

TEST REPORT

**CTK Co., Ltd.**

5 Dongbu-ro 221beon-gil, Cheoin-gu, Yongin-si,
Gyeonggi-do, Republic of Korea
Tel: +82-31-339-9970
Fax: +82-31-624-9501

REPORT No.:

CTK-2025-02419

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1. Applicant

- Name : Hanwha Vision Co., Ltd
◦ Address : 6, Pangyo-ro 319Beon-gil, Bundang-gu, Seongnam-si,
Gyeonggi-do, 13488 Republic of Korea
◦ Date of Receipt : Jul. 04, 2025

2. Manufacturer

- Name : Hanwha Vision Co., Ltd

3. Use of Report :

Quality control

4. Test sample / Model :

NETWORK CAMERA / TNP-A9430RW

5. Date(s) of test :

Jul. 14, 2025~ Jul. 23, 2025

6. Test Standard (Method) used :

NEMA 250-2014

Enclosures for Electrical Equipment (1000 Volts Maximum)

7. Testing Environment :

Temperature: (25 ±10) °C, 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. This report cannot be reproduced or copied without the written consent of CTK.

	Tested by	Technical Manager
	Name: HyungUk Jeon (Signature)	Name: HoHyun Lee (Signature)

Remark. This report is not related to KOLAS accreditation and relevant regulation.

Sep. 04, 2025

CTK Co., Ltd.

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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.	+82-31-339-9970
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. Product description and equipment information

2.1 Product description

Product Name	Model Name	Quantity	Comment
NETWORK CAMERA	TNP-A9430RW	1 EA	—

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2.2 Manufacturer information

Test item description : NETWORK CAMERA

Trade Mark :



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

Model/Type reference : TNP-A9430RW

Ratings : Electrical
TNP-A9430RW: PoE 55 V 1.29 A,
TNP-A9430RWB: PoE 55 V 1.29 A,
TNP-A7430RW: PoE 55 V 1.29 A,
TNP-A7430RWB: PoE 55 V 1.29 A,
TNP-A6550RW: PoE 55 V 1.29 A,
TNP-A6550RWB: PoE 55 V 1.29 A

Dimension:
25.8 mm, Ø7.5 *2 by 47.1 mm, 90 mmØ 7.5 *6 by 141.3 mm, Ø13*6
by 244.92 mm, Ø195.2 by 612.92 mm, Ø200 mm

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

Attachment 1: 15-16 pages (Construction Diagram including installation method)

Attachment 2: 17-18 pages (Parts List)

Attachment 3: 20-23 pages (photographs)

Summary of testing:

Tests performed (name of test and test clause):
Clause 5.7(Hose Down Test)

Testing location:

CTK Co., Ltd.
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Copy of marking plate: The artwork above may be only a draft.



