TEST REPORT

CTK Co., Ltd.
(Ho-dong), 113, Yejik-ro, Cheoin-gu, Yongin-si,
Gyeonggi-do, 449-100, Korea
Tel: +82-31-339-9970
Fax: +82-31-624-9501

REPORT No.: CTK-2024-03632

1.	**Applicant**	
	◦ Name :	Hanwha Vision Co., Ltd
	◦ Address :	6 Pangyo-ro 319Beon-gil, Bundang-gu, Seongnam-si, Gyeonggi-do, 13488 KOREA
	◦ Date of Receipt :	Dec. 10, 2024
2.	**Manufacturer**	
	◦ Name :	HANWHA VISION VIETNAM COMPANY LIMITED
	◦ Address :	Lot O-2, Que Vo Industrial Zone extended area, Nam Son ward, Bac Ninh city, Bac Ninh province, Vietnam
3.	**Use of Report :**	Quality control
4.	**Test sample / Model :**	NETWORK CAMERA / QNV-C6083R
5.	**Date(s) of test :**	Dec. 11, 2024~ Dec. 18, 2024
6.	**Test Standard (Method) used :**	NEMA 250-2014 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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Affirmation	Tested by	Technical Manager
	HyungUk Jeon (Signature)	HoHyun Lee (Signature)

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

Dec 27, 2024

CTK Co., Ltd.

Table of Contents

1. Testing laboratory

1.1 Testing laboratory information

Lab. Name	CTK Co., Ltd.
Address	113, Yejik-ro, Cheoin-gu, Yongin-si, Gyeonggi-do Republic of Korea
Tel.	031-339-9970
Fax.	031-624-9501
E-Mail	all.yongin@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	QNV-C6083R	1 EA	-

2.2 Manufacturer information

Test item description ..... :	NETWORK CAMERA
Trade Mark ..... :	Hanwha Vision
Manufacturer ..... :	Lot O-2, Que Vo Industrial Zone extended area, Nam Son commune, Bac Ninh city, Bac Ninh province, Vietnam
Model/Type reference ..... :	QNV-C6083R
Ratings ..... :	Electrical QNV-C6083R PoE 48 V ⎓ 0.2 A QNV-C8083R PoE 48 V ⎓ 0.25 A QNV-C9083R PoE 48 V ⎓ 0.25 A Dimension: Ø8.5*4 by 106.76 mm, Ø90.1 by 282.91 mm, Ø18 by 56.52 mm Ø25*2 by 157 mm, Ø 140 by 439.6 mm

List of Attachments (including a total number of pages in each attachment):
Attachment 1: 16-17 pages (Construction Diagram including installation method)
Attachment 2: 18-26 pages (Parts List)
Attachment 3: 28-30 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.


ITE
US LISTED
9T96 E158873
UK
CA
NETWORK CAMERA, QNV-C9083R
PoE(48V ⎓) 0.25A
M/C: QNV-C9083R/KEX
Fac.ID:D
2023.02
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
Rainproof/ Étanche
IP66

2.3 Equipment information

Testing equipment	Model Name	Manufacturer	Manufacturing Number	Calibration Date
25.4mm Nozzle	S3-IP18	CTK	S3-IP18	-
Temperature & Humidity Chamber	TH-GA-408	JEIO TECH	X110169	2024.08.23
Area flow meter	FT220-VM	NURITECH	01	2024-02-28
Stop Watch	NONE	Casio	612Q01R-1	2024-01-23
Digital Vernier Calipers	100 mm	MITUTOYO	A17179462	-

2.4 Pre-test product images

Top

Bottom

Front

Rear

Lest side

Right side

2.5 Testing equipment images

25.4mm Nozzle

Temperature & Humidity Chamber

Area flow meter

Stop Watch

Stop Watch

Digital Vernier Calipers

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)

Basic Model	QNV-C6083R
Series Model	QNV-C8083R, QNV-C9083R
Model differences	The model differences are only for function not related to the quality of enclosure integrity

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 250-2014 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	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

