EMC TEST REPORT	
Report Number:	XH2605B13092024GR
Date of issue	Oct.10, 2026
Name of Testing Laboratory preparing the Report	Xihua International Testing & Certification (Shenzhen) Co.,Ltd. Building 10, No.23, North Lane 1, Beihuan Road, Shiyan, Bao'an District, Shenzhen, Guangdong, China
Applicant's name	Shenzhen Honglan Electronics Co., Ltd
Address	223, No. 1 Langrong Road, Xinshi Community, Dalang Street, Long hua District, Shenzhen
Test specification:	
Standard	EN 55032:2015/A11:2020 EN 55035:2017/A1:2020 EN IEC 61000-3-2:2019/A1:2021 EN 61000-3-3:2013/A1:2019/A2:2021
Test procedure	CE_EMC
Non-standard test method	N/A
Test item description	USB camera module
Trade Mark	**Lensesca**
Manufacturer	Shenzhen Honglan Electronics Co., Ltd
Address	223, No. 1 Langrong Road, Xinshi Community, Dalang Street, Long hua District, Shenzhen
Model/Type reference	HL-4K-362, HL-100W-01, DH-4K-003
Additional Model	HL-362-02, HL-4K-415, HL-200W-01
Ratings	DC 5V; 300mA; 2W
Sample Received Date	Sep.30, 2026
Testing Period	Sep.30, 2026 -Oct.10, 2026
Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):	
Testing Laboratory	Xihua International Testing & Certification (Shenzhen) Co.,Ltd.
Testing location/ address	Building 10, No.23, North Lane 1, Beihuan Road, Shiyan, Bao'an District, Shenzhen, Guangdong, China
Tested by (name, function, signature)	Penny Chen / Project Handler
Approved by (name, function, signature)	Johnson Xu / Designated Reviewer

Xb2ng5v Gb7nq5j

List of Attachments (including a total number of pages in each attachment): --
Summary of testing:

Tests performed (name of test and test clause):	**Testing location:**
The submitted samples were tested and found to comply with the requirements of: European group difference and national differences	Building 10, No.23, North Lane 1, Beihuan Road, Shiyan, Bao'an District, Shenzhen, Guangdong, China

Summary of compliance with National Differences:

☒ The product fulfils the requirements of

EN 55032:2015/A11:2020

EN 55035:2017/A1:2020

EN IEC 61000-3-2:2019/A1:2021

EN 61000-3-3:2013/A1:2019/A2:2021

Copy of marking plate

USB camera module

Model: HL-4K-362

Ratings: DC 5V;300mA; 2W



Shenzhen Honglan Electronics Co., Ltd

223, No. 1 Langrong Road, Xinshi Community, Dalang Street, Longhua District, Shenzhen

Note:

As declared by the applicant the authorized EEA representative or importer was not decided at the time of application, but will be marked on the products before placing them on the market.

Note: According to when placing the products on the market the authorized representative / importer within the European Economic Area (EEA) must be marked on the product if the manufacturer is not located within the EEA. Marking on the packaging is only acceptable if it is not possible to place such markings on the product.

1 Test Summary

Emission Part				
Item	**Standard**	**Method**	**Requirement**	**Result**
Conducted Emissions at AC Mains Power Port (150kHz-30MHz)	EN 55032:2015/A11:2020	EN 55032:2015/A11:2020	--	Pass
Radiated Emissions	EN 55032:2015/A11:2020	EN 55032:2015/A11:2020	Class B	Pass
Discontinuous Interference	EN 55032:2015/A11:2020	EN 55032:2015/A11:2020	CISPR 32	Pass
Harmonic Current Emission	EN IEC 61000-3-2:2019/A1:2021	EN IEC 61000-3-2:2019/A1:2021	Class A	Pass
Voltage Fluctuations and Flicker	EN 61000-3-3:2013/A1:2019/A2:2021	EN 55035:2017/A1:2020	Clause 5 of EN 61000-3-3	Pass

Immunity Part				
Item	**Standard**	**Method**	**Requirement**	**Result**
Electrostatic Discharge	EN 55032:2015/A11:2020	EN 61000-4-2:2009	2,4kV Contact Discharge, 2,4,8kV Air Discharge	Pass
Continuos RF Eletromagnetic field Disturbance	EN 55032:2015/A11:2020	EN 61000-4-3:2006 +A1:2007+A2:2010	80%,1kHz, AM Mod 3V/m,0.08~1GHz 3V/m,1.4~2.0GHz 1V/m,2.0~2.7GHz	Pass
Electrical Fast Transients Burst at AC Mains Power Port	EN 55032:2015/A11:2020	EN 61000-4-4:2012	1kV, 5/50ns Tr/Td, 5kHz Repetition Frequency	Pass
Surge at AC Mains Power Port	EN 55032:2015/A11:2020	EN 61000-4-5:2014 +A1:2017	1.2/50μs Tr/Td, 1kV Line to Line, 2kV Line to Ground	Pass
Conducted Immunity at AC Mains Power Port (150kHz-80MHz)	EN 55032:2015/A11:2020	EN 61000-4-6:2014	3Vrms (emf),80%,1kHz Amp. Mod.	Pass
Voltage Dips and Interruptions	EN 55032:2015/A11:2020	EN 61000-4-11:2004 +A1:2017	For 50Hz: 0 % UT for 0.5cycle, 0 % UT for 1.0cycles, 70 % UT for 25cycles 0 % UT for 250cycles,	Pass

Note: (1)= Continuous working product. (2)=Refer to section 5..4.

2 Contents

Page

1 Cover Page 1
1 Test Summary 3
2 Contents 4
3 General Information 6
3.1 Details of E.U.T. 6
3.2 Description of Support Units 6
3.3 Measurement Uncertainty 6
3.4 Test Location 6
3.5 Test Facility 6
3.6 Deviation from Standards 6
3.7 Abnormalities from Standard Conditions 6
3.8 EMS Monitor 6
4 Equipment List 7
5 Emission Test Results 8
5.1 Conducted Emissions at AC Mains Power Port (150kHz-30MHz) 8
5.1.1 E.U.T. Operation 8
5.1.2 Test Mode Description 8
5.1.3 Test Setup Diagram 8
5.1.4 Measurement Procedure and Data 8
5.2 Disturbance POWER test 11
5.2.1 E.U.T. Operation 11
5.2.2 Test Mode Description 11
5.2.3 Test Setup Diagram 11
5.2.4 Measurement Procedure and Data 11
5.3 Radiated Emissions 12
5.3.1 E.U.T. Operation 12
5.3.2 Test Mode Description 12
5.3.3 Test Setup Diagram 12
5.3.4 Measurement Procedure and Data 12
5.4 Voltage Fluctuations and Flicker 15
5.4.1 E.U.T. Operation 15
5.4.2 Test Mode Description 15
5.4.3 Test Setup Diagram 15
5.4.4 Measurement Procedure and Data 16
5.5 Harmonic Current Emission 17
5.5.1 E.U.T. Operation 17
5.5.2 Test Setup Diagram 17
5.5.3 Measurement Data 18
6 Immunity Test Results 19
6.1 Electrostatic Discharge 20
6.1.1 Test Setup Diagram 20
6.1.2 E.U.T. Operation 20
6.1.3 Test Mode Description 20
6.1.4 Test Condition and Results: 20
6.2 Continuos RF Eletromagnetic field Disturbance 22
2.1.1 Test Setup Diagram 22
6.2.1 E.U.T. Operation 22
6.2.2 Test Mode Description 22
6.2.3 Test Condition and Results: 22
6.3 Electrical Fast Transients Burst at AC Mains Power Port 23

6.3.1 Test Setup Diagram 23
6.3.2 E.U.T. Operation 23
6.3.3 Test Mode Description 23
6.3.4 Test Condition and Results: 23
6.4 Surge at AC Mains Power Port 24
6.4.1 Test Setup Diagram 24
6.4.2 E.U.T. Operation 24
6.4.3 Test Mode Description 24
6.4.4 Test Condition and Results: 24
6.5 Conducted Immunity at AC Mains Power Port (150kHz-80MHz) 25
2.1.2 Test Setup Diagram 25
6.5.1 E.U.T. Operation 25
6.5.2 Test Mode Description 25
6.5.3 Test Condition and Results: 25
6.6 Voltage Dips and Interruptions 26
6.6.1 Test Setup Diagram 26
6.6.2 E.U.T. Operation 26
6.6.3 Test Mode Description 26
6.6.4 Test Condition and Results: 26
7 EUT Constructional Details (EUT Photos) 27

General Information

3.1 Details of E.U.T.

Power supply: 5V 300mA

Test Voltage: AC

Cable(s): AC:2 wires 1.0m unshielded out put for the adapter.

