



中国认可
国际互认
检测
TESTING
CNAS L6478



TEST REPORT

Reference No...... : WTF21F10108564E
Applicant..... : Mid Ocean Brands B.V.
Address..... : 7/F., Kings Tower, 111 King Lam Street, Cheung Sha Wan, Kowloon,
 Hong Kong
Manufacturer : 109979
Product Name..... : 1080P StreamCam with white LED
Model No...... : MO6395
Standards..... : EN 55032:2015+A11:2020
 EN 55035:2017+A11:2020
 EN IEC 61000-3-2:2019
 EN 61000-3-3:2013+A1:2019
Date of Receipt sample : 2021-10-18
Date of Test : 2021-10-19 to 2021-10-25
Date of Issue..... : 2021-11-15
Test Report Form No...... : WEI-55032A-04A
Test Result..... : **Pass**

Remarks:

The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

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1 Test Summary

EMISSION				
Test Item	Test Standard	Class / Severity	Result	
Mains Terminal Disturbance Voltage, 150kHz to 30MHz	EN 55032:2015+A11:2020	Table A.10	Pass	
Radiated Emission, 30MHz to 1000MHz	EN 55032:2015+A11:2020	Table A.4	Pass	
Harmonic Current Emission	EN IEC 61000-3-2:2019	Class A	Pass**	
Voltage Fluctuation and Flicker	EN 61000-3-3:2013+A1 :2019	Clause 5	Pass	
IMMUNITY (EN 55035:2017+A11:2020)				
Test Item	Test Method	Class / Severity	Performance Criteria	Result
Electrostatic Discharge(ESD)	IEC 61000-4-2:2008	±4 Kv Contact ±8 Kv Air	B	Pass
Continuous RF Electromagnetic Field Disturbances	IEC 61000-4-3: 2006+A1+A2	3V/m, 80%, 1kHz, Amp. Mod.	A	Pass
Electrical Fast Transients (EFT)	IEC 61000-4-4:2012	AC ±1.0Kv DC ±0.5Kv	B	Pass
Surge	IEC 61000-4-5:2005	±1Kv D.M.† ±2Kv C.M.‡	B	Pass
Continuous Induced RF Disturbances, 0.15MHz to 10MHz	IEC 61000-4-6:2008	3Vr.m.s.(emf), 80%, 1kHz Amp. Mod.	A	Pass
Continuous Induced RF Disturbances, 10MHz to 30MHz		3 to 1Vr.m.s.(emf), 80%, 1kHz Amp. Mod	A	Pass
Continuous Induced RF Disturbances, 30MHz to 80MHz		1Vr.m.s.(emf), 80%, 1kHz Amp. Mod	A	Pass
Power-Frequency Magnetic Field	IEC 61000-4-8:2009	1A/m	A	N/A
Voltage Dips	IEC 61000-4-11:2004	< 5 % U _T * for 0.5per	B	Pass
		70 % U _T * for 25/30per	C	Pass
Voltage Interruptions	IEC 61000-4-11:2004	< 5 % U _T * for 250/300per	C	Pass

Remark:

Pass Test item meets the requirement

Fail Test item does not meet the requirement

N/A Test case does not apply to the test object

A.M Amplitude Modulation

† Differential Mode

‡ Common Mode

* U_T is the nominal supply voltage

** According to EN IEC 61000-3-2 which states:“ For the following categories of equipment limits are not specified in this edition of the standard. Equipment with a rated power of 75W or less, other than lighting equipment” Therefore there is no need for harmonics test to be performed on this product and deemed to fulfil emission requirements without testing.



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WALTEK



3 General Information

3.1 General Description of E.U.T.

Product Name : 1080P StreamCam with white LED
Model No. : MO6395
Remark : --

3.2 Details of E.U.T.

Technical Data : USB 5V

3.3 Description of Support Units

The EUT has been tested as an independent unit. MO6395 is the test smaple. The DV and RE tests were performed in the condition of AC 240V/50Hz input. The other tests were performed in the condition of AC 230V/50Hz input. All tests were performed with the Notebook specified by the laboratory.

3.4 Standards Applicable for Testing

The tests were performed according to following standards:

EN 55032:2015+A11:2020	Electromagnetic compatibility of multimedia equipment — Emission Requirements
EN 55035:2017+A11:2020	Electromagnetic compatibility of multimedia equipment - Immunity requirements
EN IEC 61000-3-2:2019	Electromagnetic compatibility (EMC) -- Part 3-2: Limits - Limits for harmonic current emissions (equipment input current up to and including 16 A per phase).
EN 61000-3-3:2013+A1:2019	Electromagnetic compatibility (EMC) -- Part 3-3: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current \leq 16 A per phase and not subject to conditional connection.



3.5 Test Facility

The test facility has a test site registered with the following organizations:

- **ISED – Registration No.: 21895**

Waltek Testing Group (Foshan) Co., Ltd. has been registered and fully described in a report filed with the Innovation, Science and Economic Development Canada (ISED). The acceptance letter from the ISED is maintained in our files. Registration ISED number: 21895, March 12, 2019

- **FCC – Registration No.: 820106**

Waltek Testing Group (Foshan) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 820106, August 16, 2018

- **NVLAP – Lab Code: 600191-0**

Waltek Testing Group (Foshan) Co., Ltd. EMC Laboratory is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP/NIST). NVLAP Code: 600191-0.

This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

3.6 Subcontracted

Whether parts of tests for the product have been subcontracted to other labs:

Yes No

If Yes, list the related test items and lab information:

Test items: ---

Lab information: ---

3.7 Abnormalities from Standard Conditions

None.



4 Equipment Used during Test

Mains Terminal Disturbance Voltage 1#(Conducted Emission)					
Item	Equipment	Manufacturer	Model No.	Serial No.	Calibration Status
1.	EMI Test Receiver	R&S	ESR3	102423	Valid
2.	LISN	R&S	ENV216	101343	Valid
3.	Cable	HUBER+SUHNER	CBL2-NN-6M	223NN624	Valid
4.	Switch	CD	RSU-A4 18G	RSUA4008	Valid
Mains Terminal Disturbance Voltage 2#(Conducted Emission)					
Item	Equipment	Manufacturer	Model No.	Serial No.	Calibration Status
1.	EMI Test Receiver	R&S	ESCI	101178	Valid
2.	LISN	R&S	ENV216	101215	Valid
3.	Cable	HUBER+SUHNER	CBL2-NN-6M	6102701	Valid
4.	Switch	ESE	RSU/M2	---	Valid
Radiated Emission					
Item	Equipment	Manufacturer	Model No.	Serial No.	Calibration Status
1.	EMI Test Receiver	R&S	ESR7	101566	Valid
2.	Active Loop Antenna	SCHWARZBECK	FMZB1519B	00004	Valid
3.	Trilog Broadband Antenna	SCHWARZBECK	VULB 9162	9162-117	Valid
4.	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9120 D	01561	Valid
5.	Preamplifier	Lunar E M	LNA1G18-40	20160501002	Valid
Harmonics and Flicker Measuring System					
Item	Equipment	Manufacturer	Model No.	Serial No.	Calibration Status
1.	Harmonics and Flicker Measuring System	TESEQ	CCN1000-1	1133A01498	Valid
ESD					
Item	Equipment	Manufacturer	Model No.	Serial No.	Calibration Status
1.	ESD Simulator	TESEQ	NSG437	521	Valid
EFT & Voltage Dips and Interruptions					
Item	Equipment	Manufacturer	Model No.	Serial No.	Calibration Status
1.	EMS test system	TESEQ	NSG3040	0319	Valid
2.	Clamp	TESEQ	CDN8014	31405	Valid



Surge					
Item	Equipment	Manufacturer	Model No.	Serial No.	Calibration Status
1.	Surge Simulator	TESEQ	NSG3060	1395	Valid
Injected Currents					
Item	Equipment	Manufacturer	Model No.	Serial No.	Calibration Status
1.	Conducted Immunity test system	TESEQ	NSG4070-75	31469	Valid
2.	CDN	TESEQ	M016	31586	Valid
3.	Clamp	TESEQ	KEMZ801	32362	Valid
Radio-frequency electromagnetic fields					
Item	Equipment	Manufacturer	Model No.	Serial No.	Calibration Status
1.	RF Power Amplifier	OPHIR	5225R	1051/1712	Valid
2.	RF Power Amplifier	OPHIR	5293RE	1051/171	Valid
3.	Stacked double logarithmic periodic antenna	SCHWARZBECK	STLP9128E-SPECIAL	142	Valid
4.	Stacked double logarithmic periodic antenna	SCHWARZBECK	STLP 9149	476	Valid
5.	RF signal generator	Agilent	N5181A	MY48080720	Valid
6.	Power meter	RS	NRP6A	101133	Valid
7.	Power meter	RS	NRP6A	101134	Valid
8.	Electric field probe	Narda	EP 601	611WX70311	Valid

4.1 Software List

Description	Manufacturer	Model	Version
EMI Test Software (Conducted Emission1#)	FARATRONIC	EZ-EMC	EMEC-3A1
EMI Test Software (Conducted Emission2#)	FARATRONIC	EZ-EMC	CON-03A1
EMI Test Software (Radiated Emission)	FARATRONIC	EZ-EMC	RA-03A1-1
Harmonics and Flicker Test Software	TESEQ	Win2100	V4.28
Radiated Immunity Test Software	TONSCEND	JS35-RS	V2.0.1.7



4.2 Measurement Uncertainty

Test Item	Frequency Range	Uncertainty	Note
Conducted Emission	150kHz~30MHz	±2.7dB	(1)
Radiated Emission	30MHz~1GHz	±4.1dB	(1)
Radiated Emission	1GHz~6GHz	±5.0dB	(1)

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

4.3 Special Accessories and Auxiliary Equipment

Item	Equipment	Technical Data	Manufacturer	Model No.	Serial No.
1.	Notebook	AC 230V/50Hz	Lenovo	ThinkPad Edge E430	00426-OEM-8992662-00400

4.4 Decision Rule

Compliance or non-compliance with a disturbance limit shall be determined in the following manner.

