TEST REPORT

for

NETWORK CAMERA

MODEL: PNM-A20084RQZ

Issued to:

Hanwha Vision Co., Ltd.
6, Pangyo-ro 319Beon-gil, Bundang-gu,
Seongnam-si, Gyeonggi-do, 13488 KOREA

Issued by:

Compliance Certification Services Inc.
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Issued Date: August 31, 2026

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Report No.: TMXD2608002781DT

Revision History

Rev.		Issue Date		Revisions	Effect Page	Revised By
00		August 31, 2026		Initial Issue	ALL	Joy Hsiao

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1 TEST RESULT CERTIFICATION

Product:	NETWORK CAMERA
Model:	PNM-A20084RQZ
Brand:	Hanwha Vision
Applicant:	**Hanwha Vision Co., Ltd.** 6, Pangyo-ro 319Beon-gil, Bundang-gu, Seongnam-si, Gyeonggi-do, 13488 KOREA
Manufacturer:	**HANWHA VISION VIETNAM COMPANY LIMITED.** Lot O-2, Que Vo Industrial Zone extended area, Nam Son ward, Bac Ninh province, Vietnam **D-TECH CO.,LTD.** 173-25, Saneop-ro, Gwonseon-gu, Suwon-si, Gyeonggi-do, Korea (Suwon Industrial Complex)
Tested:	August 22, 2026

Measurement procedures and Standard
NEMA TS 2-2021 V03.08 Environmental (Transients Test)

Statements of Conformity
Determination of compliance is based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

Statements of Test
Execution of NEMA TS 2-2021 Test A and Test B: CCS and the testing personnel have no affiliation with Hanwha Vision Co., Ltd.

The above equipment has been tested by Compliance Certification Services Inc., 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.

Approved by:

Stanley Cheng

Stanley Cheng
Supervisor of engineering dept.

Reviewed by:

Eva Fan

Eva Fan
Supervisor of report document dept.

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2 TEST RESULT SUMMARY

Report Clause	Phenomenon	Reference Clause(s)	Result
6	**Test Procedure: Transients, Voltage**		
6.1	Test A: Placement in Environmental Chamber and Check-Out of Hook-Up	2.2.7.1	Passed
6.2	Test B: Transient Tests (Power Service): High-Repetition Noise Transients	2.1.6.1 2.2.7.2	Passed
6.3	Test B: Transient Tests (Power Service): Low-Repetition High-Energy Transients	2.1.6.2 2.2.7.2	Passed
6.4	Test B: Transient Tests (Power Service): Transients, Input-Output Terminals	2.1.7 2.2.7.2	Passed
6.5	Test B: Transient Tests (Power Service): Non-destruct Transient Immunity	2.1.8 2.2.7.2	Passed

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3 EUT DESCRIPTION

Product	NETWORK CAMERA
Brand Name	Hanwha Vision
Model	PNM-A20084RQZ
Serial No	ZXLR6V4L70000NL
Date of manufacture	2026/07
Applicant	Hanwha Vision Co., Ltd.
Housing material	Plastic w/ metal plate
Received Date	August 13, 2026
EUT Power Rating	Power from PoE
AC Power During Test	120VAC, 89VAC, 135VAC
PoE Injector Manufacturer	AMG
PoE Injector Model	AMG155-1GBT-P90
PoE Injector Power Rating	85-264VAC
PoE Injector Serial No	2601080013
PoE Injector Date of manufacture	2026/01/10
AC Power Cable Type	Unshielded, 1.8m (Detachable)

I/O PORT

I/O PORT TYPES	Q'TY	TESTED WITH
1. PoE Port	1	1
2. Micro SD Slot	2	2

Note: Client consigns only one model sample to test (Model Number: PNM-A20084RQZ).

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4 TEST METHODOLOGY

4.1. MEASURED MODE

The test configuration mode is as the following:

1	**Normal Mode**

4.2. EUT SYSTEM OPERATION

1. Windows 11 boots system.
2. Press the start menu, select executive and type ping 192.168.1.100 –t (EUT), ping 192.168.1.1 –t (Server Notebook).

   Note: Test program is self-repeating throughout the test.

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5 SETUP OF EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF SUPPORT UNITS

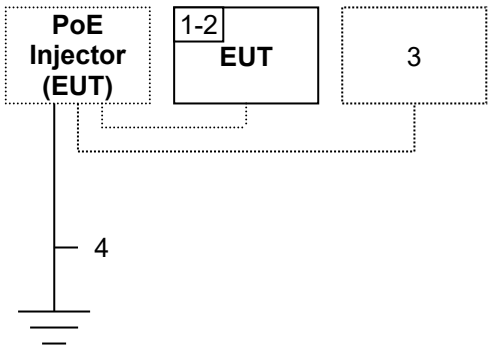
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Peripherals Devices:

No.	Equipment	Model No.	Serial No.	FCC ID / BSMI ID	Brand Name	Data Cable	Power Cord
1-2	Micro SD Card	N/A	N/A	N/A	Transcend	N/A	N/A
3	Server Notebook	TP00048X240	PC-018LPW	BSMI: R33B65	Lenovo	Unshielded, 10m	N/A
4	Ground Cable	N/A	N/A	N/A	N/A	Unshielded, 1.8m	N/A

Note: Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

5.2. CONFIGURATION OF SYSTEM UNDER TEST



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6 TEST PROCEDURE: TRANSIENTS, VOLTAGE

6.1. TEST A: PLACEMENT IN ENVIRONMENTAL CHAMBER AND CHECK-OUT OF HOOK-UP

6.1.1. TEST INSTRUMENTS

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Oscilloscope	Tektronix	TDS 3054C	C013600	12/28/2026
Programmable Temp. & Humi. Chamber	CTF	LY-2CS-TH	2016042502	04/13/2027
High Voltage Generator	CCSRF	TS-2-01	00001515	09/04/2026
Waveforms Generator	CCSRF	TS-2-02	00001516	09/04/2026
Test S/W	Win2110S II Ver. 4.7.1			

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. N.C.R = No Calibration Request.