3.2 Description of Support Units

3.3 Measurement Uncertainty

Test Item	Measurement Uncertainty
Conducted Emissions at AC Mains Power Port (150kHz-30MHz)	3.12dB
Radiated Emissions(30MHz-1000MHz)	3.66dB
Remark: The U_{lab} (lab Uncertainty) is less than U_{cispr} (CISPR Uncertainty), so the test results – 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.	

3.4 Test Location

Xihua International Testing & Certification (Shenzhen) Co.,Ltd.

Building 10, No.23, North Lane 1, Beihuan Road, Shiyan, Bao'an District, Shenzhen, Guangdong, China

3.5 Test Facility

The test facility is recognized, certified, or accredited.

3.6 Deviation from Standards

This report is based on the requirements of customers to carry the equipment in the manufacturer for on-site testing.

3.7 Abnormalities from Standard Conditions

The test equipment in the calibration period, but the test site has not been calibrated.

3.8 EMS Monitor

Visual: LCD Display

Audio: Buzzing

Other: N/A

4 Equipment List

Test Equipment	Model	Manufacturer	Serial No.	Cal Date
EMC Laboratory				
Conduction& Radiated Test equipment				
EMI Test Receiver	ESPI	R&S	102086	2026.10.14
LISN	ENV216	R&S	101242	2026.10.14
LISN	3810/2NM	EMCO	000-23625	2026.10.14
Bi-log Antenna	CBL6111D	TESEQ	34678	2026.10.11
Pre-Amplifier (0.1M-3GHz)	EM330	EM	060665	2026.10.11
RE Cable (9K-1G)	N/A	R01	N/A	2026.10.11
EMS Test equipment				
ESD				
ESD TEST GENERATOR	KES4021	KZKUSUI	LB003568	2027.06.27
EFT				
EFT/B Generator	HEFT 51	HTEC	143801	2026.10.14
Surge				
Surge Generator	HCWG71	HTEC	143804	2026.10.14
Conducted RF immunity				
CS	CDG-6000-25	SCHLODER	126A1280/2014	2026.10.14
Attenuator	ATT-6DB-100	Nemtest	A100W224	2026.10.17
CDN	CDN-M2+3	Frankonia	A2210275/2014	2026.10.14
Coupling clamp	----	KEMZ801	-----	2026.10.14
Voltage dips, short interruptions and voltage variations immunity				
VOLTAGE DIPS & INTERRUPTIONS Generator	HPFS 161P	HTEC	143803	2026.10.17
Harmonics &Flicker				
Harmonic Voltage & Flicker	PACS-1	California Instruments	72812	2026.10.14
AC Power Source	5000ix	California Instruments	59862	2026.10.18

Radiated Immunity				
No.	Test Item	Equipment	Model No.	Cal due date
1	Power Meter	Agilent	E4419B	2026.10.09
2	Power Sensor	Hp	E9300A	2026.10.11
3	Power Sensor	Hp	E9300A	2026.10.11
4	Signal Generator	Agilent	N5181A	2026.10.11
5	Power Amplifier	MICOTOP	MPA-80-1000-250	2026.10.11
6	Power Amplifier	MICOTOP	MPA-1000-6000-100	2026.10.09
7	RS Test Antenna (0.08-1GHz)	SCHWARZBECK	VULP 9118E	N/A
8	RS Test Antenna (1-10GHz)	SCHWARZBECK	STLP 9149	N/A
9	Temperature & Humidity	Mieo	HH660	2026.10.12

5 Emission Test Results

5.1 Conducted Emissions at AC Mains Power Port (150kHz-30MHz)

Test Requirement: EN 55032:2015/A11:2020

Test Method: EN 55032:2015/A11:2020

Limit:

0.15M-0.5MHz	66dB(μV)-56dB(μV) quasi-peak, 59dB(μV)-46dB(μV) average
0.5M-5MHz	56dB(μV) quasi-peak, 46dB(μV) average
5M-30MHz	60dB(μV) quasi-peak, 50dB(μV) average

Detector: Peak for pre-scan (9kHz resolution bandwidth) 0.15M to 30MHz

5.1.1 E.U.T. Operation

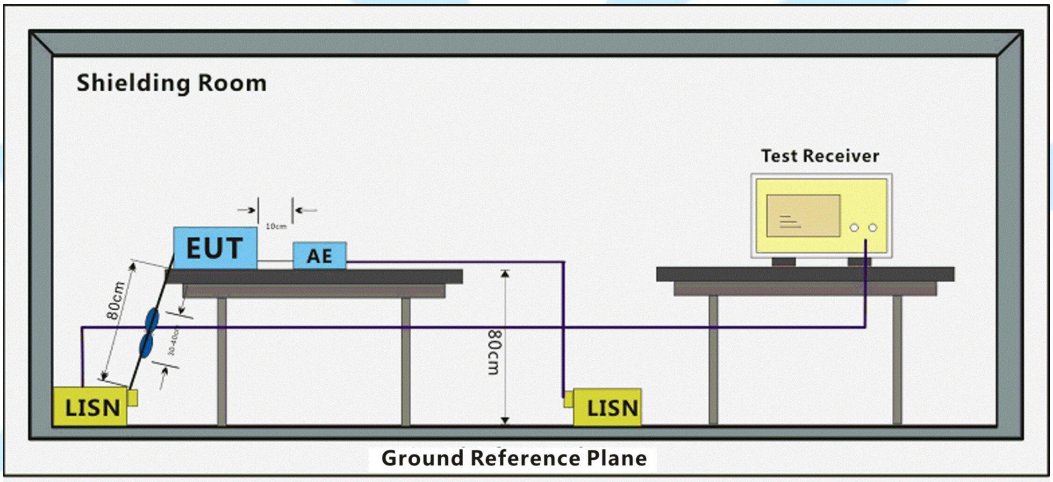
Operating Environment:

Temperature: 22.1 °C Humidity: 52 % RH Atmospheric Pressure: 1010 mbar

5.1.2 Test Mode Description

Test Mode: Normal working mode(Max Loading).

5.1.3 Test Setup Diagram



5.1.4 Measurement Procedure and Data

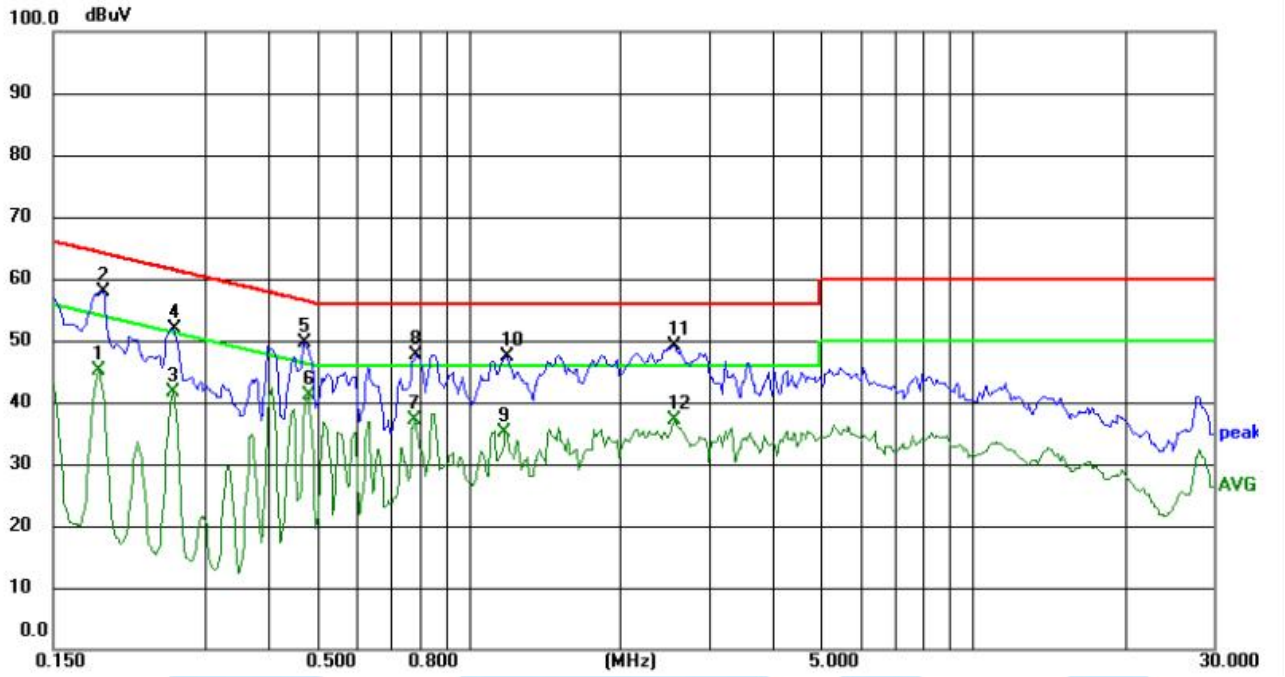
Frequency Range: 150kHz to 30MHz

An initial pre-scan was performed with peak detector. Quasi-Peak or Average measurement were performed at the frequencies with maximized peak emission were detected.

