

TEST REPORT

	CTK Co., Ltd. (Ho-dong) 113, Yejik-ro, Cheoin-gu, Yongin-si, Gyeonggi-do, KOREA, REPUBLIC OF Tel: +82-31-339-9970 Fax: +82-31-624-9501	Report No.: CTK-2022-01713 Page(1) / (23) Pages	
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1. Applicant

- Name..... : Hanwha Techwin Co., Ltd.
- Address..... : Hanwha Techwin R&D center, 6 Pangyo-ro 319Beon-gil, Bundang-gu, Seongnam-si, Gyeonggi-do, 13488 KOREA
- Date of Receipt..... : 2021-01-28

2. Manufacturer

- Name..... : Hanwha Techwin Co., Ltd.

3. Use of Report : Quality control

4. Test sample / Model..... : NETWORK CAMERA / XNV-C9083R

5. Date(s) of test : 2021-03-25 to 2021-04-01

NEMA 250-2014

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

7. Results : Pass

The results shown in this test report refer only to the sample(s) tested unless otherwise stated.
 This report shall not be reproduced except in full without the written approval of CTK

Approval	Tested by: MinGi Moon  (Signature)	Technical Manager: WonHyeon Choi  (Signature)
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2022-06-29

CTK Co., Ltd.



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Test place

Institution name	CTK Co., Ltd.
Address	142, Dongbu-ro, Cheoin-gu, Yongin-si, Gyeonggi-do, Republic of Korea

	CTK Co., Ltd. (Ho-dong) 113, Yejik-ro, Cheoin-gu, Yongin-si, Gyeonggi-do, KOREA, REPUBLIC OF Tel: +82-31-339-9970 Fax: +82-31-624-9501	Report No.: CTK-2022-01713 Page(3) / (23) Pages	
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Test item description : NETWORK CAMERA
Trade Mark : WISeNET
Manufacturer : HANWHA TECHWIN SECURITY VIETNAM CO.,LTD Lot O-2, Que Vo Industrial Zone extended area, Nam Son commune, Bac Ninh city, Bac Ninh province, Vietnam
Model/Type reference : XNV-C9083R
Ratings : Electrical : DC 12V  1.1A / PoE(48V ) 0.27A Dimension : 300.0 mm by 600.0 mm by 540.0 mm by 94.2 mm by 94.2 mm

List of Attachments (including a total number of pages in each attachment): Attachment 1: 11-13 pages (Construction Diagram including installation method) Attachment 2: 14-21 pages (Parts List) Attachment 3: 22-23 pages (photographs)
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Summary of testing:	
Tests performed (name of test and test clause): Clause 5.7(Hose Down Test)	Testing location: CTK Co., Ltd. 142, Dongbu-ro, Cheoin-gu, Yongin-si, Gyeonggi- do, Republic of Korea

Copy of marking plate: The artwork above may be only a draft.	
기기명칭: NETWORK CAMERA 모델명: XNV-C9083R 정격전압: DC 12V  13.2W / PoE (48V ) 12.95W M/C: XNV-C9083R/KDO  2021.06 S/N: Serial No. MAC ADDRESS: XX-XX-XX-XX-XX-XX 인증번호: R-R-StW-XNVC9083R 상호: 한화테크윈(주) 제조자/제조국가:한화테크윈(주)/한국	 

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Report No.:

CTK-2022-01713

Page(4) / (23) Pages

기기명칭: NETWORK CAMERA

모델명: XNV-C8083R

정격전압: DC 12V  13.2W /
PoE (48V ) 12.95W

M/C: XNV-C8083R/KDO



2021.06 S/N: Serial No.

MAC ADDRESS: XX-XX-XX-XX-XX-XX

인증번호: R-R-StW-XNVC8083R

상호: 한화테크윈(주)

