

# TEST REPORT

FCC ID: 2AFIB-YAS2217

Product: YI Discovery Action Camera

Model No.: YAS.2217

Trade mark: YI

Report No.: TCT171127E004

Issued Date: Nov. 17, 2017

Issued for:

Shanghai Xiaoyi Technology Co., Ltd.

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Issued By:

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## 1. Test Certification

<b>Product:</b>	YI Discovery Action Camera
<b>Model No.:</b>	YAS.2217
<b>Trade Mark:</b>	YI
<b>Applicant:</b>	Shanghai Xiaoyi Technology Co., Ltd.
<b>Address:</b>	6F, Building E, No.2889, Jinke Road, Shanghai, China
<b>Manufacturer:</b>	Shanghai Xiaoyi Technology Co., Ltd.
<b>Address:</b>	6F, Building E, No.2889, Jinke Road, Shanghai, China
<b>Test Voltage:</b>	DC 3.7 V, DC 5 V From PC
<b>Date of Test:</b>	Nov. 14, 2017 ~ Nov. 16, 2017
<b>Applicable Standards:</b>	47 CFR FCC Part 15 Subpart B ANSI C63.4: 2014

The above equipment has been tested by Shenzhen Tongce Testing Lab and found compliance with the requirements set forth in the technical standards mentioned above. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

**Tested By:**

  
Rleo

**Date:**

Nov. 14, 2017

**Check By:**

  
Joe Zhou

**Date:**

Nov. 17, 2017

**Approved By:**

  
Tomsin

**Date:**

Nov. 17, 2017

## 2. Test Result Summary

Emission		
Test Method	Item	Result
FCC 47 CFR Part 15 Subpart B	Conducted Emission at Mains Terminals	Pass
	Radiated Emission	Pass

**Note:**

1. Pass: Test item meets the requirement.
2. Fail: Test item does not meet the requirement.
3. N/A: Test case does not apply to the test object.
4. The test result judgment is decided by the limit of test standard.
5. The information of measurement uncertainty is available upon the customer's request.

### 3. EUT Description

<b>Product Name:</b>	YI Discovery Action Camera
<b>Model No.:</b>	YAS.2217
<b>Trade Mark:</b>	YI
<b>Power supply:</b>	DC 3.7V Li-ion Battery 900mAh 3.33Wh
<b>AC Mains:</b>	<input type="checkbox"/> Shielded <input type="checkbox"/> Unshielded, <input type="checkbox"/> Detachable <input type="checkbox"/> Un-detachable <input checked="" type="checkbox"/> Not applicable <input type="checkbox"/> Length:
<b>DC Line:</b>	<input type="checkbox"/> Shielded <input type="checkbox"/> Unshielded, <input type="checkbox"/> Detachable <input type="checkbox"/> Un-detachable <input checked="" type="checkbox"/> Not applicable <input type="checkbox"/> Length:
<b>Control Line:</b>	<input type="checkbox"/> Shielded <input type="checkbox"/> Unshielded, <input type="checkbox"/> Detachable <input type="checkbox"/> Un-detachable <input checked="" type="checkbox"/> Not applicable <input type="checkbox"/> Length:

## 4. Test Methodology

### 4.1. Decision of Final Test Mode

The EUT was tested together with the thereafter additional components, and a configuration, which produced the worst emission levels, was selected and recorded in this report.

The following test mode(s) were assessed:

**Test Mode**

**Mode 1: Data exchanging with PC mode**

**Mode 2: REC mode**

### 4.2. EUT System Operation

1. Set up EUT with the support equipments.
2. Make sure the EUT work normally during the test.

## 5. Setup of Equipment under Test

### 5.1. Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

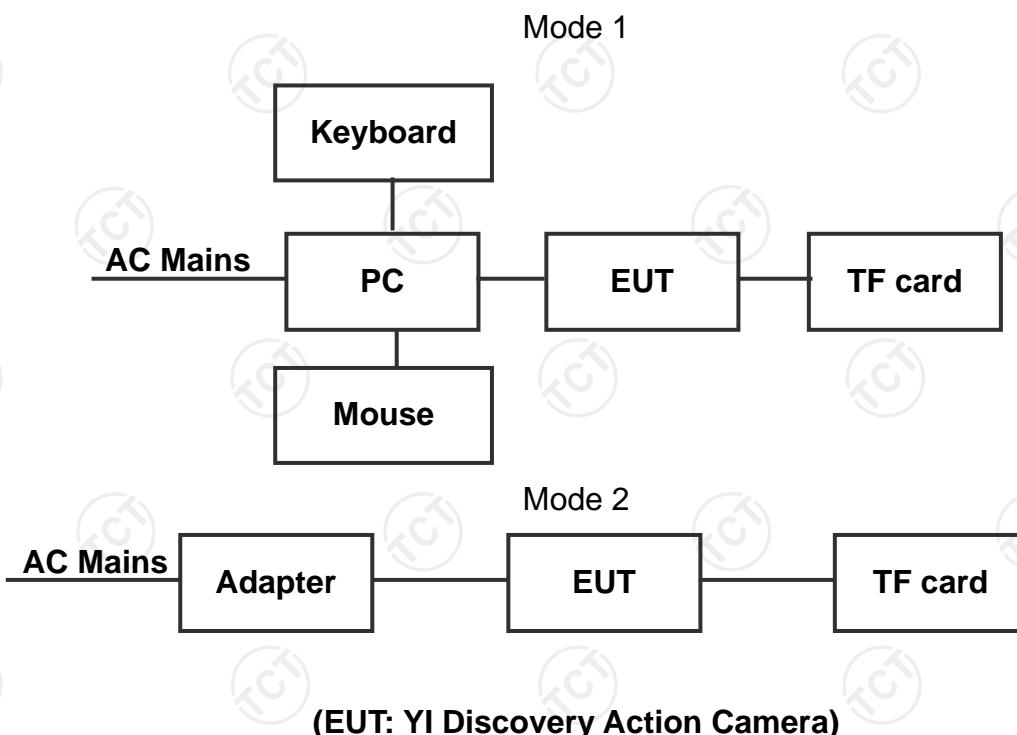
Equipment	Model No.	Serial No.	FCC ID	Trade Name
PC	G485	LB00402300	/	Lenovo
Keyboard	SK-8115	N/A	/	DELL
Mouse	MOC5UO	N/A	/	DELL
TF card	SD-C01G	N/A	/	Kingston

**Note:**

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

Remark: all equipments above listed are FCC doc approved

### 5.2. Configuration of System Under Test



## 6. Facilities and Accreditations

### 6.1. Facilities

The test facility is recognized, certified, or accredited by the following organizations:

Test Firm Registration Number: 645098

Shenzhen Tongce Testing Lab

The 3m Semi-anechoic chamber has been registered and fully described in a report with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files.