Measured Level = Read level + Cable Loss + LISN Factor

Test Curve:

EUT:	USB camera module	**Model No.:**	HL-4K-362
Temperature:	24.1℃	**Relative Humidity:**	52%
Probe:	L	**Test Power:**	5V 300mA
Test Time:	Sep.30, 2026	**Test Result:**	Pass
Standard:	EN55032 class B	**Test Mode:**	NO
Note:			



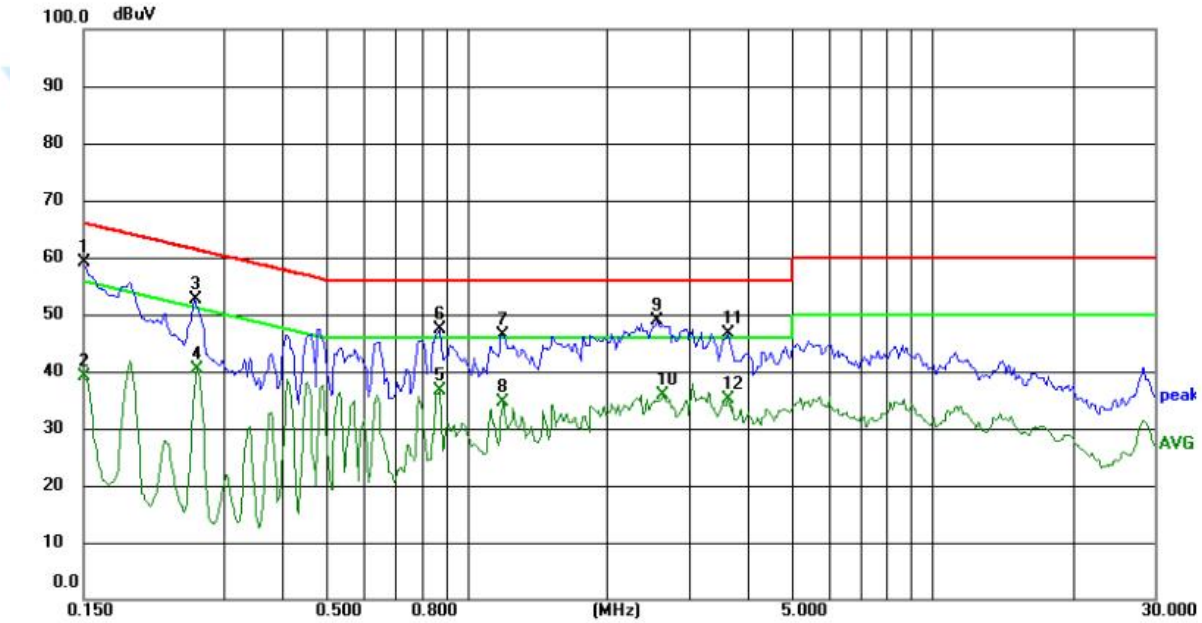
No	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1570	23.20	10.27	33.45	55.58	-22.13	AVG	P
2	0.1578	41.24	10.26	51.47	65.58	-14.11	peak	P
3	0.1965	39.55	10.21	49.84	63.74	-13.90	peak	P
4	0.1968	23.01	10.19	33.21	53.74	-20.53	AVG	P
5	0.2747	35.43	10.24	45.65	60.97	-15.32	peak	P
6	0.2787	21.94	10.21	32.16	50.85	-18.69	AVG	P
7	0.7741	32.04	9.93	42.02	56.00	-13.98	peak	P
8	0.7779	20.92	9.93	30.81	46.00	-15.19	AVG	P
9	1.2419	20.02	10.82	30.84	46.00	-15.16	AVG	P
10	1.2498	31.59	10.82	42.42	56.00	-13.58	peak	P
11*	2.5562	33.21	10.84	44.05	56.00	-11.95	peak	P
12	2.5560	19.88	10.83	30.73	46.00	-15.27	AVG	P

The test result is calculated as the following:

Result = Reading + Correct Factor

Correct Factor = (LISN, ISN, PLC or Current Probe) Factor + Cable Loss +Attenuator Margin = Result - Limit

EUT:	USB camera module	**Model No.:**	HL-4K-362
Temperature:	24.1℃	**Relative Humidity:**	52%
Probe:	N	**Test Power:**	5V 300mA
Test Time:	Sep.30, 2026	**Test Result:**	Pass
Standard:	EN55032 class B	**Test Mode:**	NO
Note:			



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	**Level** (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1960	26.50	10.45	36.90	53.74	-16.74	AVG	P
2	0.2007	41.13	10.41	51.54	63.58	-12.04	peak	P
3	0.2745	24.21	10.47	34.68	50.97	-16.29	AVG	P
4	0.2787	38.52	10.40	48.91	60.85	-11.94	peak	P
5	0.6804	32.82	10.72	43.53	56.00	-12.47	peak	P
6	0.6998	21.30	10.80	32.09	46.00	-13.91	AVG	P
7	1.2770	33.86	9.62	43.43	56.00	-12.57	peak	P
8	1.2775	21.66	9.60	31.30	46.00	-14.70	AVG	P
9	1.6358	32.86	10.84	43.71	56.00	-12.29	peak	P
10	1.6358	19.22	10.85	30.08	46.00	-15.92	AVG	P
11	2.5562	20.77	10.83	31.60	46.00	-14.40	AVG	P
12*	2.5951	33.86	10.84	44.69	56.00	-11.31	peak	P

The test result is calculated as the following:

Result = Reading + Correct Factor

Correct Factor = (LISN, ISN, PLC or Current Probe) Factor + Cable Loss +Attenuator

Margin = Result - Limit

.

5.2 Disturbance POWER test

Test Requirement: EN 55032:2015/A11:2020

Test Method: EN 55032:2015/A11:2020

Limit:

30 ~ 300	45 Increasing Linearly with Frequency to 55 (Q.P.) 35 Increasing Linearly with Frequency to 45 (A.V.)

5.2.1 E.U.T. Operation

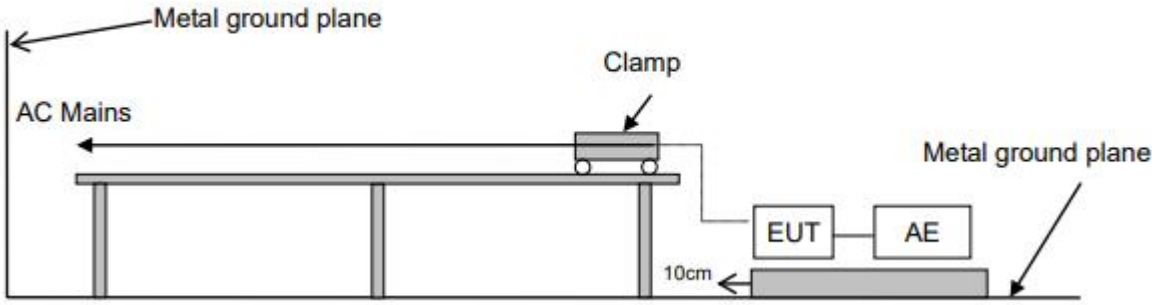
Operating Environment:

Temperature: 24 °C Humidity: 54 % RH Atmospheric Pressure: 1010 mbar

5.2.2 Test Mode Description

Test Mode: Normal working mode(Max Loading).