NETWORK CAMERA,TNP-A9430RW
PoE(55V ~) 1.29A

M/C: TNP-A9430RW/KEX Fac.ID:D



2025.08 S/N: Serial No.
MAC ADDRESS: XX-XX-XX-XX-XX-XX
CAN ICES-3(A)/NMB-3(A)
HANWHA VISION CO.,LTD.
MADE IN KOREA



NETWORK CAMERA,TNP-A9430RWB
PoE(55V ~) 1.29A

M/C:TNP-A9430RWB/KEX Fac.ID:D



2025.08 S/N: Serial No.
MAC ADDRESS: XX-XX-XX-XX-XX-XX
CAN ICES-3(A)/NMB-3(A)
HANWHA VISION CO.,LTD.
MADE IN KOREA



NETWORK CAMERA,TNP-A7430RW
PoE(55V ~) 1.29A

M/C: TNP-A7430RW/KEX Fac.ID:D



2025.08 S/N: Serial No.
MAC ADDRESS: XX-XX-XX-XX-XX-XX
CAN ICES-3(A)/NMB-3(A)
HANWHA VISION CO.,LTD.
MADE IN KOREA



NETWORK CAMERA,TNP-A7430RWB
PoE(55V ~) 1.29A

M/C:TNP-A7430RWB/KEX Fac.ID:D



2025.08 S/N: Serial No.
MAC ADDRESS: XX-XX-XX-XX-XX-XX
CAN ICES-3(A)/NMB-3(A)
HANWHA VISION CO.,LTD.
MADE IN KOREA



NETWORK CAMERA,TNP-A6550RW
PoE(55V ~) 1.29A

M/C: TNP-A65500RW/KEX Fac.ID:D



2025.08 S/N: Serial No.
MAC ADDRESS: XX-XX-XX-XX-XX-XX
CAN ICES-3(A)/NMB-3(A)
HANWHA VISION CO.,LTD.
MADE IN KOREA



NETWORK CAMERA,TNP-A6550RWB
PoE(55V ~) 1.29A

M/C : TNP-A6550RWB/KEX Fac.ID:D



2025.08 S/N: Serial No.
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2.3 Equipment information

Testing equipment	Model Name	Manufacturer	Manufacturing Number	Next Cal. Date
25.4mm Nozzle	S3-IP18	CTK	S3-IP18	-
Temperature & Humidity Chamber	C4-340	Weisstechnik	54260023190010	Feb.06,2026
Area flow meter	Z-6504	FLOWTECH	229400	Jan.16,2026
Steel measuring meter	5.5 m	KOMELON	225851	Jan.16,2026
Stop Watch	NONE	Casio	612Q01R-1	Jan.15,2027
Digital Vernier Calipers	100 mm	MITUTOYO	A17179462	-



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2.4 Pre-test product images

2.4.1 Test sample



Top



Bottom



Front



Rear



Left side



Right side



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2.5 Testing equipment images

2.5.1 Test equipment



25.4mm Nozzle



Temperature & Humidity Chamber



Area flow meter



Steel measuring meter



Stop Watch



Digital Vernier Calipers

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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 250-2014
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 city, Bac Ninh province, Vietnam 2. D-TECH CO., LTD. 173-25, Saneop-ro, Gwonseon-gu, Suwon-si, Gyeonggi-do, Korea (Suwon Industrial Complex)

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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).

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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	<u>Non-vented</u> 5.7	Windblown dust protected	No ingress of dust	6
	<u>Vented</u> 5.5.1 Dust Blast Method			

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

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3.4 NEMA 250-2014 Test list

NEMA 250-2014			
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	N/A
3.7	Mounting	Mounting means are external to the equipment cavity (See the attachment 1)	P
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	See the Attachment 1	P
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

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NEMA 250-2014

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)	P
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

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NEMA 250-2014

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/E
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 °C for 168 hrs according to 5.14.3(Alternate Evaluation) before performing relevant required tests.	P
5.15	Test for Sharpness of Edges	No sharp edges	P

