



File E158873

Vol X13

Authorization Page 1

Issued: 2020-07-22

Revised: 2023-05-02

FOLLOW-UP SERVICE PROCEDURE  
(TYPE R)

AUDIO/VIDEO, INFORMATION AND COMMUNICATION TECHNOLOGY EQUIPMENT  
(AZOT, AZOT7)

Manufacturer:	SEE ADDENDUM FOR MANUFACTURER LOCATIONS
Applicant: (813307-003)	105140 (Party Site) Hanwha Vision Co Ltd 6, Pangyo-ro 319beon-gil, Bundang-gu Seongnam-si Gyeonggi-do 13488 KR
Listee/Classified Company: (813307-003)	105140 (Party Site) SAME AS APPLICANT

**Use of the Mark**

This Follow-Up Service Procedure authorizes the above Manufacturer(s) to use the marking specified by UL LLC, or any authorized licensee of UL LLC, including the UL Contracting Party, only on products when constructed, tested and found to be in compliance with the requirements of this Follow-Up Service Procedure and in accordance with the terms of the applicable service agreement with UL Contracting Party. The UL Contracting Party for Follow-Up Services is listed in the addendum to this Follow-Up Service Procedure ("UL Contracting Party"). UL Contracting Party and UL LLC are referred to jointly herein as "UL."

It is the responsibility of the Applicant, Manufacturer(s), and Listee/Classified Company to make sure that only the products meeting the aforementioned requirements bear the authorized Marks of UL LLC, or any authorized licensee of UL LLC.

**Additional Responsibilities**

Additional responsibilities, duties and requirements for the Applicant and Manufacturers are defined under Additional Resources at the following website: <https://www.ul.com/fus>. Manufacturers without Internet access may obtain the current version of these documents from their local UL customer service representative or UL field representative. For assistance, or to obtain a paper copy of these documents or the Follow-Up Service Terms referenced below, please contact UL's Customer Service at <https://www.ul.com/aboutul/locations/>, select a location and enter your request, or call the number listed for that location.

**Acceptance of Follow-Up Services**

The Applicant and the specified Manufacturer(s) and any Listee/Classified Company in this Follow-Up Service Procedure must agree to receive Follow-Up Services from UL Contracting Party. If your applicable service agreement is a Global Services Agreement ("GSA"), the Applicant, the specified Manufacturer(s), and any Listee/Classified Company will be bound to a Service Agreement for Follow-Up Services upon the earliest by any Subscriber of a) use of the prescribed UL Mark, b) acceptance of the factory inspection, or c) payment of the Follow-Up Service fees. The Service Agreement incorporates such GSA, this Follow-Up Service Procedure and the Follow-Up Service Terms which can be accessed by clicking the following link: <https://www.ul.com/resources/contracts/follow-up-service-terms>. In all other events, Follow-Up Services will be governed by and incorporate the terms of your applicable service agreement and this Follow-Up Service Procedure.

**Use and Ownership of the Follow-Up Service Procedure**

This Follow-Up Service Procedure, and any subsequent revisions, is the property of UL and is not transferable. This Follow-Up Service Procedure contains confidential information for use only by the Applicant, the specified Manufacturer(s), and representatives of UL and is not to be used for any other purpose. It is provided to the Subscribers with the understanding

that it is not to be copied, either wholly or in part unless specifically allowed, and that it will be returned to UL, upon request.

**Definition of Terms**

Capitalized terms used but not defined herein have the meanings set forth in the GSA and the applicable Service Terms or any other applicable UL service agreement.

**No Third Party Liability**

UL shall not incur any obligation or liability for any loss, expense or damages, including incidental, consequential or punitive damages arising out of or in connection with the use or reliance upon this Follow-Up Service Procedure to anyone other than the above Manufacturer(s) as provided in the agreement between UL LLC or an authorized licensee of UL LLC, including UL Contracting Party, and the Manufacturer(s).

**Certification Body**

UL LLC has signed below solely in its capacity as the certification body to indicate that this Follow-Up Service Procedure fulfills the requirements for certification documentation issued by the certification body. The certification body's accreditation status for the applicable certification scheme and identification of the accreditation body can be found at <https://www.ul.com/resources/accreditation>.

Deborah Jennings-Conner  
VP Regulatory Services  
UL LLC

## LOCATION

135422 (Party Site)  
D-TECH CO LTD  
173-25 Saneop-ro Gwonseon-gu  
Suwon-si Gyeonggi-do 16648 KR  
Factory ID: D  
UL Contracting Party for above site is: UL GmbH

1846102 (Party Site)  
HANWHA VISION VIETNAM COMPANY LIMITED  
Lot O-2 Que Vo Industrial Zone extended area Nam Son Ward  
Bac Ninh VN  
Factory ID: V  
UL Contracting Party for above site is: UL GmbH

2467434 (Party Site)  
KCE Co Ltd  
KCE B/D 34, Annam-ro 369beon-gil Bupyeong-gu  
Incheon 21312 KR  
Factory ID: C  
UL Contracting Party for above site is: UL GmbH

(100578-786) 241273 (Party Site)  
OIC KOREA CO LTD  
5F, 12 Annam-ro 369beon-gil Bupyeong-gu  
Incheon 21312 KR  
Factory ID: O  
UL Contracting Party for above site is: UL GmbH

2637173 (Party Site)  
KOSTEM CO.,Ltd.  
4-74, 228, Haan-ro  
Gwangmyeong-si Gyeonggi-do KR  
Factory ID: KOS  
UL Contracting Party for above site is: UL GmbH



Multiple Listing Correlation Sheet

ML FILE NO. E482654

Issued: 2022-11-30  
Revised: 2023-03-21

MULTIPLE LISTING  
of  
AUDIO/VIDEO, INFORMATION AND COMMUNICATION TECHNOLOGY EQUIPMENT  
(AZOT, AZOT7)  
for

[1566244] QOGNIFY LTD

Basically Listed for:

[105140] HANWHA VISION CO LTD

MARKING: Same as that described in Follow-Up Service Procedure and/or Report except for Multiple Listee's name, file number, Trademark / Tradename, when applicable, and product designation. The Control Number remains 9T96.

LITERATURE: If literature is packaged with the Multiple Listed product(s) it shall be in compliance with the requirements outlined in the appropriate UL Standard(s).

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Basically Listed products covered by Procedure and/or Reports under File No. E158873, Volume X13

Products Covered	Report Date	Basic Applicant's (Supplier's) Product Designation	Multiple Listee's Product Designation
NETWORK VIDEO ENCODER	A6125-UL	SPE-1630	NVE4016



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Product Type	Model/Type Reference	Report Reference #	Status
NETWORK VIDEO RECORDER	XRN-6410B4, XRN-3210B4	E158873-A6027-UL	
NETWORK VIDEO RECORDER	PRN-6410B4, PRN-3210B4, XRP-4210B4, PRN-6400B4, PRN-3200B4	E158873-A6028-UL	
NETWORK VIDEO RECORDER	XRN-6410DB4	E158873-A6029-UL	
NETWORK VIDEO RECORDER	PRN-6410DB4, XRP-4310DB4, PRN-6400DB4	E158873-A6030-UL	
NETWORK CAMERA	PNM-9002VQ	E158873-A6031-UL	
NETWORK CAMERA	XNF-9010RV, XNF-9010RVM, XNF-9010RS	E158873-A6032-UL	
NETWORK CAMERA	PNM-9000QB	E158873-A6033-UL	
NETWORK CAMERA	XNP-9300RW, XNP-8300RW, XNP-6400RW	E158873-A6034-UL	
NETWORK CAMERA	TNV-8010C, TNV-8011C	E158873-A6035-UL	
OUTDOOR NETWORK CAMERA	PNM-8082VT	E158873-A6036-UL	
THERMAL CAMERA	TNM-3620TDY, TNM-C3620TDR, TNM-C3622TDR	E158873-A6037-UL	
DIGITAL VIDEO RECORDER	HRX-1621* (* is Blank or N or P : P=PAL, N=NTSC)	E158873-A6038-UL	
NETWORK CAMERA	PNM-9022V	E158873-A6039-UL	
NETWORK CAMERA	PNM-9322VQP	E158873-A6040-UL	
DIGITAL VIDEO RECORDER	HRX-821* (* is Blank or N or P : P=PAL, N=NTSC)	E158873-A6041-UL	
NETWORK I/O BOX	SPM-4210	E158873-A6042-UL	
NETWORK VIDEO RECORDER	XRN-2011*, XRN-2010*, XRN-3010*, XRN-1610*, XRN-2010P/DM, XRN-3010P/DM, XRN-3010A, XRN-2011A, XRN-2010A, XRN-1610A (* is blank or N or P: N=NTSC, P=PAL)	E158873-A6043-UL	
PUBLIC VIEW MONITOR	SMT-2730PV	E158873-A6044-UL	
PUBLIC VIEW MONITOR	SMT-3230PV	E158873-A6045-UL	
CAMERA HOUSING	SHB-9000H	E158873-A6046-UL	
PUBLIC VIEW MONITOR	SMT-1030PV	E158873-A6047-UL	
NETWORK CAMERA	XNP-9250R, XNP-8250R, XNP-6400R	E158873-A6049-UL	
NETWORK CAMERA	XNP-9250, XNP-8250, XNP-6400	E158873-A6050-UL	
NETWORK CAMERA	ONO-9081R	E158873-A6051-UL	
NETWORK CAMERA	ONV-9081R	E158873-A6052-UL	
NETWORK VIDEO RECORDER	XRN-1620B2	E158873-A6053-UL	