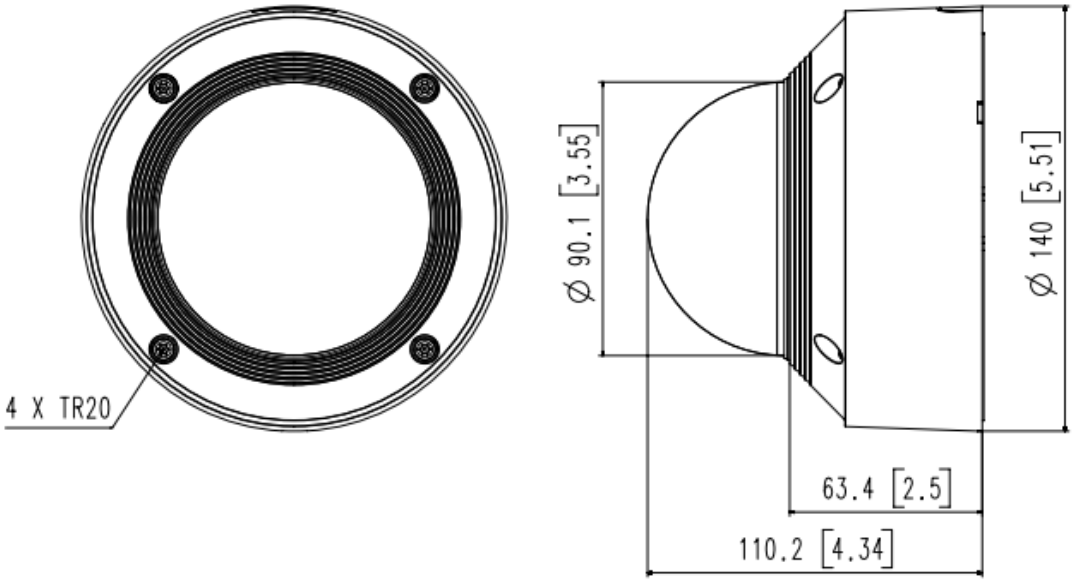
NEMA 250-2014			
Clause	**Requirement + Test**	**Result – Remark**	**Verdict**
3.14	Gaskets	Gaskets made of a silicone Sponge Rubber (no Elastomeric or Thermoplastic used) (See clause 5.14 and the attachment 2)	P
3.15	Observation Windows	No Observation Window	N/A

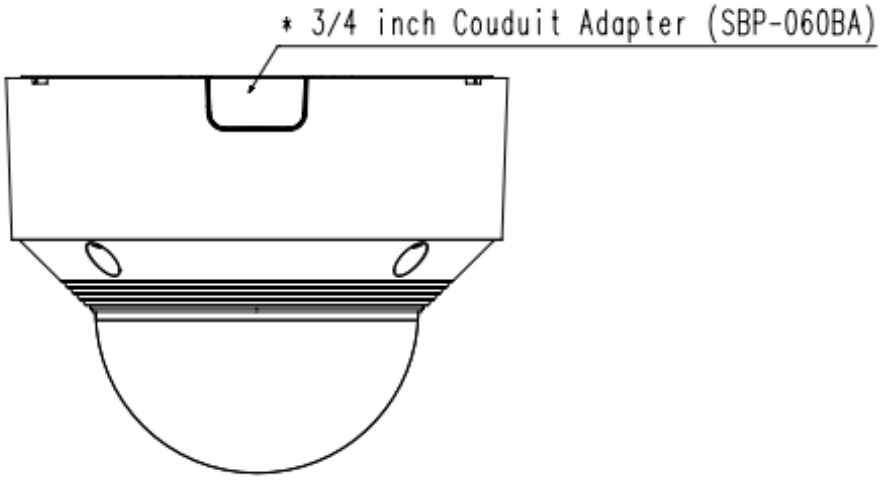
4	**MARKING**		
4.1	Type Designations	“Type 4X” Marking is declared to be on the product before on the market	P
4.2	Supplemental Markings	Supplemental Marking (watertight/ corrosion resistant) is declared to be used when it is on the market. The required marking shall be added on the product)	P
4.3	Location 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

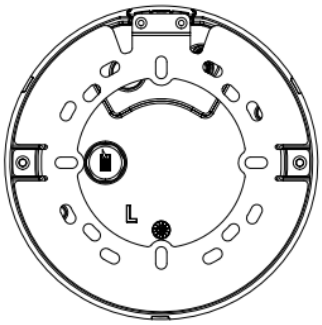
5	**DESIGN TESTS**		
5.1	General	See Table 5-1A to 5-1D and 5.1.5 in the General product information	P
5.2	Tests For Protection Against Access to Hazardous Parts	Rated 4X	N/A
5.3	Tests for Protection Against Ingress of Water (Dripping and Light Splashing)	Rated 4X	N/A

