



Thank you for giving UL the opportunity to partner with you.

Please note, Follow-Up Procedure Revisions or Report Revisions do not include Authorization Pages, Indices, Section General, and/or Appendices unless revisions were required or requested.

Should you have any questions, after reviewing the material, or need to report any inaccuracies, please reach out to your UL representative or find UL contact details for your local Customer Service Department at <https://www.ul.com/about/locations>.

Please find attached the related material

For your convenience, the below describes the related updates:

E158873-volX13-Index
E158873-20211213-CertificateofCompliance
E158873-A6109-DescriptionUL
Figure-13-Total
E158873-A6109-TestRecordUL

This material is provided on behalf of UL LLC (UL) or any authorized licensee of UL.

Times change, Trust Remains™

File		Volume	Page	Date:
E158873	Index	X13	1	14-Dec-21

Index

<u>Product Type</u>	<u>Model/Type Reference</u>	<u>Report Reference #</u>	<u>Status</u>
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	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	

File		Volume	Page	Date:
E158873	Index	X13	2	14-Dec-21

NETWORK VIDEO RECORDER	XRN-1620SB1	E158873-A6054-UL	
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	E158873-A6069-UL	
NETWORK CAMERA	XNV-C9083R, XNV-C8083R, XNV-C7083R, XNV-C6083R	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	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	
NETWORK CAMERA	XNB-9003, XNB-8003, XNB-6003	E158873-A6089-UL	

File		Volume	Page	Date:
E158873	Index	X13	3	14-Dec-21

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	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	TNV-7010RC, TNV-7011RC	E158873-A6109-UL	

CERTIFICATE OF COMPLIANCE

Certificate Number UL-US-2157035-0
Report Reference E158873-20211213
Date 20-Dec-2021

Issued to: Hanwha Techwin Co Ltd
6, Pangyo-ro 319beon-gil, Bundang-gu Seongnam-si,
Gyeonggi-do 13488
Republic of Korea

This is to certify that representative samples of AZOT - Audio/Video, Information and Communication Technology Equipment
See Addendum Page for Product Designation(s).

Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.

Standard(s) for Safety: UL 62368-1, 3rd Ed., Issue Date: 2019-12-13

Additional Information: See the UL Online Certifications Directory at <https://iq.ulprospector.com> for additional information

This Certificate of Compliance does not provide authorization to apply the UL Mark. Only the UL Follow-Up Services Procedure provides authorization to apply the UL Mark.

Only those products bearing the UL Mark should be considered as being UL Certified and covered under UL's Follow-Up Services.

Look for the UL Certification Mark on the product.

B. Mahlen

Bruce Mahrenholz, Director North American Certification Program

UL LLC

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. For questions, please contact a local UL Customer Service Representative at <http://ul.com/aboutul/locations/>



CERTIFICATE OF COMPLIANCE

Certificate Number UL-US-2157035-0
Report Reference E158873-20211213
Date 20-Dec-2021

This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements

Model	Category Description
TNV-7010RC	NETWORK CAMERA
TNV-7011RC	NETWORK CAMERA



Bruce Mahrenholz, Director North American Certification Program

UL LLC

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. For questions, please contact a local UL Customer Service Representative at <http://ul.com/aboutul/locations/>



CERTIFICATE OF COMPLIANCE

Certificate Number UL-CA-2147984-0
Report Reference E158873-20211213
Date 20-Dec-2021

Issued to: Hanwha Techwin Co Ltd
6, Pangyo-ro 319beon-gil, Bundang-gu Seongnam-si,
Gyeonggi-do 13488
Republic of Korea

This is to certify that AZOT7 - Audio/Video, Information and Communication
representative samples of Technology Equipment Certified for Canada
See Addendum Page for Product Designation(s).

Have been investigated by UL in accordance with the
Standard(s) indicated on this Certificate.

Standard(s) for Safety: CSA C22.2 NO. 62368-1, 3rd Ed., Issue Date: 2019-12-13

Additional Information: See the UL Online Certifications Directory at
<https://iq.ulprospector.com> for additional information

This Certificate of Compliance does not provide authorization to apply the UL Mark. Only the UL Follow-Up Services Procedure provides authorization to apply the UL Mark.

Only those products bearing the UL Mark should be considered as being UL Certified and covered under UL's Follow-Up Services.

Look for the UL Certification Mark on the product.



Bruce Mahrenholz, Director North American Certification Program

UL LLC

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. For questions, please contact a local UL Customer Service Representative at <http://ul.com/aboutul/locations/>



CERTIFICATE OF COMPLIANCE

Certificate Number UL-CA-2147984-0
Report Reference E158873-20211213
Date 20-Dec-2021

This is to certify that representative samples of the product as specified on this certificate were tested according to the current UL requirements

Model	Category Description
TNV-7010RC	NETWORK CAMERA
TNV-7011RC	NETWORK CAMERA



Bruce Mahrenholz, Director North American Certification Program

UL LLC

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. For questions, please contact a local UL Customer Service Representative at <http://ul.com/aboutul/locations/>



UL TEST REPORT AND PROCEDURE

Standard:	UL 62368-1, 3rd Ed, Issued: 2019-12-13 (Audio/video, information and communication technology equipment Part 1: Safety requirements) CAN/CSA C22.2 No. 62368-1:19, 3rd Ed, Issued: 2019-12-13 (Audio/video, information and communication technology equipment Part 1: Safety requirements)
Certification Type:	Listing
CCN:	AZOT, AZOT7 (Audio/video, Information and Communication Technology Equipment)
Complementary CCN:	N/A
Product:	NETWORK CAMERA
Model:	TNV-7010RC, TNV-7011RC
Rating:	12 Vdc, 0.9 A or PoE (37-57 Vdc), 0.35 A
Applicant Name and Address:	HANWHA TECHWIN 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: HanQ Choi / 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

NETWORK CAMERA has been designed for INDOOR use and integrated a bracket for wall or ceiling mount. It is a commercial equipment supplied from PoE (Power over Ethernet) and installed by service personnel.

Model Differences

TNV-7010RC is basic model.

TNV-7011RC is identical to basic model except model designation and enclosure design.

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	12 Vdc or PoE (Power over Ethernet)
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)	55
IP protection class	IPX0
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)	2.17

Technical Considerations

- ☐ The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of : 55 °C
- ☐ The product is intended for use on the following power systems : No direct connection
- ☐ Considered current rating of protective device as part of the building installation (A) : N/A

- ☐ Mains supply tolerance (%) or absolute mains supply : No direct connection
- ☐ The Risk Group of a lamp or lamp system (including LEDs) is : RG 1
- ☐ The following are available from the Applicant upon request : Installation (Safety) Instructions / Manual

Additional Information

4790192492

- Standard Upgrade from UL/CSA 60950-1 to UL/CSA 62368-1 3rd Ed.

