



EMC TEST REPORT

Product : Webcam
Trade mark : ANC
Model/Type reference : 965 01, 002 01(WSD-1007), 928 01,
700 01, 391 01, 013 01, B331 01,
106 01(PC-320425)
Serial Number : N/A
Ratings : DC 5V
Report Number : EED32H000151
Date : Feb. 12, 2015
Regulations : See below

Test Standards	Results
<input checked="" type="checkbox"/> EN 55022: 2010	PASS
<input checked="" type="checkbox"/> EN 55024: 2010	PASS

Prepared for:

SHENZHEN AONI ELECTRONIC INDUSTRY CO., LTD
No.5 Bldg, Honghui Industrial park, 2nd liuxian Road,
Xinan street, Baoan District, Shenzhen

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Date: Feb. 12, 2015



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Check No.: 1702068602

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(Note: N/A means not applicable)

1. GENERAL INFORMATION

Applicant: SHENZHEN AONI ELECTRONIC INDUSTRY CO., LTD
 No.5 Bldg, Honghui Industrial park, 2nd liuxian Road, Xinan street, Baoan District, Shenzhen

Manufacturer: SHENZHEN AONI ELECTRONIC INDUSTRY CO., LTD
 No.5 Bldg, Honghui Industrial park, 2nd liuxian Road, Xinan street, Baoan District, Shenzhen

EMC Directive: 2004/108/EC

Product: Webcam

Trade mark: ANC

Model/Type reference: 965 01, 002 01(WSD-1007), 928 01, 700 01, 391 01, 013 01, B331 01, 106 01(PC-320425)

Serial Number: N/A

Report Number: EED32H000151

Sample Received Date: Jan. 29, 2015

Sample tested Date: Jan. 29, 2015 to Feb. 12, 2015

2. TEST SUMMARY

The Product has been tested according to the following specifications:

EMISSION		
Standard	Test Item	Test
EN 55022	Conducted disturbance	N/A ¹
EN 55022	Radiated disturbance	Yes

IMMUNITY (EN 55024)		
Standard	Test Item	Test
IEC 61000-4-2	Electrostatic discharge (ESD)	Yes
IEC 61000-4-3	Radio-frequency electromagnetic field Immunity	Yes
IEC 61000-4-4	Electrical fast transients (EFT)	N/A ¹
IEC 61000-4-5	Surges	N/A ¹
IEC 61000-4-6	Radio-frequency continuous conducted Immunity	N/A ¹
IEC 61000-4-8	Power-frequency magnetic fields Immunity	N/A ²
IEC 61000-4-11	Voltage dips and interruptions	N/A ¹

Remark:

1. The Product is powered by USB port DC 5V..
2. The Product doesn't contain any device susceptible to magnetic fields.

3. TEST UNCERTAINTY

Where relevant, the following test uncertainty levels have been estimated for tests performed on the Product as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

Test item	Value (dB)
Radiated disturbance (30MHz to 1GHz)	4.9

4. PRODUCT INFORMATION AND TEST SETUP

4.1 PRODUCT INFORMATION

Ratings: DC 5V

The highest frequency of the internal sources of the EUT is 12 MHz: ☒ less than 108 MHz, the measurement shall only be made up to 1 GHz.

☐ between 108 MHz and 500 MHz, the measurement shall only be made up to 2 GHz.

☐ between 500 MHz and 1 GHz, the measurement shall only be made up to 5 GHz.

☐ above 1 GHz, the measurement shall be made up to 5 times the highest frequency or 6 GHz, whichever is less.

Model difference:

All models are identical except the appearance. The test model is 965 01 and the test results are applicable to the others.

4.2 TEST SETUP CONFIGURATION

See test photographs attached in Appendix 1 for the actual connections between Product and support equipment.

4.3 SUPPORT EQUIPMENT

No.	Device Type	Brand	Model	Series No.	Data Cable	Power Cord
1.	PC	DELL	OPTIPLEX755	---	---	Detachable
2.	Monitor	SONY	KLV-22EX310	6004657	Shielded 1.4m	Detachable
3.	Keyboard	L.Selectron	KB-101A	C0402011340ZOHD	Shielded 1.4m	---
4.	Mouse	L.Selectron	OP-200	C05004453RUPM	Shielded 1.4m	---
5.	PC	LENOVO	SY2	SS046999071	---	Detachable
6.	Monitor	LENOVO	LXM-L15DB	7M0182564170598	Shielded 1.4m	Detachable

Notes:

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.

