

FCC Part 15, Subpart B, Class B

TEST REPORT

Z INTERNATIONAL LIMITED

Zila Camera

Test Model: ZL_Cam

Prepared for : Z INTERNATIONAL LIMITED
Address : Unit 3, 2/F, Lee Sum Factory Building, 28 Ng Fong Street, San Po Kong, Kowloon, Hong Kong, China

Prepared by : Shenzhen LCS Compliance Testing Laboratory Ltd.
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Date of receipt of test sample : January 13, 2021
Number of tested samples : 1
Serial number : Prototype
Date of Test : January 13, 2021 ~ January 20, 2021
Date of Report : January 20, 2021



FCC TEST REPORT

FCC Part 15, Subpart B, Class B

Report Reference No. : LCS210113037AE

Date Of Issue : January 20, 2021

Testing Laboratory Name : Shenzhen LCS Compliance Testing Laboratory Ltd.

Address : 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park 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..... : Z INTERNATIONAL LIMITED**

Address : Unit 3, 2/F, Lee Sum Factory Building, 28 Ng Fong Street, San Po Kong, Kowloon, Hong Kong, China

Test Specification

Standard..... : FCC Part 15, Subpart B, Class B, ANSI C63.4 -2014

Test Report Form No..... : LCSEMC-1.0

TRF Originator..... : Shenzhen LCS Compliance Testing Laboratory Ltd.

Master TRF..... : Dated 2011-03

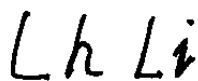
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Test Item Description..... : Zila Camera

Trade Mark : N/A

Test Model..... : ZL_Cam

Power Supply : DC 3.7V By Battery(600mAh)
Recharged By DC 5V 300mA**Result : Positive****Compiled by:**

Lh Li / Administrators

Supervised by:

Jin Wang/ Technique principal

Approved by:

Gavin Liang/ Manager

FCC -- TEST REPORT**Test Report No. : LCS210113037AE**January 20, 2021

Date of issue

Test Model : ZL_Cam

EUT..... : Zila Camera

Applicant..... : Z INTERNATIONAL LIMITEDAddress..... : Unit 3, 2/F, Lee Sum Factory Building, 28 Ng Fong
Street, San Po Kong, Kowloon, Hong Kong, China

Telephone..... : /

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Manufacturer..... : Shenzhen Shengxinda Technology Co. LtdAddress..... : Technology Zone, Ban Tian Street, Longgang District,
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Factory..... : Shenzhen Shengxinda Technology Co. LtdAddress..... : Technology Zone, Ban Tian Street, Longgang District,
Shenzhen, China

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	January 20, 2021	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 Part 15, Subpart B, Class B, ANSI C63.4 -2014	Class B	PASS
Radiated disturbance	FCC Part 15, Subpart B, Class B, ANSI C63.4 -2014	Class B	PASS
N/A is an abbreviation for Not Applicable.			

Test mode:

Mode 1	Normal Operation	Record
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***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 : Zila Camera

Trade Mark : N/A

Test Model : ZL_Cam

Power Supply : DC 3.7V By Battery(600mAh)
Recharged By DC 5V 300mA

Highest internal frequency (Fx)	Highest measured frequency
Fx ≤ 108 MHz	1 GHz
108 MHz < Fx ≤ 500 MHz	2 GHz
500 MHz < Fx ≤ 1 GHz	5 GHz
Fx > 1 GHz	5 × Fx up to a maximum of 6 GHz

NOTE 1 For FM and TV broadcast receivers, Fx is determined from the highest frequency generated or used excluding the local oscillator and tuned frequencies.

Where Fx is unknown, the radiated emission measurements shall be performed up to 6 GHz.

2.2. Support equipment List

Manufacturer	Description	Model	Serial Number	Certificate
OPPO	Adapter	OP52KAUH	--	SDOC
Lenovo	ADAPTER for Notebook	ADP-90DD B	36001941	SDOC
Lenovo	Notebook	B470	WB05067151	SDOC

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 (Ucisp)
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