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NETWORK VIDEO RECORDER	XRN-820S	E158873-A6055-UL	
NETWORK CAMERA	SCO-6020	E158873-A6056-UL	
NETWORK CAMERA	TNF-9010	E158873-A6057-UL	
NETWORK VIDEO RECORDER	PRN-3210B2, PRN-1610B2, XRN-6410RB2, XRN-3210RB2, XRN-6410B2, XRN-3210B2, PRN-3200B2, PRN-3205B2, PRN-1600B2, PRN-1605B2	E158873-A6058-UL	
NETWORK CAMERA	PNB-A6001	E158873-A6059-UL	
NETWORK CAMERA	PND-A6081RV, PND-A6081RF	E158873-A6060-UL	
NETWORK CAMERA	PNO-A6081R	E158873-A6061-UL	
LENS MODULE	SLA-T2480*, SLA-T2480V*, SLA-T4680*, SLA-T4680V*, SLA-T4680D, SLA-T4680DW, SLA-T4680DS, SLA-T2415, SLA-T2815B, SLA-T2480A, SLA-T2480VA, SLA-T4680A, SLA-T4680VA (* is blank or N or P: N = NTSC, P=PAL)	E158873-A6062-UL	
NETWORK CAMERA	PNV-A6081R	E158873-A6063-UL	
NETWORK CAMERA	XNB-6001*, XNB-H6240A, XNB-H6242A	E158873-A6064-UL	
NETWORK THERMAL CAMERA	TNO-3030T, TNO-3020T, TNO-3010T, TNO-3040T, TNO-3050T	E158873-A6067-UL	
NETWORK CAMERA	QNP-6320, QNP-6250, QNP-6251	E158873-A6068-UL	
NETWORK CAMERA	QNP-6320H, QNP-6250H, QNP-6251H	E158873-A6069-UL	
NETWORK CAMERA	XNV-C9083R, XNV-C8083R, XNV-C7083R, XNV-C6083R, XNV-C6083	E158873-A6070-UL	
NETWORK CAMERA	TID-600R	E158873-A6071-UL	
DIGITAL VIDEO RECORDER	HRX-1632, HRX-835	E158873-A6072-UL	
LED MONITOR	SMT-4343	E158873-A6073-UL	
NETWORK CAMERA	TNO-7180R, TNO-7180RLP	E158873-A6075-UL	
NETWORK CAMERA	XND-C9083RV, XND-C8083RV, XND-C7083RV, XND-C6083RV	E158873-A6076-UL	
NETWORK CAMERA	PNM-9031RV	E158873-A6077-UL	
NETWORK CAMERA	QNO-7082R	E158873-A6078-UL	
NETWORK CAMERA	QND-7082R	E158873-A6080-UL	
NETWORK CAMERA	QNV-7082R	E158873-A6081-UL	
NETWORK CAMERA	XNO-C9083R, XNO-C8083R, XNO-C7083R, XNO-C6083R	E158873-A6082-UL	
NETWORK CAMERA	XNV-9083R, XNV-8083R, XNV-8093R, XNV-6083R	E158873-A6083-UL	
NETWORK CAMERA	XND-9083RV, XND-8083RV, XND-8093RV, XND-6083RV	E158873-A6084-UL	
NETWORK CAMERA	QNO-7032R, QNO-7022R, QNO-7012R	E158873-A6088-UL	

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NETWORK CAMERA	XNB-9003, XNB-8003, XNB-6003	E158873-A6089-UL	
NETWORK CAMERA	XNO-9083R, XNO-8083R, XNO-6083R	E158873-A6091-UL	
NETWORK CAMERA	QNV-7012R, QNV-7022R, QNV-7032R	E158873-A6092-UL	
NETWORK CAMERA	QND-7012R, QND-7022R, QND-7032R	E158873-A6093-UL	
NETWORK CAMERA	QNP-6320R, QNP-6250R	E158873-A6094-UL	
NETWORK CAMERA	XNV-6123R	E158873-A6100-UL	
NETWORK CAMERA	XNO-6123R	E158873-A6101-UL	
NETWORK CAMERA	LNO-6072R	E158873-A6102-UL	
NETWORK CAMERA	LNV-6012R, LNV-6022R, LNV-6032R, ANV-L6012R	E158873-A6103-UL	
NETWORK CAMERA	LNV-6072R	E158873-A6104-UL	
NETWORK CAMERA	LND-6012R, LND-6022R, LND-6032R	E158873-A6105-UL	
NETWORK CAMERA	LND-6072R	E158873-A6106-UL	
NETWORK CAMERA	LNO-6012R, LNO-6022R, LNO-6032R, ANO-L6012R, ANO-L6022R	E158873-A6107-UL	
NETWORK CAMERA	ANO-L7022R, ANO-L7012R	E158873-A6108-UL	
NETWORK CAMERA	TNV-7010RC, TNV-7011RC	E158873-A6109-UL	
NETWORK CAMERA	ANV-L7012R	E158873-A6110-UL	
NETWORK CAMERA	XNZ-6320A	E158873-A6111-UL	
NETWORK CAMERA	QNP-6320HS	E158873-A6112-UL	
NETWORK CAMERA	PNM-A9083RVD, PNM-A7083RVD, PNM-C12083RVD, PNM-C7083RVD	E158873-A6113-UL	
NETWORK VIDEO RECORDER	ARN-1610S	E158873-A6114-UL	
NETWORK CAMERA	XNZ-L6320A	E158873-A6115-UL	
NETWORK VIDEO RECORDER	QRN-1630S, XRN-815S	E158873-A6116-UL	
NETWORK CAMERA	ANO-L7082R, ANO-L6082R	E158873-A6117-UL	
THERMAL NETWORK CAMERA	TNM-C4940TD, TNM-C4950TD, TNM-C4960TD, TNM-C4940TDR, TNM-C4942TDR	E158873-A6118-UL	
NETWORK CAMERA	ANE-L7012R, ANE-L6012R	E158873-A6119-UL	
NETWORK CAMERA	PNM-12082RVD, PNM-7082RVD	E158873-A6120-UL	
NETWORK CAMERA	ANV-L7082R, ANV-L6082R	E158873-A6121-UL	
DIGITAL VIDEO RECORDER	HRX-1635	E158873-A6122-UL	
DIGITAL VIDEO RECORDER	HRX-835A	E158873-A6123-UL	
NETWORK CAMERA	XNF-9013RV	E158873-A6124-UL	
NETWORK VIDEO ENCODER	SPE-1630	E158873-A6125-UL	
NETWORK VIDEO RECORDER	QRN-430S, ARN-410S	E158873-A6126-UL	
NETWORK VIDEO RECORDER	XRN-420S	E158873-A6127-UL	

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NETWORK VIDEO RECORDER	QRN-830S	E158873-A6128-UL	
NETWORK VIDEO RECORDER	ARN-810S	E158873-A6129-UL	
NETWORK CAMERA	XNV-9083RZ, XNV-8083RZ, XNV-6083RZ	E158873-A6130-UL	
DIGITAL VIDEO RECORDER	HRX-434	E158873-A6131-UL	
NETWORK CAMERA	XNV-8083Z, XNV-6083Z	E158873-A6132-UL	
NETWORK VIDEO ENCODER	SPE-420	E158873-A6133-UL	
NETWORK CAMERA	XNB-6002, XNB-H6244A	E158873-A6134-UL	
DIGITAL VIDEO RECORDER	HRX-435	E158873-A6135-UL	
DIGITAL VIDEO RECORDER	HRX-1634	E158873-A6136-UL	
VIDEO DECODER	SPD-152	E158873-A6137-UL	
NETWORK CAMERA	PNM-C9022RV	E158873-A6138-UL	
PENDANT SPEAKER	SPA-P100W, SPA-P100B	E158873-A6139-UL	
SECURITY LED MONITOR	SMT-2212	E158873-A6140-UL	
DIGITAL VIDEO RECORDER	ARD-1610	E158873-A6142-UL	
DIGITAL VIDEO RECORDER	ARD-810, ARD-410	E158873-A6144-UL	
NETWORK CAMERA	PNV-A6081R-E2T, PNV-A6081R-E1T	E158873-A6150-UL	
USB JOYSTICK CONTROLLER	SPC-2001	E158873-A6151-UL	
NETWORK CAMERA	MGC-D8080LI, MGC-D8080	E158873-A6153-UL	
NETWORK CAMERA	QNO-C9083R, QNO-C8083R	E158873-A6154-UL	
NETWORK CAMERA	QNV-C9083R, QNV-C8083R	E158873-A6155-UL	
NETWORK CAMERA	XNP-C9303RW, XNP-C8303RW, XNP-C6403RW	E158873-A6158-UL	
NETWORK CAMERA	XNP-C9253R, XNP-C8253R, XNP-C6403R	E158873-A6159-UL	
NETWORK CAMERA	XNP-C9253, XNP-C8253, XNP-C6403	E158873-A6160-UL	
NETWORK CAMERA	TNV-C7013RC	E158873-A6161-UL	
NETWORK CAMERA	MGC-F9010LI	E158873-A6162-UL	
NETWORK CAMERA	PNM-C32083RVQ, PNM-C16083RVQ	E158873-A6163-UL	
NETWORK CAMERA	QNV-C9011R, QNV-C8011R, QNV-C8012	E158873-A6164-UL	
ANALOG CAMERA	ACE-8020R, ACE-6020R	E158873-A6165-UL	
ANALOG CAMERA	ACV-8081R, ACV-8080R	E158873-A6166-UL	
ANALOG CAMERA	ACO-8020R, ACO-6020R	E158873-A6167-UL	
NETWORK CAMERA	ANE-L7012L	E158873-A6168-UL	
NETWORK CAMERA	IFS02-B12-OIB4	E158873-A6169-UL	
NETWORK CAMERA	IFS02-D12-OIB4	E158873-A6170-UL	
NETWORK CAMERA	IFS08-D13-ATB4	E158873-A6175-UL	
NETWORK CAMERA	PNM-C34404RQPZ	E158873-A6178-UL	
NETWORK CAMERA	PNO-A9311R	E158873-A6179-UL	

