

FCC Part 15, Subpart B, Class B(sDoC)

TEST REPORT

Shenzhen Qiangwei Electronic Co., Ltd

Infrared Thermometer

Test Model: K3 PRO

Additional Model No.: Please Refer to Page 7

Prepared for : Shenzhen Qiangwei Electronic Co., Ltd
Address : 4F, Building 3, Xialingpai Industrial Zone,
DalangSubdistrict,Longhua District, Shenzhen, China

Prepared by : Shenzhen LCS Compliance Testing Laboratory Ltd.
Address : Room 101, 201, Building A and Room 301, Building C,
Juji Industrial Park, Yabianxueziwei, Shajing Street,
Bao' an District, Shenzhen, Guangdong, China

Tel : (+86)755-82591330
Fax : (+86)755-82591332
Web : www.LCS-cert.com
Mail : webmaster@LCS-cert.com

Date of receipt of test sample : July 07, 2020
Number of tested samples : 1
Serial number : Prototype
Date of Test : July 07, 2020~ July 15, 2020
Date of Report : July 16, 2020



FCC TEST REPORT

FCC Part 15, Subpart B, Class B(sDoC)

Report Reference No. : LCS200630045AE**Date Of Issue..... : July 16, 2020****Testing Laboratory Name ... : Shenzhen LCS Compliance Testing Laboratory Ltd.****Address : Room 101, 201, Building A and Room 301, Building C, Juji Industrial Park, Yabianxueziwei, Shajing Street, Bao' an District, Shenzhen, Guangdong, China****Testing Location/ Procedure.. : Full application of Harmonised standards ☒ Partial application of Harmonised standards ☐ Other standard testing method ☐****Applicant's Name..... : Shenzhen Qiangwei Electronic Co., Ltd****Address : 4F, Building 3, Xialingpai Industrial Zone, DalangSubdistrict,Longhua District, Shenzhen, China****Test Specification****Standard : FCC Part 15, Subpart B, Class B(sDoC), ANSI C63.4 -2014****Test Report Form No. : LCSEMC-1.0****TRF Originator..... : Shenzhen LCS Compliance Testing Laboratory Ltd.****Master TRF..... : Dated 2011-03****SHENZHEN LCS COMPLIANCE TESTING LABORATORY LTD. All rights reserved.**

This publication may be reproduced in whole or in part for non-commercial purposes as long as the SHENZHEN LCS COMPLIANCE TESTING LABORATORY LTD. is acknowledged as copyright owner and source of the material. SHENZHEN LCS COMPLIANCE TESTING LABORATORY LTD. takes no responsibility for and will not assume liability for damages resulting from the reader's interpretation of the reproduced material due to its placement and context.

Test Item Description..... : Infrared Thermometer**Test Model : K3 PRO****Trade Mark : N/A****Ratings : Please Refer To Page 7****Result : Positive****Compiled by:****Supervised by:****Approved by:**

Cindy Nie/ File administrators

Jason Deng /Technique principal

Gavin Liang/ Manager

FCC -- TEST REPORT

Test Report No. : LCS200630045AE	<u>July 16, 2020</u> Date of issue
---	---------------------------------------

Test Model	: K3 PRO
EUT.....	: Infrared Thermometer
Applicant.....	: Shenzhen Qiangwei Electronic Co., Ltd
Address.....	: 4F, Building 3, Xialingpai Industrial Zone, DalangSubdistrict,Longhua District, Shenzhen, China
Telephone.....	: /
Fax.....	: /
Manufacturer.....	: Shenzhen Qiangwei Electronic Co., Ltd
Address.....	: 4F, Building 3, Xialingpai Industrial Zone, DalangSubdistrict,Longhua District, Shenzhen, China
Telephone.....	: /
Fax.....	: /
Factory.....	: /
Address.....	: /
Telephone.....	: /
Fax.....	: /

Test Result according to the standards on page 6: **Positive**

The test report merely corresponds to the test sample.

It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

Revision History

Revision	Issue Date	Revisions	Revised By
000	July 16, 2020	Initial Issue	Gavin Liang

TABLE OF CONTENTS

Test Report Description	Page
1. SUMMARY OF STANDARDS AND RESULTS	6
1.1. Description of Standards and Results	6
2. GENERAL INFORMATION	7
2.1. Description of Device (EUT)	7
2.2. Support Equipment List.....	7
2.3. Description of Test Facility.....	7
2.4. Statement of the Measurement Uncertainty	7
2.5. Measurement Uncertainty	8
3. TEST RESULTS	9
3.1. Rdiated emission Measurement.....	9
4. PHOTOGRAPH	12
5. EXTERNAL AND INTERNAL PHOTOS OF THE EUT	13

1. SUMMARY OF STANDARDS AND RESULTS

1.1. Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below.

EMISSION			
Description of Test Item	Standard	Limits	Results
Conducted disturbance at mains terminals	FCC Part 15, Subpart B, Class B(sDoC), ANSI C63.4 -2014	Class B	N/A
Radiated disturbance	FCC Part 15, Subpart B, Class B(sDoC), ANSI C63.4 -2014	Class B	PASS
N/A is an abbreviation for Not Applicable.			

