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TESTING
CNAS L4595

FCC SDoC TEST REPORT

Xiamen RGBlink Science & Technology Co.,Ltd

LED video processor

Test Model: mini

Additional Model No.: Please Refer to Page 7

Prepared for : Xiamen RGBlink Science & Technology Co.,Ltd
Address : S603、604 Weiye Building Torch Hi-Tech Industrial
Development Zone, Xiamen city, Fujian Province

Prepared by : Shenzhen LCS Compliance Testing Laboratory Ltd.
Address : Room 101, 201, Building A and Room 301, Building C,
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Date of receipt of test sample : September 16, 2020
Number of tested samples : 1
Serial number : Prototype
Date of Test : September 16, 2020 ~ September 21, 2020
Date of Report : September 24, 2020

FCC TEST REPORT
FCC 47 CFR Part 15 Subpart B, Class B(SDoC), ANSI C63.4 -2014

Report Reference No. : LCS200907137AE

Date Of Issue : September 24, 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..... : Xiamen RGBlink Science & Technology Co.,Ltd

Address : S603、604 Weiye Building Torch Hi-Tech Industrial Development Zone, Xiamen city, Fujian Province

Test Specification

Standard : FCC 47 CFR 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

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Test Item Description..... : LED video processor

Test Model : mini

Trade Mark : RGBlink

Ratings : Please Refer To Page 7

Result : Positive

Compiled by:

Mia Huang

Supervised by:

Jason Deng



Mia Huang/ File administrators

Jason Deng /Technique principal

Gavin Liang/ Manager

FCC -- TEST REPORT

Test Report No. : LCS200907137AESeptember 24, 2020
Date of issue

Test Model : mini

EUT..... : LED video processor

Applicant..... : Xiamen RGBlink Science & Technology Co.,Ltd
Address..... : S603、604 Weiye Building Torch Hi-Tech Industrial
Development Zone, Xiamen city, Fujian Province
Telephone..... : /
Fax..... : /**Manufacturer..... : Xiamen RGBlink Science & Technology Co.,Ltd**
Address..... : S603、604 Weiye Building Torch Hi-Tech Industrial
Development Zone, Xiamen city, Fujian Province
Telephone..... : /
Fax..... : /**Factory..... : Xiamen RGBlink Science & Technology Co.,Ltd**
Address..... : S603、604 Weiye Building Torch Hi-Tech Industrial
Development Zone, Xiamen city, Fujian Province
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	September 24, 2020	Initial Issue	Gavin Liang

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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	FCC 47 CFR Part 15 Subpart B, Class B(SDoC), ANSI C63.4 -2014	Class B	PASS
Radiated disturbance	FCC 47 CFR 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	HDMI mode	Record
Mode 2	LAN mode	Pre-scan
Mode 3	USB mode	Pre-scan
***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	: LED video processor
Trade Mark	: RGBlink
Test Model	: mini
Model Lists	: mini+, livepro, mini pro, mini plus, mini 4k, mini 4k+, mini 4kpro, mini ios, mini 4kplus, mini proios, mini 4kios, mini+ ios, ASK, ASK+, ASK 4k, ASK pro, ASK plus, ASK mini TX, ASK mini RX, ASK TX(4K), ASK mini(set)2K
Model Declaration	: PCB board, structure and internal of these model(s) are the same, So no additional models were tested
Power Supply	: Input: AC100-240V, 50-60Hz, 25-36VA 0.3A Output: DC 12.0V=1.0A

2.2. Description of Support Device

Manufacturer	Description	Model	Serial Number
PC	Lenovo	WB0202140H	WB05067151
TV	SONY	KDL-32W700B	2011083

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

(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

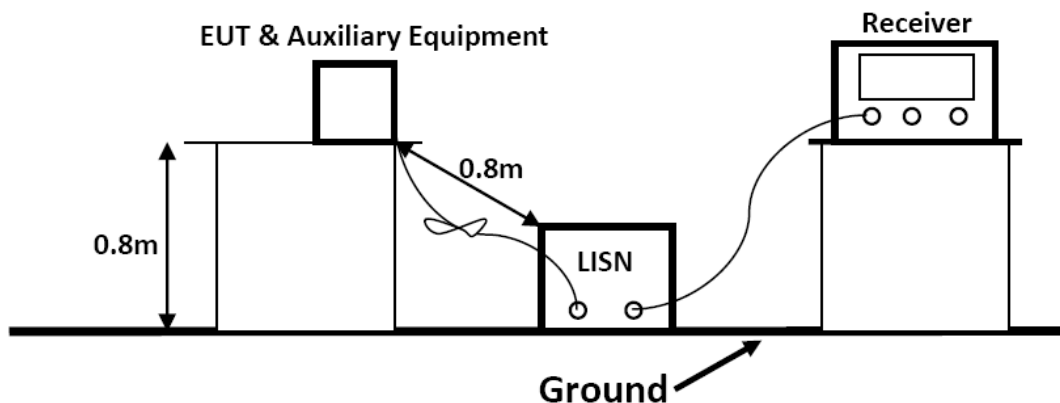
3.1. POWER LINE CONDUCTED EMISSION MEASUREMENT