6.1.2. TEST PROCEDURES

Reference to NEMA TS 2-2021 V03.08 section 2.2.7.1

- Place the test unit in the environmental chamber. Connect the test unit AC input circuit to a variable voltage power transformer, voltmeter, and transient generator. The transient generator shall be connected to the AC input circuit at a point at least 4.6 meters (15 feet) from the AC power source and not over 3 meters (10 feet) from the input to the test unit.
- Connect test switches to the appropriate terminals to simulate the various features incorporated into the test unit. Place these switches in the proper position for desired operation.
- Verify the test hook-up. Adjust the variable-voltage power transformer to 120 volts AC and apply power to the test unit. Verify that the test unit goes through its prescribed start-up sequence and cycles properly in accordance with the operation determined by the positioning of test switches in item 2.

6.1.3. TEST RESULTS

Test Termination
Set the controls on the environmental chamber to 21°C (70 °F) **All Port** ☒ **No abnormal**

Note: On satisfactory completion of this test, proceed with Test B: Transient Tests (Power Service).

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6.2. TEST B: TRANSIENT TESTS (POWER SERVICE): HIGH-REPETITION NOISE TRANSIENTS

6.2.1. TEST INSTRUMENTS

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Oscilloscope	Tektronix	TDS 3054C	C013600	12/28/2026
High Voltage Generator	CCSRF	TS-2-01	00001515	09/04/2026
Waveforms Generator	CCSRF	TS-2-02	00001516	09/04/2026

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. N.C.R = No Calibration Request.

6.2.2. TEST PROCEDURES

Reference to NEMA TS 2-2021 V03.08 section 2.2.7.2 (Reference 2.1.6.1)

- Program the test unit to dwell. Verify the input voltage is 120 volts AC.
- Set the transient generator to provide high-repetition noise transients as follows:

a. Amplitude: 300 volts + 5 percent, both positive and negative polarity.

b. Peak Power: 2500 watts.

c. Repetition Rate: One pulse every other cycle moving uniformly over the full wave in order to sweep once every 3 seconds across 360 degrees of line cycle.

d. Pulse Rise Time: 1 microsecond.

e. Pulse Width: 10 microseconds.

f. Test Time : 5 Minutes

g. burst period::16.7ms

- Apply the transient generator output to the AC voltage input for at least 5 minutes. Repeat this test for at least two conditions of dwell for the test unit. The test unit must continue to dwell without malfunction.
- Program the test unit to cycle. Turn on the transient generator (output in accordance with item 2) for 10 minutes, during which time the test unit shall continue to cycle without malfunction.

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6.2.3. TEST RESULTS

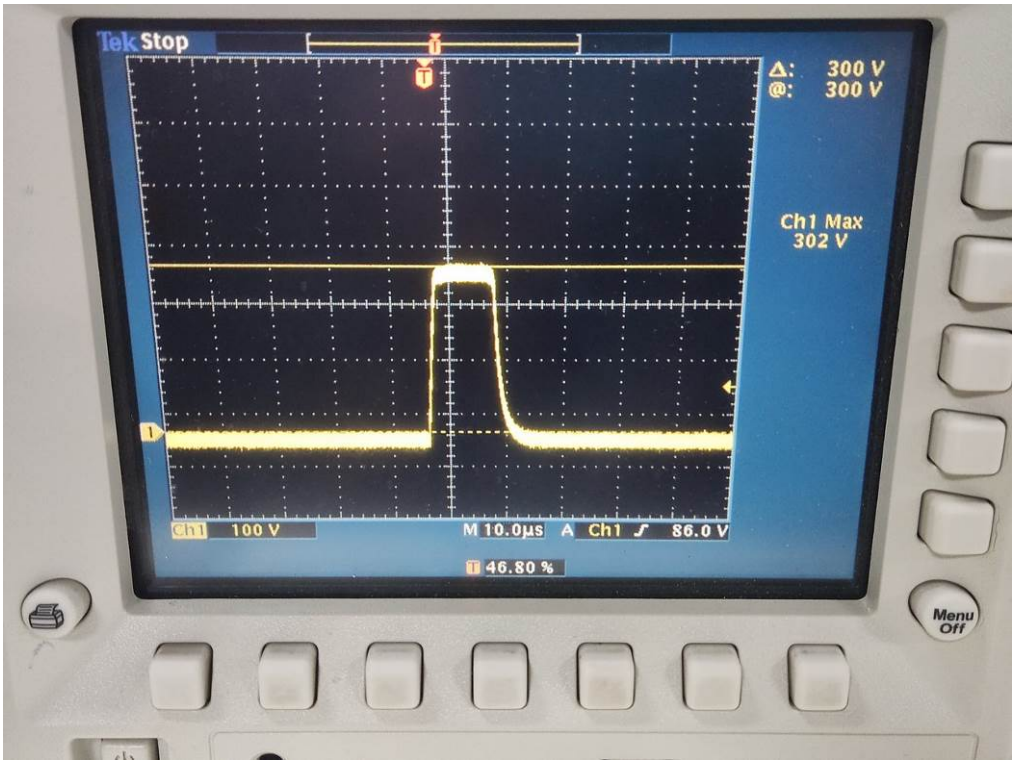
Temperature	20.2°C	**Humidity**	55% RH
Tested By	Jacky Lin		