Test mode:		
Mode 1	Working	Record

2. GENERAL INFORMATION

2.1. Description of Device (EUT)

EUT : Infrared Thermometer

Trade Mark : N/A

Test Model : K3 PRO

Model Lists : N/A

Model Declaration : PCB board, structure and internal of these model(s) are the same, So no additional models were tested

Power Supply : DC 5V, 500MA

2.2. Support Equipment List

Name	manufacturers	M/N	S/N
PC	dell	Optiplex 380 MT	2YK643X

2.3. Description of Test Facility

Site Description
EMC Lab. : NVLAP Accreditation Code is 600167-0.
FCC Designation Number is CN5024.
CAB identifier is CN0071.
CNAS Registration Number is L4595.

2.4. Statement of the Measurement Uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. To CISPR 16 – 4 “Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements” and is documented in the LCS quality system acc. To DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

2.5. Measurement Uncertainty

Test	Parameters	Expanded Uncertainty (Ulab)	Expanded Uncertainty (Ucispr)
Conducted Emission	Level accuracy (9kHz to 150kHz) (150kHz to 30MHz)	± 2.63 dB ± 2.35 dB	± 3.8 dB ± 3.4 dB
Power Disturbance	Level accuracy (30MHz to 300MHz)	± 2.90 dB	± 4.5 dB
Electromagnetic Radiated Emission (3-loop)	Level accuracy (9kHz to 30MHz)	± 3.60 dB	± 3.3 dB
Radiated Emission	Level accuracy (9kHz to 30MHz)	± 3.68 dB	N/A
Radiated Emission	Level accuracy (30MHz to 1000MHz)	± 3.48 dB	± 5.3 dB
Radiated Emission	Level accuracy (above 1000MHz)	± 3.90 dB	± 5.2 dB
Mains Harmonic	Voltage	$\pm 0.510\%$	N/A
Voltage Fluctuations & Flicker	Voltage	$\pm 0.510\%$	N/A
EMF		$\pm 21.59\%$	N/A

(1)Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus.

(2) The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor of $k=2$, which for a normal distribution corresponds to a coverage probability of approximately 95%.

3. TEST RESULTS

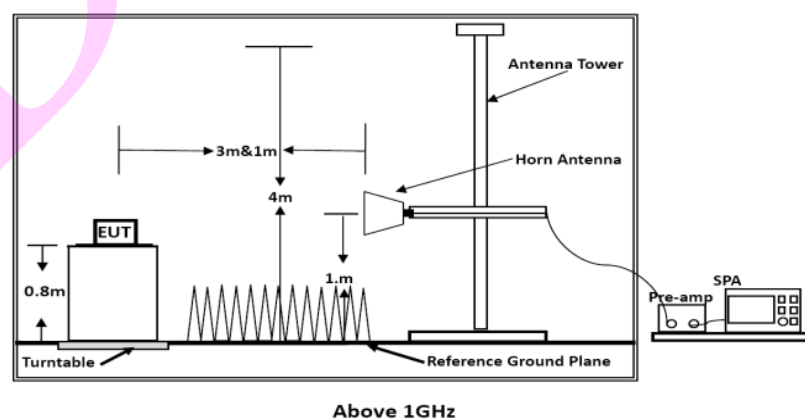
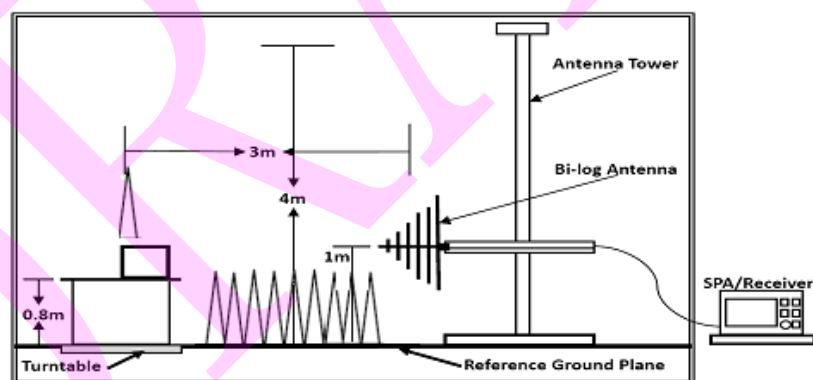
3.1. Radiated emission Measurement

3.1.1. Test Equipment

The following test equipments are used during the radiated emission measurement:

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI Test Software	EZ	EZ-EMC	/	N/A
2	3m Fully Anechoic Chamber	MRDIANZI	FAC-3M	MR009	2019-09-27
3	Positioning Controller	MF	MF-7082	/	2020-06-22
4	By-log Antenna	SCHWARZBECK	VULB9163	9163-470	2018-07-26
5	Horn Antenna	SCHWARZBECK	BBHA 9120D	9120D-1925	2018-07-02
6	EMI Test Receiver	R&S	ESR 7	101181	2020-06-22
7	RS SPECTRUM ANALYZER	R&S	FSP40	100503	2019-11-22
8	Broadband Preamplifier	/	BP-01M18G	P190501	2020-06-22
9	RF Cable-R03m	Jye Bao	RG142	CB021	2020-06-22
10	RF Cable-HIGH	SUHNER	SUCOFLEX 106	03CH03-HY	2020-06-22

3.1.2. Block Diagram of Test Setup



3.1.3. Radiated Emission Limit (Class B)

Limits for Radiated Disturbance Below 1GHz

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		$\mu\text{V/m}$	$\text{dB}(\mu\text{V})/\text{m}$
30 ~ 88	3	100	40
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46
960 ~ 1000	3	500	54