If U_{LAB} is less than or equal to U_{cispr} , then

- Compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit;
- Non-compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.

If U_{LAB} is greater than U_{cispr} , then

- Compliance is deemed to occur if no measured disturbance level, increased by $(U_{LAB} - U_{cispr})$, exceeds the disturbance limit;
- Non-compliance is deemed to occur if any measured disturbance level, increased by $(U_{LAB} - U_{cispr})$, exceeds the disturbance limit.



5 Emission Test Results

5.1 Mains Terminals Disturbance Voltage, 150 kHz to 30MHz

Test Requirement	: EN 55032 Annex A.3
Test Method	: EN 55032 Annex A.3
Test Result	: Pass
Frequency Range	: 150kHz to 30MHz
Class/Severity	: Table A.10 of EN 55032
Classification	: ClassB

5.1.1 E.U.T. Operation

Operating Environment:

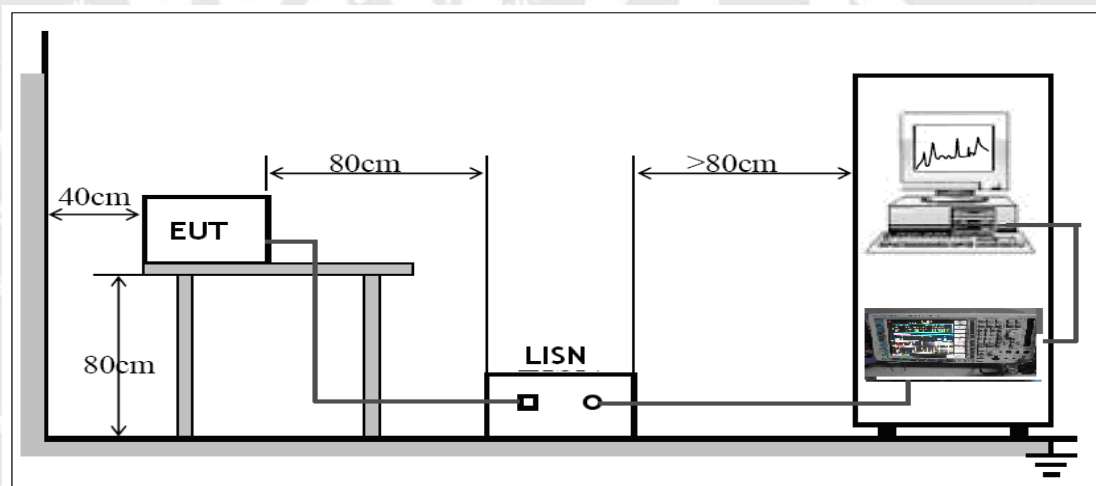
Temperature	: 26°C
Humidity	: 60%RH
Atmospheric Pressure	: 101.2kPa

EUT Operation:

Input Voltage	: AC 240V/50Hz
Operating Mode	: Working mode

5.1.2 Block Diagram of Test Setup

The Mains Terminals Disturbance Voltage tests were performed in accordance with the CISPR 16-1-2.



5.1.3 Measurement Data

The maximised peak emissions from the EUT was scanned and measured for both the Live and Neutral Lines. Quasi-peak & average measurements were performed if peak emissions were within 6dB of the average limit line.



5.1.4 Corrected Amplitude & Margin Calculation

The Corrected factor is calculated by adding LISN VDF(Voltage Division Facotr), Cable Loss and Transient Limiter Attenuation. The basic equation is as follows:

$$\text{Measurement} = \text{Reading Level} + \text{Correct Factor}$$

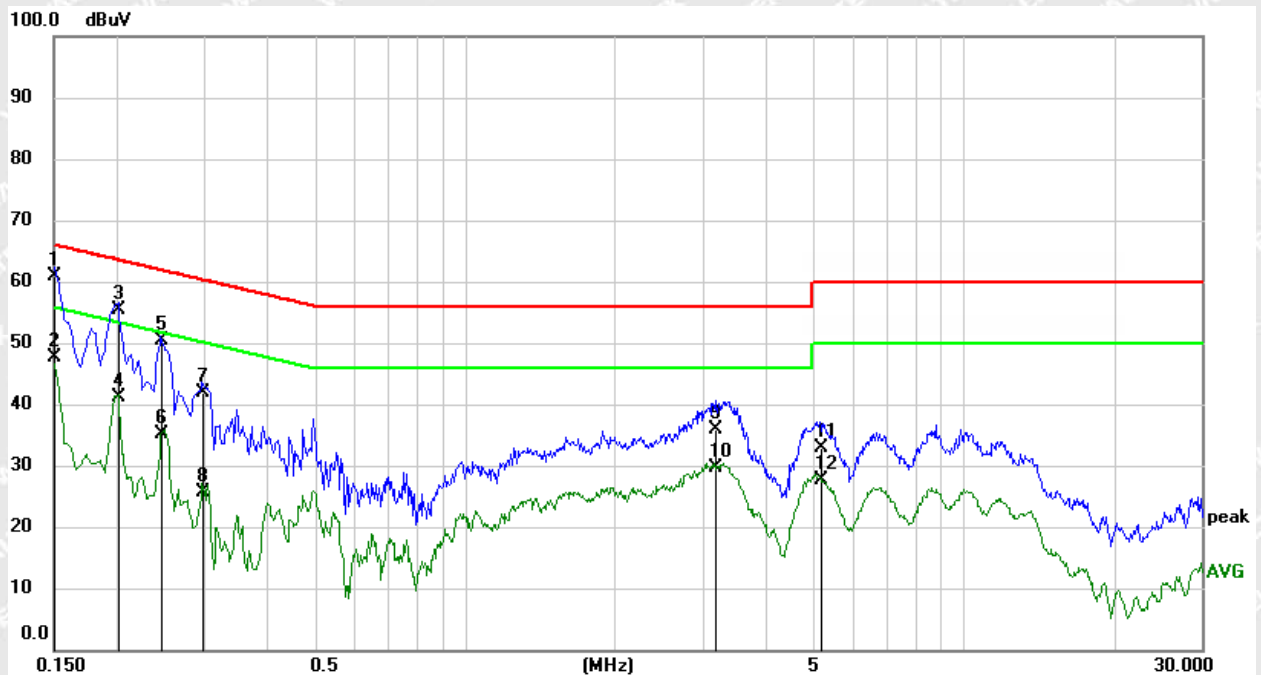
$$\text{Correct Facotor} = \text{LISN VDF} + \text{Cable Loss}$$

The "Margin" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Limit} - \text{Measurement}$$