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 ℃ 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

3.5 Attachment 1 – Construction Diagram and installation method



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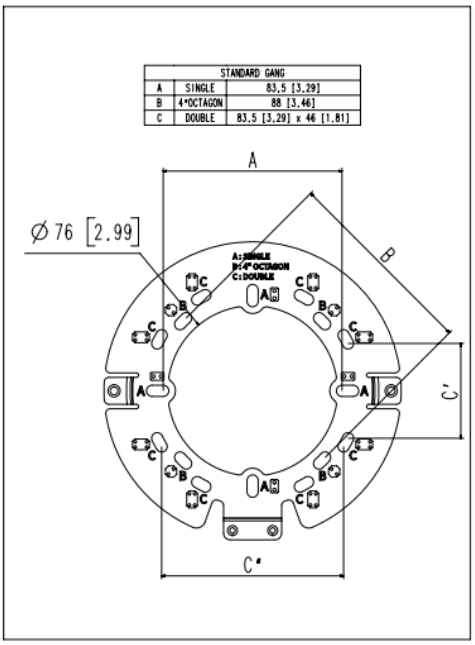
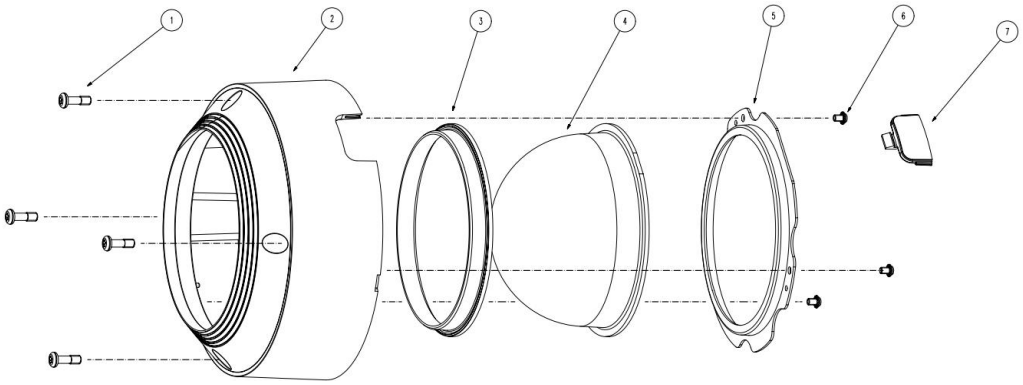
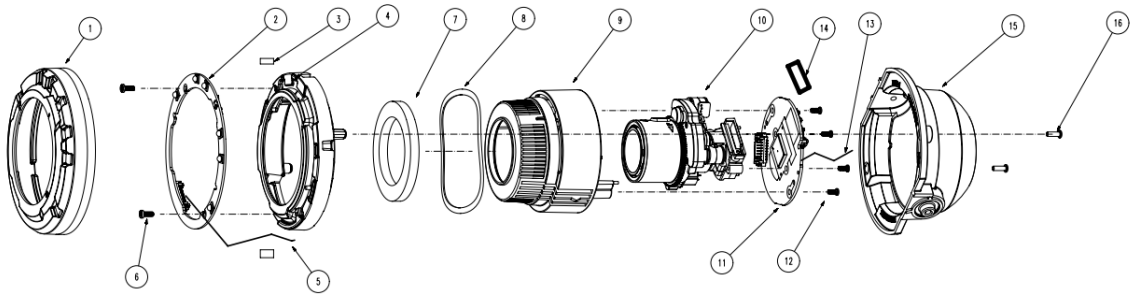

STANDARD GANG
A SINGLE 83.5 [3.29]
B 4"OCTAGON 88 [3.46]
C DOUBLE 83.5 [3.29] x 46 [1.81]
A
B
C
Ø 76 [2.99]
C'
C'