Remark : (1) Emission level $(\text{dB})\mu\text{V} = 20 \log \text{Emission level } \mu\text{V/m}$
 (2) The smaller limit shall apply at the cross point between two frequency bands.
 (3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

Limits for Radiated Emission Above 1GHz

Frequency (MHz)	Distance (Meters)	Peak Limit ($\text{dB}\mu\text{V/m}$)	Average Limit ($\text{dB}\mu\text{V/m}$)
Above 1000	3	74	54

***Note: The lower limit applies at the transition frequency.

3.1.4. EUT Configuration on Measurement

The following equipment are installed on Radiated Emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

3.1.5. Operating Condition of EUT

3.2.5.1. Setup the EUT as shown in Section 3.2.2.

3.2.5.2. Let the EUT work in test Mode 1 and measure it.

3.1.6. Test Procedure

EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated by-log antenna) is used as receiving antenna. Both horizontal and vertical polarization of the antenna is set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4-2014 on radiated emission measurement.

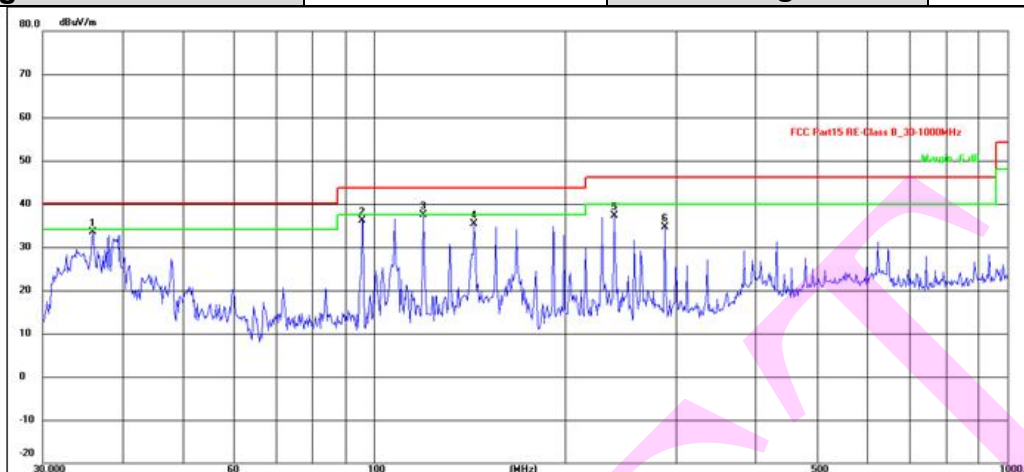
The bandwidth of the EMI test receiver is set at 120kHz, 300kHz.

The frequency range from 30MHz to 1000MHz is checked.

3.1.7. Radiated Emission Noise Measurement Result

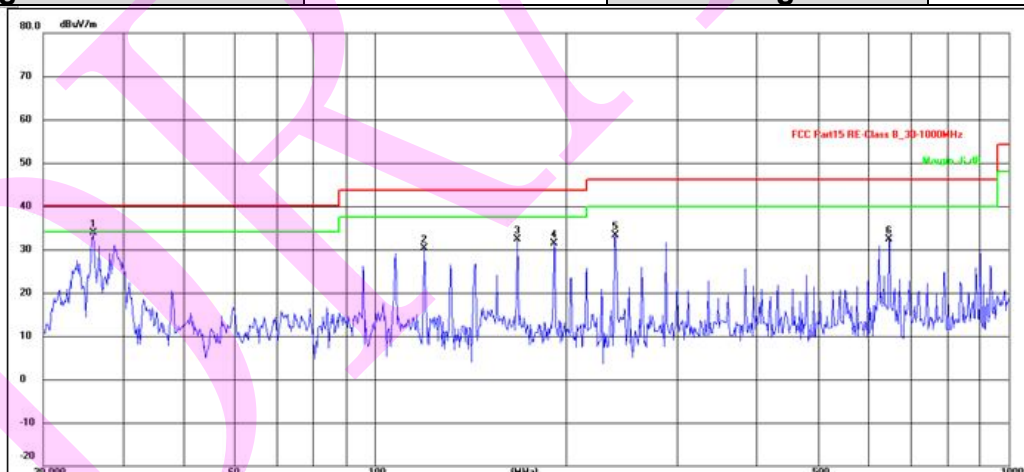
PASS. The scanning waveforms please refer to the next page.

Test Model	K3 PRO	Test Mode	Mode 1
Environmental Conditions	24.6°C, 54.1% RH	Detector Function	Quasi-peak
Pol	Vertical	Distance	3m
Test Engineer	Daiwei Dai	Test Voltage	AC 120V/60Hz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	36.0007	50.70	-17.28	33.42	40.00	-6.58	QP
2	95.7622	54.20	-18.11	36.09	43.50	-7.41	QP
3 *	119.8555	57.07	-19.57	37.50	43.50	-6.00	QP
4	143.8292	56.94	-21.54	35.40	43.50	-8.10	QP
5	239.9873	53.25	-15.92	37.33	46.00	-8.67	QP
6	287.9904	49.46	-14.84	34.62	46.00	-11.38	QP

Test Model	K3 PRO	Test Mode	Mode 1
Environmental Conditions	24.6°C, 54.1% RH	Detector Function	Quasi-peak
Pol	Horizontal	Distance	3m
Test Engineer	Daiwei Dai	Test Voltage	AC 120V/60Hz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	36.0007	51.24	-17.28	33.96	40.00	-6.04	QP
2	119.8555	49.83	-19.57	30.26	43.50	-13.24	QP
3	167.8240	52.39	-20.12	32.27	43.50	-11.23	QP
4	191.7450	49.59	-18.17	31.42	43.50	-12.08	QP
5	239.9873	49.13	-15.92	33.21	46.00	-12.79	QP
6	647.3854	40.31	-7.87	32.44	46.00	-13.56	QP

Note: Pre-Scan all mode, Thus record worse case mode result in this report.