5.1.5 Mains Terminals Disturbance Voltage Test Data

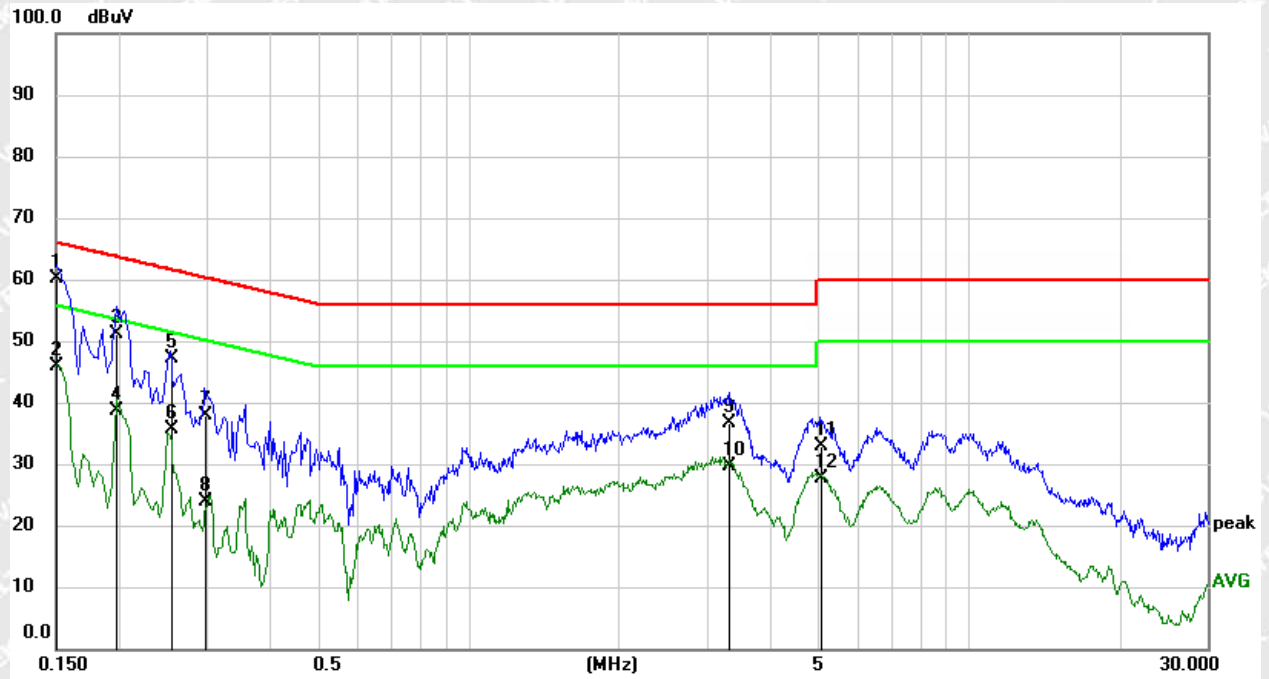
Live Line



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1	*	0.1500	51.29	9.62	60.91	66.00	-5.09	QP	
2		0.1500	38.06	9.62	47.68	56.00	-8.32	AVG	
3		0.2020	45.80	9.64	55.44	63.53	-8.09	QP	
4		0.2020	31.58	9.64	41.22	53.53	-12.31	AVG	
5		0.2460	40.70	9.64	50.34	61.89	-11.55	QP	
6		0.2460	25.38	9.64	35.02	51.89	-16.87	AVG	
7		0.2980	32.34	9.64	41.98	60.30	-18.32	QP	
8		0.2980	16.08	9.64	25.72	50.30	-24.58	AVG	
9		3.1860	26.11	9.75	35.86	56.00	-20.14	QP	
10		3.1860	19.81	9.75	29.56	46.00	-16.44	AVG	
11		5.1420	23.08	9.84	32.92	60.00	-27.08	QP	
12		5.1420	17.91	9.84	27.75	50.00	-22.25	AVG	



Neutral Line



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1	*	0.1500	50.60	9.61	60.21	66.00	-5.79	QP	
2		0.1500	36.36	9.61	45.97	56.00	-10.03	AVG	
3		0.1980	41.45	9.62	51.07	63.69	-12.62	QP	
4		0.1980	29.05	9.62	38.67	53.69	-15.02	AVG	
5		0.2540	37.52	9.63	47.15	61.63	-14.48	QP	
6		0.2540	26.08	9.63	35.71	51.63	-15.92	AVG	
7		0.2980	28.20	9.64	37.84	60.30	-22.46	QP	
8		0.2980	14.24	9.64	23.88	50.30	-26.42	AVG	
9		3.3140	26.92	9.76	36.68	56.00	-19.32	QP	
10		3.3140	19.87	9.76	29.63	46.00	-16.37	AVG	
11		5.0460	23.11	9.85	32.96	60.00	-27.04	QP	
12		5.0460	17.88	9.85	27.73	50.00	-22.27	AVG	



5.2 Radiated Emission, 30MHz to 1GHz

Test Requirement	: EN 55032 Annex A.2
Test Method	: EN 55032 Annex A.2
Test Limit.....	: Table A.4 of EN 55032
Test Result	: Pass
Frequency Range	: 30MHz to 1000MHz
Class.....	: Class B

5.2.1 E.U.T. Operation

Operating Environment:

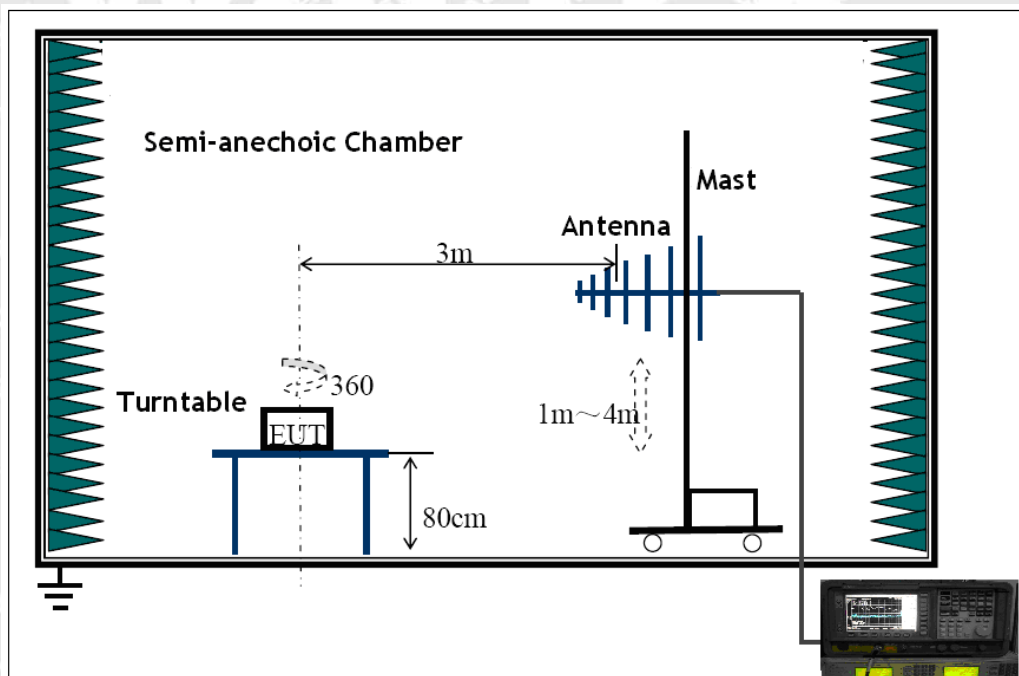
Temperature.....	: 26.8°C
Humidity	: 48.9%RH
Atmospheric Pressure	: 101.2kPa

EUT Operation:

Input Voltage.....	: AC 240V/50Hz
Operating Mode	: Working mode

5.2.2 Block Diagram of Test Setup

The Radiated Emission tests were performed in the 3m Semi- Anechoic Chamber test site, using the setup accordance with the CISPR 16-2-3.



5.2.3 Measurement Data

The maximised peak emissions from the EUT was scanned and measured for EUT 0°-360°. Quasi-peak measurements were performed if peak emissions were within 6dB of the limit line.



5.2.4 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

$$\text{Corr. Ampl.} = \text{Indicated Reading} + \text{Corr. Factor}$$

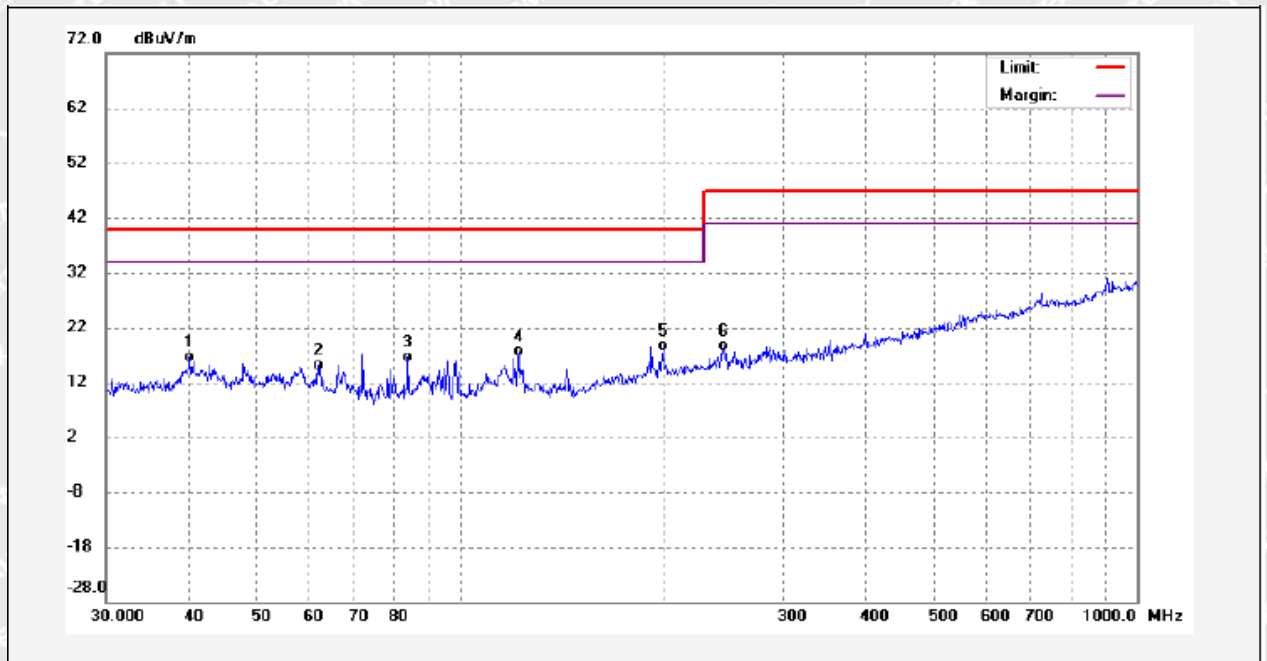
$$\text{Corr. Factor} = \text{Antenna Factor} + \text{Cable Factor} - \text{Amplifier Gain}$$

