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 on Project

For your convenience, the below describes the related updates:

E158873-A6287-DescriptionUL
Figure-17-Total

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Times change, Trust Remains™

UL TEST REPORT AND PROCEDURE

Standard:	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)
Certification Type:	Listing
CCN:	AZOT, AZOT7 (Audio/video, Information and Communication Technology Equipment)
Complementary CCN:	N/A
Product:	NETWORK THERMAL CAMERA
Model:	TNO-C4080T, TNO-C4082T
Rating:	12 Vdc, 0.68 A or PoE(48 Vdc), 0.16 A
Applicant Name and Address:	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.

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Prepared By: Sohyun Lee / Project Handler Reviewed By: Seungtae Kim / Reviewer

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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 THERMAL CAMERA is designed for outdoor use, wall or ceiling use with mounting brackets.

It is a commercial equipment supplied from DC or UL listed PoE (Power over Ethernet) input and installed by service personnel.

Model Differences

TNO-C4080T is basic model.

TNO-C4082T is identical to basic model except for software.

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	Not directly connected to the mains
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	Outdoor location
Pollution degree (PD)	PD 2
Manufacturer's specified Tma (°C)	60 Outdoor: minimum - 40
IP protection class	IP 66 and IP 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)	2.09

Technical Considerations

- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of : 60 °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 following are available from the Applicant upon request : Installation (Safety) Instructions / Manual
- The product was investigated to the following additional standard : IEC 60529:1989+A1:1999+A2:2013
- The outdoor equipment/enclosure was evaluated for use in an ambient range of: - 40 °C to 60 °C.

Additional Information

4792097203
- Maximum Normal Load: Continuous operation (Operate the camera through networked equipment).

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 Company's name, Trade Name, File Number
Equipment identification marking – model identification	Model Number
Equipment rating marking – ratings	Input Ratings (voltage, dc, current)
Outdoor enclosure type	"Rainproof", IP 66 and IP 67
Hard Copy	A. IMPORTANT or ATTENTION or similar wording B. Please check 'Manuals' from out website, before connecting to the supply. C. Company website URL (https://www.~~) or QR code.
(Website) Manual - 1	This Product is intended to be supplied by a UL Listed Power Supply Unit marked "Class 2" or "LPS" or PS2" and rated from 12 Vdc, 0.68 A or PoE(48 Vdc), 0.16 A.
(Website) Manual - 2	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.

SCC requirement	If the signal words DANGER, WARNING, and CAUTION are included, a French manual is provided.
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 models					
BD1.3	**Electric Strength Test Exemptions – This test is not required for the following models:**					
	All models					
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 models					

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
Enclosure - Decoration cover (Plastic)	LOTTE CHEMICAL CORPORATION	HN-1068(f1)	Min. 1.5 mm thickness, rated Min. V-0, 130 deg. C.	QMFZ2	UL (E115797)	
Enclosure - Top, White (Metal)	Interchangeable	Interchangeable	Aluminum, Min. 2.5 mm thickness, See enclosures for dimension.	-	Tested in equipment	
Enclosure - Top, Black (Metal)	Interchangeable	Interchangeable	Aluminum, Min. 2.5 mm thickness, See enclosures for dimension.	-	Tested in equipment	
Enclosure - Bottom (Metal)	Interchangeable	Interchangeable	Aluminum, Min. 2.5 mm thickness, See enclosures for dimension.	-	Tested in equipment	
Internal plastic parts	LOTTE CHEMICAL CORPORATION	HN-1068(f1)	Min. 1.5 mm thickness, rated Min. V-0, 130 deg. C.	QMFZ2	UL (E115797)	
Internal plastic parts - Alternate	Interchangeable	Interchangeable	Min. 1.5 mm thickness, rated Min. HB.	QMFZ2	UL	
Internal metal parts	Interchangeable	Interchangeable	Aluminum, Min. 1.5 mm thickness, See enclosures for dimension.	-	Tested in equipment	
Mounting bracket (Metal)	Interchangeable	Interchangeable	Aluminum, Min. 3.5 mm thickness, See enclosures for dimension.	-	Tested in equipment	
Fuse (F1)	LITTELFUSE INC	449*	125 Vac, 2.0 A	JDYX2	UL (E10480)	
Opto-coupler (LS1)	LITE-ON Technology Corporation	LTV-217 (Type: LTV-217-C-G)	Isolation Voltage: 3750 Vac, Max. operation	FPQU2	UL (E113898)	

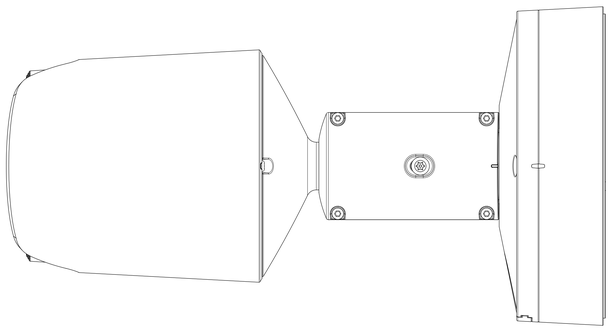
			temperature: 110 deg. C			
Transformer (T1)	SHENZHEN GROUP-TEK ELECTRONICS TECHNOLOGY CO., LTD	PDT25289SR	77.0 uH, 130 deg. C, See enclosures for more detail.	-	Tested in equipment	
Rechargeable battery (BAT1)	SEIKO INSTRUMENTS INC MICRO-ENERGY DIV	ML414H	Lithium, Rechargeable, Max Charging Voltage: 3.4 Vdc, Max Charging current: 300 mA.	BBCV2	UL (MH15628)	
Lithium battery protection circuits	Interchangeable	Interchangeable	Diode (D26, 80 V, 150 mA) and Resistor (R176, 3.3 Kohm) in series.	-	Tested in equipment	
Thermal pad	KOMOTECH	KGP-1(a)	Min. 1.0 mm thickness, rated V-0, 150 deg. C	QMFZ2	UL (E245303)	
Gasket - Lens	NAMYANG	O-VMQ-50-RE	Gasket test was conducted under E158873-A6034.	-	Tested in equipment	
Gasket holder - Lens	NAMYANG	O-VMQ-50-YE	Gasket test was conducted under E158873-A6034.	-	Tested in equipment	
Gasket - Front	NAMYANG	O-VMQ-40-GR	Gasket test was conducted under E158873-A6034.	-	Tested in equipment	
Gasket - Main-Body	NAMYANG	O-VMQ-50-GR	Gasket test was conducted under E158873-A6034.	-	Tested in equipment	
Gasket - Tube	Y&K	O-VMQ-30-BK	Gasket test was conducted under E158873-A6034.	-	Tested in equipment	
Gasket - Bushing-dummy	NAMYANG	C-VMQ-60-GR	Gasket test was conducted under E158873-A6034.	-	Tested in equipment	

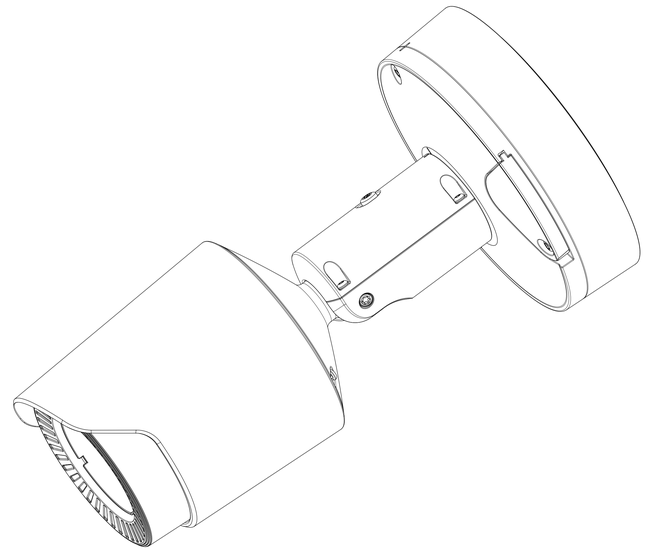
Gasket - Bushing-cable	NAMYANG	C-VMQ-40-GR	Gasket test was conducted under E158873-A6034.	-	Tested in equipment	
Gasket - Door	NAMYANG	O-VMQ-30-RE	Gasket test was conducted under E158873-A6034.	-	Tested in equipment	
Gasket - Backbox	NAMYANG	O-VMQ-30-RE	Gasket test was conducted under E158873-A6034.	-	Tested in equipment	
Heatsink	Interchangeable	Interchangeable	Aluminum (Silver), Approx. overall size: of 80.27 mm x 62.77 mm x 32.1 mm, Min. 1.5 mm thickness, See enclosure for dimension.	-	Tested in equipment	
PWB	Interchangeable	Interchangeable	Min. V-0, 130 deg. C	ZPMV2	UL	
Outdoor label	Interchangeable	Interchangeable	Suitable for use on each type of surface to which applied, rated for minimum and maximum surface temperature specified, or Min. - 40 deg. C to Max. 60 deg. C if not specified.	PGDQ2 or PGJI2	UL	

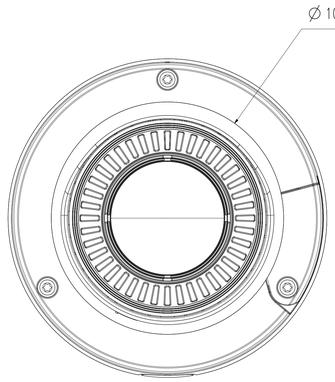
Enclosures

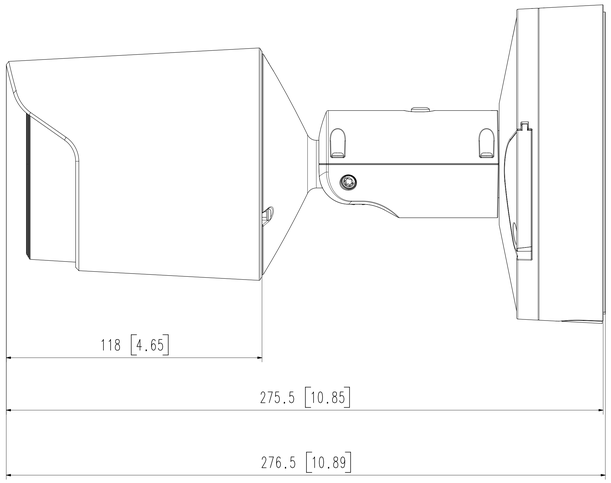
Type	Supplement Id	Description
Photographs	03-01	External view - 1
Photographs	03-02	External view - 2
Photographs	03-05	External view - 3
Photographs	03-06	Internal view
Photographs	03-09	Lens module view - 1
Photographs	03-10	Lens module view - 2
Photographs	03-13	NUC board view - 1
Photographs	03-14	NUC board view - 2
Photographs	03-15	Network board view - 1
Photographs	03-16	Network board view - 2
Photographs	03-17	Pre-amp board view - 1
Photographs	03-18	Pre-amp board view - 2
Diagrams	04-01	Enclosure drawings
Diagrams	04-02	Heatsink drawings
Manuals	06-01	Manual
Miscellaneous	07-01	Transformer (T1) Specification
Miscellaneous	07-04	Label

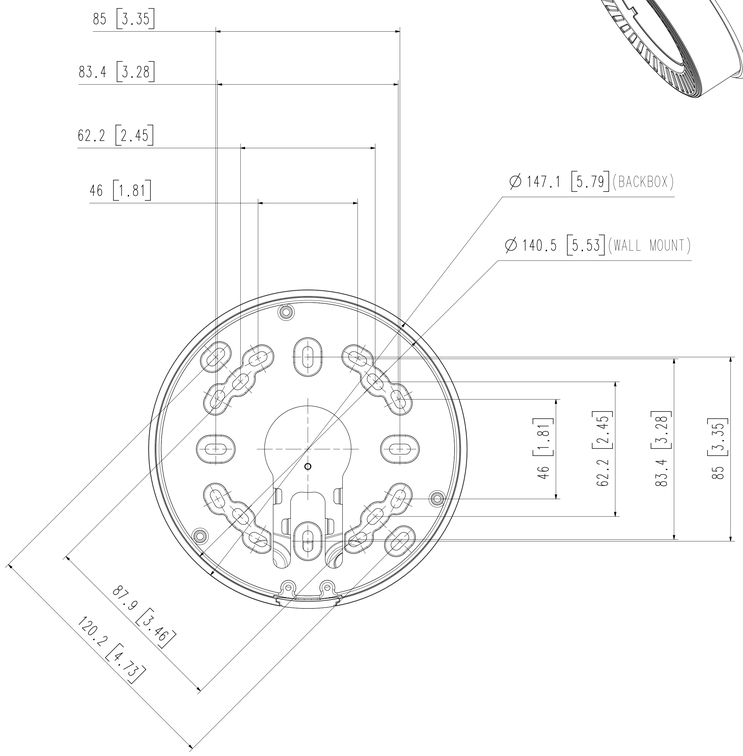
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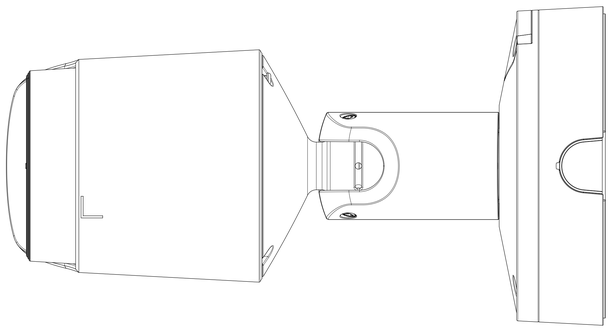












