UL TEST REPORT AND PROCEDURE

Standard:	UL 62368-1, 3rd Ed, 2021-10-22 (Audio/video, information and communication technology equipment Part 1: Safety requirements) CAN/CSA C22.2 No. 62368-1:19, 3rd Ed, 2021-10-22 (Audio/video, information and communication technology equipment Part 1: Safety requirements)
Certification Type:	Listing
CCN:	AZOT, AZOT7 (Audio/video, Information and Communication Technology Equipment)
Complementary CCN:	N/A
Product:	NETWORK CAMERA
Model:	XNV-A9085R, XNV-A8085R, XNV-A6085R
Rating:	12 Vdc, 1.72 A or PoE(53 Vdc), 0.37 A (for model XNV-A9085R, XNV-A8085R) 12 Vdc, 1.68 A or PoE (53 Vdc), 0.36 A (for model XNV-A6085R)
Applicant Name and Address:	HANWHA VISION CO LTD 6, PANGYO-RO 319BEON-GIL, BUNDANG-GU SEONGNAM-SI GYEONGGI-DO 13488 KOREA

This is to certify that representative samples of the products covered by this Test Report have been investigated in accordance with the above referenced Standards. The products have been found to comply with the requirements covering the category and the products are judged to be eligible for Follow-Up Service under the indicated Test Procedure. The manufacturer is authorized to use the UL Mark on such products which comply with this Test Report and any other applicable requirements of UL LLC ('UL') in accordance with the Follow-Up Service Agreement. Only those products which properly bear the UL Mark are considered as being covered by UL's Follow-Up Service under the indicated Test Procedure.

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Prepared By: Dennis Hong / Project Handler Reviewed By: Lawrence Lee / Reviewer

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Supporting Documentation

The following documents located at the beginning of this Procedure supplement the requirements of this Test Report:

A. Authorization - The Authorization page may include additional Factory Identification Code markings.

B. Generic Inspection Instructions -

i. Part AC details important information which may be applicable to products covered by this Procedure. Products described in this Test Report must comply with any applicable items listed unless otherwise stated in the body of this Test Report.

ii. Part AE details any requirements which may be applicable to all products covered by this Procedure. Products described in this Test Report must comply with any applicable items listed unless otherwise stated in the body of each Test Report.

iii. Part AF details the requirements for the UL Certification Mark which is not controlled by the technical standard used to investigate these products. Products are permitted to bear only the Certification Mark(s) corresponding to the countries for which it is certified, as indicated in each Test Report.

Product Description

NETWORK CAMERA is designed for outdoor use, wall or ceiling use with mounting brackets.

It is commercial equipment supplied from DC or UL listed PoE (Power over Ethernet) input and installed by service personnel.

Model Differences

XNV-A9085R is basic model.

XNV-A8085R is identical to basic model except model designation and lens.

XNV-A6085R is identical to basic model except model designation and lens and Rated current (more lower)

Test Item Particulars

Product group	end product
Classification of use by	Instructed person
Supply Connection	not mains connected: ES1
Supply tolerance	None
Supply connection – type	Not directly connected to the mains
Considered current rating of protective device	N/A
Equipment mobility	wall/ceiling-mounted
Over voltage category (OVC)	OVC I
Class of equipment	Class III
Special installation location	Outdoor location
Pollution degree (PD)	PD 2
Manufacturer's specified Tma (°C)	60 Outdoor: minimum - 50
IP protection class	IP 66 and IP 67
Power systems	not AC mains
Altitude during operation (m)	2000 m or less
Altitude of test laboratory (m)	2000 m or less
Mass of equipment (kg)	1.79 kg

Technical Considerations

- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of : 60 °C
- The product is intended for use on the following power systems : No direct connection
- Considered current rating of protective device as part of the building installation (A) : N/A
- Mains supply tolerance (%) or absolute mains supply : No direct connection
- The Risk Group of a lamp or lamp system (including LEDs) is : Exempt
- The following are available from the Applicant upon request : Installation (Safety) Instructions / Manual
- The product was investigated to the following additional standard : IEC 62471:2006, IEC 60529:1989+A1:1999+A2:2013
- The outdoor equipment/enclosure was evaluated for use in an ambient range of: - 50 °C to 60 °C.

Additional Information

4791950308
- Maximum Normal Load: Continuous operation. (Operate the camera through networked equipment with IR LED ON)

4792026323
No test of NETWORK CAMERA, models XNV-A9085R, XNV-A8085R were considered necessary because of below updates under engineer consideration.
- Due to misprint, Change Inductor (L5) to Linefilter (L5) in CCL and Enclosures.