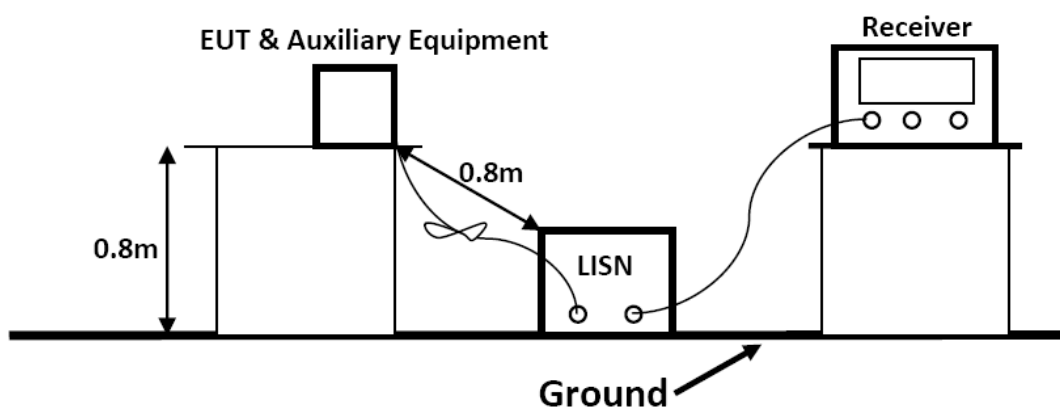
3.1. POWER LINE CONDUCTED EMISSION MEASUREMENT

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	SCHWARZBEC K	MTS-IMP-136	261115-001-0032	2020-06-22	2021-06-21

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.

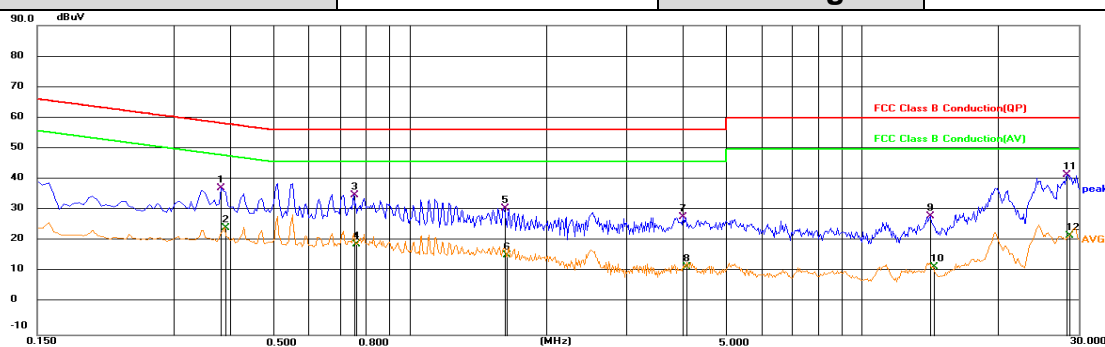
The frequency range from 150kHz to 30MHz is investigated

3.1.7.Test Results

PASS.

The test result please refer to the next page.

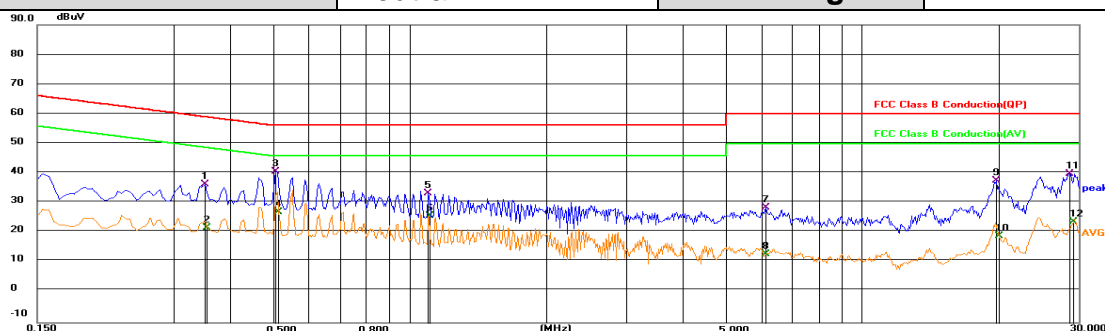
Test Model	ZL_Cam	Test Mode	Mode 1
Environmental Conditions	23.3℃, 53.7% RH	Test Engineer	Carl Fu
Pol	Line	Test Voltage	AC 120V/60Hz



Power Rating: AC 120V/60Hz Phase: L1 Temperature(C): 23.3(C)
Limit: FCC Class B Conduction(QP) Humidity(%): 53.7%RH

