



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:

Nsec- For File #E158873 volume#X13 section#A6039, Certificate of Compliance format now separates US and Canada certified Products by specified scheme and category

E158873-volX13-Index
E158873-20201117-CertificateofCompliance
E158873-A6039-DescriptionUL
Figure-15-Total
E158873-A6039-TestRecordUL

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Times change, Trust Remains™

File		Volume	Page	Date:
E158873	Index	X13	1	26-Nov-20

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	E158873-A6028-UL	
NETWORK VIDEO RECORDER	XRN-6410DB4	E158873-A6029-UL	
NETWORK VIDEO RECORDER	PRN-6410DB4, XRP-4310DB4	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	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	

CERTIFICATE OF COMPLIANCE

Certificate Number UL-US-2006798-0
Report Reference E158873-20201117
Date 27-Nov-2020

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

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, 2nd Ed., Issue Date: 2014-12-01

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

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CERTIFICATE OF COMPLIANCE

Certificate Number UL-US-2006798-0
Report Reference E158873-20201117
Date 27-Nov-2020

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
PNM-9022V	NETWORK CAMERA



Bruce Mahrenholz, Director North American Certification Program

UL LLC

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CERTIFICATE OF COMPLIANCE

Certificate Number UL-CA-2004938-0
Report Reference E158873-20201117
Date 27-Nov-2020

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

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. 62368-1-14, 2nd Ed., Issue Date: 2014-12-01

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.

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Look for the UL Certification Mark on the product.



Bruce Mahrenholz, Director North American Certification Program

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CERTIFICATE OF COMPLIANCE

Certificate Number UL-CA-2004938-0
Report Reference E158873-20201117
Date 27-Nov-2020

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
PNM-9022V	NETWORK CAMERA



Bruce Mahrenholz, Director North American Certification Program

UL LLC

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UL TEST REPORT AND PROCEDURE

Standard:	UL 62368-1, 2nd Ed, 2014-12-01 (Audio/video, information and communication technology equipment Part 1: Safety requirements) CAN/CSA C22.2 No. 62368-1-14, 2nd Ed, Issued: 2014-12-01 (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:	PNM-9022V
Rating:	12 Vdc, 1.34 A or PoE (53 Vdc) 0.34 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: 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

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

Model Differences

N/A

Test Item Particulars

Classification of use by	Instructed person
Supply Connection	External Circuit - not Mains connected ES1
Supply % Tolerance	None
Supply Connection – Type	DC or PoE (Power over Ethernet)
Considered current rating of protective device as part of building or equipment installation	N/A
Equipment mobility	wall-mounted
Over voltage category (OVC)	OVC I
Class of equipment	Class III
Access location	N/A
Pollution degree (PD)	PD 2
Manufacturer's specified maximum operating ambient (°C)	60
IP protection class	IPX0
Power Systems	N/A
Altitude during operation (m)	2000 m or less
Altitude of test laboratory (m)	2000 m or less
Mass of equipment (kg)	2.9

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 following are available from the Applicant upon request : Installation (Safety) Instructions / Manual

Additional Information

4789641207

- Maximum Normal Load: Continuous operation with Fan on.

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)"
Replaceable batteries	"CAUTION: Risk of Explosion if Battery is replaced by an Incorrect Type. Dispose of Used Batteries According to the Instructions."/"ATTENTION: Risque d'explosion si la batterie est remplacée par un type incorrect. Mettre au rebut les batteries usagées selon les instructions." (Marking) Alternatively, symbol   (ISO 7000-0434 and/or ISO 7000-1641) on product where visible, with the above wording in the instruction manual.
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, 1.34 A or PoE (53 Vdc) 0.34 A.
Website Manual -2	The wired LAN hub providing power over the Ethernet (PoE) in accordance with IEEE 802.3at 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 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