5. FACILITIES AND ACCREDITATIONS

5.1 TEST FACILITY

All test facilities used to collect the test data are located at Hongwei Industrial Zone, 70 Area, Bao'an District, Shenzhen, Guangdong, China. The site and apparatus are constructed in conformance with the requirements of ANSI C63.4, CISPR 16-1-1 and other equivalent standards.

5.2 TEST EQUIPMENT LIST

Instrumentation: The following list contains equipments used at CTI for testing.

The calibrations of the measuring instruments, including any accessories that may effect such calibration, are checked frequently to assure their accuracy. Adjustments are made and correction factors applied in accordance with instructions contained in the manual for the measuring instrument.

Equipment used during the tests:

3M Semi-anechoic Chamber (2)- Radiated disturbance Test				
Equipment	Manufacturer	Model	Serial No.	Due Date
3M Chamber & Accessory Equipment	TDK	SAC-3	---	06/01/2016
Receiver	R&S	ESCI	100435	07/08/2015
TRILOG Broadband Antenna	schwarzbeck	VULB 9163	618	06/17/2015
Multi device Controller	maturo	NCD/070/10711 112	---	N/A

Shielding Room No. 3 - ESD Test (IEC 61000-4-2)				
Equipment	Manufacturer	Model	Serial No.	Due Date
ESD Simulator	TESEQ	NSG437	478	11/02/2015

3M Full-anechoic Chamber - Radio-frequency electromagnetic field Immunity Test (IEC 61000-4-3)				
Equipment	Manufacturer	Model	Serial No.	Due Date
3M Chamber & Accessory Equipment	ETS-LINDGREN	FACT-3	3510	07/12/2016
ESG Vector signal generators	Agilent	E4438C	MY45095744	01/12/2016
Power Amplifier	AR	150W1000	0322288	10/19/2015
Stacked double Log.-Per. Antenna	schwarzbeck	STLP 9128 E special	9128ES-110	10/19/2015

5.3 LABORATORY ACCREDITATIONS AND LISTINGS

The measuring equipment utilized to perform the tests documented in this report has been calibrated once a year or in accordance with the manufacturer's recommendations, and is traceable under the ISO/IEC/EN 17025 to international or national standards. Equipment has been calibrated by accredited calibration laboratories.

6. RADIATED DISTURBANCE (RE)

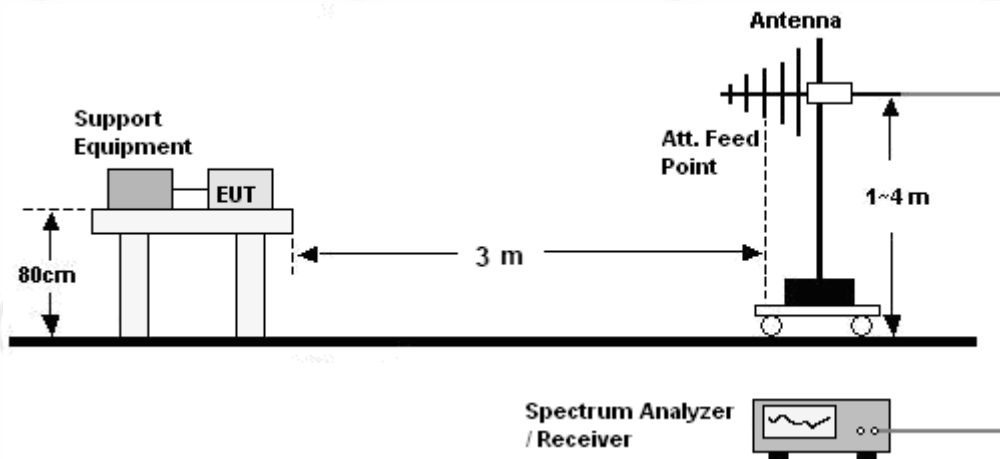
6.1 LIMITS

Limits for radiated disturbance of Class B ITE

Frequency (MHz)	Quasi-peak limits at 3m dB(μ V/m)
30-230	40
230-1000	47

NOTE: The lower limit shall apply at the transition frequencies.

