TEST REPORT

CTK Co., Ltd.
5 Dongbu-ro 221beon-gil, Cheoin-gu, Yongin-si,
Gyeonggi-do, Republic of Korea
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REPORT No.:
CTK-2026-02083

1. Applicant

- Name : Hanwha Vision Co., Ltd.
- Address : 6, Pangyo-ro 319Beon-gil, Bundang-gu, Seongnam-si, Gyeonggi-do, 13488 KOREA
- Date of Receipt : Jan. 20, 2025

2. Manufacturer

- Name : HANWHA VISION VIETNAM COMPANY LIMITED
- Address : Lot O-2, Que Vo Industrial Zone extended area, Nam Son ward, Bac Ninh province, Vietnam

3. Use of Report : Quality control

4. Test sample / Model : NETWORK CAMERA / XNO-A9084R

5. Date(s) of test : Feb. 18, 2025~ Feb. 25, 2025

6. Test Standard (Method) used : NEMA 250-2020
Enclosures for Electrical Equipment (1000 Volts Maximum)

7. Testing Environment : Temperature: (25 ± 10) ℃, Humidity: (50 ± 25) % R.H.
Pressure: (96 ± 10) kPa

8. Test Results : Refer to the test results

9. Location of Test : ☒ Permanent Testing Lab ☐ On Site Testing
(5 Dongbu-ro 221beon-gil, Cheoin-gu, Yongin-si, Gyeonggi-do, Republic of Korea)

The results shown in this test report refer only to the sample(s) tested unless otherwise stated.
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Approval	Tested by Name: HongBeom Jeon (Signature)	Technical Manager Name: HoHyun Lee (Signature)

Remark. This report is not related to ISO/IEC 17025, KOLAS accreditation and relevant regulation.

Jul. 28, 2026

CTK Co., Ltd.

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Table of Contents

1. Testing laboratory ____ 3
1.1 Testing laboratory information ... 3
1.2 Testing laboratory accreditation status ... 3

2. Sample description and equipment information ____ 3
2.1 Sample description ... 3
2.2 Model description ... 4
2.3 Manufacturer information ... 4
2.4 Equipment information ... 6
2.5 Pre-test sample images ... 7
2.6 Testing equipment images ... 8
2.7 Sample appearance ... 9
2.8 Construction Diagram including installation method ... 10

3. Test Information ____ 11
3.1 Test item particulars and Possible test case verdicts ... 11
3.2 General remarks and factory information ... 11
3.3 Type 4X Test information ... 12
3.4 NEMA 250-2020 Test list ... 14
3.5 Parts List ... 17

4. Hose Down Test (Clause 5.7) ____ 19
4.1 Test date and environmental conditions ... 19
4.2 Test Conditions and methods ... 19
4.3 Test Setup and During test sample images ... 20
4.4 Test result ... 21
4.5 Post-test sample images ... 22

1. Testing laboratory

1.1 Testing laboratory information

Lab. Name	CTK Co., Ltd.
Representative	Young Joseph Seungwon
Address	5 Dongbu-ro 221beon-gil, Cheoin-gu, Yongin-si, Gyeonggi-do, Republic of Korea
Tel.	1551-9871
Fax.	+82-31-624-9501
E-Mail	all.youngin@element.com
Website	www.elementkorea.kr

1.2 Testing laboratory accreditation status

Country	Classification	Accreditation Number	Logo
International	KOLAS	TESTING NO. KT119	

2. Sample description and equipment information

2.1 Sample description

Product Name	Model Name	Quantity	Comment
NETWORK CAMERA	XNO-A9084R	1 EA	-

2.2 Model description

Basic Model .....:	XNO-A9084R
Series model ..... .:	XNO-A8084R, TNO-A9084ER
Model differences .....:	XNO-A8084R Use of the same external shape and materials (case, finishing material, PCB, cable, etc.), differences in fixed lens inside the product. TNO-A9084ER Color, battery, and the assembly status of the conduit adapter (installation solution)

