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-A9095RZ, XNV-A9085RZ
Rating:	12 Vdc, 1.48 A or PoE (53 Vdc), 0.34 A
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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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 indoor or outdoor use, wall or ceiling use with mounting brackets. It is commercial equipment supplied by UL Listed AC/DC adapter or PoE (Power over Ethernet) input and installed by service personnel.

Model Differences

XNV-A9095RZ is basic model.

XNV-A9085RZ is identical to basic model except model designation and Lens module and SW.

Test Item Particulars

Product group	end product
Classification of use by	Ordinary 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)	55 Outdoor: minimum -50
IP protection class	IP 66 and IP67
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)	2.02

Technical Considerations

- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of : 55 °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 outdoor equipment/enclosure was evaluated for use in an ambient range of : -50 °C to 55 °C
- The product was investigated to the following additional standard : The product was investigated to the following additional standard: IEC 62471:2006 (complied with Exempt group). (Issue by ICR, report No.: ICRT-TR-S260594-0A), IEC 60529:2013 (Issue by CTK Co., Ltd., report No.: CTK-K-2026-00616, CTK-K-2026-00619)

Additional Information

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- Maximum Normal Load: Continuous operation. (Operate the camera through networked equipment with IR LED ON, and the camera boots, the heater automatically turns on, and the heater operates for 30 minutes).

Additional Standards

The product fulfills the requirements of: IEC 62471:2006, IEC 60529:2013

Markings and Instructions

Clause Title	Marking or Instruction Details
Equipment identification marking – Manufacturer identification	Listee's or Recognized Company's name, Trade Name, File Number
Equipment identification marking – model identification	Model Number
Equipment rating marking – ratings	Input Ratings (voltage, current)
Outdoor enclosure type	"Rainproof", IP66 and IP67
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, 1.48 A or PoE (53 Vdc), 0.34 A.
Manual - 2	The wired LAN hub providing power over the Ethernet (PoE) in accordance with 802.3at/802.3af shall be a UL Listed device with the output evaluated as a Limited Power Source as defined in UL 60950-1 or PS2 as defined in UL 62368-1.
SCC requirement	If the signal words DANGER, WARNING, and CAUTION are included, a French manual is provided.

Manual - 3 (Battery)	CAUTION RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS. Batteries(battery pack or batteries installed) shall not be exposed to excessive heat such as sunshine, fire or the like. The battery cannot be replaced. Prohibition of battery abuse ~ Do not install and use the wrong type of battery. ~ Do not leave the battery in a mechanically crush or cut it because it can explode. ~ Do not leave the battery in a high temperature environment. ~ Do not leave the battery in a low-pressure environment.

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
Enclosure - Lens cover (Plastic)	MITSUBISHI ENGINEERING-PLASTICS CORP	S-3000V+(f1)	Min. 1.8 mm thickness, V-2, 115 deg. C	QMFZ2	UL (E502432)	03-01
Enclosure – IR LED Cover (Plastic, Black)	LOTTE CHEMICAL CORPORATION	QC-1220UR(f1)	Min. 1.5 mm thickness, V-2, 80 deg. C	QMFZ2	UL (E115797)	03-01
Enclosure - Between Lens cover and IR LED cover (Metal, Black)	Interchangeable	Interchangeable	Aluminium, Min. 2.0 mm thickness, See enclosures for dimension.	-	Tested in equipment	03-01
Enclosure - Top (Metal)	Interchangeable	Interchangeable	Aluminium, Min. 2.0 mm thickness, See enclosures for dimension.	-	Tested in equipment	03-01
Enclosure - Bottom (Metal)	Interchangeable	Interchangeable	Aluminium, Min. 2.0 mm thickness, See enclosures for dimension.	-	Tested in equipment	03-01
Mounting bracket (Metal)	Interchangeable	Interchangeable	Aluminium, Min. 2.5 mm, See enclosures for dimension.	-	Tested in equipment	03-01
Internal plastic parts	LOTTE CHEMICAL CORPORATION	HN-1068(f1)	Min. 1.5 mm thickness, V-0, 130 deg. C.	QMFZ2	UL (E115797)	
Internal plastic parts - Alternate	LOTTE CHEMICAL CORPORATION	GC-1025F(f1)	Min. 1.5 mm thickness, V-0, 130 deg. C.	QMFZ2	UL (E115797)	
Internal plastic parts - Alternate	YOKOI CO LTD	D2000	Min. 1.5 mm thickness, V-0, 130 deg. C.	QMFZ2	UL (E341718)	
Internal plastic parts - Alternate	LG Chem LTD	LD7(xx)0(m) (Type: LD7650)	Min. 1.5 mm thickness, V-2, 80 deg.	QMFZ2	UL (E67171)	
Internal metal parts	Interchangeable	Interchangeable	Aluminium, Min. 2.0 mm thickness, See	-	Tested in equipment	