5.2.3 Test Setup Diagram



5.2.4 Measurement Procedure and Data

The EUT is placed on the ground and away from other metallic surface at least 0.4m. It is connected to the power mains through an extension cord of 6m min. The absorber clamp clamps the cord and moves from the far end to the EUT to measure the disturbing energy emitted from the cord.

The bandwidth of the test receiver is set at 120kHz.

All the test results are listed in Section 6.6.

The frequency spectrum from 30 MHz to 300 MHz is investigated.

As the peak value is too low against the limit, so the quasi-peak value and average value have omitted. All the scanning waveforms are attached in **Appendix II**

5.3 Radiated Emissions

Test Requirement: EN 55032:2015/A11:2020

Test Method: EN 55032:2015/A11:2020

Limit:

30MHz- 230MHz: 40dBuV/m quasi-peak

230MHz- 1000MHz: 47dBuV/m quasi-peak

Detector: Peak for pre-scan (120kHz resolution bandwidth) 30MHz to 1000MHz

5.3.1 E.U.T. Operation

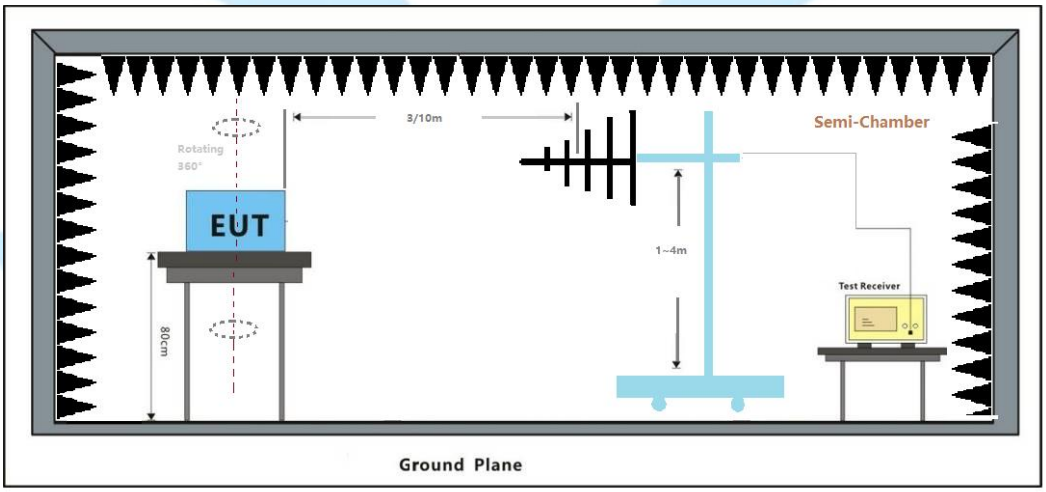
Operating Environment:

Temperature: 22.0 °C Humidity: 52 % RH Atmospheric Pressure: 1010 mbar

5.3.2 Test Mode Description

Test Mode: Normal working mode(Max Loading).

5.3.3 Test Setup Diagram



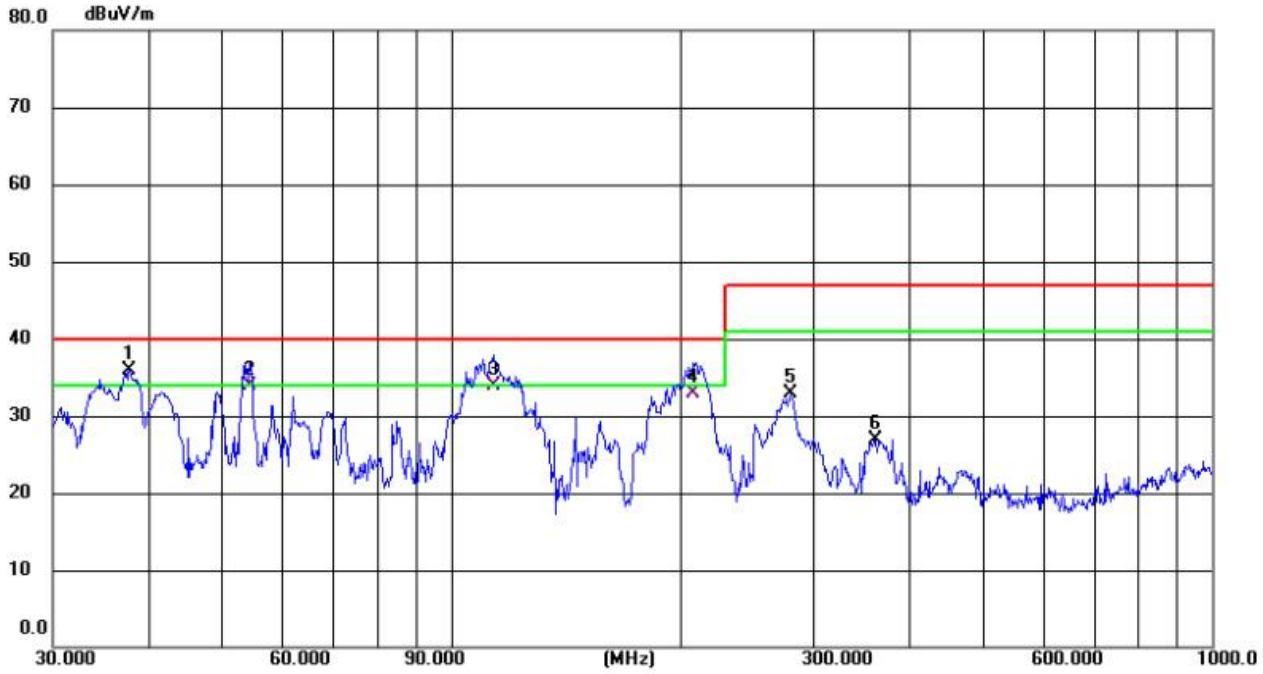
5.3.4 Measurement Procedure and Data

Frequency Range: 30MHz to 1000MHz

An initial pre-scan was performed with peak detector. Quasi-Peak measurement was performed at the frequencies with maximized peak emission were detected.

Measured Level = Read level + Cable Loss + Ant Factor- Pre-amp

EUT:	USB camera module	**Model No.:**	HL-4K-362
Temperature:	24.1℃	**Relative Humidity:**	52%
Distance:	3m	**Test Power:**	5V 300mA
Polarization:	Vertical	**Test Result:**	Pass
Test Time:	Sep.30, 2026	**Test Mode:**	NO
Standard:	**EN55032_Class B**		
Note:			



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 !	37.8121	54.62	-17.71	36.89	40.00	-3.11	peak
2!	54.4510	53.90	-17.61	36.35	40.00	-3.65	peak
3 *	113.7141	57.15	-20.21	36.91	40.00	-3.09	peak
4	208.5800	53.95	-20.49	33.41	40.00	-6.59	QP
5	279.0437	51.10	-17.12	34.02	47.00	-12.98	peak
6	361.7139	44.84	-16.91	27.93	47.00	-19.07	peak

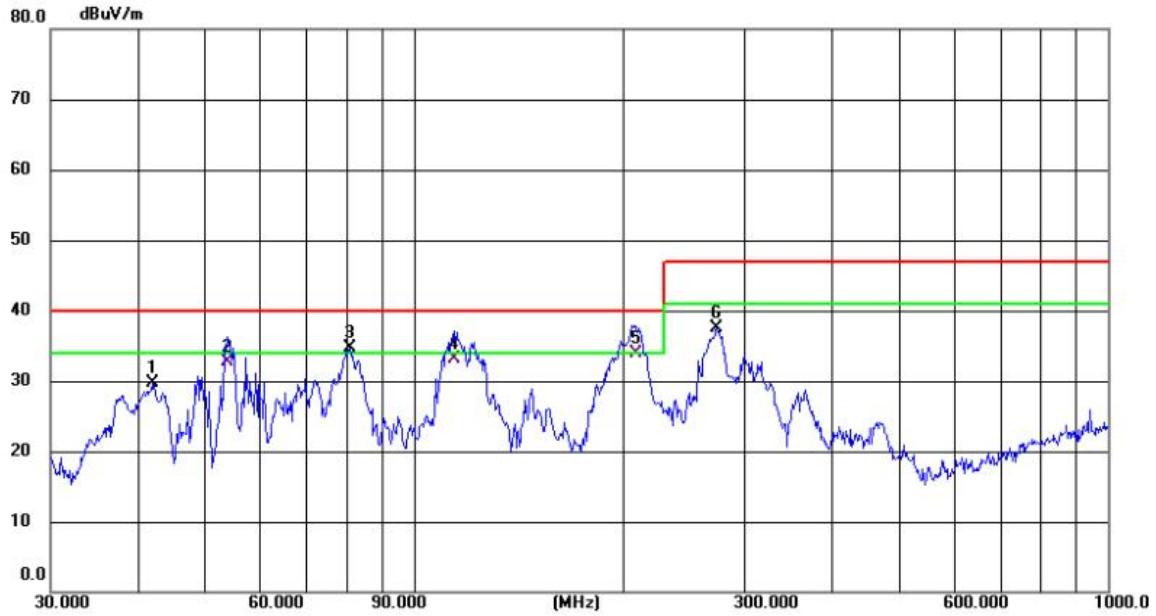
The test result is calculated as the following:

Result = Reading + Factor

Factor = Antenna Factor + Cable Loss – Amplifier Gain

Over Limit = Result - Limit

EUT:	USB camera module	**Model No.:**	HL-4K-362
Temperature:	24.1℃	**Relative Humidity:**	52%
Distance:	3m	**Test Power:**	5V 300mA
Polarization:	Horizontal	**Test Result:**	Pass
Test Time:	Sep.30, 2026	**Test Mode:**	**NO**
Standard:	**EN55032_Class B**		
Note:			



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	42.0065	-35.98	66.68	30.68	40.00	-9.32	peak
2!	53.8810	54.40	-17.55	36.86	40.00	-3.14	peak
3 !	80.9274	57.11	-22.00	35.10	40.00	-4.90	peak
4 !	114.5143	56.09	-20.00	36.15	40.00	-3.85	peak
5*	208.5800	57.46	-20.49	36.96	40.00	-3.04	peak
6	273.2345	53.60	-17.60	36.07	47.00	-10.93	peak

The test result is calculated as the following:

Result = Reading + Factor
Factor = Antenna Factor + Cable Loss – Amplifier Gain
Over Limit = Result - Limit
Both 230V and 110V voltages are tested, the data of the worst-case is shown in the report.

5.4 Voltage Fluctuations and Flicker

Test Requirement: EN IEC 61000-3-2:2019/A1:2021

Test Method: EN 55035:2017/A1:2020

5.4.1 E.U.T. Operation

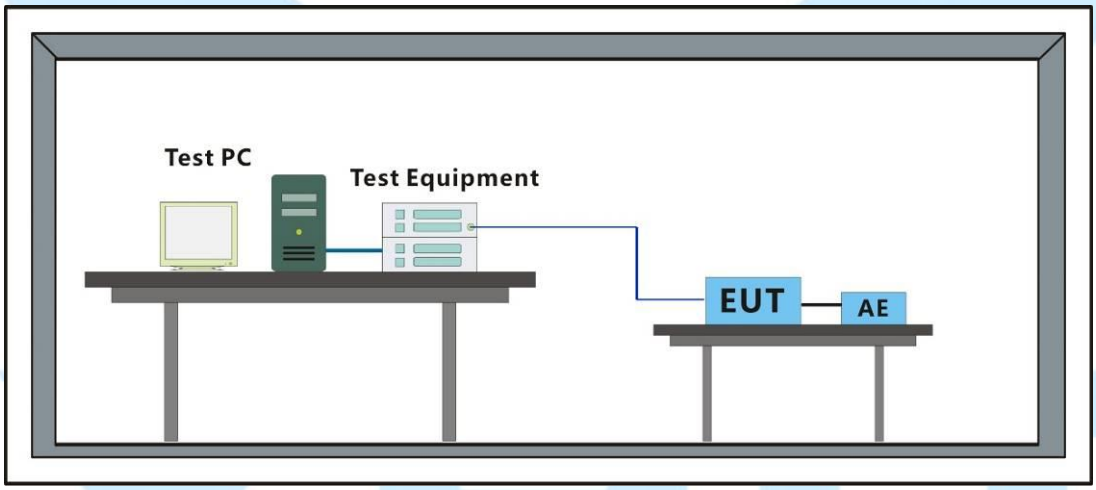
Operating Environment:

Temperature: 24.6 °C Humidity: 65.6 % RH Atmospheric Pressure: 1010 mbar

5.4.2 Test Mode Description

Test Mode: Normal working mode(Max Loading).

5.4.3 Test Setup Diagram



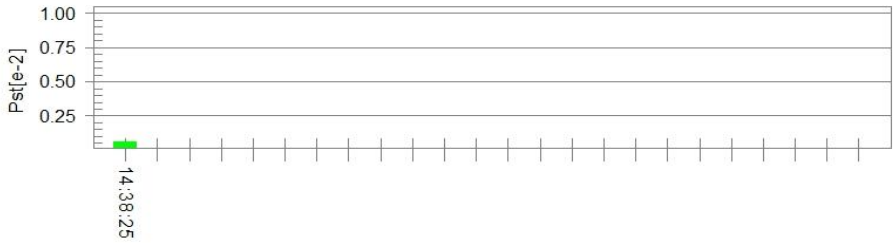
5.4.4 Measurement Procedure and Data

Flicker Test Summary per EN/IEC61000-3-3 (Run time)

Test category: dt,dmax,dc and Pst (European limits) **Test Margin: 100**
Test duration (min): 10

Test Result: Pass **Status: Test Completed**

Pst, and limit line **European Limits**



Parameter values recorded during the test:

Vrms at the end of test (Volt):	**230.06**			
T-max (mS):	**0**	**Test limit (mS):**	**500.0**	**Pass**
Highest dc (%):	**0.00**	**Test limit (%):**	**3.30**	**Pass**
Highest dmax (%):	**0.00**	**Test limit (%):**	**4.00**	**Pass**
Highest Pst (10 min. period):	**0.064**	**Test limit:**	**1.000**	**Pass**

5.5 Harmonic Current Emission

Test Requirement: EN IEC 61000-3-2:2019/A1:2021

Test Method: EN IEC 61000-3-2:2019/A1:2021

Frequency Range: 100Hz to 2kHz

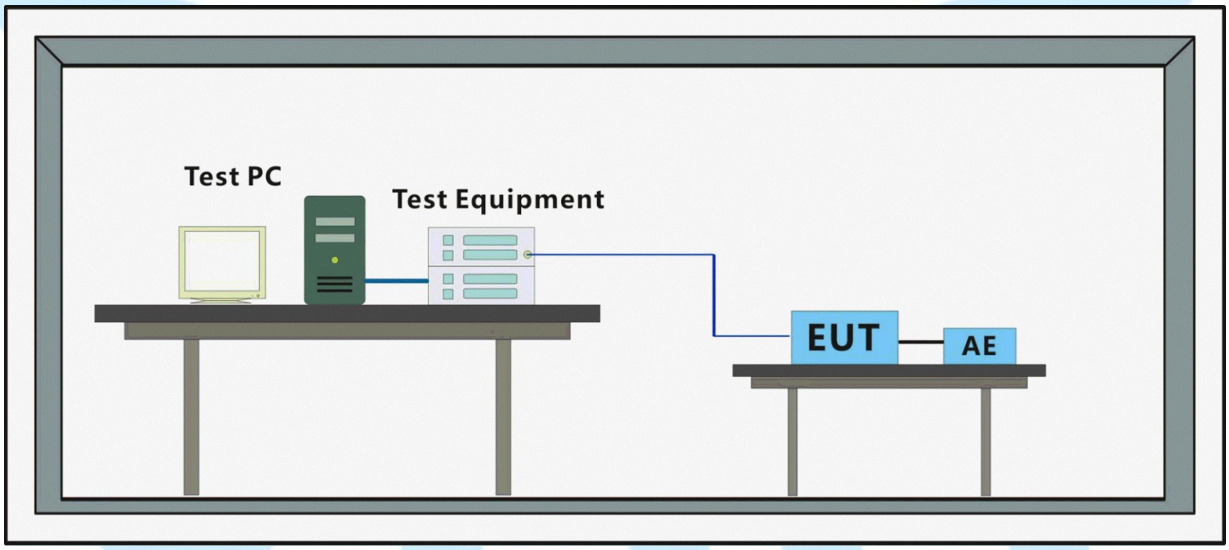
5.5.1 E.U.T. Operation

Operating Environment:

Temperature: 24.6 °C Humidity: 65.6 % RH Atmospheric Pressure: 1010 mbar

Test Mode: Normal working mode(Max Loading).