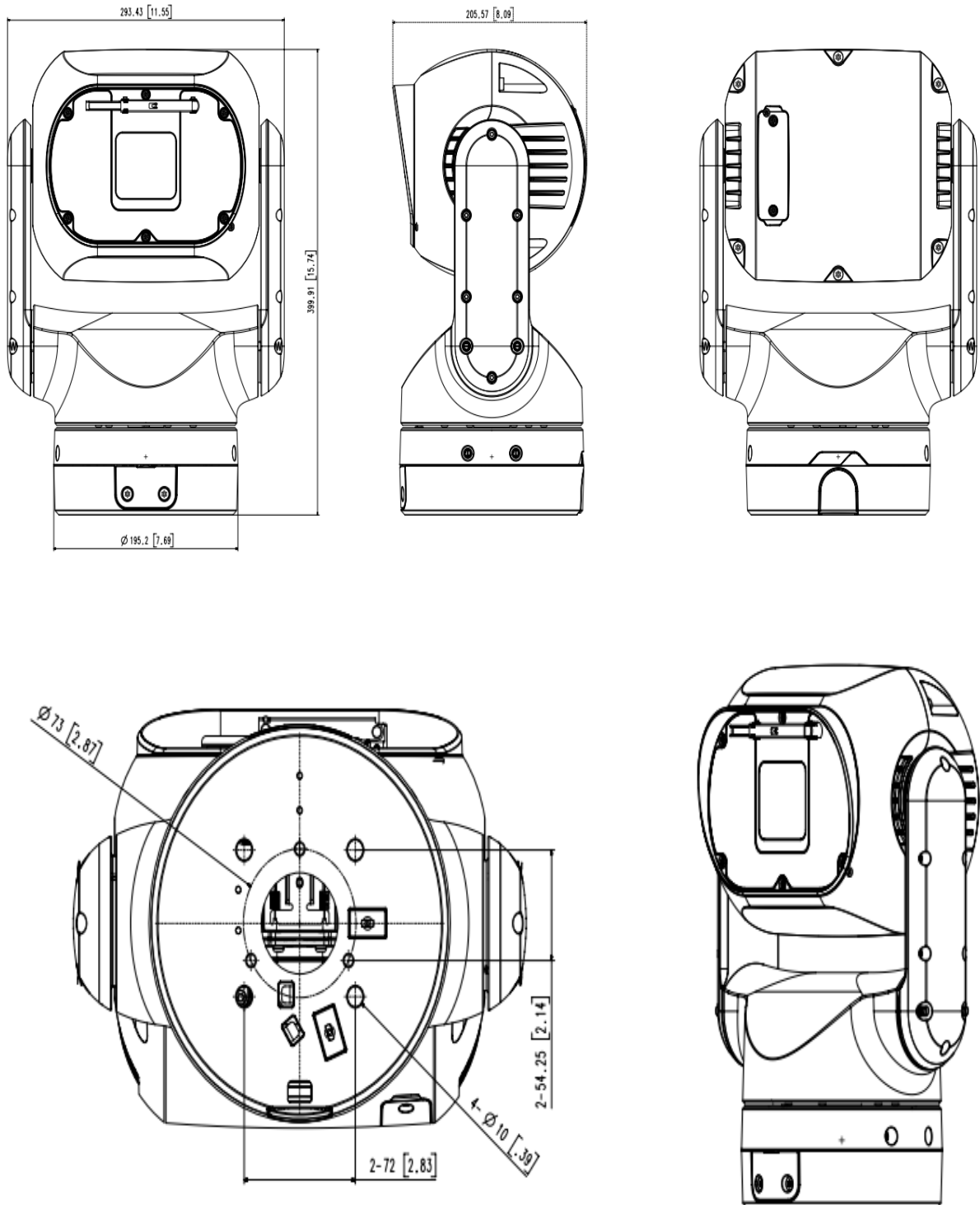


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3.5 Attachment 1 - Construction Diagram and installation method

