 0.0- 2470	Results	Factor	Limit			Table (o)	Height	ANT	250
	50- 40- 30- 20- 10- 0.0- 2470	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Frequency (Mi	-tz)			ANT	

Note: 1. The PK emission level less than the AV limit. No necessary to record the AV emission level.

2. This is a handhold device. The radiated emissions should be tested under 3-axes position (Lying, Side, and Stand), After pre-test. It was found that the worse radiated emission was get at the lying position.

Report No.: TW2202199E Page 26 of 38

Date: 2022-03-09



# 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 -0.61dBi Max. It fulfills the requirement of this section. Test Result: Pass

Report No.: TW2202199E Page 27 of 38



<b>9.0</b> 20dB Bandwid	th Measurement							
Product:	Wire	Test Mode		Keep transmitting				
Mode	Keepi	Test Voltag	e	DC1.5V				
Temperature		24 deg. C,		Humidity		56% RH		
Test Result:		Pass		Detector		PK		
20dB Bandwidth		2.214MHz						
Ref Lvl	Marker ndB	1 [T1 ndB]		BW 100 :		F Att	20 dB	
10 dBm	BW	2.21442886	MHz S	WT 5	ms Ui	nit	dBm	ı
10		Į.		<b>▼</b> 1	[T1]	1 2.40752	.40 dBm	A
-10			~~~~	nd BW ▼1		20 2.21442 -18	.00 dB 886 MHz .80 dBm	
-20	TA		, i		T2 T1]	2.40692	.24 dBm	
1MAX	Many Market				HILL	2.40913	727 GHz	1MA
-40					\		" my	
-50							<b>\</b>	
-60								
-70								
-80								
-90 Center 2.			500 kHz/		1	Spa	n 5 MHz	J
Date: 5.I	MAR.2022 12:	26:16						

