PSE TEST REPORT
For

KHADAS TECHNOLOGY CO., LTD

Tone2 Hi-Fi USB DAC Audio Board

Test Model: Tone2 Maker Kit

Prepared for	:	KHADAS TECHNOLOGY CO., LTD
Address	:	2709 QIANCHENG CENTER, HAICHENG ROAD, XIXIANG STREET, BAO'AN DISTRICT, SHENZHEN, CHINA. 518101

Prepared by	:	Shenzhen LCS Compliance Testing Laboratory Ltd.
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Date of receipt of test sample	:	September 08, 2022
Number of tested samples	:	1
Sample No	:	A090722063
Date of Test	:	September 08, 2022 ~ September 13, 2022
Date of Report	:	September 14, 2022

PSE TEST REPORT

J55032 (H29)

Report Reference No. .....:	**LCSA090722063E**
Date Of Issue.....:	September 14, 2022
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.....:	**KHADAS TECHNOLOGY CO., LTD**
Address.....:	2709 QIANCHENG CENTER, HAICHENG ROAD, XIXIANG STREET, BAO'AN DISTRICT, SHENZHEN, CHINA. 518101
Test Specification:	
Standard .....:	J55032 (H29)
Test Report Form No.....:	LCSEMC-1.0
TRF Originator .....:	Shenzhen LCS Compliance Testing Laboratory Ltd.
Master TRF .....:	Dated 2011-03

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Test Item Description.....:	**Tone2 Hi-Fi USB DAC Audio Board**
Trade Mark.....:	KHADAS
Test Model .....:	Tone2 Maker Kit
Ratings.....:	Please Refer to Page 7
Result .....:	**Positive**

Compiled by:	Supervised by:	Approved by:
Coco Song	Baron Wen	Gavin Liang
Coco Song/ File administrators	Baron Wen/Technique principal	Gavin Liang/ Manager

PSE -- TEST REPORT

Test Report No. : LCSA090722063E	September 14, 2022 Date of issue

Test Model.....	: Tone2 Maker Kit
EUT.....	: Tone2 Hi-Fi USB DAC Audio Board
Applicant.....	**: KHADAS TECHNOLOGY CO., LTD**
Address.....	: 2709 QIANCHENG CENTER, HAICHENG ROAD, XIXIANG STREET, BAO'AN DISTRICT, SHENZHEN, CHINA. 518101
Telephone.....	: /
Fax.....	: /
Manufacturer.....	**: KHADAS TECHNOLOGY CO., LTD**
Address.....	: 2709 QIANCHENG CENTER, HAICHENG ROAD, XIXIANG STREET, BAO'AN DISTRICT, SHENZHEN, CHINA. 518101
Telephone.....	: /
Fax.....	: /
Factory.....	**: KHADAS TECHNOLOGY CO., LTD**
Address.....	: 2709 QIANCHENG CENTER, HAICHENG ROAD, XIXIANG STREET, BAO'AN DISTRICT, SHENZHEN, CHINA. 518101
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 Content	Revised By
000	September 14, 2022	Initial Issue	/

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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	J55032 (H29)	--------	N/A
Conducted disturbance at telecommunication port	J55032 (H29)	--------	N/A
Radiated disturbance	J55032 (H29)	--------	PASS
N/A is an abbreviation for Not Applicable.			

Test mode:		
Mode	Working	Record
***Note: All test modes were tested, but we only recorded the worst case in this report.		

2. GENERAL INFORMATION

2.1.Description of Device (EUT)

EUT : Tone2 Hi-Fi USB DAC Audio Board

Trade Mark : KHADAS

Test Model : Tone2 Maker Kit

Power Supply : Input: 5V ⎓ 450mA, 2.25W

2.2. Support Equipment List

Name	Manufacturers	M/N	S/N
PC	Lenovo	WB0202140H	WB05067151

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)	± 2.90dB	± 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