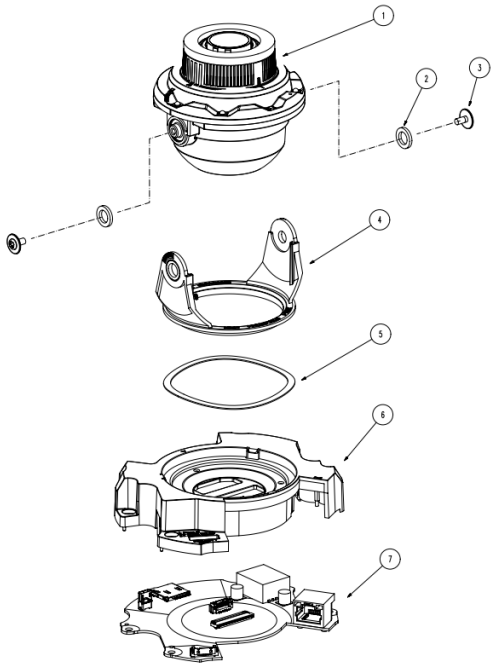
3.6 Attachment 2 – Parts List



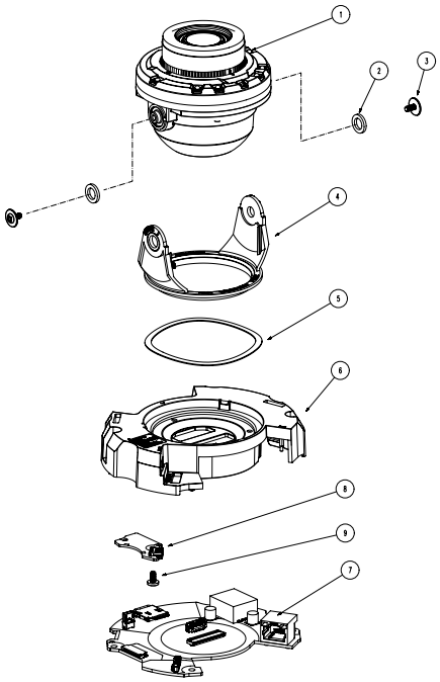
NO	PART NO	PART NAME	Q'TY	
1	FC18-004000A	SCREW-SPECIAL:PH,TR20,M4,L7+5,SUS,FP	4	
2	FC29-015369B	CASE-TOP;QNV-C8083R_HANWHA;ALDC,WHITE	1	
3	HP07-001754A	GASKET-DOME;QNV-C8083R;SILICON,BLACK	1	
4	FC15-009345A	COVER-DOME_FRAN;PC(TRP),CLEAR,90MM	1	
5	FC09-014389A	BRACKET-DOME;QNV-C8083R;SECC	1	
6	Z6001055901A	SCREW-MACHINE:PWH,+,M3,L4,WHT,FP	3	
7	FC29-015368A	CAP-CABLE;QNV-C8083R;PC,WHITE	1	