4. PHOTOGRAPH

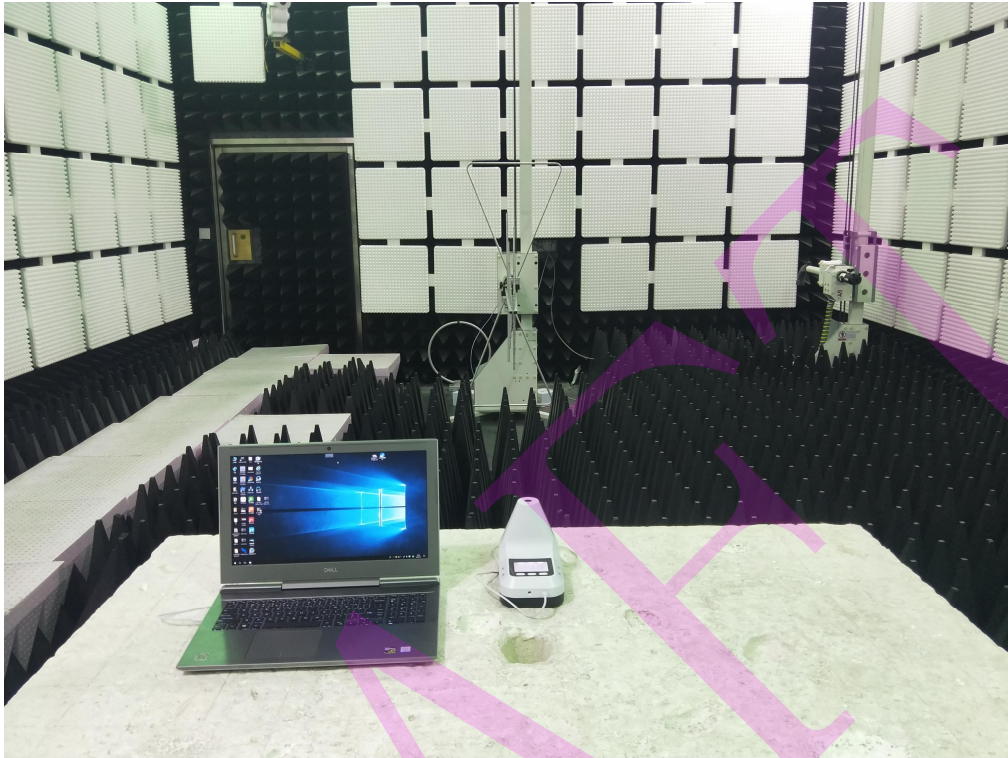


Photo of Radiated Emission Measurement

5. EXTERNAL AND INTERNAL PHOTOS OF THE EUT