- This report is based on previously conducted testing and review of product construction of original and revision report (Refer to E158873-X1.A235). Refer to Section "Test performed - Input: Single-Phase (1.6.2), Determination of Working Voltage; Working Voltage Measurement (2.10.2), Battery (4.3.8), Heating (4.5.1, 1.4.12, 1.4.13), Component Failure (5.3.1, 5.3.4, 5.3.7)" covering parts of applicable performance tests and rationale for waived tests.

- 8.7 – WALL OR CEILING MOUNTING TESTS was tested.

Additional Standards

The product fulfills the requirements of: N/A

Markings and Instructions

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)
Hard Copy	A. IMPORTANT B. Please check 'Manuals' from our website, before connecting to the supply. C. Company website URL (https://www.~~)
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 12 Vdc, 0.9 A or PoE (37-57 Vdc), 0.35 A.
Website Manual - 2	The wired LAN hub providing power over the Ethernet (PoE) in accordance with IEEE 802.3.af 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.

Special Instructions to UL Representative

N/A

BD1.0	TABLE: Production-Line Testing Requirements					
BD1.1	Electric Strength Test Special Constructions – Refer to Generic Inspection Instructions, Part AC for further information.					
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
BD1.2	Earthing Continuity Test Exemptions – This test is not required for the following models:					
	All model					
BD1.3	Electric Strength Test Exemptions – This test is not required for the following models:					
	All model					
BD1.4	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.					
	All model					

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

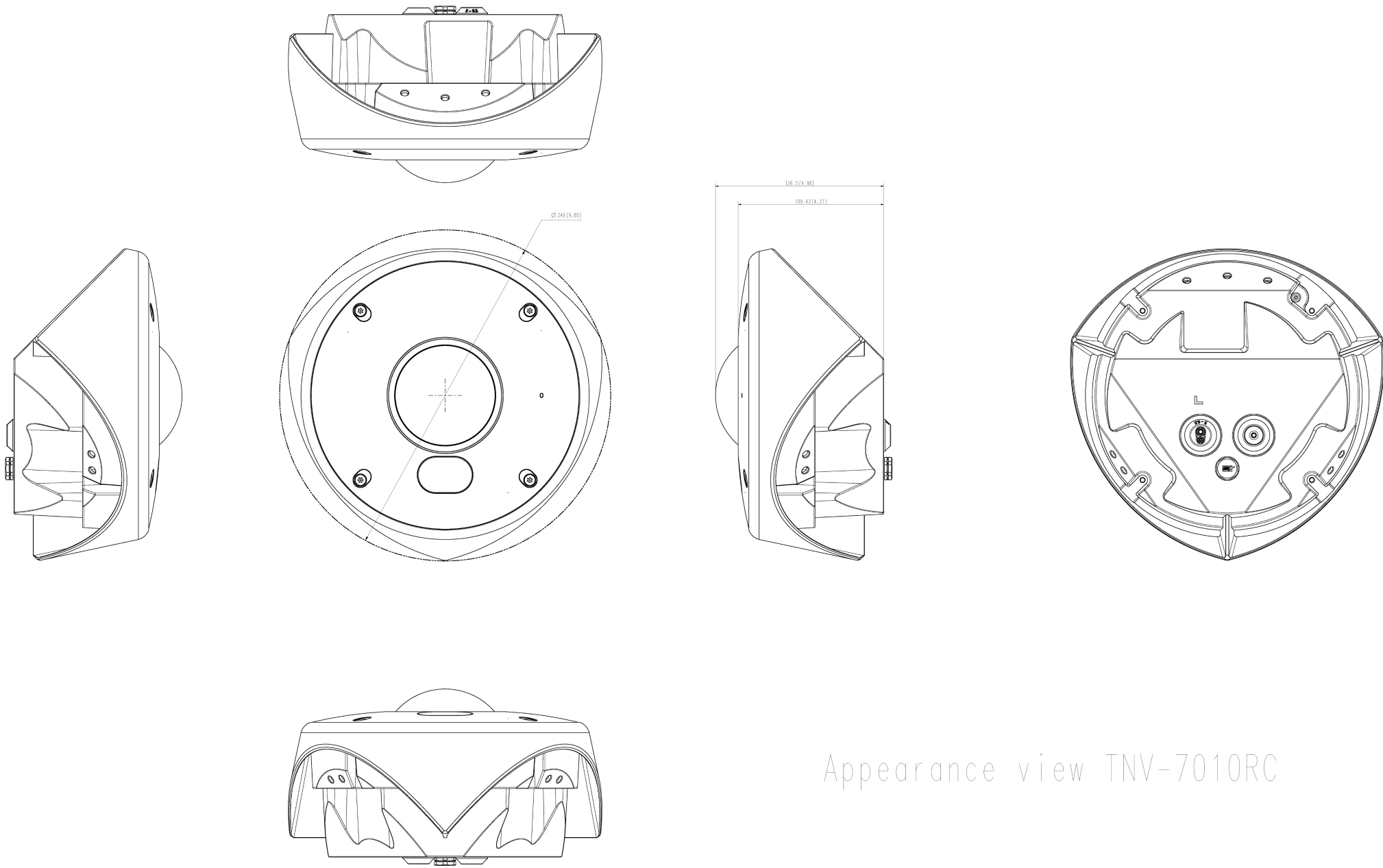
4.1.2	TABLE: List of critical components					Pass
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Product Category CCN(s)	Mark(s) of conformity	Supplement ID
Transparent cover enclosure (Plastic)	Sabic Innovative Plastic US L L C	HF1130R (f2)	Min. 2.0 mm thickness, rated V-2, 130 deg. C, see enclosure for dimension.	QMFZ2	UL (E121562)	
External Enclosure (Metal)	Interchangeable	Interchangeable	Aluminium, Min. 2.0 mm thickness, see enclosure for dimension.	-	-	
Internal plastic parts (Interface)	LOTTE ADVANCED MATERIALS CO LTD	NH-1035(+)	Min. 1.5 mm thickness, rated Min. V-0, 80 deg. C.	QMFZ2/8	UL (E115797)	
Internal metal parts	Interchangeable	Interchangeable	Aluminium, Min. 2.0 mm thickness.	-	-	
Transformer (T203)	SHENZHEN GROUP-TEK ELECTRONICS TECHNOLOGY CO LTD	PDT25117SR	130 deg. C, See enclosure for more detail.	-	-	
Lithium Battery (BAT691)	SEIKO INSTRUMENTS INC MICRO- ENERGY DIV	ML414H	Lithium (Coin), Rechargeable, Max. Charging Voltage: 3.4 Vdc, Max. Charging Current: 300 mAh	BBCV2	UL (MH15628)	
Opto-coupler (LS201)	LITE-ON TECHNOLOGY CORP	LTV-816	Isolation Voltage: 5 300. Max. Operation Temperature: 110 deg.C	FPQU2/8	UL (E113898)	
Fuse (F1)	SEMITEC ELECTRONICS CO LTD	S6125S	125 V, 1.5 A	JDYX2/8	UL (E338954)	
Thermal Pad	KOMOTECH CO LTD	KGP-1	Min. 0.2 mm thickness, rated V-0, 150 deg.C	QMFZ2/8	UL (E245303)	