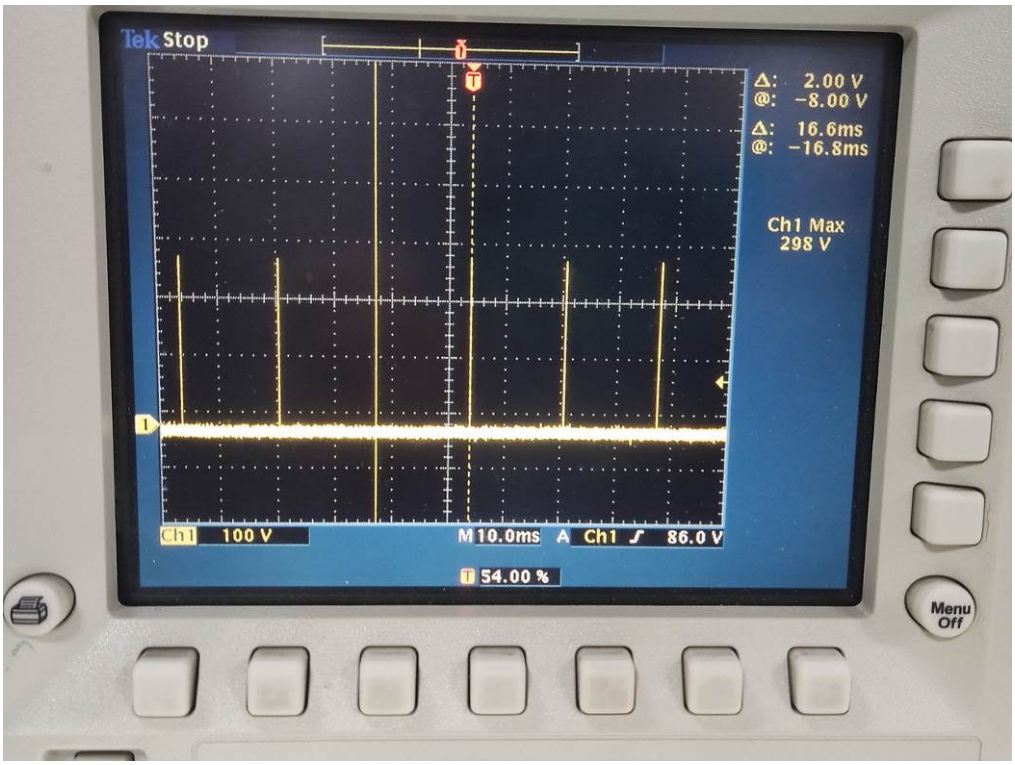
Test Item	Input Voltage	Amplitude	Result
Power Port	120VAC	+300V	Normal
		-300V	Normal

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6.2.4. CALIBRATION WAVEFORM





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6.3. TEST B: TRANSIENT TESTS (POWER SERVICE): LOW-REPETITION HIGH-ENERGY TRANSIENTS

6.3.1. TEST INSTRUMENTS

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Oscilloscope	Tektronix	TDS 3054C	C013600	12/28/2026
High Voltage Generator	CCSRF	TS-2-01	00001515	09/04/2026
Waveforms Generator	CCSRF	TS-2-02	00001516	09/04/2026

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. N.C.R = No Calibration Request.

6.3.2. TEST PROCEDURES

Reference to NEMA TS 2-2021 V03.08 section 2.2.7.2 (Reference 2.1.6.2)

- Set a transient generator to provide low-repetition high-energy transients as follows:

a. Amplitude: 600 volts +5 percent, both positive and negative polarity.
b. Energy Discharge Source: Capacitor, oil-filled, 10 microfarads.
c. Repetition Rate: One discharge each 10 seconds.
d. Pulse Position: Random across 360 degrees of line cycle.

- Program the test unit to dwell. Verify the input voltage is 120 volts AC.
- Apply the transient generator (output in accordance with item 5) between logic ground and the connecting cable termination of selected Connector A, B, or C input/output terminals of the test unit.
- A representative sampling of selected input/output terminations shall be tested. The test unit shall continue to dwell without malfunction.
- Program the test unit to cycle. Turn on the transient generator (output in accordance with item 5) and apply its output to the selected Connector A, B, or C input/output terminations. The test unit shall continue to cycle without malfunction.