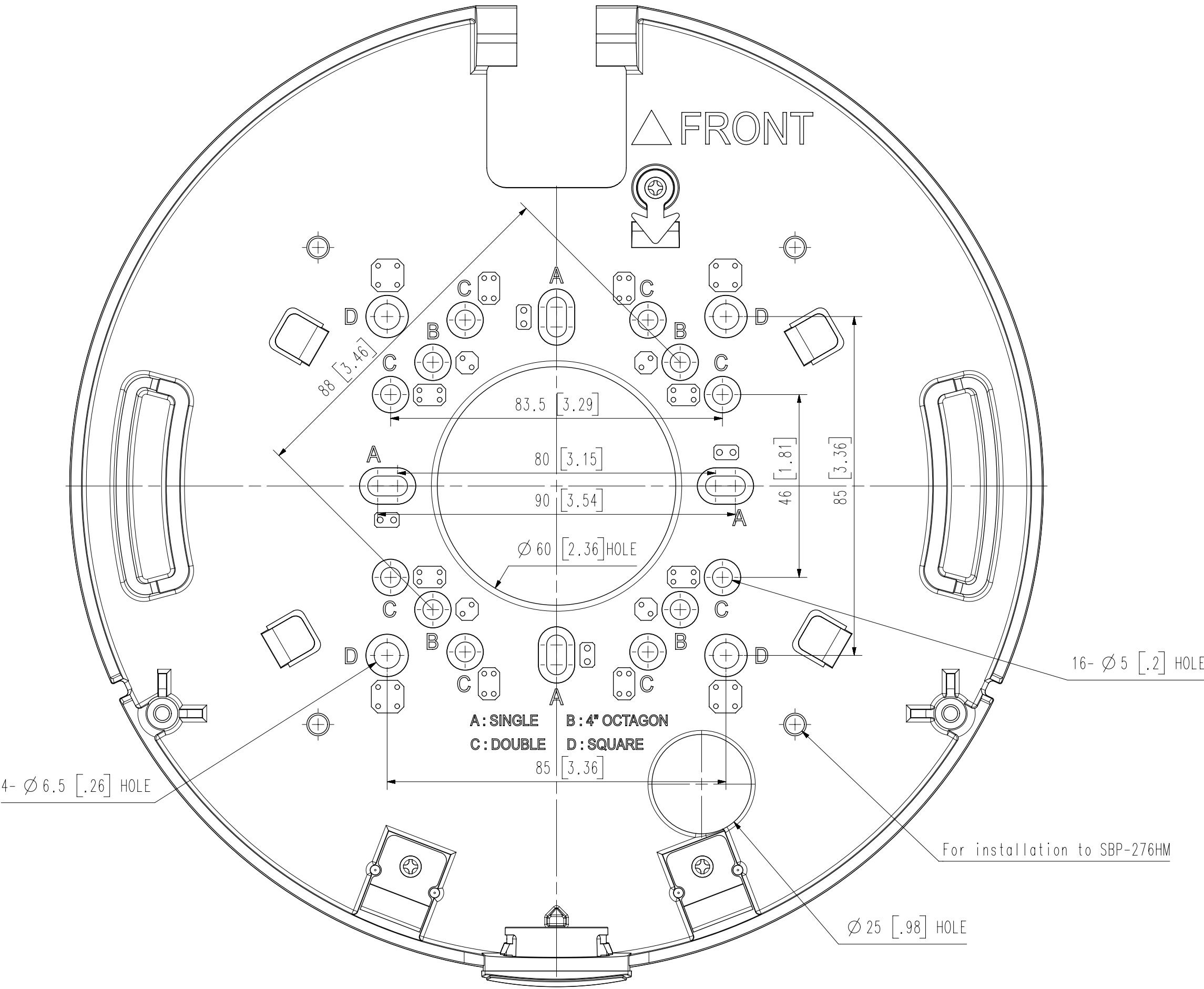
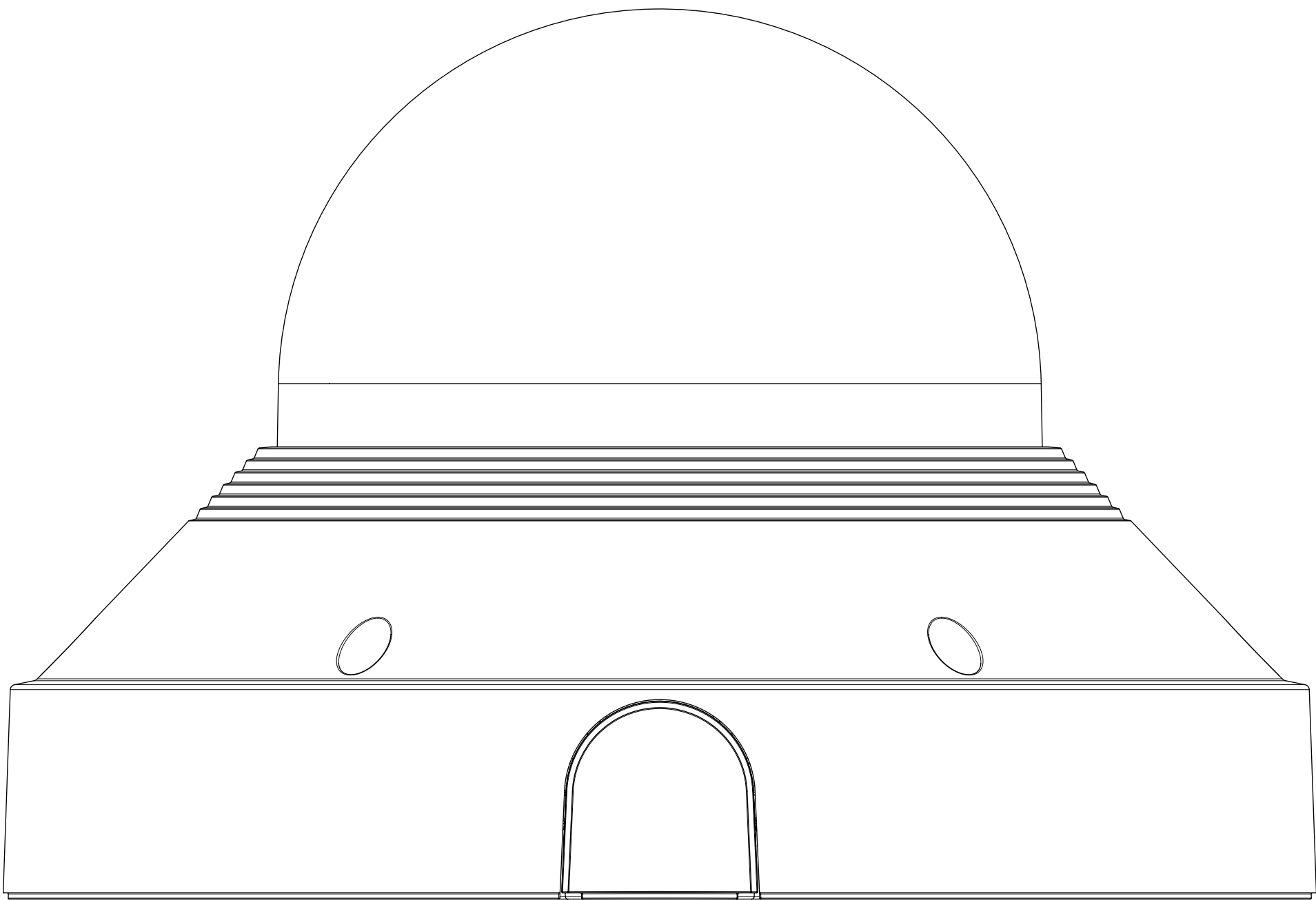
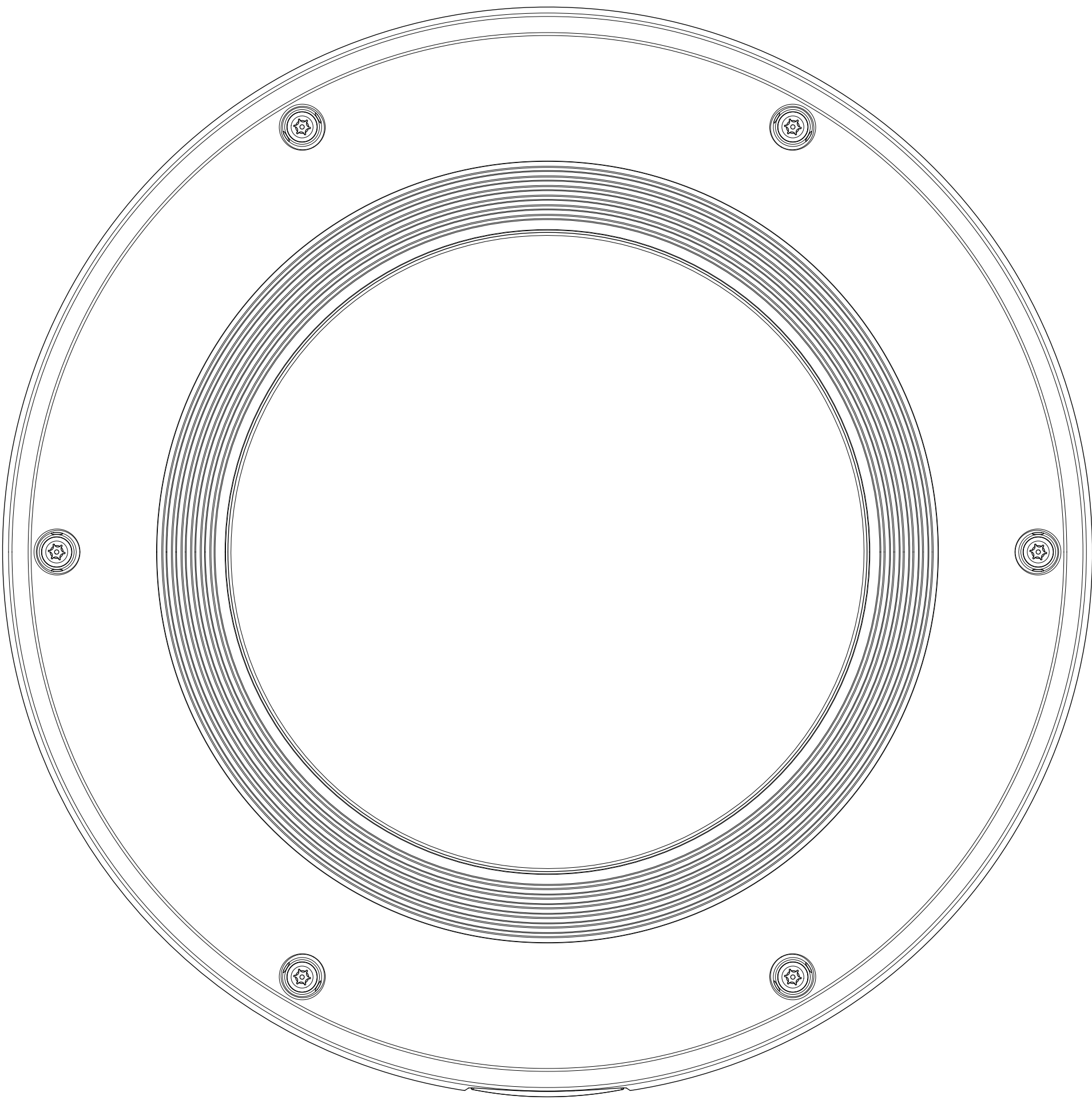
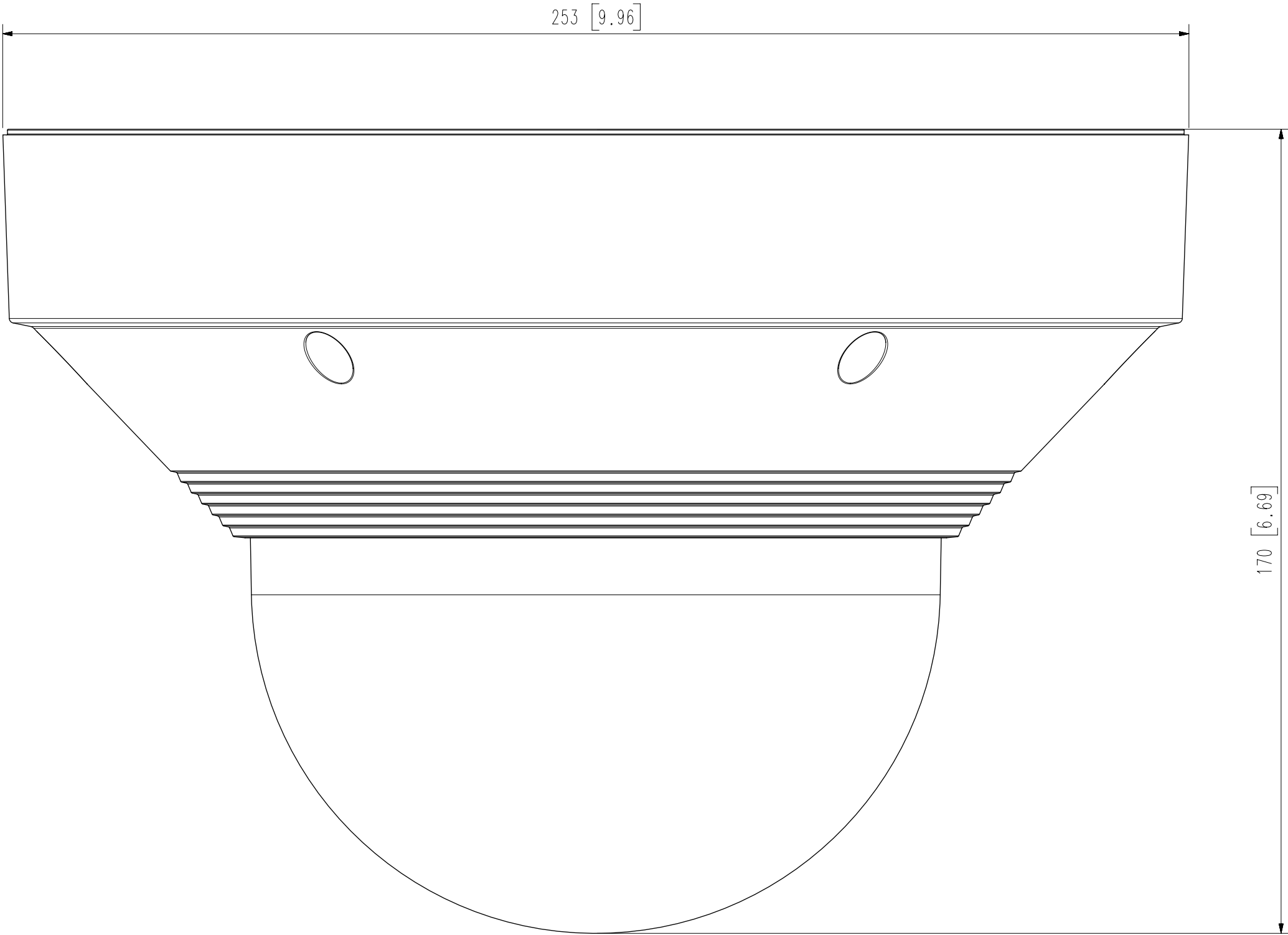
4.1.2	TABLE: List of critical components					Pass
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Product Category CCN(s)	Mark(s) of conformity	Supplement ID
Enclosure Dome cover (Plastic)	Covestro Deutschland AG [PC Resins]	LED2045 + (z)(f1)	Min. V-2, 115 deg. C, Min. 0.71 mm thickness, rated	QMFZ2/8	UL (E41613)	
Enclosure Side, Bottom (Metal)	Interchangeable	Interchangeable	Aluminium, Min. 2.0 mm thickness, see enclosure for dimension.	-	-	
Enclosure Internal cover (Plastic)	LOTTE ADVANCED MATERIALS CO LTD	HN-1068(+)(f1)	Min. V-0, 130 deg.C, Min. 1.5 mm thickness, rated	QMFZ2/8	UL (E115797)	
Internal Plastic Part Materials	Interchangeable	Interchangeable	Min. HB	QMFZ2/8	UL	
Transformer(T1)	SHENZHEN GROUP-TEK ELECTRONICS TECHNOLOGY CO.,LTD	PDT25125SR	130 deg. C, See enclosure for more detail.	-	-	
LINE FILTER (LF1)	TNC Co.Ltd	CV320070SB	7.0 mH, 105 deg. C, See enclosure for more detail.	-	-	
Fuse (F1)	LITTELFUSE INC	449*	125 V, 2.5 A	JDYX2/8	UL/cUL (E10480)	
Lithium Battery (BAT1)	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 (LS1)	LITE-ON TECHNOLOGY CORP	LTV-816	Isolation Voltage: 5 000, Max. Operation Temperature: 110 deg. C	FPQU2/8	UL(E113898)	
DC Fan	MINEBEAMITSUMI INC.	BM4515-04W-B5X	Rated 12 Vdc, 0.25 Amax	GPWV2/8	UL (E89936)	