（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

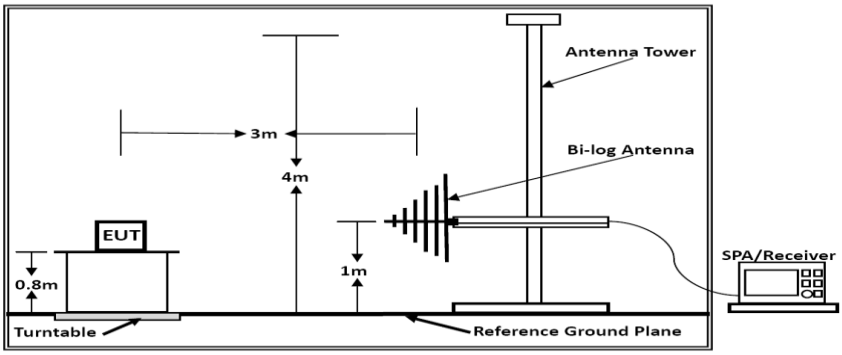
3.1 RADIATED EMISSION MEASUREMENT

3.1.1. Test Equipment

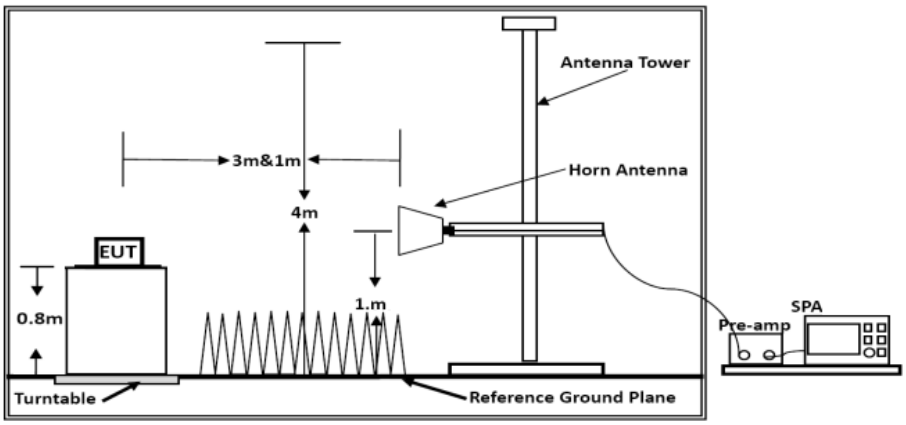
The following test equipments are used during the radiated emission measurement:

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	EMI Test Software	AUDIX	E3	/	N/A	N/A
2	By-log Antenna	SCHWARZBECK	VULB9163	9163-470	2021-09-12	2024-09-11
3	Horn Antenna	SCHWARZBECK	BBHA 9120D	9120D-1925	2021-09-05	2024-09-04
4	EMI Test Receiver	R&S	ESR3	102311	2022-08-17	2023-08-16
5	Broadband Preamplifier	/	BP-01M18G	P190501	2022-06-16	2023-06-15

3.1.2.Block Diagram of Test Setup



Below 1GHz



Above 1GHz

3.1.3.Measuring Standard

J55032 (H29)

3.1.4.Radiated Emission Limits

J55032 Limits:
All emanations from a class B device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified below:

Limits for Radiated Emission Below 1GHz		
Frequency (MHz)	Distance (Meters)	Field Strengths Limit (dBμV/m)
30 ~ 230	3	40
230 ~ 1000	3	47
***Note: (1) The smaller limit shall apply at the combination point between two frequency bands. (2) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the EUT.		

Limits for Radiated Emission Above 1GHz			
Frequency (MHz)	Distance (Meters)	Peak Limit (dBμV/m)	Average Limit (dBμV/m)
1000 ~ 3000	3	70	50
3000 ~ 6000	3	74	54
***Note: The lower limit applies at the transition frequency.			