6.2 BLOCK DIAGRAM OF TEST SETUP



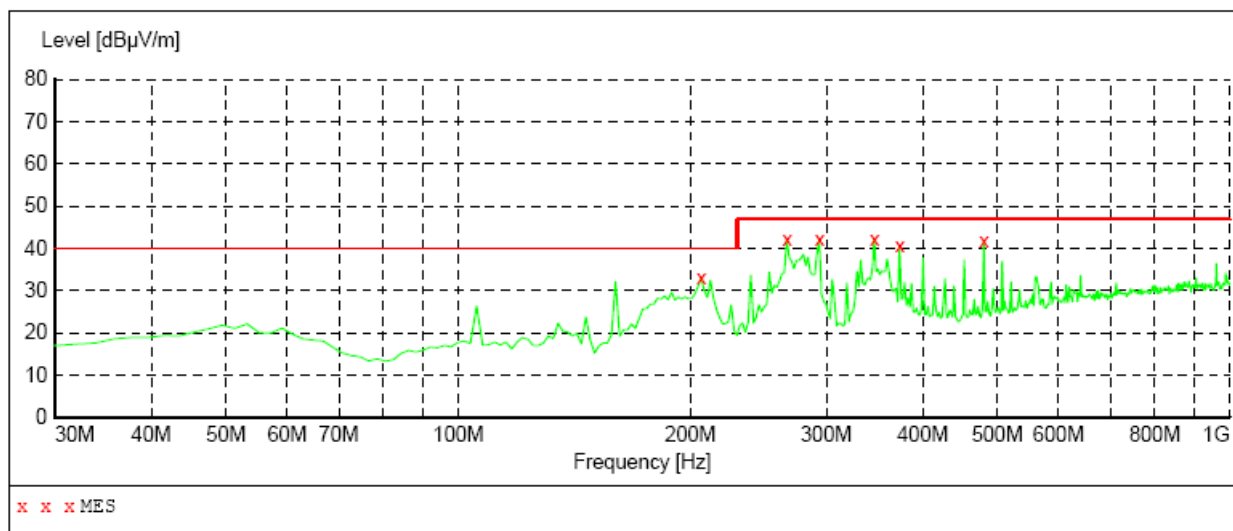
6.3 TEST PROCEDURE

- The Product was placed on the non-conductive turntable 0.8 m above the ground at a chamber.
- Set the spectrum analyzer/receiver in Peak detector, Max Hold mode, and 120 kHz RBW. Record the maximum field strength of all the pre-scan process in the full band when the antenna is varied between 1~4 m in both horizontal and vertical, and the turntable is rotated from 0 to 360 degrees.
- For each frequency whose maximum record was higher or close to limit, measure its QP value: vary the antenna's height and rotate the turntable from 0 to 360 degrees to find the height and degree where Product radiated the maximum emission, then set the test frequency analyzer/receiver to QP Detector and specified bandwidth with Maximum Hold Mode, and record the maximum value.

