

TEST REPORT

 CTK Co., Ltd. The Prime Leader of Global Regulatory Certification	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-2020-00565 Page(1) / (24) Pages	
---	---	--	--

1. Applicant

- Name: Hanwha Techwin Co., Ltd.
- Address: 6 Pangyo-ro 319Beon-gil, Bundang-gu, Seongnam-si, Gyeonggi-do, 13488 KOREA
- Date of Receipt: 2019-12-05

2. Manufacturer

- Name: HANWHA TECHWIN (TIANJIN) CO.,LTD.
- Address: No.11 Weilliu Rd, Micro-Electronic Industrial Park, TEDA, Tianjin, 300385, People's Republic of China

3. Test sample / Model: Network Camera / XNO-L6080RA*(* is Blank or N or P : P=PAL, N=NTSC)

4. Date(s) of test: 2019-12-13

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.
This report shall not be reproduced except in full without the written approval of CTK

Approval	Tested by: WonHyeon Choi  (Signature)	Technical Manager: YenHwang Jung  (Signature)
----------	---	---

CTK Co., Ltd.



2020-02-06

 CTK Co., Ltd. The Prime Leader of Global Regulatory Certification	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-2020-00565 Page(2) / (24) Pages	
---	---	--	--

Test item description :	Network Camera
Trade Mark :	WISeNET
Manufacturer	1) HANWHA TECHWIN (TIANJIN) CO.,LTD. No.11 Weiliu Rd, Micro-Electronic Industrial Park, TEDA, Tianjin, 300385, People's Republic of China 2) D-TECH CO.,LTD. 173-25, Saneop-ro, Gwonseon-gu, Suwon-si, Gyeonggi- do, Korea (Suwon Industrial Complex) 3) 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	XNO-L6080RA
Ratings	Electrical : PoE
	Dimension : 85 mm by 267.03 mm, Ø 70 mm by 219.91 mm, Ø 5.5 mm by 172.78 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: 14-20 pages (Parts List) Attachment 3: 21-24 pages (photographs)
--

Summary of testing:	
Tests performed (name of test and test clause): Clause 5.7(Hose Down Test)	Testing location: CTK Co., Ltd. (Ho-Dong) 113, Yejik-ro Cheoin-gu, Yongin-shi Gyeonggi-do KOREA, REPUBLIC OF

Copy of marking plate: The artwork above may be only a draft. PT03-002454B
--

 CTK Co., Ltd. The Prime Leader of Global Regulatory Certification	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-2020-00565 Page(3) / (24) Pages	
---	--	--	--

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 (TIANJIN) CO.,LTD. No.11 Weiliu Rd, Micro-Electronic Industrial Park, TEDA, Tianjin, 300385, People's Republic of China 2. D-TECH CO.,LTD. 173-25, Saneop-ro, Gwonseon-gu, Suwon-si, Gyeonggi-do, Korea (Suwon Industrial Complex) 3. 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 General product information: Applied NEMA Rating : 4X Model XNO-L6080RA is basic model which was tested. 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

 CTK Co., Ltd. The Prime Leader of Global Regulatory Certification	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-2019-XXXXX Page(6) / (24) Pages	
---	---	--	--

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	No Polymeric Materials Part.. (See the attachment 2)	N/A
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	
----------	----------------	--

4.1	Type Designations	"Type 4X" Marking is declared to be on the product before on the market	P
-----	-------------------	---	---

 CTK Co., Ltd. The Prime Leader of Global Regulatory Certification	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-2019-XXXXXX Page(7) / (24) Pages	
---	---	---	--

NEMA 250-2014			
Clause	Requirement + Test	Result - Remark	Verdict
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
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

 CTK Co., Ltd. The Prime Leader of Global Regulatory Certification	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-2019-XXXXX Page(8) / (24) Pages	
---	---	--	--

NEMA 250-2014			
Clause	Requirement + Test	Result - Remark	Verdict
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

 CTK Co., Ltd. The Prime Leader of Global Regulatory Certification	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-2019-XXXXX Page(9) / (24) Pages	
---	---	--	--