Page 28 of 38

Report No.: TW2202199E



Product:	Wireless Keyboard				Test Mode:		Keep transmitting		
Mode	Keeping Transmitting				Test Voltage		DC1.5V		
Temperature	24 deg. C,				Humidity		56% RH		
Test Result:	Pass				Detector		PK		
20dB Bandwidth	2.214MHz								
R.	Marker 1 [T1 ndB] ndB 20.00 dB			RBW	100 ki	Hz RI	z RF Att 20 dB		
Ref Lvl				VBW 300 kH:			z		
10 dBm	BW :	2.21442886 MHz	S	SWT 5 ms		s Ur	Unit dE		l
10					<b>v</b> <sub>1</sub>	[T1]	1	.48 dBm	
		<u> </u>					2.43951	403 GHz	A
0		//		1 1	ndB		20	.00 dB	
			~~~	<b>/</b> -/	BW		2.21442		
-10			$+$ $\checkmark$		V <sub>T1</sub>	[T1]	-17 2.43892	.93 dBm	
	T1				4	VFr 1 1	2.43892 -18	285 GHz	
-20	T.					( )	2.44113	727 GHz	
1MAX	monther					Wy 1	Myssylv	M ,	1MA
-30	1900					~(M)	1 . 1	W. W.	
-40								٩	
-50									
-60									
-70									
-80									
-90									
Center 2.	44 GHz	500	kHz/				Spa	n 5 MHz	
Date: 5.N	MAR.2022 12:	23:42							

Page 29 of 38

Report No.: TW2202199E



10 ▼1 [T1] 1.19 d 2.47352405 G	
Test Result:  Pass  Detector  PK  20dB Bandwidth  2.214MHz   Marker 1 [T1 ndB]  RBW 100 kHz RF Att 20 d  ndB 20.00 dB VBW 300 kHz  10 dBm  BW 2.21442886 MHz SWT 5 ms Unit d  2.47352405 G	
20dB Bandwidth 2.214MHz	
Marker 1 [T1 ndB] RBW 100 kHz RF Att 20 d  Ref Lvl ndB 20.00 dB VBW 300 kHz  10 dBm BW 2.21442886 MHz SWT 5 ms Unit d  10 V1 [T1] 1.19 d  2.47352405 G	
Ref Lvl ndB 20.00 dB VBW 300 kHz  10 dBm BW 2.21442886 MHz SWT 5 ms Unit d  10 V1 [T1] 1.19 d  2.47352405 G	
10 dBm BW 2.21442886 MHz SWT 5 ms Unit d	В
10 ▼1 [T1] 1.19 d 2.47352405 G	
V1 [T1] 1.19 d 2.47352405 G	Bm
	Bm A
0 ndB 20.00 d	
BW 2.21442886 M ▼T: [T1] -19.38 d	
-10	Hz
	Bm
-20 1MAX 2.47513727 G	Hz 1MA
-30	
-40	<del></del> -