The "Margin" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dB means the emission is 7dB below the maximum limit for Class B. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Corr. Ampl.} - \text{Limit}$$

5.2.5 Radiated Emission Test Data

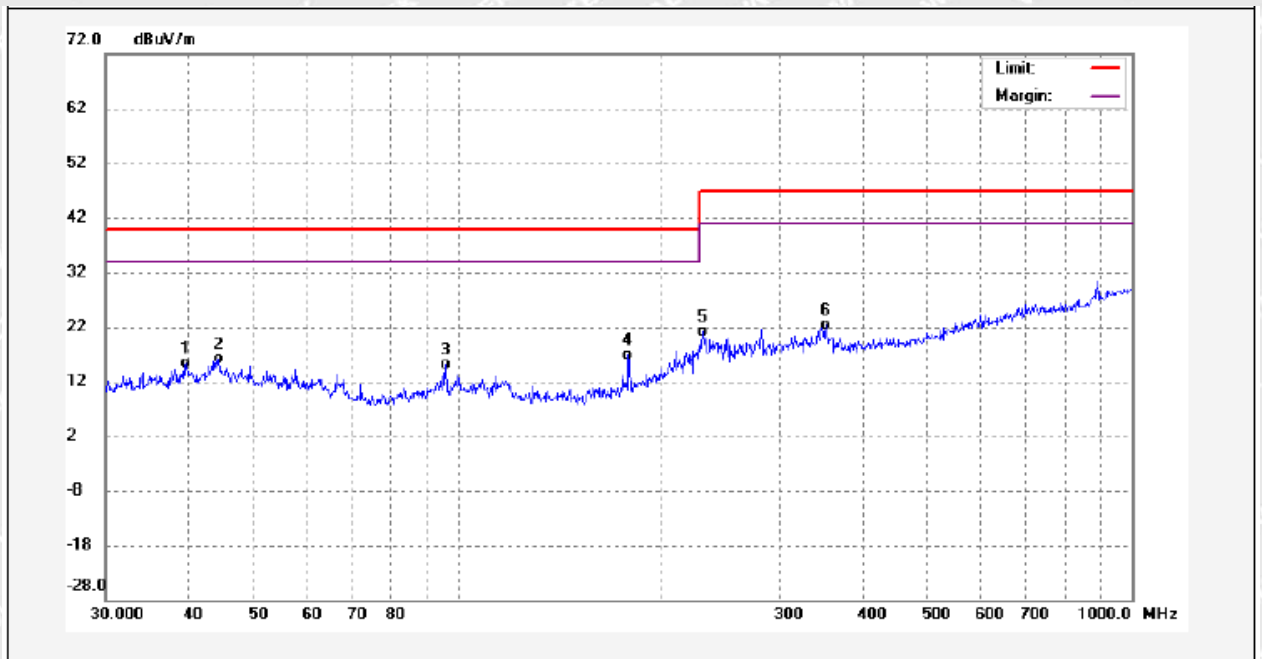
Vertical Polarization



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	39.9662	3.69	12.87	16.56	40.00	-23.44	QP	
2	61.9299	2.58	12.54	15.12	40.00	-24.88	QP	
3	84.0216	6.08	10.59	16.67	40.00	-23.33	QP	
4	122.1467	5.39	12.21	17.60	40.00	-22.40	QP	
5	199.9856	4.29	14.40	18.69	40.00	-21.31	QP	
6	245.0900	3.07	15.59	18.66	47.00	-28.34	QP	



Horizontal Polarization



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	39.4510	1.08	14.32	15.40	40.00	-24.60	QP	
2	44.1667	0.55	15.54	16.09	40.00	-23.91	QP	
3	95.9975	3.18	11.90	15.08	40.00	-24.92	QP	
4	178.8838	5.47	11.31	16.78	40.00	-23.22	QP	
5	231.6367	6.88	14.30	21.18	47.00	-25.82	QP	
6	351.7079	5.50	16.80	22.30	47.00	-24.70	QP	



5.3 Voltage Fluctuation and Flicker

Test Requirement : EN 61000-3-3 Clause 5

Test Method : EN 61000-3-3 Clause 4

Test Result : Pass

5.3.1 E.U.T. Operation

Operating Environment:

Temperature : 23.5°C

Humidity : 49.7%RH

Barometric Pressure : 101.2kPa

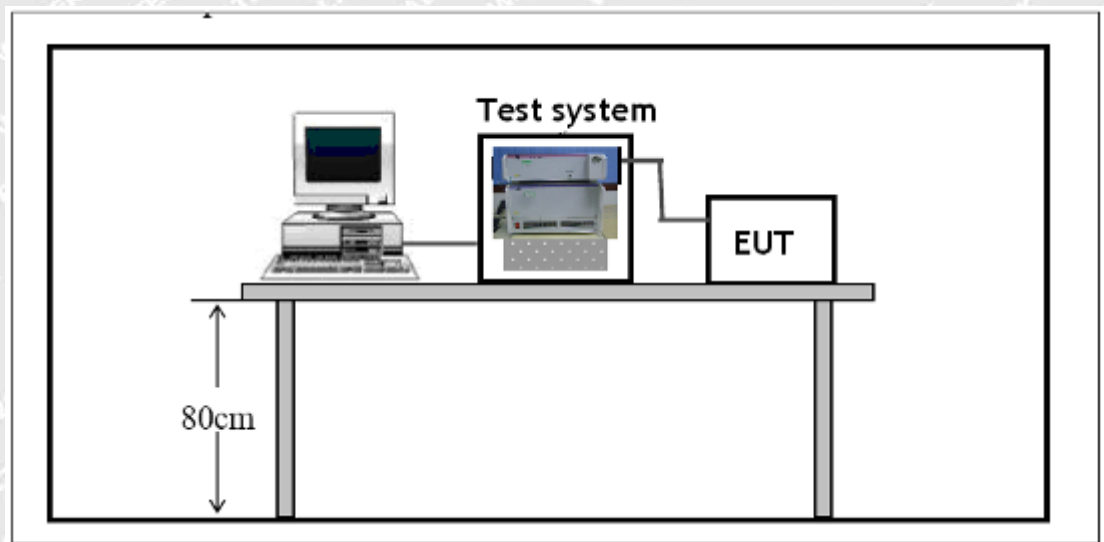
EUT Operation:

Input Voltage : AC 230V/50Hz

Operating Mode : Working mode

5.3.2 Block Diagram of Setup

The Voltage Fluctuation and Flicker test was performed in accordance with the EN 61000-3-3.





5.3.3 Voltage Fluctuation and Flicker Test Data

Flicker Test Summary per IEC61000-3-3:2013/AMD1:2017 (Run time)

EUT: 1080P StreamCam with white LED MO6395
 Test category: dt,dmax,dc and Pst (European limits)
 Test date: 2021/10/22 Start time: 15:59:40
 Test duration (min): 10 Data file name: F-000079.cts_data
 Comment: Working mode
 Customer:

Tested by: Luxi
 Test Margin: 100
 End time: 16:10:08

Test Result: Pass

Status: Test Completed

Pst_i and limit line

European Limits



Plt and limit line



Parameter values recorded during the test:

Vrms at the end of test (Volt): 230.12

Highest dt (%):

T-max (mS): 0

Highest dc (%): 0.00

Highest dmax (%): 0.00

Highest Pst (10 min. period): 0.064

Test limit (%):

Test limit (mS): 500.0

Test limit (%): 3.30

Test limit (%): 4.00

Test limit:

500.0

3.30

4.00

1.000

Pass

Pass

Pass

Pass



6 Immunity Test Results

6.1 Performance Criteria

Performance 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.

Performance criterion B: 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. During the test, degradation of performance is allowed. However, no change of operating state or stored data is allowed to persist after the test

Performance criterion C: 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. Functions, and/or information stored in non-volatile memory, or protected by a battery backup, shall not be lost.