3	MODEL2	
2	MODEL1	
1	TNO-C4080T/C4082T	'26.01.12
No.	MODEL NAME	DATE
Unit:mm[inch]	SCALE:1/1	Hanwha Vision

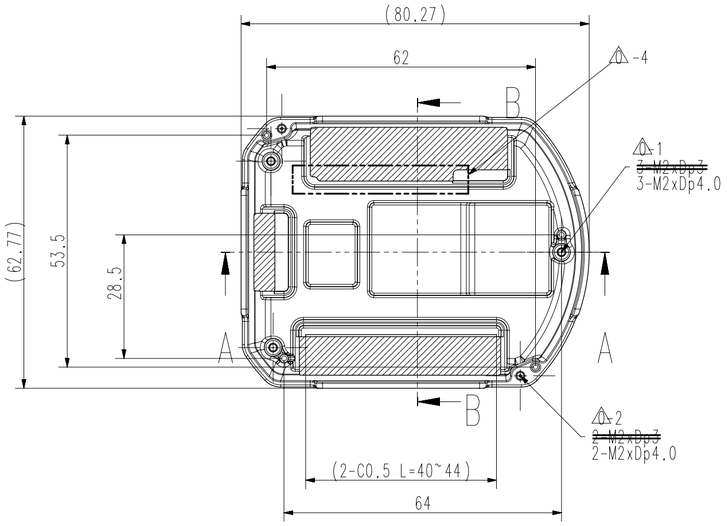
A0

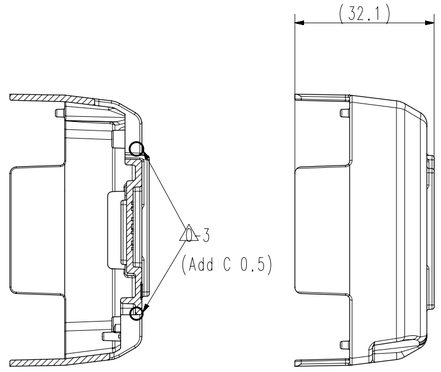
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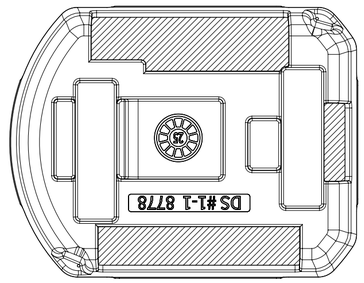
This parts should not contain any substances which are specified in AH60-0033K

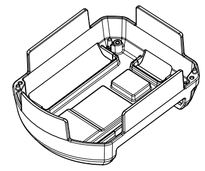
NO	PART NAME	CODE NO.	MATERIAL	Q'TY	REMARK
1	HOLDER-PCB-NUC_TNO-C4080T	FC29-018778A	Check note	1	-

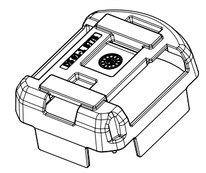


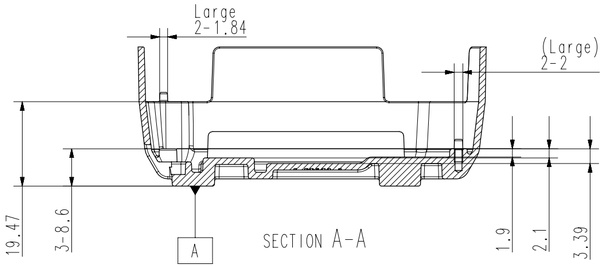


SECTION B-B

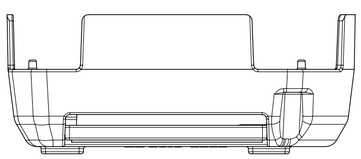








SECTION A-A



Process	Casting-Cutting-Sdnding-Machining/Tapping-Degrease-Anodizing(Black)

NOTE:Die-Casting

1. Material and Basic wall thickness : ADC, t2.0

2. Gate, P/L, Ejector Pin location must be handled with HVC designer.
3. Ejector pin stain must be less than 0.3 depth (⊡), no flash is allowed.
4. Undescribed edge round must be less than R0.5, undescribed corners must be less than R0.3.
5. No Deformation, Air bubble, Shrinkage is allowed.
6. Every Flash on P/L must be less than 0.1.
7. Undescribed draft angles must be less than 0.5° .
8. * marks (Key dimensions) must be carefully handled.
9. Surface cutting level of Gate and Over-Flow must be equivalent with other surface cutting level.
10. Part Name, Code Number, Mold Number, Material, Model Name must be carved on the inner side of the part.
 - Location and Specs. must be handled with HVC designer.
11. External look and printing specification must follow separately distributed Design Specification data.
 - Including Surface cutting, Chromate, Sanding, Spray, Silk Print specifications.
12. Reliability must satisfy HVC standards.
13. Delivery packing specifications must be discussed separately.
14. All other issues must be handled with HVC designer.

STANDARD TOLERANCE

DIV	Lvl 1	Lvl 2	Lvl 3	Lvl 4	Lvl 5
0-16	±0.05	±0.1	±0.1	±0.2	±0.3
16-63	±0.05	±0.1	±0.2	±0.3	±0.4
63-250	±0.1	±0.2	±0.3	±0.4	±0.4
250-1000	±0.2	±0.3	±0.4	±0.5	±0.6

Hanwha Vision APPROVAL 25.10.27

A2

CHANGE

△-1~2 Change screw depth Due to SC L change

△-3 Add C0.5 ('25.11.07. CHOI.E.S)

△-4 Cut cover area to ease Cable connecting ('26.1.07. CHOI.E.S)

UNIT	mm	DESIGN	CHECK	APPROVAL	PART NAME	HOLDER-PCB-NUC_TNO-C4080T
SCALE	1/1	CHOI.E.S	KIM.J.S	CHOI.Y.S	MODEL NAME	TNO-C4080T
		'25.07.03	'25.07.03	'25.07.03		
Hanwha Vision					CODE NO.	FC29-018778A

TC: 252033

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

Hanwha Vision

NETWORK THERMAL CAMERA

User Manual

TNO-C4040T/TNO-C4042T
TNO-C4050T/TNO-C4052T
TNO-C4060T/TNO-C4062T
TNO-C4080T/TNO-C4082T

CE

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 UL Listed Power Supply Unit marked "Class 2" or "LPS" or "PS2" and rated from 12 Vdc 0.68 A / PoE (48 Vdc), 0.16 A.
16. This product is intended to be supplied by isolation power.
17. 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.
18. 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.
19. 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.
20. 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.
21. Installing or using the product in water can cause serious damage to the product.
22. Although a rapid change in temperature could cause frost inside the glass, there will be no problem with the video.
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. The operating temperature of the product is -40°C to +60°C (-40°F ~ +140°F).

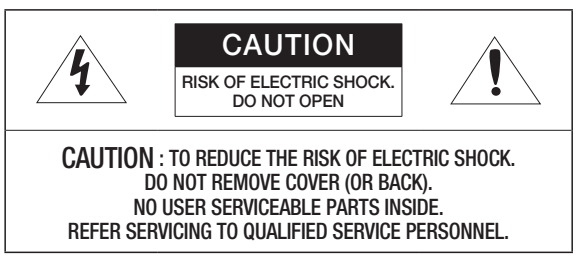
WARNING

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.

Prohibition of battery abuse

- Do not install and use the wrong type of battery.
- Do not leave the battery in a mechanically crush or cut it because it can explode.
- Do not leave the battery in a high temperature environment.
- Do not leave the battery in a low-pressure environment.

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.

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

The USB-C port on the product is intended for initial setup only and should not be used for any other purpose.

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.

This equipment is not suitable for use in locations where children are likely to be present.

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

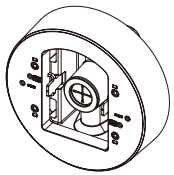
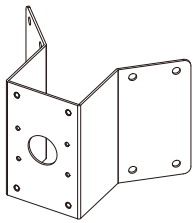
※ Please read this manual for the safety before using of goods and keep it in the safe place.
We do not guarantee the quality of third-party products (e.g. lenses, accessories) that you separately purchase.

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.

If the screen freezes for about 1-2 seconds at a certain time interval or when there is a change in the temperature of the surrounding area, this is normal; the screen is simply undergoing a calibration process.

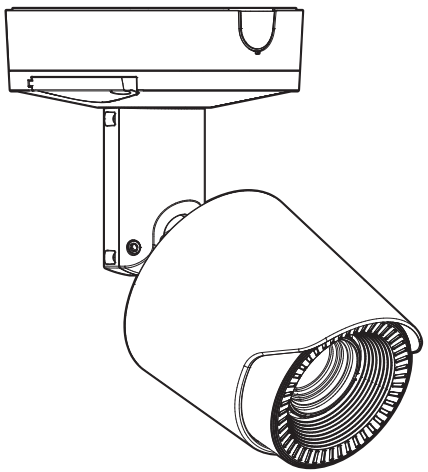
OPTIONAL ACCESSORIES FOR INSTALLATION

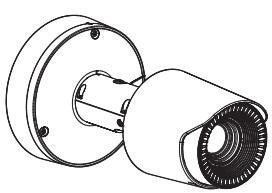
You can purchase appropriate optional accessories available.

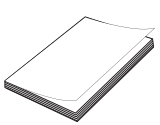
Pole Mount	Corner Mount
	
SBD-180PMW	SBP-300KMW1

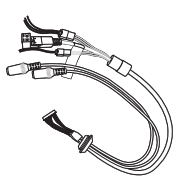
WHAT'S INCLUDED (TNO-C4040T/TNO-C4042T/TNO-C4050T/TNO-C4052T/ TNO-C4060T/TNO-C4062T)

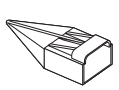
Accessories may vary by country or region.

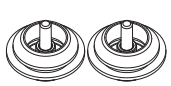










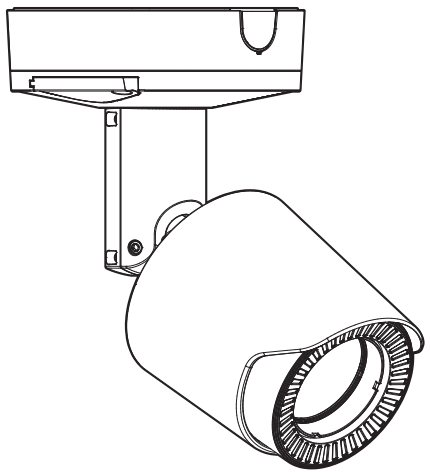


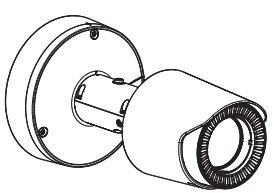


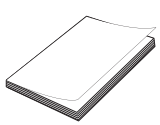
- The shape of the camera lens may differ by the model number.
- Use installation screws of at least M4, L30 for the installation of this product.

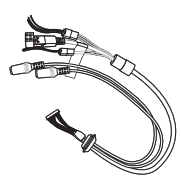
WHAT'S INCLUDED (TNO-C4080T/TNO-C4082T)

Accessories may vary by country or region.









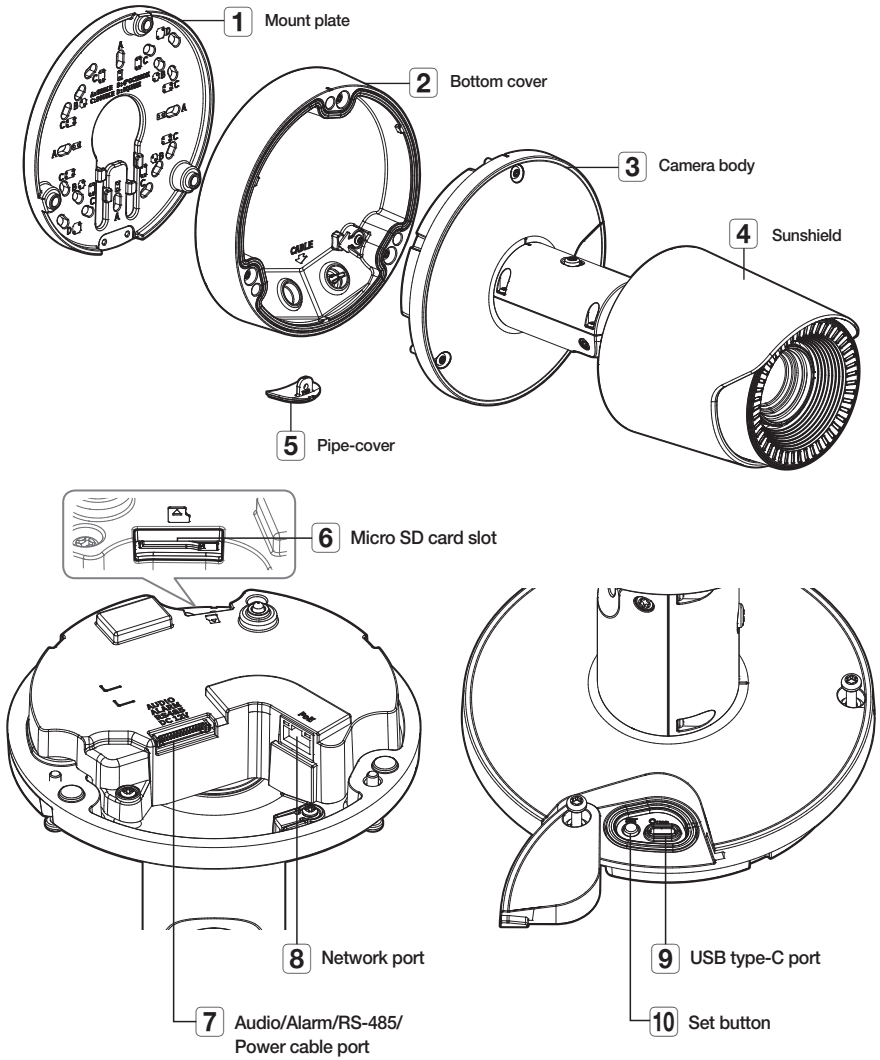






- The shape of the camera lens may differ by the model number.
- Use installation screws of at least M4, L30 for the installation of this product.

AT A GLANCE



- Wipe out a dirty surface of the lens softly with a lens tissue or cloth to which you have applied ethanol.

INSTALLATION

- The camera jack connected to the external cable is not waterproof. You are recommended to install this product below the edge of eaves to prevent the cable from being externally exposed.

