

TEST REPORT

 CTK Co., Ltd. The Power Leader of Global Regulatory Certification	CTK Co., Ltd. (Ho-dong) 113, Yejik-ro, Cheoin-gu, Yongin-shi Gyeonggi-do KOREA, REPUBLIC OF Tel: +82-31-339-9970 Fax: +82-31-624-9501	REPORT No.: CTK-2021-02922 Page (1) / (28) 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: 2021-06-15

2. Manufacturer

- Name.....: Hanwha Techwin Co., Ltd
- Address: Lot O-2, Que Vo Industrial Zone extended area, Nam Son commune, Bac Ninh city, Bac Ninh province, Vietnam

3. Test sample / Model : NETWORK CAMERA / XNO-9083R

4. Date(s) of test : 2021-06-17 to 2021-06-24

5. Test Standard (Method) used... : NEMA 250-2014
Enclosures for Electrical Equipment (1000 Volts Maximum)

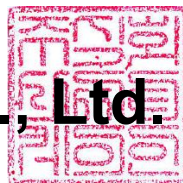
6. Results : Pass

The results shown in this test report refer only to the sample(s) tested unless otherwise stated.
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Approval	Tested by: Min-Gi Mun  (Signature)	Technical Manager: WonHyeon Choi  (Signature)
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2021-08-03

CTK Co., Ltd.



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Test item description	NETWORK CAMERA
Trade Mark	WISeNET
Manufacturer	Lot O-2, Que Vo Industrial Zone extended area, Nam Son commune, Bac Ninh city, Bac Ninh province, Vietnam
Model/Type reference	XNO-9083R
Ratings	Electrical DC 12 V $\Rightarrow$ 20.0W, 1.67 A PoE(53 V $\Rightarrow$) 22.5 W, 0.43 A Dimension : Ø 80 mm by 251.2 mm, 60 mm * 2, 40 mm * 2 90 mm, 55 mm, 45 mm * 2, 115 mm, Ø 5 mm by 15.7 mm * 3, Ø 160 mm by 502.4 mm, Ø 25 mm by 78.5 mm * 2, Ø 15 mm by 47.1 mm

List of Attachments (including a total number of pages in each attachment):
Attachment 1: 13-16 pages (Construction Diagram including installation method)
Attachment 2: 17-22 pages (Parts List)
Attachment 3: 23-28 pages (photographs)

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: XNO-9083R 정격전압: DC 12V $\Rightarrow$ 20.0W / PoE(53V $\Rightarrow$) 22.5W M/C: XNO-9083R/KDO  2021.07 S/N:Serial No. MAC ADDRESS: XX-XX-XX-XX-XX-XX 인증번호: R-R-StW-XNO9083R 상호: 한화테크윈(주) 제조사/제조국가:한화테크윈(주)/한국	         NETWORK CAMERA MODEL: XNO-9083R DC 12V $\Rightarrow$ 1.67A / PoE(53V $\Rightarrow$) 0.43A M/C: XNO-9083R/KUS Fac. ID: D  2021.07 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 



CTK Co., Ltd.

(Ho-dong) 113, Yejik-ro, Cheoin-gu, Yongin-shi
Gyeonggi-do KOREA, REPUBLIC OF
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기기명칭: NETWORK CAMERA

모델명: XNO-8083R

정격전압: DC 12V --- 20.0W /
PoE(53V ---) 22.5W

M/C: XNO-8083R/KDO



2021.07 S/N:Serial No.

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

인증번호: R-R-StW-XNO8083R

상호: 한화테크윈(주)

제조사/제조국가:한화테크윈(주)/한국



NETWORK CAMERA

MODEL: XNO-8083R

DC 12V --- 1.67A /

PoE(53V ---) 0.43A

M/C: XNO-8083R/KUS Fac. ID: D



2021.07 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



기기명칭: NETWORK CAMERA

모델명: XNO-6083R

정격전압: DC 12V --- 20.0W /
PoE(53V ---) 22.5W

M/C: XNO-6083R/KDO



2021.07 S/N:Serial No.

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

인증번호: R-R-StW-XNO6083R

상호: 한화테크윈(주)

제조사/제조국가:한화테크윈(주)/한국



NETWORK CAMERA

MODEL: XNO-6083R

DC 12V --- 1.67A /

PoE(53V ---) 0.43A

M/C: XNO-6083R/KUS Fac. ID: D



2021.07 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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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:

"(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 XNO-9083R is basic model which was tested.