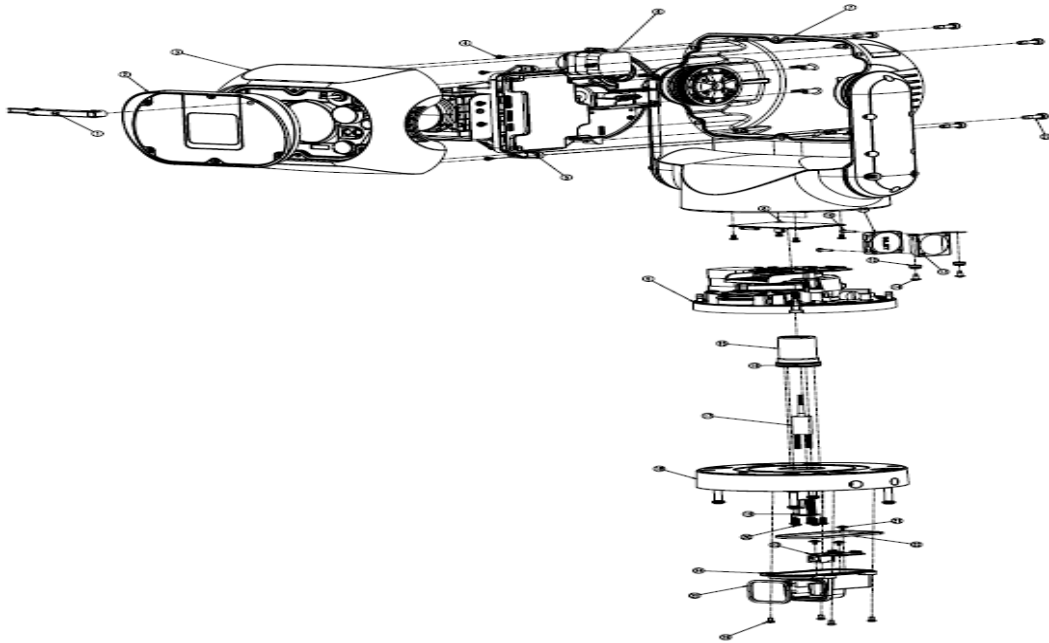




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NO.	Part Code	Qty
1	AM07-017888A	1
2	AM07-017912A	1
3	AM07-017647A	1
4	Z6001053501A	7
5	AM07-017661A	1
6	AM07-017660A	1
7	AM07-017916A	1
8	AM06-011809A	1
9	FC18-000901B	2
10	EP07-003788	1
11	AM07-017659A	1
12	FC10-001266A	2
13	FC09-017465A	1
14	FC18-005594A	2
15	MC19-004173A	1
16	FC18-004517A	1
17	EP10-001523A	1
18	AM07-017915A	1
19	FC10-001298A	1
20	FC18-000335A	5
21	FC18-007143A	3
22	HP07-002019A	1
23	AM06-011823A	1
24	FC15-011818A	1
25	HP07-002020A	1
26	FC18-001116C	4
27	FC18-005590C	6



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3.6 Attachment 2 - Parts List

3.6.1 Parts List (1)

**Component - Plastics**
EXL9330(X)(f1)(GG)(B1)(IP), EXL9330B(X)(f1)(GG)(B1)(IP) (T N 18)

Yellow Card™
File Number: E45329

SABIC INNOVATIVE PLASTICS B V
EUROPE - RESIN
PLASTICSLAAN 1
BERGEN OP ZOOM, 4612 PX Netherlands

Lexan, ELCRES ,ELCRIN: EXL9330(X)(f1)(GG)(B1)(IP), EXL9330B(X)(f1)(GG)(B1)(IP) (T N 18)

PC/Siloxane, pellets

(B1) - Represents colour code BK1E526 and BK1E649
(f1) - Suitable for outdoor use with respect to exposure to Ultraviolet Light, Water Exposure and Immersion in accordance with UL 746C.
(GG) - Denotes a global grade formulation previously in File E161759.
(IP) - Inclined Plane Tracking per UL746A, average time to track at 1.5 kV is 60+ minutes.
(X) - All colors except NC
B1 - Represents color code BK1E526, BK1E649 and BK1E519
NOTE - Material designation may be followed by a color nomenclature consisting of either an alpha/numeric or a numeric/alpha combination.
T N 18 - Trade name Lexan ,ELCRES represents EX9330 and ELCRIN represents EX9330B



Flammability	Value	Test Method
Flame Rating		
0.70 mm, ALL	HB	UL 94
0.8 mm, (B1)	V-1	UL 94 IEC 60695-11-10, -20
1.5 mm, (X)	V-0	UL 94 IEC 60695-11-10, -20
2.0 mm, (X)	V-0	UL 94 IEC 60695-11-10, -20
2.3 mm, (X)	V-0	UL 94 IEC 60695-11-10, -20
2.5 mm, BK, GY	V-0, 5VB	UL 94 IEC 60695-11-10, -20
3.0 mm, (X)	V-0, 5VA	UL 94 IEC 60695-11-10, -20
0.70 mm, ALL	HB75	IEC 60695-2-12
Glow Wire Flammability Index		
1.0 mm	960 °C	
1.5 mm	960 °C	
2.0 mm	960 °C	
2.3 mm	960 °C	
2.5 mm	960 °C	
3.0 mm	960 °C	

Component - Plastics

EXL9330(X)(f1)(GG)(B1)(IP), EXL9330B(X)(f1)(GG)(B1)(IP) (T N 18)



Flammability	Value	Test Method
Glow Wire Ignition Temperature		IEC 60695-2-13
1.0 mm	825 °C	
1.5 mm	825 °C	
2.0 mm	825 °C	
2.3 mm	825 °C	
2.5 mm	825 °C	
3.0 mm	825 °C	
Electrical		
Hot-wire Ignition (HWI)		UL 746A
0.60 mm	PLC 3	
0.63 mm	PLC 3	
0.70 mm	PLC 3	
0.8 mm	PLC 3	
1.0 mm	PLC 3	
1.5 mm	PLC 2	
2.0 mm	PLC 2	
2.3 mm	PLC 2	
2.5 mm	PLC 2	
3.0 mm	PLC 1	
High Amp Arc Ignition (HAI)		UL 746A
0.60 mm	PLC 1	
0.63 mm	PLC 1	
0.70 mm	PLC 1	
0.8 mm	PLC 1	
1.0 mm	PLC 1	
1.5 mm	PLC 1	
2.0 mm	PLC 1	
2.3 mm	PLC 0	
2.5 mm	PLC 0	
3.0 mm	PLC 0	
Comparative Tracking Index (CTI)	PLC 3	UL 746A
Dielectric Strength	25 kV/mm	ASTM D149
Inclined-Plane Tracking	1.5 kV	ASTM D2303
Volume Resistivity	1.0E+17 ohms-cm	ASTM D257 IEC 60093