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NETWORK CAMERA	PNM-C16013RVQ	E158873-A6180-UL	
LENS MODULE	SLA-T2480WDA	E158873-A6181-UL	
NETWORK CAMERA	IFS05-D12-ATB4	E158873-A6182-UL	
NETWORK CAMERA	IFS02-D12-ATB4	E158873-A6183-UL	
NETWORK CAMERA	IFS02-C10-OIB4	E158873-A6184-UL	
NETWORK CAMERA	IFS05-C10-OIB4	E158873-A6185-UL	
NETWORK CAMERA	IFS08-C23-OIB4	E158873-A6186-UL	
NETWORK CAMERA	IFS08-B13-OIB4	E158873-A6187-UL	
NETWORK CAMERA	IFS05-D12-OIB4	E158873-A6188-UL	
NETWORK CAMERA	IFS08-D13-OIB4	E158873-A6189-UL	
LENS MODULE	SLA-T2480WA	E158873-A6191-UL	
NETWORK CAMERA	IFS05-B12-OIB4	E158873-A6192-UL	
Network Video Recorder	XRN-6420DB4	E158873-A6193-UL	
Network Video Recorder	XRN-6420B4, XRN-3220B4	E158873-A6194-UL	
NETWORK CAMERA	IFS05-B31-OIB4	E158873-A6196-UL	
Public View Monitor	SMT-2731PV	E158873-A6197-UL	
ANALOG CAMERA	HCF-8011RV	E158873-A6198-UL	
NETWORK THERMAL CAMERA	TNO-C3032TRA, TNO-C3010TRA, TNO-C3020TRA, TNO-C3030TRA, TNO-C3012TRA, TNO-C3022TRA	E158873-A6199-UL	
Public View Monitor	SMT-3231PV	E158873-A6200-UL	
AI BOX	AIB-800	E158873-A6202-UL	

## UL TEST REPORT AND PROCEDURE

<b>Standard:</b>	UL 62368-1, 3rd Ed, 2021-10-22 (Audio/video, information and communication technology equipment Part 1: Safety requirements) CAN/CSA C22.2 No. 62368-1:19, 3rd Ed, 2021-10-22 (Audio/video, information and communication technology equipment Part 1: Safety requirements)
<b>Certification Type:</b>	Listing
<b>CCN:</b>	AZOT, AZOT7 (Audio/video, Information and Communication Technology Equipment)
<b>Complementary CCN:</b>	N/A
<b>Product:</b>	THERMAL NETWORK CAMERA
<b>Model:</b>	TNM-C4940TD, TNM-C4950TD, TNM-C4960TD, TNM-C4940TDR, TNM-C4942TDR
<b>Rating:</b>	PoE (53 Vdc), 0.48 A or 12 Vdc, 1.8 A (for model TNM-C4940TD, TNM-C4940TDR, TNM-C4942TDR) PoE (53 Vdc), 0.45 A or 12 Vdc, 1.63 A (for model TNM-C4950TD, TNM-C4960TD)
<b>Applicant Name and Address:</b>	HANWHA VISION CO LTD 6, PANGYO-RO 319BEON-GIL, BUNDANG-GU SEONGNAM-SI GYEONGGI-DO 13488 KOREA

This is to certify that representative samples of the products covered by this Test Report have been investigated in accordance with the above referenced Standards. The products have been found to comply with the requirements covering the category and the products are judged to be eligible for Follow-Up Service under the indicated Test Procedure. The manufacturer is authorized to use the UL Mark on such products which comply with this Test Report and any other applicable requirements of UL LLC ('UL') in accordance with the Follow-Up Service Agreement. Only those products which properly bear the UL Mark are considered as being covered by UL's Follow-Up Service under the indicated Test Procedure.

The applicant is authorized to reproduce the referenced Test Report provided it is reproduced in its entirety.

UL authorizes the applicant to reproduce the latest pages of the referenced Test Report consisting of the first page of the Specific Technical Criteria through to the end of the Conditions of Acceptability.

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL.

Prepared By: Lawrence Lee / Project Handler      Reviewed By: SeulKi Park / Reviewer

### Supporting Documentation

The following documents located at the beginning of this Procedure supplement the requirements of this Test Report:

A. Authorization - The Authorization page may include additional Factory Identification Code markings.

B. Generic Inspection Instructions -

- i. Part AC details important information which may be applicable to products covered by this Procedure. Products described in this Test Report must comply with any applicable items listed unless otherwise stated in the body of this Test Report.
- ii. Part AE details any requirements which may be applicable to all products covered by this Procedure. Products described in this Test Report must comply with any applicable items listed unless otherwise stated in the body of each Test Report.
- iii. Part AF details the requirements for the UL Certification Mark which is not controlled by the technical standard used to investigate these products. Products are permitted to bear only the Certification Mark(s) corresponding to the countries for which it is certified, as indicated in each Test Report.

### Product Description

THERMAL NETWORK CAMERA has been designed for OUTDOOR or INDOOR use and integrated a hole for mount.

It is a commercial equipment supplied from PoE (Power over Ethernet) or 12 Vdc and installed by service personnel.

### Model Differences

TNM-C4940TD is basic model.

TNM-C4950TD, TNM-C4960TD are identical to basic model except model designation, no IR LED and lens specification.

TNM-C4940TDR, TNM-C4942TDR are identical to basic model except model designation and SW.

### Test Item Particulars

Product group	end product
Classification of use by	Instructed person
Supply Connection	not mains connected: ES1
Supply tolerance	None
Supply connection – type	PoE (Power over Ethernet) or 12 Vdc
Considered current rating of protective device	N/A
Equipment mobility	wall/ceiling-mounted
Over voltage category (OVC)	OVC I
Class of equipment	Class III
Special installation location	N/A
Pollution degree (PD)	PD 2
Manufacturer's specified Tma (°C)	60 Outdoor: minimum -50
IP protection class	IP 66, 67
Power systems	not AC mains
Altitude during operation (m)	2000 m or less
Altitude of test laboratory (m)	2000 m or less

Mass of equipment (kg)	4.81												
<b>Technical Considerations</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of : 60 °C</li> <li><input type="checkbox"/> The product is intended for use on the following power systems : No direct connection</li> <li><input type="checkbox"/> Considered current rating of protective device as part of the building installation (A) : N/A</li> <li><input type="checkbox"/> Mains supply tolerance (%) or absolute mains supply : No direct connection</li> <li><input type="checkbox"/> The Risk Group of a lamp or lamp system (including LEDs) is : RG 1</li> <li><input type="checkbox"/> The following are available from the Applicant upon request : Installation (Safety) Instructions / Manual</li> <li><input type="checkbox"/> The outdoor equipment/enclosure was evaluated for use in an ambient range of : -40 °C to 60 °C</li> </ul>													
<b>Additional Information</b> 4790319143 - Maximum Normal Load: Continuous operation with USB 0.5 A load and IR LED. (The heater operates at a specific temperature.)  Revision: SR# 5808800.1466086 Update Applicant Name to Hanwha Vision Co Ltd  4791048908 - Add model name; TNM-C4940TDR, TNM-C4942TDR													
<b>Additional Standards</b> The product fulfills the requirements of: N/A													
<b>Markings and Instructions</b> <table border="1"> <thead> <tr> <th>Clause Title</th><th>Marking or Instruction Details</th></tr> </thead> <tbody> <tr> <td>Equipment identification marking – Manufacturer identification</td><td>Listee's or Recognized Company's name, Trade Name, Trademark or File Number</td></tr> <tr> <td>Equipment identification marking – model identification</td><td>Model Number</td></tr> <tr> <td>Equipment rating marking – ratings</td><td>Input Ratings (voltage, frequency/dc, current/power) Output Ratings (voltage, frequency/dc, current/power)</td></tr> <tr> <td>Outdoor enclosure type</td><td>Type 3, 3X, 3S, 3SX, 4, 4X, 6, 6P, "Raintight", "Rainproof", "Watertight", "Corrosion Resistant", "Dusttight" Enclosure</td></tr> <tr> <td>Hard Copy</td><td>A. IMPORTANT B. Please check 'Manuals' from our website, before connecting to the supply. C. Company website URL (<a href="https://www.~~">https://www.~~</a>)</td></tr> </tbody> </table>		Clause Title	Marking or Instruction Details	Equipment identification marking – Manufacturer identification	Listee's or Recognized Company's name, Trade Name, Trademark or File Number	Equipment identification marking – model identification	Model Number	Equipment rating marking – ratings	Input Ratings (voltage, frequency/dc, current/power) Output Ratings (voltage, frequency/dc, current/power)	Outdoor enclosure type	Type 3, 3X, 3S, 3SX, 4, 4X, 6, 6P, "Raintight", "Rainproof", "Watertight", "Corrosion Resistant", "Dusttight" Enclosure	Hard Copy	A. IMPORTANT B. Please check 'Manuals' from our website, before connecting to the supply. C. Company website URL ( <a href="https://www.~~">https://www.~~</a> )
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Hard Copy	A. IMPORTANT B. Please check 'Manuals' from our website, before connecting to the supply. C. Company website URL ( <a href="https://www.~~">https://www.~~</a> )												