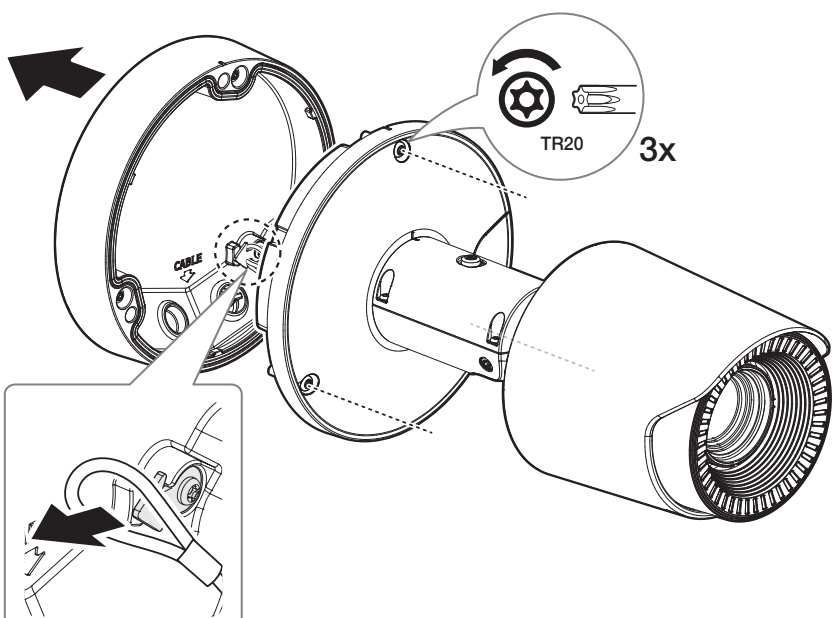
Precautions before installation

Ensure you read out the following instructions before installing the camera:

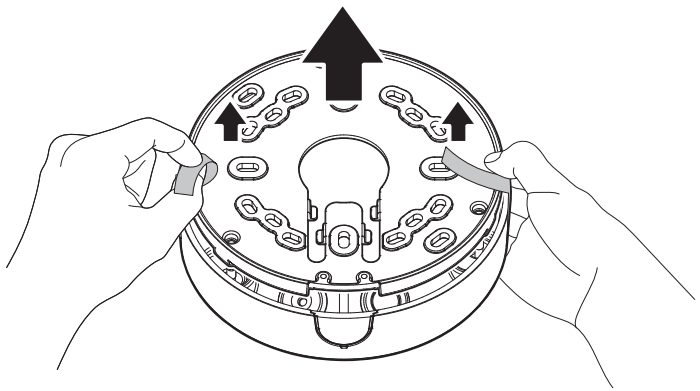
- Select an installation site that can hold at least 5 times the camera's weight.
- Stuck-in or peeled-off cables can cause damage to the product or a fire.
- For safety purposes, keep anyone else away from the installation site. And put aside personal belongings from the site, just in case.
- If the product is installed with excessive force, it may cause damage to the camera due to malfunction. Forcing assembly using non-compliant tools may damage the product.

Disassembling

1. Remove the bottom cover by turning the bottom cover's fastening screws on the camera body counterclockwise.
   - Note that it is not necessary to loosen the screws completely.

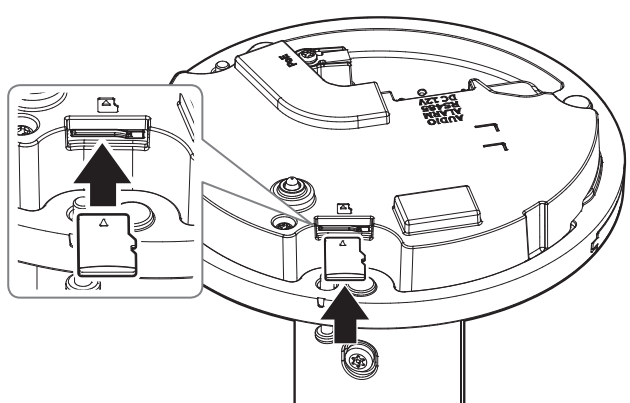


2. Remove the fixing tape from the bottom cover and mount plate, and then remove the mount plate.

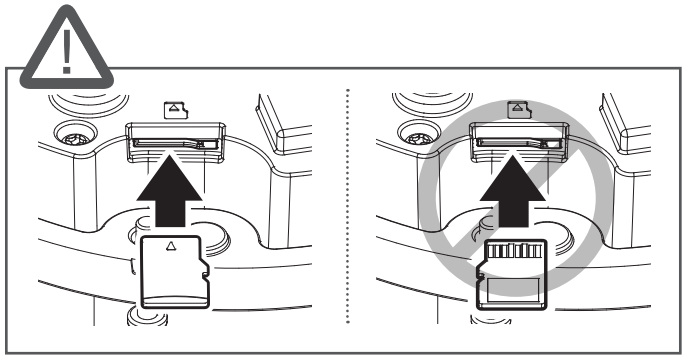


Inserting a Micro SD card

Slide the Micro SD card into the Micro SD card slot on the camera module in the direction of the arrow.



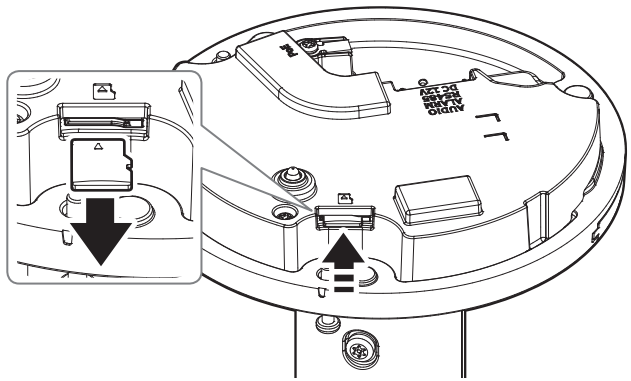
- Do not forcefully insert it in the reverse direction. It might damage your Micro SD card and your product.



- Before installing the camera, the Micro SD card should be inserted while the power source and the body are separated.
- When it rains or the humidity is high, insertion or ejection of a Micro SD card is not recommended.
- When installing/removing the Micro SD card, make sure you put the product body on a flat ground before working on it in order to prevent accidents due to loss or drop of any parts.

Removing a Micro SD card

Gently press down on the exposed end of the Micro SD card as shown in the diagram to eject the Micro SD card from the slot.

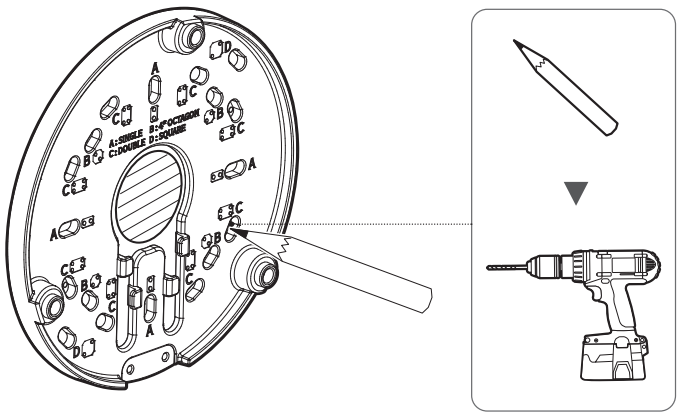


- Before removing the Micro SD card, in <**Setup** (⚙)>-<**Event**>-<**Storage**>, set the device to <**Off**> and press the [**Apply**] button and turn the camera off.
- If you turn off the camera or remove the Micro SD card that contains data from the product, the data may be lost or damaged.

Installation (Mount plate)

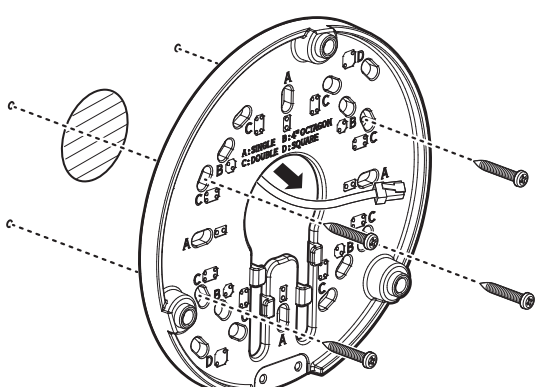
[Directly installing on wall/ceiling]

1-1. Place the mount plate on the desired location considering the direction to be monitored, mark the locations for the screw holes and cable holes, and then drill the holes.



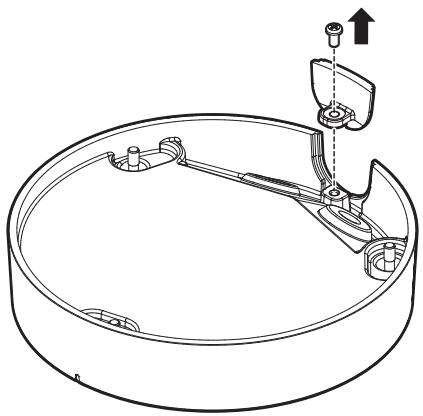
1-2. Fix the Mount plate using appropriate screws.

1-3. Pull out necessary cables among network/audio/alarm/RS-485/power cables through the hole in the Mount plate.



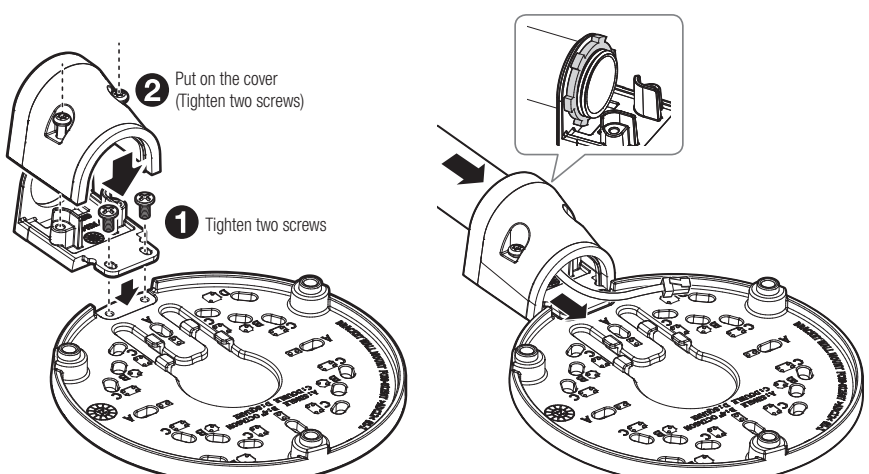
[Installing using pipe]

2-1. When installing it using a pipe, you can do so after removing the wiring hole cover on the bottom of the product. Use a Phillips screwdriver to remove the fixing screws from the bottom cover and detach the wiring hole cover.



2-2. Join the conduit adaptor (SBP-061BA, separately sold) to the mount plate.

2-3. Mount the pipe to the conduit adaptor.



2-4. Fix the mount plate using appropriate screws.

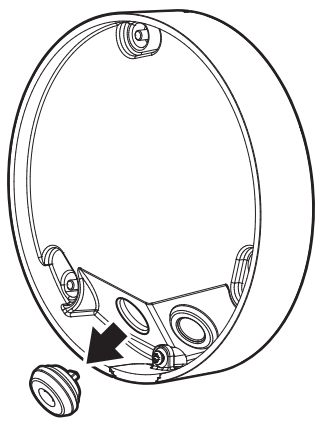
2-5. Pull out necessary cables among network/audio/alarm/RS-485/power cables through the pipe.

Installation (Bottom cover)

- Use a cable bushing compliant with the network cable to be connected.
  - Camera main: use a cable with the diameter of Ø5 to 6.5
- You can only use a network cable with a diameter of Ø6.5 or less.

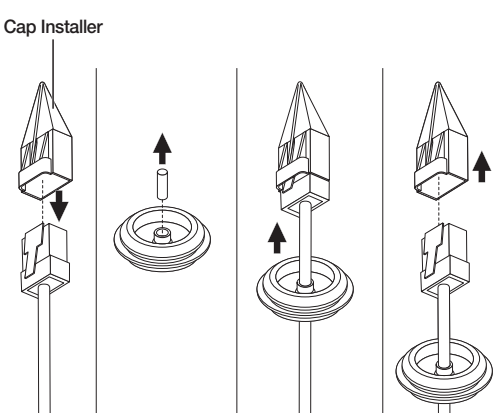
[Installing the network cable] (IP66/IP67)

1. As shown in the figure below, remove the cable bushing from the bottom cover.

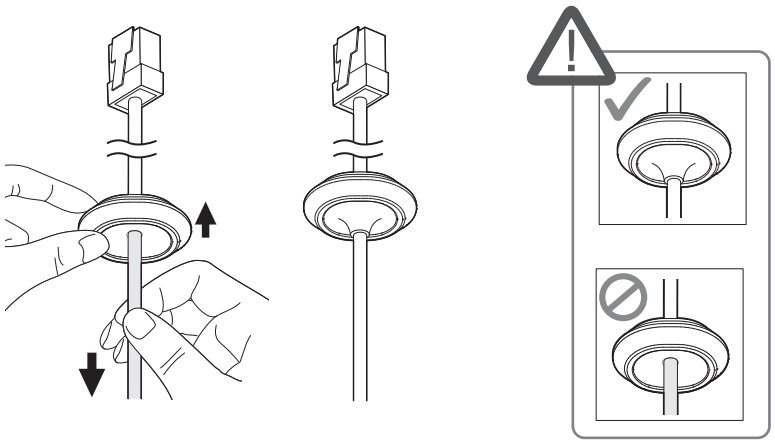


2. Pull off the extruded part of the 1-hole cable bushing provided.

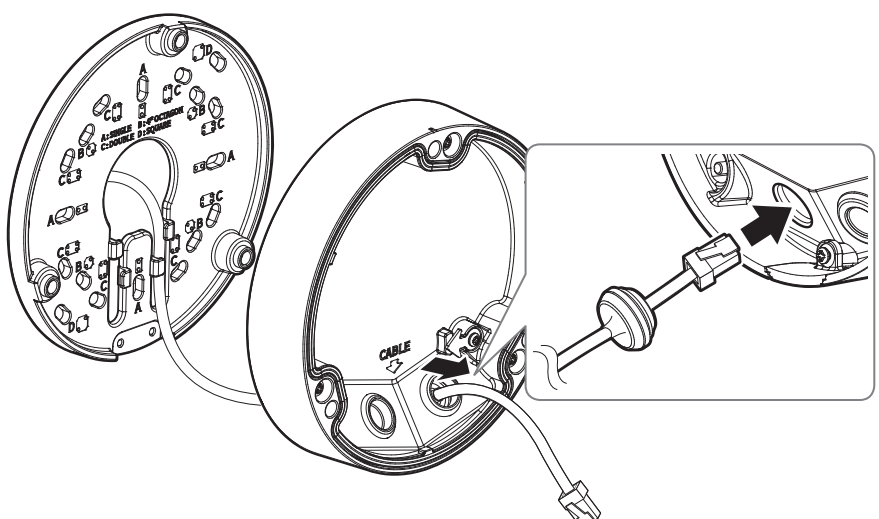
3. Use the cap installer to pass through the RJ45 cable.