2.3 Manufacturer information

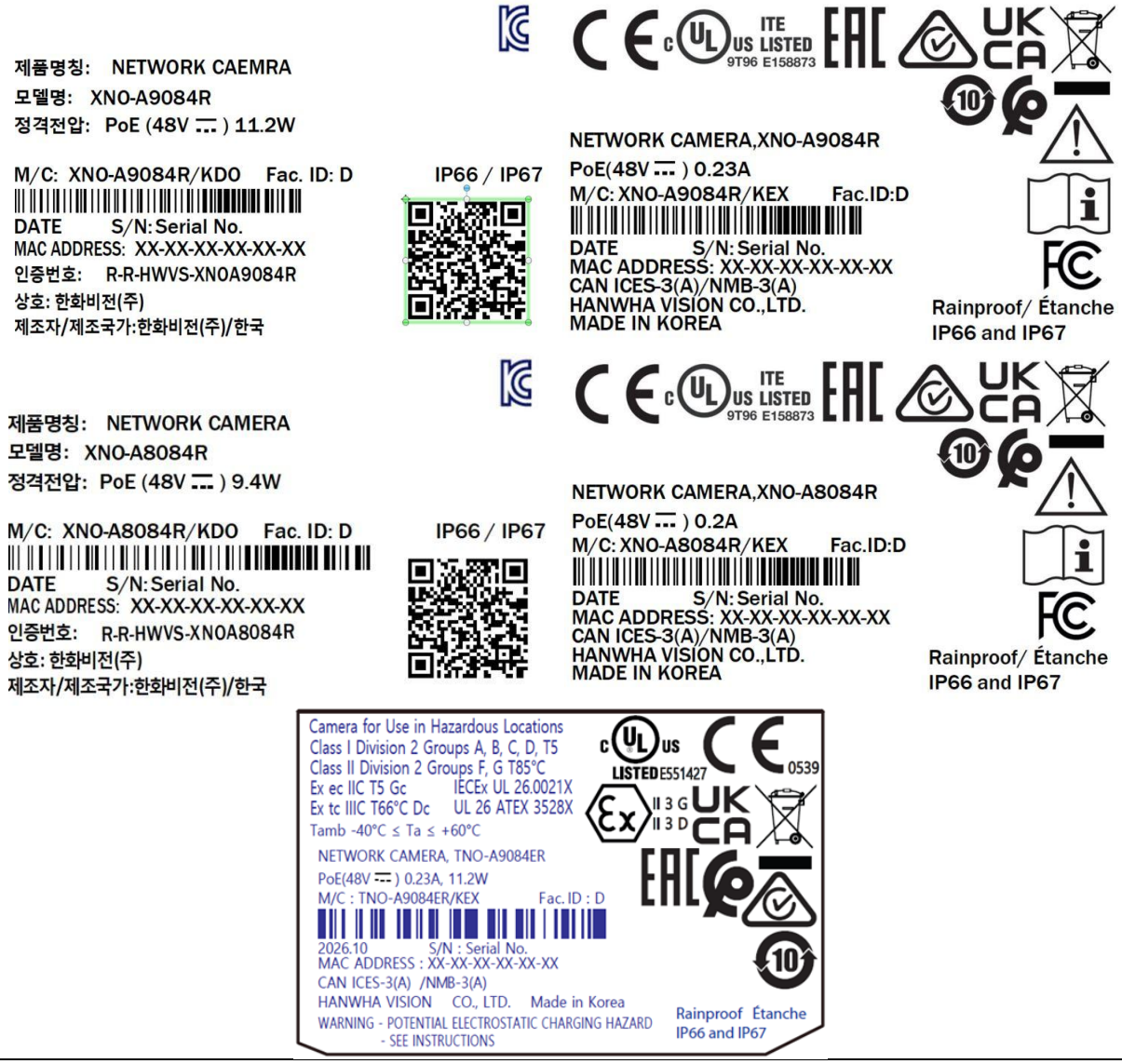
Test item description .....:	NETWORK CAMERA
Trade Mark .....:	Hanwha Vision
Manufacturer .....:	Lot O-2, Que Vo Industrial Zone extended area, Nam Son ward, Bac Ninh province, Vietnam
Model/Type reference .....:	XNO-A9084R
Ratings .....:	Electrical XNO-A9084R PoE 48 V ⎓ 11.2 W , PoE 48 V ⎓ 0.23 A XNO-A8084R PoE 48 V ⎓ 9.4 W , PoE 48 V ⎓ 0.2 A TNO-A9084ER PoE 48 V ⎓ 0.23A, 11.2 W Dimension: Ø93.4 mm by 293.276 mm, Ø140.47 mm by 441.07 mm, Ø8*3 mm by 75.36 mm, Ø25*2 mm by 157 mm, 36 mm, 58 mm, 47 mm, Ø5*3 mm by 47.1 mm Ø15.6 mm by 48.98 mm

List of Attachments (including a total number of pages in each attachment):
Attachment 1: 9-10 pages (Construction Diagram including installation method)
Attachment 2: 17-18 pages (Parts List)
Attachment 3: 20-22 pages (photographs)

Summary of testing:

Tests performed (name of test and test clause): **Clause 5.7(Hose Down Test)**	**Testing location:** CTK Co., Ltd. 5 Dongbu-ro 221beon-gil, Cheoin-gu, Yongin-si, Gyeonggi-do, Republic of Korea

Copy of marking plate: The artwork above may be only a draft.