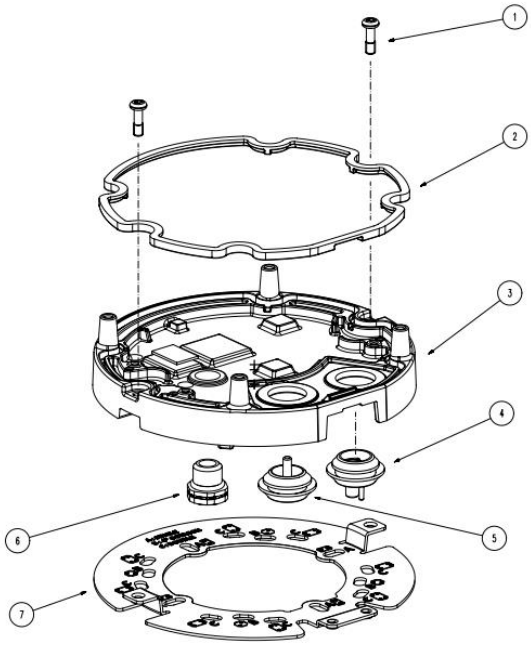
NO	PART NO	PART NAME	Q'TY	
1	FC15-009933A	COVER-IR_QNV-C9083R;RB,_	1	
2	AM06-010817A	ASSY,PCB-QNV-C9083R_IR	1	
3	FC28-002363A	PAD-THERMAL_W8_D4_T1	6	
4	EP07-001942A	SINK,HEAT-QNV-C9083R;AL	1	
5	EP02-002216A	HARNESS-SCO-6080R;WIRE,8P-8P,105MM	1	
6	Z6001055201A	SCREW-MACHINE;6001-001708,BH,+,M2,L5,ZP	2	
7	FC29-015594A	HOOD-IR;QNV-C9083R;PSR	1	
8	FC18-005134A	WASHER,WAVE-TILT_XPLUS;WAVE WASHER,56	1	
9-1	FC29-015367A	HOLDER-LENS;QNV-C8083R;BLACK,PC	1	QNV-C6083R.C8083R
9-2	FC29-015367B	HOLDER-LENS;QNV-C9083R;BLACK,PC	1	QNV-C9083R
10-1	EP14-001285	LENS SET-YT0W8A03DB.IR-JZ-3MP+H43+IR090;	1	QNV-C6083R
10-2	EP14-001218	LENS SET-YT0W8A03DB.IR-JZ-5MP+H43+IR010;	1	QNV-C8083R
10-3	EP14-001217	LENS SET-YT0W8A03DBIRJZ-8MP+H200+IR0109;	1	QNV-C9083R
11-1	AM06-010823A	ASSY,PCB-QNV-C8083R_SENSOR	1	QNV-C8083R
11-2	AM06-010821A	ASSY,PCB-QNV-C9083R_SENSOR	1	QNV-C9083R
11-3	AM06-011369A	ASSY,PCB-QNV-C6083R_SENSOR	1	QNV-C6083R
12-1	Z6003019801A	SCREW-TAPTITE:PL,+,M2,L4,WHT,B-TYPE	4	QNV-C6083R,C8083R
12-2	Z6003019601A	SCREW-TAPTITE:PH,+,M2,L6,BLK,B-TYPE	2	QNV-C9083R
13	EP16-003441A	FPCB-QNV-C9083R;SENSOR TO NETWORK,2L,40P	1	
14	FC10-001251A	SPONGE-YT0W8A03DB.IR-JZ-8MP+H43+IR010	1	QNV-C9083R only
15	FC29-015366A	HOLDER-TILT_QNV-C8083R;BLACK,PC	1	
16	Z6003019601A	SCREW-TAPTITE:PH,+,M2,L6,BLK,B-TYPE	2	



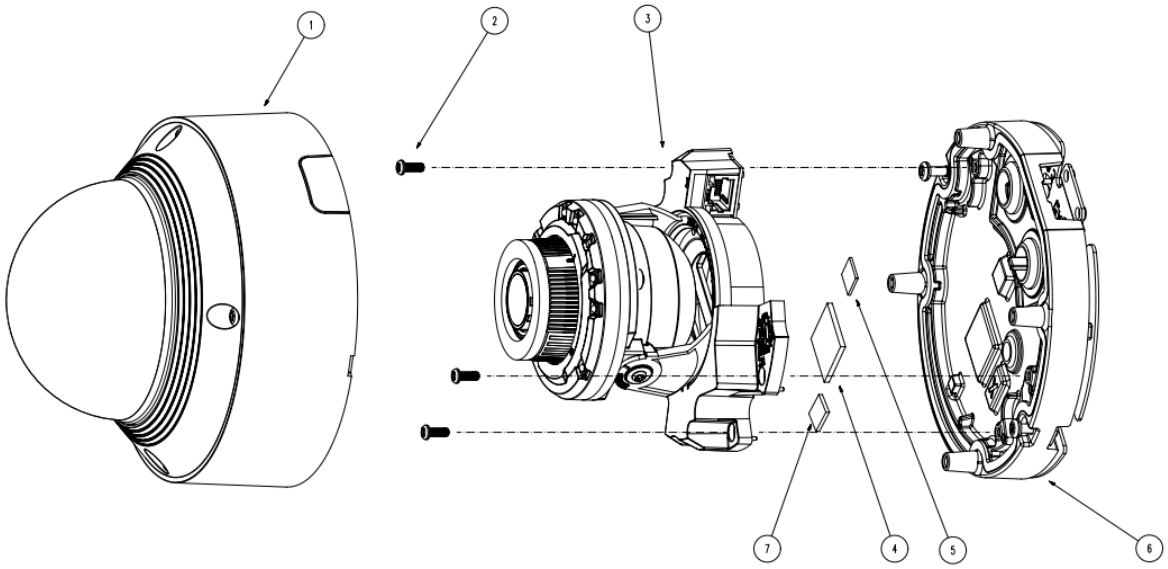
NO	PART NO	PART NAME	Q'TY	
1-1	AM07-016354A	ASSY-MODULE-LENS_QNV-C8083R	1	QNV-C8083R
1-2	AM07-016355A	ASSY-MODULE-LENS_QNV-C9083R	1	QNV-C9083R
2	FC10-001068A	RUBBER-TILT_9020;SILICON	2	
3	Z6003012501A	SCREW-TAPTITE:PWH,+,M3,L6,BLK,B-TYPE	2	
4	FC39-007064A	FRAME-PAN;QNV-C8083R;PC,BLACK	1	
5	FC18-004425A	WASHER,WAVE-XNF-8010RV;PANNING,65,SUS301	1	
6	FC39-007063A	FRAME-MAIN;QNV-C8083R;PC,BLACK	1	
7-1	AM06-010828A	ASSY,PCB-QNV-C8083R_NW	1	QNV-C8083R
7-2	AM06-010825A	ASSY,PCB-QNV-C9083R_NW	1	QNV-C9083R