제조사/제조국가:한화테크윈(주)/한국



기기명칭: NETWORK CAMERA

모델명: XNV-C7083R

정격전압: DC 12V  12.5W /
PoE (48V ) 12.95W

M/C: XNV-C7083R/KDO



2021.06 S/N: Serial No.

MAC ADDRESS: XX-XX-XX-XX-XX-XX

인증번호: R-R-StW-XNVC7083R

상호: 한화테크윈(주)

제조사/제조국가:한화테크윈(주)/한국



기기명칭: NETWORK CAMERA

모델명: XNV-C6083R

정격전압: DC 12V  12.5W /
PoE (48V ) 12.95W

M/C: XNV-C6083R/KDO



2021.06 S/N: Serial No.

MAC ADDRESS: XX-XX-XX-XX-XX-XX

인증번호: R-R-StW-XNVC6083R

상호: 한화테크윈(주)

제조사/제조국가:한화테크윈(주)/한국





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Report No.:

CTK-2022-01713

Page(5) / (23) Pages



NETWORK CAMERA

MODEL: XNV-C9083R

DC 12V 1.1A /

PoE (48V) 0.27A

M/C: XNV-C9083R/KUS Fac. ID: D



2021.06 S/N: Serial No.

MAC ADDRESS: XX-XX-XX-XX-XX-XX

CAN ICES-3(A)/NMB-3(A)

HANWHA TECHWIN CO.,LTD.

MADE IN KOREA



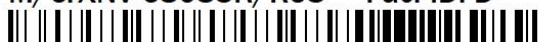
NETWORK CAMERA

MODEL: XNV-C8083R

DC 12V 1.1A /

PoE (48V) 0.27A

M/C: XNV-C8083R/KUS Fac. ID: D



2021.06 S/N: Serial No.

MAC ADDRESS: XX-XX-XX-XX-XX-XX

CAN ICES-3(A)/NMB-3(A)

HANWHA TECHWIN CO.,LTD.

MADE IN KOREA



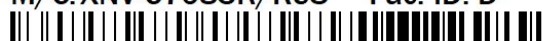
NETWORK CAMERA

MODEL: XNV-C7083R

DC 12V 1.05A /

PoE (48V) 0.27A

M/C: XNV-C7083R/KUS Fac. ID: D



2021.06 S/N: Serial No.

MAC ADDRESS: XX-XX-XX-XX-XX-XX

CAN ICES-3(A)/NMB-3(A)

HANWHA TECHWIN CO.,LTD.

MADE IN KOREA



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Report No.:

CTK-2022-01713
Page(6) / (23) Pages



NETWORK CAMERA
MODEL: XNV-C6083R

DC 12V $\overline{\sim}$ 1.05A /

PoE (48V $\overline{\sim}$) 0.27A

M/C: XNV-C6083R/KUS Fac. ID: D



2021.06 S/N: Serial No.

MAC ADDRESS: XX-XX-XX-XX-XX-XX

CAN ICES-3(A)/NMB-3(A)

HANWHA TECHWIN CO.,LTD.

MADE IN KOREA



NETWORK CAMERA, XNV-C6083

DC 12V $\overline{\sim}$ 0.84A /

PoE (48V $\overline{\sim}$) 0.23A

M/C: XNV-C6083/KEX

Fac.ID:D



2022.06 S/N: Serial No.

MAC ADDRESS: XX-XX-XX-XX-XX-XX

CAN ICES-3(A)/NMB-3(A)

HANWHA TECHWIN CO.,LTD.

MADE IN KOREA



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 evaluated to the test object : N/E

General remarks:

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Report No.:

CTK-2022-01713
Page(7) / (23) Pages

"(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 TECHWIN SECURITY VIETNAM CO., LTD

Lot O-2, Que Vo Industrial Zone extended area, Nam Son commune, 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)

General product information:

Applied NEMA Rating : 4X

Model XNV-C9083R is basic model which was tested.