NEMA 250-2014			
Clause	Requirement + Test	Result - Remark	Verdict

Test Information

	Hose Down Test : Clause 5.7	P
--	------------------------------------	----------

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 85 mm by 267.03 mm, Ø 70 mm by 219.91 mm, Ø 5.5 mm by 172.78 mm)

Test Duration = 110 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-L6080RA	240 LPM	No	Pass

 CTK Co., Ltd. The Prime Leader of Global Regulatory Certification	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-2019-XXXXX Page(10) / (24) Pages	
---	---	---	--

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	2019-04-15	2021-04-03
S1-D09-1	Steel Measuring Tape	5.5 m	KOMELON/ 5.5 m	2019-03-20	2021-02-25
S3-IP20	Water flow meter	250LPM	Nuri tech/Z-4007	2019-07-08	2020-07-04
S1-D03	DIGITAL VERNIER CALIPER	200 mm	MITUTOYO/ 200 mm	2019-04-09	2020-04-03



CTK Co., Ltd.

(Ho-dong) 113, Yejik-ro, Cheoin-gu, Yongin-si,
Gyeonggi-do, KOREA, REPUBLIC OF

Tel: +82-31-339-9970

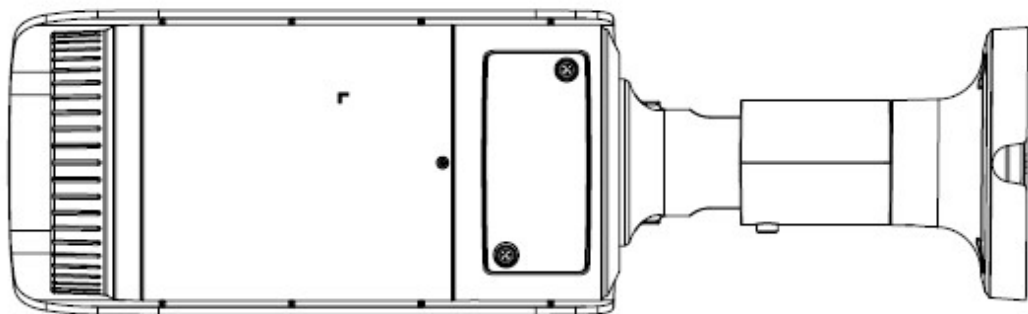
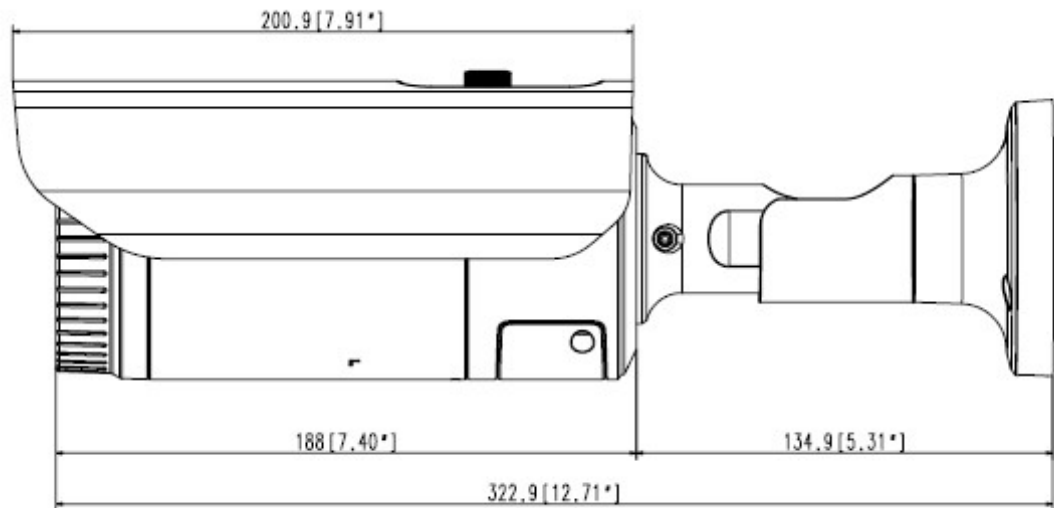
Fax: +82-31-624-9501

Report No.:

CTK-2019-XXXXX

Page(11) / (24) Pages

Attachment 1– Construction Diagram including installation method





CTK Co., Ltd.
The Prime Leader of Global Regulatory Certification

CTK Co., Ltd.