2.4 Equipment information

Testing equipment	Model Name	Manufacturer	Manufacturing Number	Next Cal. Date
25.4mm Nozzle	S3-IP18	CTK	S3-IP18	-
Temperature & Humidity Chamber	TH-GA-408	JEIO TECH	X110169	Aug. 23, 2025
Area flow meter	FT220-VM	NURITECH	01	Feb. 28, 2025
Stop Watch	NONE	Casio	612Q01R-1	Jan. 15, 2027
Digital Vernier Calipers	100 mm	MITUTOYO	A17179462	-

2.5 Pre-test sample images

2.5.1 Test sample



Top



Bottom



Front



Rear



Left side



Right side

2.6 Testing equipment images

2.6.1 Test equipment



25.4mm Nozzle



Temperature & Humidity Chamber



Area flow meter



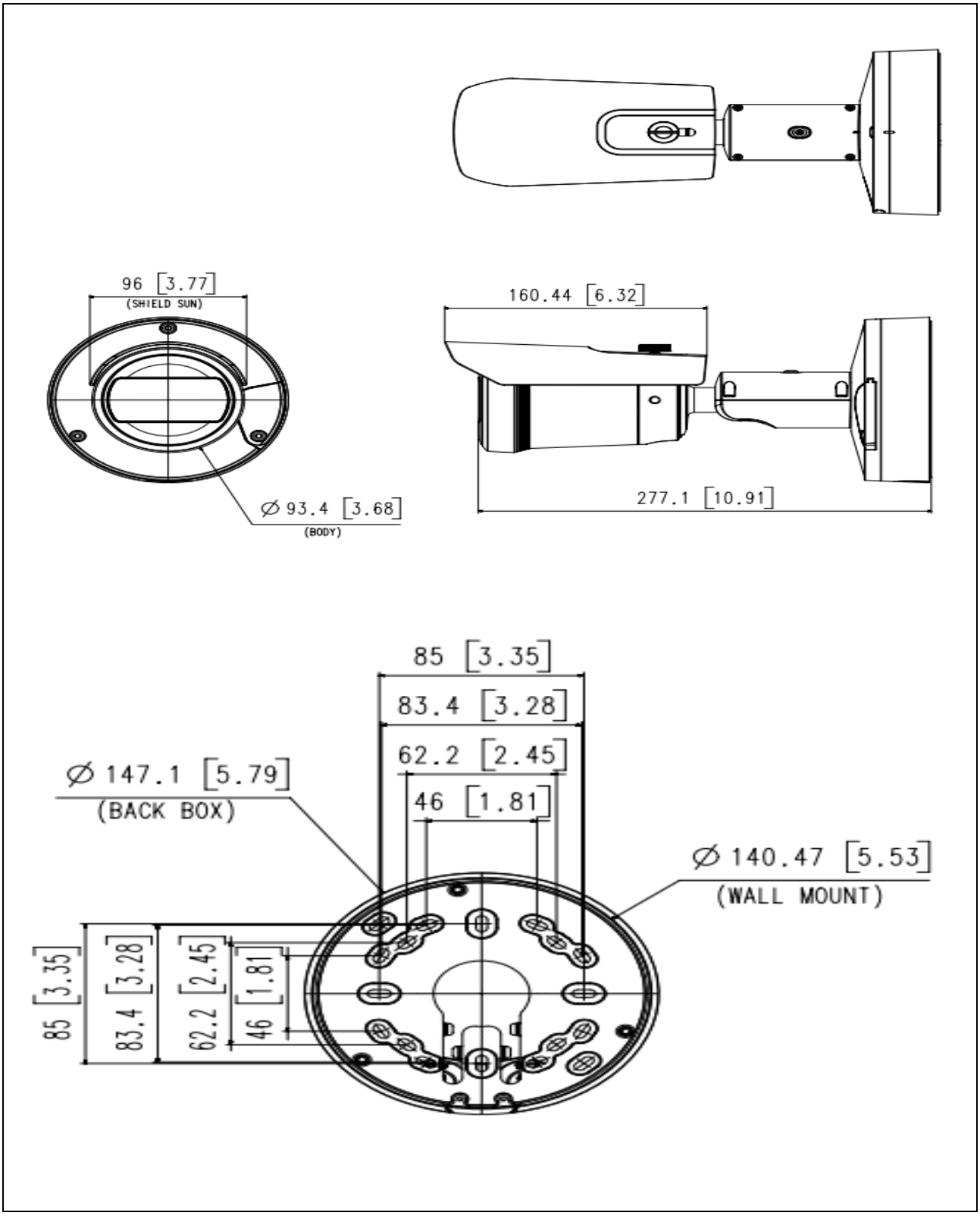
Stop Watch



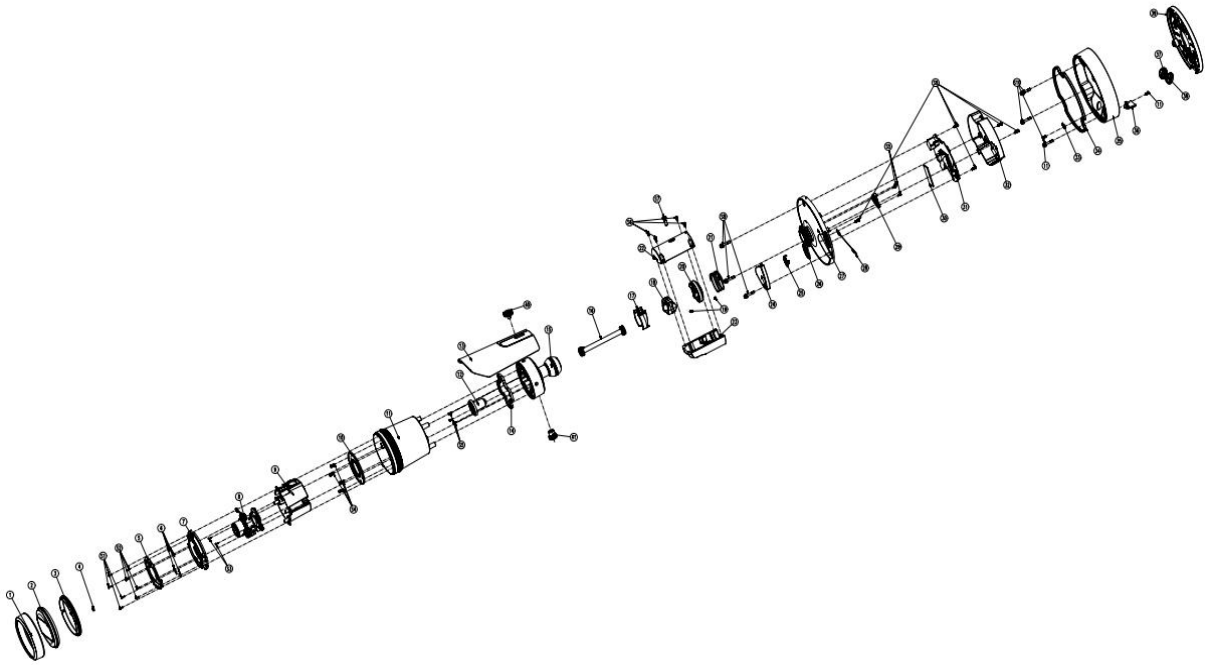
Digital Vernier Calipers

2.7 Sample appearance

Enclosure dimensions [unit : mm]



2.8 Construction Diagram including installation method



3. Test Information

3.1 Test item particulars and Possible test case verdicts

Test item particulars.....:	NETWORK CAMERA
Classification of installation and use .....:	Outdoor (Watertight/Corrosion Resistant)
Possible test case verdicts:	
- test case does not apply to the test object ....:	N/A
- test object does meet the requirement.....:	P (Pass)
- test object does not meet the requirement ....:	F (Fail)
- test case does not evaluate to the test object:	N/E

3.2 General remarks and factory information

General remarks:

"(See Enclosure #)" refers to additional information appended to the report.

"(See appended table)" refers to a table appended to the report.

Throughout this report a ☐ comma / ☒ point is used as the decimal separator.

Clause numbers between brackets refer to clauses in NEMA 250-2020

Name and address of factory (ies):

1. HANWHA VISION VIETNAM COMPANY LIMITED

Lot O-2, Que Vo Industrial Zone extended area, Nam Son ward, Bac Ninh province, Vietnam