Website Manual - 1	This product is intended to be supplied by a Listed Power Supply Unit marked "Class 2" or "LPS" or "PS2" and rated from PoE (53 Vdc), 0.48 A or 12 Vdc, 1.8 A (for model TNM-C4940TD) and PoE (53 Vdc), 0.45 A or 12 Vdc, 1.63 A (for model TNM-C4950TD, TNM-C4960TD).
Website Manual - 2	The wired LAN hub providing power over the Ethernet (PoE) in accordance with IEEE 802.3.at shall be a UL Listed device with the output evaluated as a Limited Power Source as defined in UL60950-1 or PS2 as defined in UL62368-1.
<b>Special Instructions to UL Representative</b> N/A	

<b>BD1.0</b>	<b>TABLE: Production-Line Testing Requirements</b>					
<b>BD1.1</b>	<b>Electric Strength Test Special Constructions – Refer to Generic Inspection Instructions, Part AC for further information.</b>					
Model	Component	Removable parts	Test probe location	Test V rms	Test V dc	Test Time, s
N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>BD1.2</b>	<b>Earthing Continuity Test Exemptions – This test is not required for the following models:</b>					
	All model					
<b>BD1.3</b>	<b>Electric Strength Test Exemptions – This test is not required for the following models:</b>					
	All model					
<b>BD1.4</b>	<b>Electric Strength Test Component Exemptions – The following solid-state components may be disconnected from the remainder of the circuitry during the performance of this test.</b>					
	All model					

<b>BE1.0</b>	<b>Sample and Test Specifics for Follow-Up Tests at UL</b>				
Model	Component	Material	Test	Sample (s)	Test Specifics
N/A	N/A	N/A	N/A	N/A	N/A

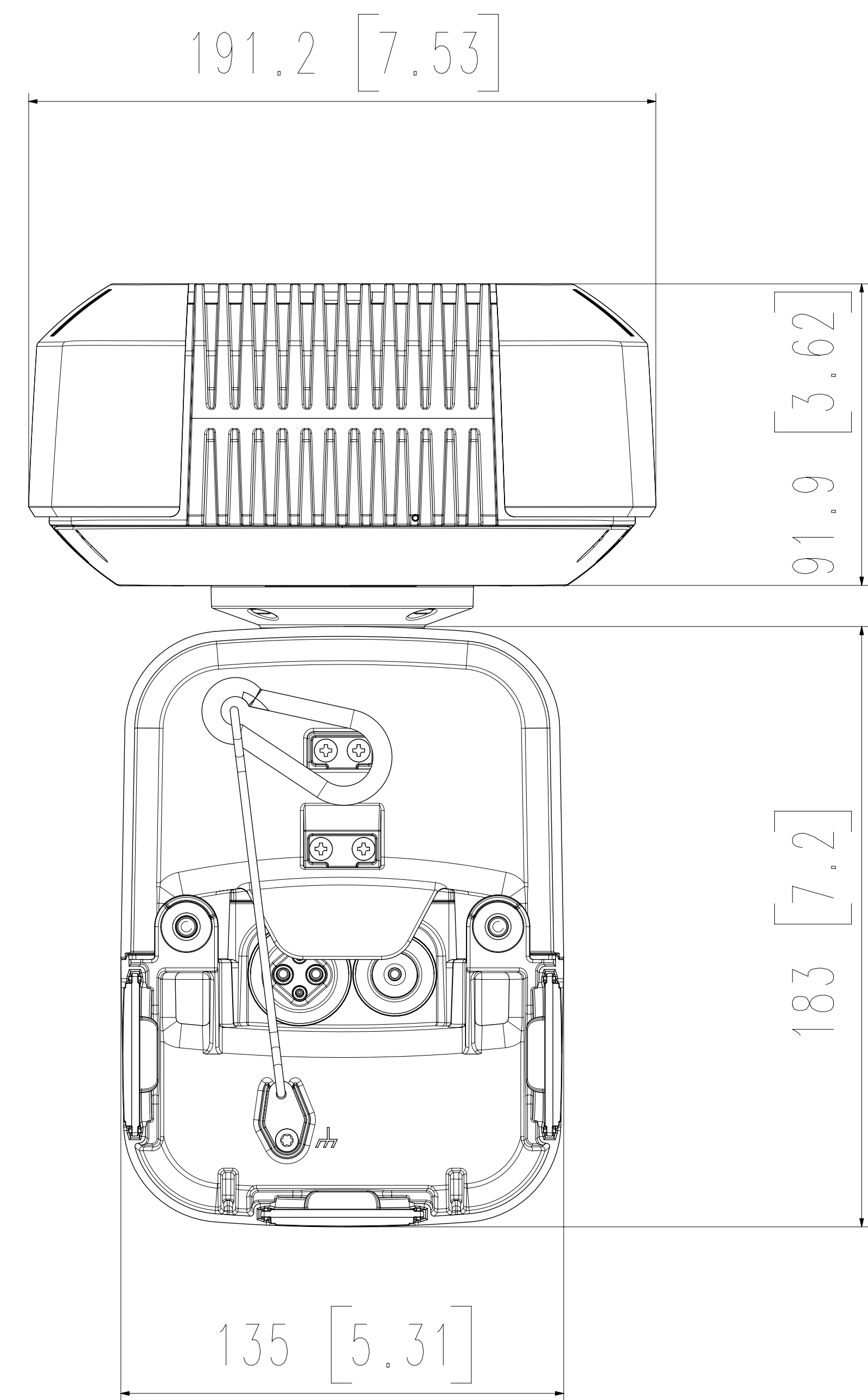
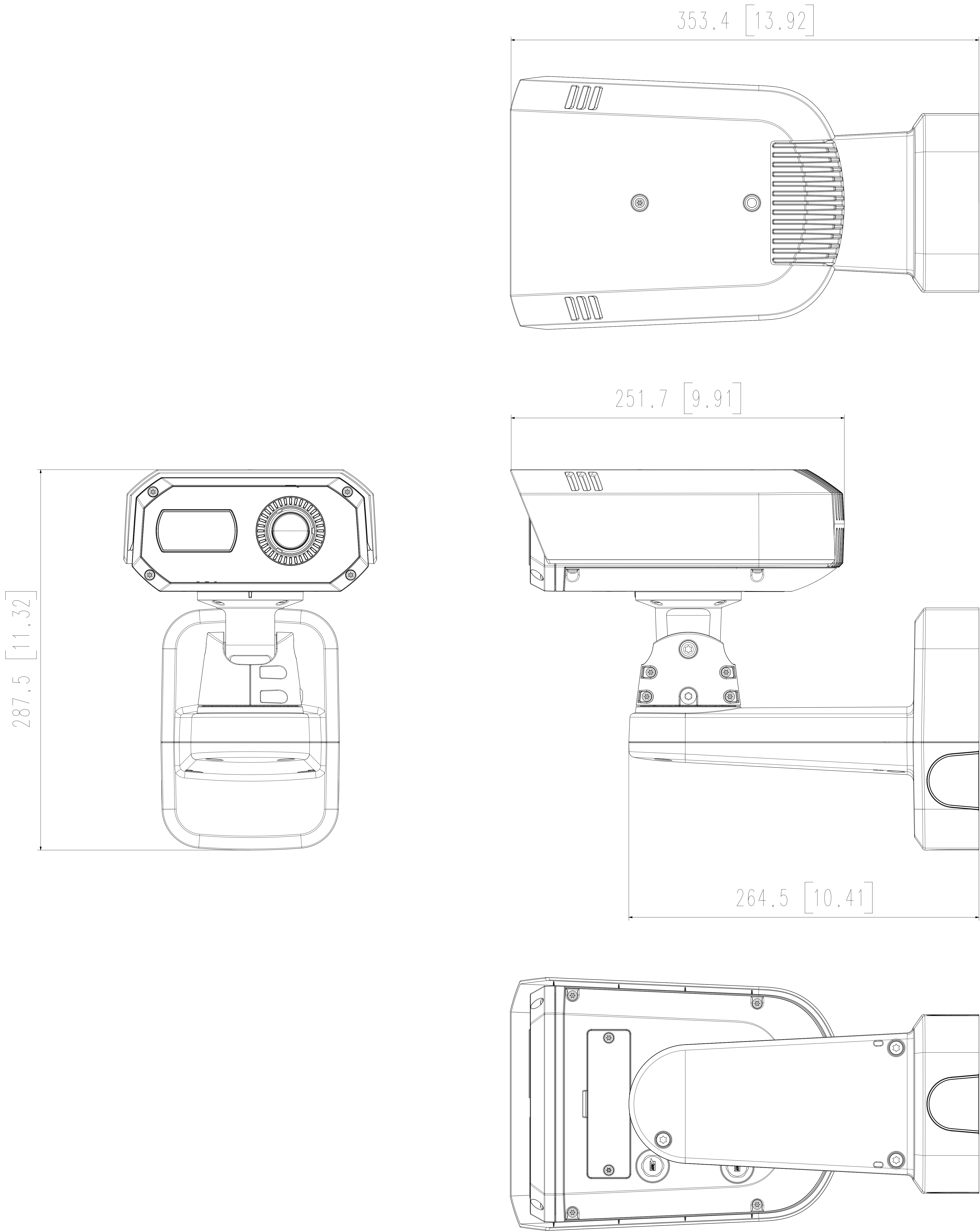
4.1.2	TABLE: List of critical components					Pass
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Product Category CCN(s)	Mark(s) of conformity	Supplement ID
Front Lens cover (Plastic)	FORMOSA CHEMICALS & FIBRE CORP PLASTICS DIV	AC383(x)(f1)	Min. 2.0 mm thickness, rated Min. V-0, 130 deg. C.	QMFZ2	UL (E162823)	
Enclosure (Metal)	Interchangeable	Interchangeable	Aluminium, Min. 2.5 mm thickness, see enclosure for dimension.	-	-	
External deco cover (Plastic)	LG CHEM LTD	LI996(&)	Min. 2.0 mm thickness, rated Min. V-0, 50 deg. C.	QMFZ2	UL (E67171)	
Mounting Bracket (Metal)	Interchangeable	Interchangeable	Aluminium, Min. 2.5 mm thickness, Approximate 117.4 by 166.2 by 10.0 mm,	-	-	
Internal Plastic Part Materials	LOTTE CHEMICAL CORPORATION	HN-1068(+)(f1)	Min. 1.5 mm thickness, rated Min. V-0, 130 deg. C.	QMFZ2	UL (E115797)	
Heater resister (26 EA, R1 to R26)	Interchangeable	Interchangeable	5.6 ohm 0.25 W each	-	-	
Transformer (T8)	SHENZHEN GROUP-TEK ELECTRONICS TECHNOLOGY CO LTD	PDT25125SR	130 deg. C, see enclosure for more detail.	-	-	
Line Filter (T7)	TNC CO.,LTD	CV320070SB	7.0 mH, 130 deg. C, See enclosure for more detail.	-	-	
Opto-coupler (LS1)	LITE-ON TECHNOLOGY CORP	LTV-816-G	Isolation Voltage: 5300. Max. Operation	FPQU2	UL (E113898)	