Internal Wiring (Secondary)	Interchangeable	Interchangeable	Marked VW-1; Min. 30 V, 80 deg. C	AVLV2	UL	
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	SI FLEX	T1	Min. V-0	ZPKX2	UL (E218849)	
FPWB - Alternate	Interchangeable	Interchangeable	Min. V-0, 80 deg. C	QMFZ2 or QMTS2	UL	
PWB	Interchangeable	Interchangeable	Min. V-0, 130 deg.C	ZPMV2	UL	
Label	Interchangeable	Interchangeable	Min. 55 deg.C if max. surface temperature not specified.	PGDQ2 or PGJI2	UL	
IR LED (LD1 to LD2)	OSRAM	SFH 4725S	Vf = 3.4Vdc (max)	-	-	

Enclosures

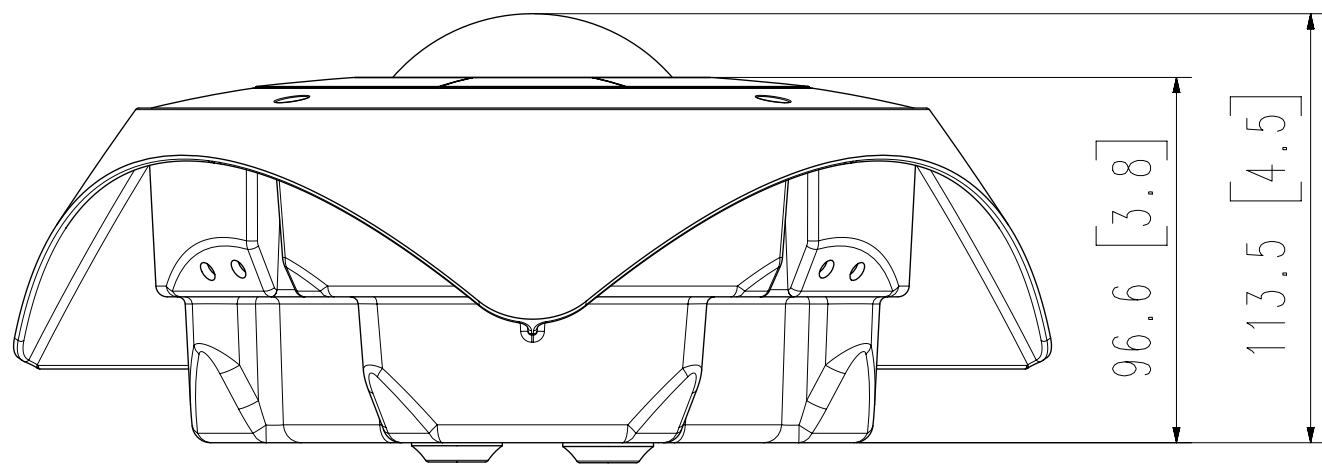
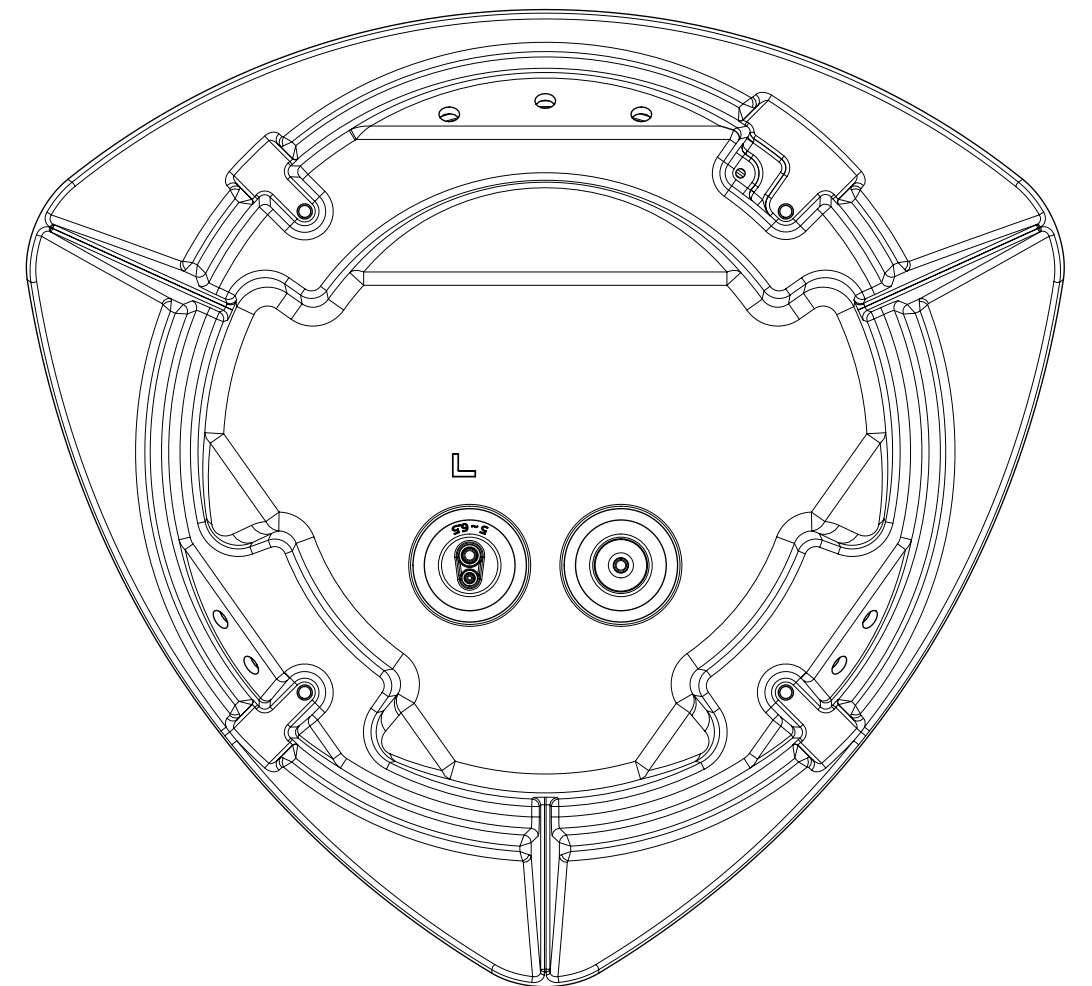
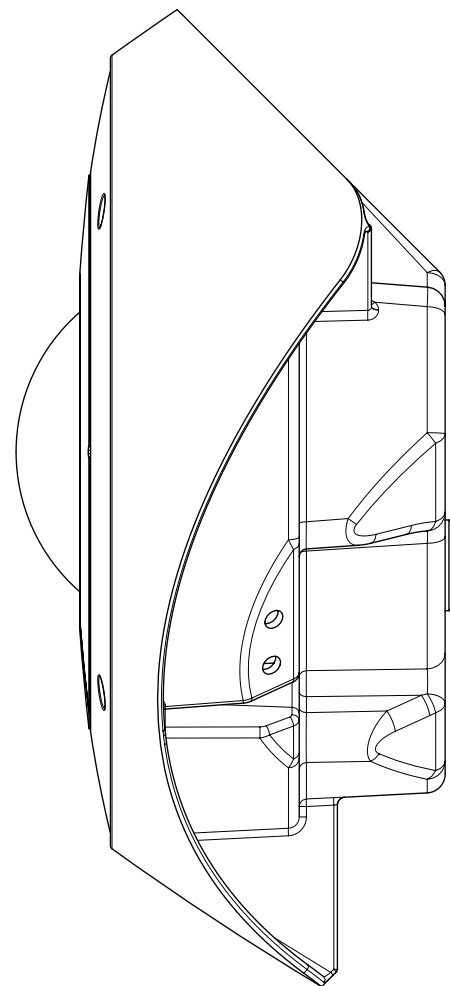
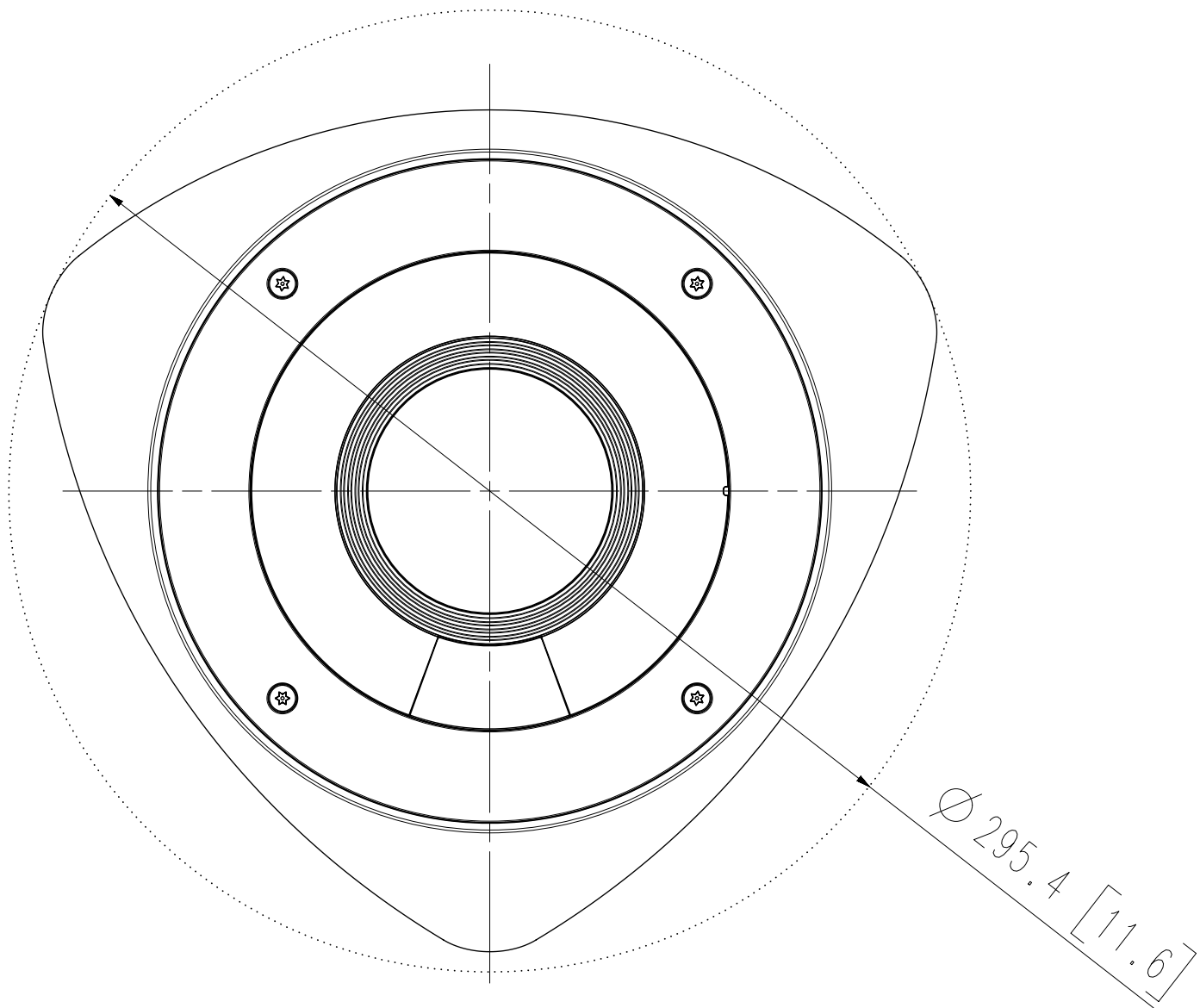