2. D-TECH CO., LTD.

173-25, Saneop-ro, Gwonseon-gu, Suwon-si, Gyeonggi-do, Korea (Suwon Industrial Complex)

3.3 Type 4X Test information

Type 4X Enclosures constructed for either indoor or outdoor use to provide a degree of protection to personnel against access to hazardous parts; to provide a degree of protection of the equipment inside the enclosure against ingress of solid foreign objects (falling dirt and windblown dust); to provide a degree of protection with respect to harmful effects on the equipment due to the ingress of water (rain, sleet, snow, splashing water, and hose directed water); that provides an increased level of protection against corrosion; and that will be undamaged by the external formation of ice on the enclosure.

Table 2-1
Comparison of Specific Applications of Enclosures for Indoor Nonhazardous (Unclassified) Locations

Provides a Degree of Protection against the Following Conditions	Type of Enclosure									
	1	2	4	4X	5	6	6P	12	12K	13
Access to hazardous parts	X	X	X	X	X	X	X	X	X	X
Ingress of solid foreign objects (falling dirt)	X	X	X	X	X	X	X	X	X	X
Ingress of water (dripping and light splashing)	...	X	X	X	X	X	X	X	X	X
Ingress of solid foreign objects (circulating dust, lint, fibers, and flyings **)	...	...	X	X	...	X	X	X	X	X
Ingress of solid foreign objects (settling airborne dust, lint, fibers, and flyings **)	...	...	X	X	X	X	X	X	X	X
Ingress of water (hosedown and splashing water)	...	...	X	X	...	X	X	...	...	...
Oil and coolant seepage	...	...	...	..	...	...	...	X	X	X
Oil or coolant spraying and splashing	...	...	...	...	...	...	...	...	...	X
Corrosive agents	...	...	...	X	...	...	X	...	...	...
Ingress of water (occasional temporary submersion)	...	...	...	...	...	X	X	...	...	...
Ingress of water (occasional prolonged submersion)	...	...	...	...	...	...	X	...	...	...