Fig. 1



Fig. 2

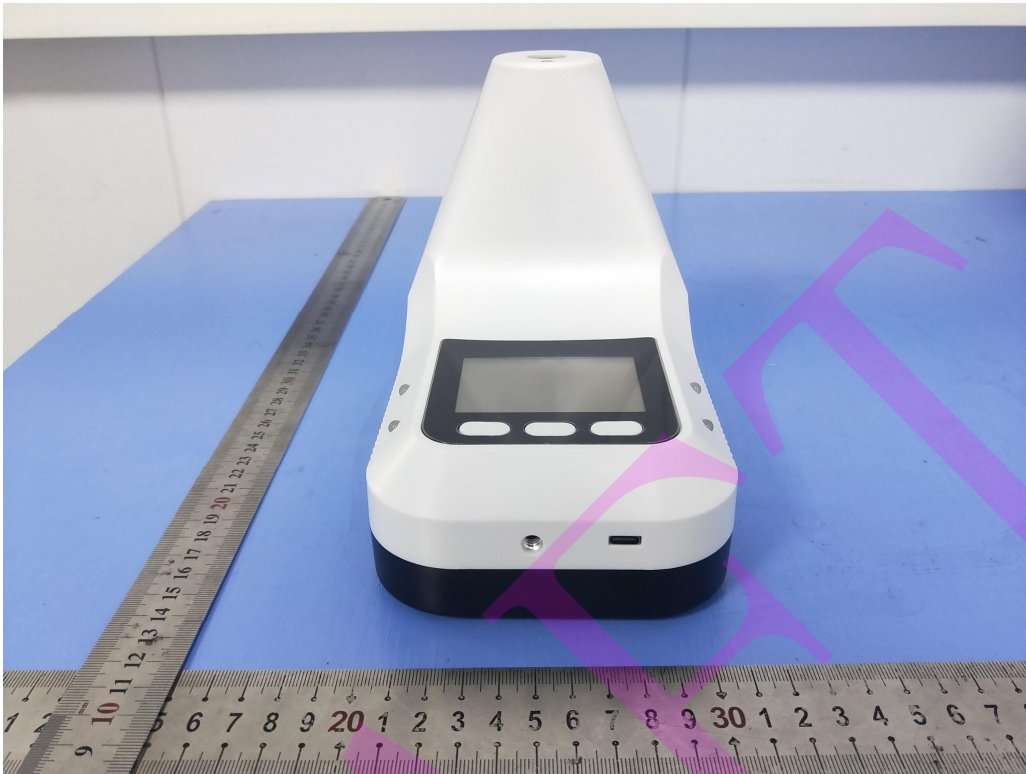


Fig. 3

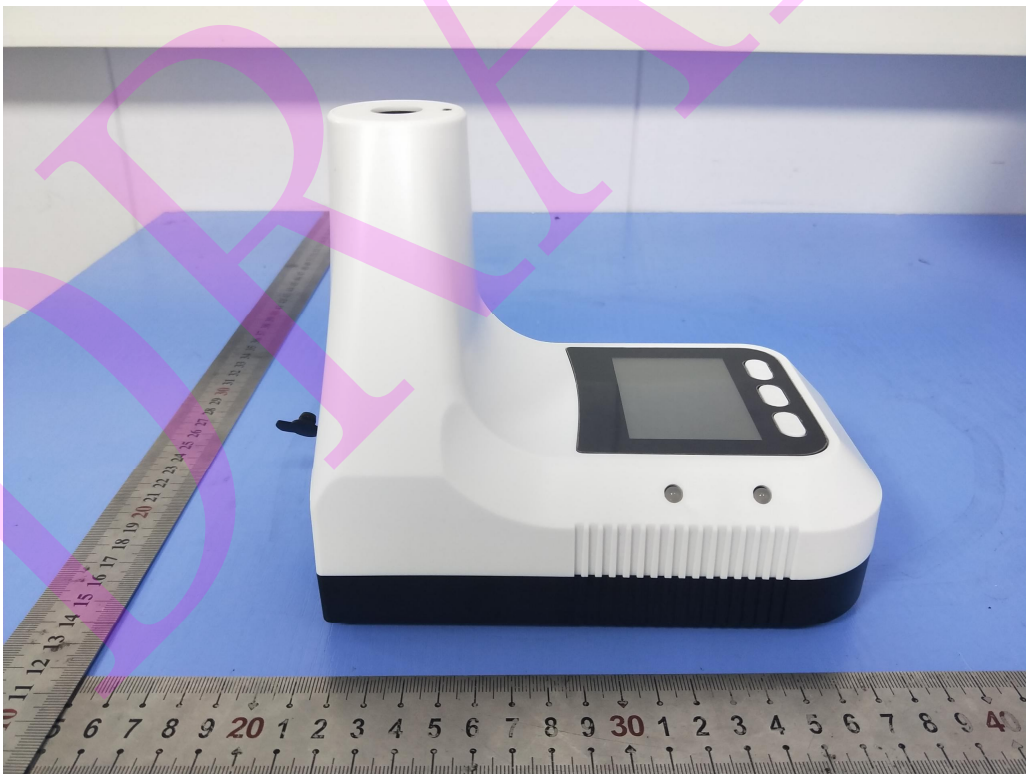


Fig. 4