4. For waterproof protection, pull down the cable below the cable bushing as shown in the figure below.

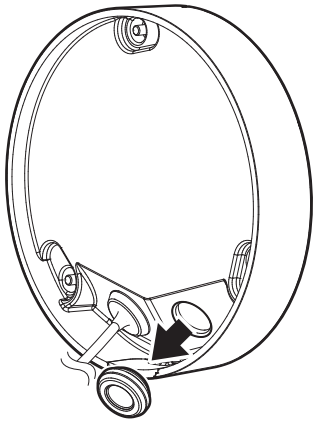


5. Mount the cable bushing to the Bottom cover.

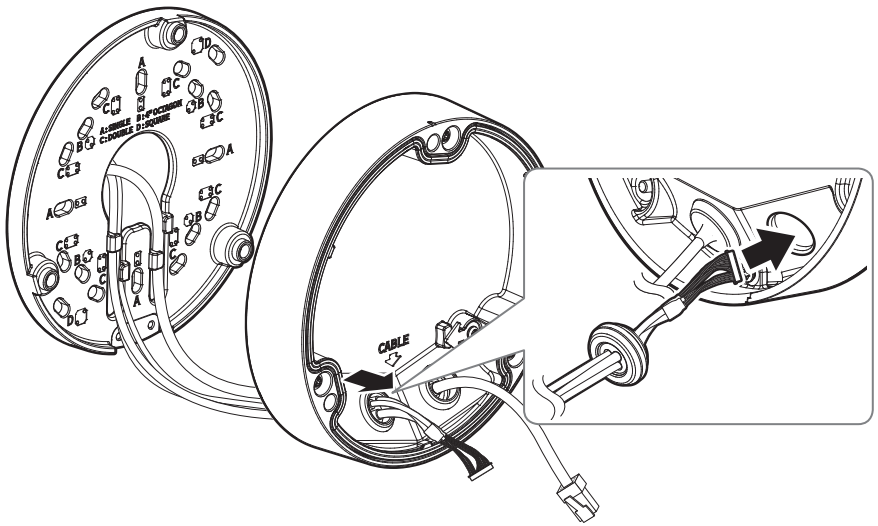


[Installing audio/alarm/RS-485/power cables]

1. As shown in the figure below, remove the cable bushing from the bottom cover.

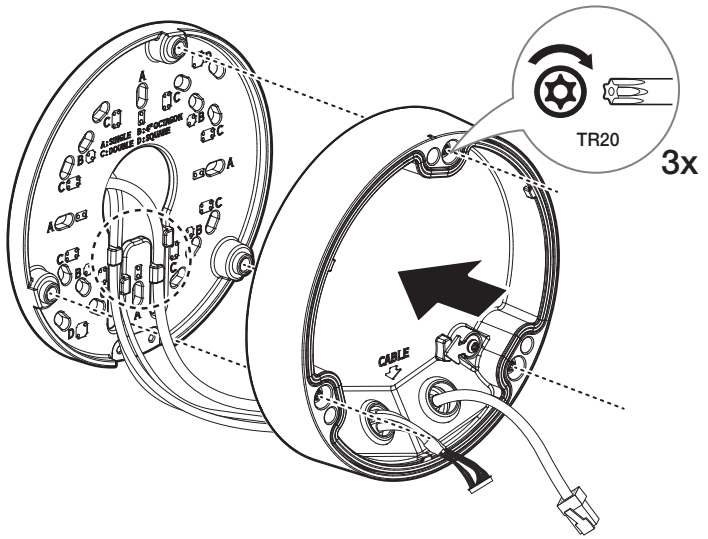


2. Mount the cable bushing of the provided audio/alarm/RS-485/power cables to the Bottom cover.



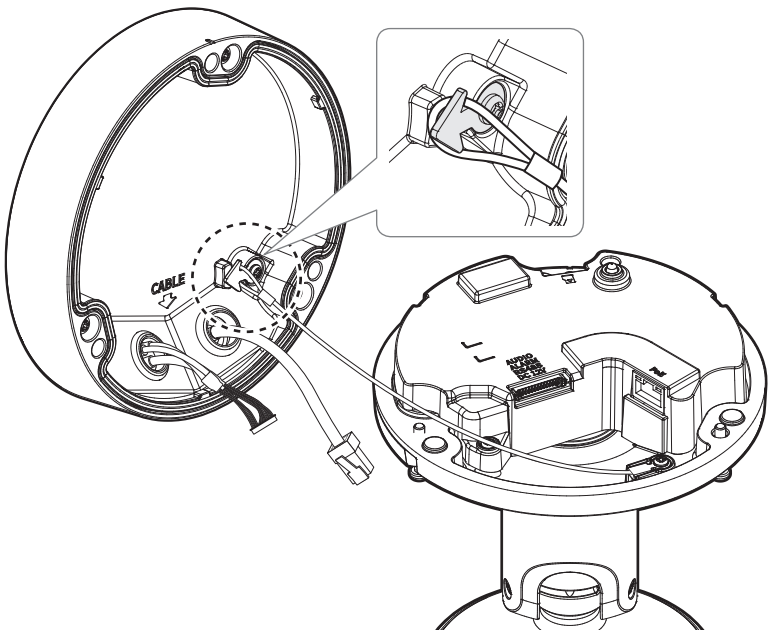
3. Join the Mount plate with the Bottom cover.

- When attaching the bottom cover, make sure that the cables pass through the cable fixing hooks of the plate.

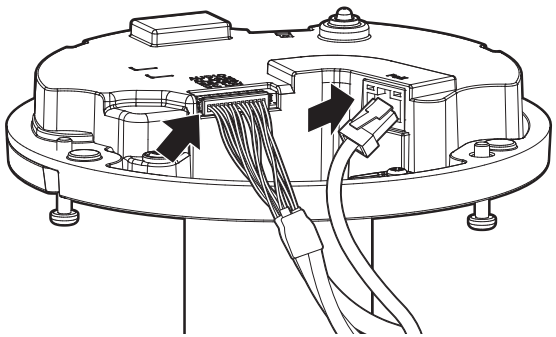


Installing the camera body

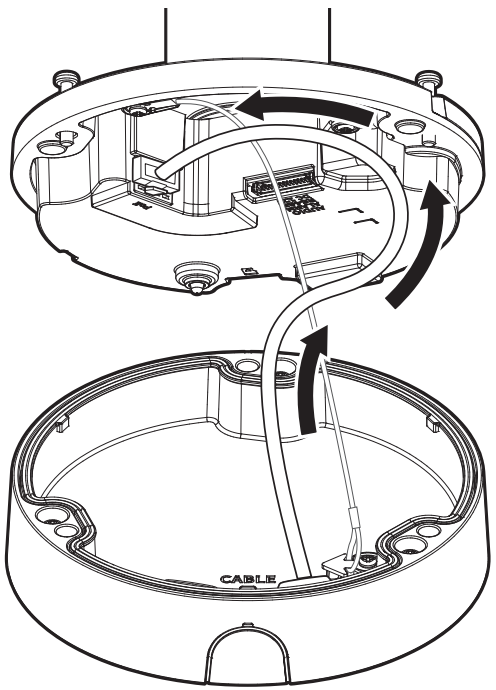
1. Hang the safety wire up on a hook inside the Bottom cover.



2. Connect the network/audio/alarm/RS-485/power cables to the terminal on the camera body.

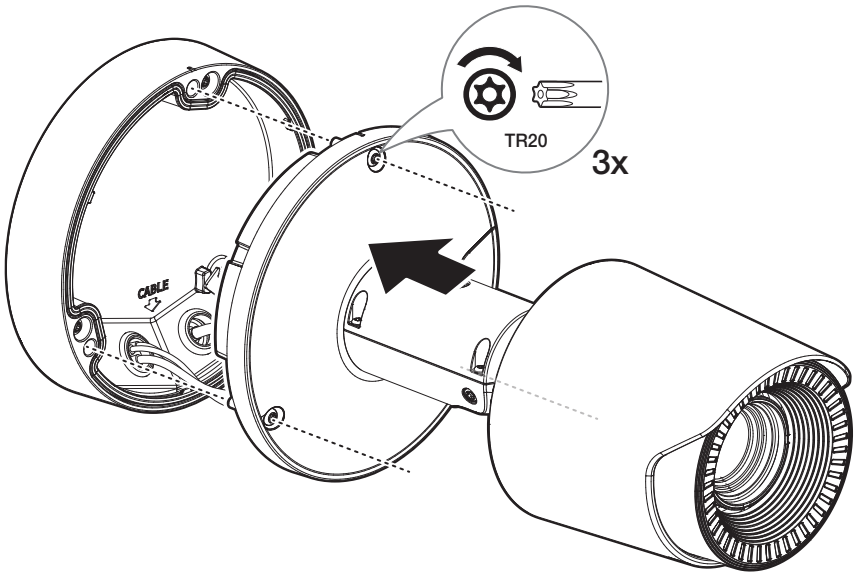


- Place the network cable in a circular form as shown in the figure below.



3. Join the camera body with the Bottom cover.

- Make sure to firmly tighten the fastening screws so that there is no water damage issue.

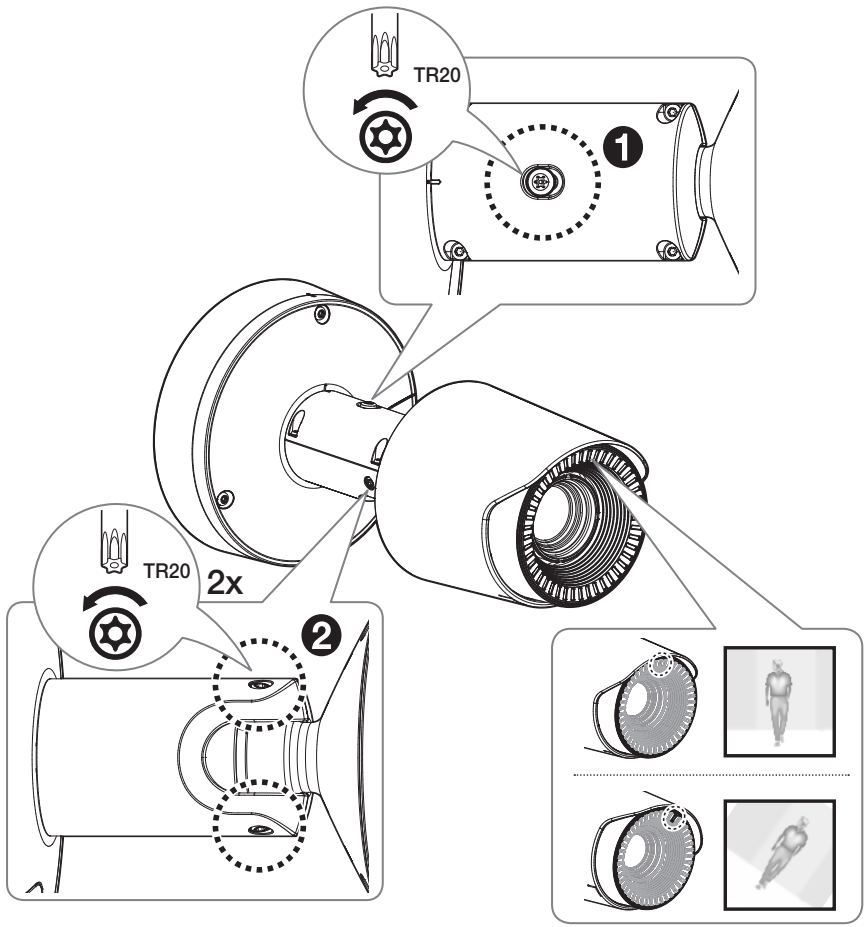


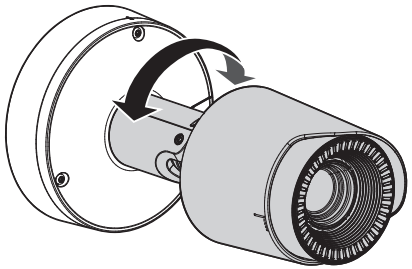
4. Loosen the direction adjustment screw on the camera body to adjust the direction of the camera.

- Note that it is not necessary to loosen the screws completely.
- Connect a monitoring device to the USB type-C port and then monitor and adjust it.

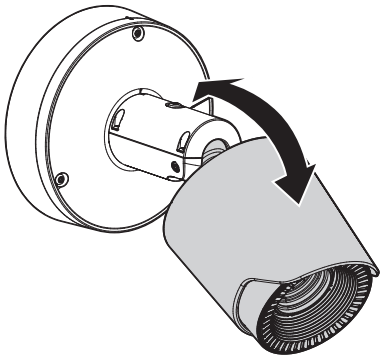
- When adjusting the camera monitoring direction, loosen the corresponding fixing screws, adjust the camera, and then tighten the screws. Forcibly adjusting the camera while the screws are fastened may cause scratches and malfunction.