The sites are constructed in conformance with the requirements of ANSI C63.4 and CISPR Publication 32. All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

### 6.2. Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

No.	Item	MU
1.	Temperature	±0.1 °C
2.	Humidity	±1.0 %
3.	Spurious Emissions, Conducted	±2.56 dB
4.	All Emissions, Radiated	±4.28 dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95 % confidence level using a coverage factor of k=2.

## 7. Emission Test

### 7.1. Conducted Emission at Mains Terminals

#### 7.1.1. Test Specification

<b>Test Requirement:</b>	FCC 47 CFR Part 15 Subpart B
<b>Test Method:</b>	ANSI C63.4: 2014
<b>Frequency Range:</b>	150 kHz to 30 MHz

#### 7.1.2. Limits

Frequency (MHz)	Class B dB(uV)	
	Quasi-peak	Average
0.15 - 0.5	66 – 56 <sup>a</sup>	56 – 46 <sup>a</sup>
0.50 - 5.0	56	46
5.0 - 30.0	60	50

a. Decreases with the logarithm of the frequency

#### 7.1.3. Test Instruments

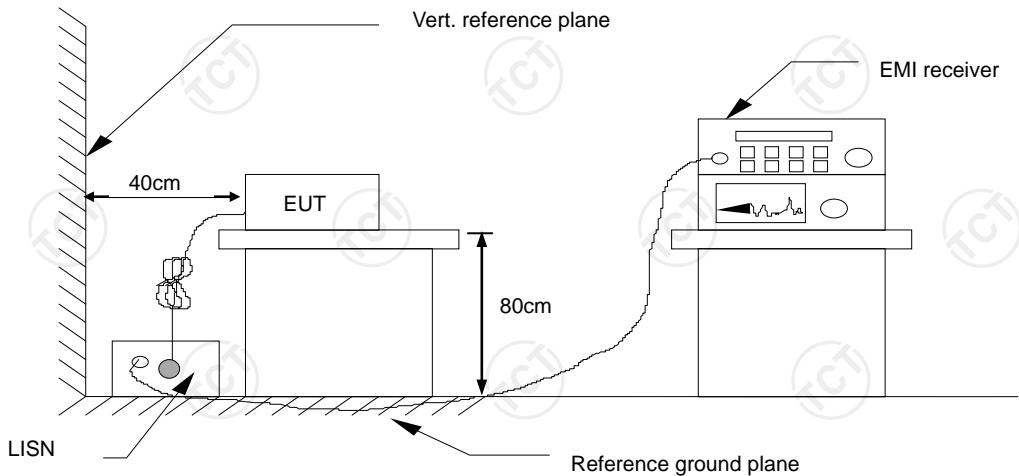
Conducted Emission Shielding Room Test Site (843)				
Equipment	Manufacturer	Model	Serial Number	Calibration Due
EMI Test Receiver	R&S	ESCS30	100139	Sep. 27, 2018
LISN	Schwarzbeck	NSLK 8126	8126453	Sep. 27, 2018

**Note:** The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

#### 7.1.4. Test Method

The AMN was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane. This distance was between the closest points of the AMN and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the AMN. All power was connected to the system through Artificial Mains Network (AMN). Conducted voltage measurements on mains lines were made at the output of the AMN

### 7.1.5. Block Diagram of Test Setup



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

### 7.1.6. Test Results

<b>Test Environment:</b>	Temp.:	25 °C	Humid.:	52 %	Press.:	1012mbar
<b>Test Mode:</b>	Mode 1					
<b>Test Voltage:</b>	AC 120V 60Hz					
<b>Test Result:</b>	Pass					

**Note:**

L1 = Live Line / N = Neutral Line

Freq. = Emission frequency in MHz

Reading level (dB $\mu$ V) = Receiver reading

Correct Factor (dB) = LISN factor + Cable loss

Measurement (dB $\mu$ V) = Reading level (dB $\mu$ V) + Corr. Factor (dB)

Limit (dB $\mu$ V) = Limit stated in standard

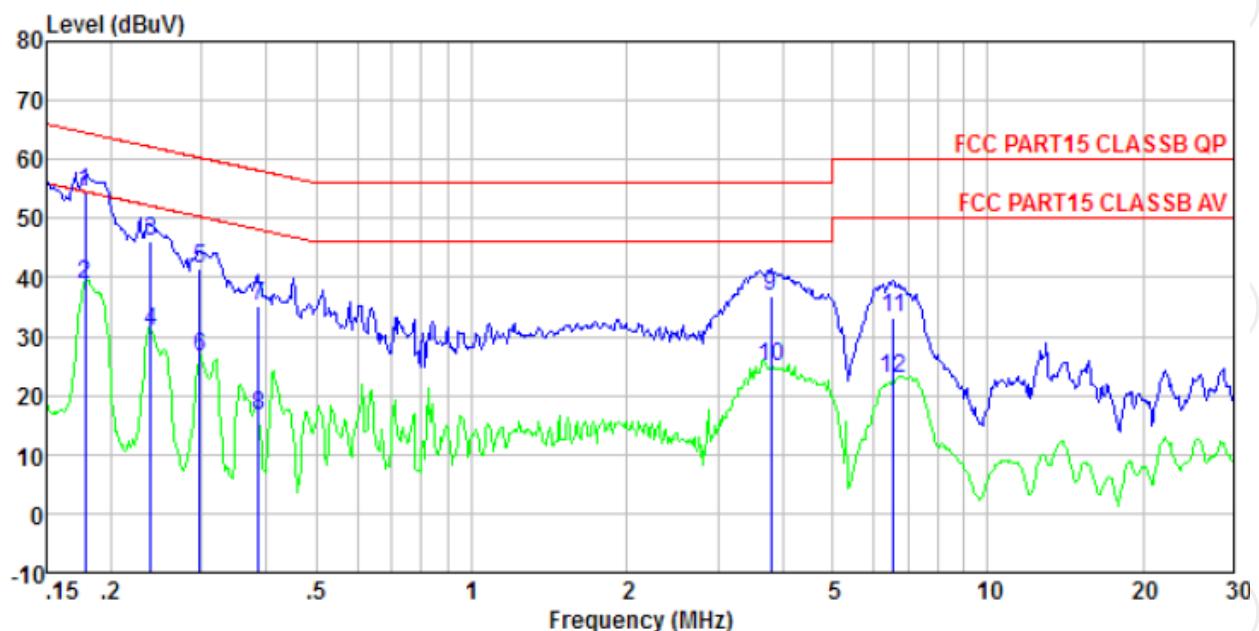
Margin (dB) = Measurement (dB $\mu$ V) – Limits (dB $\mu$ V)

Q.P. =Quasi-Peak AVG =average

\* is meaning the worst frequency has been tested in the frequency range 150 kHz to 30MHz.