			Temperature: 110 deg. C.			
Fuse (F1)	LITTELFUSE INC	449*	Rated 125 V, 2.5 A	-	UL (E10480)	
Lithium Battery (BAT1)	SEIKO INSTRUMENTS INC MICRO-ENERGY DIV	ML414H	Lithium (Coin), Rechargeable, Max 3.4Vdc, Maximum charging current 300mA	BBCV2	UL (MH15628)	
USB protect IC (U1)	TEXAS INSTRUMENTS INCORPORATED	TPD3S014	Rated 4.5-5.5 Vdc, 0.5 A, Current limit: 1.01 A	QVGS2	UL (E169910)	
Internal wiring	Interchangeable	Interchangeable	Low voltage, rated minimum 80 deg. C, 30 V, marked VW-1	AVLV2	UL	
Thermal Pad	KOMOTECH CO LTD	KGP-1(a)	Min. 0.2 mm thickness, rated V-0, 150 deg. C	QMFZ2	UL (E245303)	
Gasket - between Front cover and Top cover	Namyang Vina	O-VMQ-30-GR	Gasket Test was conducted under E158873-A6034	-	-	
Gasket - between Bottom cover and Top cover	Namyang Vina	O-VMQ-50-OR	Gasket Test was conducted under E158873-A6034	-	-	
Gasket - between SD cover and Bottom cover	Namyang Vina	O-VMQ-30-GR	Gasket Test was conducted under E158873-A6034	-	-	
Gasket - between Back box Top and Bottom cover	Namyang Vina	O-VMQ-30-GR	Gasket Test was conducted under E158873-A6034	-	-	
Gasket - between Back box and cable (Left hole)	Namyang Vina	C-VMQ-40-GR	Gasket Test was conducted under E158873-A6034	-	-	
Gasket - between Back box and cable (Right hole)	Namyang Vina	C-VMQ-60-GR	Gasket Test was conducted under E158873-A6034	-	-	

Gasket - between Bottom cover and cable	Namyang Vina	C-VMQ-30-BK	Gasket Test was conducted under E158873-A6034	-	-	
Connectors and Receptacles (Secondary circuits)	Interchangeable	Interchangeable	-	ECBT2	UL	
Connectors and Receptacles (Secondary circuits) -Alternate	Interchangeable	Interchangeable	Copper alloy pins housed in bodies of plastic rated Min. V-2	QMFZ2	UL	
FPWB	Interchangeable	Interchangeable	Min V-2 or VTM-2, 80 deg. C.	QMFZ2 or QMTS2 or ZPXK2 or ZPMV2	UL	
PWB	HANNSTAR BOARD CORP	MV-1	Min. V-1, 130 deg. C.	ZPMV2	UL (E89382)	
PWB – Alternate	Interchangeable	Interchangeable	Min. V-0, 130 deg.C	ZPMV2	UL	
Outdoor Label	Interchangeable	Interchangeable	Max Temp 100 deg. C, Min Temp -50 deg. C,	PGDQ2 or PGJL2	UL	
IR LED (3EA, LD1, LD2, LD3)	OSRAM	SFH4718A	VF=2.2Vdc (max)	-	-	
IR LED (3EA, LD4, LD5, LD6)	LITEON	LTE-R38386L-YE5-SS	VF=2.5Vdc (max)	-	-	

## Enclosures

Type	Supplement Id	Description
Photographs	03-01	External View - 1
Photographs	03-02	External View - 2
Photographs	03-03	Internal View - 1
Photographs	03-04	Internal View - 2
Photographs	03-05	Sensor Module - 1
Photographs	03-06	Sensor Module - 2
Photographs	03-07	IR LED Board
Photographs	03-08	Heater Board
Photographs	03-09	IR DETECTOR Lens
Photographs	03-10	Interface Board Top
Photographs	03-11	Interface Board Bottom
Photographs	03-12	Power Board Top
Photographs	03-13	Power Board Bottom
Photographs	03-14	NUC Board Top
Photographs	03-15	NUC Board Bottom
Photographs	03-16	Back Box Board
Photographs	03-17	Connector Board Top
Photographs	03-18	Connector Board Bottom
Photographs	03-19	External Cover Plastic
Photographs	03-20	Internal Plastic
Diagrams	04-01	Diagram
Manuals	06-01	Manual
Miscellaneous	07-01	Dual language safety labeling CRD
Miscellaneous	07-02	Transformer (T8) Specification
Miscellaneous	07-03	Line Filter (T7) Specification
Miscellaneous	07-04	Label
Miscellaneous	07-05	Label (RG1)



3	MODEL 2	
2	MODEL 1	
1	TNM-A4940TD	'22.02.21
No.	MODEL NAME	DATE
		© Hanwha Techwin

## IMPORTANT SAFETY INSTRUCTIONS

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean the contaminated area on the product surface with a soft, dry cloth or a damp cloth.  
(Do not use a detergent or cosmetic products that contain alcohol, solvents or surfactants or oil constituents as they may deform or cause damage to the product.)
7. Do not block any ventilation openings, Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/ accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/ apparatus combination to avoid injury from tip-over.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. This product is intended to be supplied by a Listed Power Supply Unit marked "Class 2" or "LPS" or "PS2" and rated from 12 Vdc, 1.8A / PoE(53 Vdc), 0.48A.(TNM-C4940TD)
16. This product is intended to be supplied by a Listed Power Supply Unit marked "Class 2" or "LPS" or "PS2" and rated from 12 Vdc, 1.63A / PoE(53 Vdc), 0.45A.(TNM-C4950TD/TNM-C4960TD)
17. This product is intended to be supplied by isolation power.
18. If you use excessive force when installing the product, the camera may be damaged and malfunction.  
If you forcibly install the product using non-compliant tools, the product may be damaged.
19. Do not install the product in a place where chemical substances or oil mist exists or may be generated. As edible oils such as soybean oil may damage or warp the product, do not install the product in the kitchen or near the kitchen table.  
This may cause damage to the product.
20. When installing the product, be careful not to allow the surface of the product to be stained with chemical substance.  
Some chemical solvents such as cleaner or adhesives may cause serious damage to the product's surface.
21. If you install/disassemble the product in a manner that has not been recommended, the production functions/ performance may not be guaranteed.  
Install the product by referring to "Installation & connection" in the user manual.



22. Installing or using the product in water can cause serious damage to the product.
23. This device has been verified using STP cable. The use of appropriate GND grounding and STP cable is recommended to effectively protect your product and property from transient voltage, thunderstroke, communication interruption.
24. When there is a change in the ambient temperature or when a specific interval is reached while the thermal imaging screen is in use, the screen will temporarily freeze for 1-2 seconds. This phenomena is a normal operation for calibrating the screen.
25. When the initial power is applied, the thermal imaging screen will require about 30 minutes for stabilizing as it is being continuously calibrated.



## WARNING

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE. DO NOT INSERT ANY METALLIC OBJECT THROUGH THE VENTILATION GRILLS OR OTHER OPENINGS ON THE EQUIPMENT.

Apparatus shall not be exposed to dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on the apparatus.

To prevent injury, this apparatus must be securely attached to the Wall/ceiling in accordance with the installation instructions.

## CAUTION

	<div style="background-color: black; color: white; padding: 5px;"><b>CAUTION</b></div> <div style="border: 1px solid black; padding: 5px;"><b>RISK OF ELECTRIC SHOCK.</b> <b>DO NOT OPEN</b></div>	
<b>CAUTION : TO REDUCE THE RISK OF ELECTRIC SHOCK.</b> <b>DO NOT REMOVE COVER (OR BACK).</b> <b>NO USER SERVICEABLE PARTS INSIDE.</b> <b>REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.</b>		

## EXPLANATION OF GRAPHICAL SYMBOLS



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.



Class I construction

An apparatus with CLASS I construction shall be connected to a MAINS socket outlet with a protective earthing connection.

Battery

Batteries(battery pack or batteries installed) shall not be exposed to excessive heat such as sunshine, fire or the like.