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6.3.3. TEST RESULTS

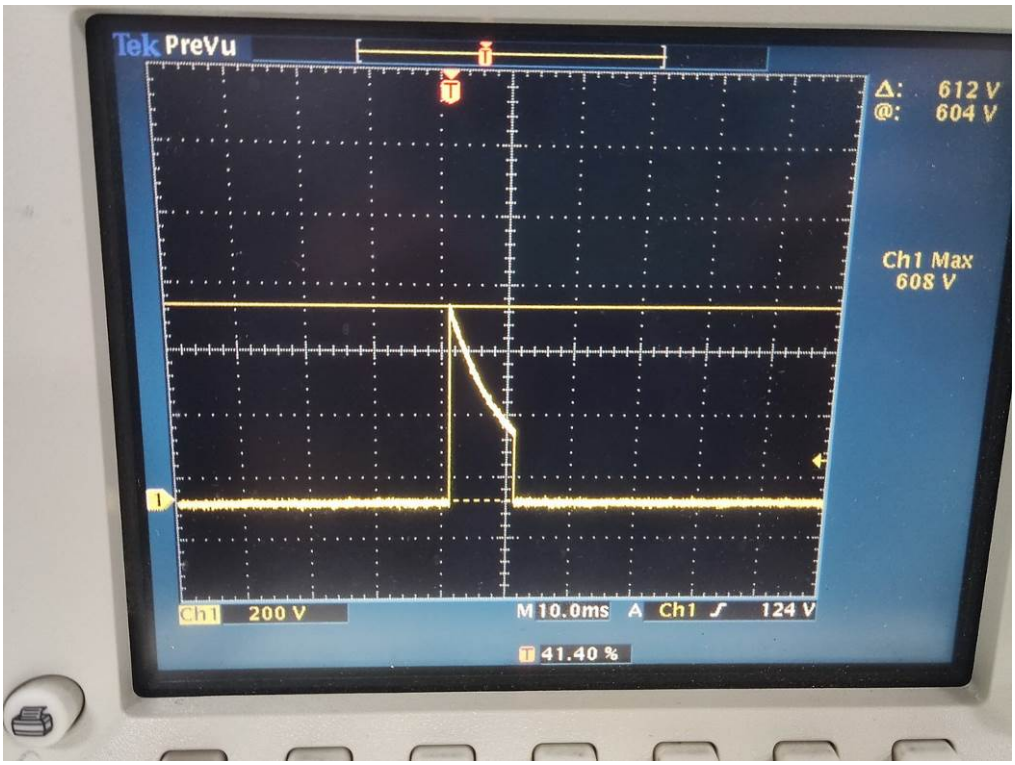
Temperature	20.2°C	**Humidity**	55% RH
Tested By	Jacky Lin		

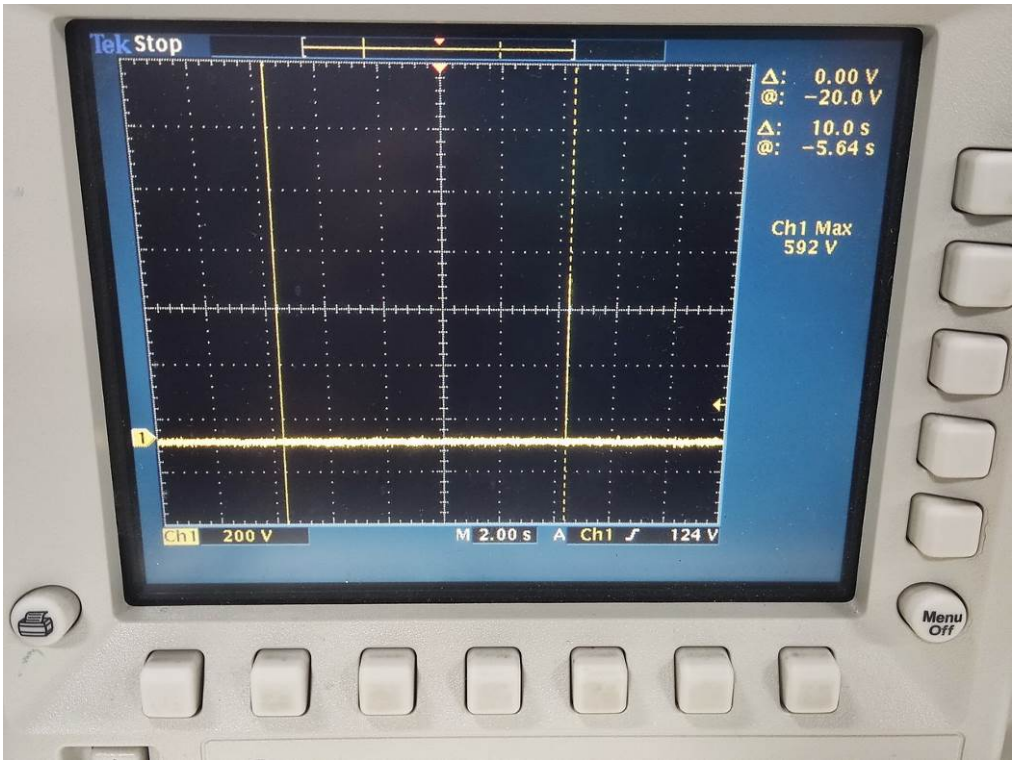
Test Item	Input Voltage	Amplitude	Result
Power Port	120VAC	+600V	Normal
		-600V	Normal

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6.3.4. CALIBRATION WAVEFORM





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6.4. TEST B: TRANSIENT TESTS (POWER SERVICE): TRANSIENTS, INPUT-OUTPUT TERMINALS

6.4.1. TEST INSTRUMENTS

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Oscilloscope	Tektronix	TDS 3054C	C013600	12/28/2026
High Voltage Generator	CCSRF	TS-2-01	00001515	09/04/2026
Waveforms Generator	CCSRF	TS-2-02	00001516	09/04/2026

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. N.C.R = No Calibration Request.