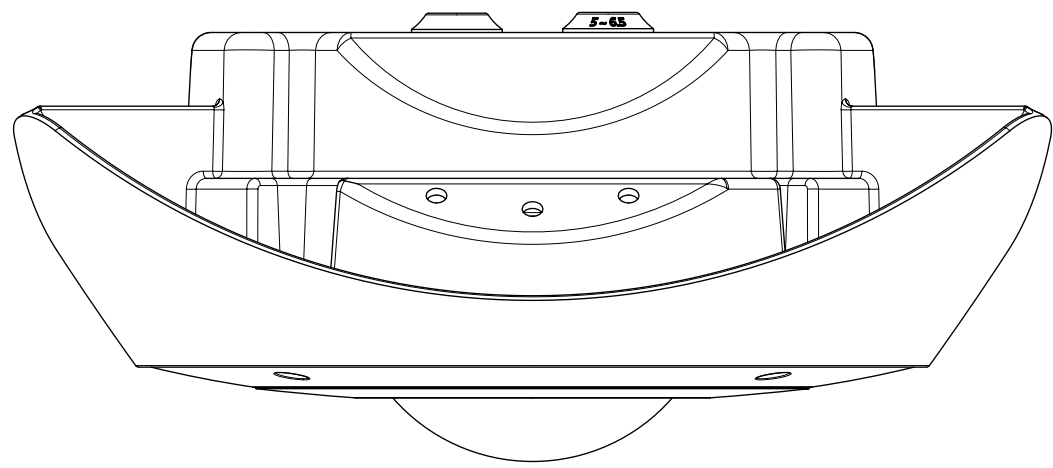
Type	Supplement Id	Description
Photographs	03-01	External View - 1
Photographs	03-02	External View - 2
Photographs	03-03	Network Board - Top
Photographs	03-04	Network Board - Bottom
Photographs	03-05	IR Board - Top
Photographs	03-06	IR Board - Bottom
Diagrams	04-01	Diagram (for TNV-7010RC)
Diagrams	04-02	Diagram (for TNV-7011RC)
Manuals	06-01	Manual
Miscellaneous	07-01	Dual language safety labeling CRD
Miscellaneous	07-02	Transformer (T203) Specification
Miscellaneous	07-03	Label
Miscellaneous	07-04	Label (RG1)

The following Page(s) are related to Diagrams-01. The next supplement, if applicable, will be identified with a new Supplement Page Heading.