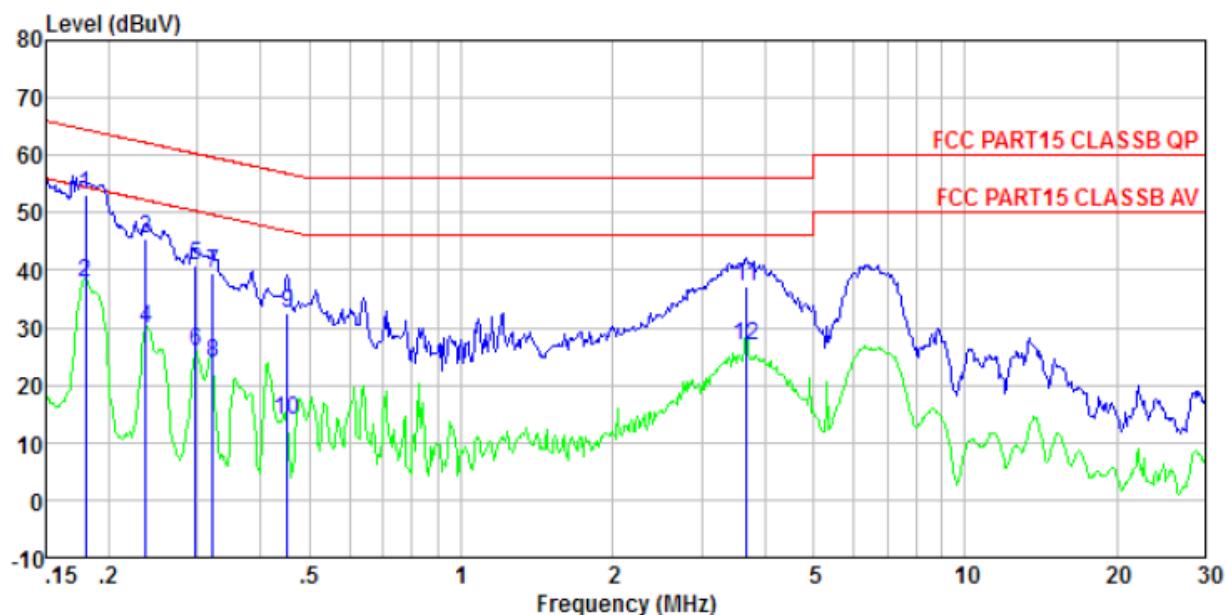
Please refer to following diagram for individual

Line:



Freq MHz	Reading level dBuV	11SN/ISN factor dB	Cable loss dB	level dBuV	Limit level dBuV	Over limit dB	Remark
0.179	54.07	0.40	0.09	54.56	64.55	-9.99	QP
0.179	38.45	0.40	0.09	38.94	54.55	-15.61	Average
0.239	45.66	0.40	0.11	46.17	62.13	-15.96	QP
0.239	30.45	0.40	0.11	30.96	52.13	-21.17	Average
0.297	41.05	0.40	0.10	41.55	60.32	-18.77	QP
0.297	26.09	0.40	0.10	26.59	50.32	-23.73	Average
0.387	34.56	0.36	0.11	35.03	58.12	-23.09	QP
0.387	16.25	0.36	0.11	16.72	48.12	-31.40	Average
3.799	36.59	0.20	0.18	36.97	56.00	-19.03	QP
3.799	24.63	0.20	0.18	25.01	46.00	-20.99	Average
6.557	32.76	0.20	0.18	33.14	60.00	-26.86	QP
6.557	22.36	0.20	0.18	22.74	50.00	-27.26	Average

Neutral:



Freq MHz	Reading level dBuV	11SN/ISN factor dB	Cable loss dB	Level dBuV	Limit level dBuV	Over limit dB	Remark
0.180	52.51	0.40	0.10	53.01	64.50	-11.49	QP
0.180	37.46	0.40	0.10	37.96	54.50	-16.54	Average
0.237	45.06	0.40	0.11	45.57	62.22	-16.65	QP
0.237	29.43	0.40	0.11	29.94	52.22	-22.28	Average
0.297	40.45	0.40	0.10	40.95	60.32	-19.37	QP
0.297	25.42	0.40	0.10	25.92	50.32	-24.40	Average
0.322	39.00	0.39	0.10	39.49	59.66	-20.17	QP
0.322	23.47	0.39	0.10	23.96	49.66	-25.70	Average
0.452	32.19	0.33	0.11	32.63	56.85	-24.22	QP
0.452	13.50	0.33	0.11	13.94	46.85	-32.91	Average
3.681	36.73	0.20	0.18	37.11	56.00	-18.89	QP
3.681	26.43	0.20	0.18	26.81	46.00	-19.19	Average

## 7.2. Radiated Emission

### 7.2.1. Test Specification

<b>Test Requirement:</b>	FCC 47 CFR Part 15 Subpart B
<b>Test Method:</b>	ANSI C63.4: 2014
<b>Frequency Range:</b>	30 MHz to 25 GHz
<b>Measurement Distance:</b>	3 m
<b>Antenna Polarization:</b>	Horizontal & Vertical

### 7.2.2. Limits

#### Below 1 GHz

Frequency (MHz)	Class B (at 3m)	
	dBuV/m	dBuV/m
30 ~ 88	40.0	
88 ~ 216	43.5	
216 ~ 960	46.0	
960 ~ 1000	54.0	

#### Above 1 GHz

Frequency (MHz)	Peak Value (at 3m)	Average (at 3m)
	dBuV/m	dBuV/m
Above 1GHz	74.0	54.0

**Note:**

1. The lower limit shall apply at the transition frequencies.
2. Emission level dB( $\mu$ V/m) = 20 log Emission level ( $\mu$ V/m).