6.4.2. TEST PROCEDURES

Reference to NEMA TS 2-2021 V03.08 section 2.2.7.2 (Reference 2.1.7)

- Set a transient generator to provide low-repetition high-energy transients as follows:

  a. Amplitude: 300 volts +5 percent, both positive and negative polarity.
  b. Source Impedance: Not less than 1000 ohms nominal impedance.
  c. Repetition: One pulse per second for a minimum of five pulses per selected terminal.
  d. Pulse Rise Time: 1 microsecond.
  e. Pulse Width: 10 microseconds.

- Program the test unit to dwell. Verify the input voltage is 120 volts AC.
- Discharge the oil-filled 10-microfarad capacitor ten times for each polarity across the AC voltage input. Repeat this test for at least two conditions of dwell. The test unit shall continue to dwell without malfunction.
- Program the test unit to cycle. Discharge the capacitor ten times for each polarity while the test unit is cycling, during which time the test unit shall continue to cycle without malfunction.
- During the preceding transient tests (item 3 through 11), the test unit must continue its programmed functions.
- The test unit shall not skip intervals or interval portions when cycling; place false calls or produce false indications while in dwell; disrupt normal sequences in any manner; or change timings.

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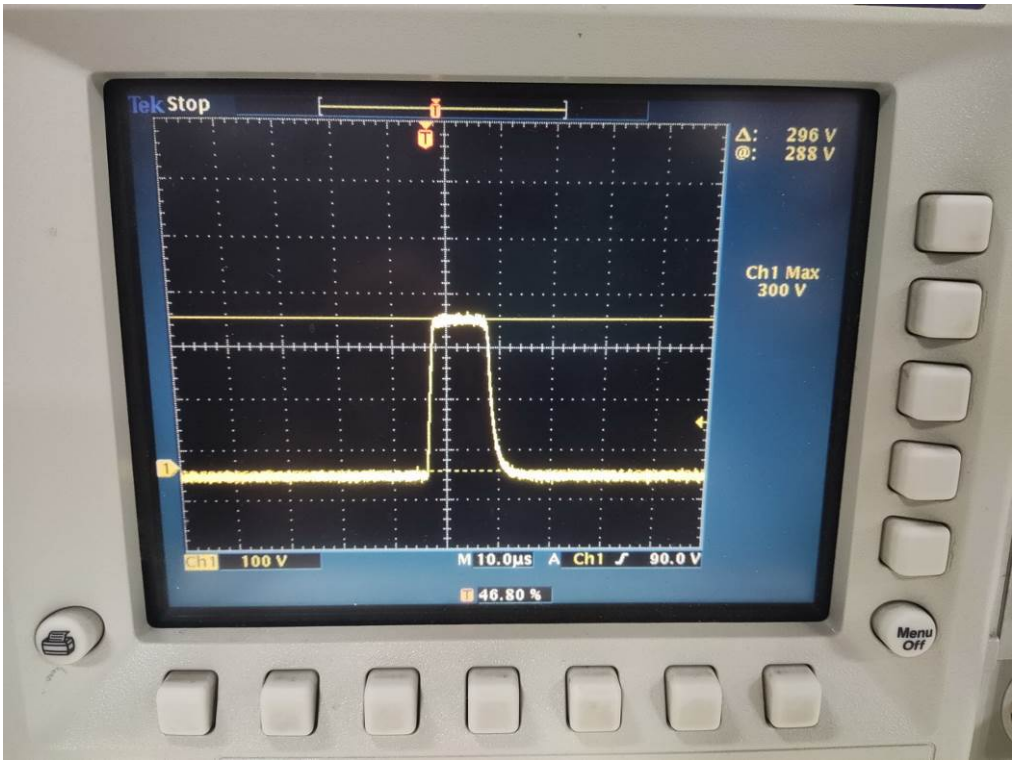
6.4.3. TEST RESULTS

Temperature	20.2°C	**Humidity**	55% RH
Tested By	Jacky Lin		

Test Item	Input Voltage	Amplitude	Result
Power Port	120VAC	+300V	Normal
		-300V	Normal

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6.5. TEST B: TRANSIENT TESTS (POWER SERVICE): NON-DESTRUCT TRANSIENT IMMUNITY

6.5.1. TEST INSTRUMENTS

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Oscilloscope	Tektronix	TDS 3054C	C013600	12/28/2026
High Voltage Generator	CCSRF	TS-2-01	00001515	09/04/2026
Waveforms Generator	CCSRF	TS-2-02	00001516	09/04/2026

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. N.C.R = No Calibration Request.

6.5.2. TEST PROCEDURES

Reference to NEMA TS 2-2021 V03.08 section 2.2.7.2 (Reference 2.1.8)

- Non-destruct Transient Immunity:
- Turn off the AC power input to the test unit from the variable-voltage power source.
- Apply the following high-energy transient to the AC voltage input terminals of the test unit (no other power connected to terminals):

  a. Amplitude: 1000 volts, both positive and negative polarity.

  b. Maximum Repetition Rate: Applied to the CA once every 2 seconds for a maximum of three applications for each polarity.

  c. Test Time : 2 Second (3 Times/Polarity)

- Upon completion of the foregoing, apply 120 volts AC to the test unit and verify that the test unit goes through its prescribed start-up sequence and cycles properly in accordance with the programmed functions. The first operation of the over-current protective device during this test shall not be considered a failure of the test unit.