Basic Model	XNV-C9083R
Series model	XNV-C8083R, XNV-C7083R, XNV-C6083R, XNV-C6083

Model differences:

Series model differences are only for function not related to the quality of enclosure integrity.

Type 4X

Enclosures constructed for either indoor or outdoor use to provide a degree of protection against access to hazardous parts; to provide a degree of protection against ingress of solid foreign objects (e.g., windblown dust); to provide a degree of protection with respect to harmful equipment due to the ingress of water (rain, sleet, snow, splashing water); that provides an increased level of protection against corrosion.



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Report No.:

CTK-2022-01713
Page(8) / (23) Pages

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

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

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

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

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Report No.:

CTK-2022-01713

Page(9) / (23) Pages

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

Enclosure Type	Test Conditions	Degree of Protection	
		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

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

Enclosure Type	Test Conditions	Degree of Protection	
		Brief Description	Definition
4X	<u>Non-vented</u> 5.7	Windblown dust protected	No ingress of dust
	<u>Vented</u> 5.5.1 Dust		

Table 5-1C
Degrees of Protection against Water

Enclosure Type	Test Conditions	Degree of Protection	
		Brief Description	Definition
4X	5.7	Protected against hose directed water	Water projected against the enclosure in any direction shall not enter

Table 5-1D
Additional Protection

Enclosure Type	Test Conditions	Additional Protection	
		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 th

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Report No.:

CTK-2022-01713

Page(10) / (23) Pages

NEMA 250-2014

Clause	Requirement + Test	Result - Remark	Verdict
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3	CONSTRUCTION		
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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. HB 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
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		
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Report No.:

CTK-2022-01713

Page(11) / (23) Pages

NEMA 250-2014

Clause	Requirement + Test	Result - Remark	Verdict
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	
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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
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

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Report No.:

CTK-2022-01713

Page(12) / (23) Pages

NEMA 250-2014

Clause	Requirement + Test	Result - Remark	Verdict
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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Report No.:

CTK-2022-01713
Page(13) / (23) Pages

Test Information

	Hose Down Test : Clause 5.7	P
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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).

Sample Dimension : 300.0 mm by 600.0, mm by 540.0, mm by 94.2 mm

Test Duration = 150 secs

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

Test Results

Sample No (Model)	Water Flow	Presence of water inside	Result
XNV-C9083R	240 LPM	No	Pass

List of test equipment used:

Instr. Code	Instrument Type	Range Used	Mfr./Model	Calibration Date	
				Last	Due
S3-IP18	25.4mm Nozzle	25.4 mm	CTK/S3-IP18	-	Checked by calliper below before using
C-S1SW3	Stop Watch	0.01 s	CASIO/ NONE	2019-09-05	2021-09-05
S3-D01	Steel Measuring Tape	10 m	KOMELON	2020-10-20	2021-10-20
S3-IP20	Water flow meter	250LPM	Nuri tech/Z-4007	2020-07-03	2021-07-03
S1-D03	DIGITAL VERNIER CALIPER	200 mm	MITUTOYO/ 200 mm	2021-03-03	2022-03-03



