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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
E158873-20210531-CertificateofCompliance
E158873-A6069-DescriptionUL
Figure-30-Total
E158873-A6069-TestRecordUL

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Times change, Trust Remains™

File		Volume	Page	Date:
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Product Type	Model/Type Reference	Report Reference #	Status
NETWORK VIDEO RECORDER	XRN-6410B4, XRN-3210B4	E158873-A6027-UL	
NETWORK VIDEO RECORDER	PRN-6410B4, PRN-3210B4, XRP-4210B4, PRN-6400B4, PRN-3200B4	E158873-A6028-UL	
NETWORK VIDEO RECORDER	XRN-6410DB4	E158873-A6029-UL	
NETWORK VIDEO RECORDER	PRN-6410DB4, XRP-4310DB4, PRN-6400DB4	E158873-A6030-UL	
NETWORK CAMERA	PNM-9002VQ	E158873-A6031-UL	
NETWORK CAMERA	XNF-9010RV, XNF-9010RVM, XNF-9010RS	E158873-A6032-UL	
NETWORK CAMERA	PNM-9000QB	E158873-A6033-UL	
NETWORK CAMERA	XNP-9300RW, XNP-8300RW, XNP-6400RW	E158873-A6034-UL	
NETWORK CAMERA	TNV-8010C	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	

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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	E158873-A6068-UL	
NETWORK CAMERA	QNP-6320H, QNP-6250H	E158873-A6069-UL	

CERTIFICATE OF COMPLIANCE

Certificate Number UL-CA-2123660-0
Report Reference E158873-A6069-UL
Date 9-Jun-2021

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** AZOT7 - Audio/Video, Information and Communication
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.

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

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CERTIFICATE OF COMPLIANCE

Certificate Number UL-CA-2123660-0
Report Reference E158873-A6069-UL
Date 9-Jun-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
QNP-6250H	NETWORK CAMERA
QNP-6320H	NETWORK CAMERA



Bruce Mahrenholz, Director North American Certification Program

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CERTIFICATE OF COMPLIANCE

Certificate Number UL-US-2128630-0
Report Reference E158873-A6069-UL
Date 9-Jun-2021

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 AZOT - Audio/Video, Information and Communication
representative samples of 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.

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CERTIFICATE OF COMPLIANCE

Certificate Number UL-US-2128630-0
Report Reference E158873-A6069-UL
Date 9-Jun-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
QNP-6250H	NETWORK CAMERA
QNP-6320H	NETWORK CAMERA



Bruce Mahrenholz, Director North American Certification Program

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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:	QNP-6320H, QNP-6250H
Rating:	PoE (53 Vdc), 0.44 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: Seuli 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 PoE (Power over Ethernet) and installed by service personnel.

Model Differences

QNP-6320H is basic model.

QNP-6250H is identical to basic model except model designation and zoom factor.

Test Item Particulars

Classification of use by	Instructed person
Supply Connection	External Circuit - not Mains connected ES1
Supply % Tolerance	None
Supply Connection – Type	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)	55
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)	2.55

Technical Considerations

- ☐ The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of : 55
- ☐ 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 values : No direct connection
- ☐ The following are available from the Applicant upon request : Installation (Safety) Instructions / Manual

Additional Information

4789907569

- Maximum Normal Load: Continuous operation with Heater or 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 companys 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)"
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, 0.1 A or PoE (53 Vdc), 0.44 A.
Website Manual -2	The wired LAN hub providing power over the Ethernet (PoE) in accordance with IEEE 802.3.at shall be a UL Listed device with the output evaluated as a Limited Power Source as defined in UL60950-1 or PS2 as defined in UL62368-1.
Hard Copy	A. IMPORTANT B. Please check 'Manuals' from our website, before connecting to the supply. C. Company website URL (https://www.~~)

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 (Metal)	Interchangeable	Interchangeable	Aluminium, Min. 2.0 mm thickness, See enclosure for dimension.	-	Tested in equipment	
Transparent Dome Cover (Plastic)	LG CHEM LTD	LUPOY UF1004C	Min. 1.5 mm thickness, V-2, 80 deg. C, See enclosure for dimension.	QMFZ2/8	UL (E67171)	
Dome Cover (Plastic)	LOTTE CHEMICAL CORPORATION	HN-1068(+)(f1)	Polycarbonate (PC), Min. 1.5 mm thickness, rated Min. V-0, 130 deg. C.	QMFZ2/8	UL (E115797)	
Internal Plastic Part Materials	LOTTE ADVANCED MATERIALS CO LTD	NH-1035(+)	Min. 1.5 mm thickness, rated Min. V-0, 80 deg. C.	QMFZ2/8	UL (E115797)	
Internal Plastic Part Materials - Alternate	Interchangeable	Interchangeable	Min. 1.5 mm thickness, rated Min. HB, 80 deg. C.	QMFZ2/8	UL	
Fuse (F1)	ORISEL CO LTD	OS5	T2.5AL, 250 Vac	JDYX2/8	UL (E126056)	
Fuse (F1) - Alternate	COOPER BUSSMANN LLC	SS-5	T2.5AL, 250 Vac	JDYX2/8	UL (E19180)	
Transformer (T1)	DONG IN SYSTEM CO.,LTD.	MSS20-001	130 deg. C, See detail in enclosure	-	Tested in equipment	
Transformer (T1) - Alternate	DONG HEUNG ELECTRONICS CO., LTD.	MSS20-001	130 deg. C, See detail in enclosure	-	Tested in equipment	
Line Filter (LF1, NL1)	TNC CO.,LTD	CV36045USA2	450 uH, 130 deg. C, See detail in enclosure	-	Tested in equipment	
Line Filter (LF2)	TNC CO.,LTD	CV320070SB5	7.0 mH, 130 deg. C, See detail in enclosure	-	Tested in equipment	