NO	PART NO	PART NAME	Q'TY	
1	AM07-017180A	ASSY-MODULE-LENS;QNV-C6083R	1	
2	FC10-001068A	RUBBER-TILT_9020;SILICON	2	
3	Z6003012501A	SCREW-TAPTITE:PWH,+,M3,L6,BLK,B-TYPE	2	
4	FC39-007064A	FRAME-PAN;QNV-C8083R;PC,BLACK	1	
5	FC18-004425A	WASHER,WAVE-XNF-8010RV;PANNING,65,SUS301	1	
6	FC39-007641A	FRAME-MAIN,QNV-C6083R;PC	1	
7	AM06-010828A	ASSY,PCB-QNV-C8083R_NW	1	
8	AM06-011367A	ASSY,PCB-QNV-C6083R_HDMI	1	
9	FC18-006373A	SCREW,TAPTITE-M3_L6_BLK;1,L6,-,-	1	



NO	PART NO	PART NAME	Q'TY	
1	FC18-004000A	SCREW-SPECIAL:PH,TR20,M4,L7+5,SUS,FP	2	
2	HP07-001755A	GASKET-BOTTOM;QNV-C8083R;SILICON,GRAY	1	
3	FC29-015370A	CASE-BOTTOM;QNV-C8083R;ALDC,WHITE	1	
4	MC06-000071A	BUSHING-CABLE_ACC;SILICON,SNV-6084R,ID6	1	
5	MC06-001082A	BUSHING-CABLE FLEXIBLE;SILICON,GRAY	1	
6	HP06-001469A	VENT-SCREW TYPE_PF0E_B	1	
7	FC39-007065A	MOUNT-PLATE_QNV-C8083R;SUS	1	



NO	PART NO	PART NAME	Q'TY	
1	AM07-016348A	ASSY,CASE-TOP;QNV-C8083R	1	
2	Z9642308001	SCREW-MACHINE:PH,+,M3,L8,WHT,FP	3	QNV-C8083R,C9083R
			2	QNV-C6083R
3-1	AM07-016350A	ASSY-HALF-QNV-C8083R	1	QNV-C8083R
3-2	AM07-016351A	ASSY-HALF-QNV-C9083R	1	QNV-C9083R
3-3	AM08-007472A	ASSY-HALF;QNV-C6083R	1	QNV-C6083R
4	FC28-003715A	PAD-THERMAL_21*21;K=7W/M-K,2.0T	1	
5	FC28-002128C	PAD-THERMAL_SDC-9442DC, 10X10;1.0	1	
6	AM07-016357A	ASSY,CASE-BOTTOM;QNV-C8083R	1	
7	HP07-001255A	GASKET-QND_SHIELD_FOAM;5*5,2	1	

Component - Plastics

S-2000V+(f1), S-2001V+(f1)

Yellow Card™

MITSUBISHI ENGINEERING-PLASTICS CORP
ENVIRONMENT & QUALITY ASSURANCE DEPT
SHIODOME SUMITOMO-BLDG 25TH FL
1-9-2 HIGASHI-SHINBASHI
MINATO-KU, TOKYO 105-0021 Japan