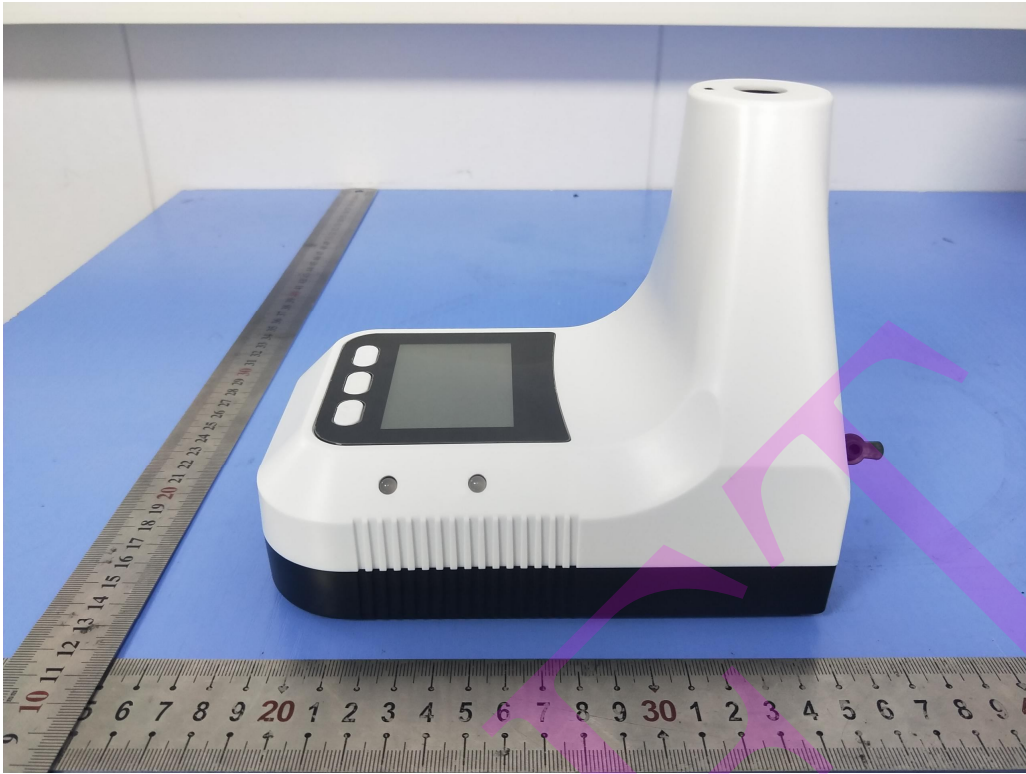


Fig. 5

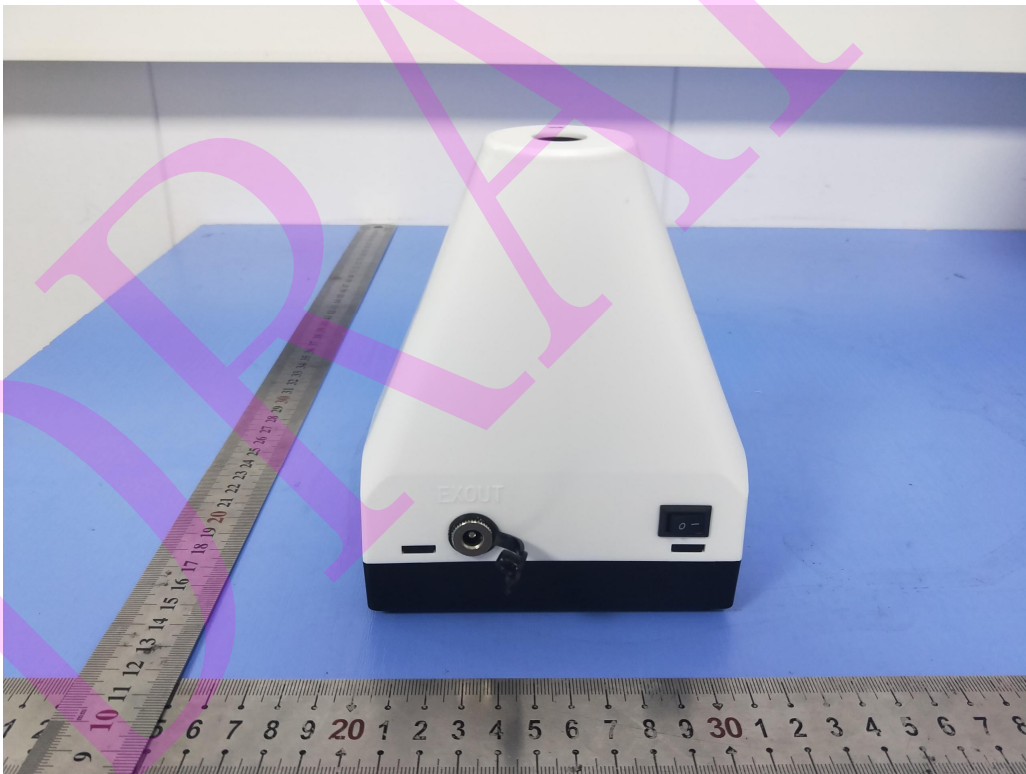


Fig. 6

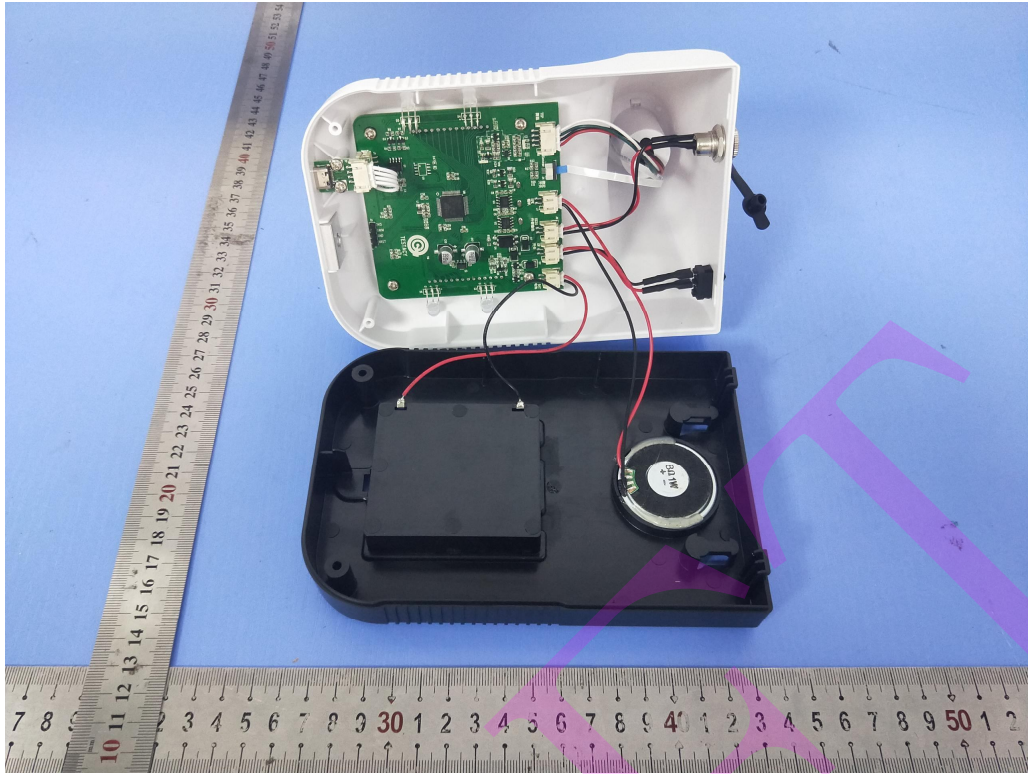