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3.6.2 Parts List (2)

Component - Plastics

EXL9330(X)(f1)(GG)(B1)(IP), EXL9330B(X)(f1)(GG)(B1)(IP) (T

N 18)

Thermal

RTI Elec

0.60 mm
0.63 mm
0.70 mm
0.8 mm
1.0 mm
1.5 mm
2.0 mm
2.3 mm
2.5 mm
3.0 mm

Value

80.0 °C
125 °C
125 °C
125 °C
125 °C
125 °C
125 °C
125 °C
125 °C
125 °C

Test Method

UL 746B

RTI Imp

0.60 mm
0.63 mm
0.70 mm
0.8 mm
1.0 mm
1.5 mm
2.0 mm
2.3 mm
2.5 mm
3.0 mm

80.0 °C
105 °C
105 °C
105 °C
105 °C
110 °C
110 °C
110 °C
110 °C
115 °C

UL 746B

RTI Str

0.60 mm
0.63 mm
0.70 mm
0.8 mm
1.0 mm
1.5 mm
2.0 mm
2.3 mm
2.5 mm
3.0 mm

80.0 °C
115 °C
115 °C
115 °C
115 °C
120 °C
120 °C
120 °C
120 °C
125 °C

UL 746B

Physical

Dimensional Change

Value

0.0 %

Test Method

ASTM D1042
ISO 2796

Outdoor Suitability

f1

UL 746C



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4. Hose Down Test (Clause 5.7)

4.1 Test date and environmental conditions

4.1.1 Test date: Jun. 26, 2025~ Jul. 03, 2025

4.1.2 Measured Environmental Conditions

Item	Temperature (°C)	Humidity (% R.H.)	Pressure (kPa)
Measurement	30.1	70.1	103.9

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 (65 gal) per minute. 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/sec (1/4 in/sec).

4.2.2 Sample Dimension

25.8 mm, Ø7.5 *2 by 47.1 mm, 90 mmØ 7.5 *6 by 141.3 mm, Ø13*6 by 244.92 mm,
Ø195.2 by 612.92 mm, Ø200 mm
Test Duration = 227.0 secs

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



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4.3 Attachment 3 - Photographs

4.3.1 Hose down test



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4.4 Test result**4.4.1 Test result table**

Sample No (Model)	Water Flow	Presence of water inside	Result
TNP-A9430RW	240 LPM	No	Normal