Direction adjustment screws

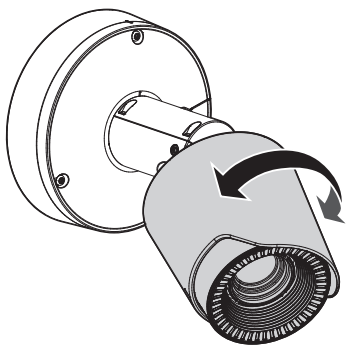




<Pan>

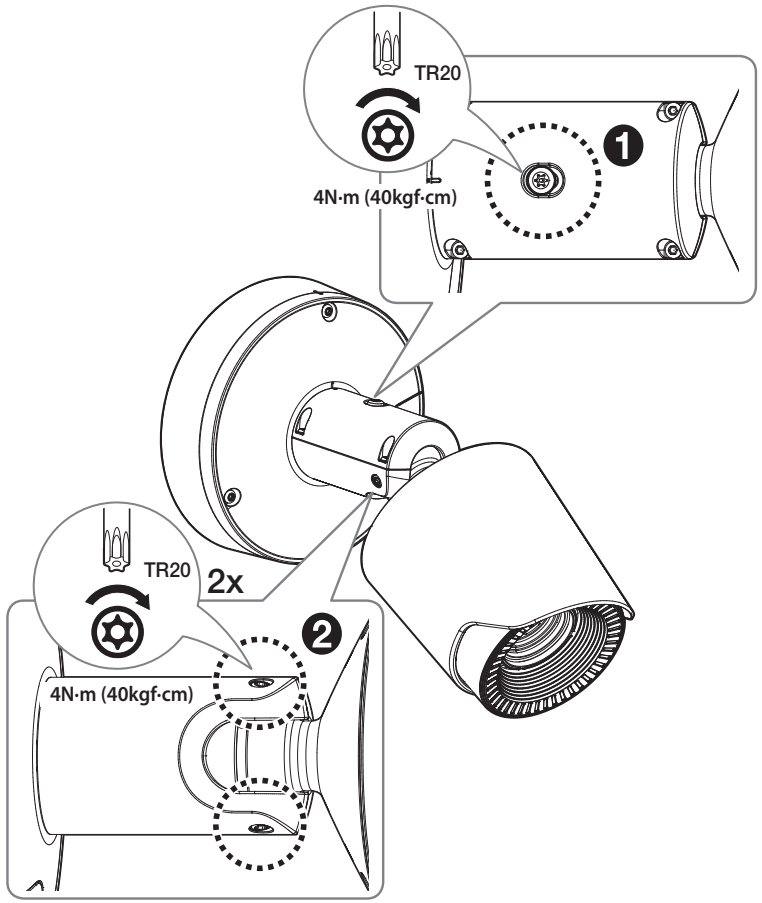


<Tilt>

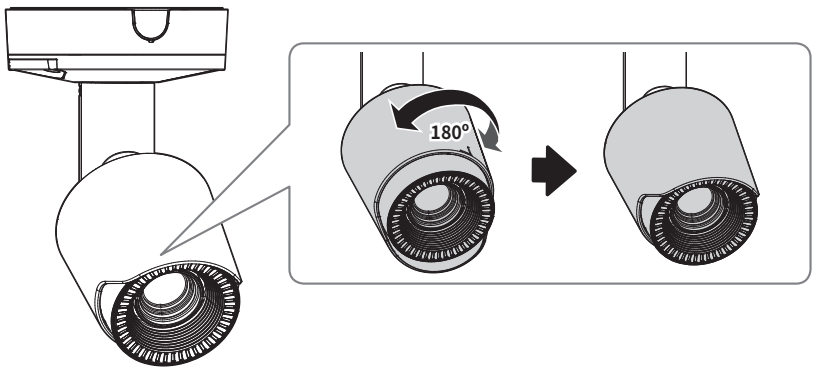


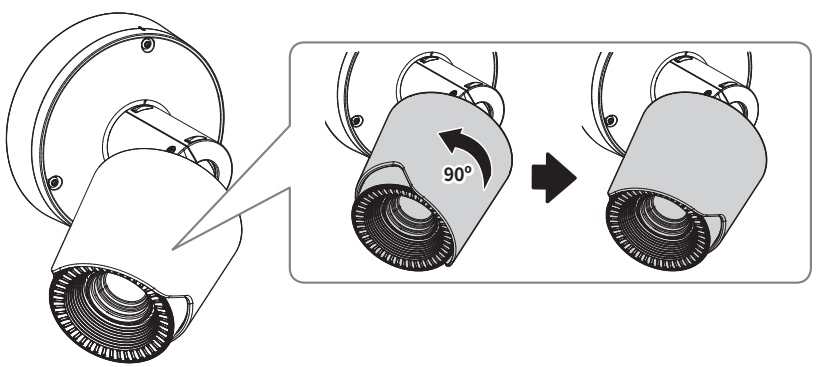
<Lens Rotation>

5. After adjusting the camera orientation, tighten the orientation screw on the camera body to secure it as shown in the figure below.



- For the installation of a ceiling or hallway view, we recommend installing the camera body at the desired orientation and then rotating only the sunshield towards the ceiling. You can rotate just the sunshield without loosening the direction adjustment screw on the camera body.
- If the installation angle of the lens is changed by rotating the camera body as shown below, you need to rotate the screen in the camera's web viewer to match the changed angle.

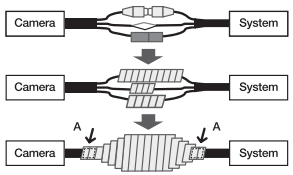




Outdoor installation

When you install it outside of the building, please waterproof it with waterproof butyl rubber tape (can be purchased in stores) so that water does not leak from the gap of the cable connected to the outside.

1. Connect the power, I/O, and network cables.
2. Wrap the black cable jacket (Area A) and the cable connection area with waterproof (butyl rubber) tape so that more than half of the butyl rubber tape is overlapped.

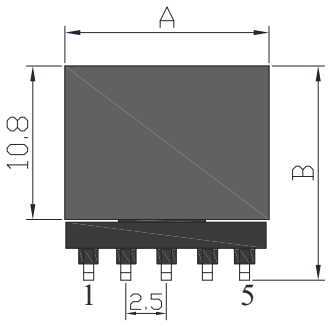


- If the cable jacket is not waterproofed properly, then it can directly cause leakage. Make sure to protect the cable with a dense layer of taping.
- Waterproof butyl tape is made of butyl rubber that can be stretched to twice its normal length.

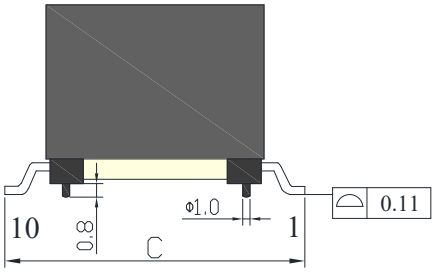
The following Page(s) are related to Miscellaneous-01. The next supplement, if applicable, will be identified with a new Supplement Page Heading.

2. EXTERNAL DIMENSIONS: UNIT: mm

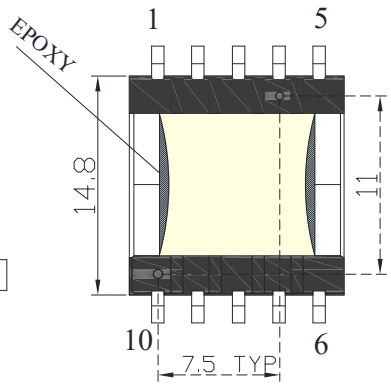
FRONT VIEW



SIDE VIEW



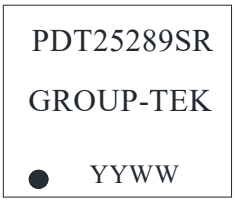
BOTTOM VIEW



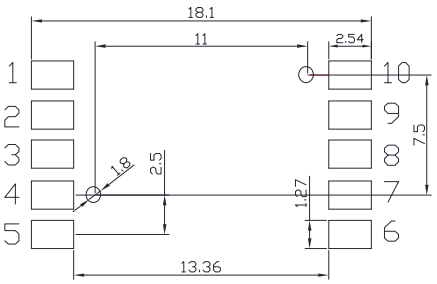
Unit: mm Tolerances:

A Max	B Max	C Max
15.0	14.0	17.8

Marking information



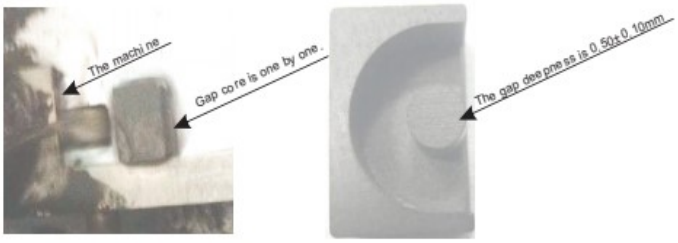
Suggested PCB Pad Lad Layout



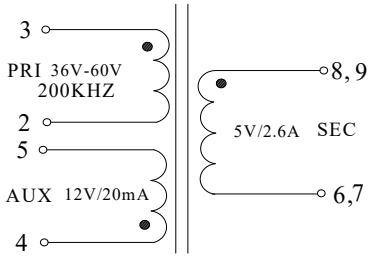
3. Electrical Characteristics :

Specifications: at 25 degree C. Operating Temperature -40 to +125°C			
NO	ITEM	TEST CONDITION	SPECIFICATION
1	Inductance	((3-2)) @25℃ 100KHZ/1V	77uH±15%
		(4-5) @25℃ 100KHZ/1V	19uH±20%
		(8,9-6,7)@25℃ 100KHZ/1V	4uH±20%
2	Leakage Inductance	(3-2)@25℃200KHZ/0.1V shorted other pins	1.5uH MAX
3	DCR	(3-2)@25℃	180mΩ MAX.
4		(8,9-6,7)@25℃	15mΩ MAX.
5		(4-5)@25℃	280mΩ MAX.
7	TURNS RATIO	PRI（3-2）: SEC（8,9-6,7）: AUX（4-5）	22：5：11±2%
8	HI-POT:	PRI TO SEC	1500V/AC/1mA 2Sec

4. Overhauling List.

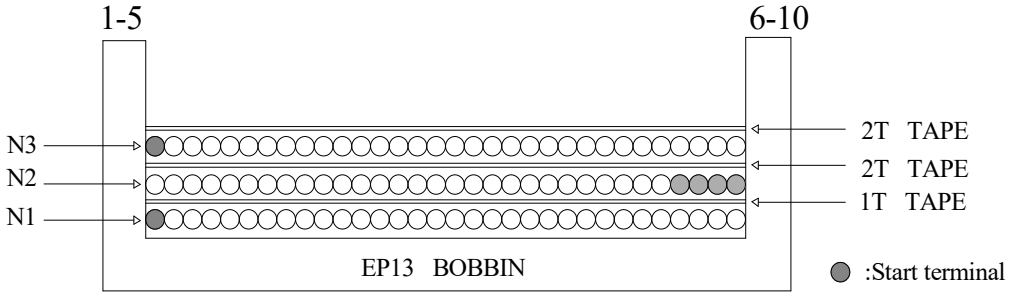
NO.	ITEM	SPECIFICATION
1	Tape turns	2T
2	Margin tape thickness	0.10mm
3	Winding turns	N1:22T N2:5T N3:11T
4	Pins order/Pin connection	1T
5	Marking Information	Marking information PDT25239SR GROUP-TEK ● YYWW
6	Gap the center leg	
7	Solder Temperature	

5. Schematic:



NOTE: PIN8,9&6,7 must shorted on PCB

6. winding detail:



7. Winding Information:

WINDING SEQ.	ST-FN	WIRE/FOIL	TURNS	WRAP INSUL.	MARGIN TAPE	SLEEVE	NOTE
1	3--2	0.28mm2UEW	22TS	1T w8.0mm	N/A	N/A	1,2
2	8--6	4*0.3mm2UEW	5TS	2T w8.0mm	N/A	N/A	1,2
3	9--7						
4	4--5	0.28mm 2UEW	11TS	2T w8.0mm	N/A	N/A	1,2