Basic Model	XNO-9083R
Series model	XNO-8083R, XNO-6083R

Model differences:

The 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 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	<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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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. 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
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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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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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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NEMA 250-2014			
Clause	Requirement + Test	Result - Remark	Verdict

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(Ø 80 mm by 251.2 mm, 60 mm * 2, 40 mm * 2, 90 mm, 55 mm, 45 mm * 2, 115 mm,
 Ø 5 mm by 15.7 mm * 3, Ø 160 mm by 502.4 mm, Ø 25 mm by 78.5 mm * 2,
 Ø 15 mm by 47.1 mm)

Test Duration = 259 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

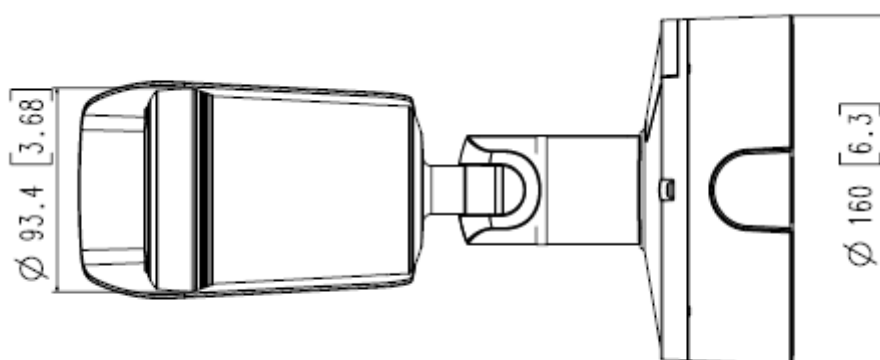
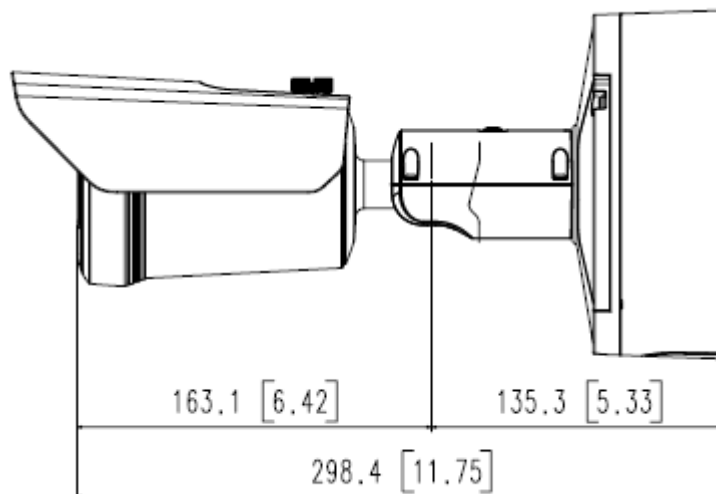
Sample No (Model)	Water Flow	Presence of water inside	Result
XNO-9083R	240 LPM	No	Pass

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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
S1-SW2	Stop Watch	0.01 s	CASIO/ NONE	2021-03-19	2023-03-03
C-S1-D09	Steel Measuring Tape	5 m	KOMELON/KMC-74N	2021-06-23	2023-06-18
S3-IP23	Water flow meter	250LPM	Nuri tech/ Z-6504	2021-07-08	2022-06-30
C-S1-D02	DIGITAL VERNIER CALIPER	150 mm	MITUTOYO/150 mm	2020-09-19	2021-08-24

Attachment 1 – Construction Diagram and installation method





CTK Co., Ltd.