(Ho-dong) 113, Yejik-ro, Cheoin-gu, Yongin-si,
Gyeonggi-do, KOREA, REPUBLIC OF

Tel: +82-31-339-9970

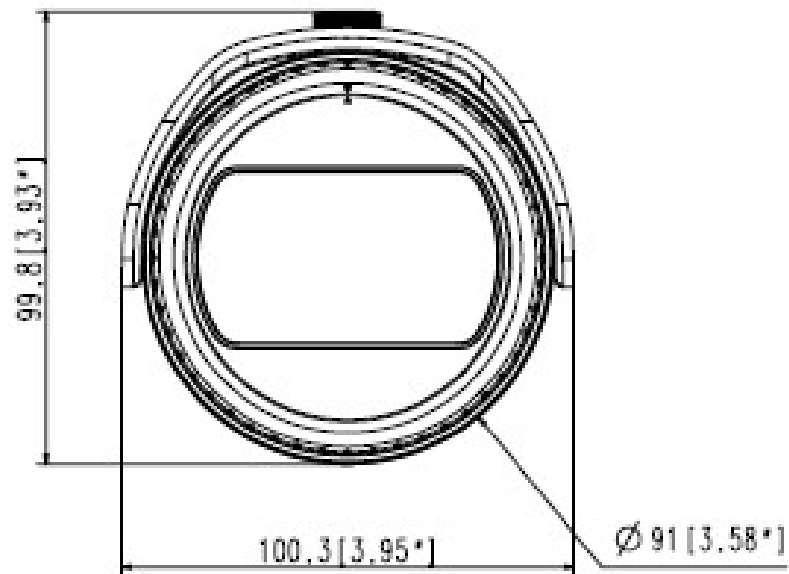
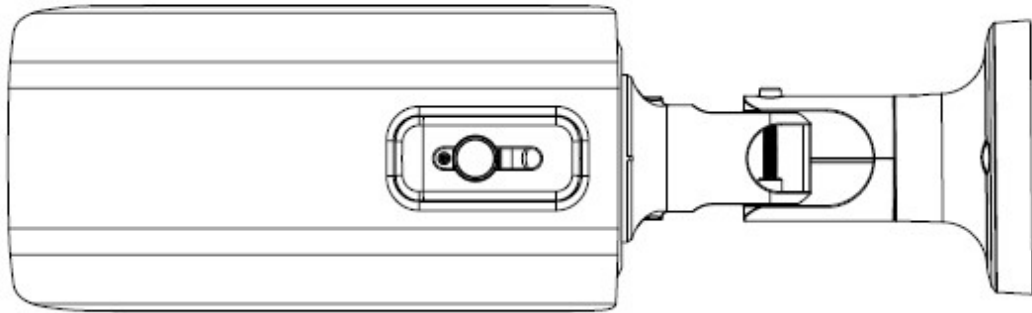
Fax: +82-31-624-9501

Report No.:

CTK-2019-XXXXX

Page(12) / (24) Pages

Attachment 1– Construction Diagram including installation method





CTK Co., Ltd.

CTK Co., Ltd.