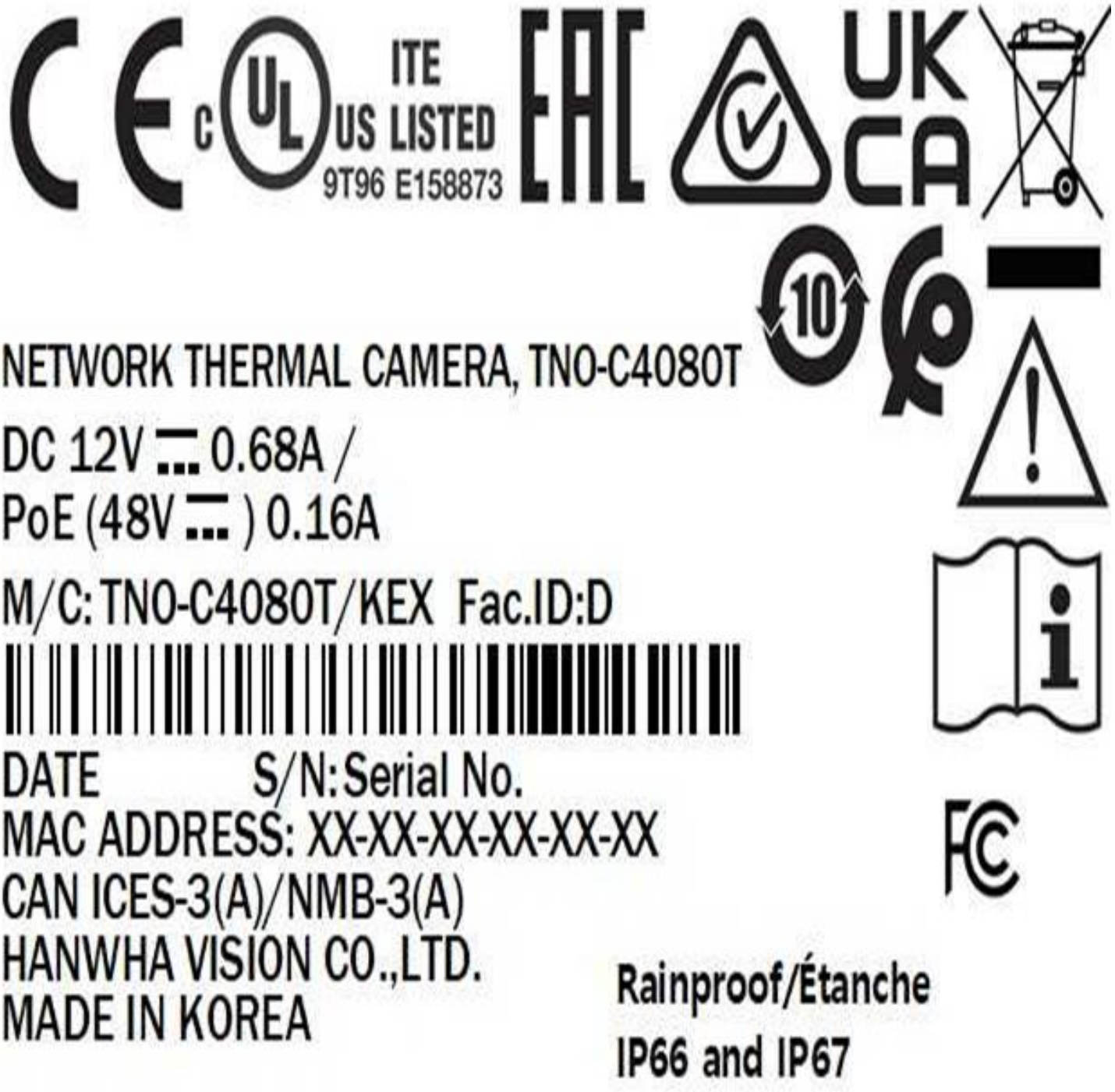
NOTE :

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

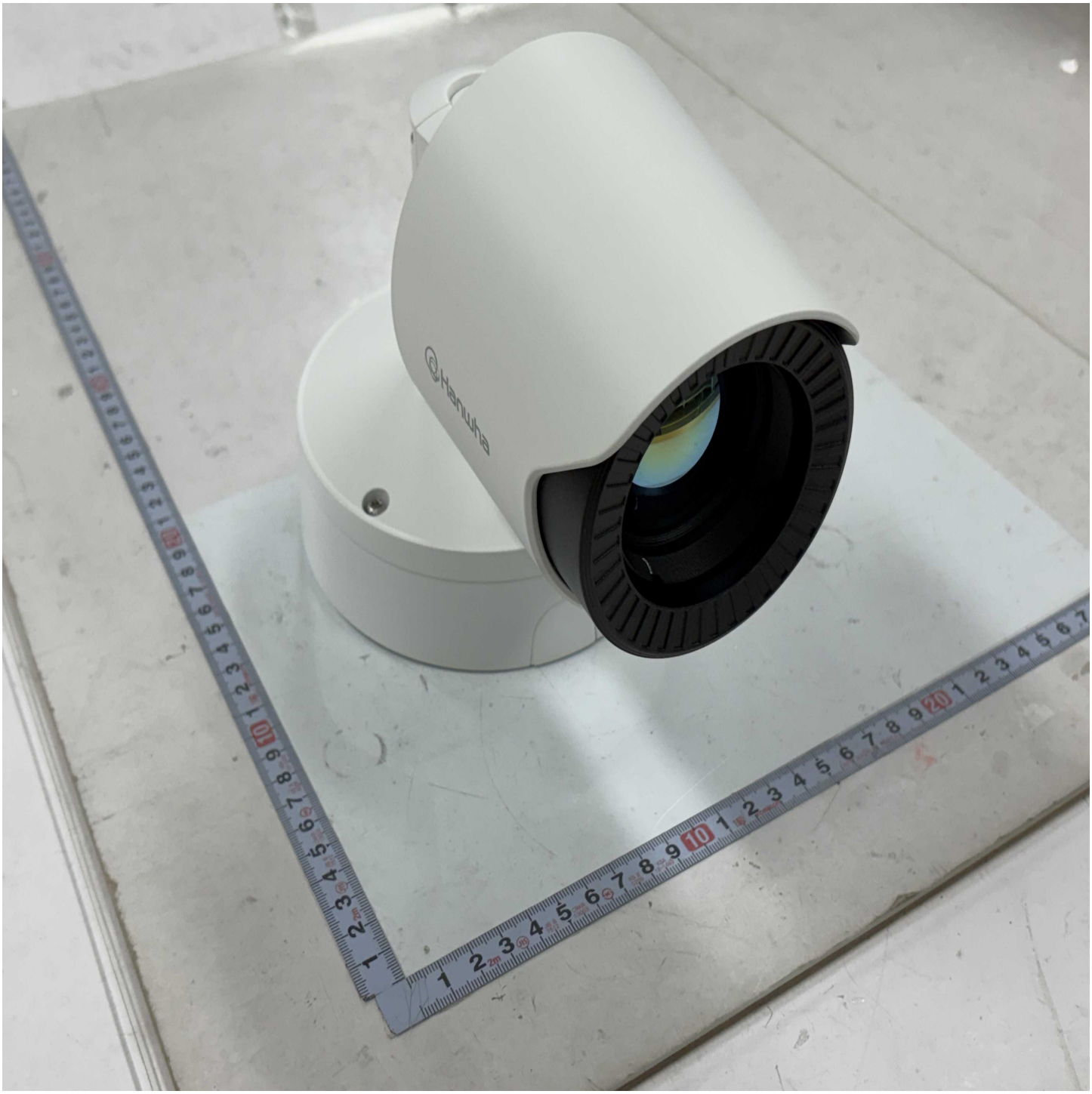
2.Clockwise and spaced winding

8. Material List:

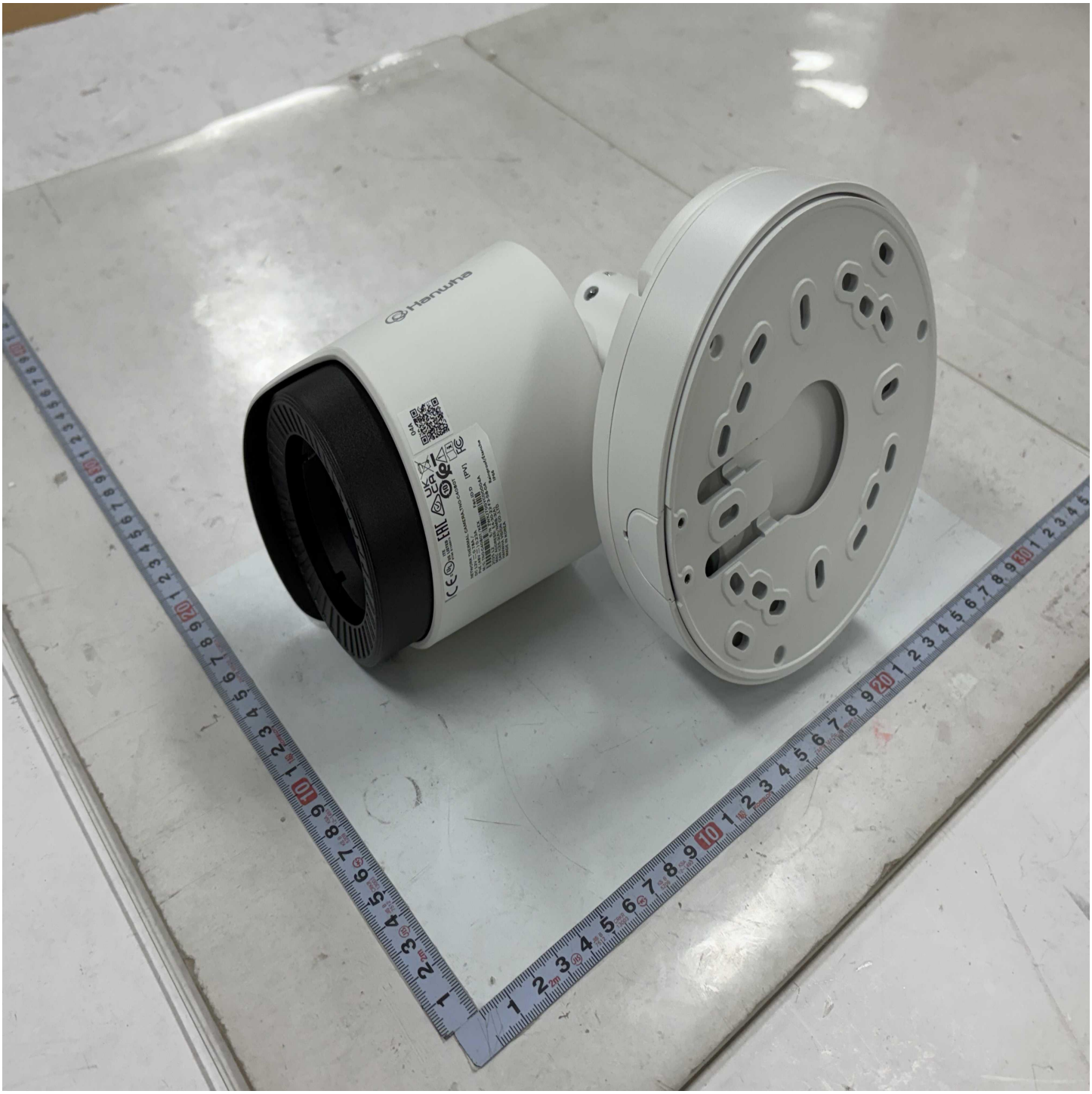
NO	ITEM	MATERIALS	SUPPLIERS/MANUFAXTURES	S UL FILE NO.
1	BOBBIN	PHENOLIC PM9630 UL RATING: 94V-0	Sumitomo Bakelite CO.,LTD.	IEC 60695
2	CORE	E P13 TP44/PG242	Dongguan zhuoci Electronics CO.,LTD	N/A
3	WIRE	POLYURETHANE ENAMELED TYPE NO: 2UEW THERMAL RATING:180°C	Shing Shun Magnet wire(HuiZhou) Co.,Ltd	E255839
4	TAPE	ADHESIVE POLYESTER TAPE TYPE NO.:W 001 THERMAL RATING:130°C	Dongguan Jintai pro pucd Co.,Ltd	E165111
5	SOLDER	SN/CU: 99.3/0.7	Gao Xin stannum industry Co.,Ltd	N/A
6	Glue	E-500TX	Dong Guan city eatto electronic material Co.,Ltd	E218090
7	INK	VIC-120	Shenzhenhuarui samwo group co.,Ltd	N/A


ITE
US LISTED
9T96 E158873
UK
CA
NETWORK THERMAL CAMERA, TNO-C4080T
DC 12V ⎓ 0.68A /
PoE (48V ⎓) 0.16A
M/C: TNO-C4080T/KEX Fac.ID:D
DATE S/N: Serial No.
MAC ADDRESS: XX-XX-XX-XX-XX-XX
CAN ICES-3(A)/NMB-3(A)
HANWHA VISION CO.,LTD.
MADE IN KOREA
Rainproof/Étanche
IP66 and IP67