Thermal Pad	KOMOTECH CO LTD	KGP-1(a)	Min. 0.2 mm thickness, rated V-0, 150 deg. C	QMFZ2/8	UL (E245303)	
Connectors and Receptacles (Secondary circuits)	Interchangeable	Interchangeable	Min. V-2	ECBT2	UL	
Connectors and Receptacles (Secondary circuits) - Alternate	Interchangeable	Interchangeable	Copper alloy pins housed in bodies of plastic rated Min. V-2	QMFZ2	UL	
Internal Wiring (Secondary)	Interchangeable	Interchangeable	Marked VW-1; Min. 30 V, 80 deg. C	AVLV2	UL	
Cable	Interchangeable	Interchangeable	Marked VW-1; Min. 30 V, 80 deg. C	AVLV2	UL	
PWB	Interchangeable	Interchangeable	Min. V-0, 130 deg.C	ZPMV2	UL	
Label	Interchangeable	Interchangeable	Min. 60 deg.C if max. surface temperature not specified.	PGDQ2 or PGJI2	UL	

Enclosures

Type	Supplement Id	Description
Photographs	03-01	Front View
Photographs	03-02	Rear View
Photographs	03-03	Internal View-1
Photographs	03-04	Internal View-2
Photographs	03-05	Lens Module Top
Photographs	03-06	Lens Module Rear
Photographs	03-07	Main board Top
Photographs	03-08	Main board bottom
Photographs	03-09	Fan View
Diagrams	04-01	Enclosure Dimension
Manuals	06-01	Manual
Miscellaneous	07-01	PoE Transformer (T1) spec
Miscellaneous	07-02	Line Filter (LF1) spec
Miscellaneous	07-03	Dual language safety labeling CRD
Miscellaneous	07-04	Label

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



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" and rated from 12 Vdc, 1.34 A or PoE 53 V, 0.34 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. 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.

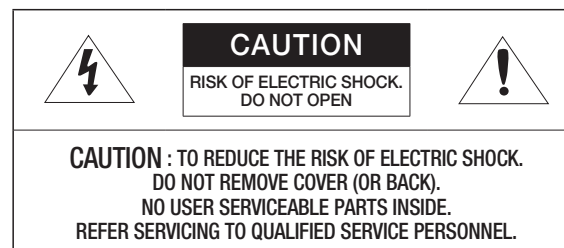
WARNING

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.

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.

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 802.3at 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.