6.4 GRAPHS AND DATA

Product : Webcam
Power : DC 5V
Mode : Normal

Model/Type reference : 965 01
Temperature : 24.8℃
Humidity : 51%

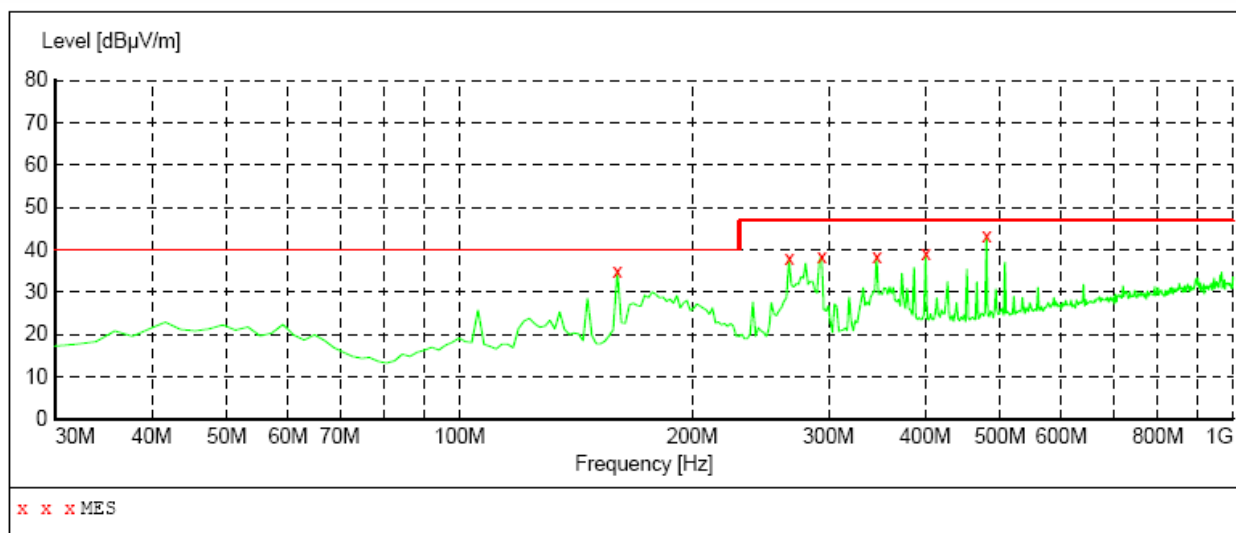


MEASUREMENT RESULT:

Frequency MHz	Level dBμV/m	Transd dB	Limit dBμV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
206.540000	33.00	13.6	40.0	7.0	QP	100.0	295.00	HORIZONTAL
266.680000	42.20	14.8	47.0	4.8	QP	100.0	257.00	HORIZONTAL
293.840000	42.10	15.5	47.0	4.9	QP	100.0	0.00	HORIZONTAL
346.220000	42.30	17.8	47.0	4.7	QP	100.0	14.00	HORIZONTAL
373.380000	40.80	18.1	47.0	6.2	QP	100.0	14.00	HORIZONTAL
480.080000	41.90	19.8	47.0	5.1	QP	200.0	333.00	HORIZONTAL

Product : Webcam
Power : DC 5V
Mode : Normal

Model/Type reference : 965 01
Temperature : 24.8℃
Humidity : 51%



MEASUREMENT RESULT:

Frequency MHz	Level dBμV/m	Transd dB	Limit dBμV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
159.980000	35.00	10.5	40.0	5.0	QP	100.0	185.00	VERTICAL
266.680000	38.00	14.8	47.0	9.0	QP	100.0	239.00	VERTICAL
293.840000	38.50	15.5	47.0	8.5	QP	200.0	360.00	VERTICAL
346.220000	38.30	17.8	47.0	8.7	QP	200.0	360.00	VERTICAL
400.540000	39.00	18.2	47.0	8.0	QP	100.0	360.00	VERTICAL
480.080000	43.20	19.8	47.0	3.8	QP	100.0	335.00	VERTICAL

7. IMMUNITY TEST

General Performance Criteria	
Product Standard	EN 55024:2010 clause 7
CRITERION A	The equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.
CRITERION B	<p>After the test, the equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed, after the application of the phenomena below a performance level specified by the manufacturer, when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance.</p> <p>During the test, degradation of performance is allowed. However, no change of operating state or stored data is allowed to persist after the test.</p> <p>If the minimum performance level (or the permissible performance loss) is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.</p>
CRITERION C	<p>Loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacturer's instructions.</p> <p>Functions, and/or information stored in non-volatile memory, or protected by a battery backup, shall not be lost.</p>

7.1.4 RESULTS & PERFORMANCE

Product : Webcam
Power : DC 5V
Mode : Normal

Model/Type reference : 965 01
Temperature : 24.5℃
Humidity : 51%

Discharge Method	Discharge Position	Voltage (± kV)	Min. No. of Discharge per polarity (Each Point)	Required Level	Performance Criterion
Contact Discharge	Conductive Surfaces	2, 4	50	B	B ¹
	Indirect Discharge HCP	2, 4	50	B	A
	Indirect Discharge VCP	2, 4	50	B	A
Air Discharge	Slots, Apertures, and Insulating Surfaces	2, 4, 8	10	B	B ²

Remark: 1. The monitor screen stop during the test, it may re-plug the USB port to normal.