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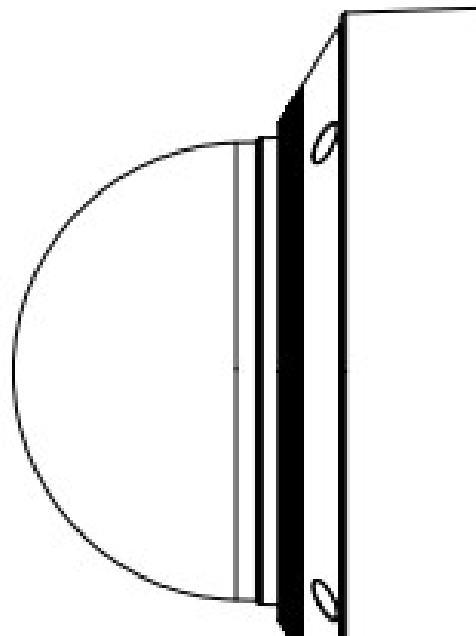
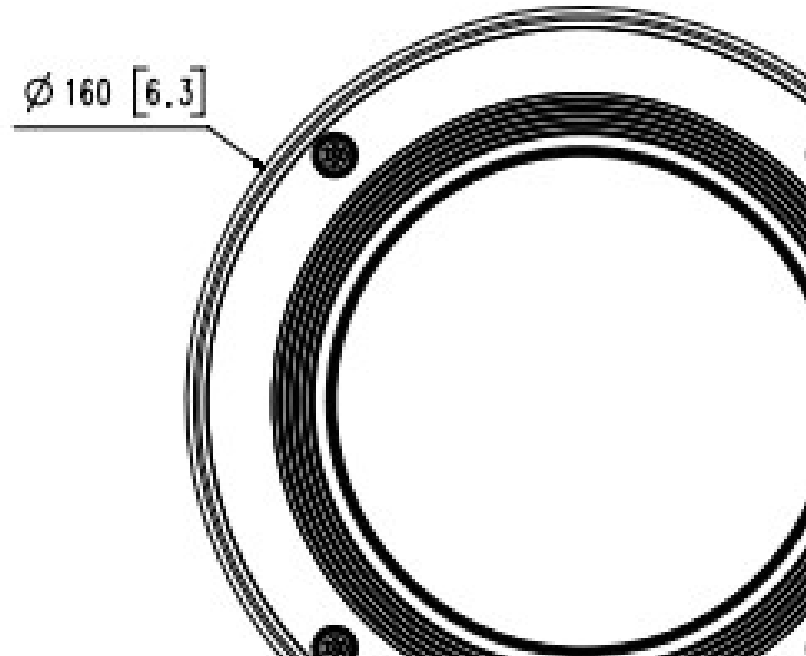
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Report No.:

CTK-2022-01713

Page(14) / (23) Pages

Attachment 1 – Construction Diagram and installation method





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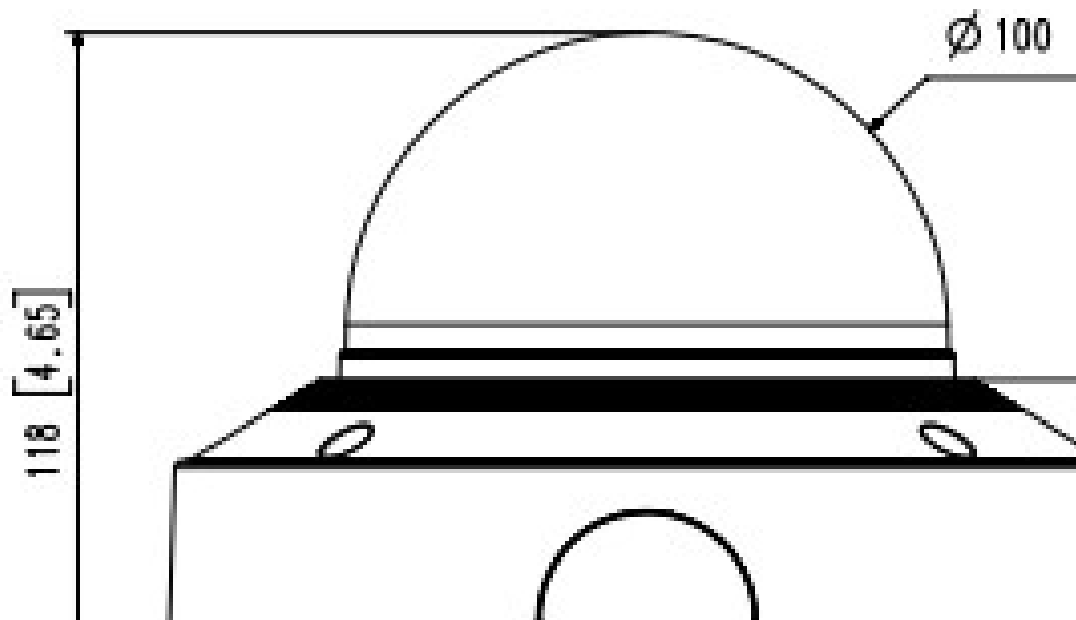
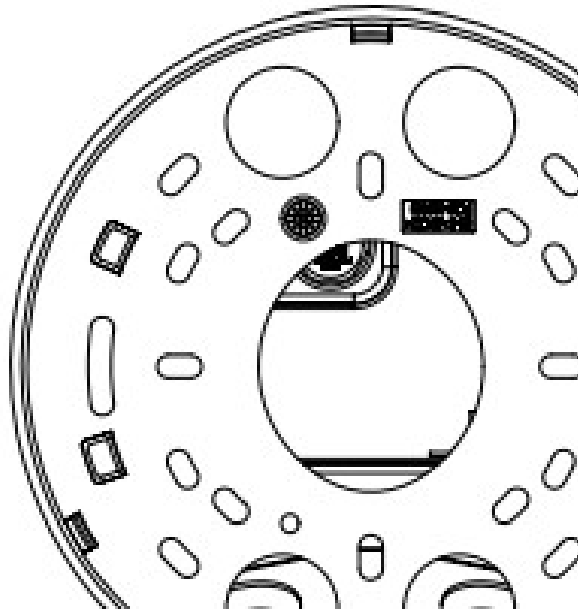
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Report No.:

CTK-2022-01713

Page(15) / (23) Pages

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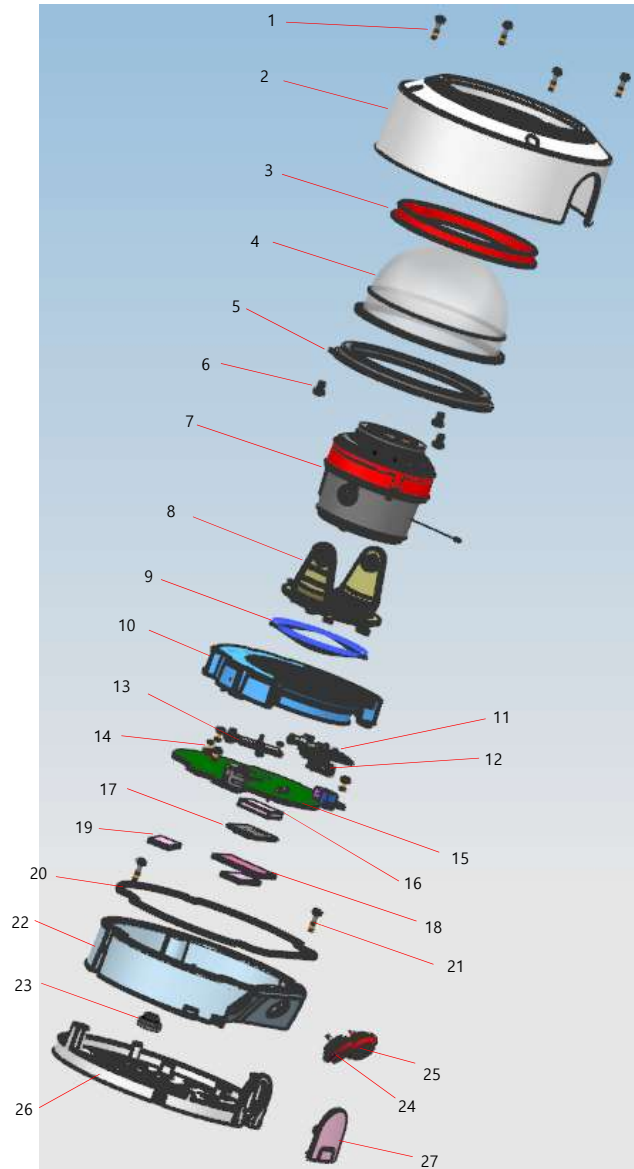
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Report No.:

CTK-2022-01713

Page(16) / (23) Pages

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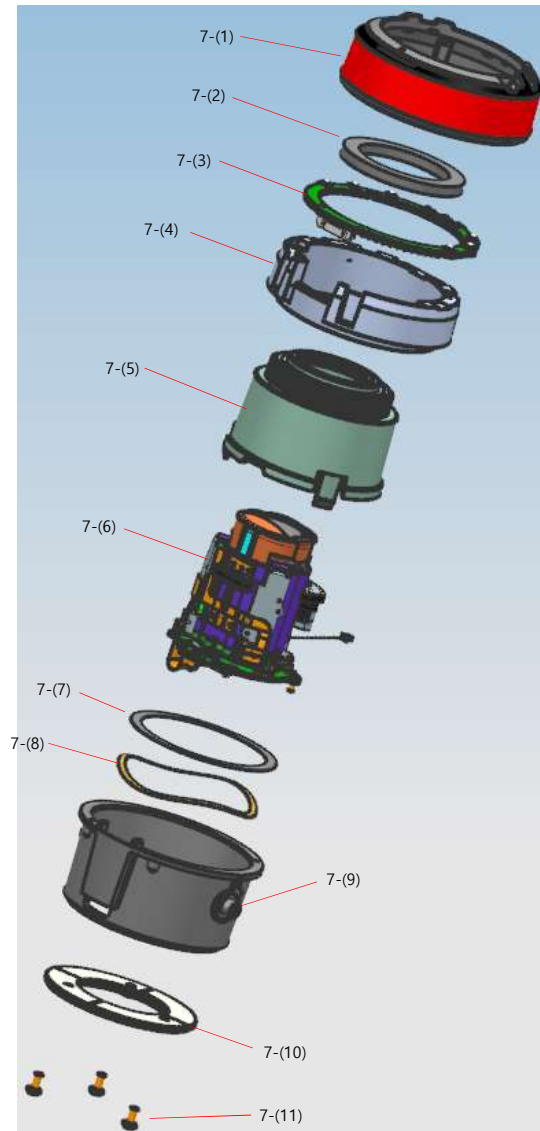
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CTK-2022-01713

Page(17) / (23) Pages

Attachment 1 – Construction Diagram and installation method



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Report No.:

CTK-2022-01713

Page(18) / (23) Pages

Attachment 2 – Parts List

No	Part Number	Part Name	ea
1	FC18-004000A	SCREW-BUILT-IN_TORX20;0.7,15,NO,4	4
2	FC29-013914A	CASE-TOP_X-CORE_VANDAL	1
3	FC10-001168A	RUBBER-DOME-IR_XPLUS;RUBBER,-	1
4	FC15-006668B	COVER-DOME;HARD-COATING,100,65	1
5	FC09-012329A	BRACKET-DOME_X-CORE	1
6	Z6001053501A	SCREW-MACHINE;6001-001476,BH,+,M3,L6,Ni	3
7	AM07-015161A	ASSY-ROTATE HEAD-XNV-C9083R	1
7-(1)	FC29-012952A	HOOD-IR_XNV-9082R;RUBBER	1
7-(2)	FC29-011588A	HOOD-LENS_XPLUS_2M;PSR	1
7-(3)	AM06-009390A	ASSY,PCB-XNV-9082R IR LED	1
7-(4)	FC39-006142A	FRAME-IR_XNV-9082R;ALDC	1
7-(5)	FC15-007206E	COVER-FRONT-XNV-C9083R;PC	1
7-(6)	AM07-015157A	ASSY-LENS-XNV-C9083R	1
7-(7)	RM04-001091A	FILM,ETC-FRICTION-TILT_XPLUS;PC SHEET	1
7-(8)	FC18-005134A	WASHER,WAVE-TILT_XPLUS;WAVE WASHER,56	1
7-(9)	FC39-005613A	FRAME-TILT_XPLUS;PC	1
7-(10)	FC30-006426A	PLATE-TILT_XPLUS;POM	1
7-(11)	Z9642306007	MACHINE SCREW(M3xL6,Zn-B,넵비머리)	3
8	FC39-006466A	FRAME-PAN_X-CORE	1
9	FC18-005953A	WASHER,WAVE-X-CORE;;,70	1
10	FC39-006468A	FRAME-MAIN_X-CORE	1
11	AM06-009075A	ASSY,PCB-XNV-C9082R PCB	1