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.3840	16.54	20.92	37.46	58.19	-20.73	QP
2	0.3893	3.59	20.94	24.53	48.08	-23.55	AVG
3	0.7531	14.72	20.39	35.11	56.00	-20.89	QP
4	0.7621	-0.92	20.38	19.46	46.00	-26.54	AVG
5	1.6171	11.58	19.36	30.94	56.00	-25.06	QP
6	1.6351	-3.61	19.36	15.75	46.00	-30.25	AVG
7	4.0200	8.60	19.47	28.07	56.00	-27.93	QP
8	4.0741	-7.53	19.47	11.94	46.00	-34.06	AVG
9	14.1766	8.45	20.04	28.49	60.00	-31.51	QP
10	14.2936	-8.08	20.05	11.97	50.00	-38.03	AVG
11	28.4506	21.58	20.14	41.72	60.00	-18.28	QP
12	28.7116	1.95	20.14	22.09	50.00	-27.91	AVG

Test Model	ZL_Cam	Test Mode	Mode 1
Environmental Conditions	23.3℃, 53.7% RH	Test Engineer	Carl Fu
Pol	Neutral	Test Voltage	AC 120V/60Hz



Power Rating: AC 120V/60Hz Phase: N Temperature(C): 23.3(C)
Limit: FCC Class B Conduction(QP) Humidity(%): 53.7%RH

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.3526	15.72	20.82	36.54	58.90	-22.36	QP
2	0.3571	0.91	20.83	21.74	48.80	-27.06	AVG
3	0.5056	20.00	20.88	40.88	56.00	-15.12	QP
4	0.5146	6.26	20.84	27.10	46.00	-18.90	AVG
5	1.0995	14.08	19.26	33.34	56.00	-22.66	QP
6	1.1041	6.73	19.26	25.99	46.00	-20.01	AVG
7	6.1396	9.05	19.54	28.59	60.00	-31.41	QP
8	6.1396	-6.49	19.54	13.05	50.00	-36.95	AVG
9	19.8376	17.65	20.05	37.70	60.00	-22.30	QP
10	20.1031	-1.04	20.04	19.00	50.00	-31.00	AVG
11	28.6981	19.81	20.15	39.96	60.00	-20.04	QP
12	29.3596	3.72	20.14	23.86	50.00	-26.14	AVG

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

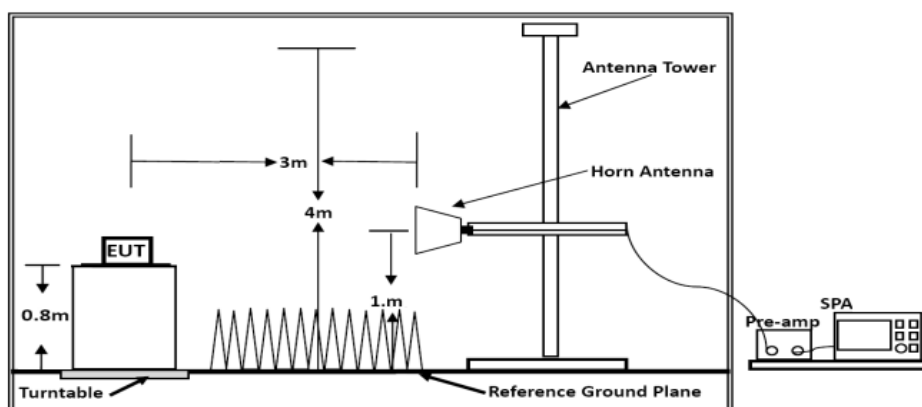
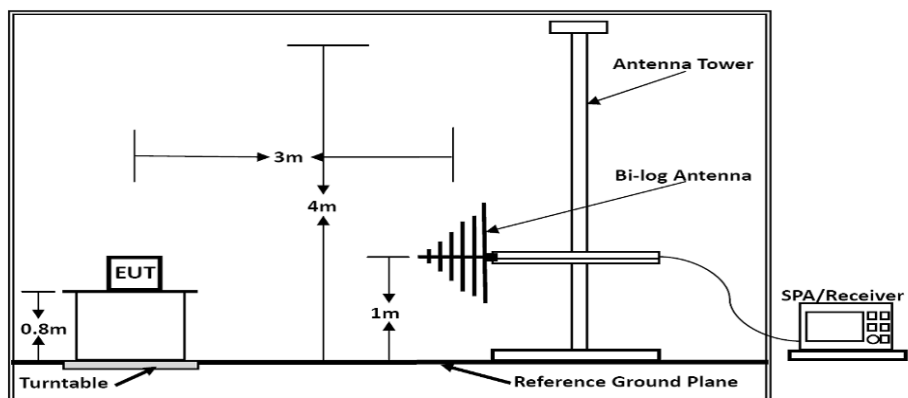
3.2. Radiated emission Measurement