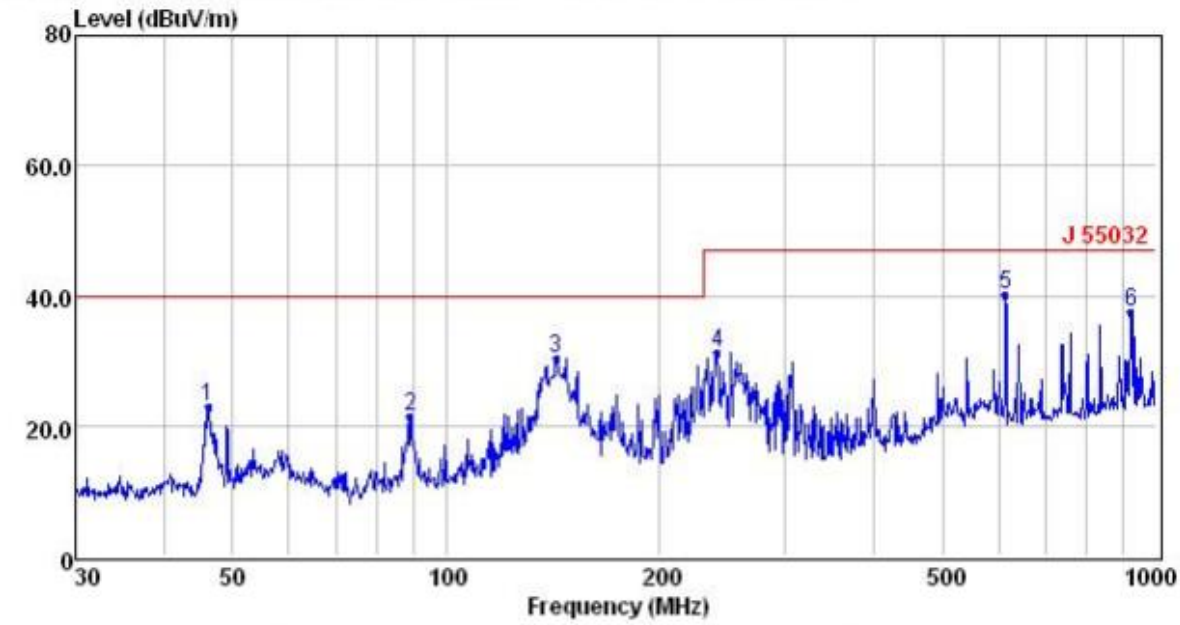
3.1.5.EUT Configuration on Test
The VCCI regulations test method must be used to find the maximum emission during radiated emission measurement.

3.1.6.Operating Condition of EUT
3.1.6.1.Turn on the power.
3.1.6.2.After that, let the EUT work in test Mode 1 and measure it.

3.1.7.Test Procedure
The EUT is placed on a turntable, which is 0.8 meter high above the ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down from 1 to 4 meters to find out the maximum emission level. By-log antenna is used as a receiving antenna. Both horizontal and vertical polarization of the antenna is set on test.
The bandwidth of the Receiver is set at RBW/VBW 120KHz/300KHz.
The frequency range from 30MHz to 1000MHz is investigated.
The frequency range from 1000MHz to 6000MHz is investigated.

3.1.8.Test Results
PASS.
The test result please refer to the next page.

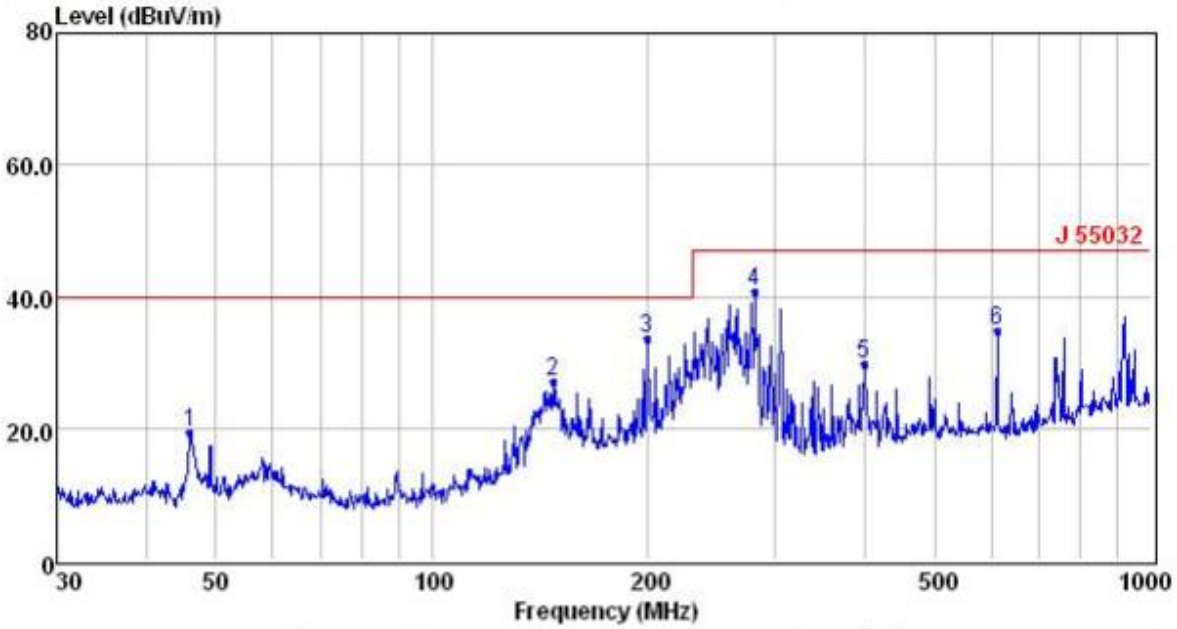
Test Model	Tone2 Maker Kit	**Test Mode**	Working
Environmental Conditions	22.3℃, 53.1% RH	Detector Function	Quasi-peak
Pol	Vertical	**Distance**	3m
Test Engineer	Zero Qi	**Test Voltage**	DC