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



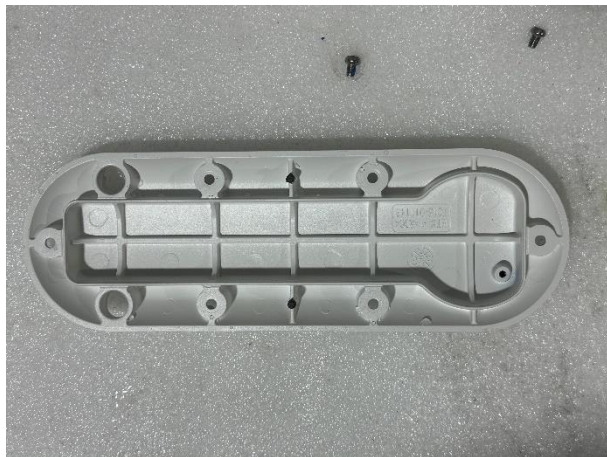
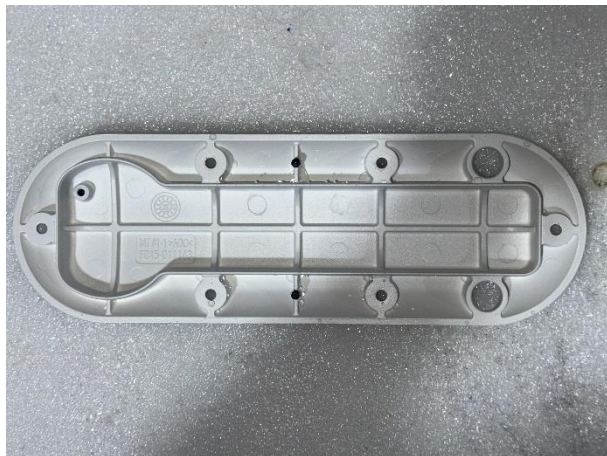
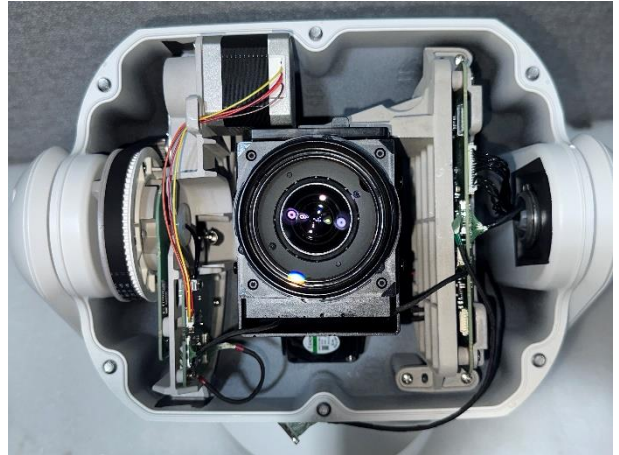
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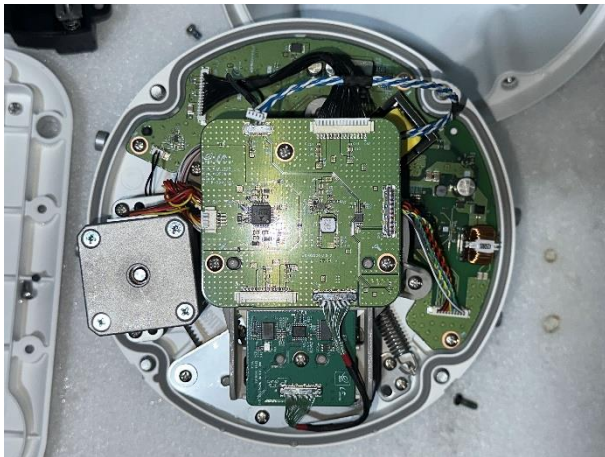
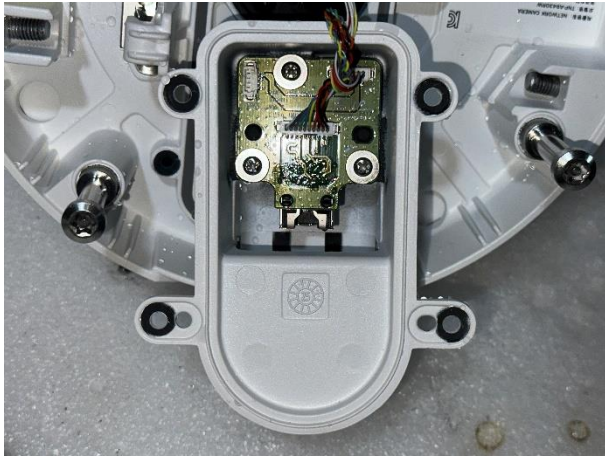
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4.5 Post-test product images

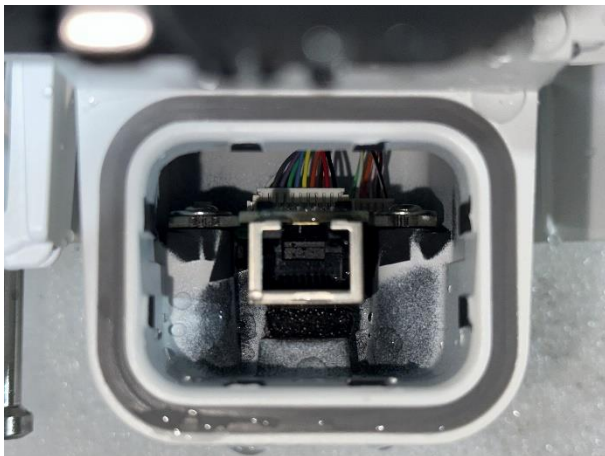
4.5.1 Test sample image (1)



4.5.2 Test sample image(2)



6



- End -