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	EZ	EZ-EMC	/	N/A	N/A
2	3m Full Anechoic Chamber	MREDIANZI	FAC-3M	MR009	2020-09-27	2021-09-26
3	Positioning Controller	MF	MF7082	MF78020803	2020-06-22	2021-06-21
4	By-log Antenna	SCHWARZBEC K	VULB9163	9163-470	2018-07-26	2021-07-25
5	Horn Antenna	SCHWARZBEC K	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	2020-11-22	2021-11-21
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	
		$\mu\text{V/m}$	$\text{dB}(\mu\text{V})/\text{m}$
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 ($\text{dB}\mu\text{V/m}$)
1000 ~ 3000	3	70	50
3000 ~ 6000	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.

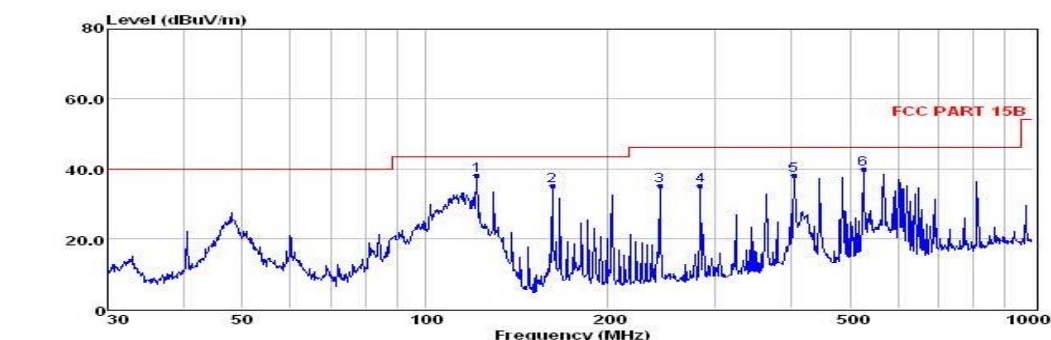
The frequency range from 30MHz to 1000MHz is checked.

3.2.7. Radiated Emission Noise Measurement Result

PASS.

The scanning waveforms please refer to the next page.

Test Model	ZL_Cam	Test Mode	Mode 1
Environmental Conditions	22.4℃, 53.6% RH	Detector Function	Quasi-peak
Pol	Vertical	Distance	3m
Test Engineer	Carl Fu	Test Voltage	AC 120V/60Hz