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6.2 Electrostatic Discharge (ESD)

Test Requirement	:	EN 55035 Clause 5
Test Method	:	IEC 61000-4-2
Test Result	:	Pass
Discharge Impedance	:	330Ω / 150pF
Discharge Voltage	:	Air Discharge: ±8kV Contact Discharge: ±4kV HCP & VCP: ±4kV
Polarity	:	Positive & Negative
Number of Discharge	:	Minimum 10 times at each test point
Discharge Mode	:	Single Discharge
Discharge Period	:	1 second minimum

6.2.1 E.U.T. Operation

Operating Environment:

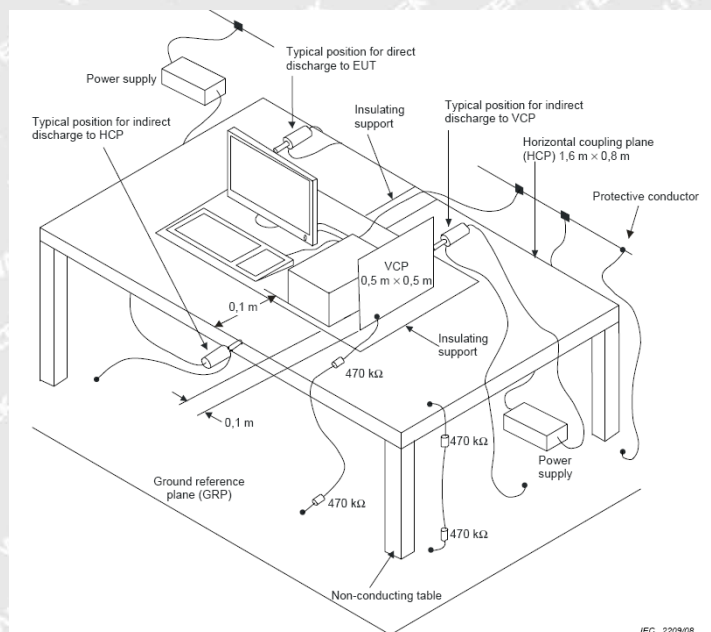
Temperature	:	24.3°C
Humidity	:	54.4%RH
Barometric Pressure	:	101.3kPa

EUT Operation:

Input Voltage	:	AC 230V/50Hz
Operating Mode	:	On mode

6.2.2 Block Diagram of Setup

The ESD test was performed in accordance with the IEC 61000-4-2.





6.3 Continuous RF Electromagnetic Field Disturbances

Test Requirement	: EN 55035 Clause 5
Test Method	: IEC 61000-4-3
Test Result	: Pass
Frequency Range	: 80MHz to 1000MHz, 1800MHz, 2600MHz, 3500MHz, 5000MHz
Test level	: 3V/m
Modulation	: 80%, 1kHz Amplitude Modulation.
Face of EUT.....	: Front, Back, Left, Right
Antenna polarisation.....	: Horizontal & Vertical
Test Distance	: 3m

6.3.1 E.U.T. Operation

Operating Environment:

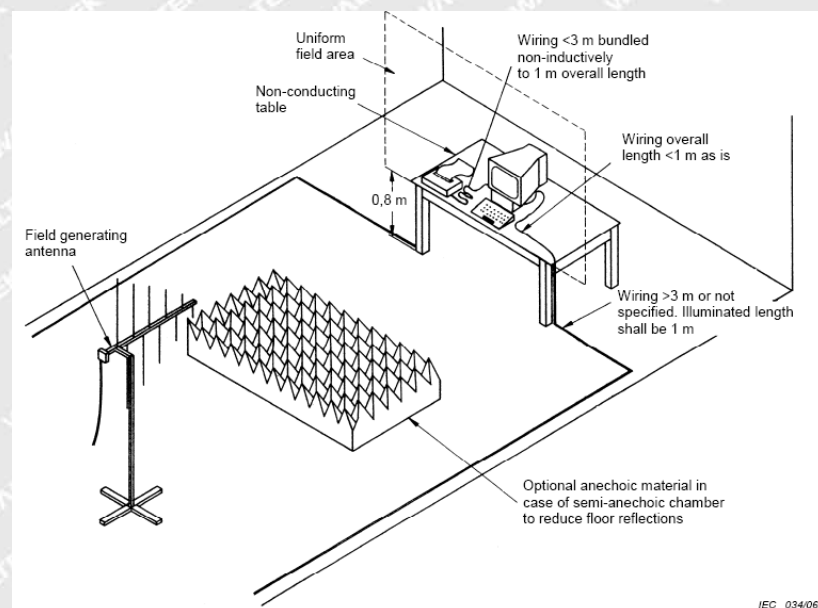
Temperature.....	: 24.2°C
Humidity	: 53.6%RH
Barometric Pressure	: 101.2kPa

EUT Operation:

Input Voltage.....	: AC 230V/50Hz
Operating Mode	: On mode

6.3.2 Block Diagram of Setup

The Radio-frequency electromagnetic fields Immunity test was performed in accordance with the IEC 61000-4-3.





6.3.3 Test Results

Frequency	Face of EUT	Antenna polarisation	Test Level	Step Size	Dwell Time	Performance Criterion	Result
80 to 1000MHz	Front, Back, Left, Right	Horizontal	3V/m	1%	1s	A	Pass*
80 to 1000MHz	Front, Back, Left, Right	Vertical	3V/m	1%	1s	A	Pass*
1800MHz	Front, Back, Left, Right	Horizontal	3V/m	1%	1s	A	Pass*
1800MHz	Front, Back, Left, Right	Vertical	3V/m	1%	1s	A	Pass*
2600MHz	Front, Back, Left, Right	Horizontal	3V/m	1%	1s	A	Pass*
2600MHz	Front, Back, Left, Right	Vertical	3V/m	1%	1s	A	Pass*
3500MHz	Front, Back, Left, Right	Horizontal	3V/m	1%	1s	A	Pass*
3500MHz	Front, Back, Left, Right	Vertical	3V/m	1%	1s	A	Pass*
5000MHz	Front, Back, Left, Right	Horizontal	3V/m	1%	1s	A	Pass*
5000MHz	Front, Back, Left, Right	Vertical	3V/m	1%	1s	A	Pass*

Remark:

- * During the test no deviation was detected to the selected operation mode(s)



6.4 Electrical Fast Transients (EFT)

Test Requirement	:	EN 55035 Clause 5
Test Method	:	IEC 61000-4-4
Test Result	:	Pass
Test Level	:	1.0kV on AC Mains
Polarity	:	Positive & Negative
Repetition Frequency.....	:	5kHz
Burst Duration	:	5/50ns
Test Duration	:	2 minutes per level & polarity

6.4.1E.U.T. Operation

Operating Environment:

Temperature.....	:	24.4°C
Humidity	:	49.7%RH
Barometric Pressure	:	101.3kPa

EUT Operation:

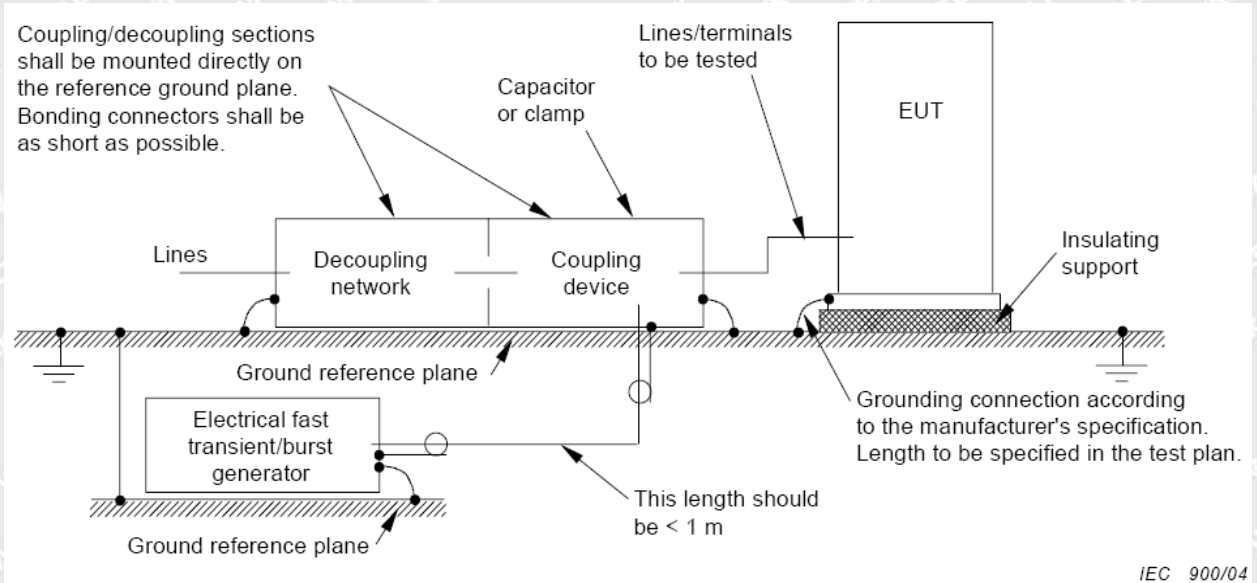
Input Voltage.....	:	AC 230V/50Hz
Operating Mode	:	On mode

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6.4.2 Block Diagram of Setup

The Electrical Fast Transients Immunity test was performed in accordance with the IEC 61000-4-4.