### 7.2.3. Test Instruments

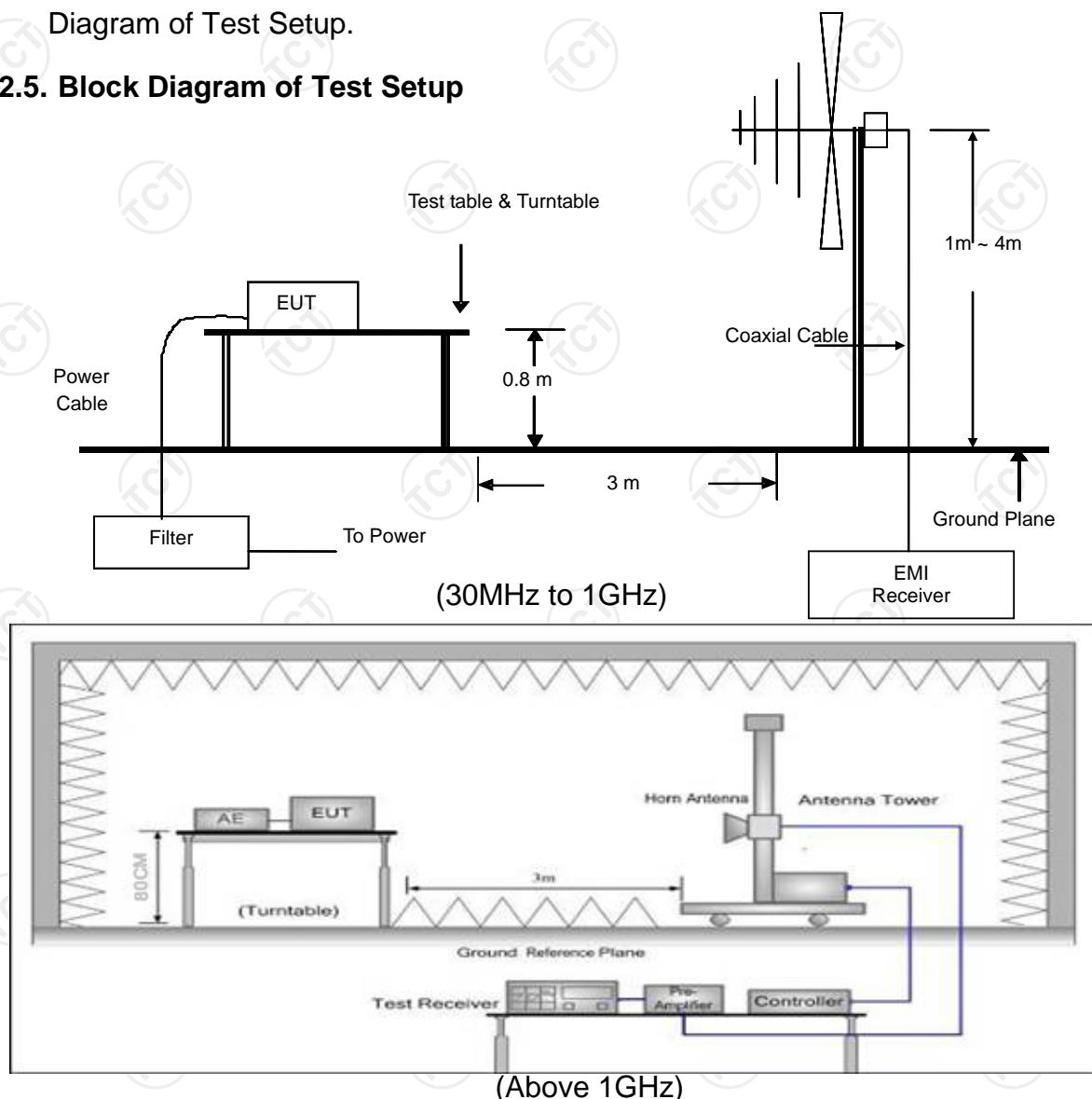
Radiated Emission Test Site (966)				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
EMI Test Receiver	R&S	ESVD	100008	Sep. 27, 2018
Spectrum Analyzer	R&S	FSEM	848597-001	Sep. 27, 2018
Amplifier	HP	8447D	2727A05017	Sep. 27, 2018
Amplifier	EM	EM30265	07032613	Sep. 27, 2018
Broadband Antenna	Schwarzbeck	VULB9163	340	Sep. 27, 2018
Horn Antenna	Schwarzbeck	BBHA 9120D	631	Sep. 27, 2018

**Note:** The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

#### 7.2.4. Test Method

Measurements were made in a 3-meter semi-anechoic chamber or Open Area Test Site that complies to CISPR 16. Preliminary (peak) measurements were performed at an antenna to EUT separation distance of 3 meter. The EUT was rotated 360° about its azimuth with the receive antenna located at various heights in horizontal and vertical polarities. Final measurements (quasi-peak) were then performed by rotating the EUT 360° and adjusting the receive antenna height from 1 to 4 m. All frequencies were investigated in both horizontal and vertical antenna polarity, where applicable. Block Diagram of Test Setup.

#### 7.2.5. Block Diagram of Test Setup



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration

### 7.2.6. Test Results

<b>Test Environment:</b>	Temp.:	25 °C	Humid.:	52 %	Press.:	1012 mbar
<b>Test Mode:</b>	Mode 1					
<b>Test Voltage:</b>	DC 5.0V from PC					
<b>Test Result:</b>	Pass					

Freq. = Emission frequency in MHz

Reading level (dB $\mu$ V) = Receiver reading

Corr. Factor (dB) = Antenna factor + Cable loss-AMP factor

Measurement (dB $\mu$ V) = Reading level (dB $\mu$ V) + Corr. Factor (dB)

Limit (dB $\mu$ V) = Limit stated in standard

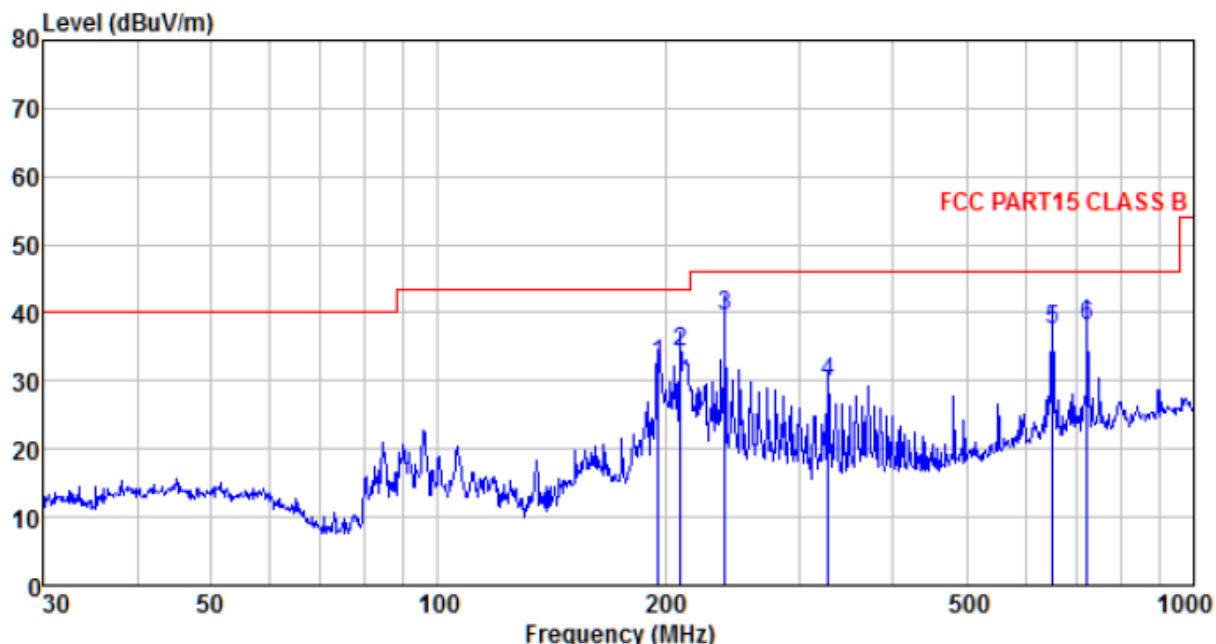
Margin (dB) = Measurement (dB $\mu$ V) – Limits (dB $\mu$ V)