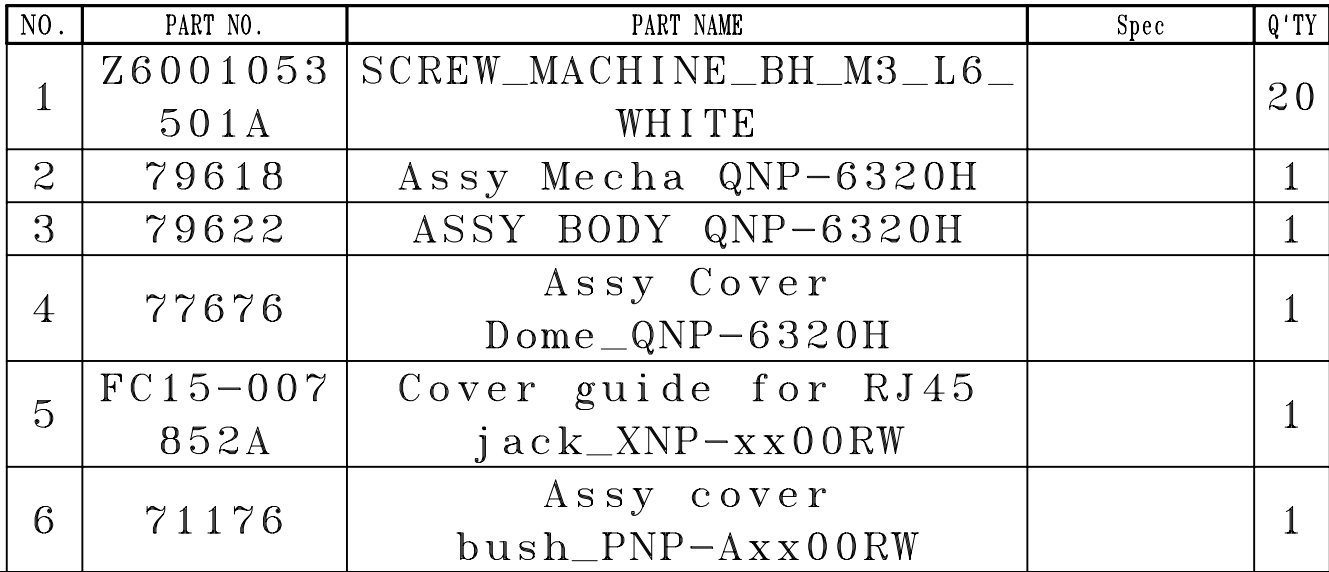
BAR CHOKE (BL1)	DONG IN SYSTEM CO.,LTD.	LB4151R55T5	0.5-1.5 uH, 125 deg. C, See detail in enclosure	-	Tested in equipment	
BAR CHOKE (BL1) - Alternate	DONG HEUNG ELECTRONICS CO., LTD.	LB4151R55T5	0.5-1.5 uH, 125 deg. C, See detail in enclosure	-	Tested in equipment	
Opto-coupler (PC1)	LITE-ON TECHNOLOGY CORP	LTV-817	Isolation Voltage: 5 000. Max. Operation Temperature: 110 deg. C	FPQU2/8	UL (E113898)	
Opto-coupler (PC1) - Alternate	RENESAS ELECTRONICS CORPORATION	PS2561DL1-1	Isolation Voltage: 5 000. Max. Operation Temperature: 110 deg. C	FPQU2/8	UL (E72422)	
Lithium Battery (BAT1)	SEIKO INSTRUMENTS INC MICRO-ENERGY DIV	ML414H	Rechargeable, Lithium (Coin), Rechargeable, Max. Charging Voltage: 3.4 Vdc, Max. Charging Current: 300 mAh	BBCV2	UL (MH15628)	
Thermal Pad	KOMOTECH CO LTD	KGP-1(a)	Rated V-0, min. 0.2 mm thickness, 150 deg. C	QMFZ2/8	UL (E245303)	
Stepping Motor (PAN)	DONGGUAN SHINANO MOTOR CO LTD	STH-36C1078	For pan. Rated 12.0 Vdc, 0.6 A	-	Tested in equipment	
Stepping Motor (TILT)	DONGGUAN SHINANO MOTOR CO LTD	STH-36C1056	For Tilt, Rated 4.6 Vdc, 0.4 A	-	Tested in equipment	
DC Fan	DONGGUAN PROTECHNIC ELECTRIC CO., LTD.	MBA5112XB-O15	12 Vdc, 0.21 A	GPWV2	UL (E187236)	
Heater resistor (22 EA, R1 to R22)	Interchangeable	Interchangeable	5.6 ohm, 0.053 W each	-	Tested in equipment	
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	
Internal Wiring (Secondary)	Interchangeable	Interchangeable	Marked VW-1; Min. 30 V, 80 deg. C	AVLV2	UL	
FPWB	SI FLEX CO LTD	T1	Min. V-0	ZPXK2	UL (E218849)	
FPWB - Alternate	Interchangeable	Interchangeable	Min. V-0	ZPXK2	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	

Enclosures

Type	Supplement Id	Description
Photographs	03-01	External View - 1
Photographs	03-02	External View - 2
Photographs	03-03	Internal View - 1
Photographs	03-04	Internal View - 2
Photographs	03-05	Internal View - 3
Photographs	03-06	Internal View - 4
Photographs	03-07	Lens view - 1
Photographs	03-08	Lens view - 2
Photographs	03-09	Drive board top
Photographs	03-10	Drive board bottom
Photographs	03-11	Fan
Photographs	03-12	Motor
Photographs	03-13	Motion board
Photographs	03-14	Network board top
Photographs	03-15	Network board bottom
Photographs	03-16	SD board
Photographs	03-17	Heater board
Photographs	03-18	SMPS board top
Photographs	03-19	SMPS board bottom
Photographs	03-20	Motor
Diagrams	04-01	Enclosure Dimension
Manuals	06-01	Manual
Miscellaneous	07-01	Transformer (T1) specification - DONG IN SYSTEM CO.,LTD.
Miscellaneous	07-02	Transformer (T1) specification - DONG HEUNG ELECTRONICS CO., LTD.
Miscellaneous	07-03	BAR CHOKE (BL1) specification - DONG IN SYSTEM CO.,LTD.
Miscellaneous	07-04	BAR CHOKE (BL1) specification - DONG HEUNG ELECTRONICS CO., LTD.
Miscellaneous	07-05	Line Filter (LF1, NL1) specification - TNC CO.,LTD
Miscellaneous	07-06	Line Filter (LF2) specification - TNC CO.,LTD
Miscellaneous	07-07	Dual language safety labeling CRD
Miscellaneous	07-08	Label

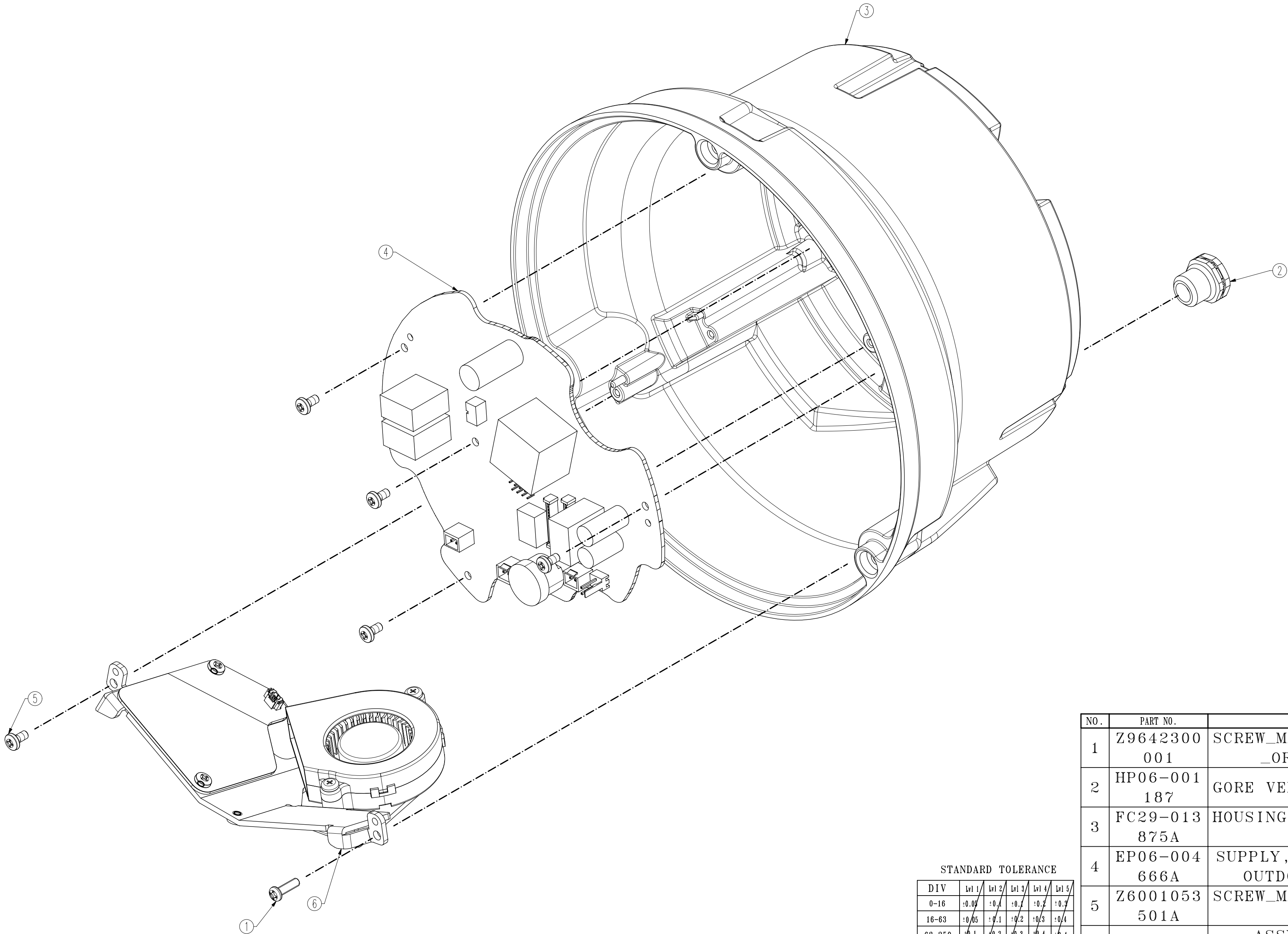
The following Page(s) are related to Diagrams-01. The next supplement, if applicable, will be identified with a new Supplement Page Heading.