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6.5.3. TEST RESULTS

Temperature	20.2°C	**Humidity**	55% RH
Tested By	Jacky Lin		

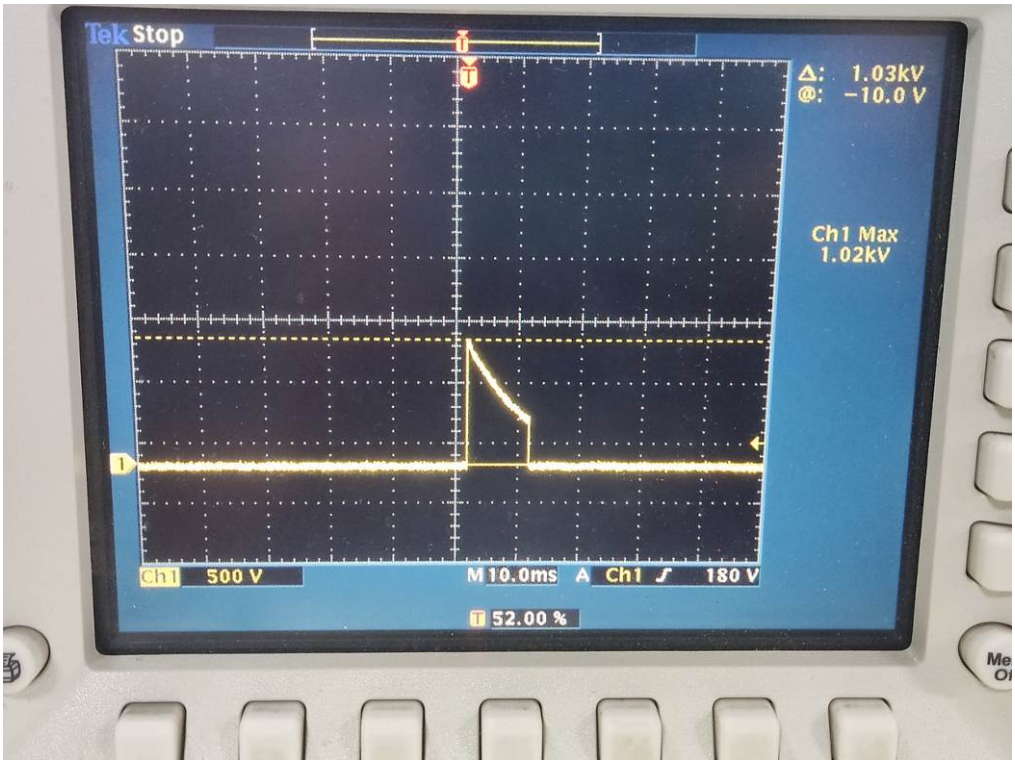
Test Item	Amplitude	Result
Power Port	+1000V	Normal
	-1000V	Normal

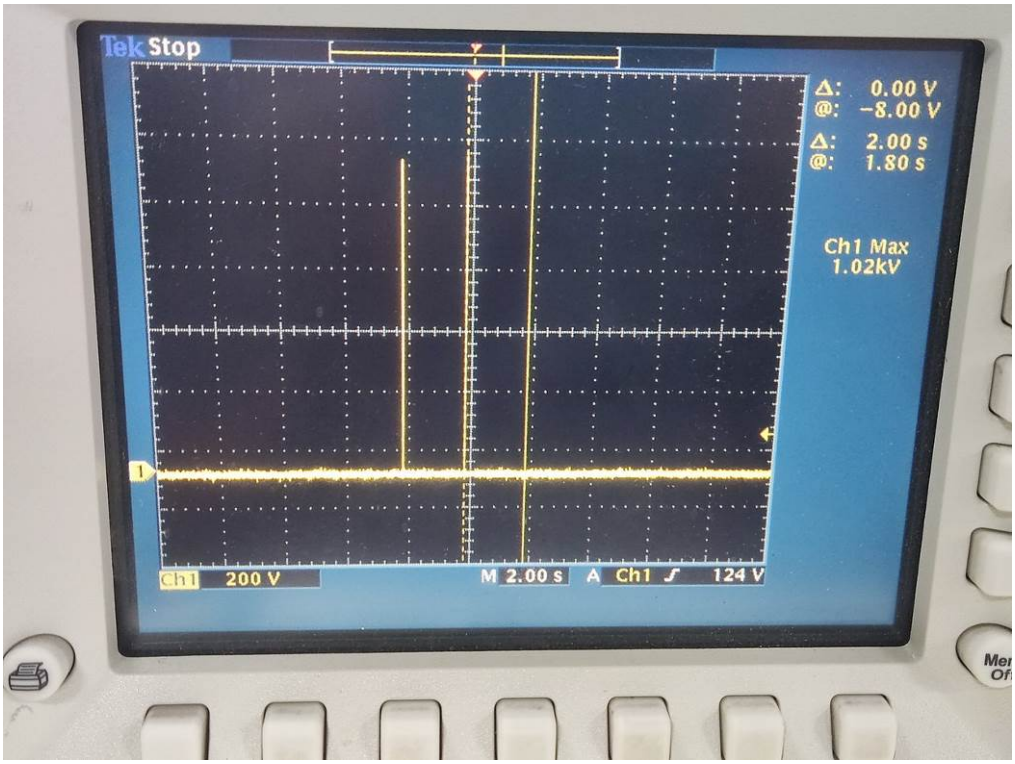
Note: On satisfactory completion of this test, proceed with Test C: Low-Temperature Low-Voltage Test.