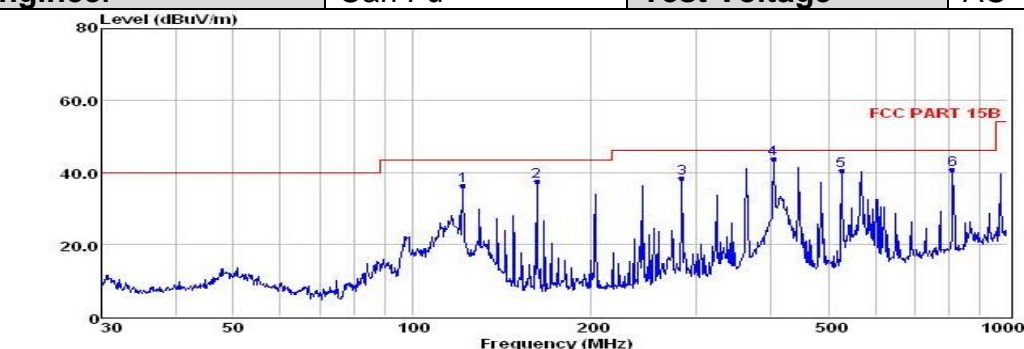


Env./Ins: 22.4℃/53.6%
 Power Rating: AC 120V/60Hz
 pol: VERTICAL

	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	121.55	57.37	0.70	10.24	38.14	43.50	-5.36	QP
2	162.04	56.04	0.75	8.73	35.24	43.50	-8.26	QP
3	243.38	52.58	0.90	12.08	35.14	46.00	-10.86	QP
4	283.98	51.84	1.00	12.75	35.11	46.00	-10.89	QP
5	404.67	52.54	1.32	15.16	38.17	46.00	-7.83	QP
6	526.40	52.47	1.45	17.07	39.89	46.00	-6.11	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	ZL_Cam	Test Mode	Mode 1
Environmental Conditions	22.4℃, 53.6% RH	Detector Function	Quasi-peak
Pol	Horizontal	Distance	3m
Test Engineer	Carl Fu	Test Voltage	AC 120V/60Hz



Env./Ins: 22.4℃/53.6%
 Power Rating: AC120V/60Hz
 pol: HORIZONTAL

	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	121.55	55.52	0.70	10.24	36.29	43.50	-7.21	QP
2	162.04	58.16	0.75	8.73	37.36	43.50	-6.14	QP
3	283.98	54.95	1.00	12.75	38.22	46.00	-7.78	QP
4	404.67	58.22	1.32	15.16	43.85	46.00	-2.15	QP
5	526.40	53.09	1.45	17.07	40.51	46.00	-5.49	QP
6	810.27	50.07	1.71	20.17	40.83	46.00	-5.17	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