3.1.1. Test Equipment

The following test equipments are used during the power line conducted measurement:

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	EMI Test Software	EZ	EZ-EMC	/	N/A	N/A
2	EMI Test Receiver	R&S	ESPI	101840	2020-06-22	2021-06-21
3	Artificial Mains	R&S	ENV216	101288	2020-06-22	2021-06-21
4	10dB Attenuator	SCHWARZB ECK	MTS-IMP-13 6	261115-001 -0032	2020-06-22	2021-06-21
5	Impedance stabilization Network	TESEQ	ISN T800	45130	2019-10-21	2020-10-20

3.1.2. Block Diagram of Test Setup



3.1.3. Test Standard

Power Line Conducted Emission Limits (Class B)

Frequency (MHz)			Limit (dB μ V)	
			Quasi-peak Level	Average Level
0.15	~	0.50	66.0 ~ 56.0 *	56.0 ~ 46.0 *
0.50	~	5.00	56.0	46.0
5.00	~	30.00	60.0	50.0

NOTE1-The lower limit shall apply at the transition frequencies.

NOTE2-The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz.

3.1.4. EUT Configuration on Test

The following equipments are installed on Power Line Conducted Emission Measurement to meet the commission requirement and operating regulations in a manner, which tends to maximize its emission characteristics in a normal application.

3.1.5. Operating Condition of EUT

3.1.5.1. Setup the EUT as shown on Section 3.1.2

3.1.5.2. Turn on the power of all equipments.

3.1.5.3. Let the EUT work in measuring Mode 1 and measure it.

3.1.6. Test Procedure

The EUT system is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to FCC/ANSI C63.4-2014 on Conducted Emission Measurement.

The bandwidth of the test receiver is set at 9kHz.

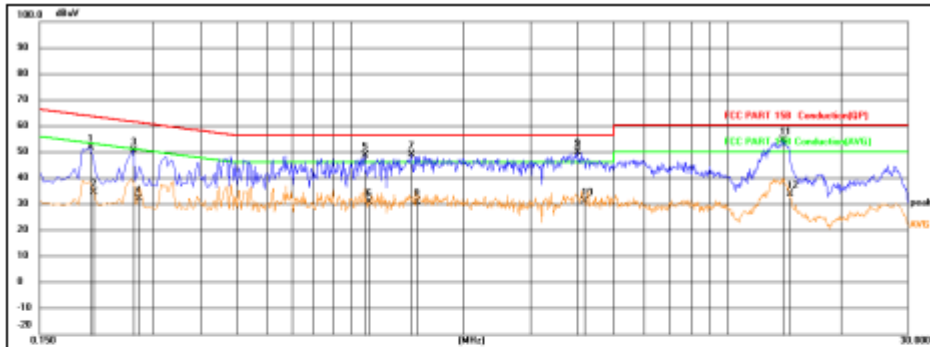
The frequency range from 150kHz to 30MHz is investigated

3.1.7. Test Results

PASS.

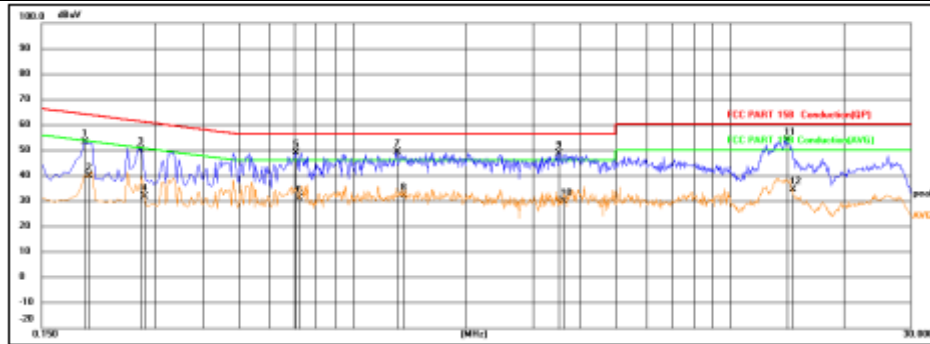
The test result please refer to the next page.