** These fibers and flyings are not considered Class III type ignitable fibers or combustible flyings. For Class III type ignitable fibers or flyings see the *National Electrical Code®*, Article 500.5(D).

Table 2-2
Comparison of Specific Applications of Enclosures for Indoor & Outdoor Nonhazardous (Unclassified) Locations

Provides a Degree of Protection Against the Following Conditions	Type of Enclosure									
	3	3X	3R	3RX	3S	3SX	4	4X	6	6P
Access to hazardous parts	X	X	X	X	X	X	X	X	X	X
Ingress of solid foreign objects (falling dirt)	X	X	X	X	X	X	X	X	X	X
Ingress of water (dripping and light splashing)	X	X	X	X	X	X	X	X	X	X
Ingress of water (rain, snow, and sleet **)	X	X	X	X	X	X	X	X	X	X
Sleet ***	...	...	...	...	X	X	...	...	...	...
Ingress of solid foreign objects (windblown dust, lint, fibers, and flyings****)	X	X	...	...	X	X	X	X	X	X
Ingress of water (hosedown and splashing water)	...	...	...	...	...	...	X	X	X	X
Corrosive agents	...	X	...	X	...	X	...	X	...	X
Ingress of water (occasional temporary submersion)	...	...	...	...	...	...	...	...	X	X
Ingress of water (occasional prolonged submersion)	...	...	...	...	...	...	...	...	...	X

** External operating mechanisms are not required to be operable when the enclosure is ice covered.
*** External operating mechanisms are operable when the enclosure is ice covered. See subsection 5.6.
**** These fibers and flyings are not considered Class III type ignitable fibers or combustible flyings. For Class III type ignitable fibers or flyings see the *National Electrical Code®*, Article 500.5(D).

Table 5-1A
Degrees of Protection Against Access to Hazardous Parts

Enclosure Type	Test Conditions	Degree of Protection		Corresponding IP First Characteristic Numeral
		Brief Description	Definition	
4X	5.7	Protected against access to hazardous parts with a wire	An access probe of 1.0 mm shall not penetrate	6

Table 5-1B
Degrees of Protection Against Solid Foreign Objects

Enclosure Type	Test Conditions	Degree of Protection		Corresponding IP First Characteristic Numeral
		Brief Description	Definition	
4X	Non-vented 5.7 Vented 5.5.1 Dust Blast Method	Windblown dust protected	No ingress of dust	6

Table 5-1C
Degrees of Protection against Water

Enclosure Type	Test Conditions	Degree of Protection		Corresponding IP Second Characteristic Numeral
		Brief Description	Definition	
4X	5.7	Protected against hose directed water	Water projected against the enclosure in any direction shall not enter	6 No Ingress Allowed*

Table 5-1D
Additional Protection

Enclosure Type	Test Conditions	Additional Protection		Corresponding IP Second Characteristic Numeral
		Brief Description	Definition	
4X	5.6 5.9 5.10	Special corrosion protection and undamaged by the external formation of ice	Enclosure provides increased corrosion protection and is not damaged by ice that forms on the outside	None

3.4 NEMA 250-2020 Test list

NEMA 250-2020			
Clause	**Requirement + Test**	**Result – Remark**	**Verdict**
3	**CONSTRUCTION**		
3.1	General		P
3.2	Units of Measurement		P
3.3	Materials-General	Enclosures are made of metal or polymeric materials	P
3.4	Materials-Polymeric	More than 650 mm^2 (1 in^2) in area Polymeric Materials used is declared as Min. V-2 Used to UL certified material. (See the attachment 2)	N/E
3.5	Corrosion Protection	Stainless steel and/or aluminium are declared as the materials used (See the attachment 2)	N/E
3.6	Openings	No openings in Product	P
3.7	Mounting	Mounting means are external to the equipment cavity (See the attachment 1)	N/A
3.8	Conduit Connection	No conduit connection (See the attachment 1)	N/A
3.9	Hubs and Fittings	No Hubs and Fittings	N/A
3.10	Knockouts	No Knockouts	N/A
3.11	External Operating Mechanisms	No External Operating Mechanisms	N/A
3.12	Access to Interior	Needs tool to open unit	P
3.13	Closing Hardware	No closing Hardware	N/A

NEMA 250-2020			
Clause	**Requirement + Test**	**Result – Remark**	**Verdict**
3.14	Gaskets	Gaskets made of a silicone Sponge Rubber (no Elastomeric or Thermoplastic used) (See clause 5.14 and the attachment 2)	N/E
3.15	Observation Windows	No Observation Window	N/A