6.4.3 Test Results

Test Port	Test Level(kV)	Performance Criterion	Result
Line-Neutral	± 1.0	B	Pass*

Remark:

* During the test no deviation was detected to the selected operation mode(s)



6.5 Surge

Test Requirement	: EN 55035 Clause 5
Test Method	: IEC 61000-4-5
Test Result	: Pass
Test level	: $\pm 1\text{kV}$ Live to Neutral, $\pm 2\text{kV}$ Live to PE and Neutral to PE
Interval	: 60s between each surge
No. of surges	: five positive and five negative pulses each at 0° , 90° , 180° and at 270°

6.5.1 E.U.T. Operation

Operating Environment:

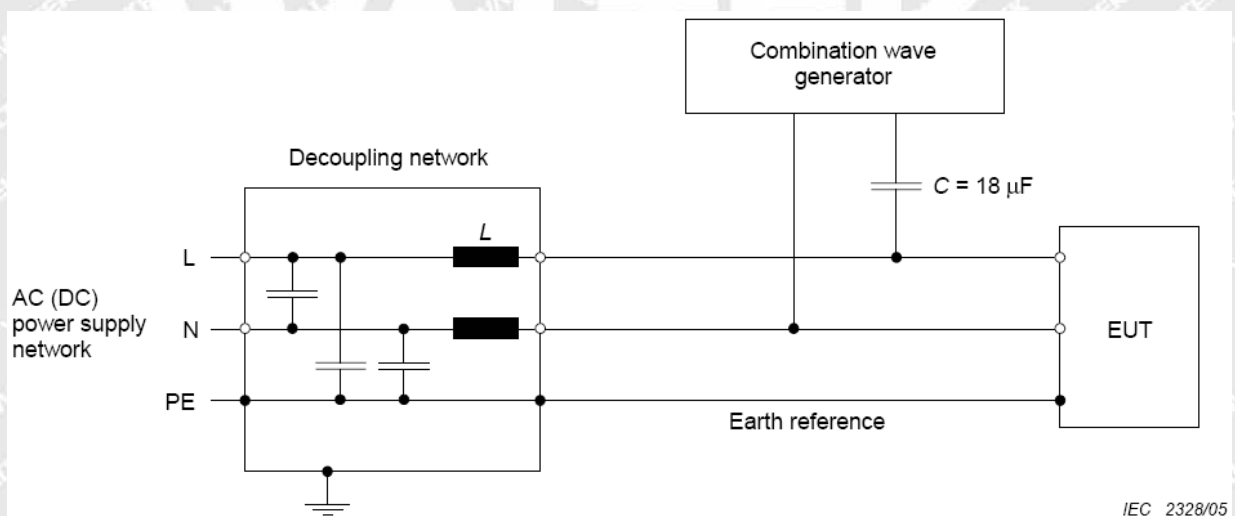
Temperature	: 24.4°C
Humidity	: 49.7%RH
Barometric Pressure	: 101.3kPa

EUT Operation:

Input Voltage	: AC 230V/50Hz
Operating Mode	: On mode

6.5.2 Block Diagram of Setup

The Surge Immunity test was performed in accordance with the IEC 61000-4-5.





6.5.3 Test Result

Test Port	Applied Voltage (kV)	Performance criterion	Result
Between Phase And Phase	± 1	B	N/A
Between Live And Neutral	± 1	B	Pass*
Between Live And Earth	± 2	B	N/A
Between Neutral And Earth	± 2	B	N/A

Remark:

- * During the test no deviation was detected to the selected operation mode(s)

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6.6 Continuous Induced RF Disturbance

Test Requirement	: EN 55035 Clause 5
Test Method	: IEC 61000-4-6
Test Result	: Pass
Frequency Range	: 0.15 to 10MHz, 10 to 30MHz, 30 to 80MHz
Test level	: 3V r.m.s. /3~1V r.m.s. / 1V r.m.s. (unmodulated emf into 150 Ω)
Modulation	: 80%, 1kHz Amplitude Modulation.

6.6.1 E.U.T. Operation

Operating Environment:

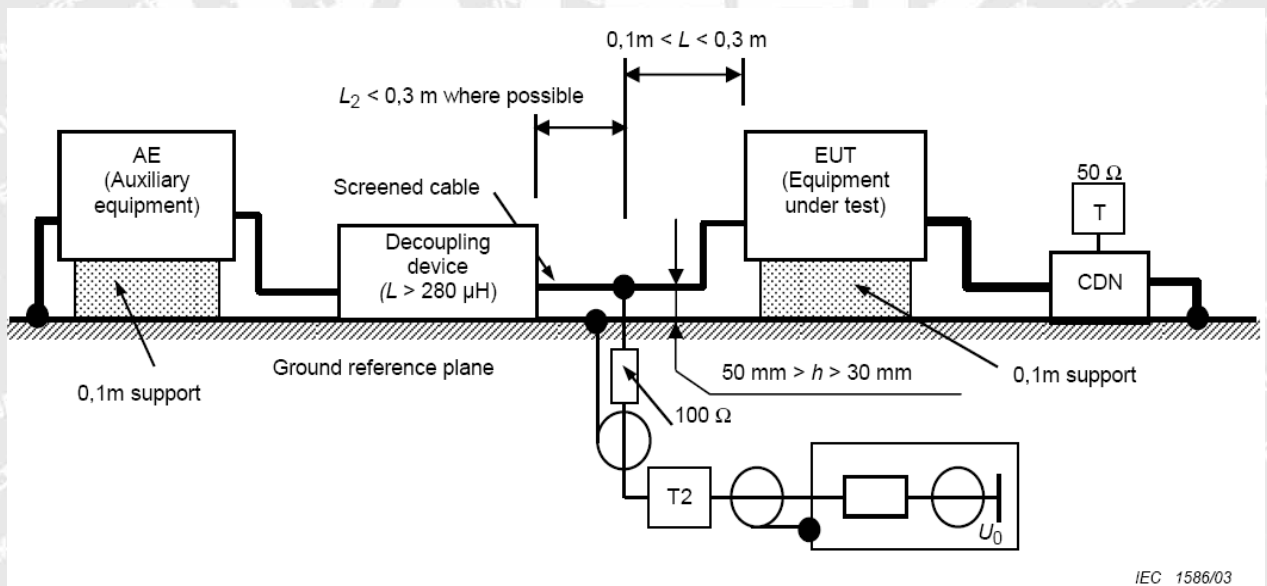
Temperature	: 24.4°C
Humidity	: 49.7%RH
Barometric Pressure	: 101.3kPa

EUT Operation:

Input Voltage	: AC 230V/50Hz
Operating Mode	: On mode

6.6.2 Block Diagram of Setup

The Injected Currents Immunity test was performed in accordance with the IEC 61000-4-6.





6.6.3 Test Results

Frequency	Line	Test Level	Modulation	Step Size	Dwell Time	Performance Criterion	Result
0.15MHz to 10MHz	2 Wire AC Supply Cables	3Vr.m.s.	80%, 1kHz Amp. Mod.	1%	1s	A	Pass*
10MHz to 30MHz	2 Wire AC Supply Cables	3 to 1 Vr.m.s.	80%, 1kHz Amp. Mod.	1%	1s	A	Pass*
30MHz to 80MHz	2 Wire AC Supply Cables	1Vr.m.s.	80%, 1kHz Amp. Mod.	1%	1s	A	Pass*

Remark:

- * During the test no deviation was detected to the selected operation mode(s)

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6.7 Voltage Dips and Interruptions

Test Requirement	: EN 55035 Clause 5
Test Method	: IEC 61000-4-11
Test Result	: Pass
Test Level(Voltage reduction)	: >90% & 30 % of Induction
No. of Dips / Interruptions	: 1 per Level at 20ms intervals

6.7.1 E.U.T. Operation

Operating Environment:

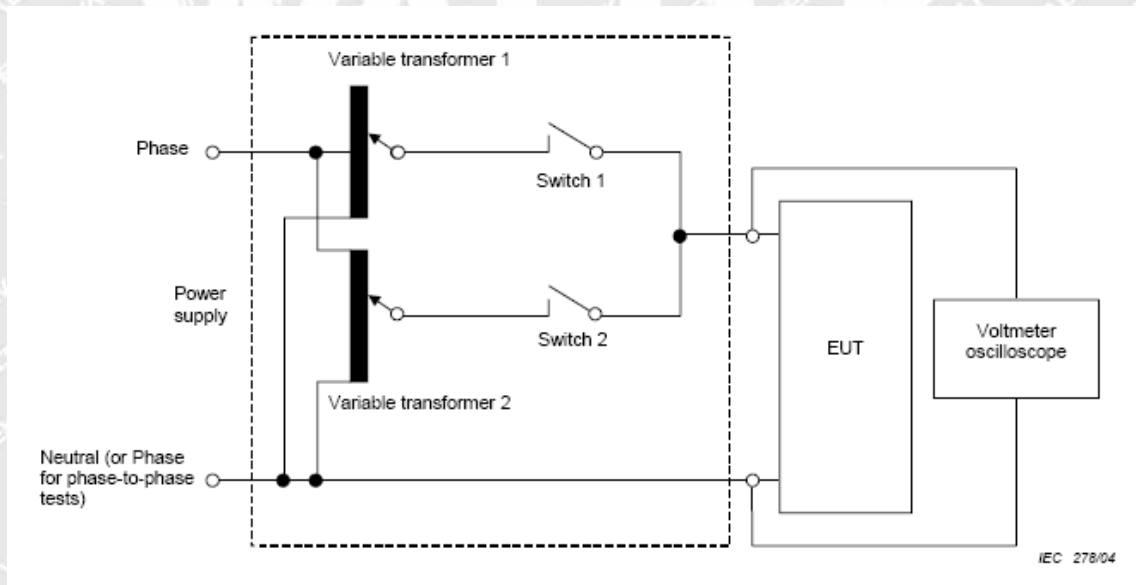
Temperature	: 24.4°C
Humidity	: 49.7%RH
Barometric Pressure	: 101.3kPa

EUT Operation:

Input Voltage	: AC 230V/50Hz
Operating Mode	: On mode

6.7.2 Block Diagram of Setup

The Voltage Dips and Interruptions Immunity test was performed in accordance with the IEC 61000-4-11.





6.7.3 Test Results

Test Item	Test Level in %U _T	Performance criterion	50Hz		60Hz	
			Duration	Result	Duration	Result
Voltage Dips	< 5	B	0.5	Pass*	0.5	Pass*
	70	C	25	Pass*	30	Pass*
Voltage Interruptions	< 5	C	250	Pass*	300	Pass*

Remark:

* During the test no deviation was detected to the selected operation mode(s)

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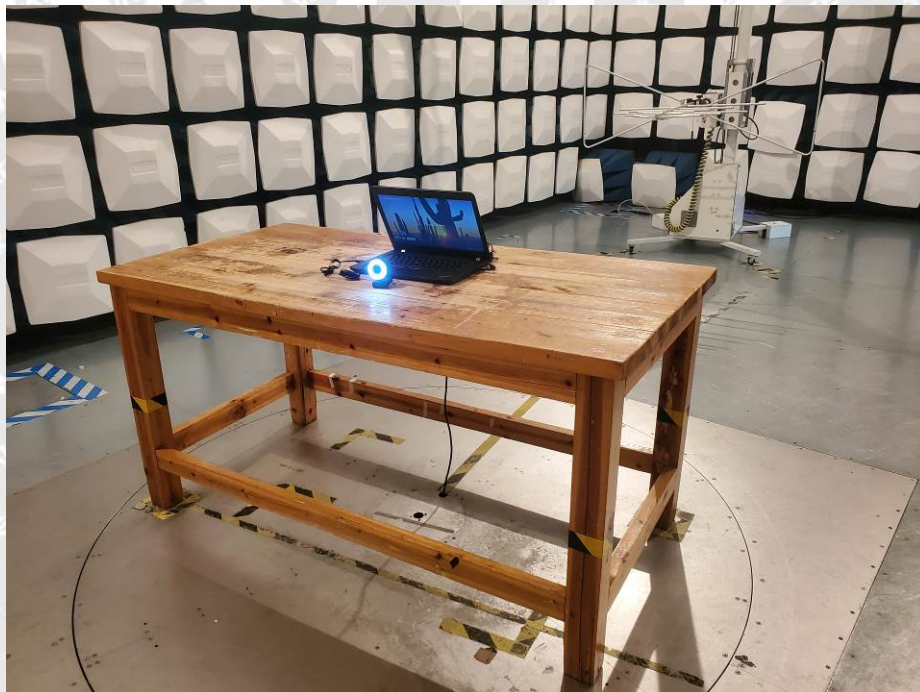