Test Model	mini	Test Mode	Mode 1
Environmental Conditions	23.3°C, 53.7% RH	Test Engineer	Daiwei Dai
Pol	Line	Test Voltage	AC 120V/60Hz



No.	Frequency (MHz)	Reading (dBμV)	Correct (dB)	Result (dBμV)	Limit (dBμV)	Margin (dB)	Remark
1	0.2040	32.62	19.18	51.80	63.45	-11.65	QP
2	0.2094	15.41	19.19	34.60	53.23	-18.63	AVG
3	0.2670	31.20	19.24	50.44	61.21	-10.77	QP
4	0.2730	12.86	19.25	32.11	51.03	-18.92	AVG
5	1.0905	29.45	19.27	48.72	56.00	-7.28	QP
6	1.1174	11.68	19.28	30.96	46.00	-15.04	AVG
7	1.4505	29.78	19.33	49.11	56.00	-6.89	QP
8	1.4955	11.71	19.34	31.05	46.00	-14.95	AVG
9	3.9885	30.60	19.47	50.07	56.00	-5.93	QP
10	4.1595	11.64	19.47	31.11	46.00	-14.89	AVG
11	14.0370	34.56	20.02	54.58	60.00	-5.42	QP
12	14.6310	13.87	20.10	33.97	50.00	-16.03	AVG

Test Model	mini	Test Mode	Mode 1
Environmental Conditions	23.3°C, 53.7% RH	Test Engineer	Daiwei Dai
Pol	Neutral	Test Voltage	AC 120V/60Hz



No.	Frequency (MHz)	Reading (dBμV)	Correct (dB)	Result (dBμV)	Limit (dBμV)	Margin (dB)	Remark
1	0.1949	34.12	19.17	53.29	63.83	-10.54	QP
2	0.2007	20.77	19.18	39.95	53.58	-13.63	AVG
3	0.2744	31.02	19.25	50.27	60.98	-10.71	QP
4	0.2805	12.52	19.25	31.77	50.80	-19.03	AVG
5	0.7080	29.85	19.28	49.13	56.00	-6.87	QP
6	0.7215	11.99	19.29	31.28	46.00	-14.72	AVG
7	1.3154	30.11	19.29	49.40	56.00	-6.60	QP
8	1.3650	12.71	19.31	32.02	46.00	-13.98	AVG
9	3.5160	29.40	19.45	48.85	56.00	-7.15	QP
10	3.6195	10.66	19.46	30.12	46.00	-15.88	AVG
11	14.2035	33.88	20.06	53.94	60.00	-6.06	QP
12	14.6310	14.47	20.12	34.59	50.00	-15.41	AVG

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

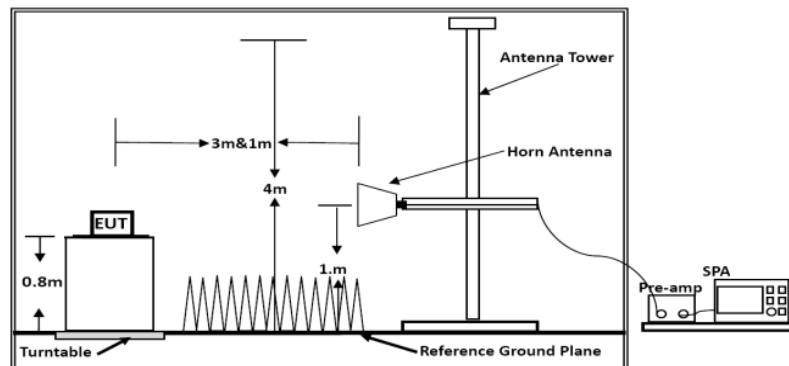
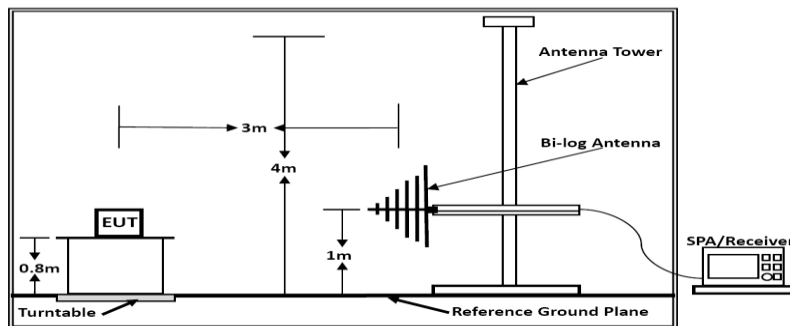
3.2. Radiated emission Measurement

3.2.1. 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	3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	2020-06-22	2021-06-21
3	Positioning Controller	MF	MF-7082	/	2020-06-22	2021-06-21
4	By-log Antenna	SCHWARZBECK	VULB9163	9163-470	2018-07-26	2021-07-25
5	Horn Antenna	SCHWARZBECK	BBHA 9120D	9120D-1925	2018-07-02	2021-07-01
6	EMI Test Receiver	R&S	ESR 7	101181	2020-06-22	2021-06-21
7	RS SPECTRUM ANALYZER	R&S	FSP40	100503	2019-11-22	2020-11-21
8	Broadband Preamplifier	/	BP-01M18G	P190501	2020-06-22	2021-06-21
9	RF Cable-R03m	Jye Bao	RG142	CB021	2020-06-22	2021-06-21
10	RF Cable-HIGH	SUHNER	SUCOFLEX 106	03CH03-HY	2020-06-22	2021-06-21