4	**MARKING**		
4.1	Type Designations	“Type 4X” Marking is declared to be on the product before on the market	P
4.2	Supplemental Markings	Supplemental Marking (watertight/ corrosion resistant) is declared to be used when it is on the market. The required marking shall be added on the product	P
4.3	Location of Markings	See the Attachment 3	P
4.4	Enclosure Orientation	No Particular Mounting Orientation	N/A
4.5	Conduit Hubs and Closure Plates	No Conduit Hubs and Closure Plates	N/A
4.6	Equipment Openings	No Openings on Unit	N/A
4.7	Drainage Openings	No Drain Openings	N/A

5	**DESIGN TESTS**		
5.1	General	See Table 5-1A to 5-1D and 5.1.5 in the General product information	P
5.2	Tests For Protection Against Access to Hazardous Parts	Rated 4X	N/A
5.3	Tests for Protection Against Ingress of Water (Dripping and Light Splashing)	Rated 4X	N/A

NEMA 250-2020			
Clause	**Requirement + Test**	**Result – Remark**	**Verdict**
5.4	Tests for Protection Against Ingress of Water (Rain)	Rated 4X	N/A
5.5	Tests for Protection Against Ingress of Solid Foreign Objects (Setting Airborne Dust, Lint, Fibers, And Flings)	Non-vented (See clause 5.7)	N/A
5.6	External Icing Test	No external cavities to trap water when mounted in the normal position.	N/A
5.7	Tests for Protection Against Ingress of Water (Hosedown)	No entry of water See the test information	P
5.8	Indoor Corrosion Protection (Rust-Resistance Test (24-Hour Salt Spray Test))	See clause 3.5	N/E
5.9	Outdoor Corrosion Protection	See clause 3.5	N/E
5.10	Corrosion Protection-Type 3X, 3RX, 3SX, 4X Or 6P Enclosures	See clause 3.5	N/A
5.11	Test for Protection Against Ingress of Water (Temporary Submersion)	Rated 4X	N/A
5.12	Test for Protection Against Ingress of Water (Prolonged Submersion)	Rated 4X	N/A
5.13	Oil Exclusion Test	Rated 4X	N/A
5.14	GASKET MATERIAL TESTS	The product itself(including gaskets) was conditioned at 70 ℃ for 168 h according to 5.14.3(Alternate Evaluation) before performing relevant required tests.	N/E
5.15	Test for Sharpness of Edges	No sharp edges	P

3.5 Parts List

3.5.1 Parts List (1)

XNO-A9084R

No.	CODE	NAME	Qty
1	FC15-008242A	COVER FRONT	1
2	AM07-015338B	ASSY FRONT-WINDOW	1
3	HP07-001717A	GASKET WINDOW	1
4	HP07-001640A	GASKET-CDS SENSOR	1
5	AM06-009957A	ASSY,PCB-IR LED (6ea)	1
6	FC28-002128A	PAD-THERMAL,12X8	4
7	EP07-001621A	SINK,HEAT	1
8	AM07-017604A	ASSY-LENS-XNO-A9084R	1
9	FC29-017767A	LENS HOLDER	1
10	FC09-017613A	BRACKET BODY	1
11	FC29-014050B	CASE BODY	1
12	FC15-008257A	COVER BUSHING	1
13	AM07-015812B	ASSY,SHIELD-SUN_HANWHA_XNO-C9083R	1
14	HP07-001637A	GASKET-REAR	1
15	FC04-010011B	BALL BRACKET	1
16	HP13-001217B	TUBE,ETC-CABLE BRACKET_XNO-C9083R;RU	1
17	FC28-003367E	LOCKER FRONT	1
18	FC29-014038C	PUSHER BRACKET	1
19	FC29-014053A	STOPPER PIN	2
20	FC28-003369B	LOCKER REAR	1
21	FC38-001279A	SPRING,COM-BRACKET	1
22	FC29-014039A	CASE-TOP BRACKET	1
23	FC29-014048A	CASE BOTTOM BRACKET	1
24	FC15-011422A	COVER-INTERFACE	1
25	FC15-011423A	COVER-MAIN PCB_XNO-A9084R;PC,-	1
26	HP07-001639A	GASKET DOOR	1
27	FC29-017769A	CASE TOP BACKBOX	1
28	RM01-005941A	WIRE,METALIC-SAFETY;SUS304	1
29	FC15-008240A	COVER BUSHING	1
30	FC28-004202A	THEMRAL PAD	1
31	AM06-011687A	ASSY,PCB-XNO-A9084R NETWORK	1
32	FC15-011422A	COVER-INTERFACE_XNO-A9084R;PC,-	1
33	FC09-006670A	BRACKET WIRE;SUS304,1.2	1
34	HP07-001638A	GASKET-BACKBOX	1
35	FC29-014049A	CASE BOTTOM BACK BOX	1
36	FC15-008241A	COVER-CONDUIT	1
37	MC06-001203A	BUSHING-CABLE-FLEXIBLE;SILICON,TUBE T0.5	1
38	MC06-001201A	BUSHING-DUMMY_16MM;RB	1
39	FC09-012507A	BRACKET WALL MOUNT	1
40	FC28-003805A	KNOB-SCREW-SEMS-SUS	1
41	HP06-001351	VENT-GORE-PMF100586-WHT;MEMBRANE,SCREW I	1
S1	Z6003019601A	SCREW-TAPTYPE,M2,L6	4
S2	Z9761208007	TAPPING SCREW(M2,L8)	4
S3	Z6003019601A	SCREW-TAPTITE:PH,+,M2,L6,BLK,B-TYPE	2
S4	Z9642308001	MACHINE SCREW M3,L8	4
S5	Z9642206007	MACHINE SCREW(M2XL6)	6
S6	FC18-001418A	SCREW-TORX10_M3_L8 SUS	4
S7	FC18-006234A	SCREW-TORX-MACHINE	1
S8	FC18-006121A	SCREW MACHINE L20	3
S9	Z9642308001	MACHNE SCREW(M3XL8)	5
S10	FC18-006121A	SCREW-MACHINE;TORX20	3
S11	Z942306007	MACHINE SCREW(M3XL6)	2
CABLE 1	EP02-004928A	HARNESS-XNO-C9083R;WIRE,12P,425MM	1
CABLE 2	EP02-005560A	CABLE-XNO-A(9/8)084R;1:1,MCX,BL,50P-50P,	1