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

客户名称 CUSTOMER			
客户料号 MODEL NO.	EP23-001075A		
产品名称 PART NAME	POWER TRANSFORMER		
产品型号 PART TYPE	PDT25125SR		
版本 REV	X5		
签名 SIGNATURE	制图: Drawn by	审核: Checked by	批准: Approved by
			
客户承认 CUSTOMER APPROVAL			
	承认印: SIGNET	签名: SIGNATURE	

深圳市联泰兴电子科技有限公司

SHENZHEN GROUP-TEK ELECTRONICS TECHNOLOGY CO., LTD

地址：深圳市宝安区石岩街道应人石工业区伟泰路 1 栋（P. C: 518108）

ADD: No.1 Block, WeiTai Rd. Ying Ren Shi Industry Park, Shi Yan Sub-District, Bao'An ShenZhen,

TEL: +86-755-29810619

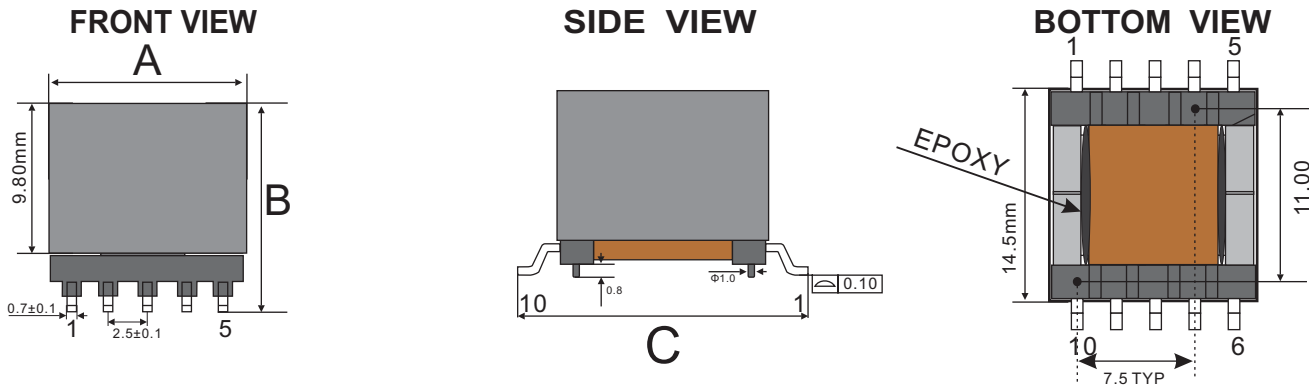
29810976

FAX: +86-755-29810159

Http://www.group-tek.com

E-mail:sale1@group-tek.com

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.

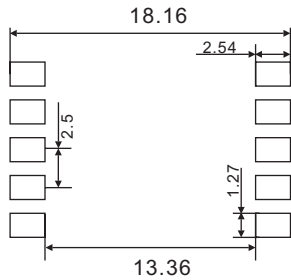
Unit: mm

A MAX	B MAX	C MAX
15.0	14.8	17.8

Marking information

PDT25125SR GROUP-TEK
● YYWW

Suggested PCB Paad Layout

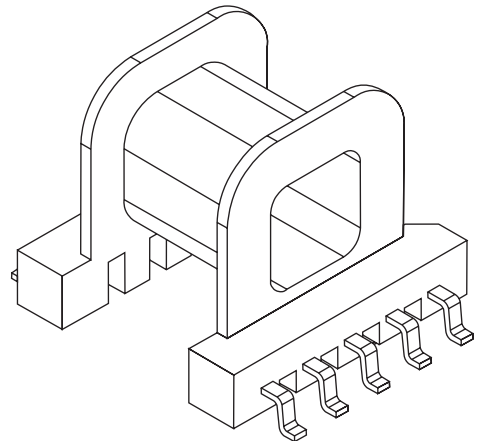
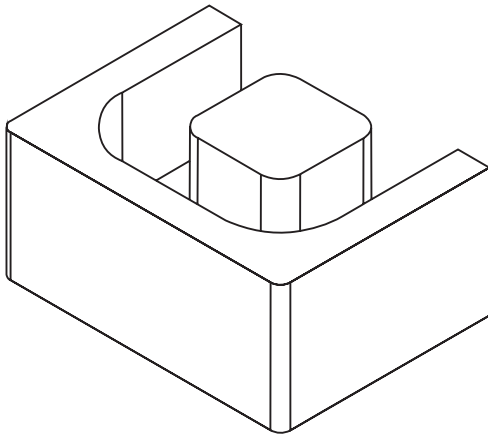


5.Winding Information:

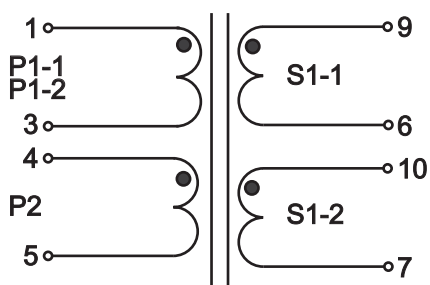
WINDING SEQ.	ST-FN	WIRE/FOIL	TURNS	WRAP INSUL.	MARGIN TAPE	SLEEVE	NOTE
P1-1	1--3	4*0.21mm 2UEW	16	1T w8.0mm (kapton tape)	N/A	N/A	1
S1-1	9--6	4*0.27mm 2UEW (Red)	6	1T w8.0mm (kapton tape)	N/A	N/A	1
P1-2	1--3	2*0.21mm 2UEW (Natural)	16	1T w8.0mm (kapton tape)	N/A	N/A	1
S1-2	10--7	4*0.27mm 2UEW	6	1T w8.0mm (kapton tape)	N/A	N/A	1
P2	4--5	3*0.17mm 2UEW	6	2T w8.0mm (kapton tape)	N/A	N/A	1

NOTE :

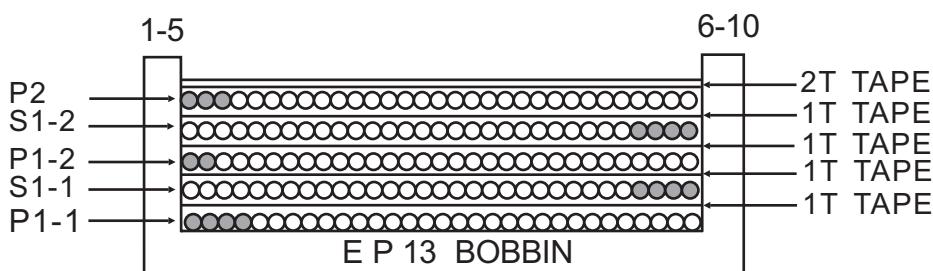
1. -Place the bobbin pin 1 left side of operator.