2. The monitor screen stop during the test, it may re-open the monitor screen to normal.

Discharge Method	Discharge Position	Voltage (± kV)	Min. No. of Discharge per polarity (Each Point)	Point of Discharge	Required Level	Performance Criterion
Contact Discharge	Conductive Surfaces	2, 4	50	Figure 1-(1)	B	B ¹
Air Discharge	Slots, Apertures, and Insulating Surfaces	2, 4, 8	10	Figure 1-(2)	B	B ²

☒ Please refer to the attached additional information.

EN 61000-4-2
Electrostatic Discharge
(Fig. 1 for Points of Discharge)



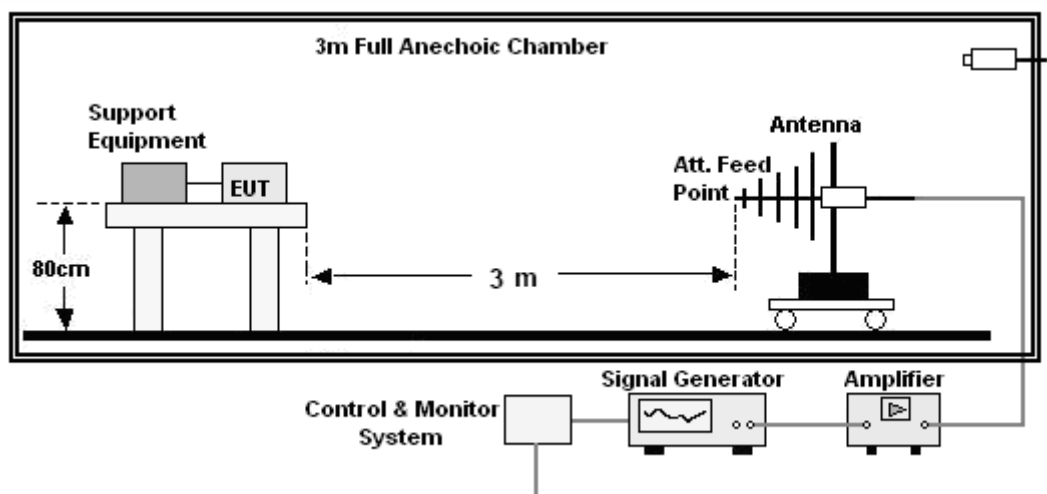
✕: Contact discharge
○: Air discharge

7.2 RADIO-FREQUENCY ELECTROMAGNETIC FIELD IMMUNITY

7.2.1 TEST SPECIFICATION

Basic Standard	: EN 55024 & IEC 61000-4-3
Test Port	: Enclosure port
Step Size	: 1%
Modulation	: 1kHz, 80% AM
Dwell Time	: 1 second
Polarization	: Horizontal & Vertical

7.2.2 BLOCK DIAGRAM OF TEST SETUP



7.2.3 TEST PROCEDURE

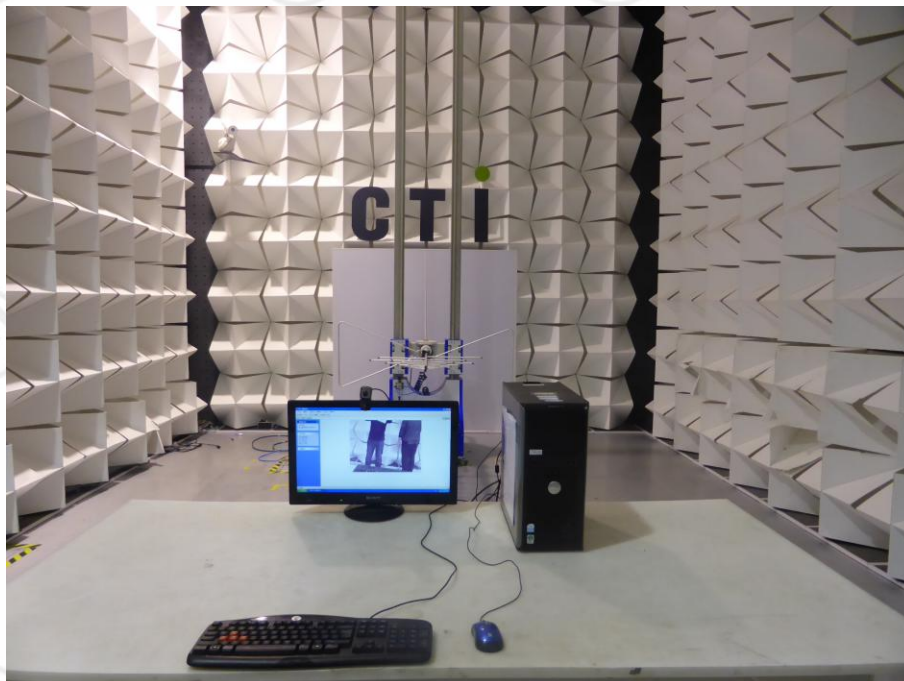
- The testing was performed in a fully-anechoic chamber. The transmit antenna was located at a distance of 3 meters from the Product.
- The frequency range is swept from 80MHz to 1000MHz, with the signal 80% amplitude modulated with a 1 kHz sine wave. The rate of sweep did not exceed 1.5×10^{-3} decade/s. Where the frequency range is swept incrementally, the step size was 1%.
- The test was performed with the Product exposed to both vertically and horizontally polarized fields on each of the four sides.