-50	
-60	
-70	
-80	
-90 Center 2.474 GHz 500 kHz/ Span 5 M	<b></b> Hz
Date: 5.MAR.2022 12:24:41	-

Report No.: TW2202199E Page 30 of 38

Date: 2022-03-09



## 10.0 FCC ID Label

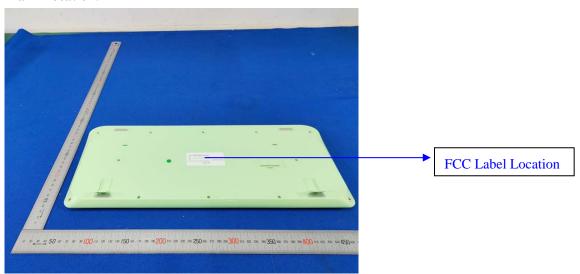
## FCC ID: WOX-SK-679AG

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:



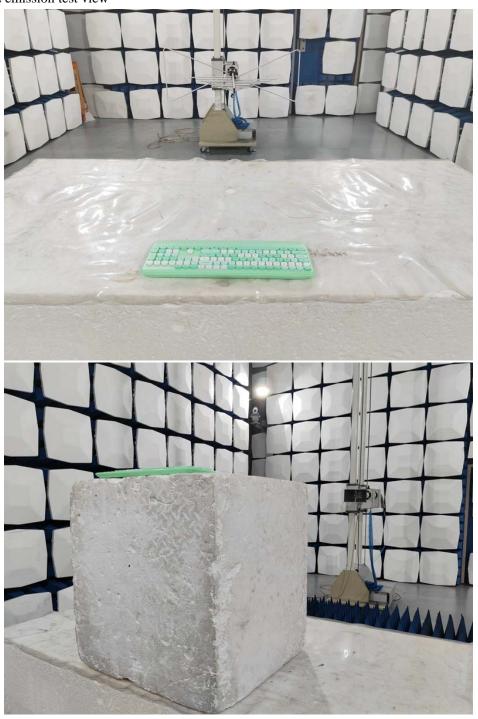
Date: 2022-03-09



11.0 Photo of testing

11.1 Conducted test View-N/A

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.

In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to

Date: 2022-03-09



# 11.2 Photographs – EUT

## Outside 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.

Date: 2022-03-09



# Photographs - EUT

## Outside 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.

Page 34 of 38

Report No.: TW2202199E

Date: 2022-03-09







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.

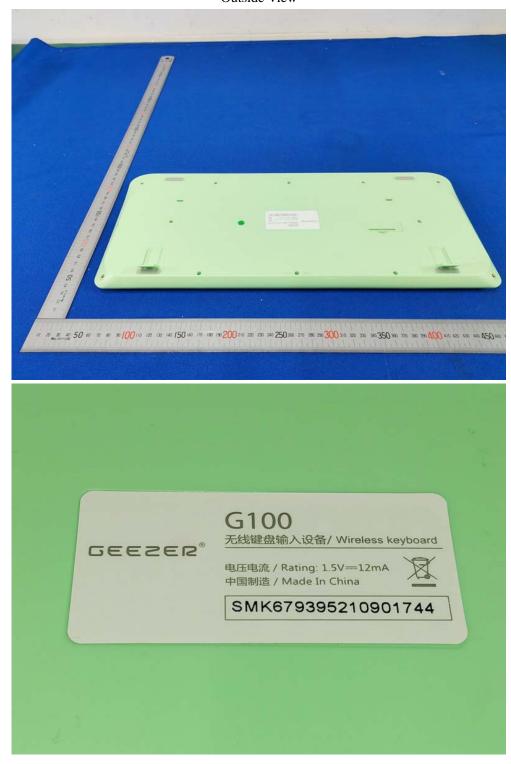
Page 35 of 38

Report No.: TW2202199E

Date: 2022-03-09



## Outside 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.

Page 36 of 38

Report No.: TW2202199E

Date: 2022-03-09



Outside 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.

In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to

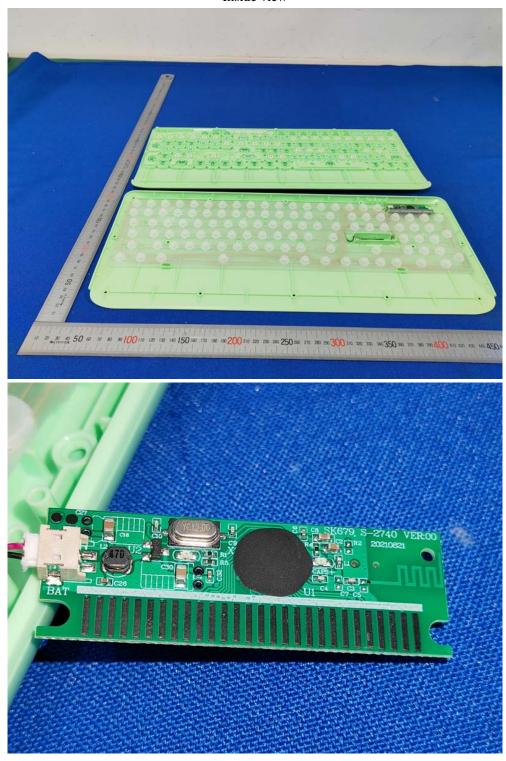
Page 37 of 38

Report No.: TW2202199E

Date: 2022-03-09



Inside 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.

In the event of the improper use of the report. The SHENZHEN TIMEWAY TESTING LABORATORIES. reserves the rights to withdraw it and to

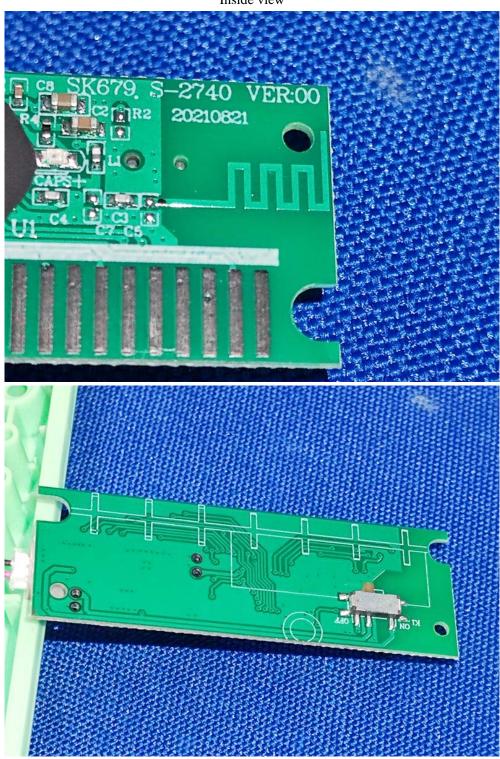
Page 38 of 38

Report No.: TW2202199E

Date: 2022-03-09



Inside view



# --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