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6.5.4. CALIBRATION WAVEFORM





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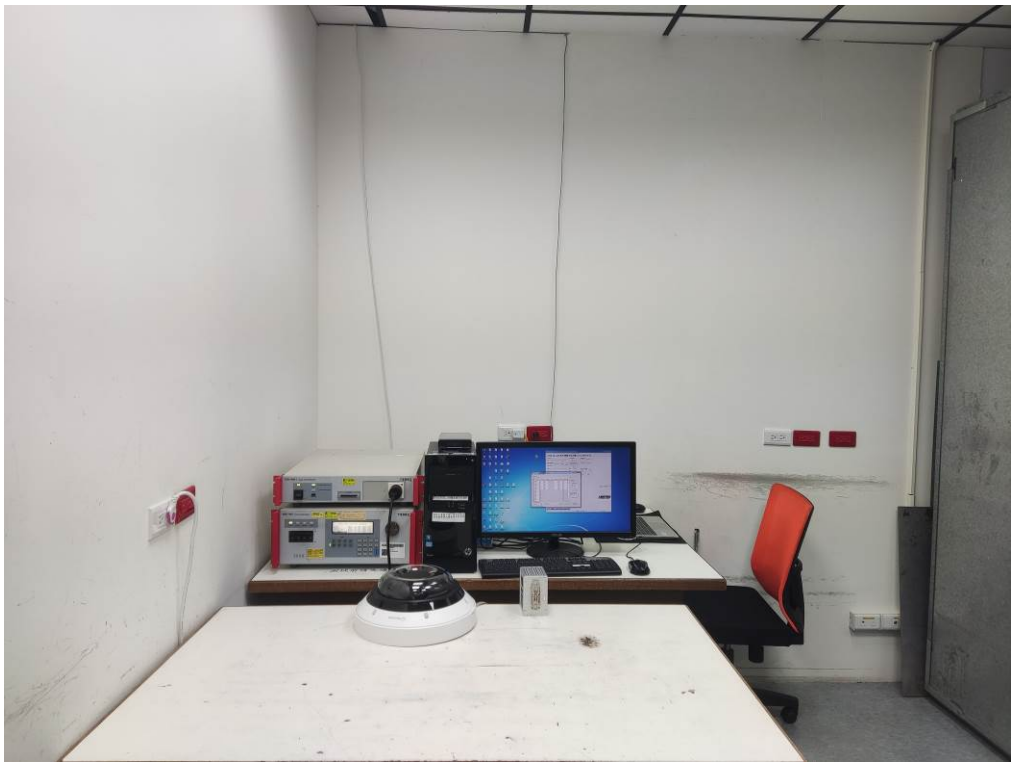
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6.5.5. PHOTOGRAPHS OF TEMPERATURE TEST