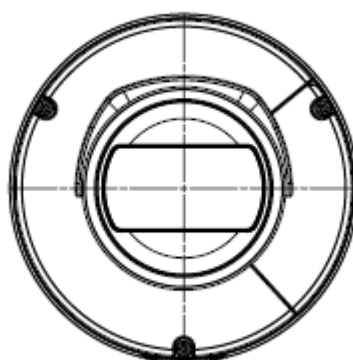
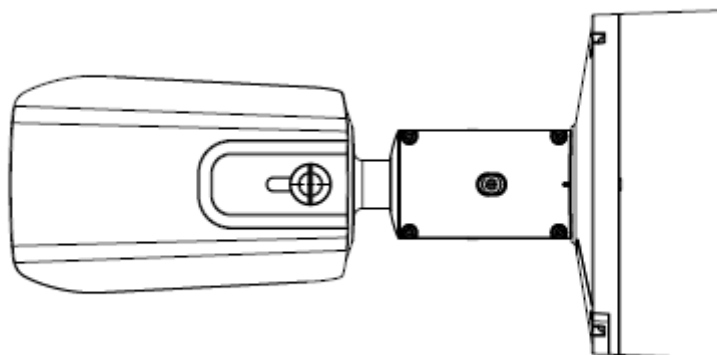
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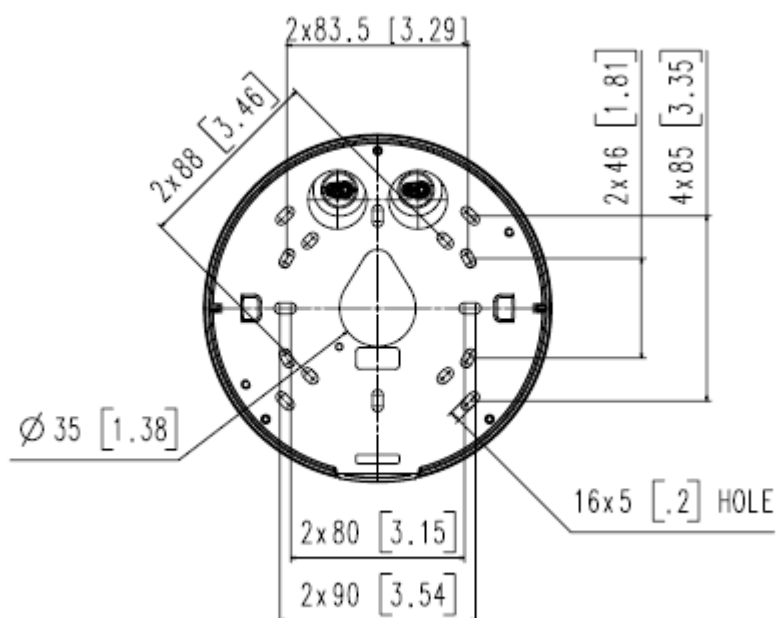
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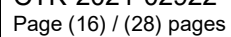
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Attachment 1 – Construction Diagram and installation method