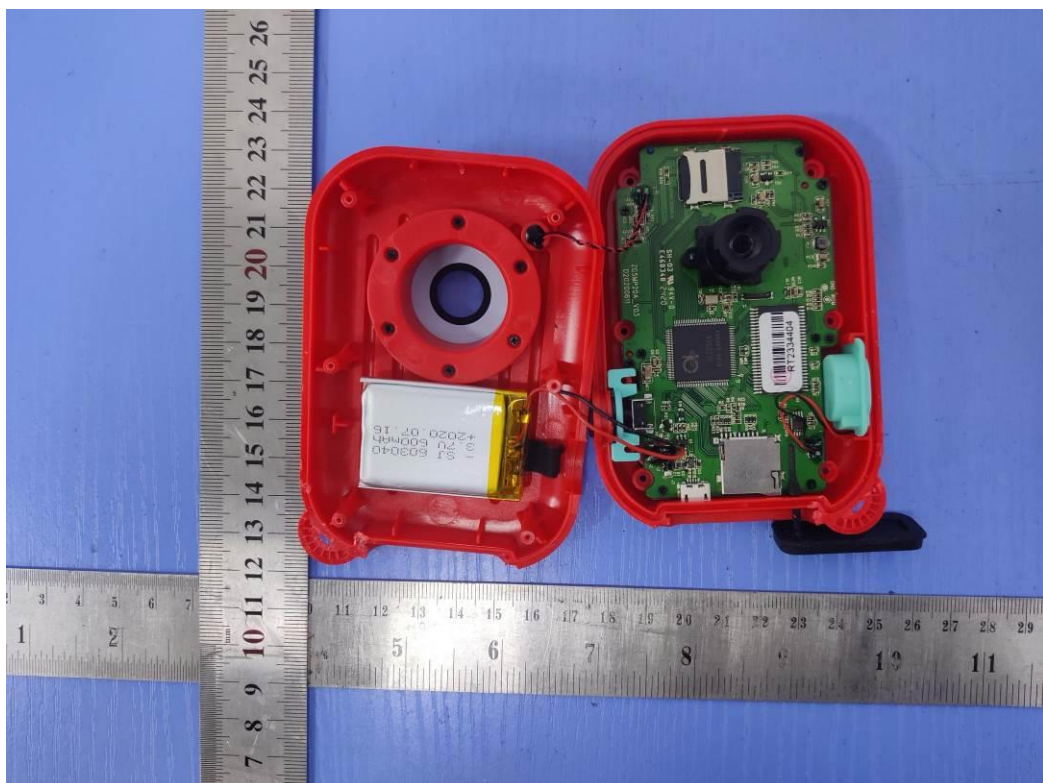


Fig. 8

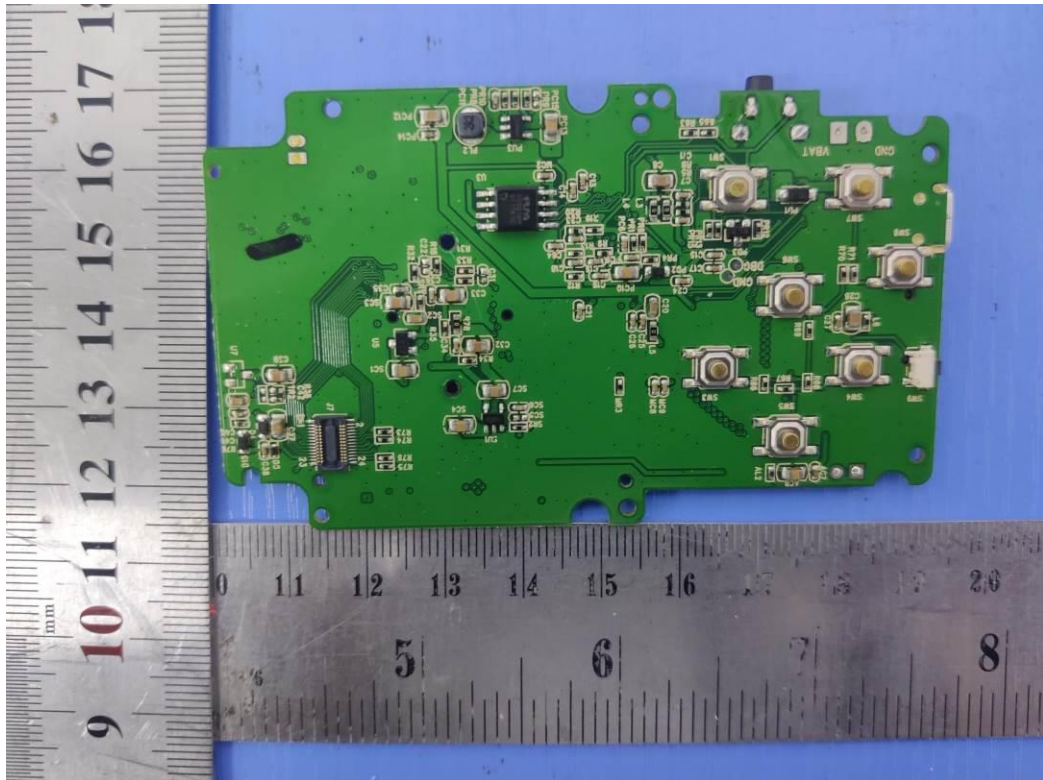


Fig. 9

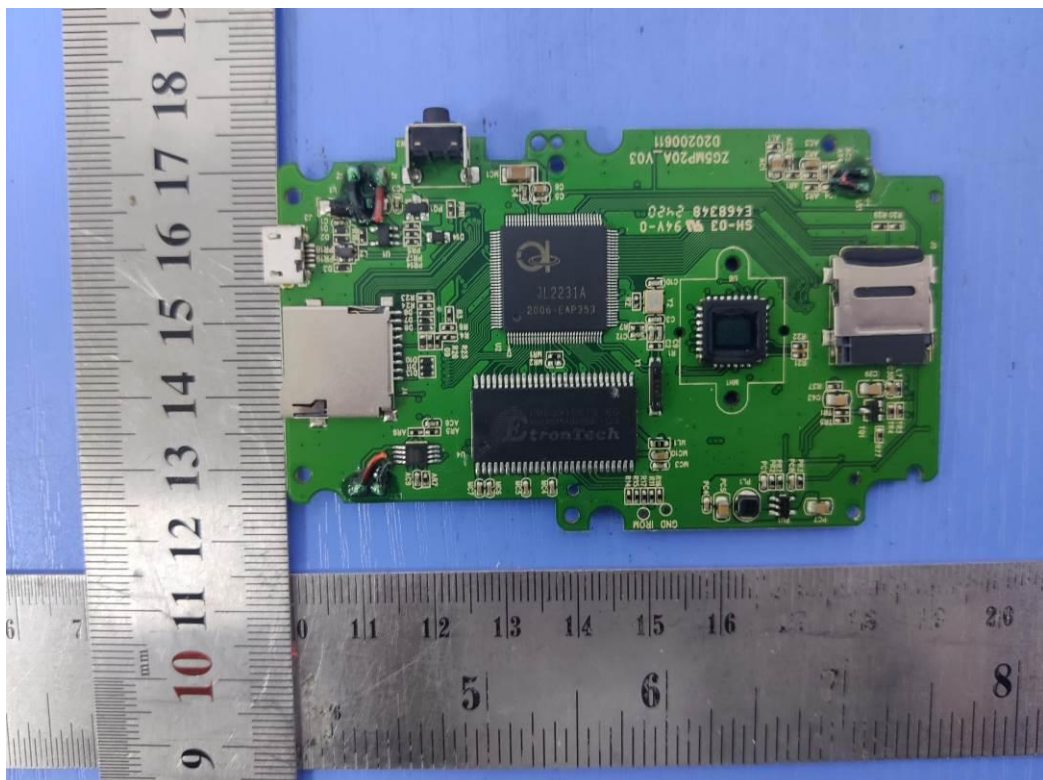