Fig. 7



Fig. 8

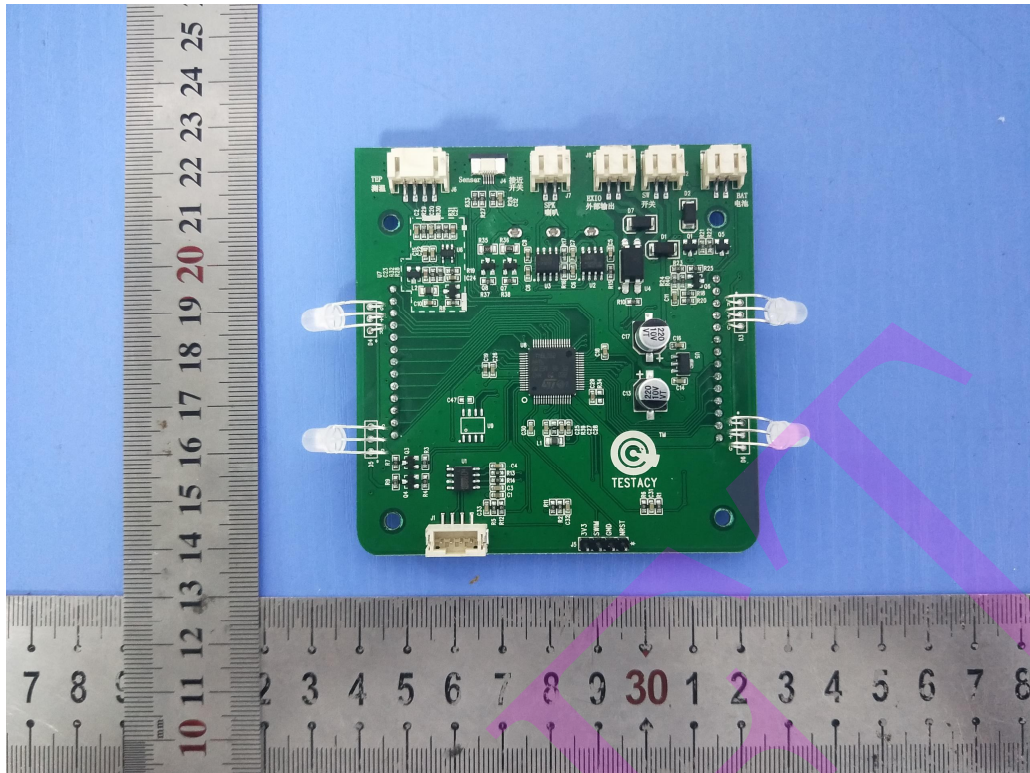


Fig. 9

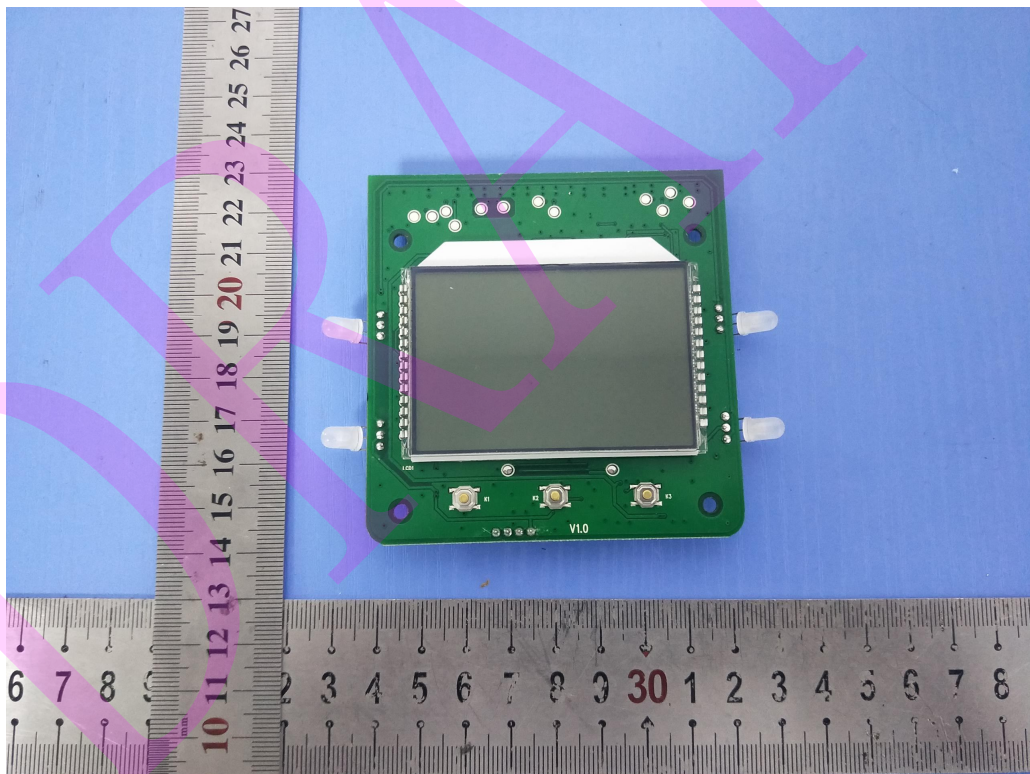


Fig. 10