(Ho-dong) 113, Yejik-ro, Cheoin-gu, Yongin-si,
Gyeonggi-do, KOREA, REPUBLIC OF

Tel: +82-31-339-9970

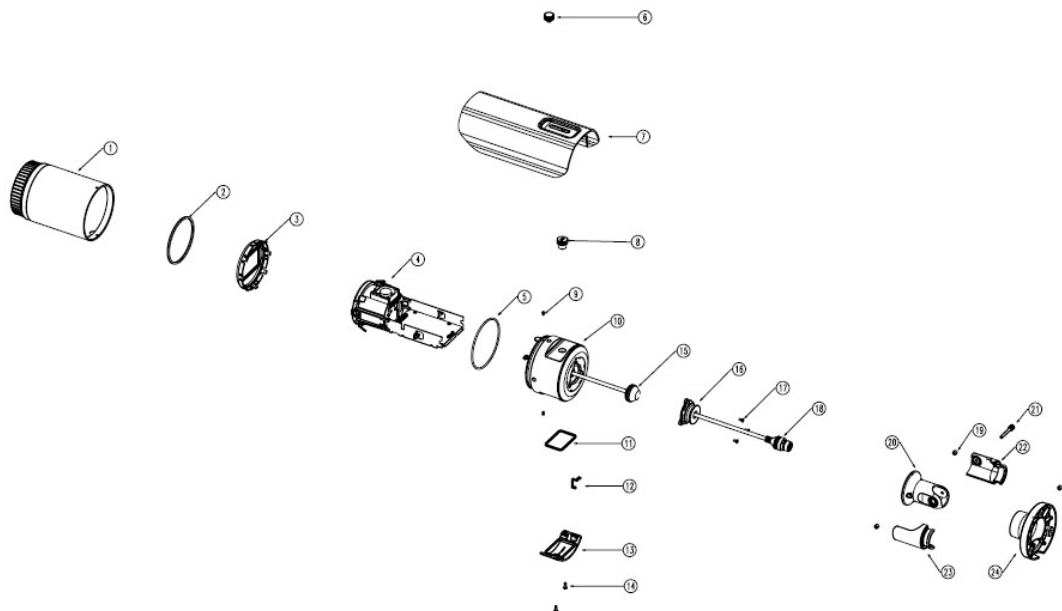
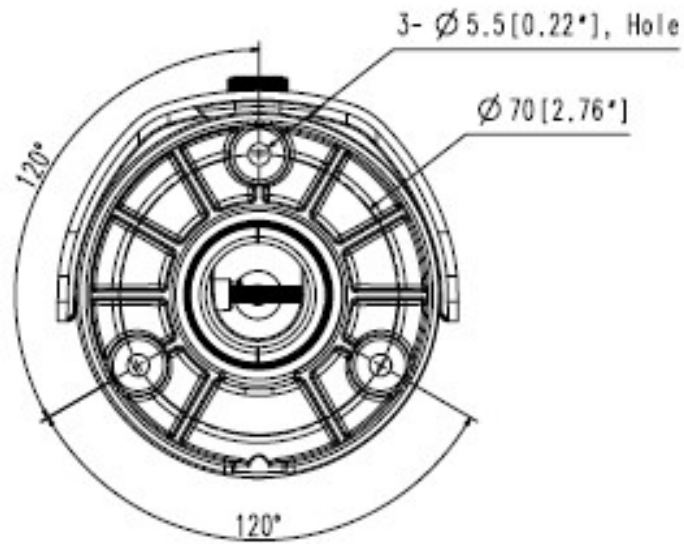
Fax: +82-31-624-9501

Report No.:

CTK-2019-XXXXX

Page(13) / (24) Pages

Attachment 1– Construction Diagram including installation method



 CTK Co., Ltd. The Prime Leader of Global Regulatory Certification	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-2019-XXXXX Page(14) / (24) Pages	
---	--	---	--