Fig. 10



Fig. 11

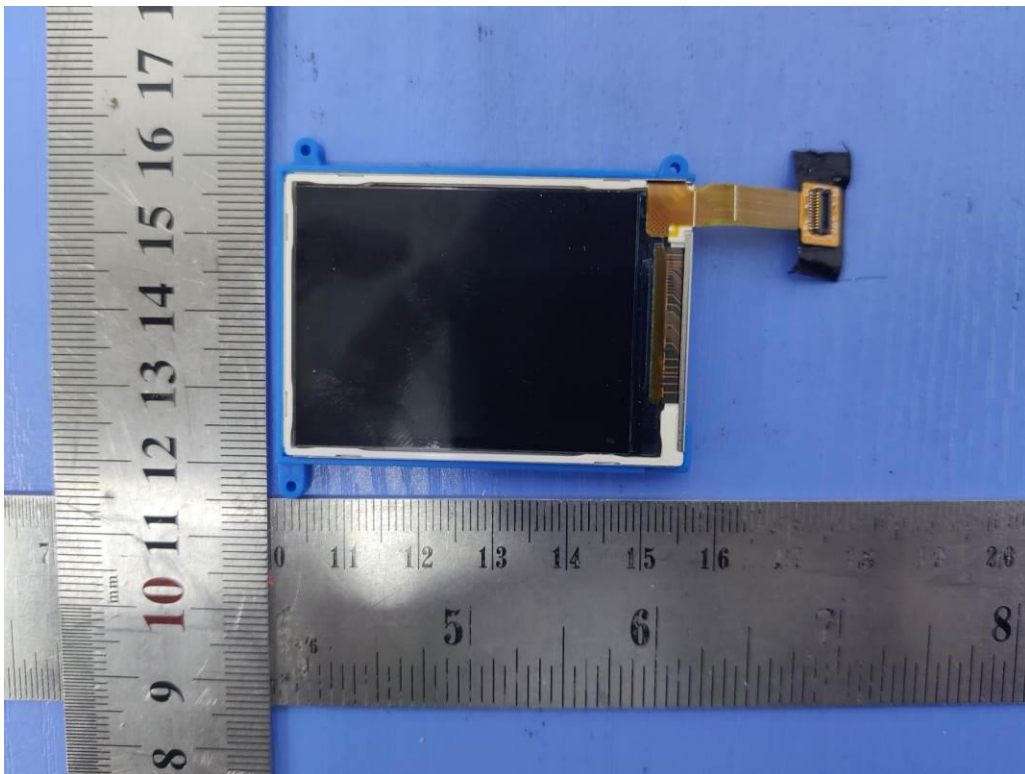


Fig. 12

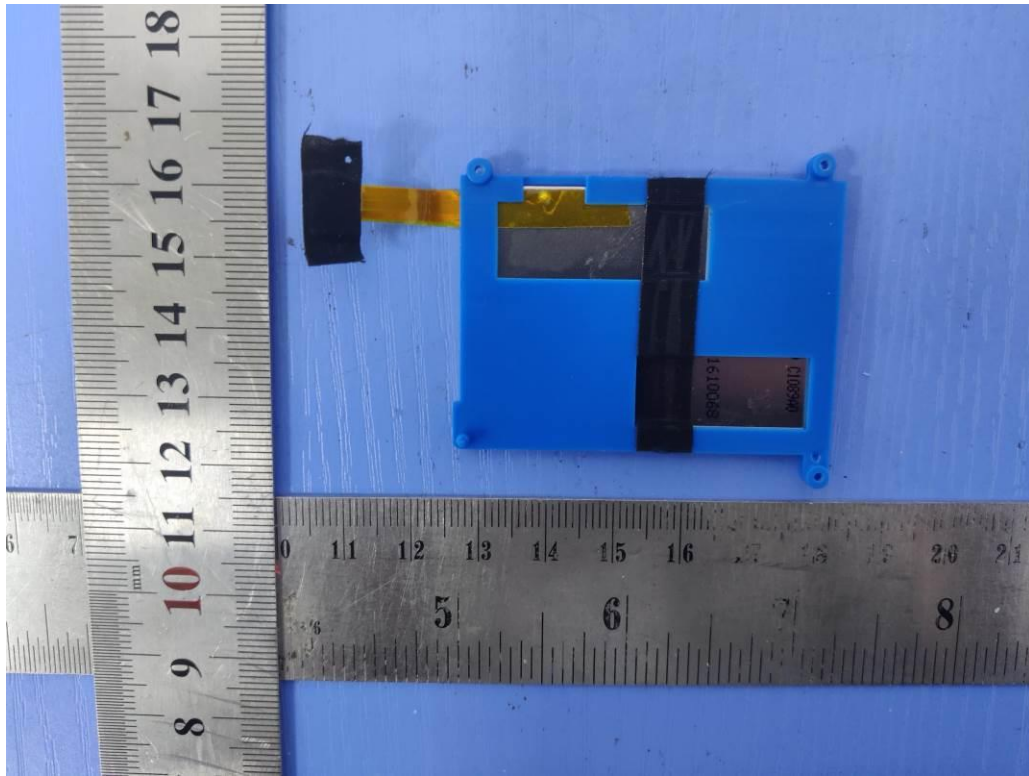