17	AM06-009943A	ASSY,PCB-KL720 MODULE	1
18	FC28-002821A	PAD-THERMAL-38X25XT2,K=7W/M-K	1
19	FC28-002822A	PAD-THERMAL-30X15XT2,K=7W/M-K	2
20	HP07-001619A	GASKET-BOTTOM_X-CORE	1
21	FC18-004000A	SCREW-BUILT-IN_TORX20;0.7,15,NO,4	2
22	FC29-013915A	CASE-BOTTOM_X-CORE	1
23	HP06-001350	VENT-GORE_PMF100319;MEMBRANE,SCREW IN	1
24	MC06-001082A	BUSHING-CABLE FLEXIBLE;SILICON,GRAY	1
25	MC06-001042A	BUSHING-CABLE SET;SILICON,PNV-9080R	1

**CTK Co., Ltd.**

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Report No.:

CTK-2022-01713
Page(19) / (23) Pages

Attachment 2 – Parts List**Component - Plastics**

File Number: E115797

LOTTE CHEMICAL CORPORATION

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

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 746C.

Flammability	Value
Flame Rating	
1.5 mm, ALL	V-0
3.0 mm, ALL	V-0
Glow Wire Flammability Index	
1.5 mm	960 °C
3.0 mm	960 °C
Glow Wire Ignition Temperature	
1.5 mm	825 °C
3.0 mm	825 °C
Electrical	Value
Hot-wire Ignition (HWI) (1.5 mm)	PLC 3
High Amp Arc Ignition (HAI) (1.5 mm)	PLC 3
Comparative Tracking Index (CTI)	PLC 3
Dielectric Strength	32 kV/mm
Volume Resistivity	1.0E+17 ohms-cm
Thermal	Value
RTI Elec	
1.5 mm	130 °C
3.0 mm	130 °C
RTI Imp	

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CTK-2022-01713
Page(20) / (23) Pages

Attachment 2 – Parts List**Component - Plastics**

File Number: E41179

mitsubishi engineering-plastics corp

ENVIRONMENT & QUALITY ASSURANCE DEPT

SHIODOME SUMITOMO-BLDG 25TH FL

1-9-2 HIGASHI-SHINBASHI

MINATO-KU, TOKYO 105-0021 Japan

Iupilon: S-3000(&6)(f1), S-3001(&6)(f1), S-3003(&6)(f1)

Polycarbonate (PC), pellets, powder, sheets, insulating material

(&6) - Suffix optional except V, DC and UDC.

(f1) - Suitable for outdoor use with respect to exposure to Ultraviolet Light, Water Exposure and Immersion in 746C.

Flammability	Value	T
Flame Rating		
3.0 mm, ALL	HB	U
6.0 mm, ALL	HB	U
0.38 mm, ALL	V-2	U IE
1.5 mm, ALL	V-2	U IE
1.8 mm, ALL	V-2	U IE
3.0 mm, ALL	HB40	IE
6.0 mm, ALL	HB40	IE
Electrical	Value	T
Hot-wire Ignition (HWI)		U
1.5 mm	PLC 3	
1.8 mm	PLC 3	
3.0 mm	PLC 3	
6.0 mm	PLC 0	
High Amp Arc Ignition (HAI)		U
1.5 mm	PLC 0	
1.8 mm	PLC 0	
3.0 mm	PLC 0	
6.0 mm	PLC 0	
Comparative Tracking Index (CTI)	PLC 2	U
Dielectric Strength	20 kV/mm	A
High Voltage Arc Tracking Rate (HVTR)	PLC 0	U