UNIT	mm	DESIGN	CHECK	APPROVAL	PART NAME	Assy final_QNP-6320H
		Design	Check	Approval		
SCALE	1 / 1	19.03.01	19.03.01	19.03.01	MODEL NAME	QNP-6320H
					CODE NO.	077562

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

NO	PART NAME	CODE NO.	MATERIAL	Q'TY	REMARK
1	Assy HOUSING QNP-6320H	079624	Check note	1	-



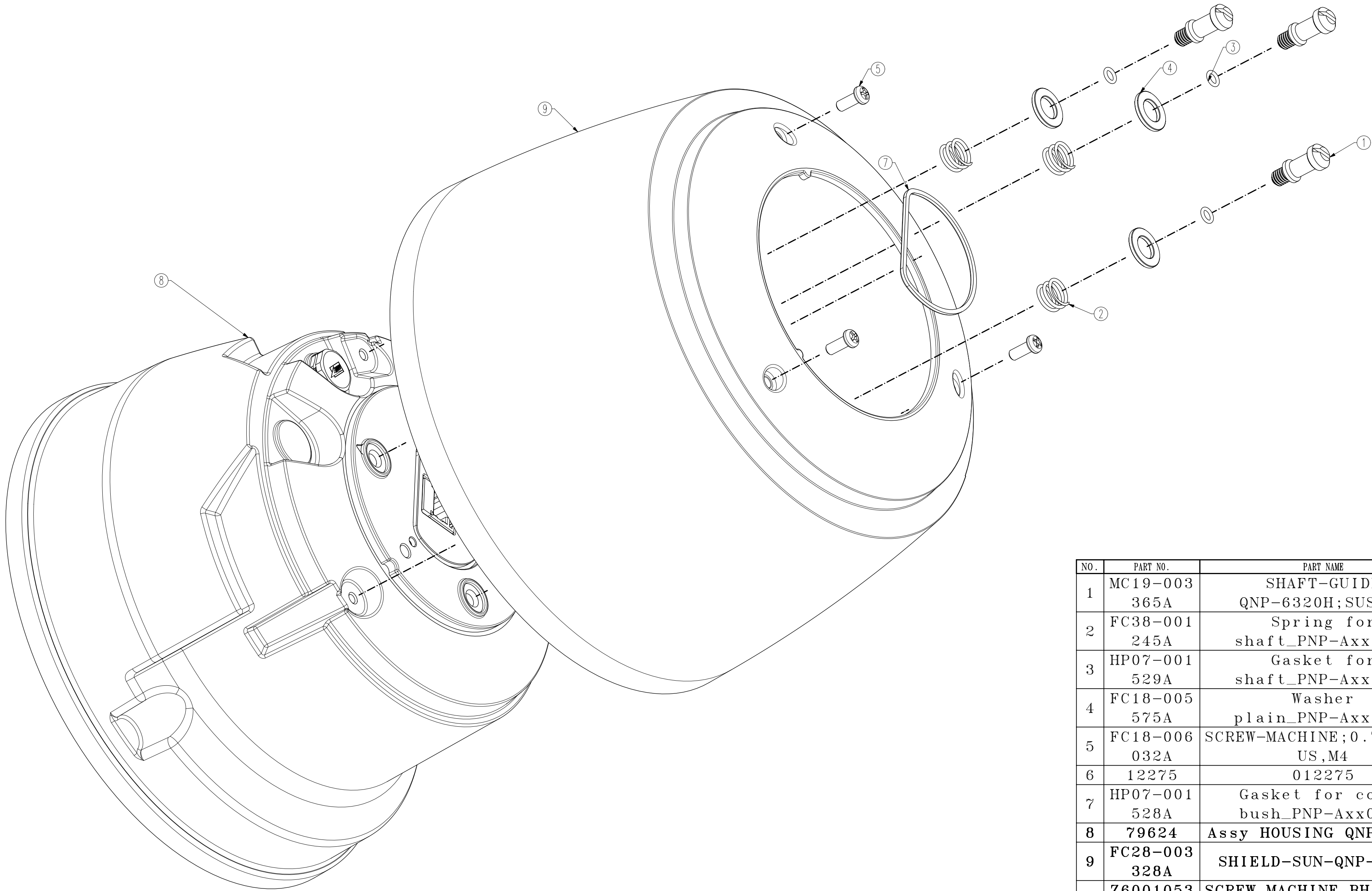
STANDARD TOLERANCE

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

NO.	PART NO.	PART NAME	Spec	Q'TY
1	Z9642300001	SCREW_MACHINE_PH_M3_L10_ORIGINALCOLOR		1
2	HP06-001187	GORE VENT-SCREW IN TYPE		1
3	FC29-013875A	HOUSING-QNP-6320H;ADC12,WHT		1
4	EP06-004666A	SUPPLY,POWER,ETC-Q PTZ OUTDOOR;DC12V,1.8		1
5	Z6001053501A	SCREW_MACHINE_BH_M3_L6_WHITE		5
6	78779	ASSY FAN HEATER QNP-6320H		1

A2 CHANGE △-1 Blank (19.03.01 X.X.X)			UNIT	mm	DESIGN	CHECK	APPROVAL	PART NAME	Assy HOUSING QNP-6320H
			SCALE	1 / 1	Design	Check	Approval	MODEL NAME	QNP-6320H
						19.03.01	19.03.01	19.03.01	
						Hanwha Techwin			CODE NO. 079624