Appearance view TNV-7010RC

The following Page(s) are related to Diagrams-02. The next supplement, if applicable, will be identified with a new Supplement Page Heading.



3		
2		
1	TNV-7011RC	'21.11.23
No.	MODEL NAME	DATE
Unit:mm[inch]		SCALE:1/2
Hanwha Techwin		

The following Page(s) are related to Manuals-01. The next supplement, if applicable, will be identified with a new Supplement Page Heading.

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 lighting 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, 0.9A / PoE, 0.35A.
16. 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.
17. 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.
18. 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.
19. 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.
20. Installing or using the product in water can cause serious damage to the product.
21. Although a rapid change in temperature could cause frost inside the dome, there will be no problem with the video.



22. 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.

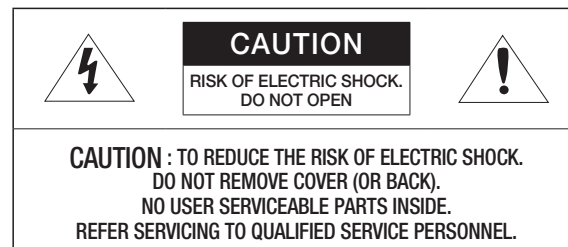
WARNING

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



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.

CAUTION

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 Test Monitor Out port 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.

When a new product box is opened (or during the initial use of the product), moisture might build up on the glass of the camera. The built-up moisture disappears naturally within a few hours after powered on.

Do not arbitrarily loosen or tighten the gore valve.

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 802.3af 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 a burn.

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

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.

The following Page(s) are related to Miscellaneous-01. The next supplement, if applicable, will be identified with a new Supplement Page Heading.

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	2021-11-24	#1	Manufacturer: HANWHA TECHWIN CO LTD Product: NETWORK CAMERA Model: TNV-7011RC Ratings: 12 Vdc, 0.9 A or PoE (37-57Vdc), 0.35 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	2021-03-03	2022-03-03
C-S1-B02	ELECTRONIC BALANCE	10 000 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.
-	-

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.

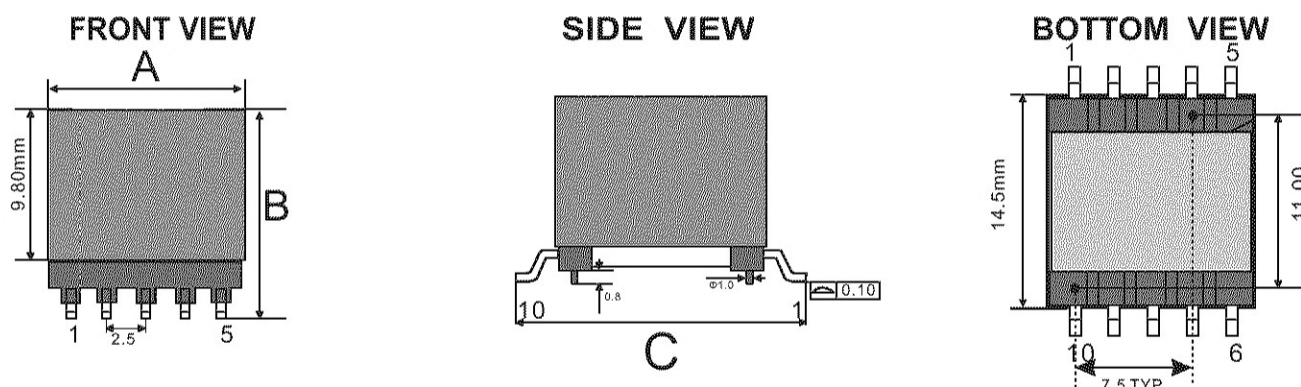
Standard	CSA C22.2 NO. 62368-1, AUDIO/VIDEO, INFORMATION AND COMMUNICATION TECHNOLOGY EQUIPMENT - PART 1: SAFETY REQUIREMENTS	Edition/	
		Revision	Edition 3,
		Date	Issue Date 12/13/2019
Standard	SCC Requirements and Guidance - Product Certification Body Accreditation Program	Edition/	
		Revision	2nd/2016-04-06
		Date	

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			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. If the product standard provides the exact translation, the evidence must match the exact translation. 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).	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			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. 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.	N/A

The following Page(s) are related to Miscellaneous-02. The next supplement, if applicable, will be identified with a new Supplement Page Heading.

2. Mechanical Dimensions:



Note:

- 1.Wrap 2Ts of 7mm tape around the finished part.
- 2.Place the epoxy to fixed the core.
- 3.Wrap the copper shield for the finished part,then wrap 2T tape.

Unit: mm

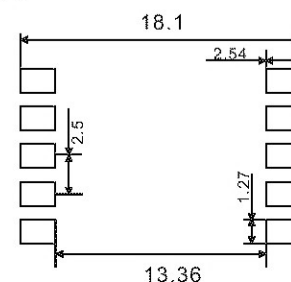
A MAX	B MAX	C MAX
15.0	14.0	17.8

Marking information

PDT2117SR
GROUP-TEK

● YYWW

Suggested PCB Paad Layout



3.Electrical Characteristics :

Specifications: at 25 degree C. Operating Temperature -40 to +105°C

NO.	ITEM	TEST CONDITION	SPECIFICATION
1	Inductance	(3-2) @100KHz, 1.0V	77.0uH ±15%.
2	Inductance	(4-5) @100KHz, 1.0V	23.0uH ±20%.
3	Inductance	(8,9-6,7) @100KHz, 1.0V	31uH ±20%.
4	Leakage Inductance	(3-2) @100KHz, 1.0V with shorted other pins.	3.0uH Max.
5	DCR	(3-2) @ 25°C	0.20Ω Max.
6		(4-5) @ 25°C	0.15Ω Max..
7		(8,9-6,7) @ 25°C	0.15Ω Max.
8	HI-POT	PR I TO SEC	1200Vac 5mA 3Sec.
9	TURN RATIO	(3-2):(8,9-6,7)	1:0.64±2%.
10	TURN RATIO	(3-2):(4-5)	1:0.55±2%.

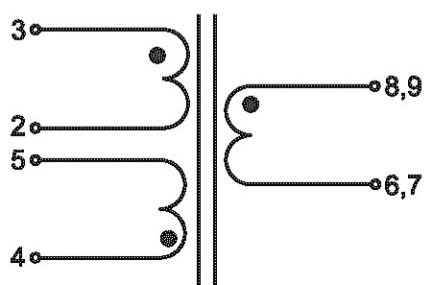
4.Winding Information:

WINDING SEQ.	ST-FN	WIRE/FOIL	TURNS	WRAP INSUL.	MARGIN TAPE	SLEEVE	NOTE
1	3--2	0.30mm 2UEW	22	2T w8.0mm	N/A	N/A	1.
2	8,9--6,7	2*0.30mm 2UEW	14	2T w8.0mm	2T W=1.0mm	N/A	1.
3	4--5	0.30mm 2UEW	12	3T w8.0mm	1T W=1.0mm	N/A	1.