3.2.2. Block Diagram of Test Setup



3.2.3. Radiated Emission Limit (Class B)

Limits for Radiated Disturbance Below 1GHz

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		$\mu\text{V}/\text{m}$	$\text{dB}(\mu\text{V})/\text{m}$
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 $(\text{dB})\mu\text{V} = 20 \log$ Emission level $\mu\text{V}/\text{m}$ (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 ($\text{dB}\mu\text{V}/\text{m}$)	Average Limit ($\text{dB}\mu\text{V}/\text{m}$)
Above 1000	3	74	54
***Note: The lower limit applies at the transition frequency.			

3.2.4. 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.

3.2.5. 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.

3.2.6. 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.

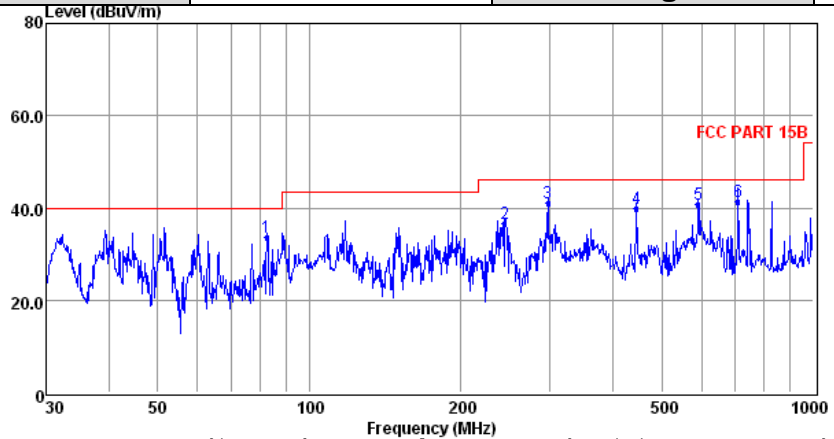
The frequency range from 30MHz to 1000MHz is checked.

3.2.7. Radiated Emission Noise Measurement Result

PASS.

The scanning waveforms please refer to the next page.

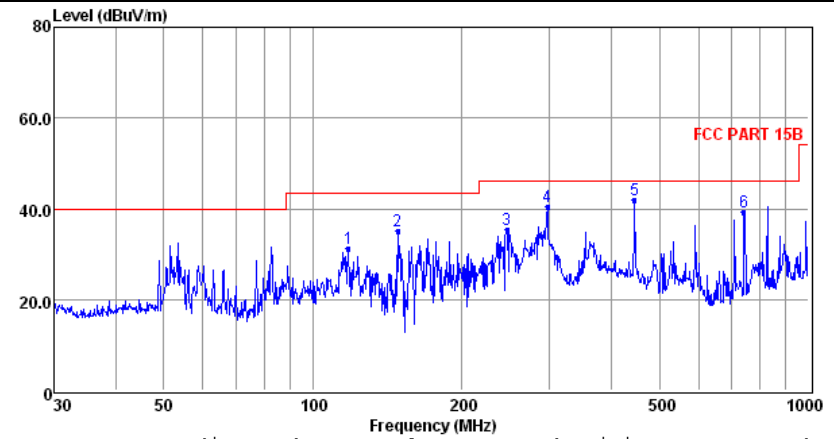
Test Model	mini	Test Mode	Mode 1
Environmental Conditions	22.1°C, 53.2% RH	Detector Function	Quasi-peak
Pol	Vertical	Distance	3m
Test Engineer	Daiwei Dai	Test Voltage	AC 120V/60Hz



	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	82.36	23.56	0.54	9.38	33.48	40.00	-6.52	QP
2	244.23	23.45	0.90	12.08	36.43	46.00	-9.57	QP
3	297.22	26.83	1.12	13.01	40.96	46.00	-5.04	QP
4	446.41	22.98	1.42	15.57	39.97	46.00	-6.03	QP
5	590.97	20.90	1.54	18.28	40.72	46.00	-5.28	QP
6	709.18	20.74	1.73	18.92	41.39	46.00	-4.61	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	mini	Test Mode	Mode 1
Environmental Conditions	22.1°C, 53.2% RH	Detector Function	Quasi-peak
Pol	Horizontal	Distance	3m
Test Engineer	Daiwei Dai	Test Voltage	AC 120V/60Hz