NO	PART NAME	CODE NO.	MATERIAL	Q'TY	REMARK
1	ASSY BODY QNP-6320H	AM07-015050A	Check note	1	-



NO.	PART NO.	PART NAME	Spec	Q'TY
1	MC19-003 365A	SHAFT-GUIDE QNP-6320H; SUS303		3
2	FC38-001 245A	Spring for shaft_PNP-Axx00RW		3
3	HP07-001 529A	Gasket for shaft_PNP-Axx00RW		3
4	FC18-005 575A	Washer plain_PNP-Axx00RW		3
5	FC18-006 032A	SCREW-MACHINE; 0.7, L10, S US, M4		3
6	12275	012275		1
7	HP07-001 528A	Gasket for cover bush_PNP-Axx00RW		1
8	79624	Assy HOUSING QNP-6320H		1
9	FC28-003 328A	SHIELD-SUN-QNP-6320H		1
10	Z6001053 501A	SCREW_MACHINE_BH_M3_L6_ WHITE		1

A2 CHANGE △-1 Blank (19.03.01 X.X.X)		UNIT	mm	DESIGN	CHECK	APPROVAL	PART NAME	ASSY BODY QNP-6320H
				Design	Check	Approval	MODEL NAME	QNP-6320H
		SCALE	1 / 1	19.03.01	19.03.01	19.03.01		
		Hanwha Techwin					CODE NO.	AM07-015050A

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 lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. This product is intended to be supplied by a Listed Power Supply Unit marked "Class 2" or "LPS" or "PS2" and rated from PoE(53 Vdc), 0.44A. (QNP-6320H/QNP-6250H)
16. This product is intended to be supplied by a Listed Power Supply Unit marked "Class 2" or "LPS" or "PS2" and rated from PoE(53 Vdc), 0.28A. (QNP-6320/QNP-6250)
17. This product is intended to be supplied by isolation power.
18. If you use excessive force when installing the product, the camera may be damaged and malfunction.
If you forcibly install the product using non-compliant tools, the product may be damaged.
19. Do not install the product in a place where chemical substances or oil mist exists or may be generated. As edible oils such as soybean oil may damage or warp the product, do not install the product in the kitchen or near the kitchen table.
This may cause damage to the product.
20. When installing the product, be careful not to allow the surface of the product to be stained with chemical substance.
Some chemical solvents such as cleaner or adhesives may cause serious damage to the product's surface.
21. If you install/disassemble the product in a manner that has not been recommended, the production functions/ performance may not be guaranteed.
Install the product by referring to "Installation & connection" in the user manual.



22. Installing or using the product in water can cause serious damage to the product.
23. If your product works normal, the degree of preset precision is 0.2". In the case of reboot due to outage, firmware upgrade, etc., its tolerance might have to be adjusted after checking for any changes in Preset setup.

WARNING

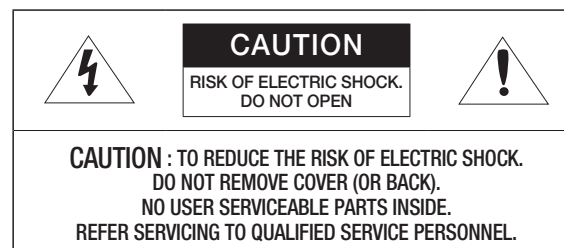
TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE. DO NOT INSERT ANY METALLIC OBJECT THROUGH THE VENTILATION GRILLS OR OTHER OPENINGS ON THE EQUIPMENT.

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.

Pan/Tilt/Zoom motors and slip ring are warrantied for one year under continuous operation.

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.

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

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.

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.

APPROVAL SHEET

DATE

2020. 10. 05

PAGE

OF

CUSTOMER

M S P

PART NAME

SWITCHING TRANS

MODEL NO.

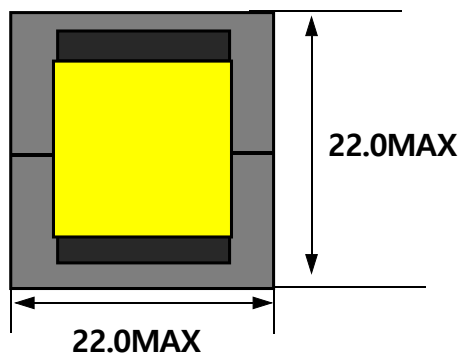
PART NO.

MSS20-001

DESCRIPTION

EFD2020"H"10PIN

1. DIMENSIONS (UNIT:mm)



TOP VIEW

* MARKING *

MSS20-001
DIAABB

PART NO
LOT NO

MARKING

PART NO.

MSS20-001

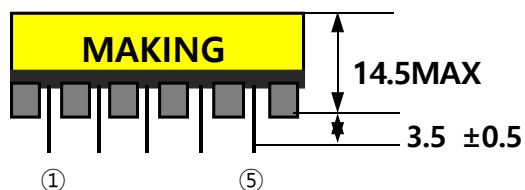
(LOT NO)

AA : YEAR

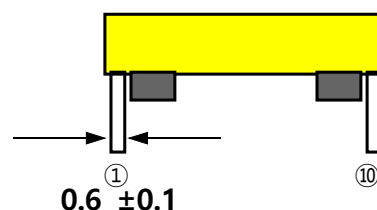
BB : WEEK

MAKER

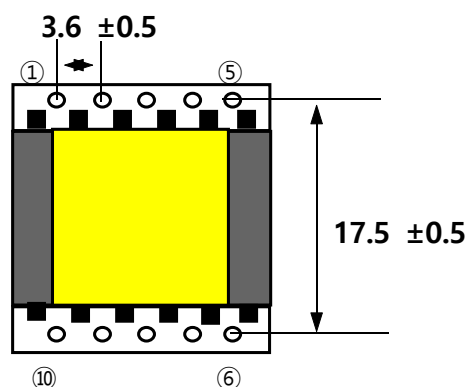
DONGIN SYSTEM



FRONT VIEW

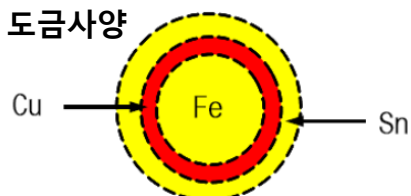


SIDE VIEW



BOTTOM VIEW

PIN 도금사양



DRAWN BY

CHECK BY

APPR. BY

REVISION

DATE



Safety

DIS

DONG - IN SYSTEM CO.,LTD.