3.5.2 Parts List (2)

Component - Plastics
HN-1068(+)(f1)
Yellow Card™

LOTTE CHEMICAL CORPORATION
56 GOSAN-RO
UIWANG-SI, GYEONGGI-DO 16073 Republic of Korea

File Number: E115797

INFINO: HN-1068(+)(f1)
Polycarbonate (PC), pellets
(+) - May be replaced by one, two, or three numbers and/or letter(s)
(f1) - Suitable for outdoor use with respect to exposure to Ultraviolet Light, Water Exposure and Immersion in accordance with UL 746C.

Flammability	Value	Test Method
Flame Rating		UL 94 IEC 60695-11-10, -20
1.5 mm, ALL	V-0	
3.0 mm, ALL	V-0	
Glow Wire Flammability Index		IEC 60695-2-12
1.5 mm	960 °C	
3.0 mm	960 °C	
Glow Wire Ignition Temperature		IEC 60695-2-13
1.5 mm	825 °C	
3.0 mm	825 °C	
Electrical	**Value**	**Test Method**
Hot-wire Ignition (HWI) (1.5 mm)	PLC 3	UL 746A
High Amp Arc Ignition (HAI) (1.5 mm)	PLC 3	UL 746A
Comparative Tracking Index (CTI)	PLC 3	UL 746A
Dielectric Strength	32 kV/mm	ASTM D149
Volume Resistivity	1.0E+17 ohms-cm	ASTM D257 IEC 60093
Thermal	**Value**	**Test Method**
RTI Elec		UL 746B
1.5 mm	130 °C	
3.0 mm	130 °C	
RTI Imp		UL 746B
1.5 mm	130 °C	
3.0 mm	130 °C	
RTI Str		UL 746B
1.5 mm	130 °C	
3.0 mm	130 °C	
Ball Pressure Test (130°C)	Pass	IEC 60695-10-2
Physical	**Value**	**Test Method**
Outdoor Suitability	f1	UL 746C

Page 1 of 1
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Report Date: 8/24/1998
Last Revised: 10/5/2023 12:24:21 AM

ANSI/UL 94 small-scale test data does not pertain to building materials, furnishings and related contents. ANSI/UL 94 small-scale test data is intended solely for determining the flammability of plastic materials used in the components and parts of end-product devices and appliances, where the acceptability of the combination is determined by UL.

4. Hose Down Test (Clause 5.7)

4.1 Test date and environmental conditions

4.1.1 Test date: Feb. 18, 2025 ~ Feb. 25, 2025

4.1.2 Measured Environmental Conditions

Item	Temperature (℃)	Humidity (% R.H.)	Pressure (kPa)
Measurement	16.5	40.2	98.1

4.2 Test Conditions and methods

4.2.1 Description of Test

The enclosure and its external mechanisms were subjected to a stream of water from a hose that has a 25.4 mm (1 in) inside diameter nozzle and delivers at least 240 L/min (65 gal). The nozzle was held from 3.0 to 3.5 m (10 to 12 feet) from the enclosure, and the spray of water was directed at all points of potential water entry such as seams, joints, external operating mechanisms, and such. The nozzle was moved along each test point one time at a uniform rate of 6 mm/s (1/4 in/s).