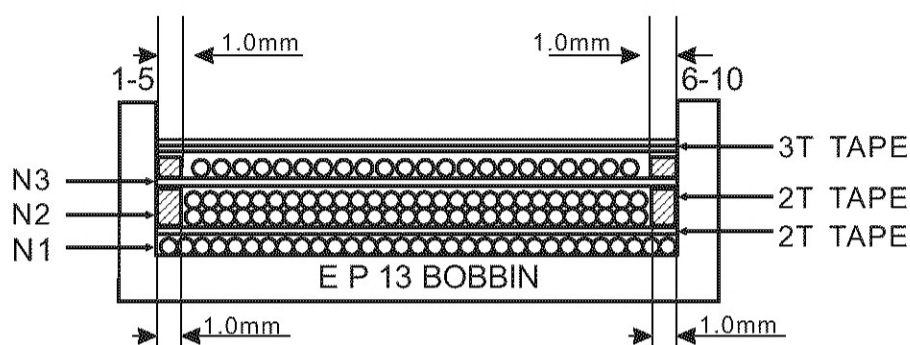
NOTE :

1.Place the bobbin pin 1 left side of operator.

5.Schematic:



6.Winding detail:



7.Material List:

NO.	ITEM.	MATERIALS	SUPPLIERS/MANUFAXTURES	UL FILE NO.
1	BOBBIN	PF2A5-151J(b)	Changshu South EastPlastics Co.,Ltd	E136137
2	CORE	E P13 PG242A	Advance Electronics Products Co.,Ltd	N/A
3	WIRE	POLYURETHANE ENAMELED TYPE NO.: 2UEW ϕ 0.30 THERMAL RATING:180°C	Shing Shun Magnet wire(HuiZhou) Co.,Ltd	E255839
4	TAPE	ADHESIVE POLYESTER TAPE TYPE NO.:W-001 THERMAL RATING:130°C	Shen zhen Weichuangda Packing material Co.,Ltd	E333581
5	SOLDER	SN/CU: 99.3/0.7	Gao Xin stannum industry Co.,Ltd	N/A
6	EPOXY	H-1026	Dongguan city Eatto electronics material Co.,Ltd	N/A
7	INK	VIC-120	Shenshen Huarui samwo group Co.,Ltd	N/A

8.PACKING INFORMATION:

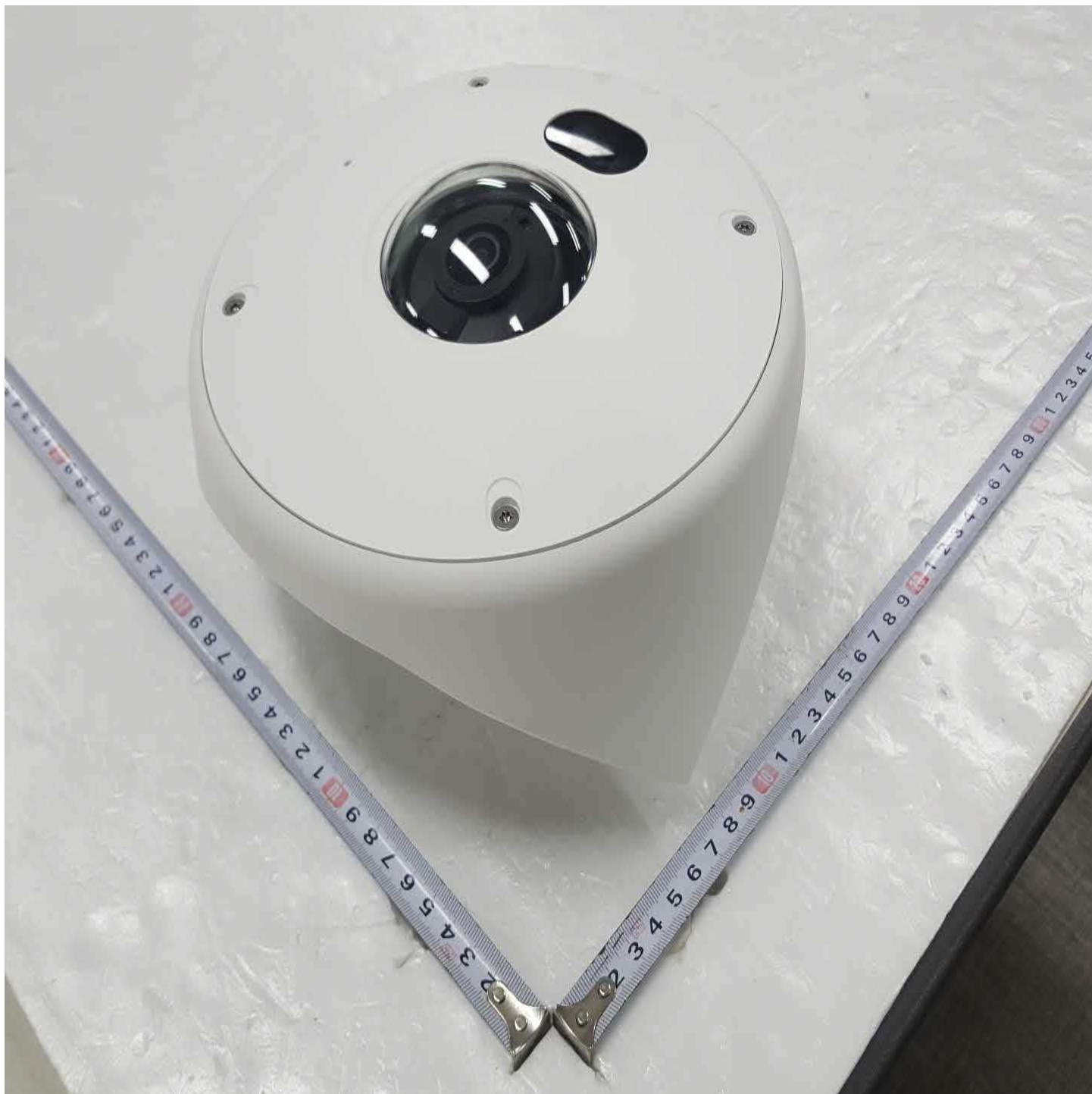
DESCRIPTION	QTY
PIECES PER REEL	150
PIECES PER POCKET	1
PIECES PER BOX	450
REEL PER BOX	3
GROSS WEIGHT PER BOX(KG)	TBD
NET WEIGHT PER BOX(KG)	TBD