The battery cannot be replaced.

Disconnection Device

Disconnect the main plug from the apparatus, if it's defected. And please call a repair man in your location.

When used outside of the U.S., it may be used HAR code with fittings of an approved agency is employed.

CAUTION

RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE.  
DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.

ATTENTION

IL Y A RISQUE D'EXPLOSION SI LA BATTERIE EST REMPLACÉE PAR UNE BATTERIE DE TYPE INCORRECT.  
METTRE AU REBUT LES BATTERIES USAGÉES CONFORMÉMENT AUX INSTRUCTIONS.

These servicing instructions are for use by qualified service personnel only.  
To reduce the risk of electric shock do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.

The Micro USB out terminal of the product is provided for easier installation, and is not recommended for monitoring purposes.

Please use the input power with just one camera and other devices must not be connected.

Before connecting the Power Terminal Block, you need to unplug the power plug from the outlet first.

The ITE is to be connected only to PoE networks without routing to the outside plant.

The wired LAN hub providing power over the Ethernet (PoE) in accordance with IEEE 802.3.at shall be a UL Listed device with the output evaluated as a Limited Power Source as defined in UL60950-1 or PS2 as defined in UL62368-1.



Unit is intended for installation in a Network Environment 0 as defined in IEC TR 62102.  
As such, associated Ethernet wiring shall be limited to inside the building.

Please read the following recommended safety precautions carefully.

- Do not place this apparatus on an uneven surface.
- Do not install on a surface where it is exposed to direct sunlight, near heating equipment or heavy cold area.
- Do not place this apparatus near conductive material.
- Do not attempt to service this apparatus yourself.
- Do not place a glass of water on the product.
- Do not install near any magnetic sources.
- Do not block any ventilation openings.
- Do not place heavy items on the product.
- Please wear protective gloves when installing/removing the camera.  
The high temperature of the product surface may cause burn.

User's Manual is a guidance book for how to use the product.

The meaning of the symbols are shown below.

-  • Reference : In case of providing information for helping of product's usages
-  • Notice : If there's any possibility to occur any damages for the goods and human caused by not following the instruction

※ Please read this manual for the safety before using of goods and keep it in the safe place.

We do not guarantee the quality of third-party products (e.g. lenses, accessories) that you separately purchase.

In particular installation environments, there might be interference in radio communications. When interference of electromagnetic waves occurs between the product and radio communication device, it is recommended to keep a certain distance between the two or change the direction of the receiving antenna.

WARNING

To prevent damage which may caused by IR LED, don't stare at operating lamp.  
For below models only.

TNM-C4940TD

Risk Group 1
WARNING IR emitted from this product. Do not stare at operating lamp.
Product tested against IEC 62471

Where a clause specifies a dimension, the measurement instrument(s) used to measure the dimension shall be identified (this should correlate to the measurement instrument list at the beginning of the package). The applicable dimension may be recorded in the comment column, if necessary as determined by the Level 2 Staff or Level 3 Reviewer.

## CONSTRUCTION COMPLIANCE REVIEW RECORD

## Sample Identification -

Sample Card No.	Date Received	Sample No.	Manufacturer, Product Identification and Ratings
N/A	2022-03-02	#1, #2	Manufacturer: HANWHA TECHWIN Product: THERMAL NETWORK CAMERA Model: TNM-C4940TD Rating: PoE (53 Vdc), 0.48 A or 12 Vdc, 1.8 A

## Measurement Instrument Information -

Inst. ID No.	Instrument Type	Function/Range	Last Cal. Date	Next Cal. Date
C-S1-D03	Digital Vernier Caliper	200 mm	2022-02-21	2023-02-21
C-S1-B02	ELECTRONIC BALANCE	10000 g	2021-08-18	2022-08-18

The following additional information is required when using client's or rented equipment, or when a UL ID Number for an instrument number is not used. The Inst. ID No. below corresponds to the Inst. ID No. above.

Inst. ID No.	Make/Model/Serial Number/Asset No.
C-S1-D03	Mitutoyo and 200 mm
C-S1-B02	CAS and 10A

## CONSTRUCTION COMPLIANCE REVIEW:

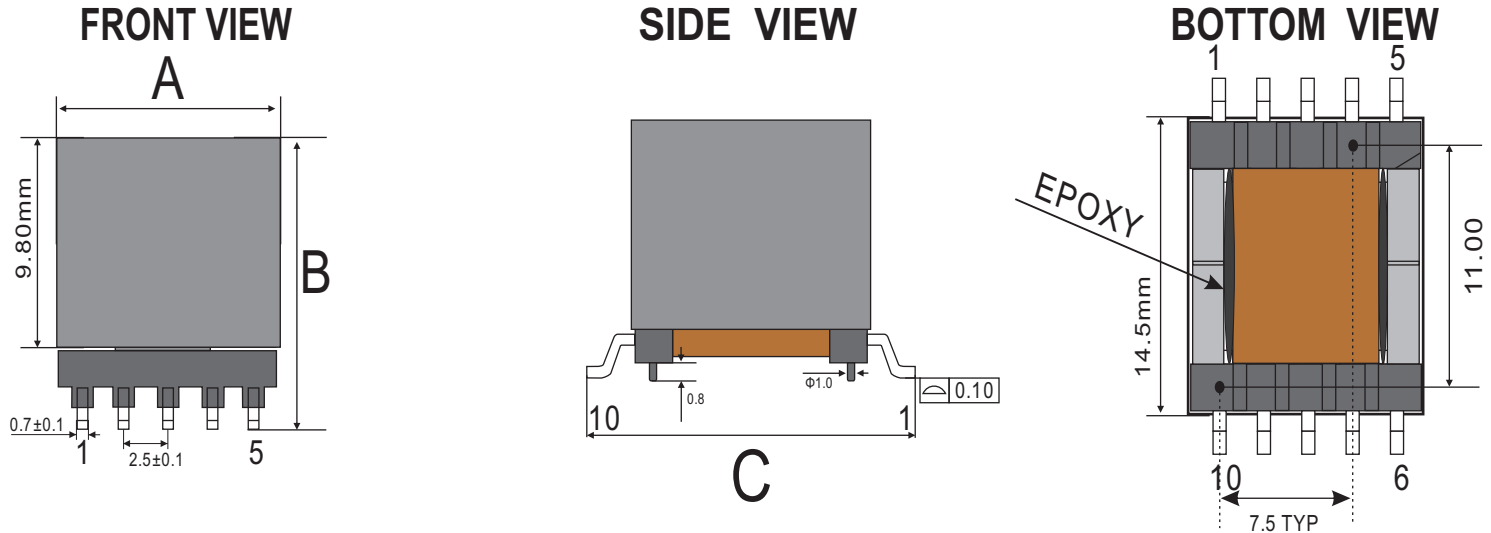
The sample was reviewed for compliance with the construction requirements in the following Standard and compliance with applicable construction requirements is noted below.

Standard	CSA C22.2 NO. 62368-1, AUDIO/VIDEO, INFORMATION AND COMMUNICATION TECHNOLOGY EQUIPMENT - PART 1: SAFETY REQUIREMENTS	Edition/ Revision Date	Edition 3, Issue Date 12/13/2019

Clause/Par. Reference and Construction Requirement	Comply			Comments/Measurements	Inst. ID No.
	Yes	No	N/A		
9.2.3 CBs shall include dual language safety labeling within their product certification requirements, if so required by the standard or by the authority having jurisdiction.					
The manufacturer has confirmed they have the ability to include English and French safety labeling exactly as specified in the product standard; or, if NOT specified in the product standard, the ability to include English and French safety labelling consisting of markings associated with the signal words DANGER, WARNING, and CAUTION when required.	X			<p>The ability of the manufacturer to include these markings was verified by either (1) visual inspection of the markings on the actual product or (2) draft of labels that will be applied to the product or (3) written confirmation from the customer of the markings that will appear on the product.</p> <p>If the product standard provides the exact translation, the evidence must match the exact translation.</p> <p>If the product standard does NOT provide the exact translation, the evidence must simply include both the English and French text (no verification of translation is required).</p>	N/A

Clause/Par. Reference and Construction Requirement	Comply			Comments/Measurements	Inst. ID No.
	Yes	No	N/A		
Manufacturer has a method to manage distribution of products, IF all products with the Canadian certification mark are NOT going to include the dual language.			X	<p>Evaluation staff are to only verify that the manufacturer has a method to control distribution. Evaluation staff do not have to record the method of control nor are the evaluation staff expected to verify the effectiveness of the method of control. This requirement to verify that a method exists will be noted in the FUS Procedure. The UL Field Engineer will verify the method during surveillance.</p> <p>If the manufacturer is going to include the dual language on all products with the Canadian certification mark, then this item is N/A; no further action required.</p>	N/A

## 2. Mechanical Dimensions:



Note:

- 1.Wrap 2Ts of 7mm kapton tape around the finished part.
- 2.Fixed the cores with glue,and fixed the case with glue.