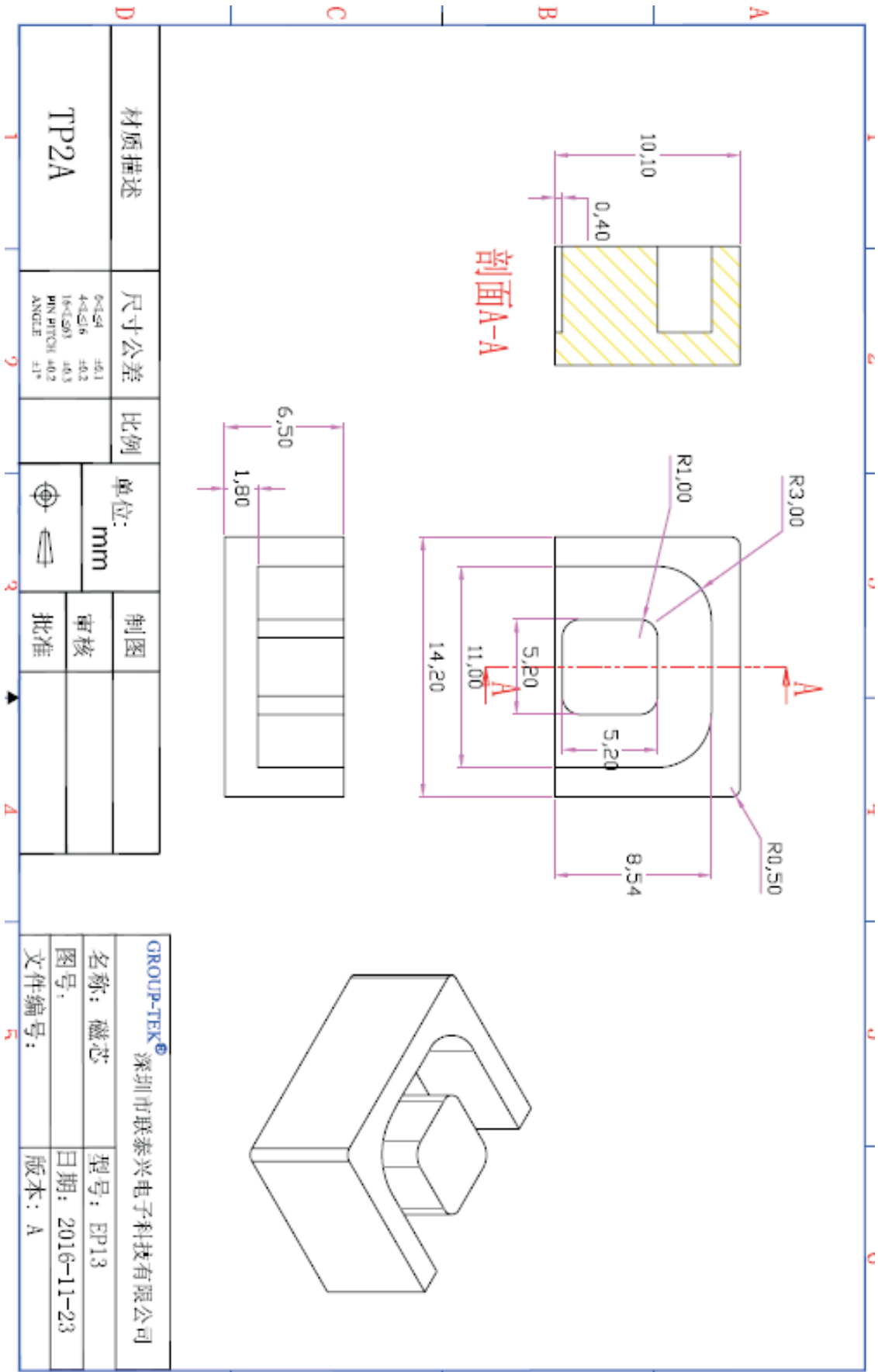
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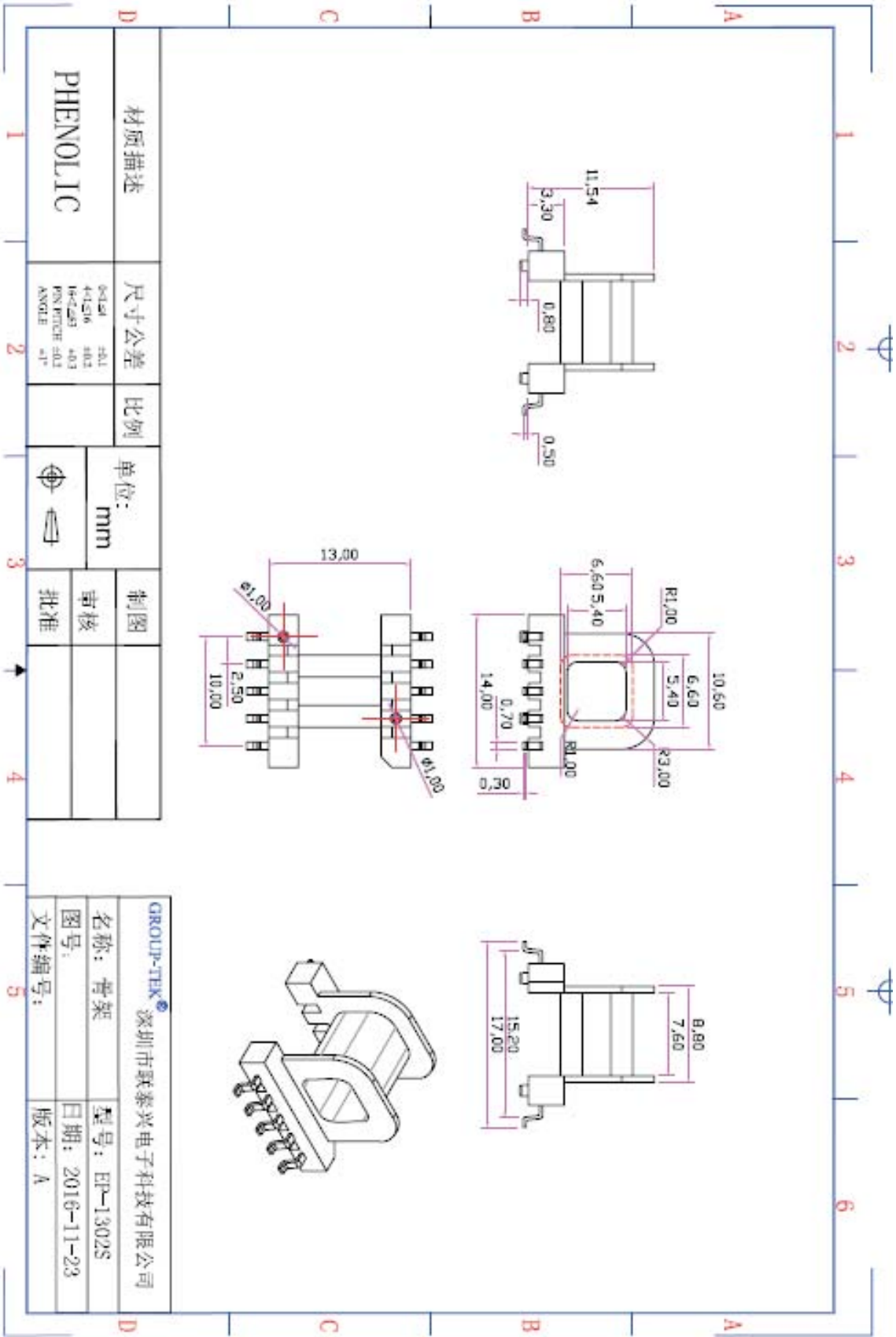


7.Winding construction



● :Start terminal





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

SPECIFICATIONS

TO MESSRS : 한화테크윈

CUSTOMER'S MODEL :

CUSTOMER'S PART NO :

ITEM : LINE FILTER

TNC SPEC NO. : CV320070SB

APPROVED	REFERENCE

DATE : 2018. 02. 23

TNC (株)TNC

#304-29 Asan Valley, DunPo-Myeon, Asan-Si, Chung Cheong
Nam-Do, KOREA 336-871
TEL : 82-41-530-9600
FAX : 82-41-530-9697

NOTICE : After received this approval sheet and finished it's approval,
please return back one copy. In case of you don't any reply until
initial order date, this approval sheet is to be standard approval
and initial order date is to be approved date for concerning item.

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)

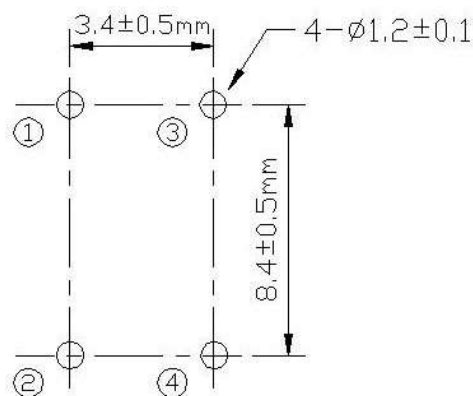
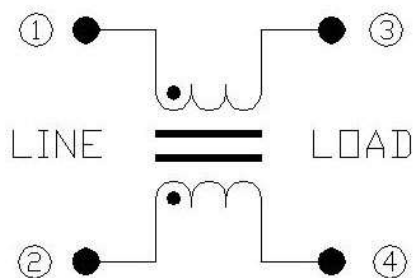
3. OPERATING TEMPERATURE RANGE

-40℃ TO +105℃ INCLUDING TEMPERATURE RISE.

4. KEEP TEMPERATURE RANGE

-40℃ ~ +105℃.