Photographs-01 Page-1



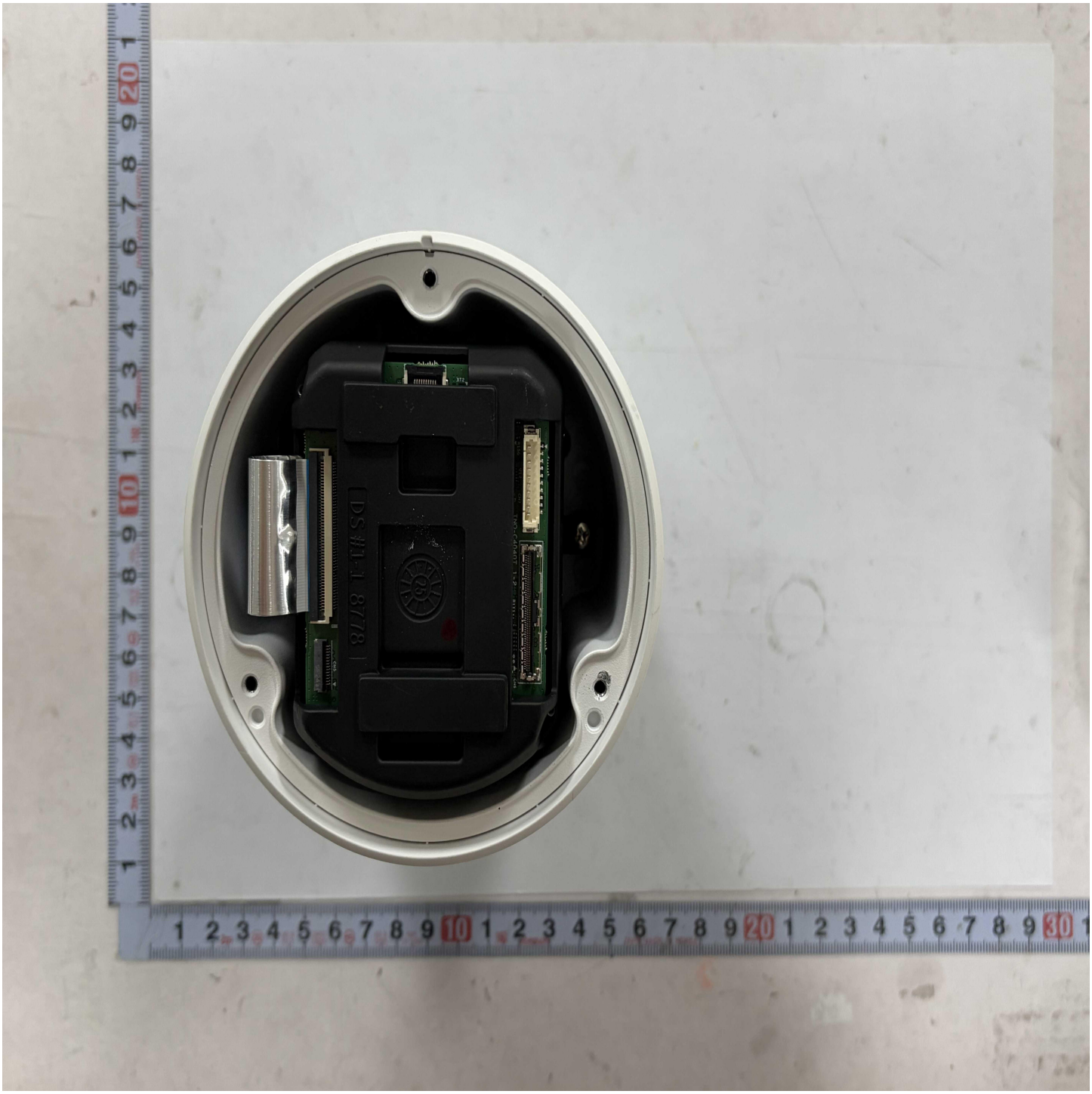
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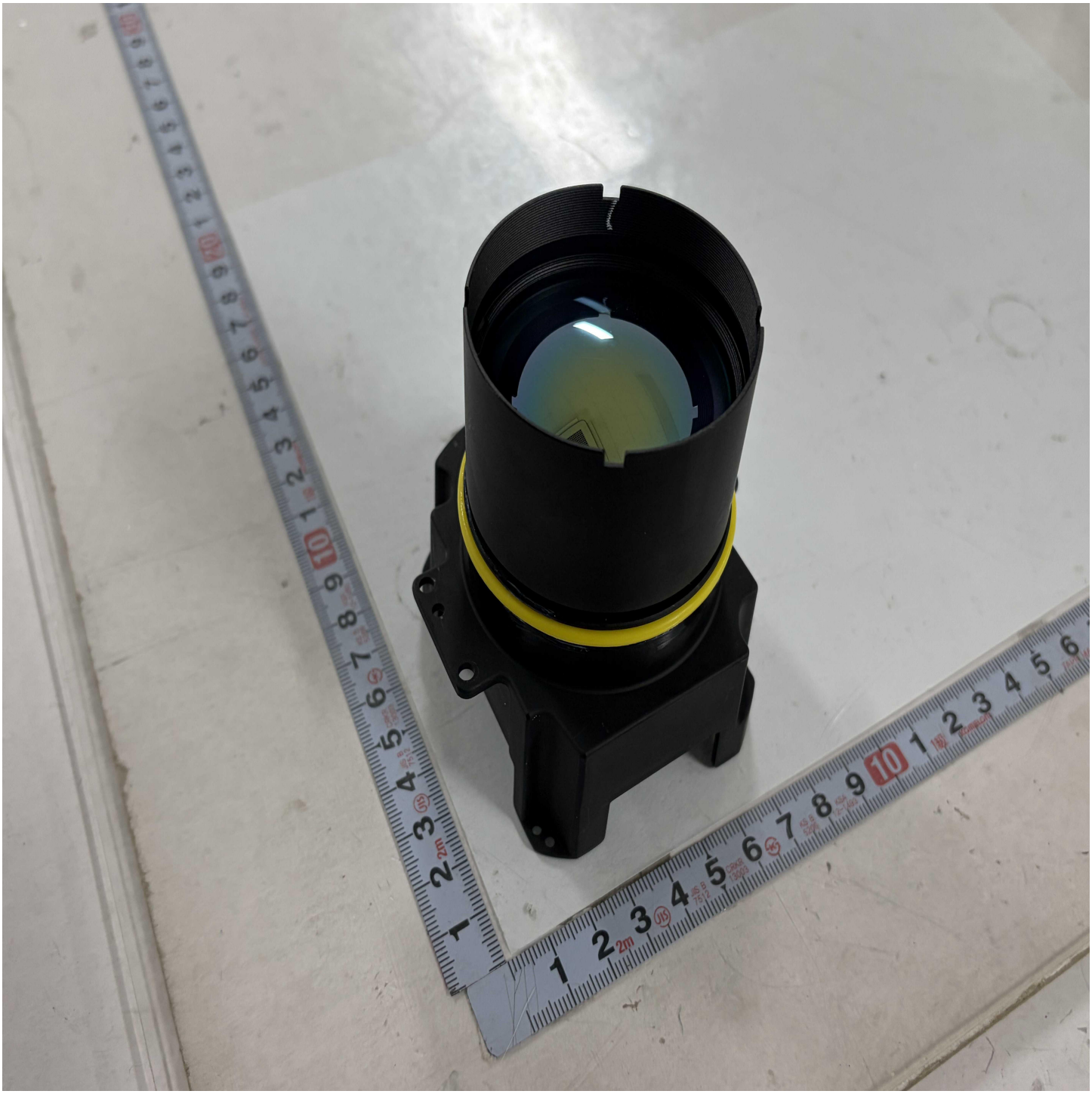
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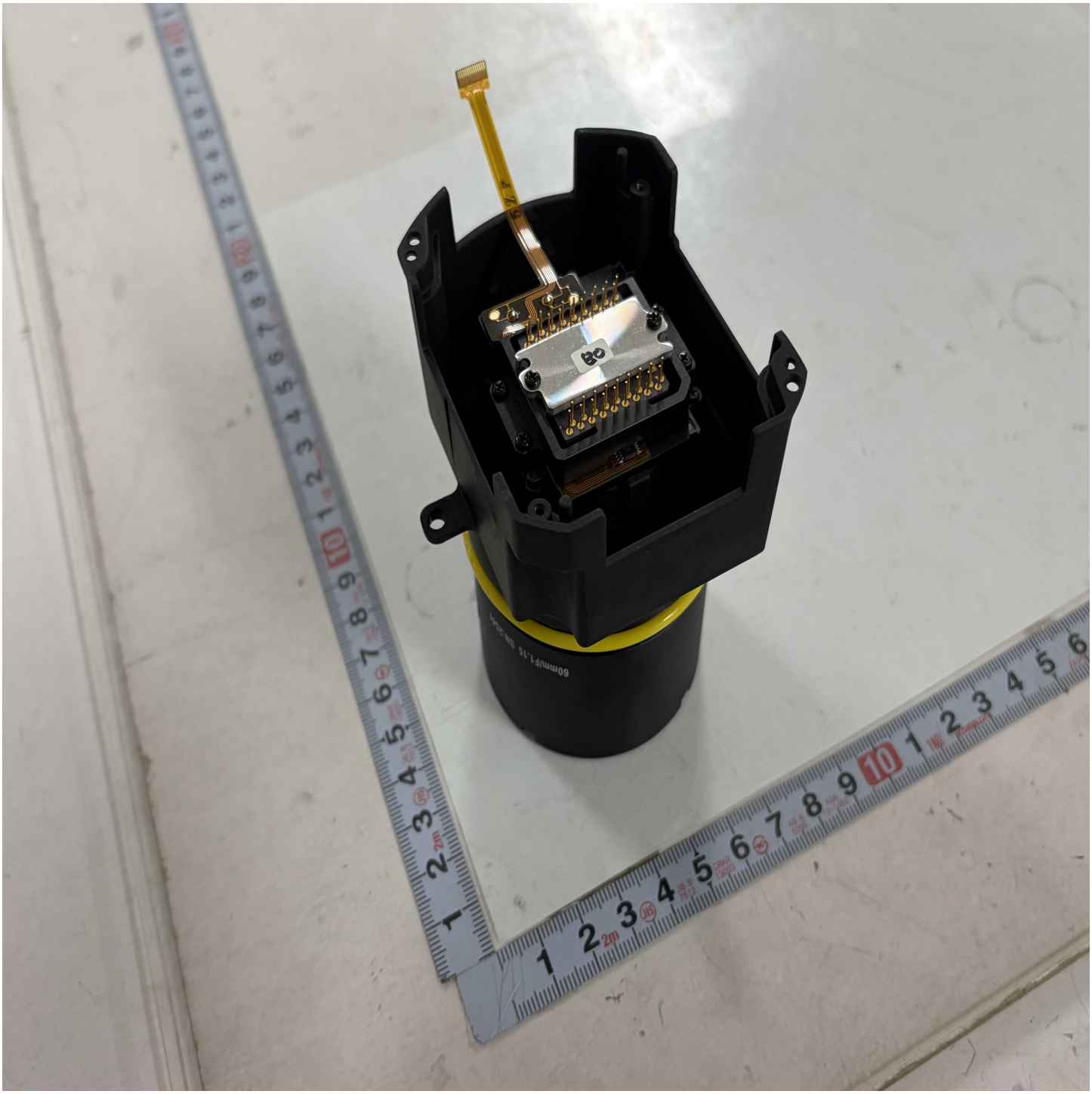
Photographs-06 Page-1