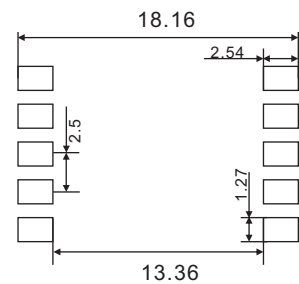
Unit: mm

A MAX	B MAX	C MAX
15.2	14.8	17.8

Laser Marking information



Suggested PCB Paad Layout

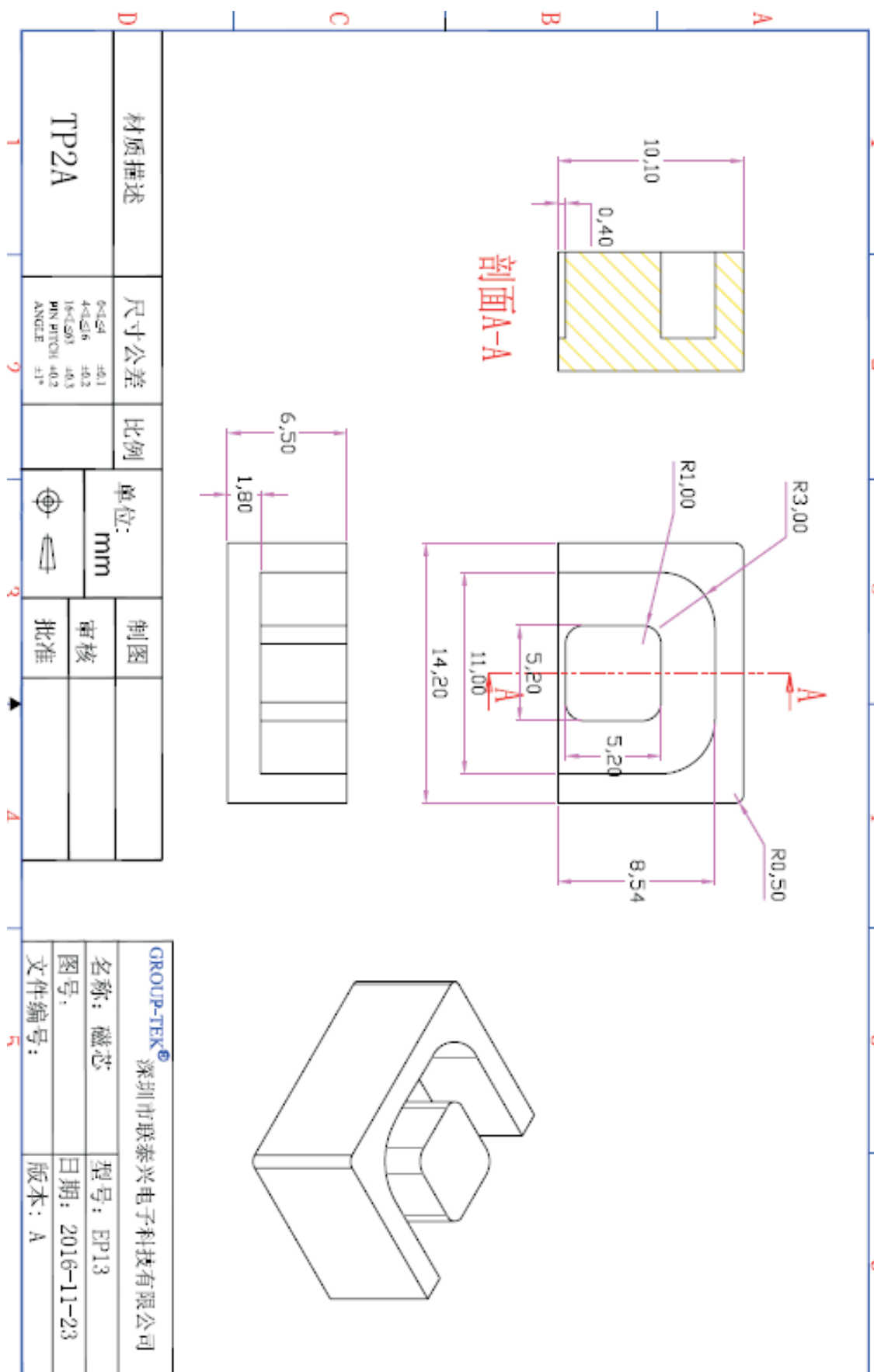


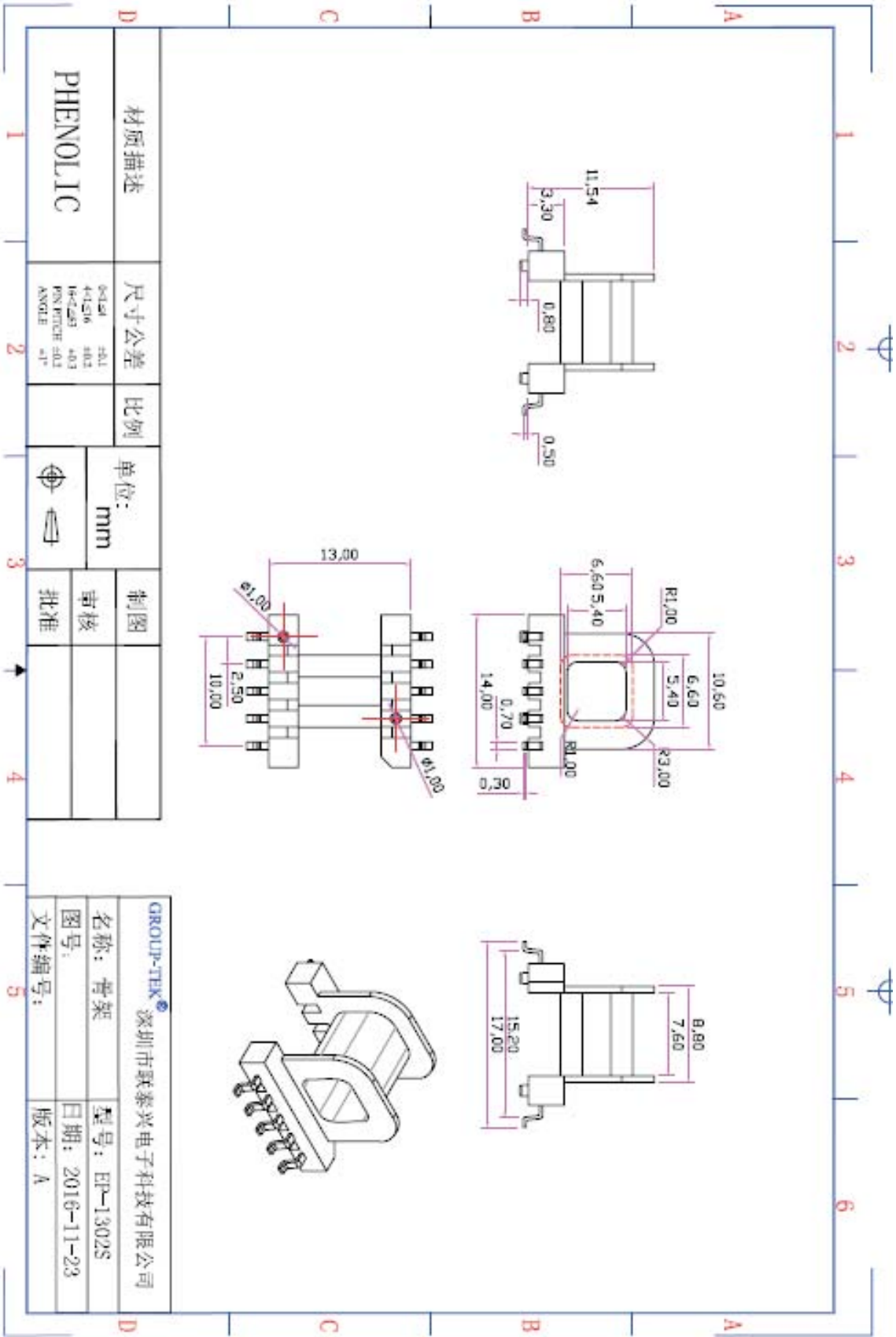
### 8.Material List:

NO.	ITEM.	MATERIALS	SUPPLIERS/MANUFAXTURES	UL FILE NO.
1	BOBBIN	PHENOLIC T375J UL RATING: 94V-0 THERMAL RATING:150°C	CHANG CHUN PLASTIC CO LTD.	QMFZ2.E59481
2	CORE	Tp2A	TTS Technology Co.,Ltd.	N/A
3	WIRE	POLYURETHANE ENAMELED TYPE NO: 2UEW THERMAL RATING:180°C	ZHU HAI SUNTEK WIRE COLTD	OBMW2.E234867
4	TAPE	ADHESIVE POLYESTER TAPE TYPE NO.:CT*(c)(g) THERMAL RATING:130°C yellow tape : for inner coils	JingJiang yahua pressure sensitive glue Co.,Ltd	.E165111
5	SOLDER	SN/CU: 99.3/0.7	Gao Xin stannum industry Co., Ltd	N/A
6	Glue	E-500(xx)	Dong Guan city eatto electronic material Co.,Ltd	E218090
7	CASE	PHENOLIC T375J UL RATING: 94V-0 THERMAL RATING:150°C	CHANG CHUN PLASTIC CO LTD.	QMFZ2.E59481

### 9.PACKING INFORMATION:

DESCRIPTION	QTY
PIECES PER REEL	150
PIECES PER POCKET	1
PIECES PER BOX	450
REEL PER BOX	3
GROSS WEIGHT PER BOX(KG)	TBD
NET WEIGHT PER BOX(KG)	TBD







SPECIFICATIONS	ITEM	LINE FILTER	Rev
	TNC SPEC NO	CV320070SB	0

## 2. ELECTRICAL CHARACTERISTIC

NO	ITEM	TERMINAL	SPECIFICATION			REMARKS
1	RATED VOLTAGE	LINE TO LINE	AC 300V			
2	RATED CURRENT	START-FINISH	2.0A			
3	INDUCTANCE	START-FINISH	16KHz	7.0mH	+ 50%-30%	HP-4194A 1V (25℃±2℃)
4	TEMPERATURE RISE	AT RATED CURRENT	55℃ MAX			
5	DC RESISTANCE	START-FINISH	130.0 mΩ MAX			HIOKI 3540 (25℃±2℃)
6	WITHSTANDING VOLTAGE	LINE TO LINE	AC 1,500V 1 MINUTE.			TOS-5101 CUT OFF CURRENT (5mA)