4792298043 (Revision)
1. Add alternate Lens module (IRIS) for XNV-A6085R. See Critical component list 4.1.2
2. Add alternate model name XNV-A6085R.
3. Add rated input of alternate model XNV-A6085R.
4. Add the photograph of Lens module for XNV-A6085R.

- Maximum Normal Load: Continuous operation. (Operate the camera through networked equipment with IR LED ON)

Additional Standards

The product fulfills the requirements of: N/A

Markings and Instructions

Clause Title	Marking or Instruction Details
Equipment identification marking – Manufacturer identification	Listee's Company's name, Trade Name, File Number
Equipment identification marking – model identification	Model Number
Equipment rating marking – ratings	Input Ratings (voltage, dc, current)

Outdoor enclosure type	"Rainproof", IP 66 and IP 67
Hard Copy	A. IMPORTANT or ATTENTION or similar wording B. Please check 'Manuals' from out website, before connecting to the supply. C. Company website URL (https://www.~~) or QR code.
(Website) Manual - 1	This Product is intended to be supplied by a UL Listed Power Supply Unit marked “Class 2” or “LPS” or PS2” and rated from 12 Vdc, 1.72 A or PoE(53 Vdc), 0.37 A.
(Website) Manual - 2	The wired LAN hub providing power over the Ethernet (PoE) in accordance with IEEE 802.3at shall be a UL Listed device with the output evaluated as a Limited Power Source as defined in UL60950-1 or PS2 as defined in UL62368-1.
SCC requirement	If the signal words DANGER, WARNING, and CAUTION are included, a French manual is provided.
Special Instructions to UL Representative N/A	

BD1.0	TABLE: Production-Line Testing Requirements					
BD1.1	**Electric Strength Test Special Constructions – Refer to Generic Inspection Instructions, Part AC for further information.**					
Model	Component	Removable parts	Test probe location	Test V rms	Test V dc	Test Time, s
N/A	N/A	N/A	N/A	N/A	N/A	N/A
BD1.2	**Earthing Continuity Test Exemptions – This test is not required for the following models:**					
	All models are not required for this test					
BD1.3	**Electric Strength Test Exemptions – This test is not required for the following models:**					
	All models are not required for this test					
BD1.4	**Electric Strength Test Component Exemptions – The following solid-state components may be disconnected from the remainder of the circuitry during the performance of this test.**					
	N/A					

BE1.0	Sample and Test Specifics for Follow-Up Tests at UL				
Model	Component	Material	Test	Sample (s)	Test Specifics
N/A	N/A	N/A	N/A	N/A	N/A

4.1.2	TABLE: List of critical components					Pass
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Product Category CCN(s)	Mark(s) of conformity	Supplement ID
Gasket - BUSHING-CABLE SET	NAMYANG VINA	C-VMQ-60-GR	Gasket Test was conducted under E158873-A6034.	-	Tested in equipment	
Gasket - RUBBER-DOME -IR	NAMYANG VINA	O-VMQ-60-BK	Gasket Test was conducted under E158873-A6034.	-	Tested in equipment	
Gasket - RUBBER-TOP	NAMYANG VINA	O-VMQ-40-BK	Gasket Test was conducted under E158873-A6034.	-	Tested in equipment	
Enclosure - Lens cover (Plastic)	MITSUBISHI ENGINEERING-PLASTICS CORP	S-3000(&6)(f1)	Min. 1.8 mm thickness, rated Min. V-2, 125 deg. C	QMFZ2	UL (E41179)	03-01
Enclosure - Bottom cover (Metal)	Interchangeable	Interchangeable	Aluminum, Min. 2.0 mm thickness, See enclosure for dimension.	-	Tested in equipment	03-01
Internal plastic part (Plastic)	LOTTE CHEMICAL CORPORATION	HN-1068(f1)	Min. 1.5 mm thickness, rated Min. V-0, 130 deg. C	QMFZ2	UL (E115797)	03-02
Mounting bracket (Metal)	Interchangeable	Interchangeable	Aluminum, Min. 2.0 mm thickness, See enclosure for dimension.	-	Tested in equipment	
Thermal pad	KOMOTECH	KGP-1(a)	Min. 2.0 mm thickness, rated V-0, 150 deg. C	QMFZ2	UL (E245303)	
Thermal pad - Alternate	Interchangeable	Interchangeable	Min. 2.0 mm thickness, rated V-0, 150 deg. C	QMFZ2	UL	
IR LED (LD3, LD6)	CYBRIGHT	XB-IR3838EU-I	Vf = 1.7 V, IR = 10 uA	-	IEC 62471	