Attachment 2 - Parts List

No.	Code	Name	Q'ty	Material	
1	FC29-008670A	CASE-BODY-XNO6080R;ADC	1	METAL	AL
2	HP07-001176A	GASKET-WINDOW ORING-XNO6080R;SILICON RUB	1	SILICON RUBBER	SILICON RUBBER
3	AM07-008594C	ASSY-FRONT-WINDOW, 0.3T, XNO-L6080R	1	PLASTIC	PC
4	AM07-012474A	ASSY,HALF-XNO-L6080RA-KME	1	INTERNAL PARTS	-
5	FC18-004615A	O-RING-D1-78.0_D2-2.2	1	SILICON RUBBER	SILICON RUBBER
6	FC28-002278B	KNOB-KNOB WITH SHEET	1	METAL	AL
7	FC28-002444A	SHIELD-SUN-XNO6080R;PC,DARK GRAY	1	PLASTIC	PC
8	HP06-001187	VENT-GORE-PMF100585;MEMBRANE,SCREW IN,PM	1	ETC	-
9	FC18-001043A	SCREW-MACHINE;+,CH,M2,0.4,4,SUS(XM-7)	2	METAL	STAINLESS STEEL
10	FC15-006295A	COVER-REAR,XNO-L6080R;ADC12,DIECASTING	1	METAL	AL
11	HP07-001326A	GASKET-INTERFACE,XNO-L6080R;SILICON RUBB	1	SILICON RUBBER	SILICON RUBBER
12	FC10-001139A	RUBBER-STRING-COVER,XNO-L6080R;SILICON	1	SILICON RUBBER	SILICON RUBBER
13	FC15-006296A	COVER-INTERFACE,XNO-L6080R;ADC12,DIECAST	1	METAL	AL
14	FC18-004718A	SCREW-MACHINE,BUILT-IN;PH,+,FP,M3,P0.5,L	2	METAL	STEEL
15	HP07-001325A	GASKET-CABLE,XNO-L6080R;SILICON RUBBER	1	SILICON RUBBER	SILICON RUBBER
16	FC29-002456B	GUIDE-PANNING-SNO6084R;ALDC	1	METAL	AL
17	Z6003007801A	MACHINE SCREW(FLAT HEAD/접시,M3xL6 Ni)	3	METAL	STEEL
18	EP02-004387A	CABLE-XNO-L6080R;M,8P,-,420MM,BLACK	1	CABLE	-
19	Z6004041101A	SETSCREW_SRN_M6P1L6	3	METAL	STAINLESS STEEL
20	FC39-001271C	BODY-PANNING-XNO6085R;821KA-ZJS1200	1	METAL	AL
21	Z6011000601A	HEXAGON_REC_M4L30	1	METAL	STAINLESS STEEL
22	FC39-001269B	BODY-TILT RIGHT-SNO6084R;821KA-ZJS-1200	1	METAL	AL
23	FC39-001270B	BODY-TILT LEFT-SNO6084R;821KA-ZJS-1200	1	METAL	AL
24	FC05-000317B	BASE-WALL MOUNT-SNO6084R;821KA-ZJS-1200	1	METAL	AL

 CTK Co., Ltd. The Prime Leader of Global Regulatory Certification	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-2019-XXXXX Page(15) / (24) Pages	
---	--	---	--

Attachment 2 - Parts List

Component - Plastics

E207780

SABIC INNOVATIVE PLASTICS JAPAN L L C

PACIFIC GRADES - RESIN, 2-2 KINUGAOKA, MOKA-SHI TOCHIGI-KEN 321-4392 JP

925U(f1)(GG), 945U(f1)(GG), 955U(f1)(GG)

Polycarbonate (PC), "Lexan", furnished as pellets

Color	Min Thk (mm)	Flame Class	HWI	HAI	RTI Elec	RTI Imp	RTI Str
AO	1.5	V-0	3	3	130	115	125
	3.0	V-0	2	2	130	120	130
	6.0	V-0	1	2	130	120	130

Comparative Tracking Index (CTI): 3

Dielectric Strength (kV/mm): 24

High-Voltage Arc Tracking Rate (HVTR): 3

Dimensional Stability (%): 0.1

Inclined Plane Tracking (IPT): -

Volume Resistivity (10⁸ ohm-cm) : 15

High Volt, Low Current Arc Resis (D495): 7

(GG) - Denotes a global grade formulation previously in File E161759.

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

NOTE - Material designation may be followed by a color nomenclature consisting of either an alpha/numeric or numeric/alpha combination.

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: 2001-04-06

Last Revised: 2007-01-31

© 2013 UL LLC





Component - Plastics
File Number: E254551

SICHUAN LONGHUA FILM CO LTD
YONGXING INDUSTRIAL DEVELOPMENT ZONE



PC-1811A, PC-6(a)(c)

Polycarbonate (PC), sheets, flame retarded

- (a) - Represents a two digit suffix [00-99] inclusive, indicating the textures of both sides of the film/sheet.
(c) - May be replaced by a two digit suffix [00-99] inclusive, except 35, indicating the textures of both sides of the film/sheet.