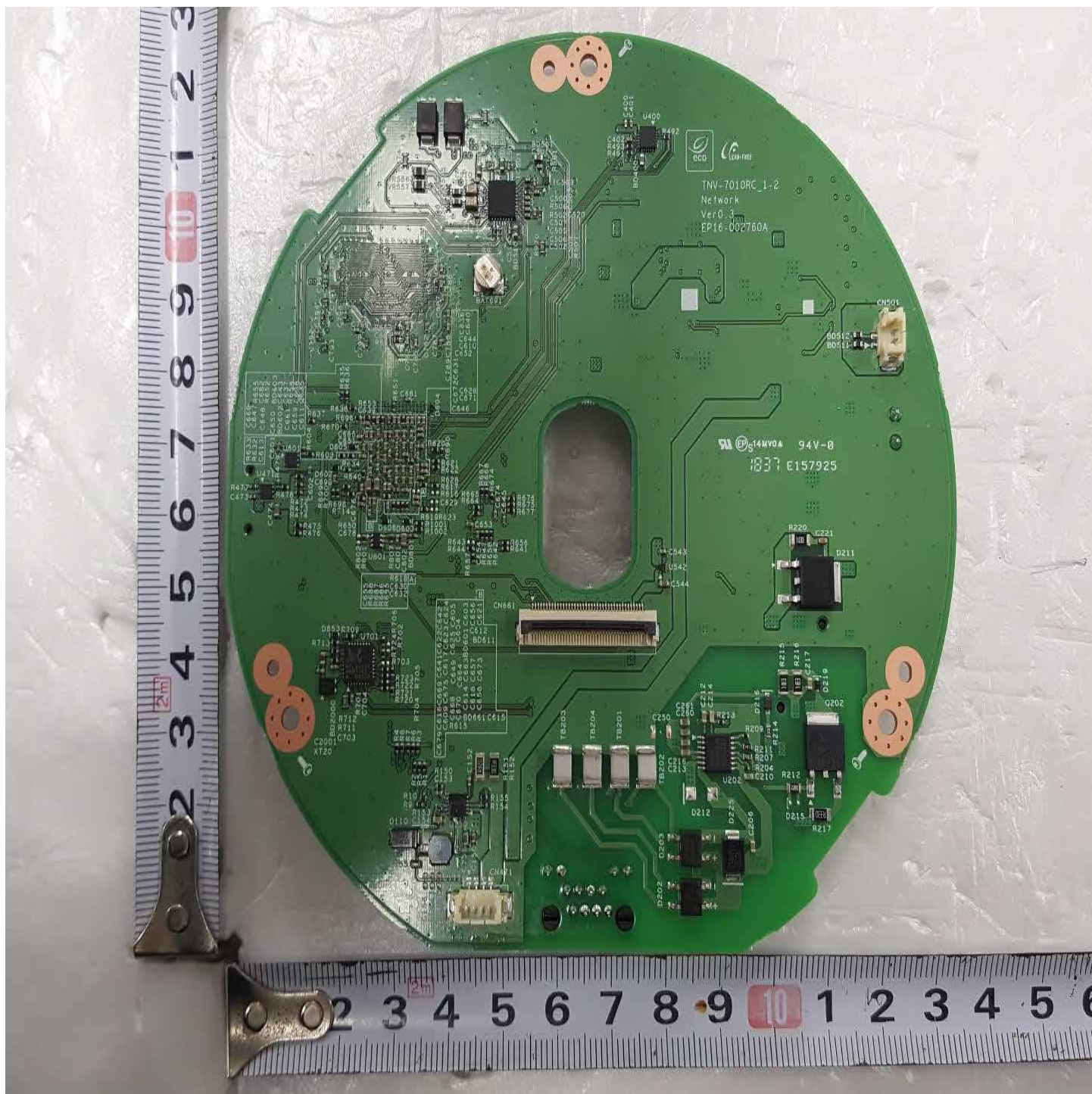
Risk Group 1

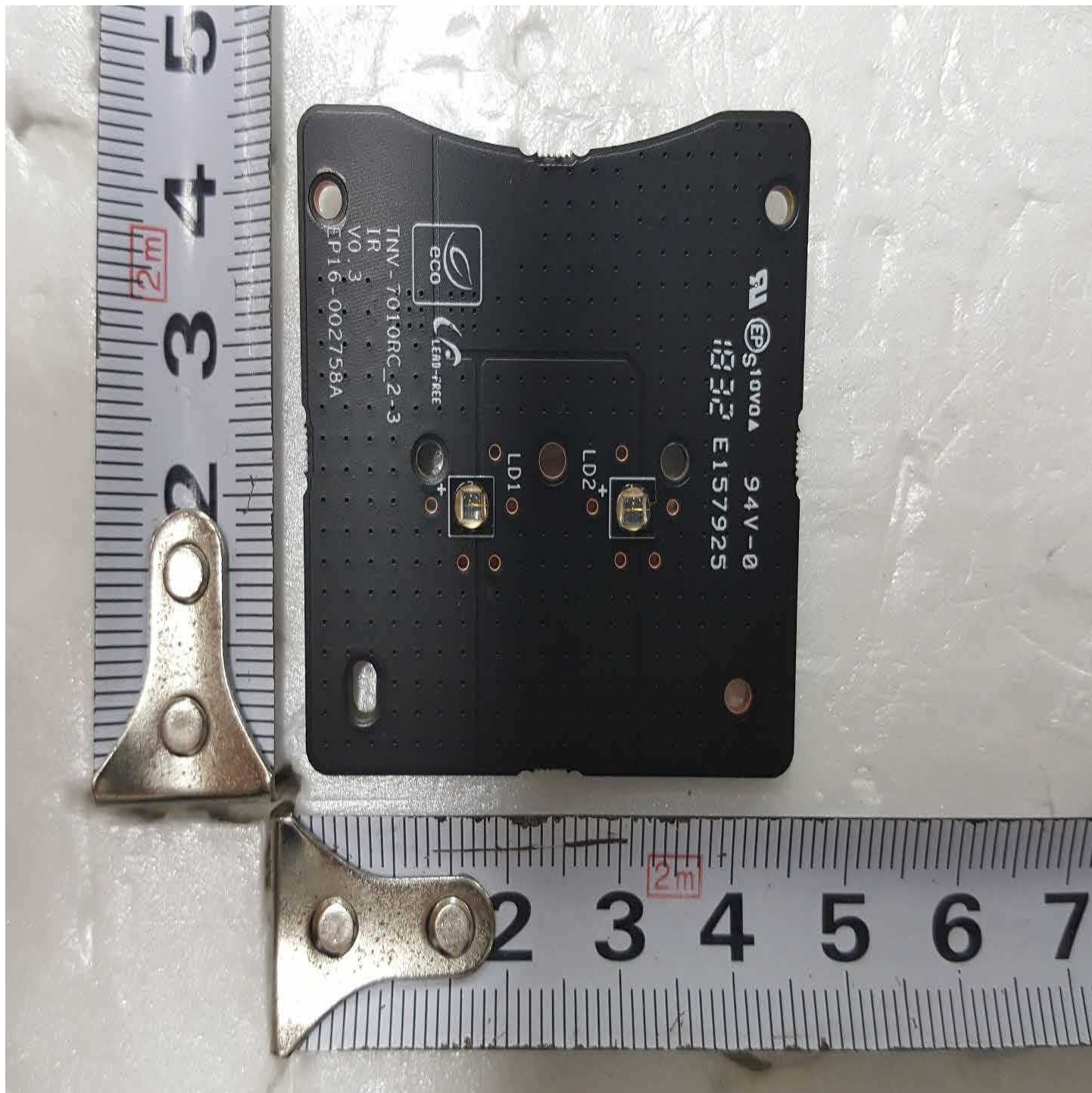
WARNING IR emitted from this product. Do not stare at operating lamp