7.2.4 RESULTS & PERFORMANCE

Product	: Webcam	Model/Type reference	: 965 01
Power	: DC 5V	Temperature	: 24.5°C
Mode	: Normal	Humidity	: 51%

Frequency (MHz)	Position	Field Strength (V/m)	Required Level	Performance Criterion
80 - 1000	Front, Right, Back, Left	3	A	A

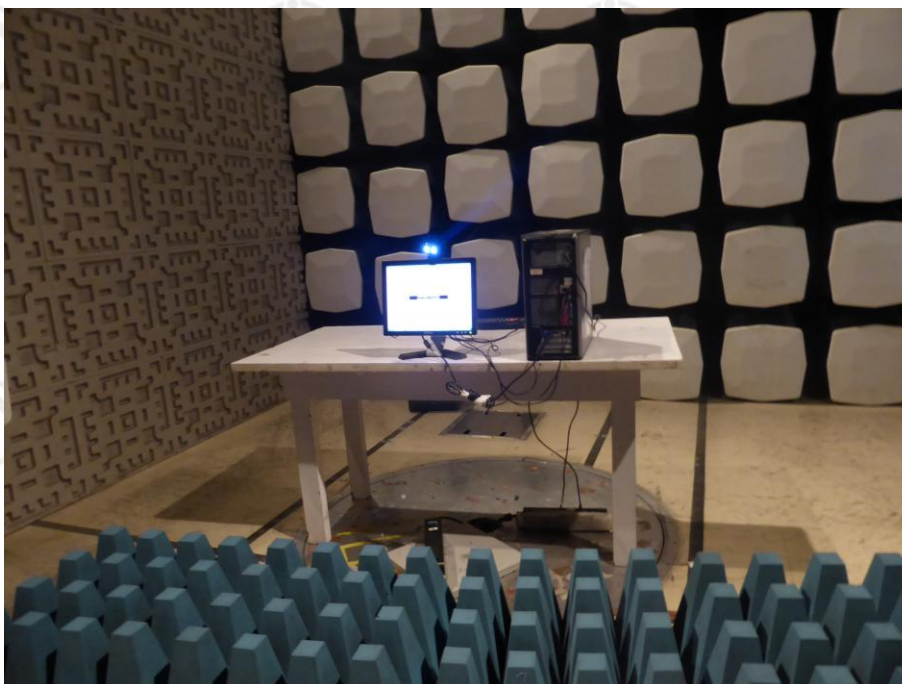
APPENDIX 1 PHOTOGRAPHS OF TEST SETUP



RADIATED DISTURBANCE TEST SETUP



ESD TEST SETUP



RADIO-FREQUENCY ELECTROMAGNETIC FIELD IMMUNITY TEST SETUP

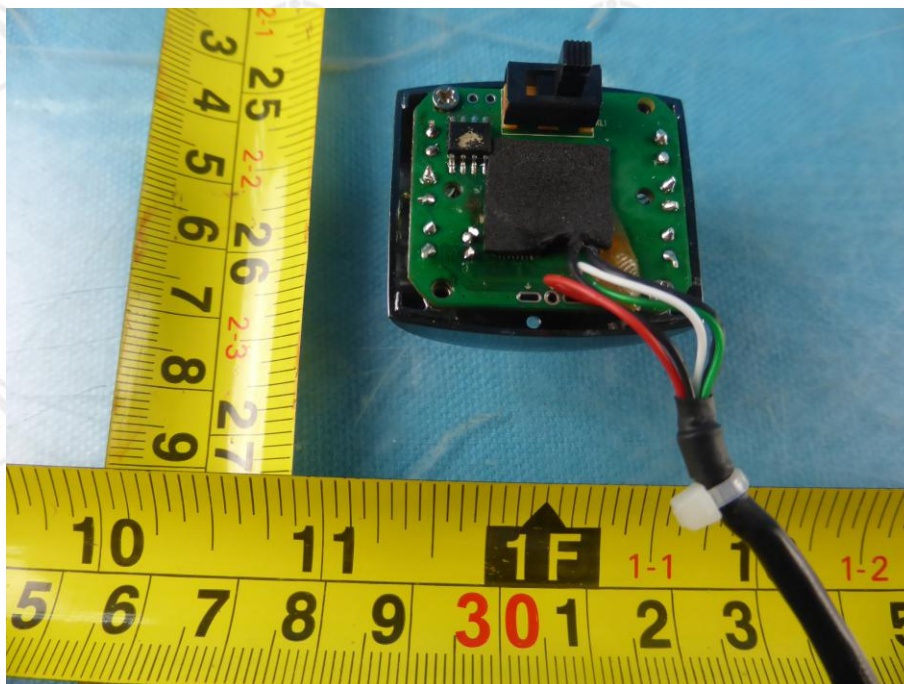