File Number: E41179

S-2000V+(f1), S-2001V+(f1)

Polycarbonate (PC), unreinforced, pellets

(f1) - Suitable for outdoor use with respect to exposure to Ultraviolet Light, Water Exposure and Immersion in accordance with UL 746C.
+ - Suffix optional, exceptions: The following cannot be used as optional suffixes: "NF" for grade NXG5050, "N" for grade NXG5030, "N" for grade MB2112+, "S1" for grade F20-54, "V" for grades S-2000+(f1), S-2001+(f1), S-2003+(f1), the last letter "L" for grade CFH2520+, "W" for ELV2010 included in Grade ELV20(a5)+, "V" for grade MB2210+, "K1" for grade EKD3206+ included in Grade EKD32(a6)+.

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Flammability	Value	Test Method
Flame Rating		UL 94 IEC 60695-11-10, -20
0.38 mm, ALL	V-2	
1.5 mm, ALL	V-2	
3.0 mm, ALL	V-2	
Electrical	**Value**	**Test Method**
Hot-wire Ignition (HWI)		UL 746A
1.5 mm	PLC 3	
3.0 mm	PLC 3	
High Amp Arc Ignition (HAI)		UL 746A
1.5 mm	PLC 0	
3.0 mm	PLC 0	
Comparative Tracking Index (CTI)	PLC 2	UL 746A
Dielectric Strength	20 kV/mm	ASTM D149
High Voltage Arc Tracking Rate (HVTR)	PLC 0	UL 746A
Volume Resistivity	1.0E+7 ohms·cm	ASTM D257 IEC 60093
Arc Resistance	PLC 5	ASTM D495

Form Number: E41179-231970

Report Date: 10/1/1992
Last Revised: 5/30/2023 3:04:52 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.

Component - Plastics

S-2000V+(f1), S-2001V+(f1)

Thermal	Value	Test Method
RTI Elec		UL 746B
0.38 mm	80.0 °C	
1.5 mm	125 °C	
3.0 mm	125 °C	
RTI Imp		UL 746B
0.38 mm	80.0 °C	
1.5 mm	115 °C	
3.0 mm	115 °C	
RTI Str		UL 746B
0.38 mm	80.0 °C	
1.5 mm	125 °C	
3.0 mm	125 °C	
Physical	**Value**	**Test Method**
Dimensional Change	0.0 %	ASTM D1042 ISO 2796
Outdoor Suitability	f1	UL 746C

UL인증

LOTTE CHEMICAL

	Grade	HN-1068

Component - Plastics
Guide Information

View Certificate of Compliance

E115797

LOTTE CHEMICAL CORPORATION
56 Gosan-ro, Uiwang-si Gyeonggi-do 16073 KR

HN-1068(+)(f1)
Polycarbonate (PC) "INFINO", furnished as pellets

Color	Min. Thk (mm)	Flame Class	HWI	HAI	RTI Elec (°C)	RTI Imp (°C)	RTI Str (°C)
ALL	1.5	V-0	3	3	130	130	130
	3.0	V-0	-	-	130	130	130

Comparative Tracking Index (CTI): 3
Dielectric Strength (kV/mm): 31.8
High-Voltage Arc Tracking Rate (HVTR): -
Dimensional Change (%): -

Inclined Plane Tracking (IPT) kV: -
Volume Resistivity (10^X ohm-cm): 17
Surface Resistivity (10^X ohms/square): -
High Volt, Low Current Arc Resis (D495): -

(+) - 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.

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.

Report Date: 1998-08-24
Last Revised: 2023-03-21

c UL us
ALSO CERTIFIED TO IEC REQUIREMENTS

IEC and ISO Test Methods

Test Name	Test Method	Units	Thk (mm)	Value
Flammability	IEC 60695-11-10	Class (color)	1.5	V-0 (ALL)
			3.0	V-0 (ALL)
Glow-Wire Flammability (GWFI)	IEC 60695-2-12	°C	1.5	960
			3.0	960
Glow-Wire Ignition (GWIT)	IEC 60695-2-13	°C	1.5	825
			3.0	825
IEC Comparative Tracking Index	IEC 60112	Volts (Max)	-	-
IEC Ball Pressure	IEC 60695-10-2	°C	-	130
ISO Heat Deflection (1.80 MPa)	ISO 75-2	°C	-	-
ISO Tensile Strength	ISO 527-2	MPa	-	-
ISO Flexural Strength	ISO 178	MPa	-	-
ISO Tensile Impact	ISO 8256	kJ/m^2	-	-
ISO Izod Impact	ISO 180	kJ/m^2	-	-
ISO Charpy Impact	ISO 179-1	kJ/m^2	-	-