Flammability	Value	Test Method
Flame Rating		
0.3 to 2.0 mm, NC	V-2	UL 94 IEC 60695-11-10, -20
0.050 to 0.249 mm, NC	VTM-2	UL 94 ISO 9773
Thermal	Value	Test Method
RTI Elec		UL 746
0.050 to 0.249 mm	80.0 °C	
0.3 to 2.0 mm	80.0 °C	
RTI Imp		UL 746
0.050 to 0.249 mm	80.0 °C	
0.3 to 2.0 mm	80.0 °C	
RTI Str		UL 746
0.050 to 0.249 mm	80.0 °C	
0.3 to 2.0 mm	80.0 °C	

 CTK Co., Ltd. The Prime Leader of Global Regulatory Certification	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-2019-XXXXX Page(16) / (24) Pages	
---	--	---	--

Attachment 2 - Parts List



Test Report

No.: CQTC1004381/CHEM

Date: December 27, 2010 Page 1 of 15

MIANYANG LONGHUA FILM CO., LTD
YONGXING INDUSTRIAL DEVELOPMENT ZONE, MIANYANG, SICHUAN PROVINCE, P.R.CHINA

The following sample(s) was/were submitted and identified on behalf of the applicant as: LonghuaPC-811、835 (G/F/S)、1811 (T/K3)、832 (F/M)、813 (F)、815、811 (S/M)、836、815-01、835-B、801-4、818-B、828、1811-ST、811ST、1811HC

SGS Job No. : 12893336
 SGS Internal Reference No. : 10.4
 Date of Sample Received : December 16, 2010
 Testing Period : December 16, 2010 to December 21, 2010
 Test Requested : Selected tests as requested by client.
 Test Method (Reference) : Please refer to next pages.
 Test Results : Please refer to next pages.
 Conclusion : A: Based on the performed tests on submitted samples, the results **comply with** the RoHS Directive 2002/95/EC and its subsequent amendments.

Signed for and on behalf of
SGS-CSTC Ltd.



Rain Qiao
Approved Signatory



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-2019-XXXXX

Page(17) / (24) Pages

Attachment 2 - Parts List

INFINO

Grade

NH-1035

iq.ul.com

Component - Plastics [\[guide info\]](#)

E115797

Lotte Advanced Materials Co Ltd

56 Gosan-ro, Ulsang-si Gyeonggi-do 437-711 KR

NH-1035(+)

Polycarbonate (PC), "INFINO", furnished as pellets

	Min Thk	Flame			RTI	RTI	RTI
Color	(mm)	Class	HWI	HAI	Elec	Imp	Str
ALL	1.5	V-0	-	-	90	90	90
	2.0-2.7	V-0, 5VB	-	-	80	80	80

Comparative Tracking Index (CTI): -

Dielectric Strength (kV/mm): -

High-Voltage Arc Tracking Rate (HVTR): -

Dimensional Stability (%): -

Inclined Plane Tracking (IPT): -

Volume Resistivity (10⁹ ohm-cm): -

High Volt, Low Current Arc Resis (D495): -

(+) - May be replaced by one, two, or three numbers and/or letter(s)

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: 1996-03-24

Last Revised: 2008-02-15

© 2016 UL LLC



IEC and ISO Test Methods

Test Name	Test Method	Units	Thk (mm)	Value
Flammability	IEC 60695-11-10, IEC 60695-11-20	Class (color)	1.5	V-0 (ALL)
			2.0-2.7	V-0, 5VB (ALL)
Glow-Wire Flammability (GWFI)	IEC 60695-2-12	C	-	-
Glow-Wire Ignition (GWIT)	IEC 60695-2-13	C	-	-
IEC Comparative Tracking Index	IEC 60112	Volts (Max)	-	-
IEC Ball Pressure	IEC 60695-10-2	C	-	-
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 179-2	kJ/m ²	-	-

Copyright © 2016 by Lotte Advanced Materials Co., Ltd. All rights reserved.

COPYRIGHT © 2016 by LOTTE ADVANCED MATERIALS CO., LTD. ALL RIGHTS RESERVED.

Component - Plastics

guide info

E121254

SAMYANG CORPORATION

407 3-Ga Palbok-Dong, Cheonju Cheonbuk 560-200 KR

3025G-(y)

Polycarbonate (PC) "TRIREX", furnished as pellets

Color	Min Thk (mm)	Flame Class	HWI	HAI	RTI	RTI	RTI
ALL	1.5	V-0	2	0	130	125	130
	3.0	V-0	2	0	130	125	130
	6.0	V-0	1	0	130	125	130

Comparative Tracking Index (CTI): 3

Dielectric Strength (kV/mm): 31

High-Voltage Arc Tracking Rate (HVTR): 3

Dimensional Stability (%): 0

Increased Plane Tracking (IPT):

Volume Resistivity (10⁹ ohm-cm): 15

High Volt. Low Current Arc Resis (D495): 7

(y) - Represents any number 10-19 incl.