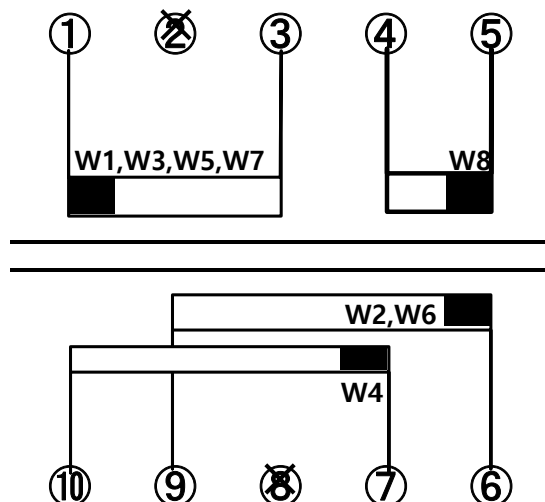
APPROVAL SHEET

DATE 2020. 10. 05

PAGE OF

CUSTOMER	M S P		
PART NAME	SWITCHING TRANS	MODEL NO.	
PART NO.	MSS20-001	DESCRIPTION	EFD2020"H"10PIN

2. CONNECTION



REMOVED PIN	#2,8
CUT PIN	#
N.C PIN	#
TEFLON TUBE	#
FLUX BAND	#
DOT MARK	■ START OF WINDING
*1~5번 권선기 쪽으로 끼우고 권선한다.	
* CORE CENTER EPOXY BONDING 작업시 SK-015B는CORE 면에 90% 이상 도포	

3 WINDING SPECIFICATION

NO	TERMINAL		WIRE	Ts	WINDING METHOD	INSULATION		BARRIER	
	S	F				MATERIAL (t/ mm)	Ts	PRI	SEC
W1	1	3	2UEW 0.23Ø	30	SOLENOID	POLYESTER TAPE 0.025 / 13.0	1	2.5	2.5
W2	6	9	2UEW 0.20Ø X 2P	17	SOLENOID	POLYESTER TAPE 0.025 / 13.0	1	2.5	2.5
W3	1	3	2UEW 0.23Ø	30	SOLENOID	POLYESTER TAPE 0.025 / 13.0	1	2.5	2.5
W4	7	10	2UEW 0.20Ø X 2P	17	SOLENOID	POLYESTER TAPE 0.025 / 13.0	1	2.5	2.5
W5	1	3	2UEW 0.23Ø	30	SOLENOID	POLYESTER TAPE 0.025 / 13.0	1	2.5	2.5
W6	6	9	2UEW 0.20Ø X 2P	17	SOLENOID	POLYESTER TAPE 0.025 / 13.0	1	2.5	2.5
W7	1	3	2UEW 0.23Ø	30	SOLENOID	POLYESTER TAPE 0.025 / 13.0	1	2.5	2.5
W8	5	4	2UEW 0.15Ø X 2P	18	SOLENOID	POLYESTER TAPE 0.025 / 13.0(YELLOW)	2	3.0	3.0
CORE FIXING TAPE				POLYESTER TAPE 0.025 / 6.0(YELLOW)			3		

DRAWN BY	CHECK BY	APPR. BY	REVISION		DATE

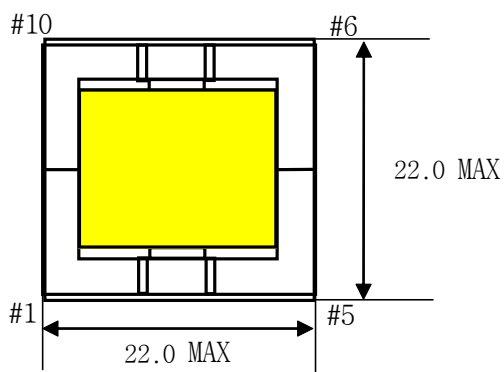
DIS

DONG - IN SYSTEM CO.,LTD.

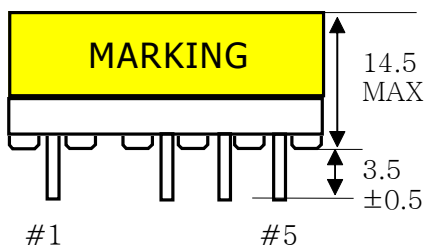
The following Page(s) are related to Miscellaneous-02. The next supplement, if applicable, will be identified with a new Supplement Page Heading.

SPECIFICATION		SHEET NO.	1 OF 15
		D A T E	2020. 08. 31.
ITEM	S/W TRANS	MODEL NAME	DC-DC(한화테크윈)
PART NO.	MSS20-001	DESCRIPTION	EFD 20x20mm

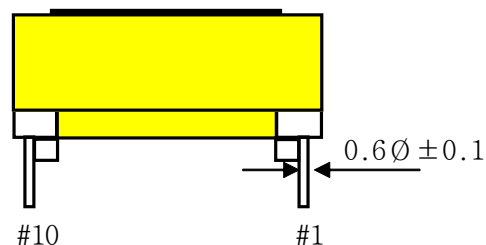
1. APPEARANCE & DIMENSION (UNIT:mm)



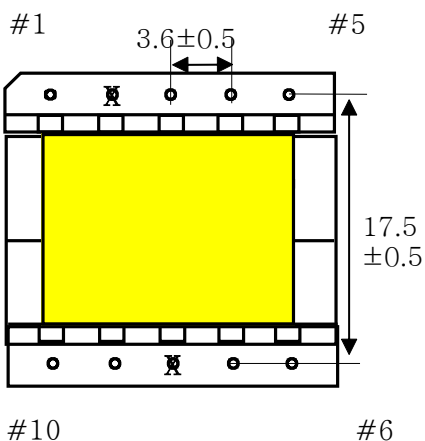
<TOP VIEW>



<FRONT VIEW>



<SIDE VIEW>



<BOTTOM VIEW>

* MARKING

MSS20-001

← PART NO.

DH 0000

→ PRODUCTION LINE

→ WEEK

→ YEAR

→ PRODUCTION MAKER

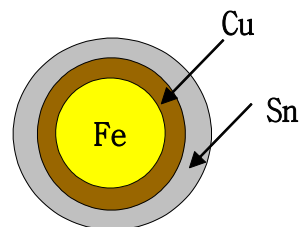
※ PRODUCTION LINE

1. A : CHUN AN

2. Y : YANTAI

3. C : WEIHAI

*. PIN PLATING SPEC



※ PIN LENGTH: BEFORE SOLDERING

NO	REVISION	DATE	CHECK	DRAWN	CHECKED	APPROVED
1						
2						
3						
4						

<h1 style="margin: 0;">SPECIFICATION</h1>		SHEET NO.	2 OF 15	
		DATE	2020. 08. 31.	
ITEM	S/W TRANS	MODEL NAME	DC-DC(한화테크윈)	
PART NO.	MSS20-001	DESCRIPTION	EFD 20x20mm	

2. SCHEMATIC DIAGRAM.

* ■ START MARK.