5. CIRCUIT DIAGRAM



Minimum PCB Piercing HOLE

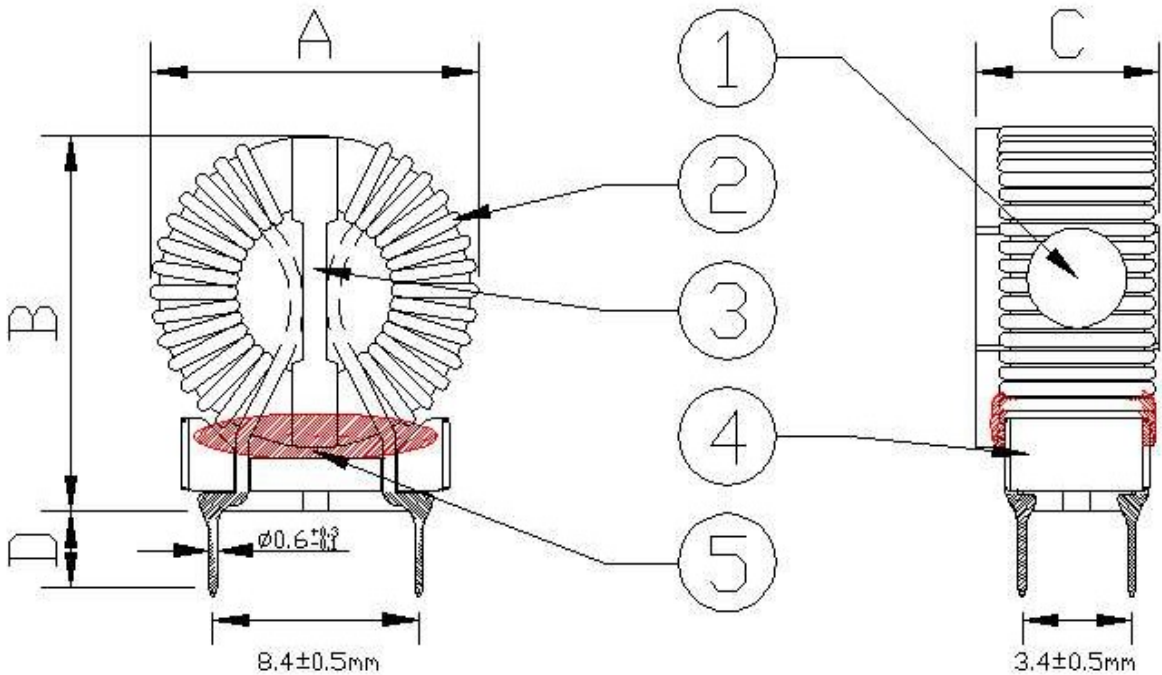
 TNC CO.,LTD	DESIGN	CHECK	APPROVAL	PAGE
	 RYU.H.E. R&D	 KIM.J.S. R&D	 PARK.J.W. R&D	3/14

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

TNC TNC CO.,LTD	DESIGN	CHECK	APPROVAL	PAGE
	RYU.H.E R&D	KIM.J.S R&D	PARK.J.W R&D	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

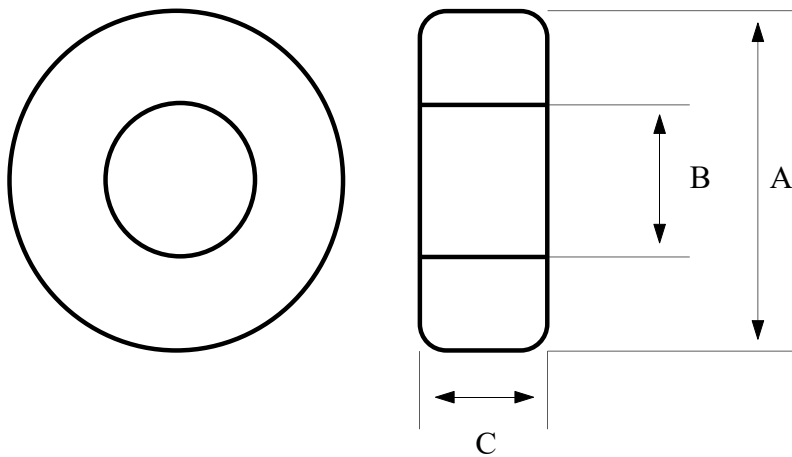
SPECIFICATIONS	ITEM	LINE FILTER	Rev
	TNC SPEC NO	CV320070SB	0

14. FERRITE CORE SPECIFICATION

- Characteristics

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

- Dimension (Before Coating)



A: 13.0 ±0.35 B: 7.0 ±0.3 C: 5.0 ±0.3

The following Page(s) are related to Miscellaneous-03. The next supplement, if applicable, will be identified with a new Supplement Page Heading.

Standard SCC Requirements and Guidance - Product Certification Body Accreditation Program Edition/ Revision Date 2016-04-06

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



NETWORK CAMERA
MODEL: PNM-9022V
DC 12V $\overline{\cdot\cdot}$ 1.34A



PoE(53V $\overline{\cdot\cdot}$) 0.34A

M/C: PNM-9022V/KUS Fac. ID: D



2020.10 S/N: Serial No.

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

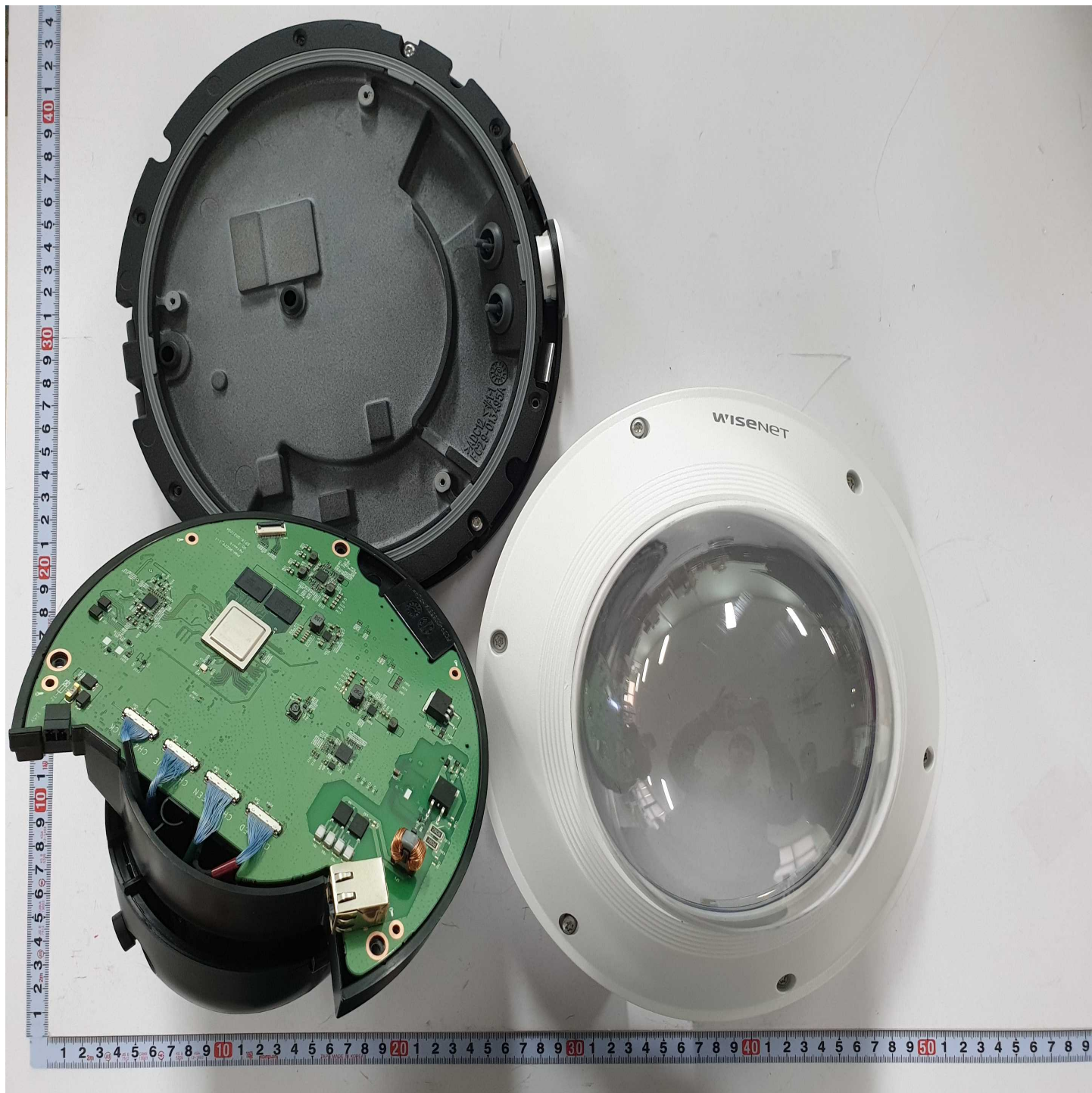
CAN ICES-3(A)/NMB-3(A)