5.5.2 Test Setup Diagram



5.5.3 Measurement Data

Ha	Entire measurement (0.320 s = 1 time window(s))						Worst 2.5 min		Average		PASS	FAIL
	Maximum	Window	EN61000-3-2 Class D	Margin in MaxWin	100 to 150%	Ex-ceeded	100 to 150%	Ex-ceeded	Value	Ex-ceeded		
DC	0.0012 A	1	--	--	0	0	n.e.	n.e.	-0.0012 A	0	X	
1	0.2989 A	1	--	--	0	0	n.e.	n.e.	0.2989 A	0	X	
2	0.0002 A	1	--	--	0	0	n.e.	n.e.	0.0002 A	0	X	
3	0.0418 A	1	0.2239 A	81.3 %	0	0	n.e.	n.e.	0.0418 A	0	X	
4	0.0001 A	1	--	--	0	0	n.e.	n.e.	0.0001 A	0	X	
5	0.0263 A	1	0.1251 A	78.9 %	0	0	n.e.	n.e.	0.0263 A	0	X	
6	0.0000 A	1	--	--	0	0	n.e.	n.e.	0.0000 A	0	X	
7	0.0141 A	1	0.0658 A	78.6 %	0	0	n.e.	n.e.	0.0141 A	0	X	
8	0.0000 A	1	--	--	0	0	n.e.	n.e.	0.0000 A	0	X	
9	0.0051 A	1	0.0329 A	84.4 %	0	0	n.e.	n.e.	0.0051 A	0	X	
10	0.0000 A	1	--	--	0	0	n.e.	n.e.	0.0000 A	0	X	
11	0.0007 A	1	0.0230 A	97.1 %	0	0	n.e.	n.e.	0.0007 A	0	X	
12	0.0001 A	1	--	--	0	0	n.e.	n.e.	0.0001 A	0	X	
13	0.0029 A	1	0.0195 A	85.1 %	0	0	n.e.	n.e.	0.0029 A	0	X	
14	0.0000 A	1	--	--	0	0	n.e.	n.e.	0.0000 A	0	X	
15	0.0033 A	1	0.0169 A	80.3 %	0	0	n.e.	n.e.	0.0033 A	0	X	
16	0.0000 A	1	--	--	0	0	n.e.	n.e.	0.0000 A	0	X	
17	0.0039 A	1	0.0149 A	73.9 %	0	0	n.e.	n.e.	0.0039 A	0	X	
18	0.0000 A	1	--	--	0	0	n.e.	n.e.	0.0000 A	0	X	
19	0.0018 A	1	0.0133 A	86.9 %	0	0	n.e.	n.e.	0.0018 A	0	X	
20	0.0000 A	1	--	--	0	0	n.e.	n.e.	0.0000 A	0	X	
21	0.0016 A	1	0.0121 A	86.7 %	0	0	n.e.	n.e.	0.0016 A	0	X	
22	0.0000 A	1	--	--	0	0	n.e.	n.e.	0.0000 A	0	X	
23	0.0015 A	1	0.0110 A	86.4 %	0	0	n.e.	n.e.	0.0015 A	0	X	
24	0.0000 A	1	--	--	0	0	n.e.	n.e.	0.0000 A	0	X	
25	0.0023 A	1	0.0101 A	77.5 %	0	0	n.e.	n.e.	0.0023 A	0	X	
26	0.0000 A	1	--	--	0	0	n.e.	n.e.	0.0000 A	0	X	
27	0.0019 A	1	0.0094 A	80.0 %	0	0	n.e.	n.e.	0.0019 A	0	X	
28	0.0000 A	1	--	--	0	0	n.e.	n.e.	0.0000 A	0	X	
29	0.0017 A	1	0.0087 A	80.2 %	0	0	n.e.	n.e.	0.0017 A	0	X	
30	0.0001 A	1	--	--	0	0	n.e.	n.e.	0.0001 A	0	X	
31	0.0009 A	1	0.0082 A	88.5 %	0	0	n.e.	n.e.	0.0009 A	0	X	
32	0.0000 A	1	--	--	0	0	n.e.	n.e.	0.0000 A	0	X	
33	0.0015 A	1	0.0077 A	80.3 %	0	0	n.e.	n.e.	0.0015 A	0	X	
34	0.0000 A	1	--	--	0	0	n.e.	n.e.	0.0000 A	0	X	
35	0.0014 A	1	0.0072 A	80.3 %	0	0	n.e.	n.e.	0.0014 A	0	X	
36	0.0001 A	1	--	--	0	0	n.e.	n.e.	0.0001 A	0	X	
37	0.0013 A	1	0.0069 A	80.6 %	0	0	n.e.	n.e.	0.0013 A	0	X	
38	0.0001 A	1	--	--	0	0	n.e.	n.e.	0.0001 A	0	X	
39	0.0010 A	1	0.0065 A	84.3 %	0	0	n.e.	n.e.	0.0010 A	0	X	
40	0.0000 A	1	--	--	0	0	n.e.	n.e.	0.0000 A	0	X	

6 Immunity Test Results

Performance Criteria Description

Criterion A: The apparatus shall continue to operate as intended during the test. No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer, when the apparatus is used as intended. 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 from what the user may reasonably expect from the apparatus if used as intended.

Criterion B: The apparatus shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer, when the apparatus is used as intended. During the test, degradation of performance is allowed, however. No change of actual operating state or stored data is allowed. 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 from what the user may reasonably expect from the apparatus if used as intended.

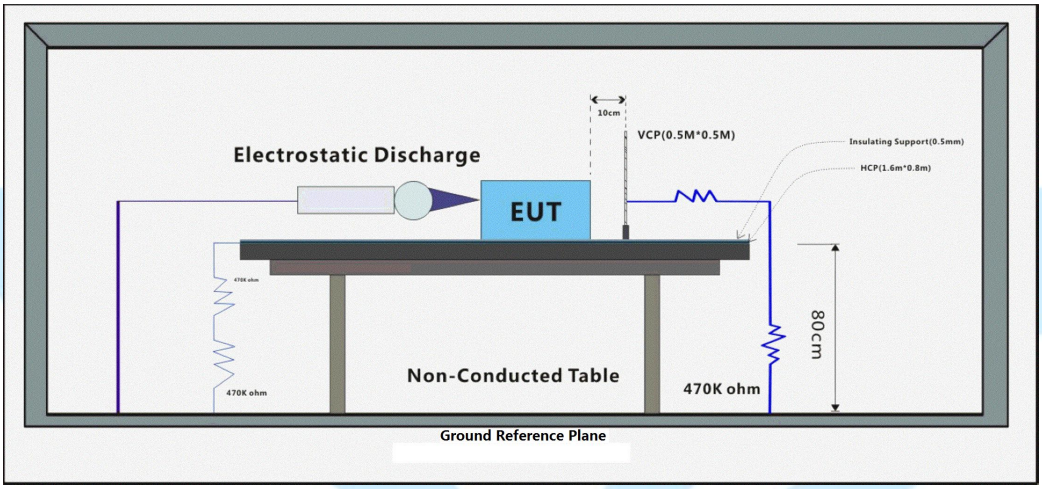
Criterion C: Temporary loss of function is allowed, provided the function is self recoverable or can be restored by the operation of the controls, or by any operation specified in the instructions for use.

6.1 Electrostatic Discharge

Test Requirement: EN 55032:2015/A11:2020

Test Method: EN 61000-4-2:2009

6.1.1 Test Setup Diagram



6.1.2 E.U.T. Operation

Operating Environment:

Temperature: 24.6 °C Humidity: 55.9 % RH Atmospheric Pressure: 1010 mbar

6.1.3 Test Mode Description

Test Mode: Normal working mode(Max Loading).

6.1.4 Test Condition and Results:

Performance Criterion: B

Discharge Impedance: 330 Ω / 150 pF

Discharge Voltage: Air Discharge: 8 kV; Contact Discharge:4 kV; VCP/HCP: 4 kV.

Polarity: Positive & Negative

Number of Discharge: Minimum 10 times at each test point

Discharge Mode: Single Discharge

Discharge Period: 1 second minimum

Test Point 1: All insulated enclosure & seams.

Test Point 2: All accessible metal parts of the enclosure.

Test Point 3: All sides.