Fig. 13

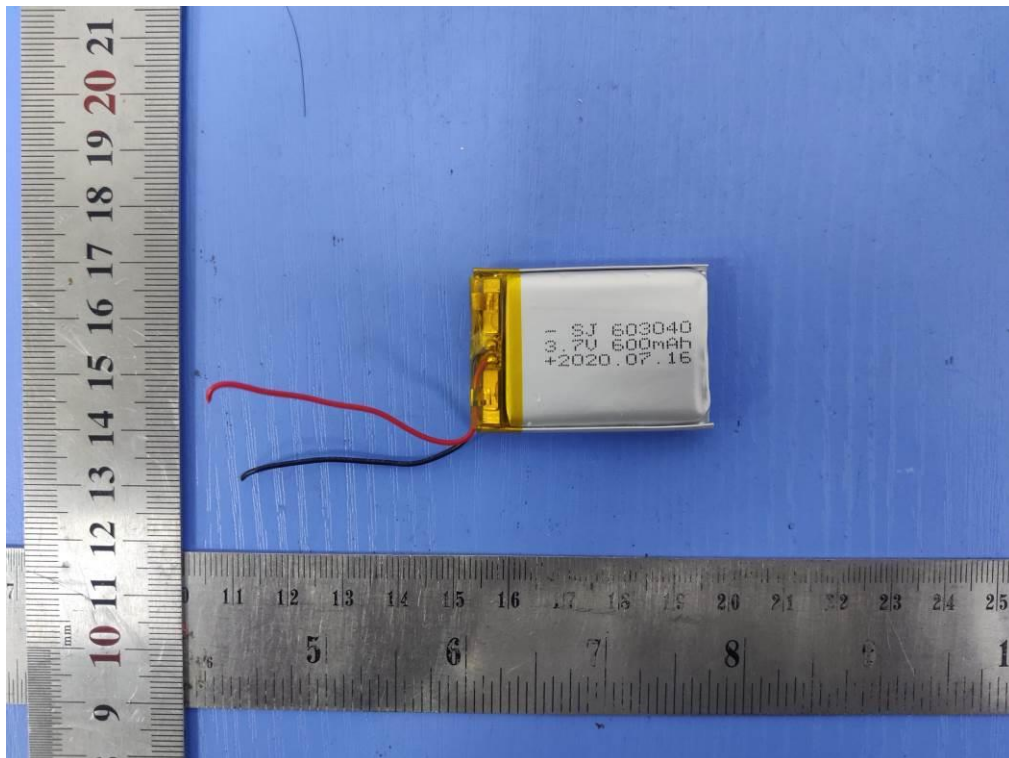


Fig. 14

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