	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	117.77	19.85	0.64	10.87	31.36	43.50	-12.14	QP
2	148.44	26.13	0.86	8.25	35.24	43.50	-8.26	QP
3	246.81	22.25	0.97	12.08	35.30	46.00	-10.70	QP
4	297.22	26.20	1.12	13.01	40.33	46.00	-5.67	QP
5	446.41	24.88	1.42	15.57	41.87	46.00	-4.13	QP
6	742.26	18.02	1.78	19.34	39.14	46.00	-6.86	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. PHOTOGRAPH



Photo of Power Line Conducted Measurement

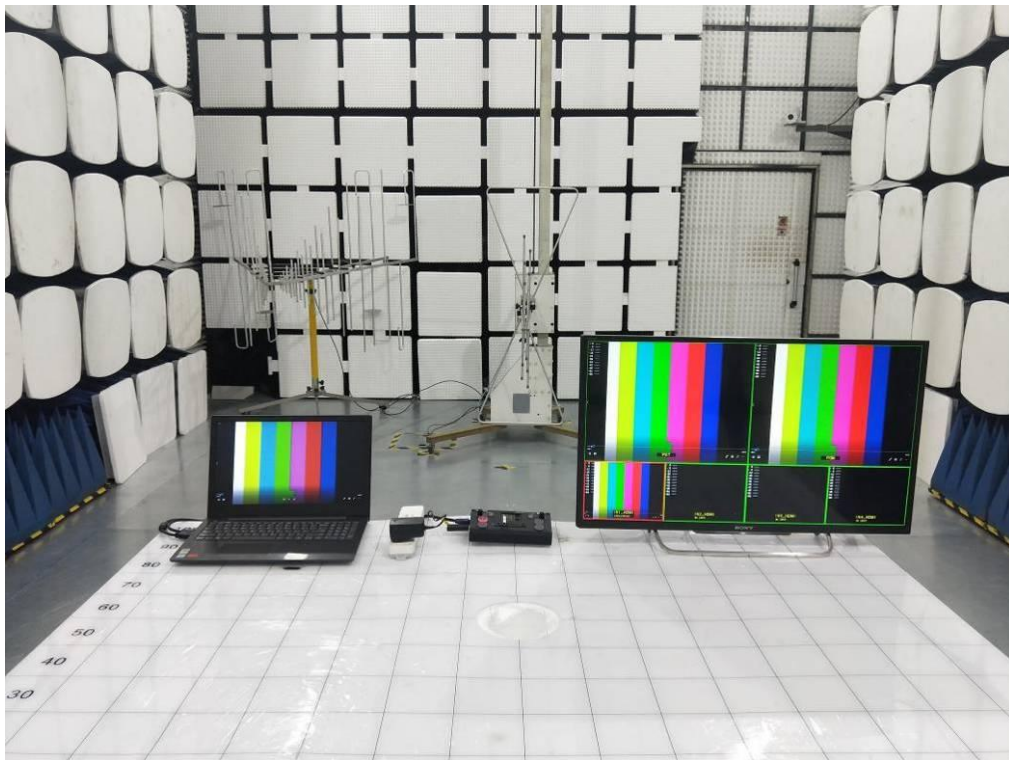