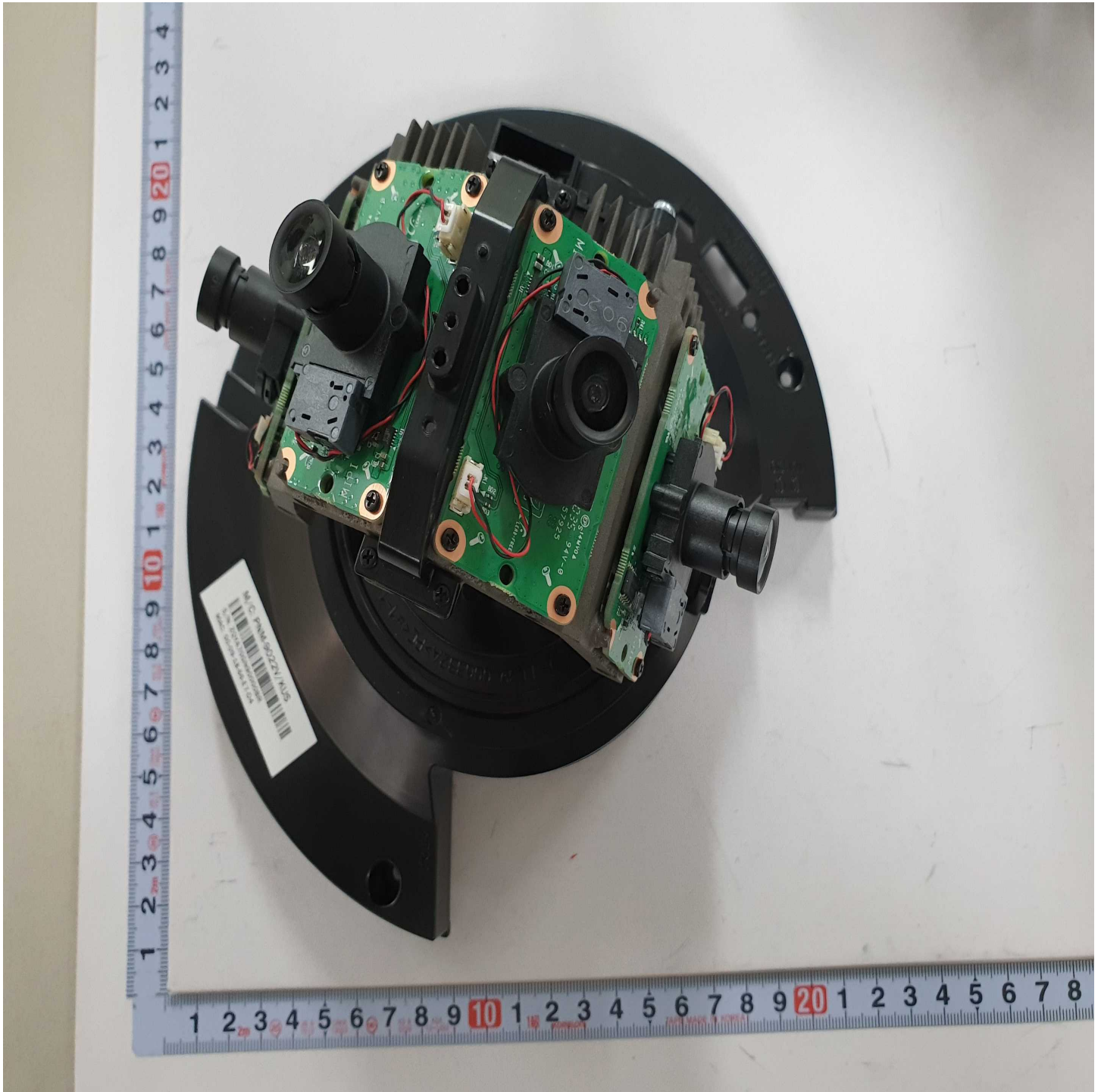
HANWHA TECHWIN CO.,LTD.