7 Photographs – Test Setup

7.1 Photograph – Mains Terminal Disturbance Voltage Test Setup



7.2 Photograph – Radiated Emission Test Setup

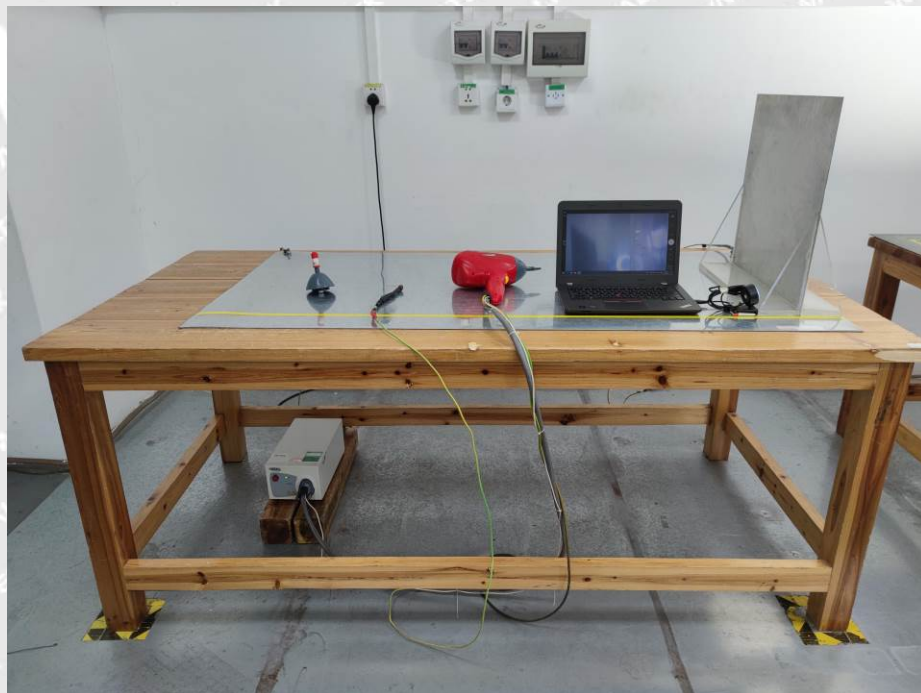




7.3 Photograph –Voltage Fluctuation and Flicker Test Setup



7.4 Photograph – ESD Immunity Test Setup





7.5 Photograph – Continuous RF Electromagnetic Field Disturbances Test Setup



7.6 Photograph – EFT Immunity Test Setup

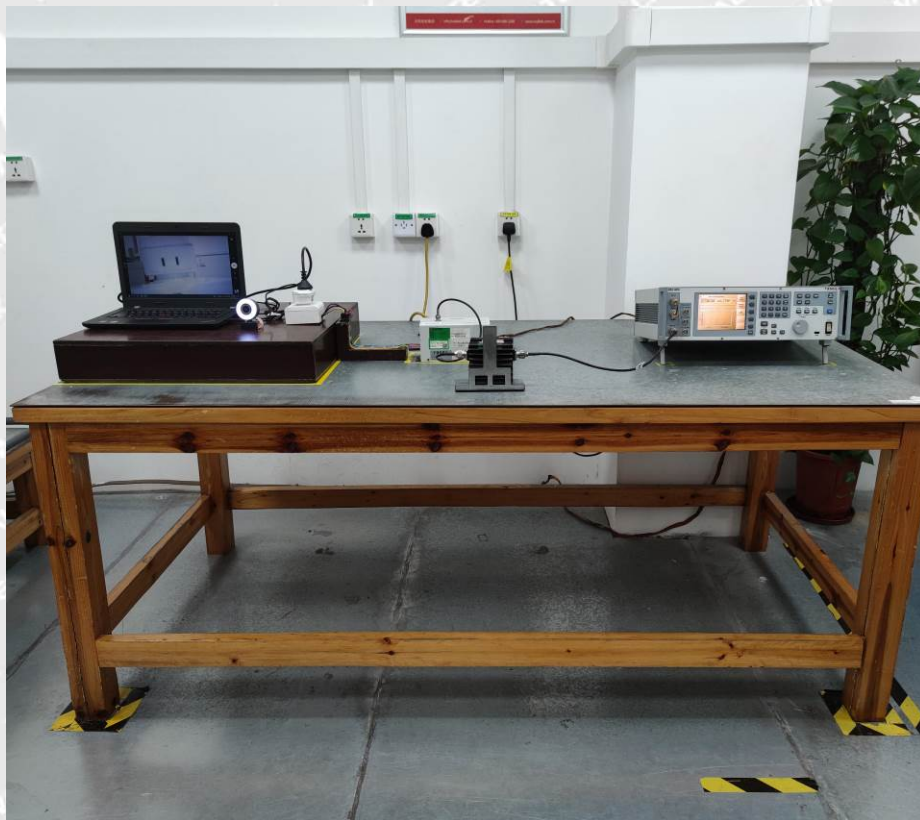




7.7 Photograph – Surge Immunity Test Setup

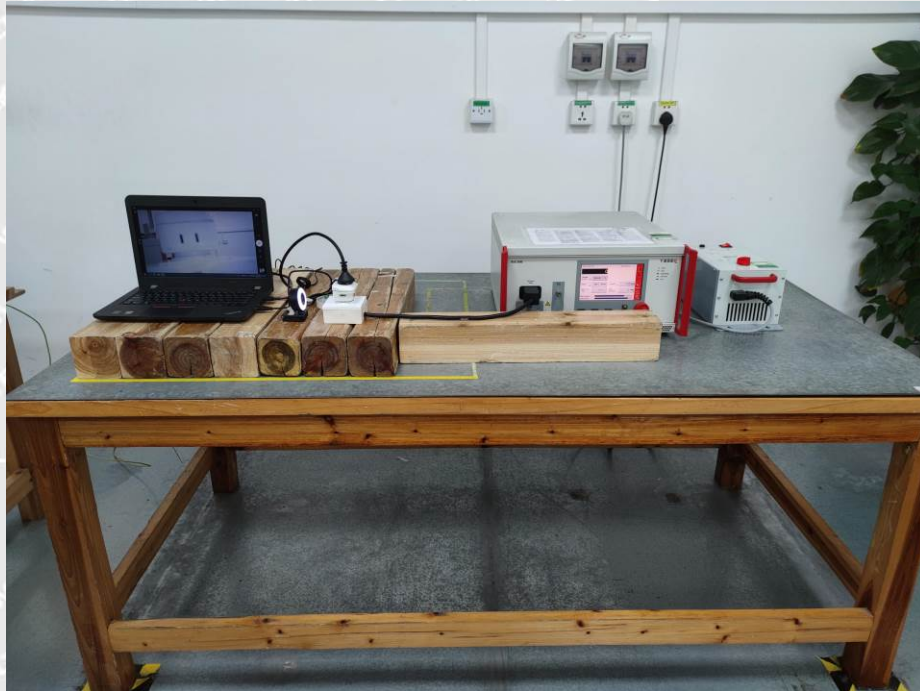


7.8 Photograph – Continuous Induced RF Disturbance Test Setup





7.9 Photograph – Voltage Dips and Interruptions Immunity Test Setup



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8 Photographs – Constructional Details

8.1 EUT – Front View

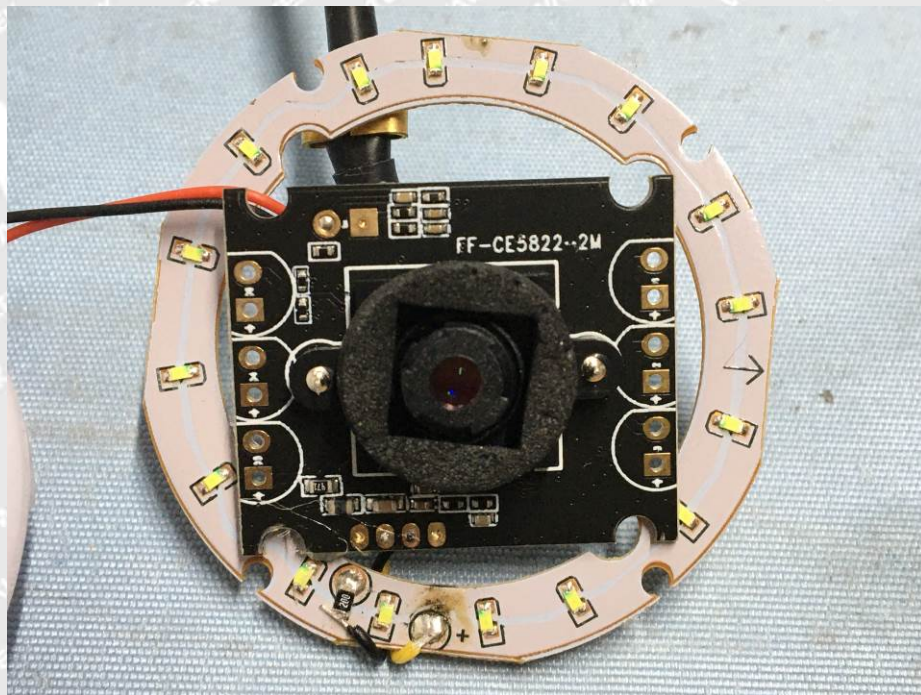
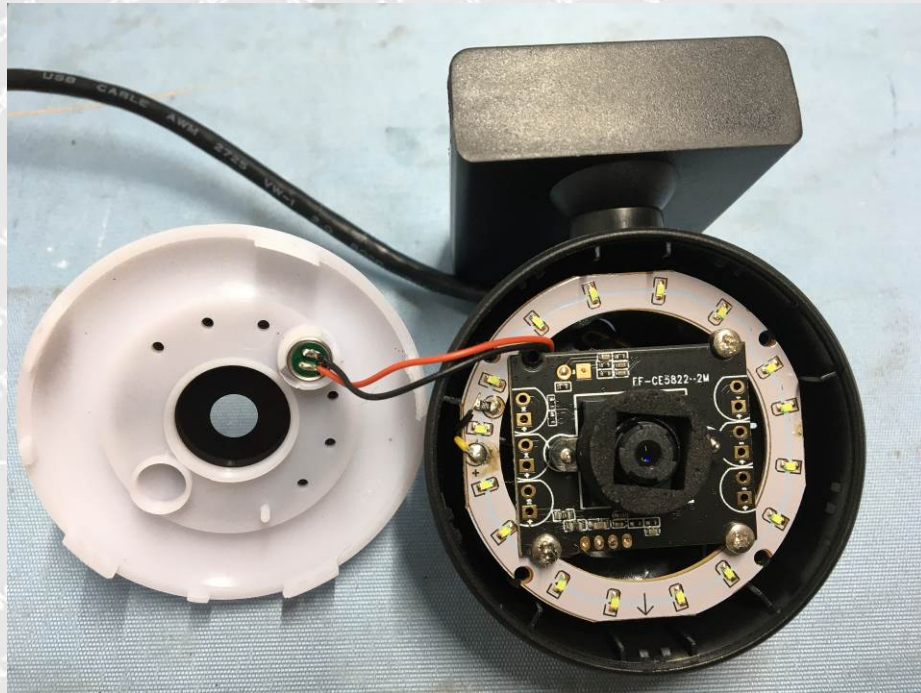


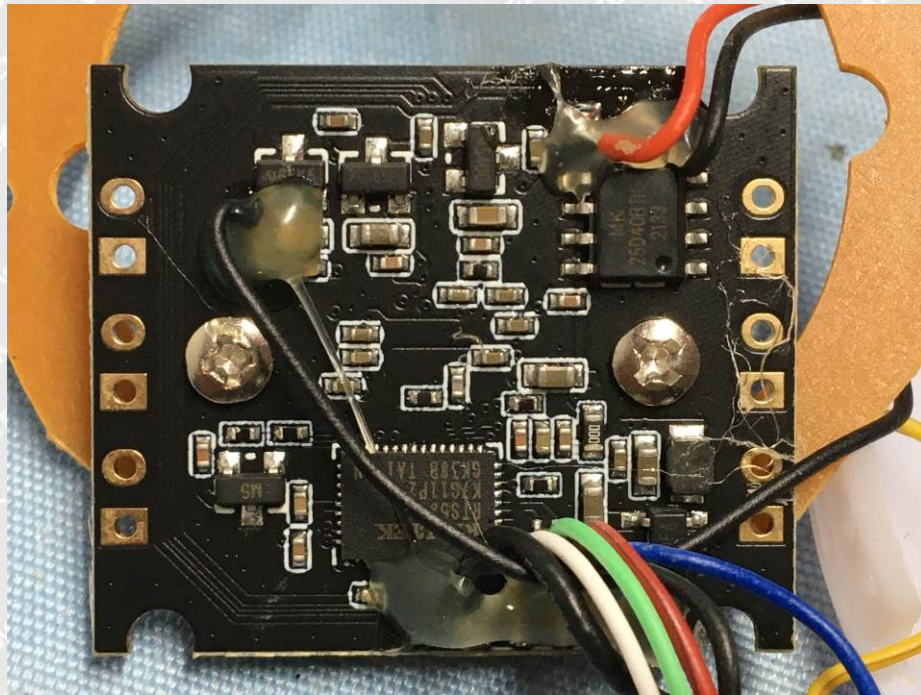
8.2 EUT – Back View





8.3 EUT – Internal View





===== End of Report =====

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