WINDING	BOTTOM VIEW	C.C.W
REMOVE PIN	#2,8	
N.C PIN		
CUT PIN		
TUBE PIN		
BOBBIN INSERT	PRIMARY	

3. WINDING SPECIFICATION

NO	TERMINAL		WIRE	TURNS	WINDING METHOD	INSULATION			BARRIER	
	S	F				MATERIAL	T/W	TS	TOP	PIN
W1	1	3	2UEW 0.23Ø	30	SOLENOID	POLYESTER TAPE	0.025/13.0	1	2.5	2.5
W2	6	9	2UEW 0.20Øx2#	17	SOLENOID	POLYESTER TAPE	0.025/13.0	1	2.5	2.5
W3	1	3	2UEW 0.23Ø	30	SOLENOID	POLYESTER TAPE	0.025/13.0	1	2.5	2.5
W4	7	10	2UEW 0.20Øx2#	17	SOLENOID	POLYESTER TAPE	0.025/13.0	1	2.5	2.5
W5	1	3	2UEW 0.23Ø	30	SOLENOID	POLYESTER TAPE	0.025/13.0	1	2.5	2.5
W6	6	9	2UEW 0.20Øx2#	17	SOLENOID	POLYESTER TAPE	0.025/13.0	1	2.5	2.5
W7	1	3	2UEW 0.23Ø	30	SOLENOID	POLYESTER TAPE	0.025/13.0	1	2.5	2.5
W8	5	4	2UEW 0.15Øx2#	18	SOLENOID	POLYESTER TAPE	0.025/13.0{Y}	2	3.0	3.0
* CORE FIX TAPE						POLYESTER TAPE	0.025/6.0{Y}	3	-	-

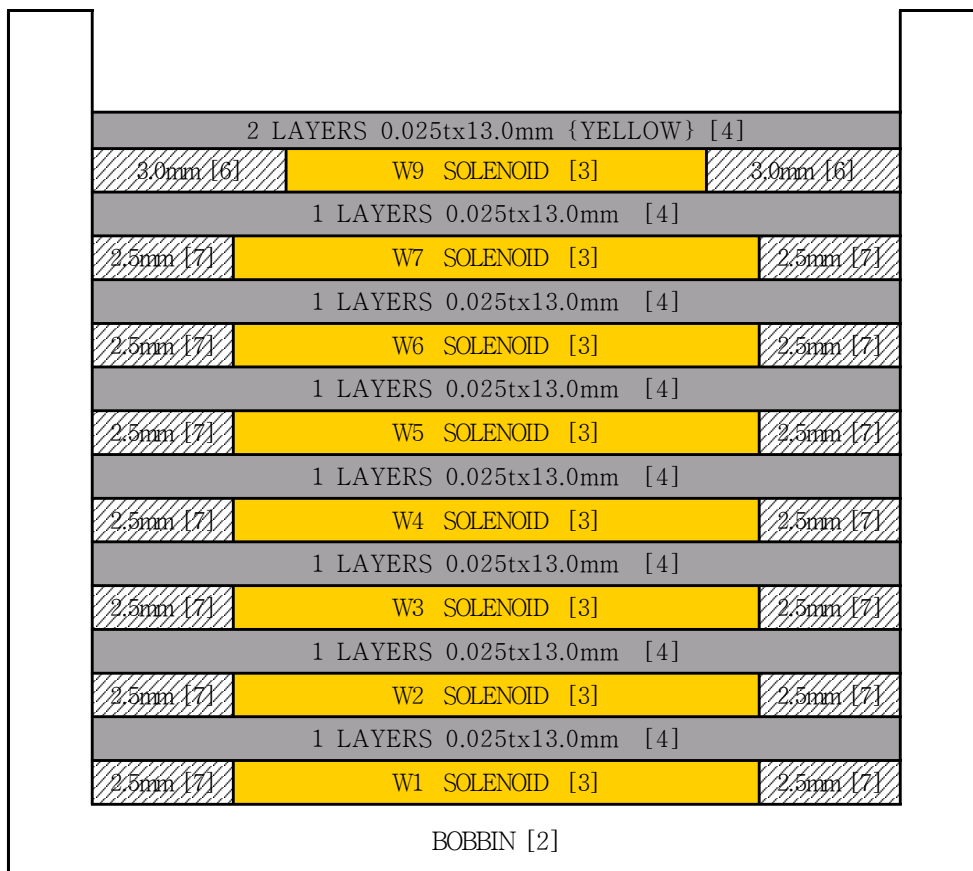
NO	REVISION	DATE	CHECK	DRAWN	CHECKED	APPROVED
1						
2						
3						
4						

SPECIFICATION		SHEET NO.	5 OF 15
		D A T E	2020. 08. 31.
ITEM	S/W TRANS	MODEL NAME	DC-DC(한화테크윈)
PART NO.	MSS20-001	DESCRIPTION	EFD 20x20mm

7. INTERNAL CONSTRUCTION




PRI.(#1~5)




SEC.(#6~10)



* GAP : CENTER AIR GAP
EPOXY [8]

3 LAYERS
0.025Tx6.0mm{YELLOW} [5]




- * WINDING 
- * P.S TAPE 
- * BARRIER TAPE 

NO	REVISION	DATE	CHECK	DRAWN	CHECKED	APPROVED
1						
2						
3						
4						

SPECIFICATION		SHEET NO.	6 OF 15
		D A T E	2020. 08. 31.
ITEM	S/W TRANS	MODEL NAME	DC-DC(한화테크윈)
PART NO.	MSS20-001	DESCRIPTION	EFD 20x20mm

8. MATERIAL LIST

NO	I T E M	MATERIALS & DIMENSIONS		MANUFACTURER	REMARK
1	CORE	EFD 20x20mm	K2.3P	ZHEJIANG LINAN HE SHUN MAGNETIC FLUX ELECTRONIC CO LTD	
			PC40	SHANGHAI JISHENG MAGNETIC MATERIAL CO LTD	
			DMR40	HENGDIAN GROUP DMEGC MAGNETICS CO LTD	
			YR28	TONGXIANG YAORUN ELECTRONIC CO LTD	
			KP4	SHANGHAI KANGSHUN MAGNETIC COMPONENT CO LTD	
			GP4	NANTONG GUANYOUDA MAGNETIC CO LTD	
2	BOBBIN	EFD 20 x 20mm [10P] PHENOL (94V-0)		SUMITOMO BAKELITE CO LTD CHANG CHUN PLASTICS CO LTD	E41429 E59481
3	COPPER WIRE	2UEW 0.15Ø 2UEW 0.20Ø 2UEW 0.23Ø		YANTAI ROME ELECTRONIC CO LTD JIANGSU DARTONG M & E CO LTD SHANDONG SAINT ELECTRIC CO LTD ZHEJIANG HONGBO TECHNOLOGY CO LTD	E166187 E237377 E194410 E221719
4	INSULATION TAPE	POLYESTER TAPE 0.025T x 13.0mm 0.025T x 13.0mm {YELLOW}		DUCK SUNG HITECH CO LTD JINGJIANG YAHUA PRESSURE SENSITIVE GLUE CO LTD JINGJIANG JINGYANG INSULATING PRODUCT CO LTD JINGJIANG JINGYI ADHESIVE PRODUCT CO LTD SHENZHEN MEIXIN ELECTRONIC CO LTD	E105147 E165111 E309872 E246950 E304309
5	CORE FIXING TAPE	POLYESTER TAPE: 0.025T W=6.0mm {YELLOW}			
6	BARRIER TAPE	POLYESTER TAPE 0.050T x 3.0mm			
7		P.N.W TAPE W=2.5mm			
8	EPOXY	UNI-BOND #812 SK-015B H-907		GREENSTAR CO LTD SE KYE CHEMICAL CO LTD. DONG GUAN SHI PAI HUA CHUANG MATERIAL FTY	
9	VARNISH	J13 R-831 DVB-2085(*),DVB-2177(@) T-4260		JIANGYIN CHUANGYI SPECIAL INSULATION MATERIAL CO LTD ZHEJIANG RONGTAI TECHNICAL INDUSTRY CO LTD NOROO PAINT&COATINA CO LTD SUZHOU TAIHU ELECTRIC ADVANCED MATERIAL CO LTD	E315314 E227128 E93947 E228349
10	SOLDER	Sn98/Cu2.0		SAMWOO ALLOY METAL CO LTD TIANJIN SONGBENENVIRONMENTAL SCIENCE&TECH CO LTD	
11	INK & LASER	JP-K12,K33 JP-K72 TH-TYPE A JP-K72 W89		HITACHI INDUSTORIAL EQUIPMENT CO LTD TIANJIN LIANJIEZHUORUIPENGMAKEJI YOUXIANGONGSI	
12	FLUX	8EB34 L-8EB34		TIANJIN SONGBENENVIRONMENTAL SCIENCE&TECH CO LTD TIANJIN QINGHE SCIENCE-TECH DEVELOPMENT CO LTD	

NO	REVISION	DATE	CHECK	DRAWN	CHECKED	APPROVED
1						
2						
3						
4						

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

APPROVAL SHEET

DATE

2013. 11. 08.