IR LED (LD4, LD5)	LITEON OPTOELECTRONICS	LTE-R38386L-YE5-SS	Vf = 1.8 V, IR = 10 uA	-	IEC 62471	
IR LED (LD1, LD2, LD7, LD8)	CYBRIGHT	XB-IR3838S2-D30	Vf = 2.0 V, IR = 10 uA	-	IEC 62471	
Heater resistor (21 EA, R1, R3 to R18, R20 to R23)	Interchangeable	Interchangeable	Total 0.7 W	-	Tested in equipment	
Fuse (F1)	LITTELFUSE INC	1206L012WR	Rated 30 V, 125 mA	XGPU2	UL (E183209)	
Fuse (F2)	LITTELFUSE INC	449*	Rated 125 V, 3.5 A	JDYX2	UL (E10480)	
Opto-coupler (LS1, LS2)	LITE-ON Technology Corporation	LTV-217 (Type: LTV-217-C-G)	Isolation Voltage: 3750. Max. Operation Temperature: 110 deg. C	FPQU2	UL (E113898)	
Lithium Battery (BAT1)	SEIKO INSTRUMENTS INC MICRO-ENERGY DIV	ML414H	Lithium, Rechargeable, Max Charging Voltage, 3.4 V dc, Max Charging current: 300 mA	BBCV2	UL (MH15628)	
Lithium Battery Protection circuit	Interchangeable	Interchangeable	Diode (D2, 80 V, 250 mA) and Resistor (R194, 3.3 kohm) in series	-	Tested in equipment	
Lens module for XNV-A9085R	DongGuan YuTong Optical Technology Co ., Ltd.	YTW30033A01DB.IR-PIRIS-JZ-8MP+H151+IR1021	Zoom/Focus 4.2 V–5.0 V IRIS 2.6 V-3.5 V IR-Cut 3.5 V-7.0 V	-	Tested in equipment	
Lens module for XNV-A8085R	DongGuan YuTong Optical Technology Co ., Ltd.	YT0W2Z53DB.IR-PIRIS-JZ-5MP+H82+IR1021	Zoom/Focus 4.2 V–5.0 V IRIS 2.4 V-3.6 V IR-Cut 3.5 V-7.0 V	-	Tested in equipment	
Lens module (IRIS) for XNV-A6085R	NEW ASIA OPTICAL	N71DNDB-FP5	4.0V±10%	-	Tested in equipment	

	INDUSTRY CO.,LTD					
ZOOM/FOCUS Stepping Motor of Lens module for XNV-A6085R	TOKYO MICRO INC.	8S-501L99	5.0 V±0.5 V	-	Tested in equipment	
USB-C type port overcurrent protection IC (U26)	Texas Instruments Incorporated	TPD3S014DBVR	Rated 4.5-5.5 Vdc, 0.5 A, Current limit: 1.05 A	QVGS2	UL (E169910)	
FPWB	SI FLEX CO LTD	T1	Min. V-0	ZPXK2	UL (E218849)	
FPWB - Alternate	Interchangeable	Interchangeable	Min. V-0	ZPXK2	UL	
PWB	HANNSTAR BOARD CORP	MV-4	Min. V-0, 130 deg. C	ZPMV2	UL (E89382)	
PWB - Alternate	Interchangeable	Interchangeable	Min. V-0, 130 deg. C	ZPMV2	UL	
Outdoor Label	Interchangeable	Interchangeable	Suitable for use on each type of surface to which applied, rated for minimum and maximum surface temperature specified, or Min. - 50 deg. C to Max. 60 deg. C if not specified.	PGDQ2 or PGJI2	UL	

Enclosures

Type	Supplement Id	Description
Photographs	03-01	External View
Photographs	03-02	Internal View
Photographs	03-05	Mainboard View - 1
Photographs	03-06	Mainboard View - 2
Photographs	03-07	IR LED board View - 1
Photographs	03-08	IR LED board View - 2
Photographs	03-09	Sensor board View
Photographs	03-10	SD board View
Photographs	03-13	Lens View
Photographs	03-14	Lens module for XNV-A6085R
Diagrams	04-01	Enclosure drawings
Manuals	06-01	Manual
Miscellaneous	07-01	Transformer (T1) Specification
Miscellaneous	07-03	Line filter (L5) Specification
Miscellaneous	07-04	Label