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: 1990-05-22

Last Revised: 2003-10-24

© 2017 UL LLC

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)
			6.0	V-0 (ALL)
Glow-Wire Flammability (GWFI)	IEC 60695-2-12	°C	-	-
Glow-Wire Ignition (GWIT)	IEC 60695-2-13	°C	-	-
IEC Comparative Tracking Index	IEC 60112	Volts (Max)	-	-
IEC Ball Pressure	IEC 60695-10-2	°C	-	-
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 179-2	kJ/m ²	-	-



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-2019-XXXXX

Page(18) / (24) Pages

Attachment 2 - Parts List

INFINO

Grade

SC-1220UR

iq.ul.com

Component - Plastics [\[guide info\]](#)

E115797

Lotte Advanced Materials Co Ltd

56 Gosan-ro, Uiwong-si Gyeonggi-do 437-711 KR

SC-122(+)

Polycarbonate (PC), "INFINO", furnished as pellets

	Min Thk	Flame			RTI	RTI	RTI
Color	(mm)	Class	HWI	HAI	Elec	Imp	Str
ALL	0.75	V-2	-	-	80	80	80
	1.5	V-2	-	-	80	80	80
	2.5	V-2	-	-	80	80	80
	3.0	V-2	-	-	80	80	80
NC	3.2	V-2	-	-	80	80	80

Comparative Tracking Index (CTI): -

Inclined Plane Tracking (IPT): -

Dielectric Strength (kV/mm): -

Volume Resistivity (10⁸ ohm-cm): -

High-Voltage Arc Tracking Rate (HVTR): -

High Volt, Low Current Arc Resis (D495): -

Dimensional Stability (%): -

(+) - May be replaced by one, two, or three numbers and/or letter(s)

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: 2016-04-18

© 2016 UL LLC



IEC and ISO Test Methods

Test Name	Test Method	Units	Thk (mm)	Value
Flammability	IEC 60695-11-10	Class (color)	0.75	V-2 (ALL)
			1.5	V-2 (ALL)
			2.5	V-2 (ALL)
			3.0	V-2 (ALL)
			3.2	V-2 (NC)
Glow-Wire Flammability (GWFI)	IEC 60695-2-12	C	1.5	900
			2.5	925
			3.2	925
Glow-Wire Ignition (GWIT)	IEC 60695-2-13	C	1.5	800
			2.5	825
			3.2	850
IEC Comparative Tracking Index	IEC 60112	Volts (Max)	-	-
IEC Ball Pressure	IEC 60695-10-2	C	-	-
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 179-2	kJ/m ²	-	-

COPYRIGHT © 2016 by LOTTE ADVANCED MATERIALS CO., LTD. ALL RIGHTS RESERVED.



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-2019-XXXXX

Page(19) / (24) Pages

Attachment 2 - Parts List

INFINO

Grade

SI-3109GL

iq.ul.com

Component - Plastics

[guide info]

E115797

Lotte Advanced Materials Co Ltd

56 Gosan-ro, Ulsang-si Gyeonggi-do 437-711 KR

SI-3109(+)

Polycarbonate (PC), "INFINO", furnished as pellets

Color	Min Thk (mm)	Flame Class	HWI	HAI	RTI Elec	RTI Imp	RTI Str
ALL	0.8	V-2	3	3	80	80	80

Comparative Tracking Index (CTI): -

Dielectric Strength (kV/mm): -

High-Voltage Arc Tracking Rate (HVTR): -

Dimensional Stability (%): -

Inclined Plane Tracking (IPT): -

Volume Resistivity (10⁸ ohm-cm): -

High Volt, Low Current Arc Resis (D495): -

(+) - May be replaced by one, two, or three numbers and/or letter(s)