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Report No.:

CTK-2022-01713

Page(21) / (23) Pages

Attachment 2 – Parts List**Component - Plastics**

File Number: E41179

Thermal	Value
RTI Imp	
0.38 mm	80.0 °C
1.5 mm	115 °C
1.8 mm	115 °C
3.0 mm	115 °C
6.0 mm	115 °C
RTI Str	
0.38 mm	80.0 °C
1.5 mm	125 °C
1.8 mm	125 °C
3.0 mm	125 °C
6.0 mm	125 °C
Physical	Value



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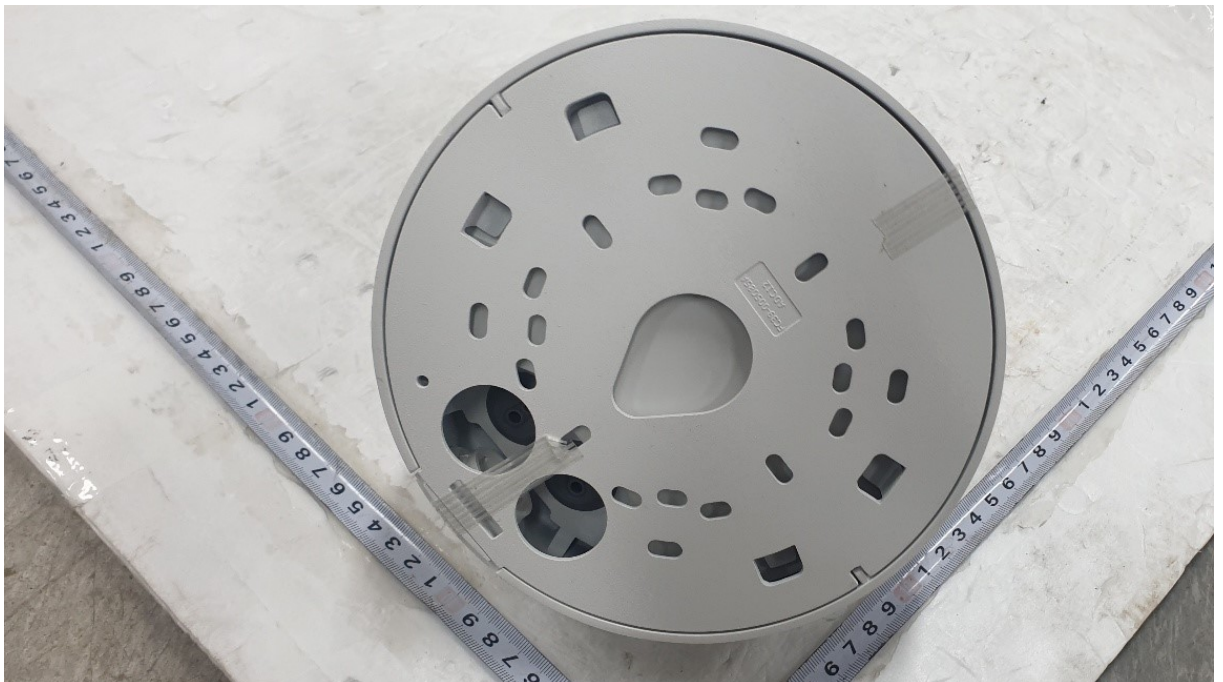
Page(22) / (23) Pages

Attachment 3 – Photographs

<Photo 1 > Test Unit



<Photo 2 > Test Unit





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Page(23) / (23) Pages

Attachment 3 – Photographs

<Photo 3 > Hose down test



<Photo 4 > Test Result