MADE IN KOREA

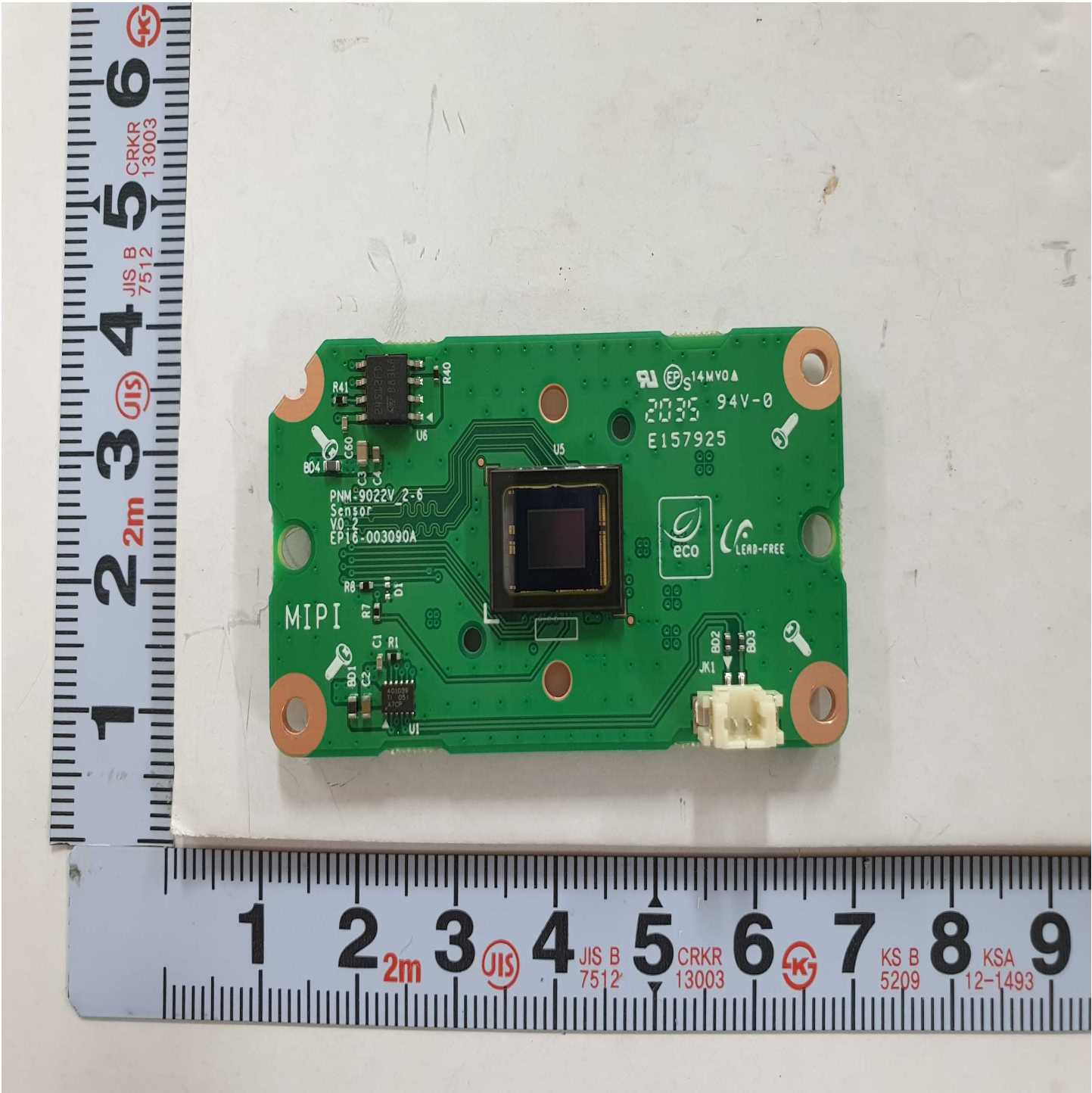


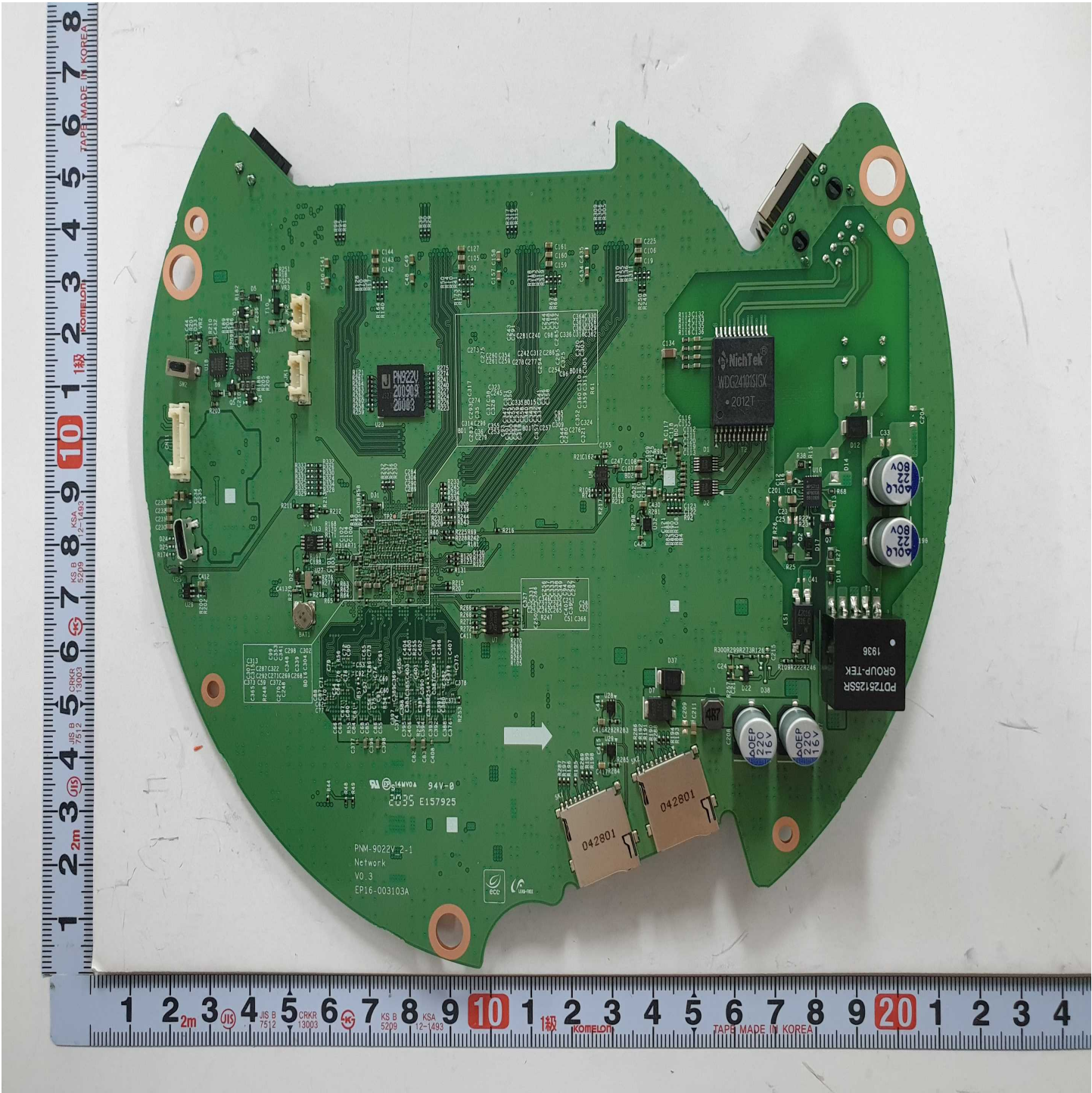


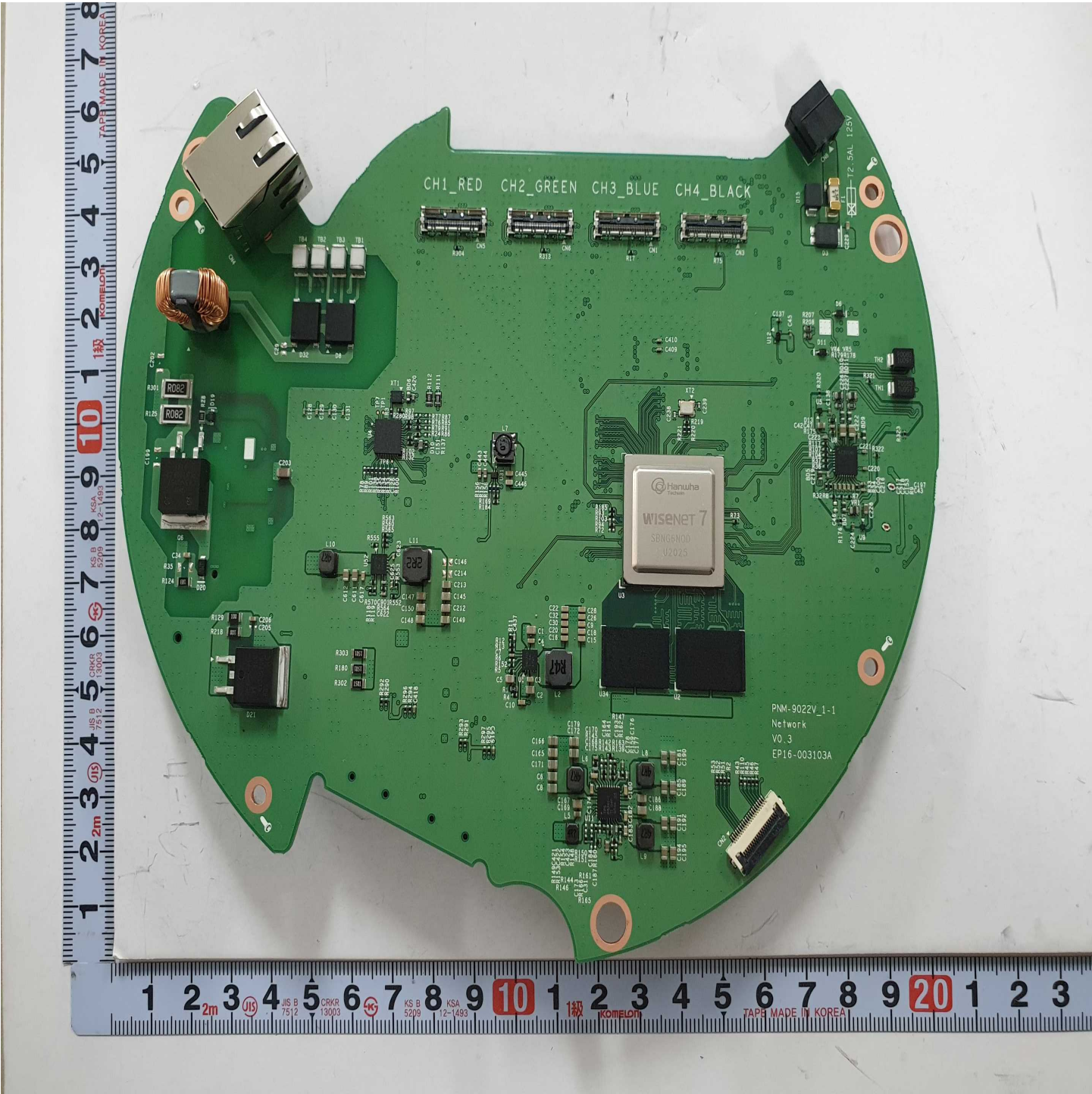














Test Record No. 1

1. Test result relate only to the items tested.
2. The manufacturer submitted representative production samples of NETWORK CAMERA, PNM-9022V.
3. Only the test listed were considered necessary.

The following tests were conducted:

Tests performed (name of test and test clause):	Testing location: None
MAXIMUM OPERATING TEMPERATURE FOR MATERIALS, COMPONENTS AND SYSTEMS (5.4.1.4, 6.2, 9.2.5 ANNEX B.2)	
DETERMINATION OF WORKING VOLTAGE (5.4.1.8)	
WALL OR CEILING MOUNTING TESTS (8.7)	
INPUT TEST: SINGLE PHASE (B.2.5)	
SIMULATED ABNORMAL OPERATING CONDITIONS (B.3)	
SIMULATED SINGLE FAULT CONDITIONS (B.4)	
PROTECTION CIRCUITS FOR BATTERIES (ANNEX M.3.2)	
The following tests were waived:	Rationale for Waiving

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