	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	46.18	10.77	0.57	11.69	23.03	40.00	-16.97	QP
2	88.96	11.12	0.77	9.53	21.42	40.00	-18.58	QP
3	142.82	20.81	1.01	8.56	30.38	40.00	-9.62	QP
4	240.83	17.88	1.25	12.22	31.35	47.00	-15.65	QP
5	614.21	19.53	1.55	19.10	40.18	47.00	-6.82	QP
6	922.52	13.49	2.12	21.75	37.36	47.00	-9.64	QP

Note: 1. All readings are Quasi-peak values.
2. Measured= Reading + Antenna Factor + Cable Loss
3. The emission that are 20db below the official limit are not reported

Test Model	Tone2 Maker Kit	Test Mode	Working
Environmental Conditions	22.3℃, 53.1% RH	Detector Function	Quasi-peak
Pol	Horizontal	Distance	3m
Test Engineer	Zero Qi	Test Voltage	DC



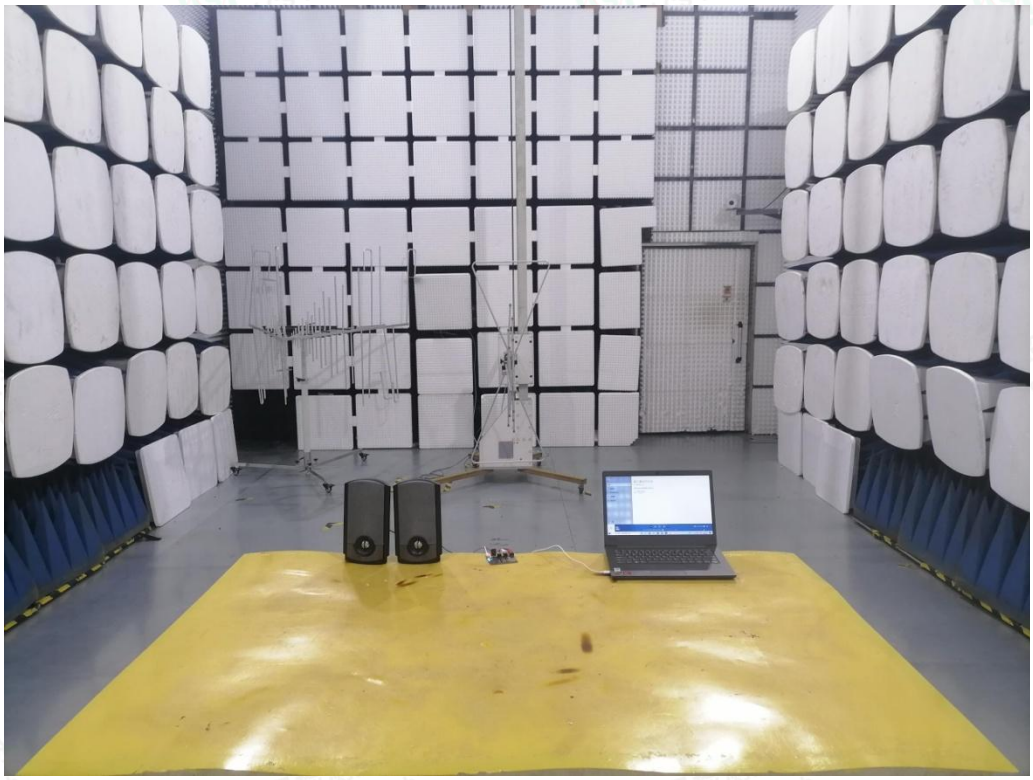
	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	46.02	7.24	0.57	11.65	19.46	40.00	-20.54	QP
2	147.40	17.46	1.02	8.65	27.13	40.00	-12.87	QP
3	199.29	21.65	1.20	10.77	33.62	40.00	-6.38	QP
4	281.01	26.03	1.30	13.32	40.65	47.00	-6.35	QP
5	399.03	13.66	1.40	14.69	29.75	47.00	-17.25	QP
6	612.06	14.15	1.54	19.13	34.82	47.00	-12.18	QP