4. Hose Down Test (Clause 5.7)

4.1 Test date and environmental conditions

4.1.1 Test date: Dec. 11, 2024~ Dec. 18, 2024

4.1.2 Measured Environmental Conditions

Item	Temperature (℃)	Humidity (% R.H.)	Pressure (kPa)
Measurement	25.7	44.5	90.1

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 (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

Ø8.5*4 by 106.76 mm, Ø90.1 by 282.91 mm, Ø18 by 56.52 mm
Ø25*2 by 157 mm, Ø 140 by 439.6 mm
Test Duration = 188.81 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

4.3 Attachment 3 – Photographs

4.3.1 Hose down test

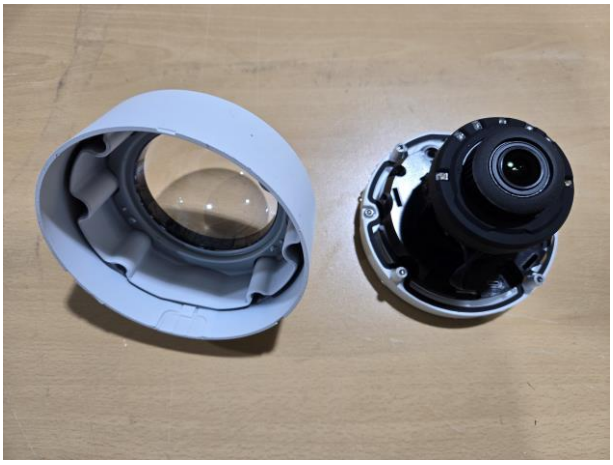
5. Test result

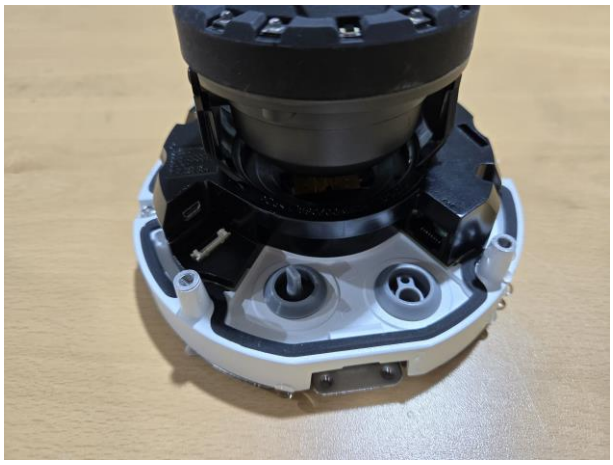
5.1 Test result table

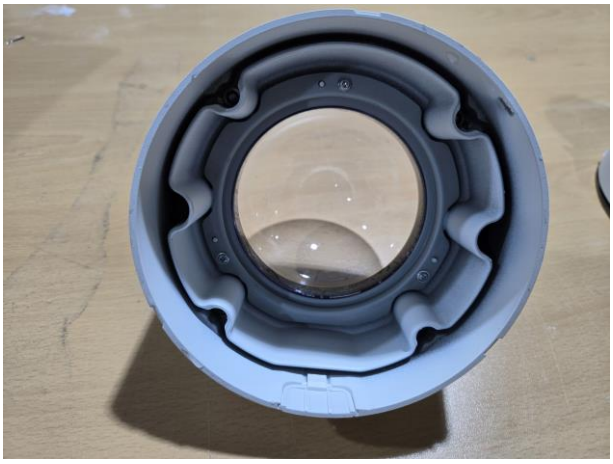
Sample No (Model)	Water Flow	Presence of water inside	Result
QNV-C6083R	240 LPM	**No**	Pass

※ Refer to the product photos after the completion of testing in section 5.2.

5.2 Post-test product images







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