\* is meaning the worst frequency has been tested in the test frequency range

Please refer to following diagram for individual

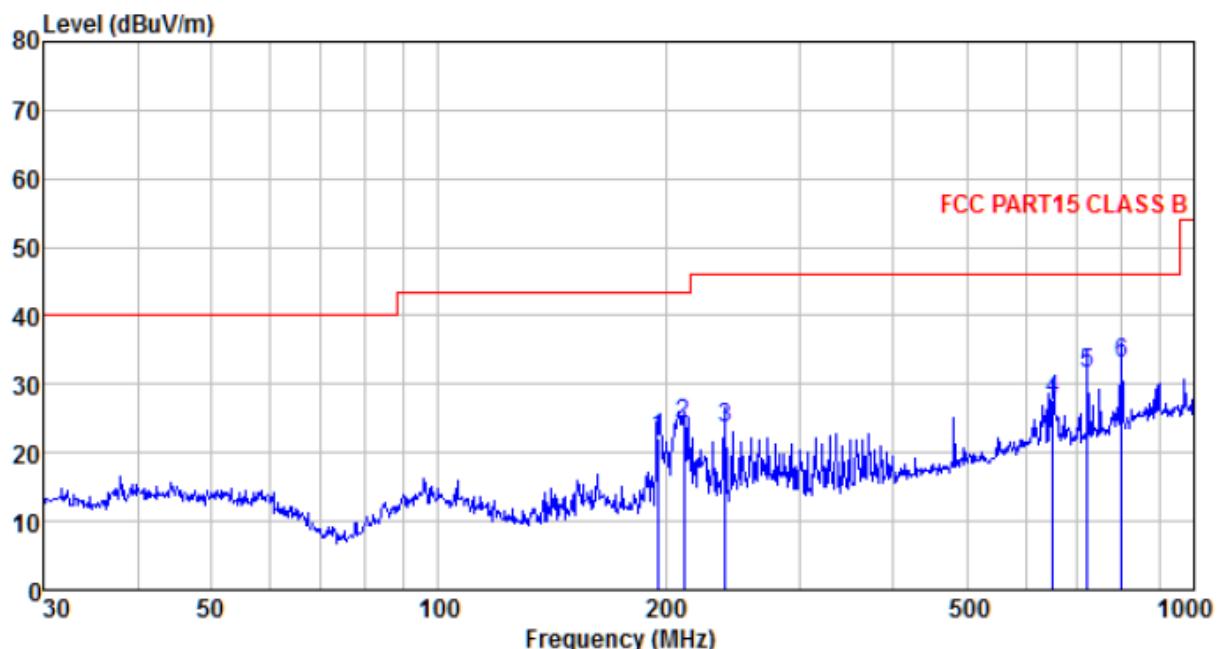
Below 1GHz

Horizontal:



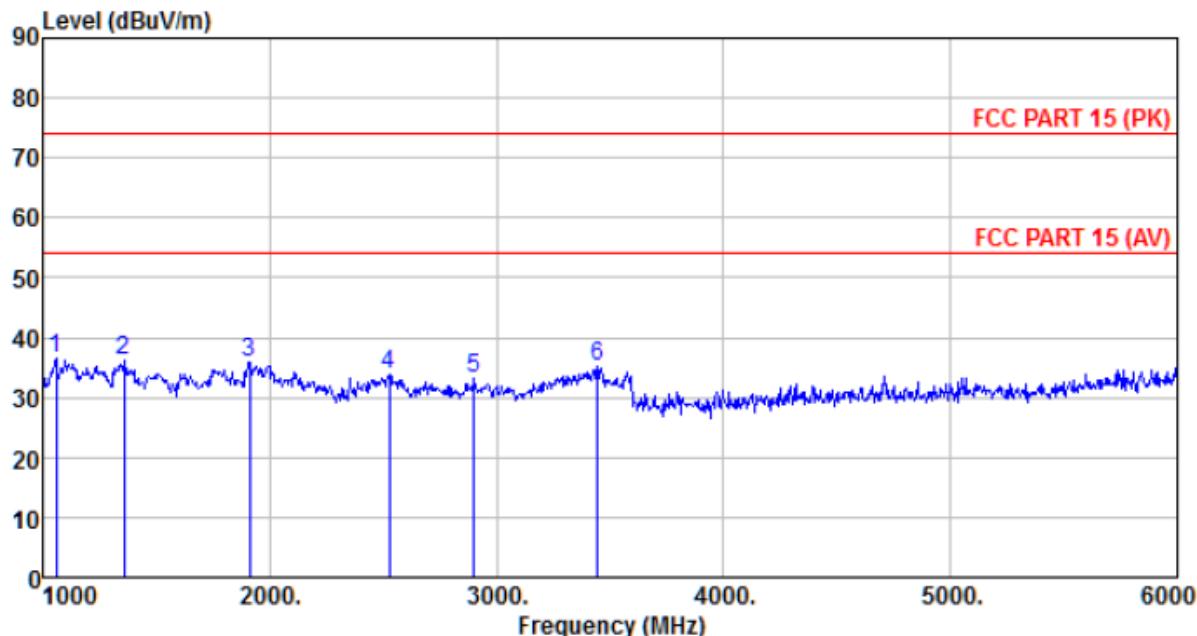
Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamplifier factor dB	Level dBuV	Limit level dBuV/m	Over limit dB	Remark
195.822	47.35	12.57	1.82	29.21	32.53	43.50	-10.97	QP
209.313	48.79	12.87	1.89	29.29	34.26	43.50	-9.24	QP
239.987	52.81	14.09	2.07	29.56	39.41	46.00	-6.59	QP
327.887	41.35	15.66	2.51	29.84	29.68	46.00	-16.32	QP
649.660	42.32	20.64	3.91	29.25	37.62	46.00	-8.38	QP
721.726	41.89	21.10	4.17	29.20	37.96	46.00	-8.04	QP

Vertical:



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV	Limit level dBuV/m	Over limit dB	Remark
195.822	36.90	12.57	1.82	29.21	22.08	43.50	-21.42	QP
211.527	38.56	12.93	1.91	29.31	24.09	43.50	-19.41	QP
239.987	37.08	14.09	2.07	29.56	23.68	46.00	-22.32	QP
649.660	32.46	20.64	3.91	29.25	27.76	46.00	-18.24	QP
721.726	35.62	21.10	4.17	29.20	31.69	46.00	-14.31	QP
801.786	35.61	22.06	4.46	29.20	32.93	46.00	-13.07	QP

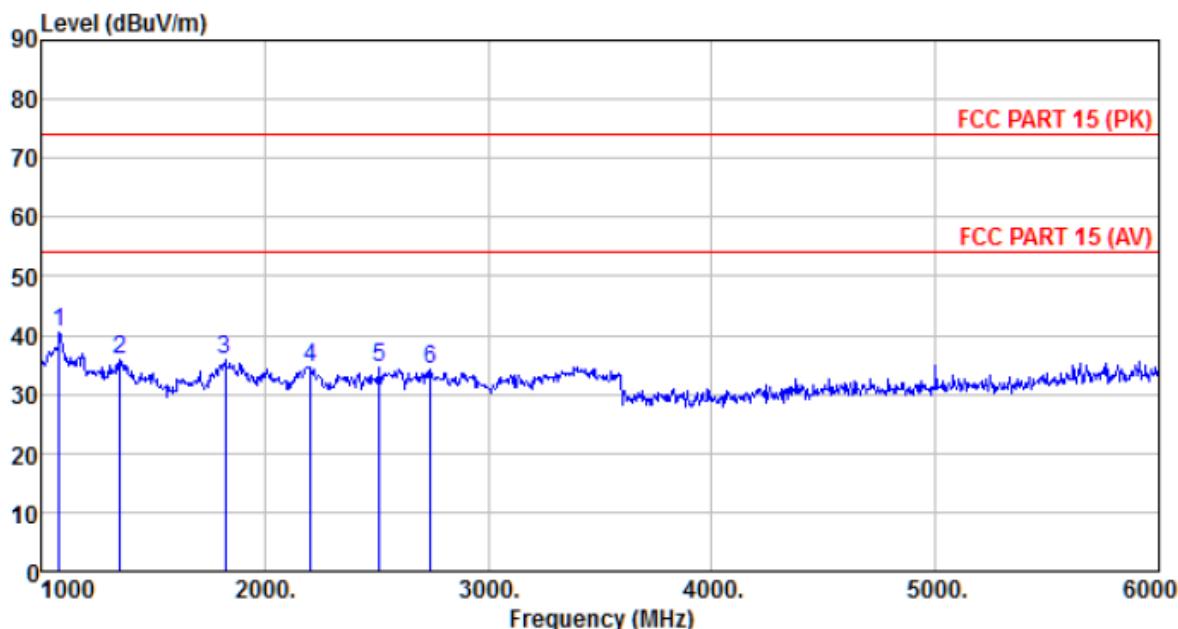
Above 1GHz  
Horizontal:



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV	Limit level dBuV/m	Over limit dB	Remark
1060.000	43.24	24.65	4.35	35.84	36.40	74.00	-37.60	Peak
1360.000	41.93	25.69	4.59	36.01	36.20	74.00	-37.80	Peak
1910.000	41.54	25.79	4.92	36.35	35.90	74.00	-38.10	Peak
2525.000	37.73	27.58	5.51	36.82	34.00	74.00	-40.00	Peak
2900.000	36.07	28.44	5.84	37.12	33.23	74.00	-40.77	Peak
3445.000	36.86	28.80	6.86	37.33	35.19	74.00	-38.81	Peak

Note: For above 6GHz , no emission found

Vertical:



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV	Limit level dBuV/m	Over limit dB	Remark
1080.000	47.42	24.70	4.37	35.85	40.64	74.00	-33.36	Peak
1355.000	41.63	25.70	4.58	36.01	35.90	74.00	-38.10	Peak
1825.000	41.75	25.40	4.87	36.30	35.72	74.00	-38.28	Peak
2205.000	37.98	27.96	5.19	36.56	34.57	74.00	-39.43	Peak
2515.000	38.30	27.57	5.50	36.81	34.56	74.00	-39.44	Peak
2740.000	37.33	28.23	5.71	36.98	34.29	74.00	-39.71	Peak

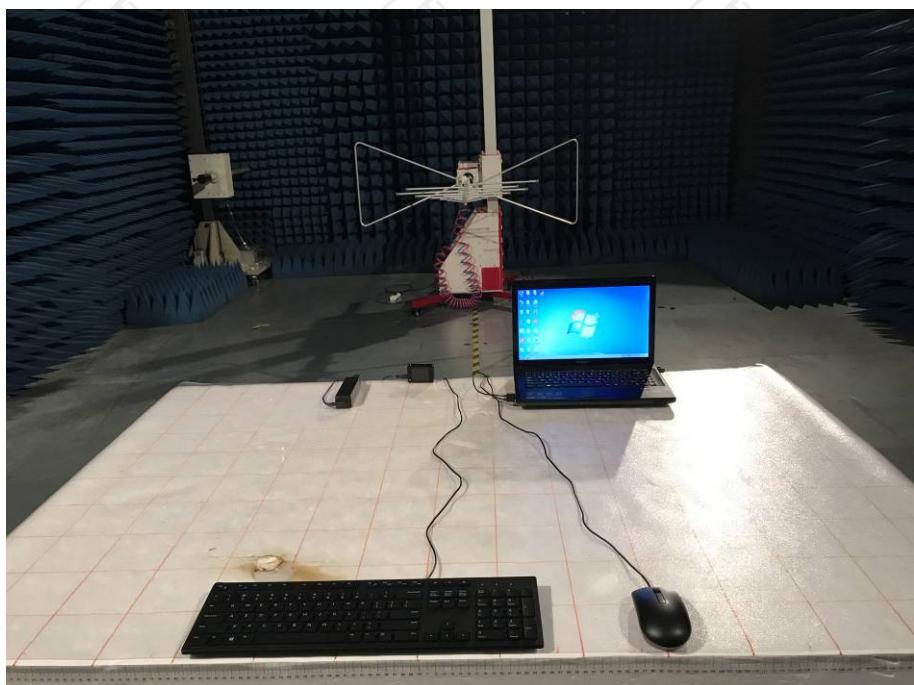
Note: For above 6GHz , no emission found