Photo of Radiated Emission Measurement

5. EXTERNAL AND INTERNAL PHOTOS OF THE EUT

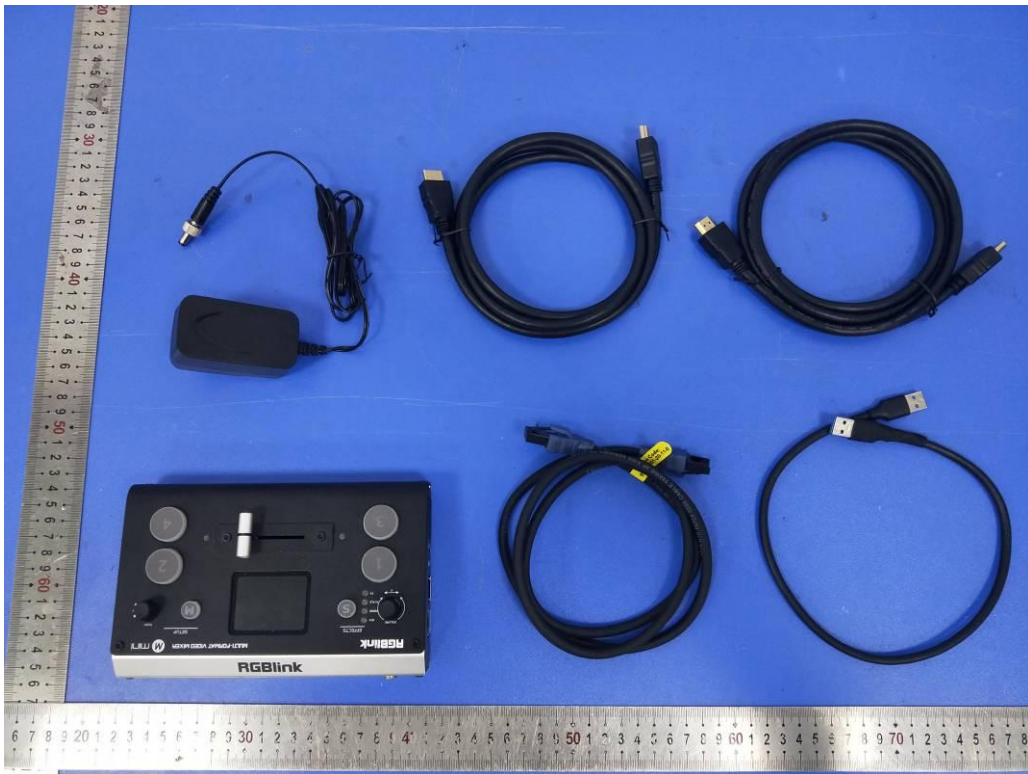


Fig. 1



Fig. 2



Fig. 3



Fig. 4



Fig. 5



Fig. 6

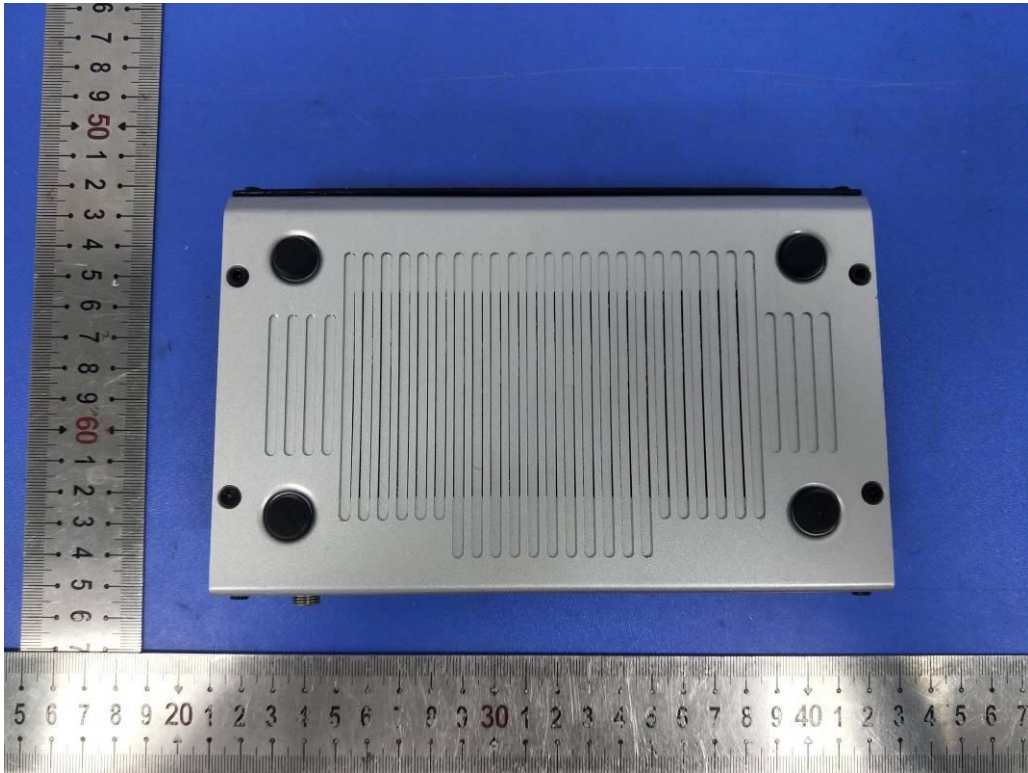


Fig. 7



Fig. 8