Attachment 1 – Construction Diagram and installation method







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Attachment 2 – Parts List

NO	품번	자재내역	수량	NOTE
1	AM06-010114A	ASSY,PCB-XNO-6083R-IR LED	1	
2	AM08-006849A	ASSY-LENS-XNO-9083R	1	
3	FC29-014160A	HOLDER-LENS-XNO9083R;PC	1	
4	EP07-001630A	SINK,HEAT-LED-XNO9083R;ADC12	1	
5	FC28-002128A	PAD-THERMAL, 12X8;GP-1(350),1.0	4	
6	Z9761208007	TAPPING SCREW(M2xL8,Zn-B, PAN HEAD)	4	
7	Z6003019801A	SCREW-TAPTTYPE;6003-001440,BH,+,B,M2,L4,	2	
8	FC29-014148A	CASE-TOP-BBOX-XNO9083R;ADC12	1	
9	FC28-003393A	DOOR-BACKBOX-XNO9083R;ADC12	1	
10	HP07-001651A	GASKET-DOOR-XNO9083R;SILICON	1	
11	FC29-014147A	HOLDER-PCB-SDCARD-XNO9083R	1	
12	FC18-004000A	SCREW-BUILT-IN TORX20;0.7,15,NO.4	3	
13	Z6001055101A	SCREW-MACHINE;6001-001707,BH,+,M2,L4,ZP	2	
14	Z9642306007	MACHINE SCREW(M3xL6,Zn-B,넛비머리)	1	
15	RM01-005528A	WIRE,METALIC-SAFETY XNO-9082R;SUS304	1	
16	FC29-014149A	CASE-BODY-XNO9083R	1	
17	FC28-003367A	LOCKER-FRONT BRACKET XNO-C9083R;WHITE SP	1	
18	FC29-014038A	PUSHER-BRACKET XNO-C9083R;ADC12,WHITE	1	
19	FC28-003369A	LOCKER-REAR XNO-C9083R;ADC12,CHROMATE	1	
20	FC29-014053A	STOPPER,PIN-XNO-9083R;SUS	2	
21	FC38-001279A	SPRING,COM-BRACKET XNO-C9083R;SWPB	1	
22	HP13-001217A	TUBE,ETC-CABLE BRACKET XNO-C9083R;-,-,RU	1	
23	FC15-008257A	COVER-BUSHING-MD-XNO-C9083R;PC,MOLD	1	
24	FC15-008240A	COVER-BUSHING XNO-C9083R;ADC12	1	
25	Z9642206007	MACHINE SCREW(M2xL6,Zn-B,BIND HEAD)	6	
26	FC29-014039A	CASE-TOP BRACKET XNO-C9083R;ADC12,WHITE	1	
27	FC29-014048A	CASE-BOTTOM BRACKET XNO-C9083R;ADC12,WHI	1	
28	FC18-001418A	SCREW-SPECIAL TORX10 M3 L8;TORX,BH,FP,M3	4	
29	EP02-004965A	HARNESS-XNO-9083R;WIRE,10P,425MM	1	
30	EP02-004960A	HARNESS-XNO-9083R;MCX,50P,450MM	1	
31	FC18-006033A	SCREW-TORX-MACHINE M4XL14 BUILT-IN;0.7,1	1	
32	FC15-008337A	COVER-PCB-MAIN-XNO9083R;BLACK	1	
33	FC28-003375A	PAD-THERMAL-45X30XT2,K=7W/M-K	1	
34	FC28-003314A	PAD-THERMAL 30X27XT2,K=7W/M-K	1	
35	Z9642308001	MACHINE SCREW(M3XL8,Ni,PAN HEAD)	3	
36	Z6003019801A	SCREW-TAPTTYPE;6003-001440,BH,+,B,M2,L4,	2	
37	AM06-010116A	ASSY,PCB-XNO-9083R SD	1	
38	EP02-004483A	HARNESS-PNM-9030V;MCX,BLACK,30P-30P,210M	1	
39	AM07-015658A	ASSY-AI-XNV-9083R,MAIN+KL720	1	
40	AM06-009924A	ASSY,PCB-XNV-9083R MAIN	1	
41	AM06-009943A	ASSY,PCB-KL720 MODULE	1	
42	FC28-003379A	PAD-THERMAL-25X18XT4,K=7W/M-K	1	
43	HP07-001636A	GASKET-WINDOW XNO-C9083R;SILICON	1	
44	HP07-001640A	GASKET-CDS SENSOR XNO-C9083R;EPDM	1	
45	AM07-015338A	ASSY-FRONT-WINDOW XNO-C9083R	1	
46	FC15-008336A	COVER-FRONT-XNO9083R;AL	1	
47	Z9642206007	MACHINE SCREW(M2xL6,Zn-B,BIND HEAD)	4	
48	FC36-001442A	SHEET-PROTECT WINDOW;3M 4187C,D82,T0.1	1	
49	FC29-014150A	CASE-BOTTOM-BBOX-XNO9083R;ADC12	1	
50	HP07-001652A	GASKET-CASE-BBOX-XNO9083R;SILICON	1	
51	MC06-001042A	BUSHING-CABLE SET;SILICON,PNV-9080R	2	
52	FC09-011881A	BRACKET-WIRE-XNO-9082R;SUS304,1.2	1	
53	HP06-001351	VENT-GORE-PMF100586-WHT;MEMBRANE,SCREW I	1	
54	Z6001053501A	SCREW-MACHINE;6001-001476,BH,+,M3,L6,Ni	1	
55	FC18-004930A	SCREW-MACHINE-BUILT-IN TORX20;0.7,28,NO,	3	
56	FC09-012685A	BRACKET-MOUNT-XNO9083R;ADC12	1	
57	FC15-006682A	COVER-BOT-XNV-6081Z;ASA	1	

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CTK-2021-02922

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

File Number: E115797

LOTTE CHEMICAL CORPORATION

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

INFINO: QC-122(+)(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
1.6 mm, ALL	V-2	IEC 60695-11-10, -20
3.2 mm, ALL	V-2	
Glow Wire Flammability Index		IEC 60695-2-12
1.6 mm	850 °C	
3.2 mm	850 °C	
Glow Wire Ignition Temperature		IEC 60695-2-13
1.6 mm	900 °C	
3.2 mm	875 °C	
Electrical	Value	Test Method
Hot-wire Ignition (HWI)		UL 746
1.6 mm	PLC 3	
3.2 mm	PLC 2	
High Amp Arc Ignition (HAI)		UL 746
1.6 mm	PLC 0	
3.2 mm	PLC 0	
Comparative Tracking Index (CTI)	PLC 0	UL 746
High Voltage Arc Tracking Rate (HVTR)	PLC 2	UL 746
Volume Resistivity	1.0E+16 ohms-cm	ASTM D257 IEC 60093
Arc Resistance	PLC 5	ASTM D495
Thermal	Value	Test Method
RTI Elec		UL 746
1.6 mm	130 °C	
3.2 mm	130 °C	
RTI Imp		UL 746
1.6 mm	125 °C	
3.2 mm	130 °C	
RTI Str		UL 746
1.6 mm	125 °C	
3.2 mm	130 °C	
Physical	Value	Test Method
Outdoor Suitability	f1	UL 746C

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Form Number: E115797-103485410

Report Date: 2008-10-17

Last Revised: 2018-12-11

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.