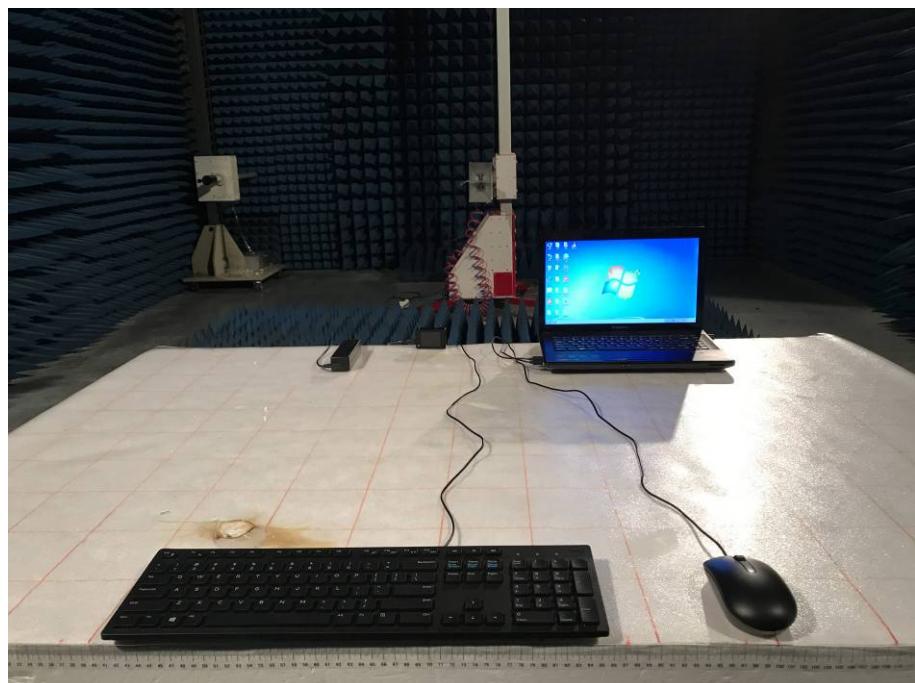
## 8. Photographs of Test Configuration

### Conducted Emission Test View



### Radiated Emission Test View





## 9. Photographs of EUT

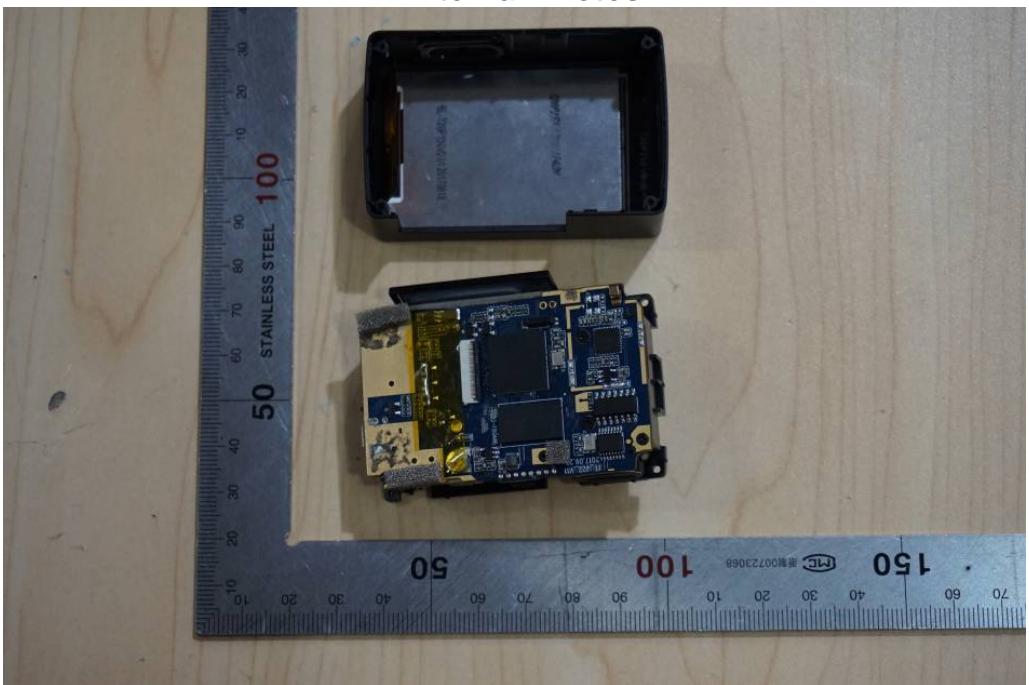
### External Photos

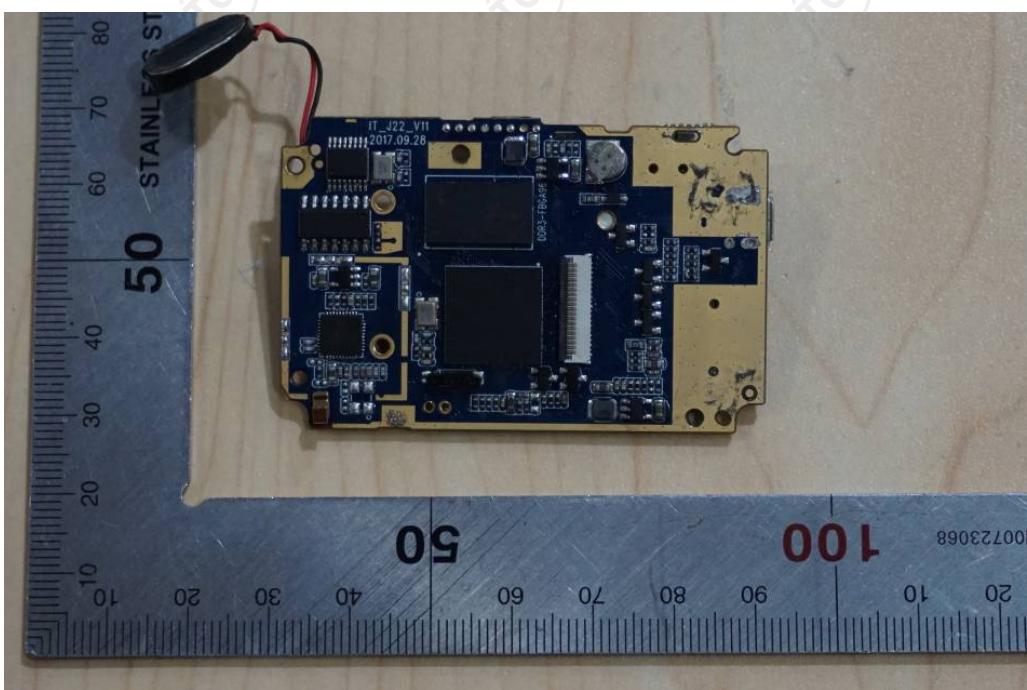
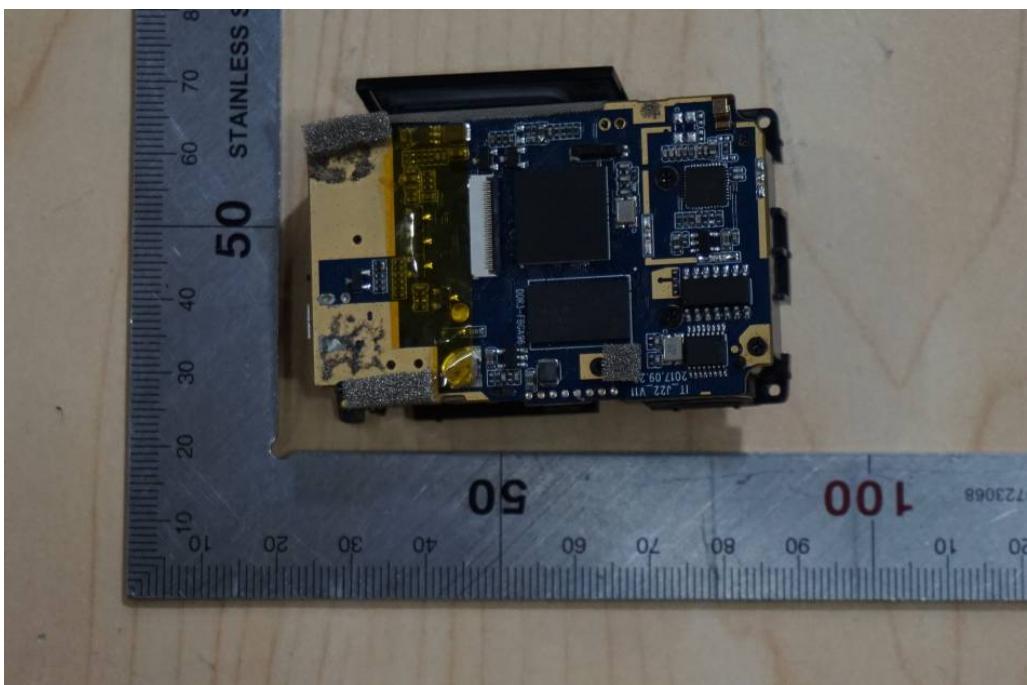