Note: 1. All readings are Quasi-peak values.
2. Measured= Reading + Antenna Factor + Cable Loss
3. The emission that are 20db below the official limit are not reported

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

4. PHOTOGRAPHS OF TEST SETUP

4.1. Photo of Radiated Measurement



5. EXTERNAL AND INTERNAL PHOTOS OF THE EUT

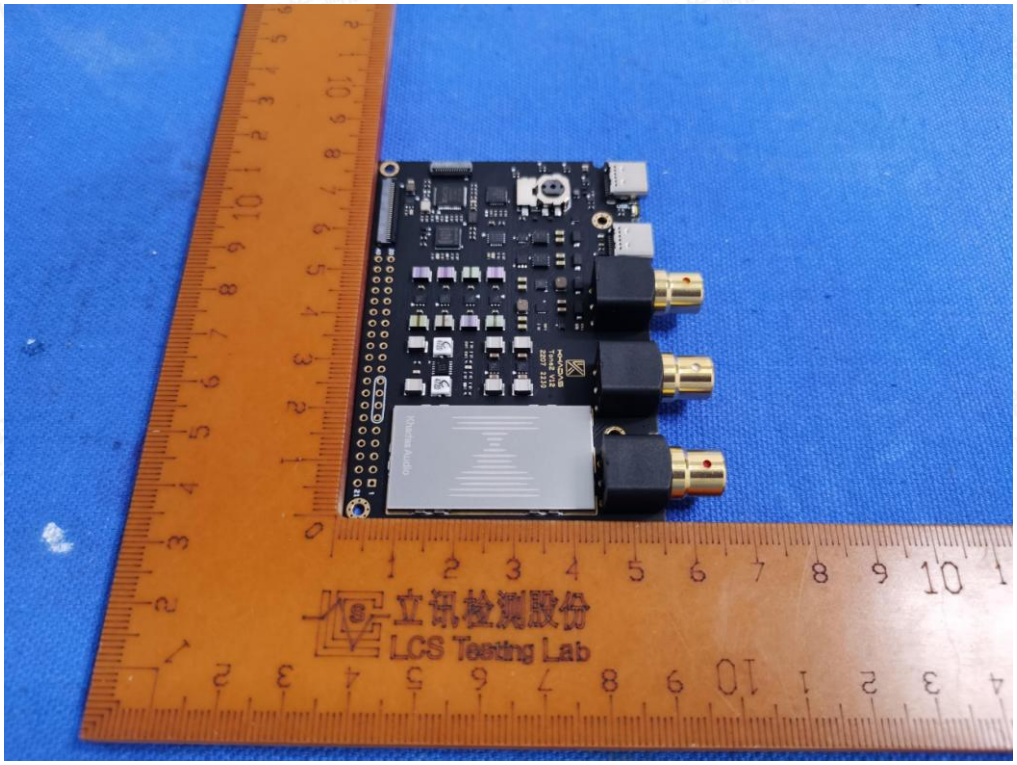


Fig. 1

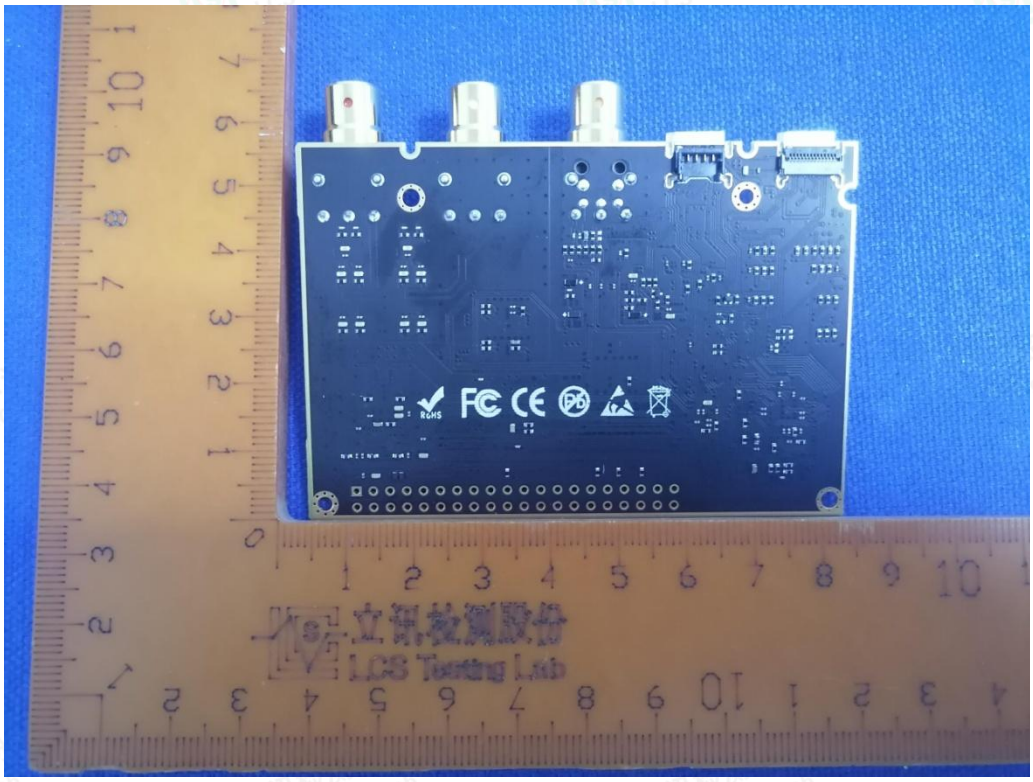


Fig. 2

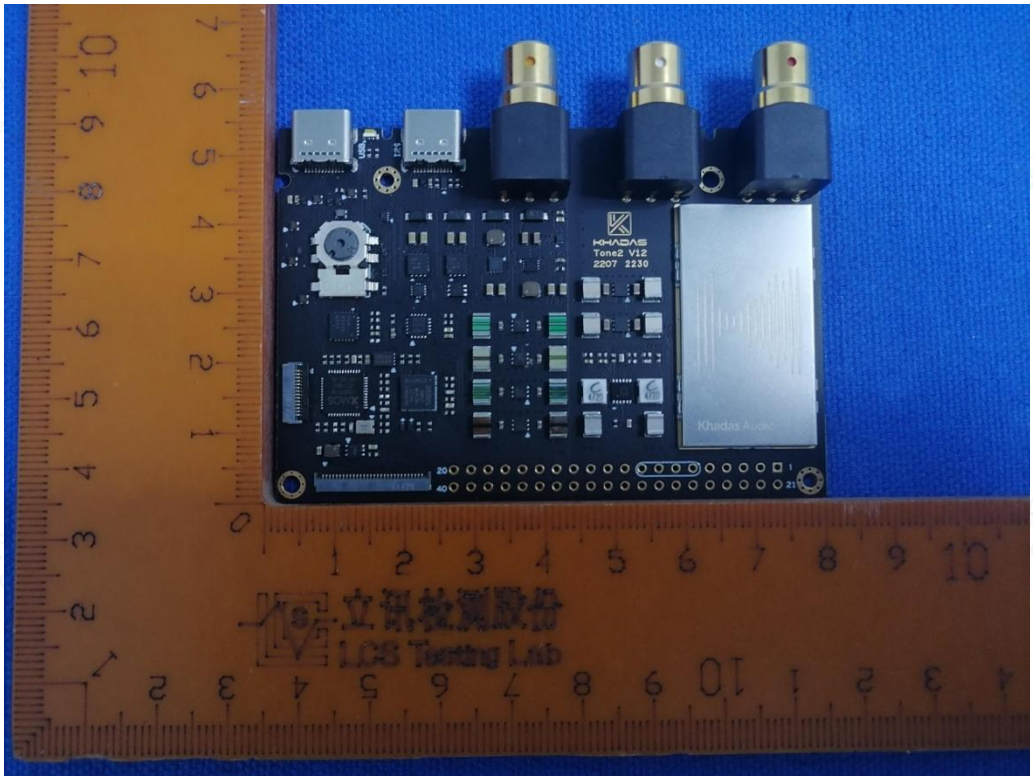


Fig. 3

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