PAGE

OF

CUSTOMER

M S P

PART NAME

BAR CHOKE

MODEL NO.

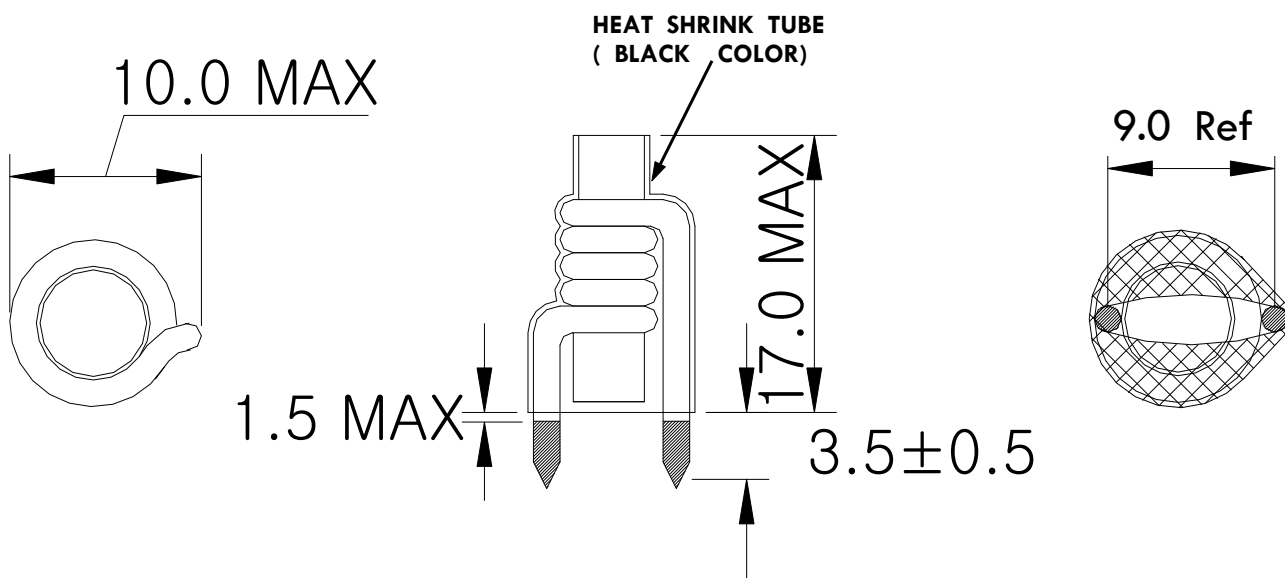
PART NO.

LB4151R55T5

DESCRIPTION

4*15

1. DIMENSIONS (UNIT:mm)



2. WINDING SPECIFICATION

NO	TERMINAL		WIRE	Ts	WINDING METHOD
	S	F			
W1	S	F	PEW 1.5Ø	5.5T	

3. ELECTRICAL CHARACTERISTICS

NO	ITEM	TERMINAL	SPEC	REMARK
1	INDUCTANCE	S - F	0.5uH ~ 1.5uH	LCR METER AG 4304 HP-4274A at 1KHz 1V
2	DC RESISTANCE(20℃)	W1	0.04 ohm MAX	WHEATSTONE BRIDGE HIOKI 3540 (mΩ METER)
3	RATED CURRENT	S - F	20.0A	

DRAWN BY

CHECK BY

APPR. BY

REVISION

DATE



Safety

DIS

DONG - IN SYSTEM CO.,LTD.

APPROVAL SHEET

DATE

2013. 11. 08.

PAGE

OF

CUSTOMER

M S P

PART NAME

BAR CHOKE

MODEL NO.

PART NO.

LB4151R55T5

DESCRIPTION

4*15

6. MATERIAL LIST

NO	ITEM	MATERIAL	MANUFACTURER	FILE NO.
1	CORE	FERRITE CORE OB 4 X 15 L82	JI SHUN MAGNETIC CO.,LTD. NANTONG HUAXING MAGNETIC MATERIAL CO.,LTD	
2	WIRE	POLYURETHANE ENAMELED COPPER WIRE PEW 1.5Ø	DONG YANG ELECTRONICS IND CO LTD. YOUNG WHA ELECTRONICS CO LTD.	E102761 E141925
3	TUBE	HEAT SHRINK TUBE (BLACK TUBE)	LS CABLE LTD.	E84393
4	PIN TERMINAL	SOLDER COATED COPPER	DAE-A LEAD CO.,LTD.	

DRAWN BY

CHECK BY

APPR. BY

REVISION

DATE



Safety

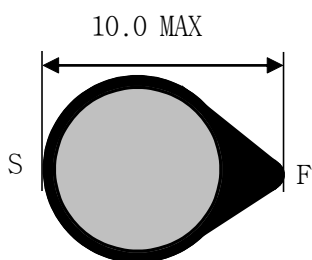
DIS

DONG - IN SYSTEM CO.,LTD.

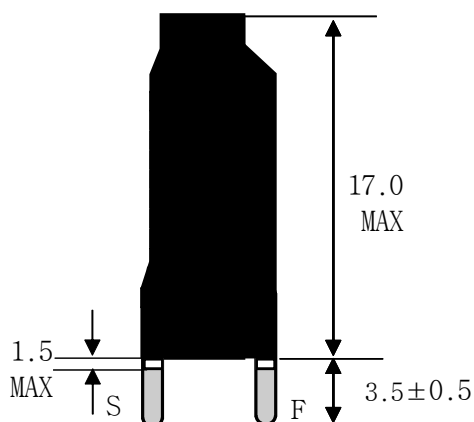
The following Page(s) are related to Miscellaneous-04. The next supplement, if applicable, will be identified with a new Supplement Page Heading.