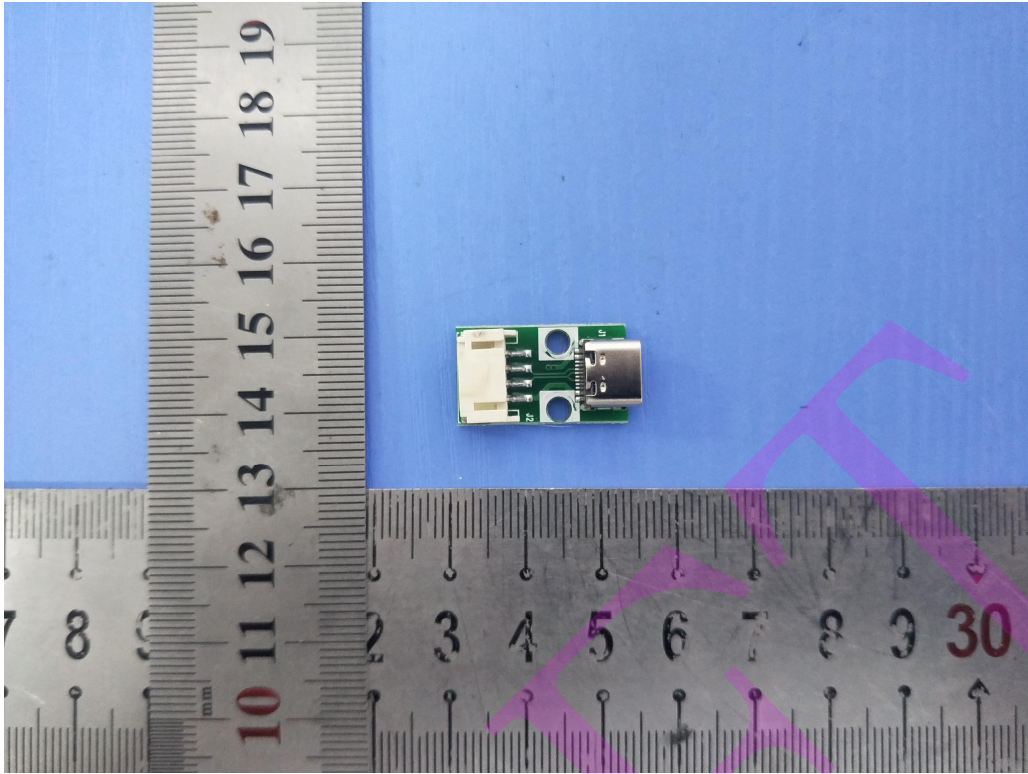


Fig. 11

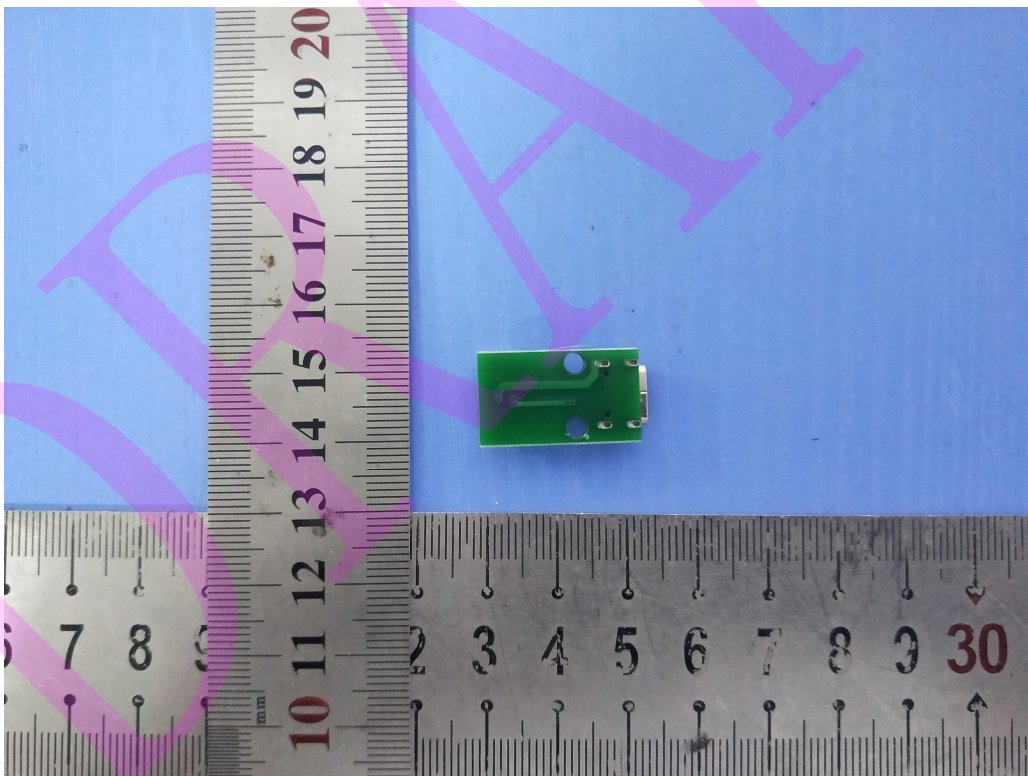


Fig. 12

-----THE END OF TEST REPORT-----