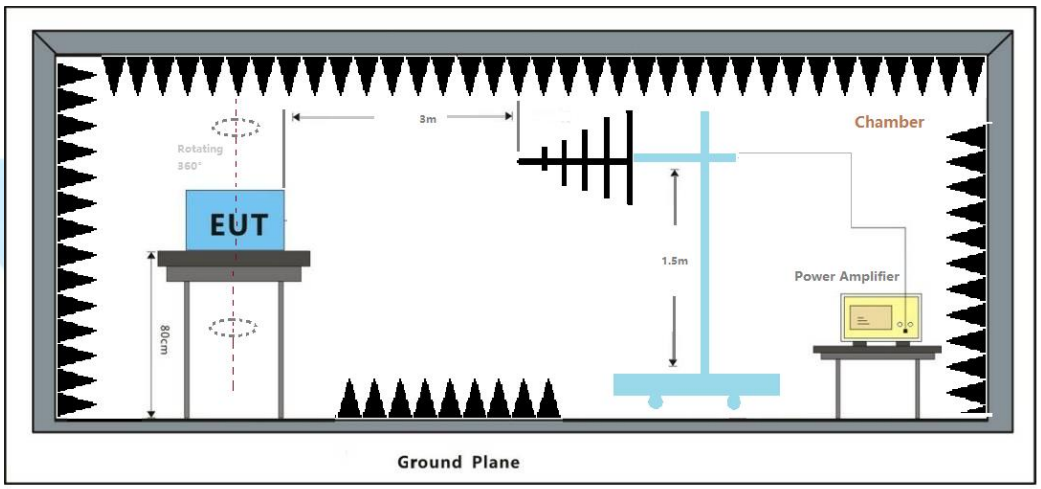
Discharge type	Level (kV)	Polarity	Test Point	Result / Observations
Air Discharge	8	+	1	A
Air Discharge	8	-	1	A
Contact Discharge	4	+	2	A
Contact Discharge	4	-	2	A
Horizontal Coupling	4	+	3	A
Horizontal Coupling	4	-	3	A
Vertical Coupling	4	+	3	A
Vertical Coupling	4	-	3	A
A: No degradation in the performance of the EUT was observed N/A:Not applicable				

6.2 Continuos RF Eletromagnetic field Disturbance

Test Requirement: EN 55032:2015/A11:2020

Test Method: EN IEC 61000-4-3:2020

2.1.1 Test Setup Diagram



6.2.1 E.U.T. Operation

Operating Environment:

Temperature: 23.7 °C Humidity: 68.3 % RH Atmospheric Pressure: 1010 mbar

6.2.2 Test Mode Description

Test Mode: Normal working mode(Max Loading).

6.2.3 Test Condition and Results:

Performance Criterion: A

Step Size: 1%

Frequency Range: 80MHz to 2700MHz

Modulation: 80%, 1kHz Amplitude Modulation

80~2000MHz

Surface	Level (V/m)	Polarization	Dwell time	Result / Observations
AC power port	3	H&V	1s	A
AC power port	3	H&V	1s	A
AC power port	3	H&V	1s	A
AC power port	3	H&V	1s	A
A: No degradation in the performance of the EUT was observed				

2.0~2.7GHz

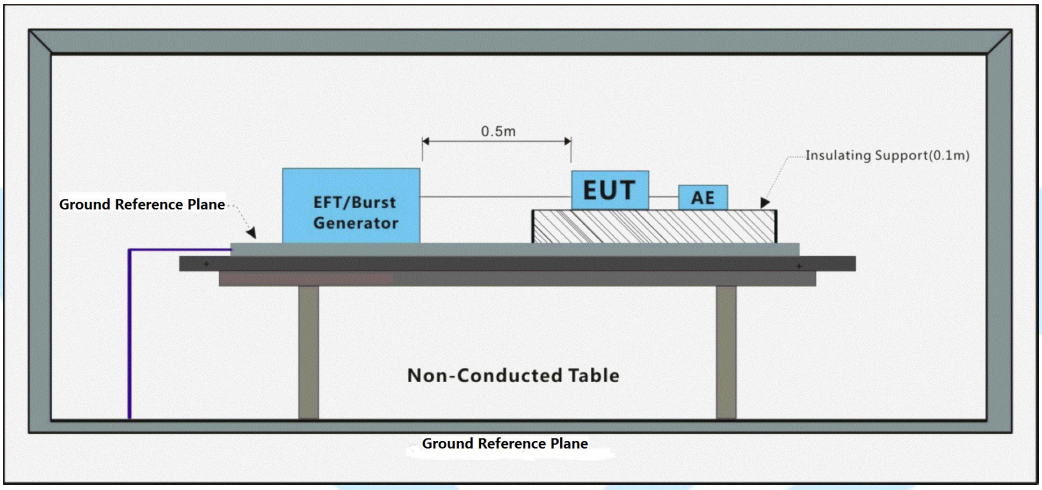
Surface	Level (V/m)	Polarization	Dwell time	Result / Observations
AC power port	1	H&V	1s	A
AC power port	1	H&V	1s	A
AC power port	1	H&V	1s	A
AC power port	1	H&V	1s	A
A: No degradation in the performance of the EUT was observed				

6.3 Electrical Fast Transients Burst at AC Mains Power Port

Test Requirement: EN 55032:2015/A11:2020

Test Method: EN 61000-4-4:2012

6.3.1 Test Setup Diagram



6.3.2 E.U.T. Operation

Operating Environment:

Temperature: 23.8 °C Humidity: 67.5 % RH Atmospheric Pressure: 1010 mbar

6.3.3 Test Mode Description

Test Mode: Normal working mode(Max Loading).

6.3.4 Test Condition and Results:

Performance Criterion: B

Repetition Frequency: 5kHz

Burst Period: 300ms

Test Duration: 2 minute per level & polarity

Test Level: 1.0kV

Polarity: Positive & Negative

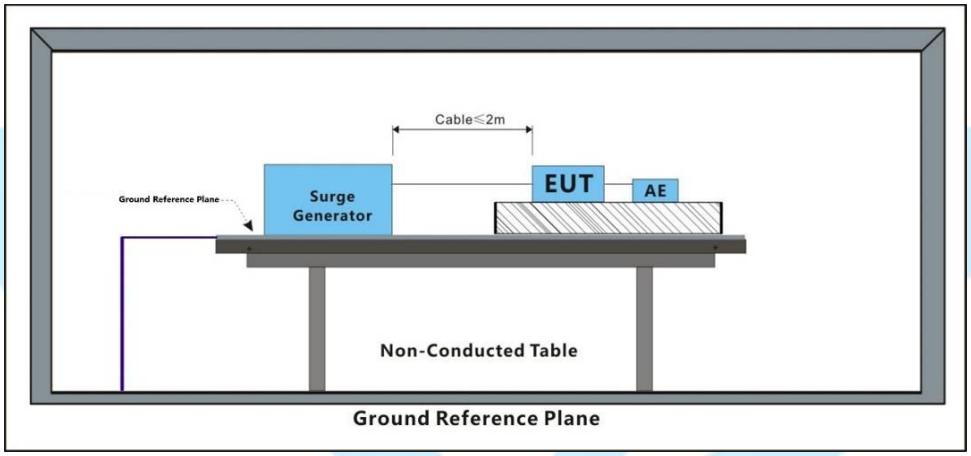
Test Line	Level (kV)	Polarity	CDN/Clamp	Result / Observations
AC power port	1	+	CDN	A
AC power port	1	-	CDN	A
A: No degradation in the performance of the EUT was observed				

6.4 Surge at AC Mains Power Port

Test Requirement: EN 55032:2015/A11:2020

Test Method: EN 61000-4-5:2014+A1:2017

6.4.1 Test Setup Diagram



6.4.2 E.U.T. Operation

Operating Environment:

Temperature: 23.7 °C Humidity: 68.4 % RH Atmospheric Pressure: 1010 mbar

6.4.3 Test Mode Description

Test Mode: Normal working mode(Max Loading).

6.4.4 Test Condition and Results:

Performance Criterion: B

Interval: 60s between each surge

Test Level: ±1kV Live to Neutral; ±2kV Live, Neutral to Earth

Polarity: Positive & Negative

Generator source impedance: 2Ω

Trigger Mode: Internal

No. of surges: 5 positive at 90°, 5 negative at 270°.