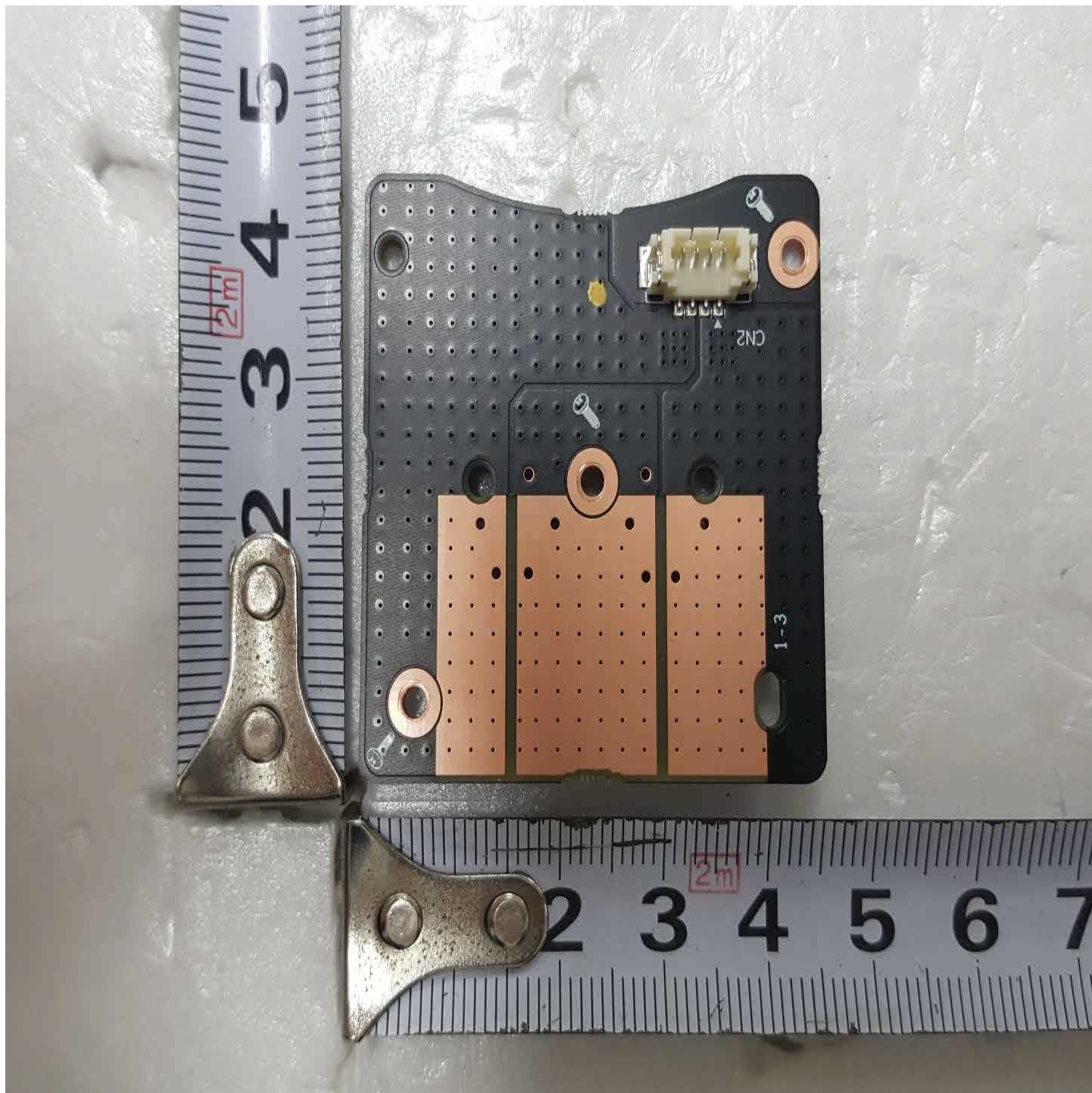
Product tested against IEC62471











Test Record No. 1

1. Test result relate only to the items tested.
2. The manufacturer submitted representative production samples of NETWORK CAMERA, TNV-7011RC.
3. Only the test listed were considered necessary.

The following tests were conducted:

Tests performed (name of test and test clause):	Testing location: CTK Co., Ltd., 386-1 Ho-dong Yongin-shi, Kyungki-do, 449-100, Korea
8.7 - WALL, CEILING, OR OTHER STRUCTURE MOUNTING TESTS	
The following tests were waived:	Rationale for Waiving
5.4.1.8 – DETERMINATION OF WORKING VOLTAGE	Test data accepted based on UL Report (E158873-X1.A235) under UL 60950-1 - Determination of Working Voltage; Working Voltage Measurement (2.10.2) were conducted and meet criteria in 5.4.1.8 – DETERMINATION OF WORKING VOLTAGE of UL 62368-1 3rd Ed.
B.1.5, B.2.6, 5.4.1.4, 6.3, 9.3 - NORMAL OPERATING CONDITIONS TEMPERATURE MEASUREMENT	Test data accepted based on UL Report (E158873-X1.A235) under UL 60950-1 - Heating (4.5.1, 1.4.12, 1.4.13) were conducted and meet criteria in B.1.5, B.2.6, 5.4.1.4, 6.3, 9.3 – NORMAL OPERATING CONDITIONS TEMPERATURE MEASUREMENT of UL 62368-1 3rd Ed.
B.4 - SIMULATED SINGLE FAULT CONDITIONS	Test data accepted based on UL Report (E158873-X1.A235) under UL 60950-1 - Component Failure (5.3.1, 5.3.4, 5.3.7) were conducted and meet criteria in B.4 – SIMULATED SINGLE FAULT CONDITIONS of UL 62368-1 3rd Ed.
M.3.2 - PROTECTION CIRCUITS FOR BATTERIES	Test data accepted based on UL Report (E158873-X1.A235) under UL 60950-1 - Battery (4.3.8) were conducted and meet criteria in M.3.2 – PROTECTION CIRCUITS FOR BATTERIES of UL 62368-1 3rd Ed.

Test results are valid only for the tested equipment. These tests are considered representative of the products covered by this Test Report. The test methods and results of the above tests have been reviewed and found to be in accordance with the requirements in the Standard(s) referenced at the beginning of this Test Report.

The following supplements are provided as part of this Test Record. NOTE: These supplements are only available to the Applicant via the myUL™ Client Portal.

Type	Supplement Id	Description
Datasheet	02-01	Datasheet