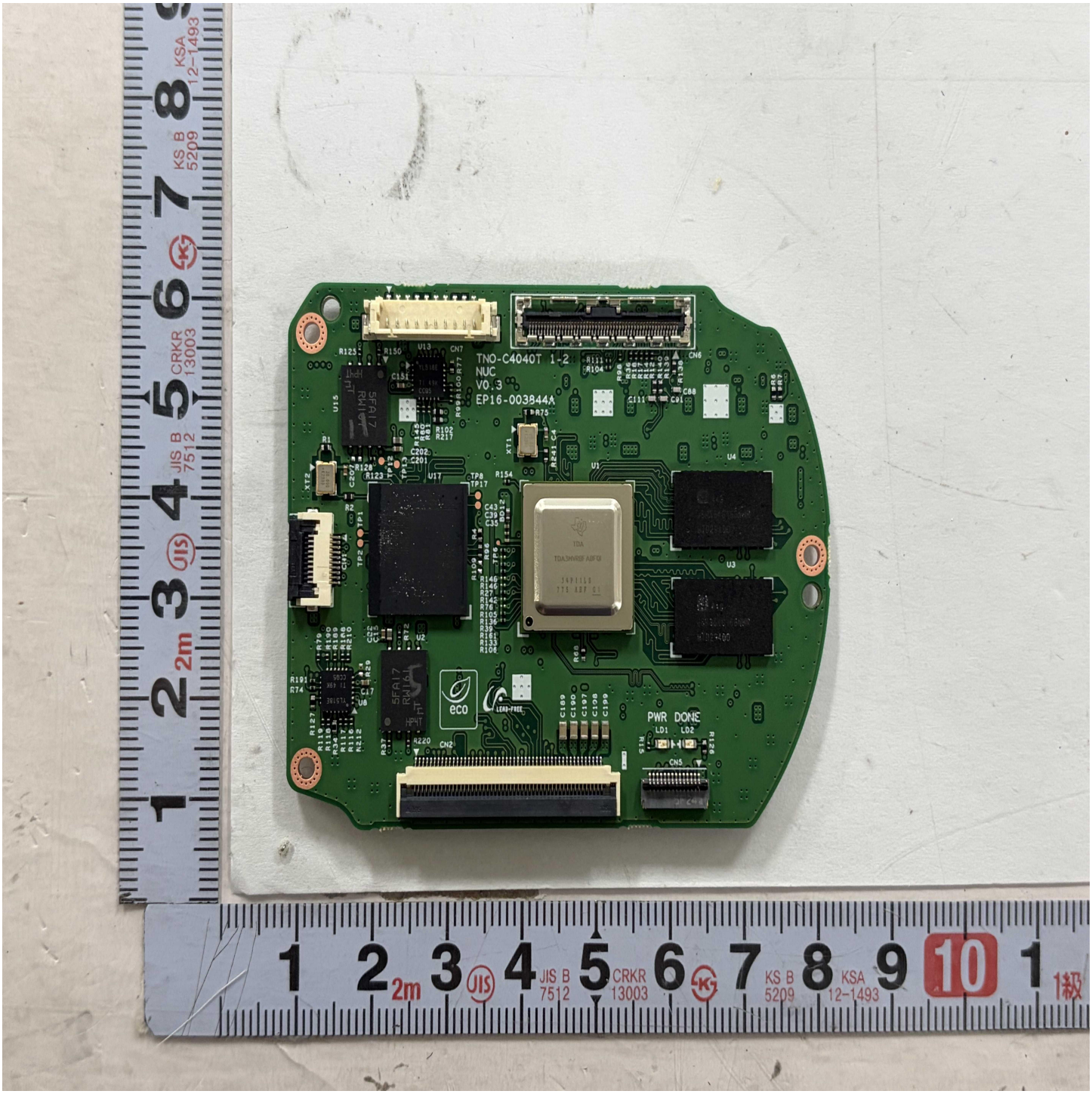
Photographs-09 Page-1



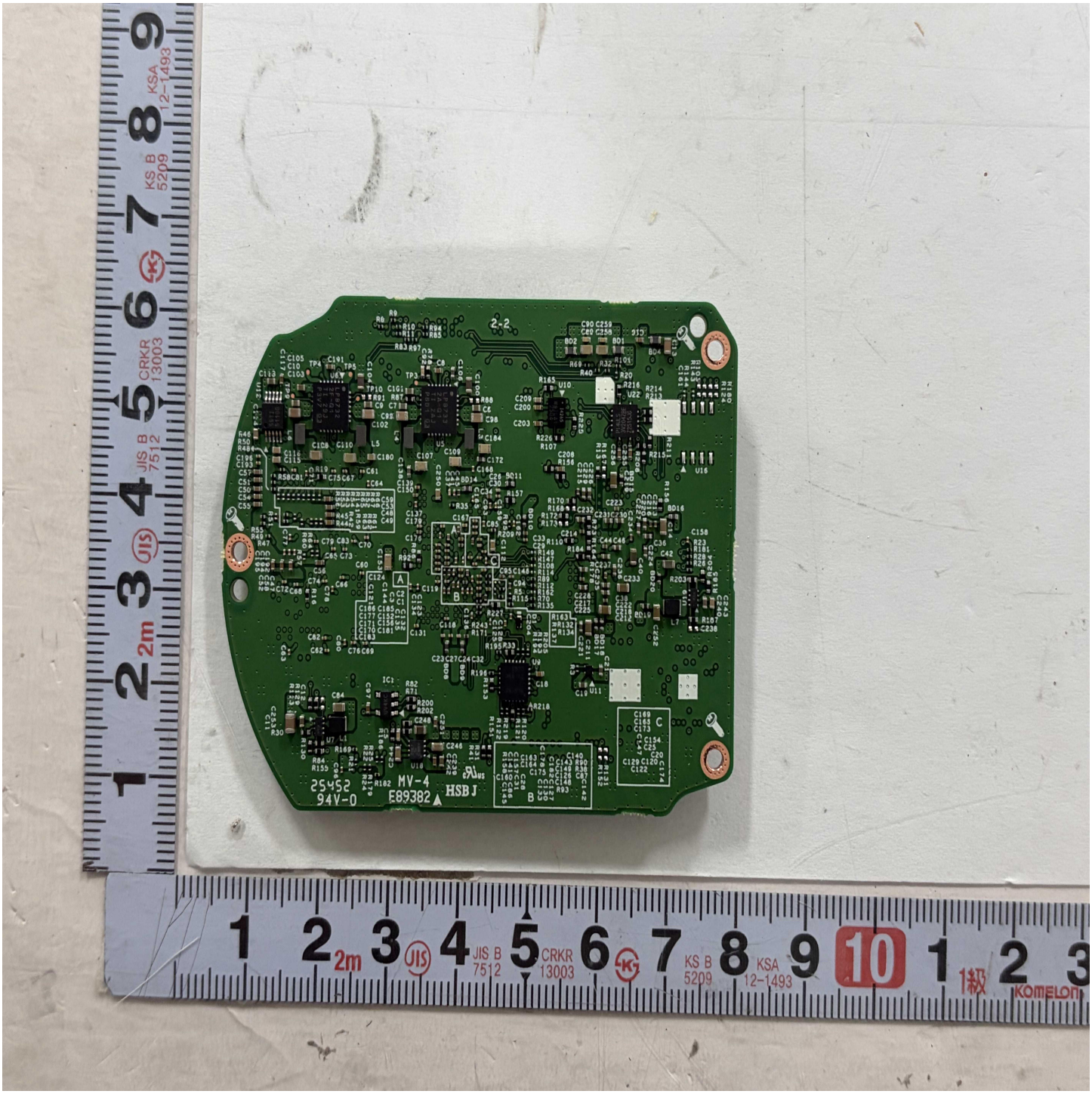
Photographs-10 Page-1



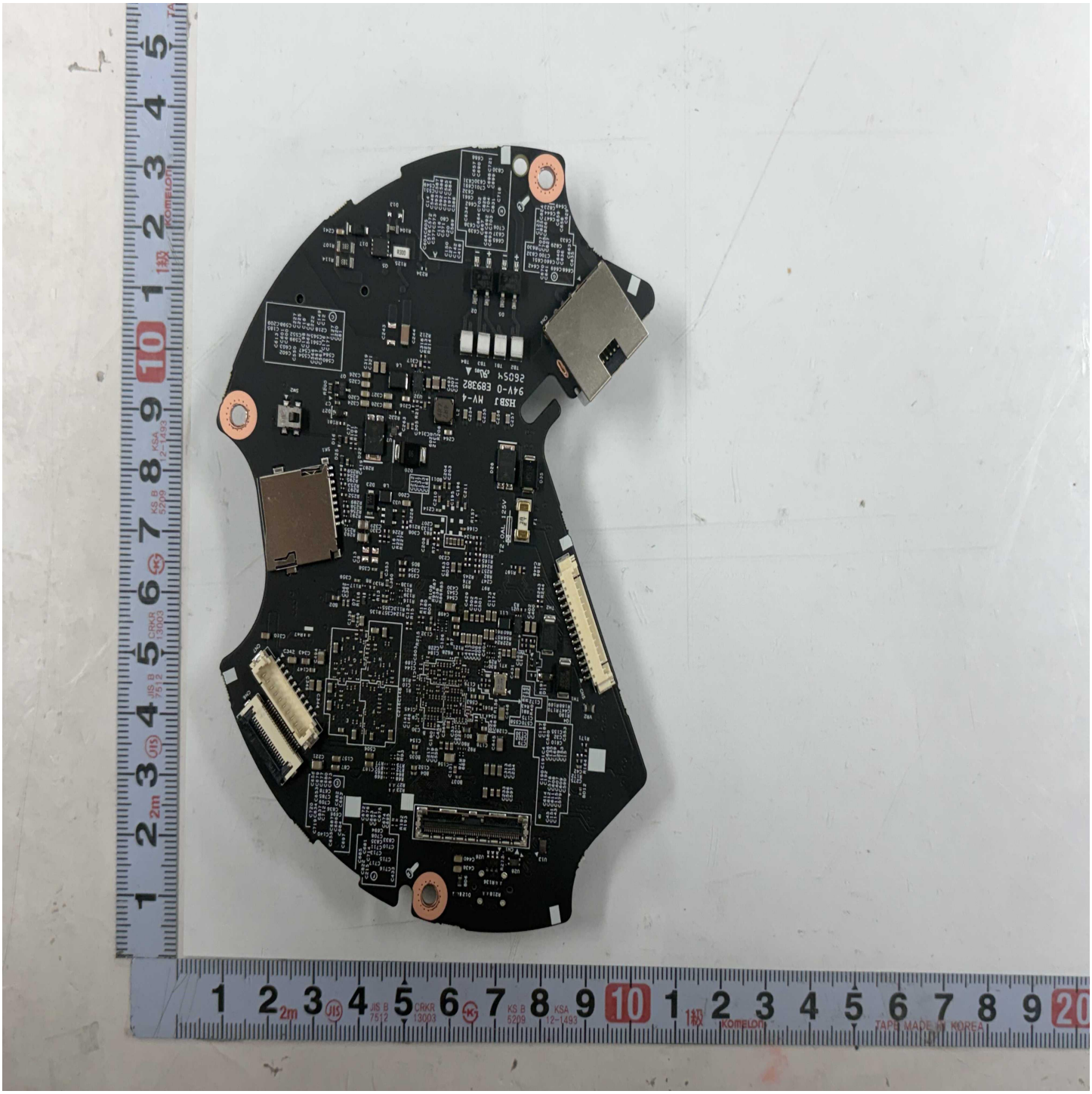
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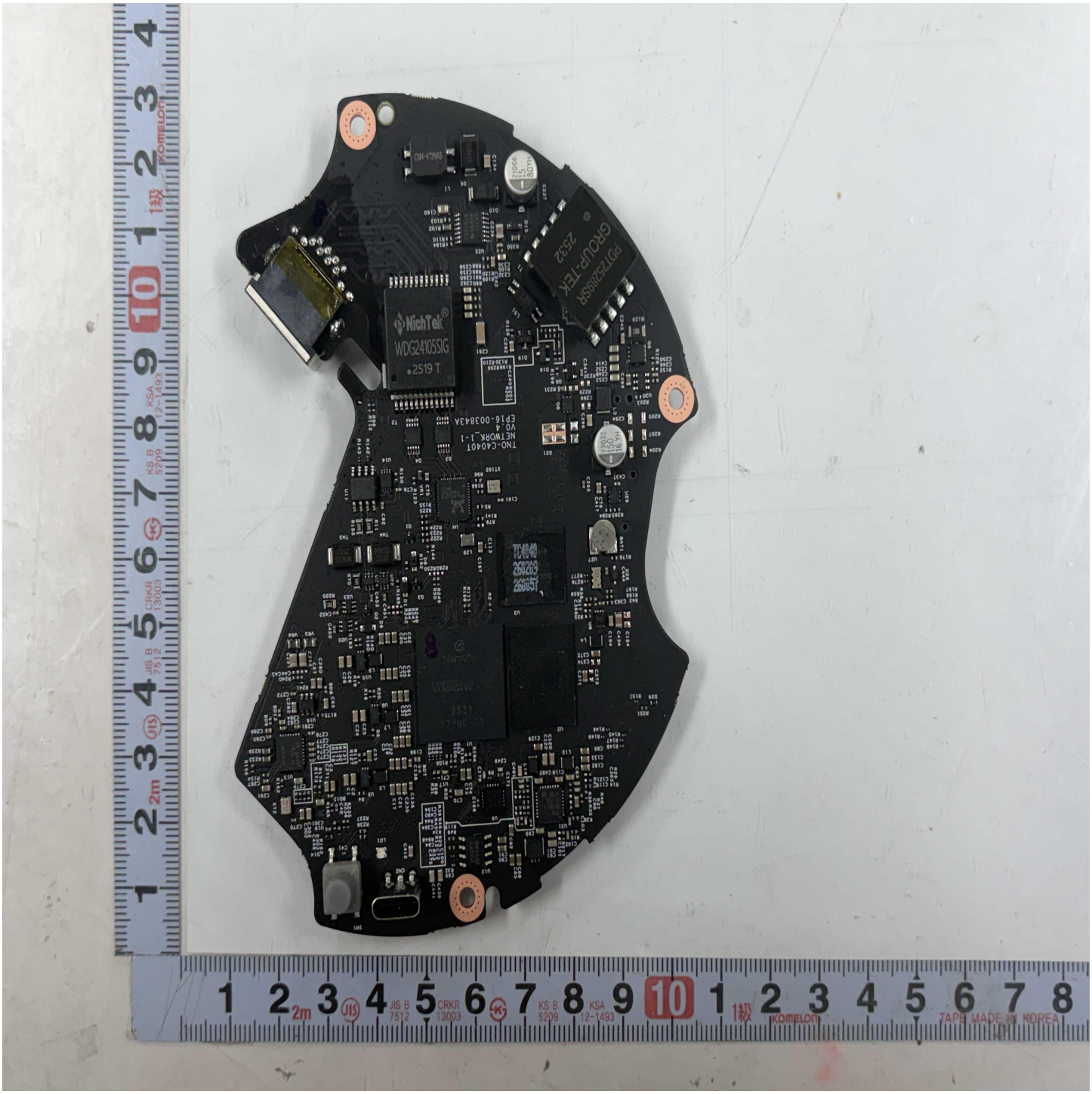
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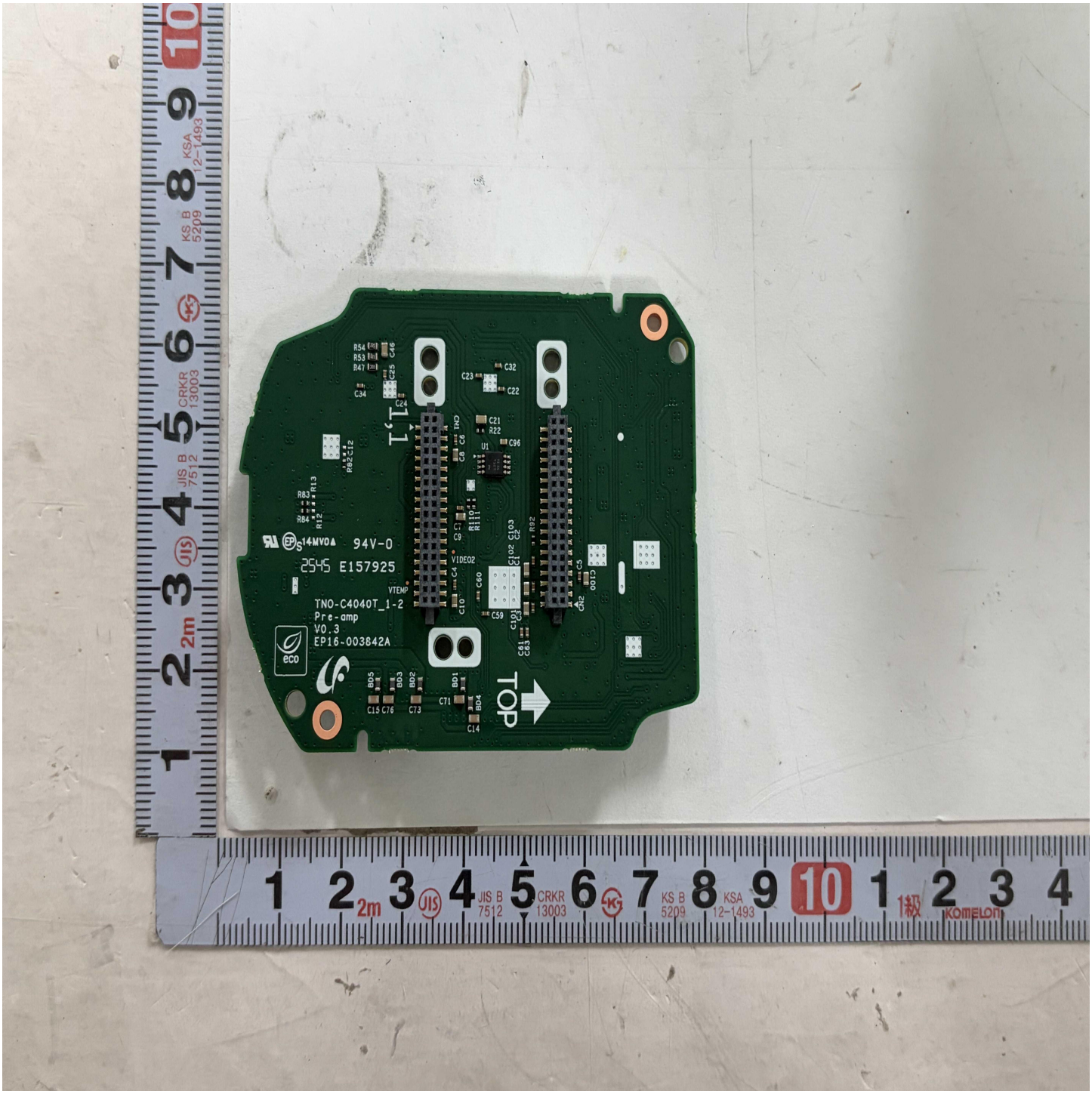
Photographs-15 Page-1



Photographs-16 Page-1



Photographs-17 Page-1



Photographs-18 Page-1