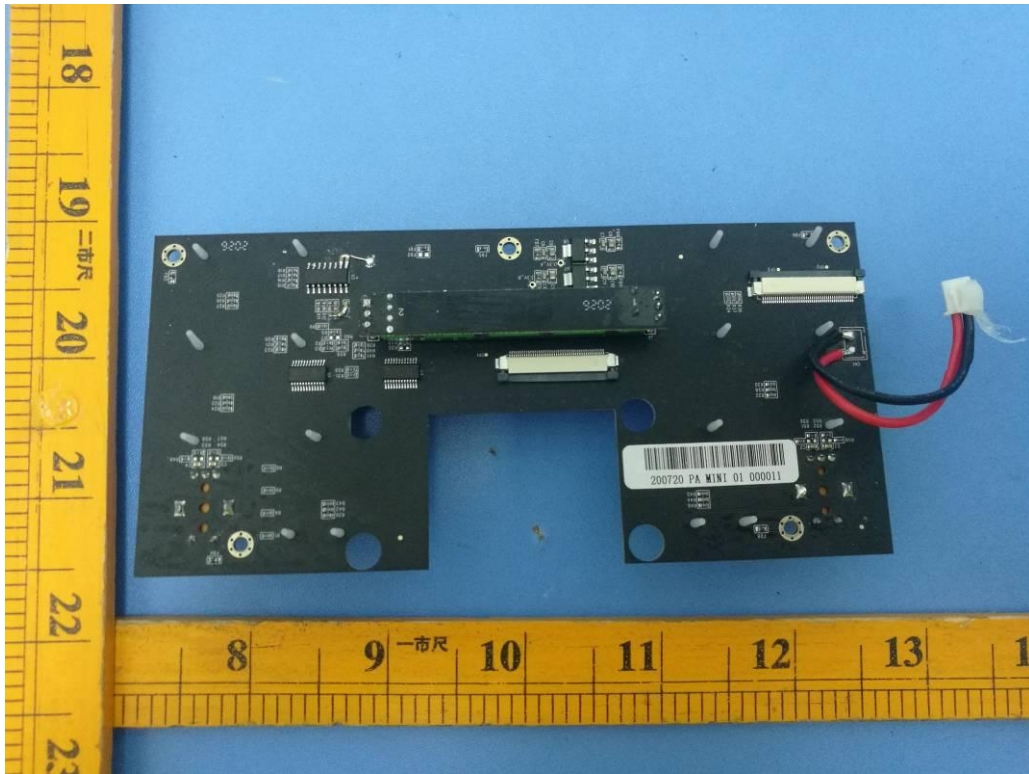


Fig. 9



Fig. 10

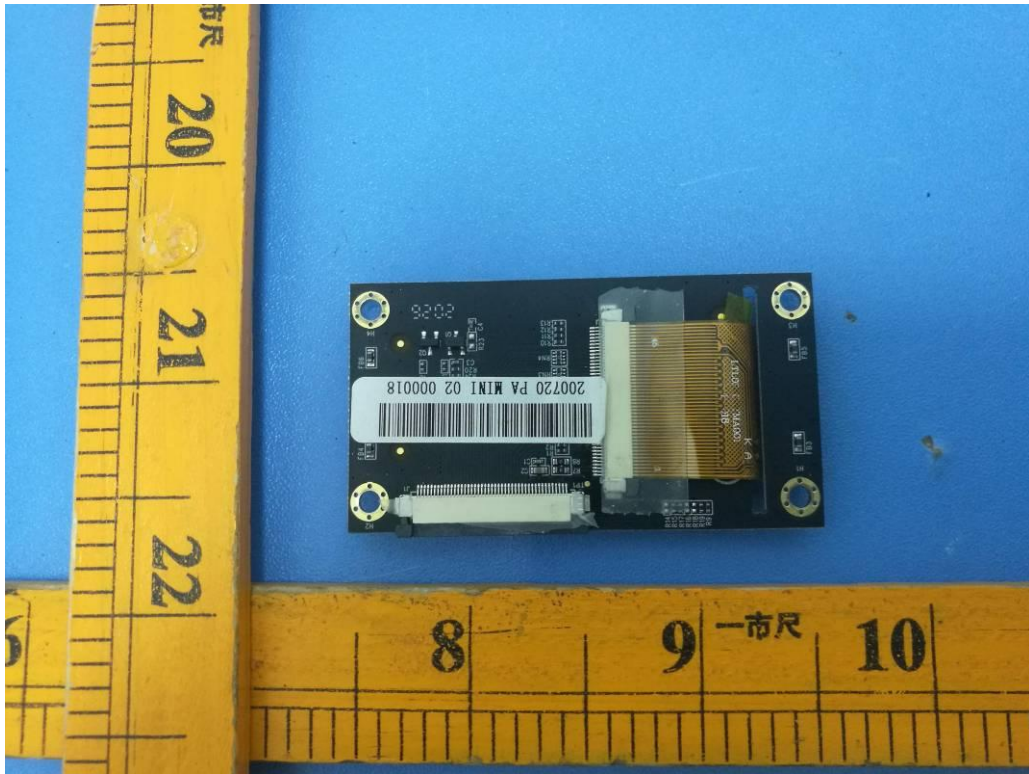


Fig. 11

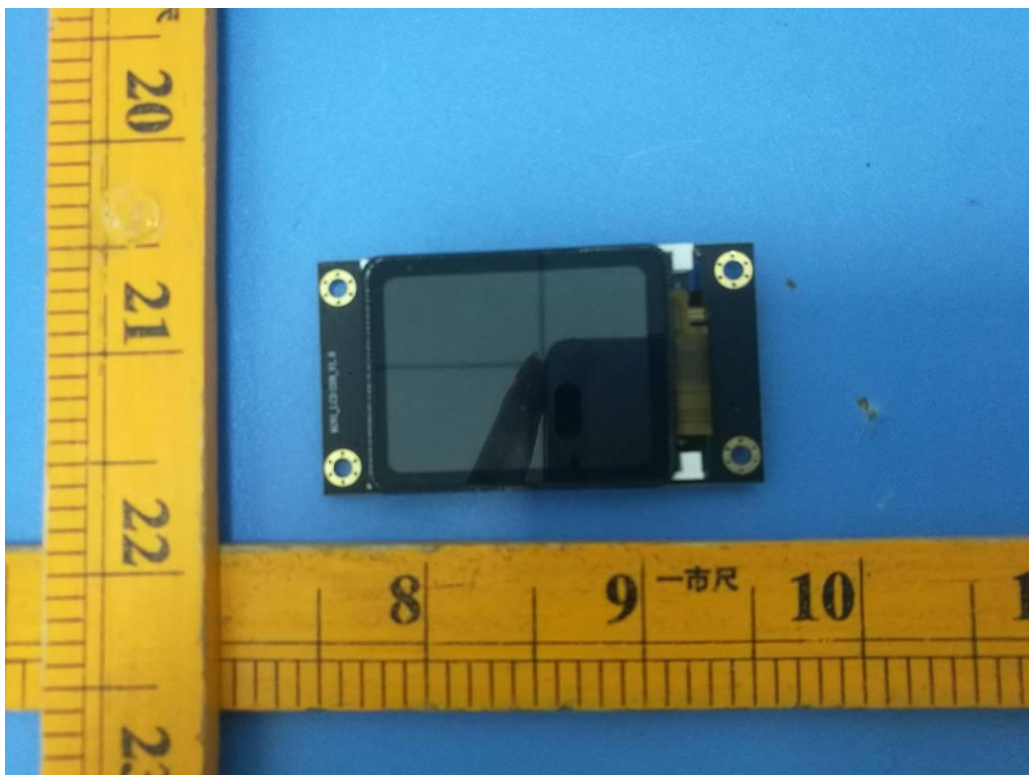


Fig. 12

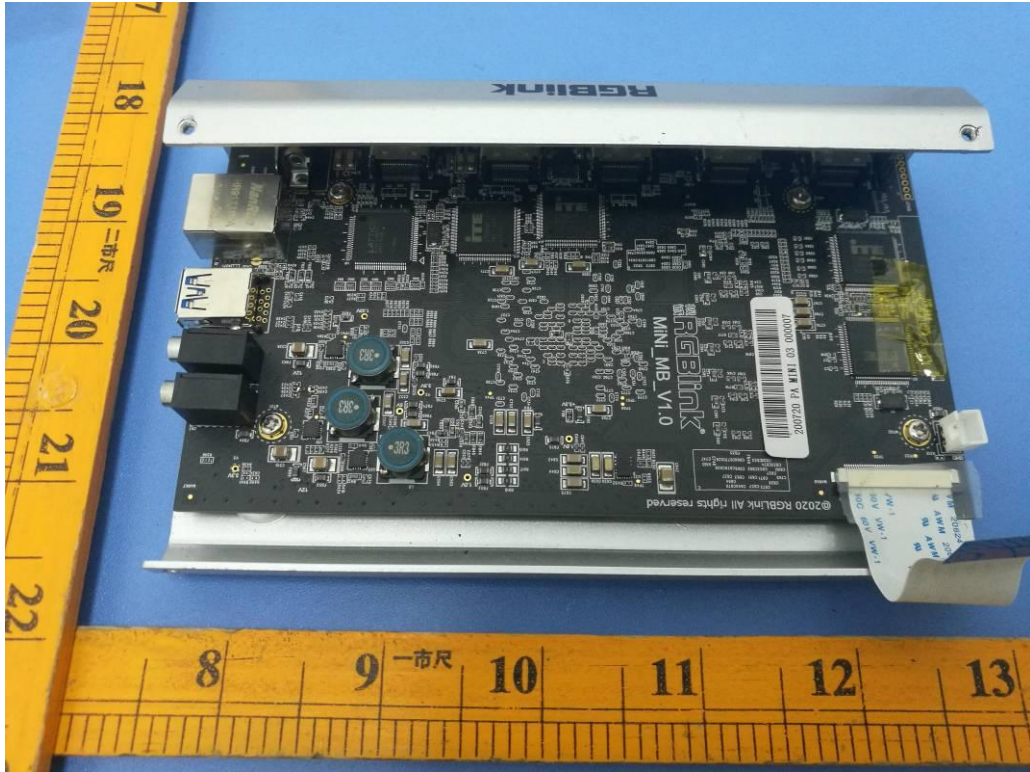


Fig. 13

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