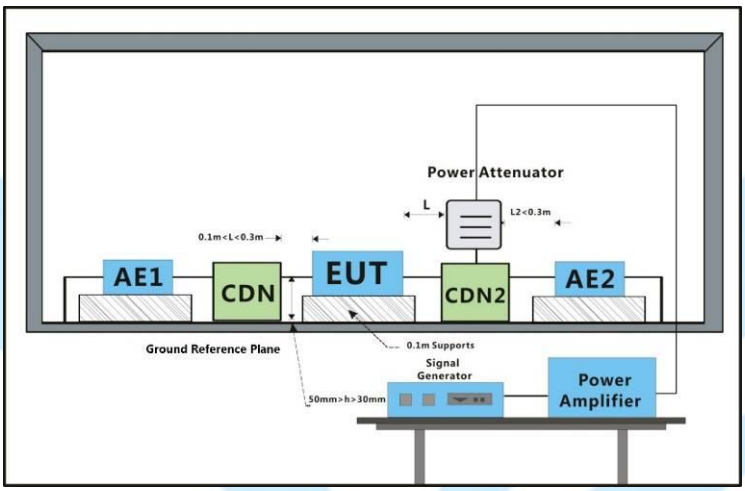
Test Line	Level (kV)	Polarity	Phase (deg)	Result / Observations
L-N	1	+	0°,90°,180°,270°	A
L-N	1	-	0°,90°,180°,270°	A
L-E	2	+	0°,90°,180°,270°	A
L-E	2	-	0°,90°,180°,270°	A
N-E	2	+	0°,90°,180°,270°	A
N-E	2	-	0°,90°,180°,270°	A
A: No degradation in the performance of the EUT was observed				

6.5 Conducted Immunity at AC Mains Power Port (150kHz-80MHz)

Test Requirement: EN 55032:2015/A11:2020

Test Method: EN 61000-4-6:2014

2.1.2 Test Setup Diagram



6.5.1 E.U.T. Operation

Operating Environment:

Temperature: 23.7 °C Humidity: 68.3 % RH Atmospheric Pressure: 1010 mbar

6.5.2 Test Mode Description

Test Mode: Normal working mode(Max Loading).

6.5.3 Test Condition and Results:

Performance Criterion: A

Step Size: 1%

Frequency Range: 0.15MHz to 230MHz

Modulation: 80%, 1kHz Amplitude Modulation

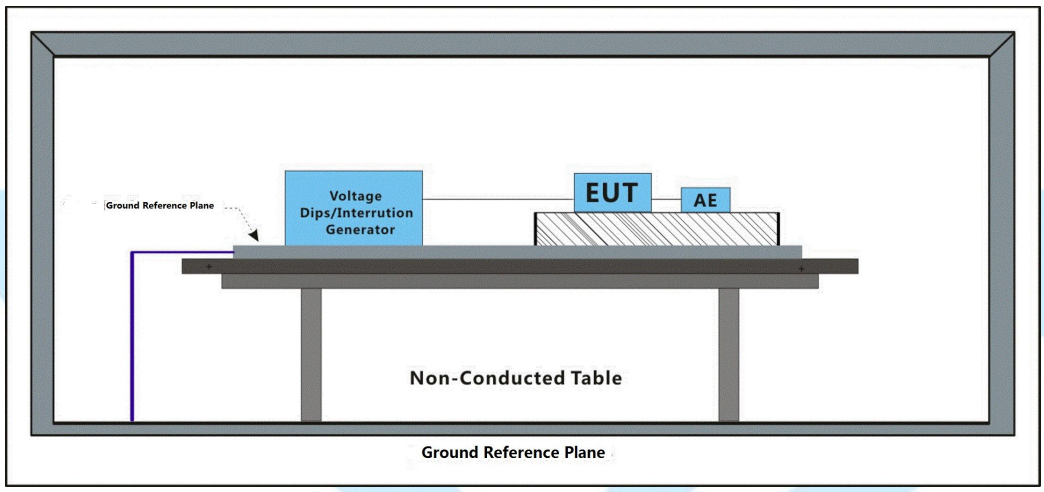
Cable Port	Level (Vrms)	CDN/Clamp	Dwell time	Result / Observations
AC power port	3	CDN	2s	A
A: No degradation in the performance of the EUT was observed				

6.6 Voltage Dips and Interruptions

Test Requirement: EN 55032:2015/A11:2020

Test Method: EN IEC 61000-4-11:2020

6.6.1 Test Setup Diagram



6.6.2 E.U.T. Operation

Operating Environment:

Temperature: 23.8 °C Humidity: 68.3 % RH Atmospheric Pressure: 1010 mbar

6.6.3 Test Mode Description

Test Mode: Normal working mode(Max Loading).

6.6.4 Test Condition and Results:

Performance Criterion:

For 50Hz: 0% of UT (Rated Voltage) for 0.5 Cycle: C; 40% of UT for 10 Cycles: C; 70% of UT for 25 Cycles: C.

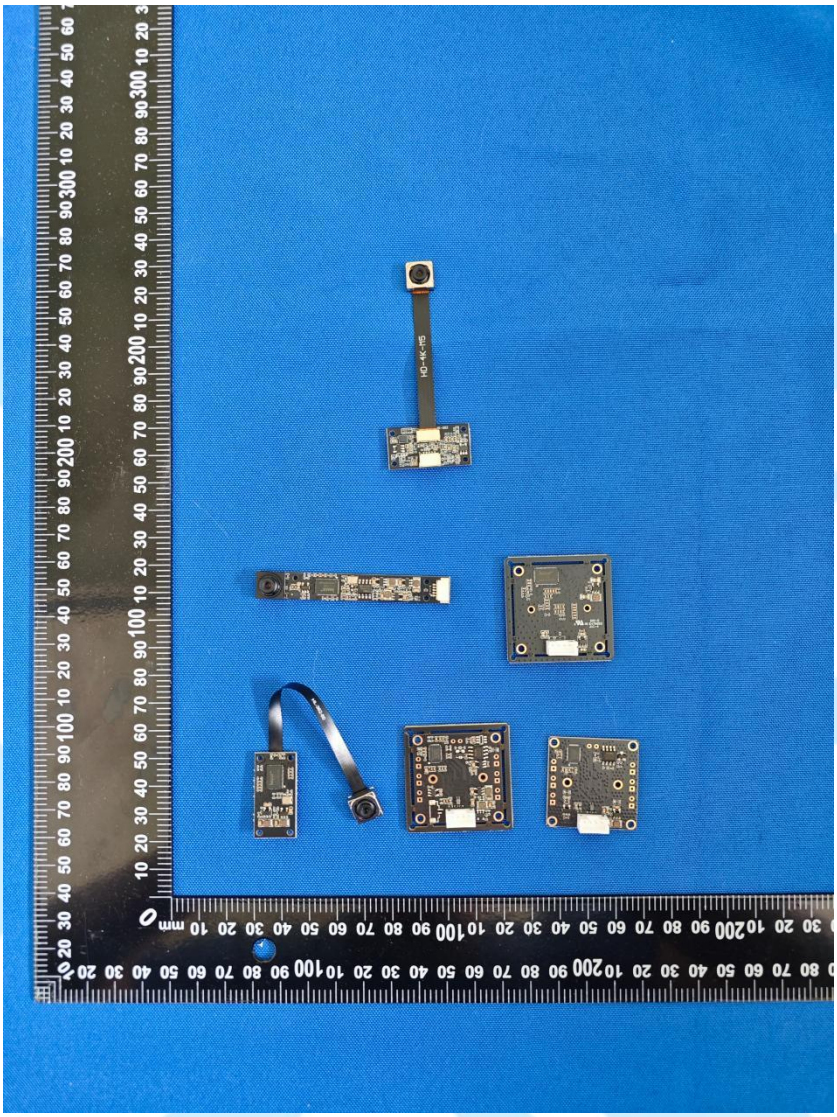
No. of Dips / Interruptions: 3 per Level

Time between dropout: 10s

Level % UT	Phase (deg)	Duration	No. of Dips / Interruptions	Result / Observations
0	0°	0.5 Cycle for 50Hz	3	A
0	180°	0.5 Cycle for 50Hz	3	A
40	0°	10 Cycles for 50Hz	3	A
40	180°	10 Cycles for 50Hz	3	A
70	0°	25 Cycles for 50Hz	3	A
70	180°	25 Cycles for 50Hz	3	A

A: No degradation in the performance of the EUT was observed

7 EUT Constructional Details (EUT Photos)



--End of the report--