			enclosures for dimension.			
Thermal pad	KOMOTECH	KGP-1(a)	Min. 0.2 mm thickness, rated V-0, 150 deg. C	QMFZ2	UL (E245303)	
Gasket - Between Cover top Plastic Side and Cover Bottom Metal side	NAMYANG VIAN	O-VMQ-40-BK	Gasket Test was conducted under E158873-A6034	-	Tested in equipment	
Gasket - Between Cover top Plastic Side and Case Dome Metal side	NAMYANG VIAN	O-VMQ-40-BK	Gasket Test was conducted under E158873-A6034	-	Tested in equipment	
Gasket - Between Clear Dome Plastic Side and Case Dome Metal side	NAMYANG VIAN	C-VMQ-60-BK	Gasket Test was conducted under E158873-A6034	-	Tested in equipment	
Lens module (XNV-A9095RZ)	DONGGUAN YUTONG OPTICAL TECHNOLOGY CO ., LTD.	YT0W2X15DB.ICR-8MP	Zoom/Focus : 5.0 V ±0.5V DC IRIS : Close -> Open above 3.0V Open ->Close under 0.5V IR-Cut : 5.0 V ±0.5V DC	-	Tested in equipment	
Lens module (XNV-A9085RZ)	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	
Fuse (F1)	LITTELFUSE INC	449*	125 V, 2.5 A	JDYX2	UL(E10480)	

PTC current limiter (F2)	LITTELFUSE INC	1206L012WR	Ihold: 0.125 A, Itrip: 0.29 A, Vmax: 30 Vdc, Imax: 100 A	XGPU2	UL(E183209)	
Transformer (T1)	SHENZHEN GROUP-TEK ELECTRONICS TECHNOLOGY CO., LTD	PDT25125SR	41.0 uH, 130 deg. C, See enclosure for more detail.	-	Tested in equipment	
Line Filter (L5)	SHENZHEN GROUP-TEK ELECTRONICS TECHNOLOGY CO., LTD	PCM1206-752S	7.5 mH, 130 deg. C, See enclosure for more detail.	-	Tested in equipment	
Opto-coupler (LS1)	LITE-ON Technology Corporation	LTV-217 (Type: LTV-217-C-G)	Isolation Voltage: 3750 Vac, Max. operation temperature: 110 deg. C	FPQU2	UL (E113898)	
IR LED (LD1 to LD3)	OSRAM	SFH 4713A	Vf = Max. 2.3 V, If = Max. 1.0 A	-	Tested in equipment	
Rechargeable battery (BAT1)	SEIKO INSTRUMENTS INC MICRO-ENERGY DIV	MS421R	Lithium, Rechargeable, Max Charging Voltage, 3.4 V dc, Max Charging current: 300 mA	-	UL (MH15628)	
Lithium battery protection circuits	Interchangeable	Interchangeable	Protected by a single current-limiting resistor (R320, 3.3 kΩ) connected in series between RTC IC (U6) and Battery.	-	Tested in equipment	
PWB (All)	HANNSTAR BOARD CORP	MV-4	Min. V-0, 130 deg. C	ZPMV2	UL (E89382)	
PWB (All) - 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	PGDQ2 or PGJI2	UL	

			minimum and maximum surface temperature specified, or Min. - 50 deg. C to Max. 55 deg. C if not specified.			

Enclosures

Type	Supplement Id	Description
Photographs	03-01	External View - 1
Photographs	03-02	External View - 2
Photographs	03-04	Internal View
Photographs	03-05	Internal view 2
Photographs	03-06	Internal view 3
Photographs	03-07	Internal view 4
Photographs	03-08	Internal view 5
Photographs	03-09	Internal view 6
Photographs	03-10	Lens module view 1
Photographs	03-11	Lens module view 2
Photographs	03-12	Main board 1
Photographs	03-13	Main board 2
Photographs	03-14	OUTDOOR IR_1-9 Board 1
Photographs	03-15	OUTDOOR IR_1-9 Board 2
Photographs	03-16	OUTDOOR IR-ITFC Board 1
Photographs	03-17	OUTDOOR IR-ITFC Board 2
Photographs	03-18	Sensore board 1
Photographs	03-19	Sensore board 2
Miscellaneous	07-01	Transformer (T1) Specification
Miscellaneous	07-02	Line Filter (L5) Specifiation
Miscellaneous	07-03	Enclosure Diagram (with bracket)
Miscellaneous	07-04	Label (XNV-A9085RZ)