Before Test



Testing



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After Test

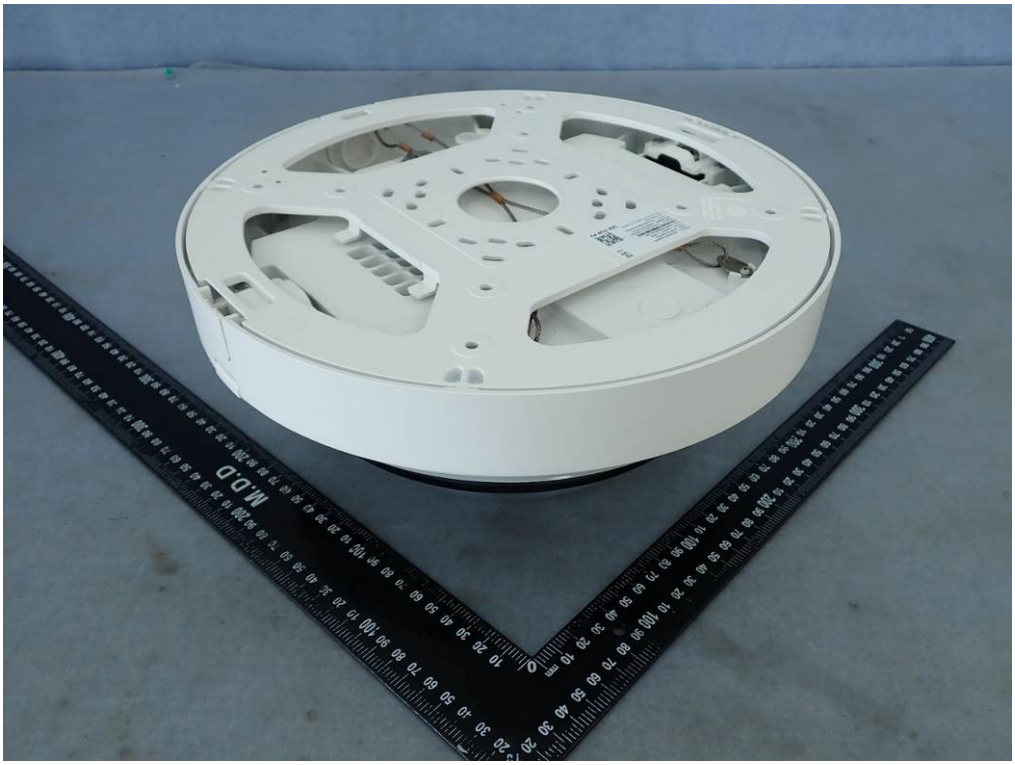


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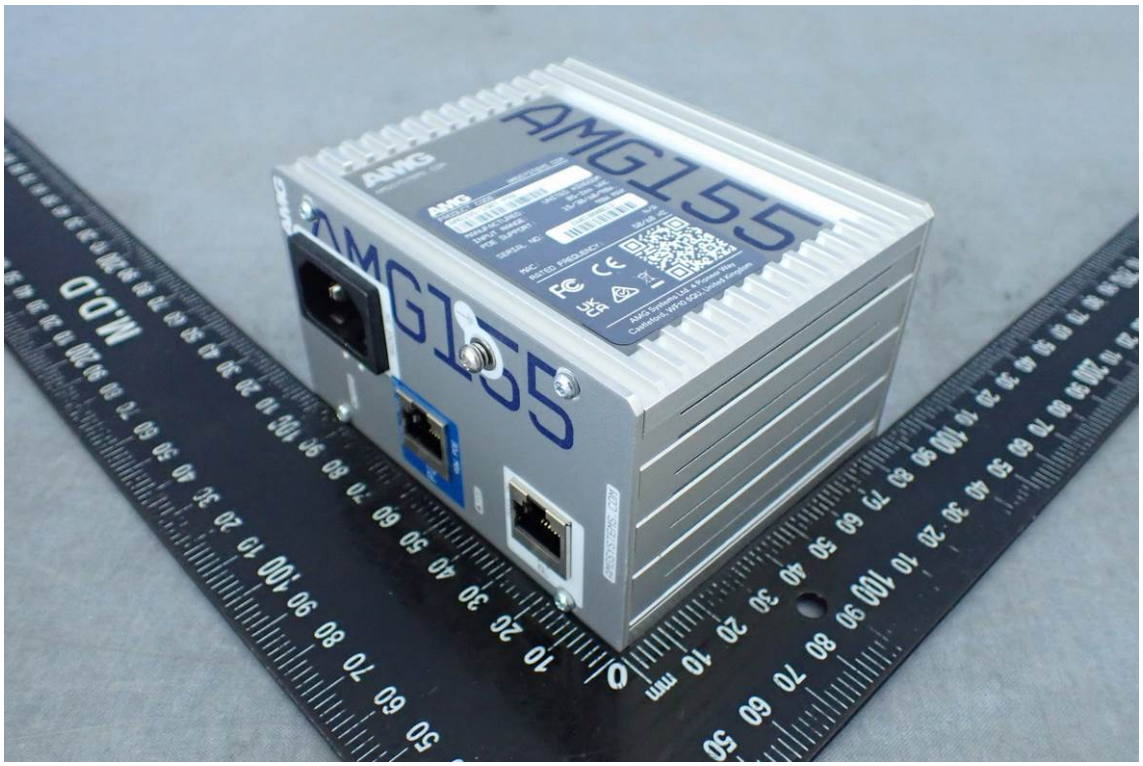
APPENDIX 1 - PHOTOGRAPHS OF EUT





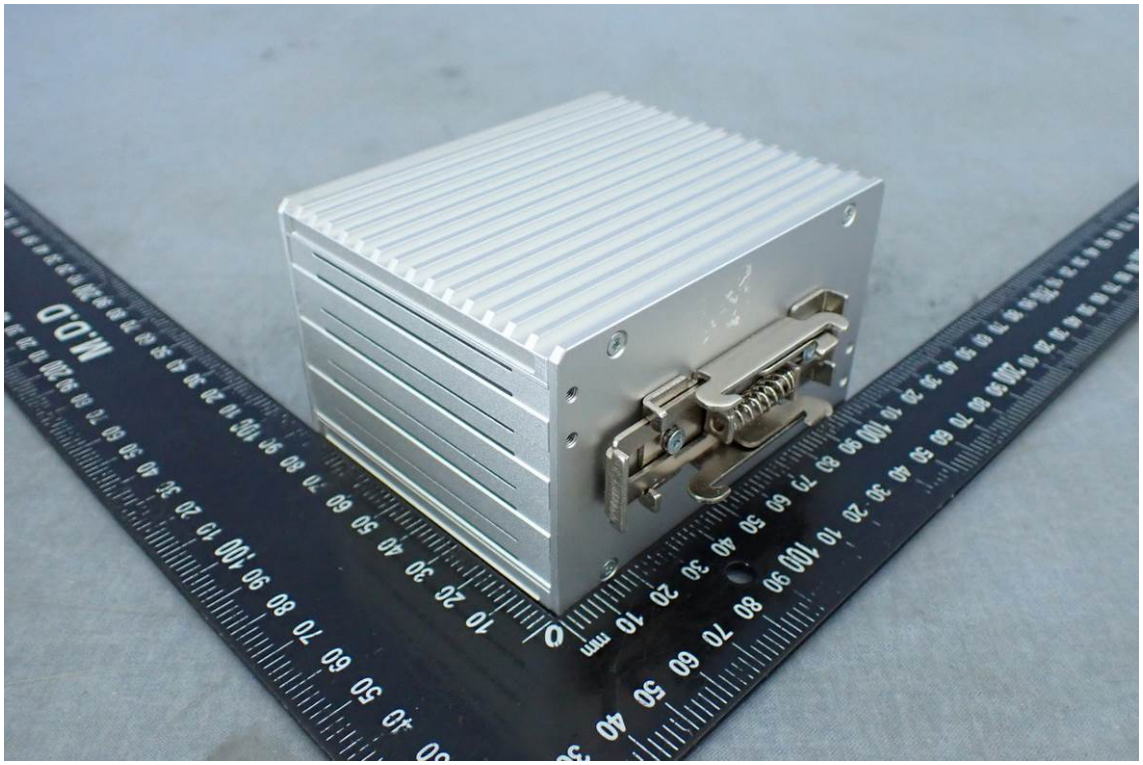
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