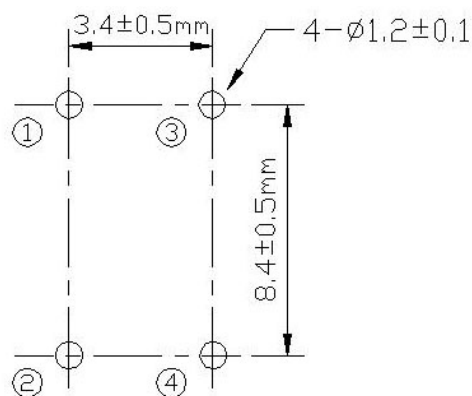
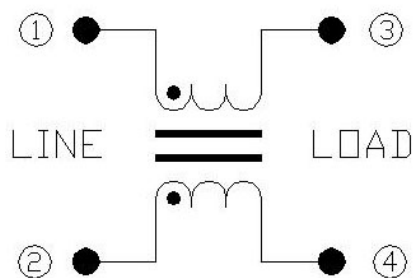
## 3. OPERATING TEMPERATURE RANGE

-40℃ TO +105℃ INCLUDING TEMPERATURE RISE.

## 4. KEEP TEMPERATURE RANGE

-40℃ ~ +105℃.

## 5. CIRCUIT DIAGRAM



Minimum PCB Piercing HOLE

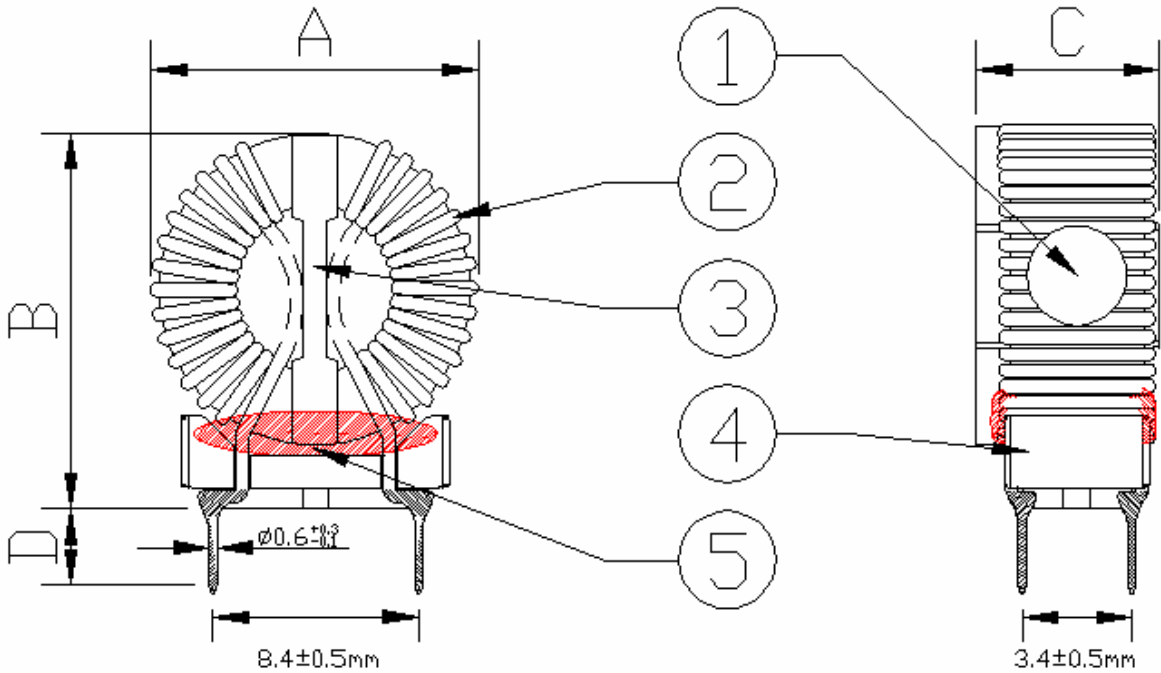
 TNC CO.,LTD	DESIGN	CHECK	APPROVAL	PAGE
	 R&D	 R&D	 R&D	3/14

SPECIFICATIONS	ITEM	LINE FILTER	Rev
	TNC SPEC NO	CV320070SB	0

6. WINDING SPECIFICATION

NO	TERMINAL		WIRE	TURNS	WINDING METHOD	UNBALANCE SPECIFICATION
	START	FINISH				
L1	1	3	UEW 0.40Φ	35±2Ts	HANDMADE	BETWEEN L1 AND L2 (0.2mH MAX)
L2	2	4				

7. SHAPE AND DIMENSION



DIMENSION	A	B	C	D
	15.5mm MAX	18.5mm MAX	9.5mm MAX	Not include solder fillet 2.6 ± 0.5mm

<div>TNC</div> <div>TNC CO.,LTD</div>	DESIGN	CHECK	APPROVAL	PAGE
	<div>RYU.H.E</div> <div>R&amp;D</div>	<div>KIM.J.S</div> <div>R&amp;D</div>	<div>PARK.J.W</div> <div>R&amp;D</div>	4/14

SPECIFICATIONS	ITEM	LINE FILTER	Rev
	TNC SPEC NO	CV320070SB	0

## 8. MATERIAL LIST

No.	NAME	SPECIFICATION		MANUFACTURER	COLOR	UL No.
1	Ferrite Core	MA100 R-13/7/5 R10KF TR13X7X5C		JFE Ferrite Corp LAIWU CHAINWELL ELECTRONIC&MATERIAL CO.,LTD	GRAY	
2	Enamel Wire	UEW 0.40Φ / 35±2Ts	UEW	HWA IL ELECTRONICS CO.,LTD	YELLOW	E140246
			UEW	SHANDONG PENGTAI STOCK CO LTD	YELLOW	E166187
			UEW	SIAM PACIFIC ELECTRIC WIRE & CABLE CO.,LTD	YELLOW	E142108
3	Coil Separator	LCP L304T40		TORAY INDUSTRIES INC	BLACK	E41797
		NYLON A 50H1(r3)(f2)		SOLVAY ENGINEERING PLASTICS GBU	BLACK	E44716
4	Coil Base	Phenolic (PF 2736(a)(b)) UL 94 V-0 Class		Hexion GmbH	BLACK	E61040
		Phenolic (T375HF) UL 94 V-0 Class		CHANG CHUN PLASTICS CO LTD	BLACK	E59481
5	Epoxy	EPOXY RESIN	NA-010	ND Chemical	WHITE	
			EA610A / EA610B	Chemtech Co.,Ltd	Transparent	

 TNC CO.,LTD	DESIGN	CHECK	APPROVAL	PAGE
				5/14

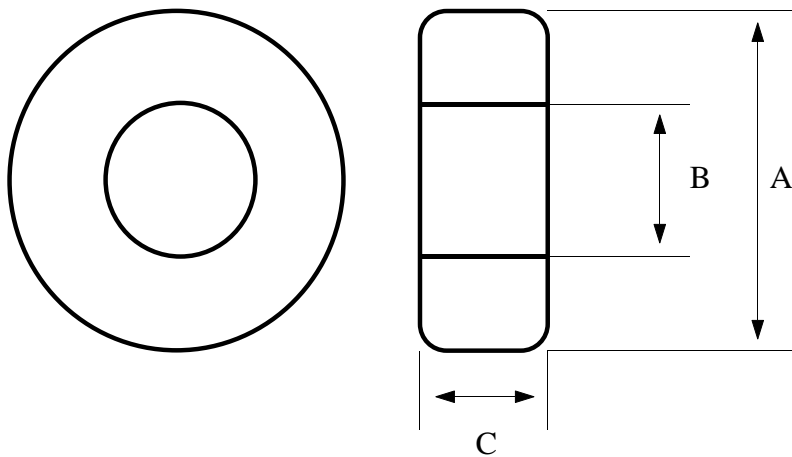
SPECIFICATIONS	ITEM	LINE FILTER	Rev
	TNC SPEC NO	CV320070SB	0

## 14. FERRITE CORE SPECIFICATION

### - Characteristics

Symbol	Unit	MA100 R-13/7/5	R10KF TR13X7X5C
$\mu_i$	-	10,000±30%	10,000±30%
B <sub>ms</sub>	mT	415	390
H <sub>cms</sub>	A/m	3.0	7.0
B <sub>rms</sub>	mT	76	100
T <sub>c</sub>	°C	>115	>120
TANδ /μiac	*10 <sup>-6</sup>	<1.9	<7.0
α <sub>μr</sub>	*10 <sup>-6</sup> /°C	-0.5~2.0	0~1.5
ρ	Ω.m	0.1	0.15
d	g/cm <sup>3</sup>	5.0	4.8

### - Dimension (Before Coating)



A: 13.0 ±0.35      B: 7.0 ±0.3      C: 5.0 ±0.3



**NETWORK CAMERA, TNM-C4940TD**

**DC 12V  1.8A /**

**PoE(53V  ) 0.48A**

**M/C: TNM-C4940TD/KEX**

**Fac.ID:D**



**2022.04 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**

**Rainproof/ Étanche  
IP66 and IP67**

## **Risk Group 1**

**WARNING IR emitted from this product. Do not stare at operating lamp**

*Product tested against IEC62471*