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: 2000-06-09

Last Revised: 2016-01-13

© 2016 UL LLC



IEC and ISO Test Methods

Test Name	Test Method	Units	Thk (mm)	Value
Flammability	IEC 60695-11-10	Class (color)	0.8	V-2 (ALL)
Glow-Wire Flammability (GWI)	IEC 60695-2-12	C	-	-
Glow-Wire Ignition (GWI)	IEC 60695-2-13	C	-	-
IEC Comparative Tracking Index	IEC 60112	Volts (Max)	-	-
IEC Ball Pressure	IEC 60695-10-2	C	-	-
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 179-2	kJ/m ²	-	-

COPYRIGHT © 2016 by LOTTE ADVANCED MATERIALS CO., LTD. ALL RIGHTS RESERVED.



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-2019-XXXXX

Page(20) / (24) Pages

Attachment 2 - Parts List

14-9-3

QMFZ2.E231325 - Plastics - Component



ONLINE CERTIFICATIONS DIRECTORY

QMFZ2.E231325 Plastics - Component

For enhanced search functionality, please visit UL's [iQ™ Family of Databases](#).
Click on a product designation for complete information.

[Page Bottom](#)

Plastics - Component

[See General Information for Plastics - Component](#)

JIANGSU HONGDA NEW MATERIAL CO LTD
MINGZHU SQUARE
YANGZHONG, JIANGSU 212200 CHINA

E231325

		Min.		H	H	RTI		H	D	
		Thk	Flame	W	A	Elec	Mech	T	9	T
Material Dsg	Color	mm	Class	I	I		Imp	Str	R	5
Silicone Molding Resin (SIR), flame retardant, furnished as pellets.										
HD-8750	GY	2.8-3.1	V-0	-	-	150	150	-	-	-
Silicone Molding Resin (SIR), furnished as pellets.										
HD-95	NC	0.8	HB	-	-	150	150	-	-	-
		3.0	HB	-	-	150	150			
Silicone Molding Resin (SIR).										
TMC-8750Aseries	BK, GY	3.0-3.3	V-0	-	-	150	150	-	-	-
TMC-8750series	BK, GY	0.8-0.88	V-0	-	-	150	150	-	-	-

Marking: Company name and material designation on container, wrapper or finished part.

[Last Updated](#) on 2014-04-18

[Questions?](#)

[Print this page](#)

[Terms of Use](#)

[Page Top](#)

© 2014 UL LLC

When the UL Leaf Mark is on the product, or when the word "Environment" is included in the UL Mark, please search the [UL Environment database](#) for additional information regarding this product's certification.

The appearance of a company's name or product in this database does not in itself assure that products so identified have been manufactured under UL's Follow-Up Service. Only those products bearing the UL Mark should be considered to be Certified and covered under UL's Follow-Up Service. Always look for the Mark on the product.

UL permits the reproduction of the material contained in the Online Certification Directory subject to the following conditions: 1. The Guide Information, Assemblies, Constructions, Designs, Systems, and/or Certifications (files) must be presented in their entirety and in a non-misleading manner, without any manipulation of the data (or drawings). 2. The statement "Reprinted from the Online Certifications Directory with permission from UL" must appear adjacent to the extracted material. In addition, the reprinted material must include a copyright notice in the following format: "© 2014 UL LLC".

database.ul.com/cgi-bin/XYV/template/LISEXT/IFRAME/showpage.html?name=QMFZ2.E231325&cc...

1/1

1.0

2016 Mar 28 18:52 HP LASERJET FAX

 CTK Co., Ltd. The Prime Leader of Global Regulatory Certification	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-2019-XXXXX Page(21) / (24) Pages	
---	--	--	--

Attachment 3 – Photographs

<Photo 1 > Test Unit



<Photo 2 > Test Unit





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-2019-XXXXX

Page(22) / (24) Pages

Attachment 3 – Photographs

<Photo 3 > Hose down test



<Photo 4 > Test Result



 CTK Co., Ltd. The Prime Leader of Global Regulatory Certification	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-2019-XXXXX Page(23) / (24) Pages	
---	--	---	--

Attachment 3 – Photographs

<Photo 5 > Test Result



<Photo 6 > Test Result





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-2019-XXXXX

Page(24) / (24) Pages

Attachment 3 – Photographs

<Photo 7 > Test Result