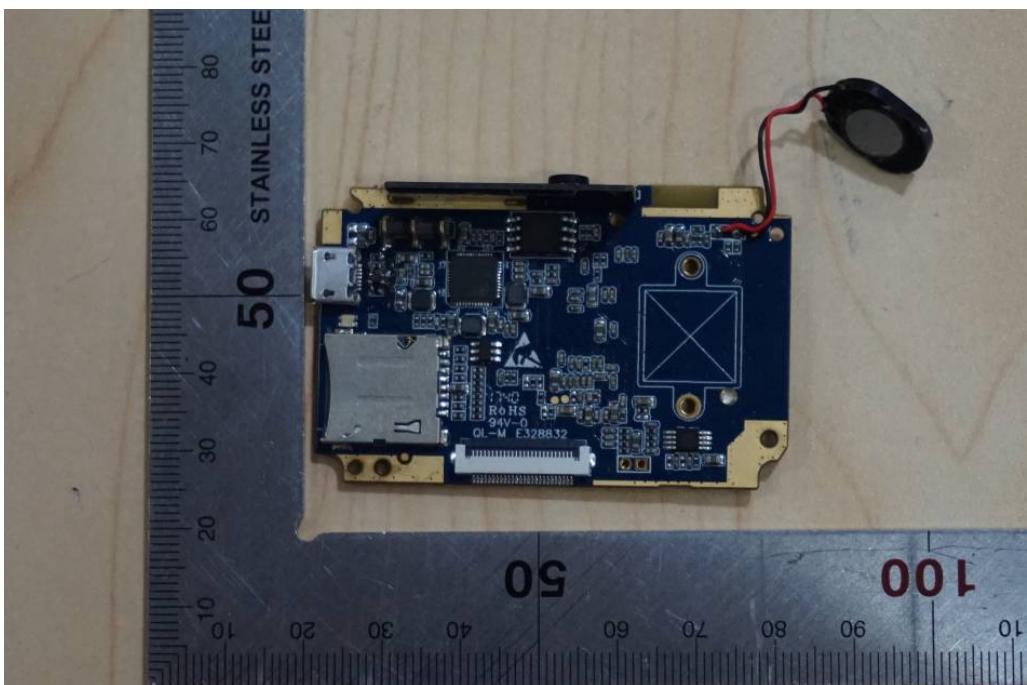


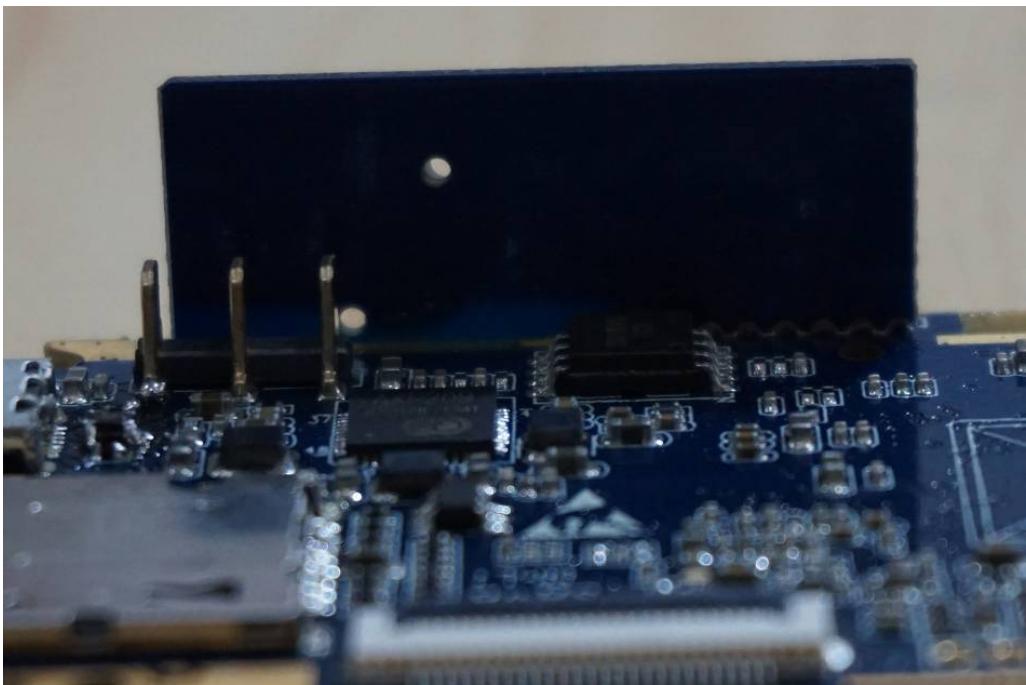


### Internal Photos











\*\*\*\*\***END OF REPORT**\*\*\*\*\*