APPENDIX 2 PHOTOGRAPHS OF PRODUCT



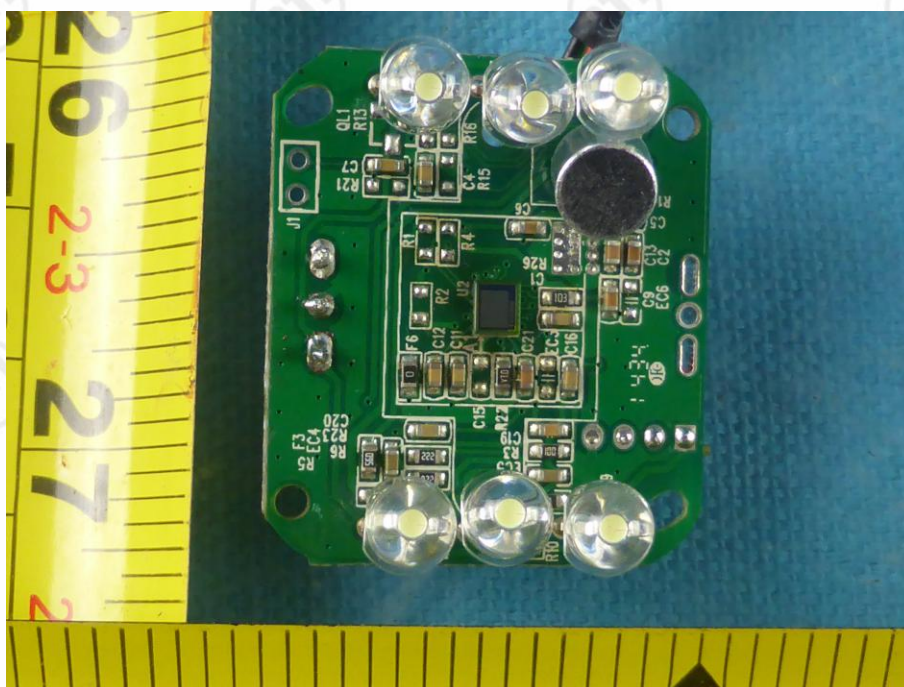
View of Product-1(965 01)



View of Product-2(965 01)



View of Product-3(965 01)



View of Product-4(965 01)



View of Product-5(002 01(WSD-1007))



View of Product-6(928 01)



View of Product-7(700 01)



View of Product-8(391 01)



View of Product-8(013 01)



View of Product-9(B331 01)



View of Product-10(106 01(PC-320425))

*** End of Report ***

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