4.2.2 Sample Dimension

Ø93.4 mm by 293.276 mm, Ø140.47 by 441.07 mm, Ø8*3 by 75.36 mm
Ø25*2 by 157 mm, 36 mm, 58 mm, 47 mm, Ø5*3 by 47.1 mmm Ø15.6 by 48.98 mm
Test Duration = 200.63 s

4.2.3 Acceptance conditions

The enclosure shall be considered to have met the requirements if at the conclusion of the test no water has entered the enclosure

4.3 Test Setup and During test sample images

4.3.1 Evidence of test setting





4.4 Test result

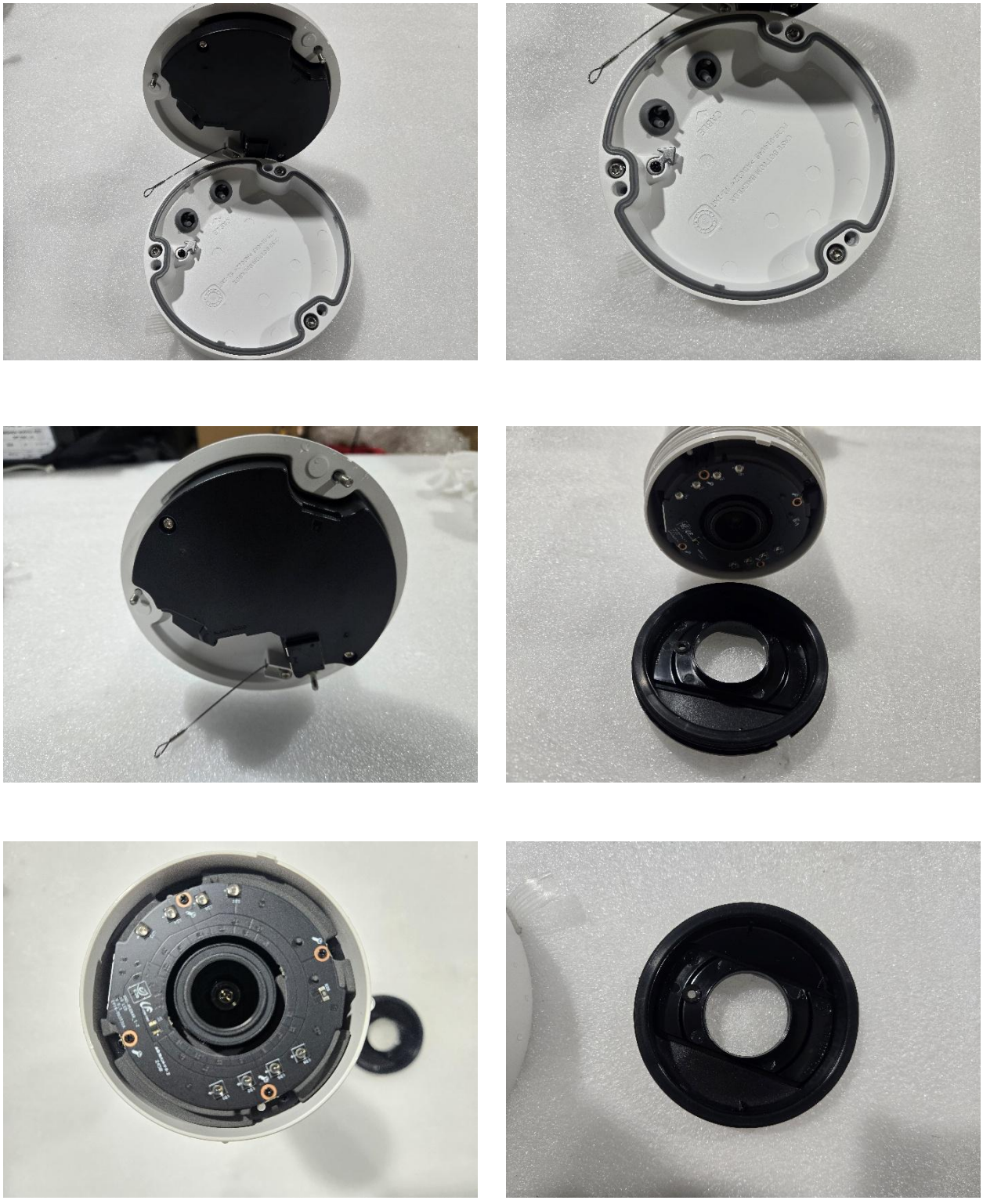
4.4.1 Test result table

Sample No (Model)	Water Flow	Presence of water inside	Result
XNO-A9084R	240 L/min	**No**	Pass

※ Refer to the sample photos after the completion of testing in section 4.5.

4.5 Post-test sample images

4.5.1 Test sample image



- End -