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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 accordance with UL 746C.

Flammability	Value	Test Method
Flame Rating		UL 94
1.5 mm, ALL	V-0	IEC 60695-11-10, -20
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 746
High Amp Arc Ignition (HAI) (1.5 mm)	PLC 3	UL 746
Comparative Tracking Index (CTI)	PLC 3	UL 746
Dielectric Strength	32 kV/mm	ASTM D149 IEC 60243-1
Volume Resistivity	1.0E+17 ohms-cm	ASTM D257 IEC 60093
Thermal	Value	Test Method
RTI Elec		UL 746
1.5 mm	130 °C	
3.0 mm	130 °C	
RTI Imp		UL 746
1.5 mm	130 °C	
3.0 mm	130 °C	
RTI Str		UL 746
1.5 mm	130 °C	
3.0 mm	130 °C	
Ball Pressure Test (130°C, 3.00 mm)	Pass	IEC 60695-10-2
Physical	Value	Test Method
Outdoor Suitability	f1	UL 746C

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Attachment 2 – Parts List

2021. 3. 23.

PC-6715VT(f1)(a) | UL Product iQ

UL Product iQ™



PC-6715VT(f1)(a)

File Number: E56070

Yellow Card® 

COMPANY

CHI MEI CORPORATION

No 398 Sec 1 Zhongzheng Rd
Rende District
Tainan City, 717010 Taiwan

MODEL INFO

WONDERLITE: PC-6715VT(f1)(a)

Polycarbonate (PC), furnished as pellets

(a) – Ball pressure temperature is in accordance with IEC 60695-10-2 Method B.

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

FLAMMABILITY PROPERTIES	VALUE	TEST METHOD
Flammability		ANSI/UL 94
1.5 mm, Color: ALL	V-0	
3.0 mm, Color: ALL	5VA V-0	
ISO/IEC FLAMMABILITY PROPERTIES	VALUE	TEST METHOD
Flammability		IEC 60695-11-10
1.5 mm, Color: ALL	V-0	
3.0 mm, Color: ALL	V-0	
Flammability (3.0 mm, Color: ALL)	5VA	IEC 60695-11-20
Glow Wire Ignition Temperature (GWIT)		IEC 60695-2-13
1.5 mm	825 °C	
3.0 mm	850 °C	
Glow Wire Flammability Index (GWFI)		IEC 60695-2-12

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Attachment 2 – Parts List

2021. 3. 23.

PC-6715VT(f1)(a) | UL Product IQ

1.5 mm	960 °C	
3.0 mm	960 °C	
ELECTRICAL PROPERTIES	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 1	
3.0 mm	PLC 1	
Comparative Tracking Index (CTI)	PLC 2	UL 746
Dielectric Strength	30 kV/mm	ASTM D149
High Voltage Arc Tracking Rate (HVTR)	PLC 2	
Volume Resistivity	1.0E+14 ohms-cm	ASTM D257/IEC 60093
High Voltage, Low Current Arc Resistance	PLC 6	
THERMAL PROPERTIES	VALUE	TEST METHOD
Relative Thermal Index - Electrical Strength		UL 746B
1.5 mm	130 °C	
3.0 mm	130 °C	
Relative Thermal Index - Mechanical Impact		UL 746B
1.5 mm	115 °C	
3.0 mm	120 °C	
Relative Thermal Index - Mechanical Strength		UL 746B
1.5 mm	125 °C	
3.0 mm	130 °C	
Ball Pressure Temperature	135 °C	
PHYSICAL PROPERTIES	VALUE	TEST METHOD
Dimensional Stability	0.0 %	ASTM D1042/ISO 2796

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Attachment 2 – Parts List

2021. 3. 23.

PC-6715VT(f1)(a) | UL Product IQ

UV Exposure & Water Immersion

f1

UL 746C

Report Date: 2001-09-25

Revision Date: 2019-10-23

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Attachment 3 – Photographs

<Photo 1 > Test Unit



<Photo 2 >





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Attachment 3 – Photographs

<Photo 3> Hose down test



Attachment 3 – Photographs

<Photo 4 > Test Result



<Photo 5 >



Attachment 3 – Photographs

<Photo 6 > Test Result



<Photo 7 >



Attachment 3 – Photographs

<Photo 8 > Test Result



<Photo 9 >



Attachment 3 – Photographs

<Photo 10 > Test Result



<Photo 11 >