SPECIFICATION		SHEET NO.	1 OF 9
		D A T E	2021. 04. 27.
PART NAME	BAR CHOKE	MODEL NAME	
PART NO.	LB4151R55T5	DESCRIPTION	AR 4X15mm

1. APPEARANCE & DIMENSION (UNIT:mm)



<TOP VIEW>

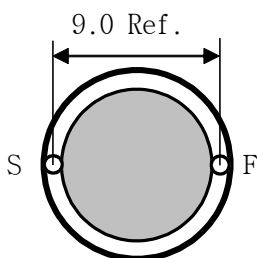


<FRONT VIEW>

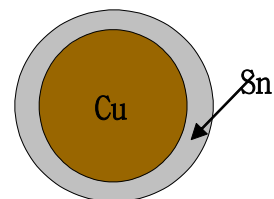


<SIDE VIEW>

* PIN PLATING SPEC

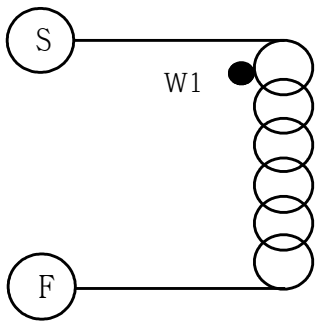





<BOTTOM VIEW>



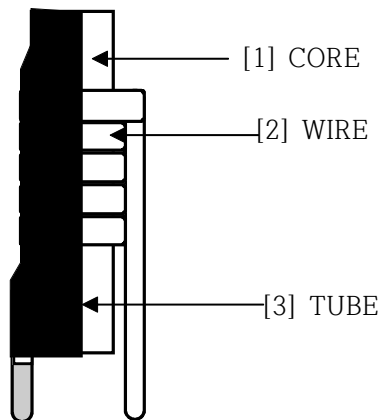
※ PIN LENGTH : BEFORE SOLDERING

NO	REVISION	DATE	CHECK	DRAWN	CHECKED	APPROVED
1						
2						
3						
4						

<h1 style="margin: 0;">SPECIFICATION</h1>				SHEET NO.		2 OF 9																			
				D A T E		2021. 04. 27.																			
PART NAME		BAR CHOKE		MODEL NAME																					
PART NO.		LB4151R55T5		DESCRIPTION		AR 4X15mm																			
<p>2. WINDING SPECIFICATION</p> 				WINDING		BOTTOM SIDE		C.C.W																	
				REMOVE PIN																					
				N.C PIN																					
				CUT PIN																					
				TUBE PIN																					
				BOBBIN INSERT																					
				<p>3. WINDING SPECIFICATION</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th rowspan="2">NO</th> <th rowspan="2">SYMBOL</th> <th colspan="2">TERMINAL</th> <th rowspan="2">WIRE</th> <th rowspan="2">Ts</th> <th rowspan="2">WINDING METHOD</th> <th rowspan="2">REMARKS</th> </tr> <tr> <th>S</th> <th>F</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>W1</td> <td>S</td> <td>F</td> <td>PEW 1.5\varnothing</td> <td>5.5T Ref.</td> <td>SOLENOID</td> <td></td> </tr> </tbody> </table>								NO	SYMBOL	TERMINAL		WIRE	Ts	WINDING METHOD	REMARKS	S	F	1	W1	S	F
NO	SYMBOL	TERMINAL		WIRE	Ts	WINDING METHOD	REMARKS																		
		S	F																						
1	W1	S	F	PEW 1.5 \varnothing	5.5T Ref.	SOLENOID																			
NO	REVISION			DATE	CHECK	DRAWN	CHECKED	APPROVED																	
1																									
2																									
3																									
4																									

SPECIFICATION		SHEET NO.	5 OF 9
		D A T E	2021. 04. 27.
PART NAME	BAR CHOKE	MODEL NAME	
PART NO.	LB4151R55T5	DESCRIPTION	AR 4X15mm

7. INTERNAL CONSTRUCTION



8. MATERIAL LIST

NO	I T E M	MATERIALS & DIMENSIONS	MANUFACTURER	REMARK
1	CORE	AR 4 X 15mm YL-9N ,DN35H ,BY40M ,TN35H Or Equiv.	YOUNGHWHA FERRITE CO., LTD. ZHEJING DONGYANG DMEGC MAGNETIC CO.,LTD. JIAXING BOYING ELECTRONICS CO., LTD. TDG HOLDING CO.,LTD. Or Equiv.	
2	WIRE	PEW 1.5Ø	YANTAI ROME ELECTRONIC CO LTD JIANGSU DARTONG M & E CO LTD SHANDONG SAITE ELECTRIC CO LTD ZHEJIANG HONGBO TECHNOLOGY CO LTD	E166187 E237377 E194410 E221719
3	TUBE	HEAT SHRINK TUBE (BLACK TUBE)	C&B TEK CO., LTD. CHANGYUAN ELECTRONICS(SHENZHEN) CO LTD. SHENZHEN WOER HEAT-SHRINKABLE MATERIAL CO.,LTD	E230267 E180908 E203950
4	SOLDER	Sn98/Cu2.0	SAMWOO ALLOY METAL CO LTD TIANJIN SONGBENENVIRONMENTAL SCIENCE&TECH CO LTD	
5	FLUX	8EB34 L-8EB34	TIANJIN SONGBENENVIRONMENTAL SCIENCE&TECH CO LTD TIANJIN QINGHE SCIENCE-TECH DEVELOPMENT CO LTD	

NO	REVISION	DATE	CHECK	DRAWN	CHECKED	APPROVED
1						
2						
3						
4						

The following Page(s) are related to Miscellaneous-05. The next supplement, if applicable, will be identified with a new Supplement Page Heading.

SPECIFICATIONS	ITEM	LINE FILTER	Rev
	TNC SPEC NO	CV36045USA2	0

2. ELECTRICAL CHARACTERISTIC

NO	ITEM	TERMINAL	SPECIFICATION			REMARKS
1	RATED VOLTAGE	LINE TO LINE	AC 300V			
2	RATED CURRENT	START-FINISH	7.5A			
3	INDUCTANCE	START-FINISH	160KHz	450uH	+ 50%, -30%	HP-4194A 1V (25℃±2℃)
4	TEMPERATURE RISE	AT RATED CURRENT	60℃ MAX			
5	DC RESISTANCE	START-FINISH	19.0 mΩ MAX			HIOKI 3540 (25℃±2℃)
6	WITHSTANDING VOLTAGE	LINE TO LINE	AC 1,500V 1 MINUTE			TOS-5101 CUT OFF CURRENT (5mA)

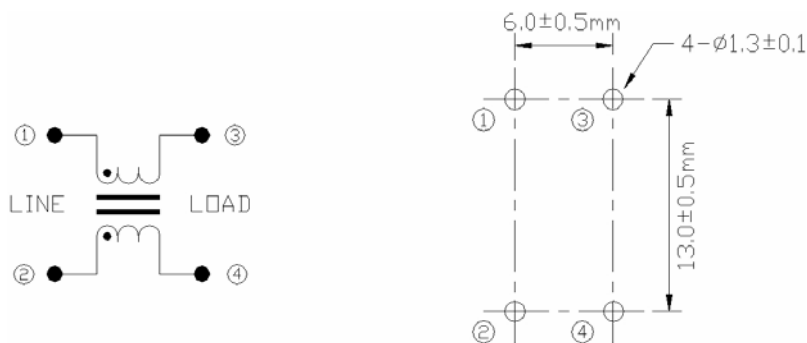
3. OPERATING TEMPERATURE RANGE

-30℃ TO +105℃ INCLUDING TEMPERATURE RISE.





4. KEEP TEMPERATURE RANGE

-30℃ ~ +60℃.

5. CIRCUIT DIAGRAM



Minimum PCB Piercing HOLE

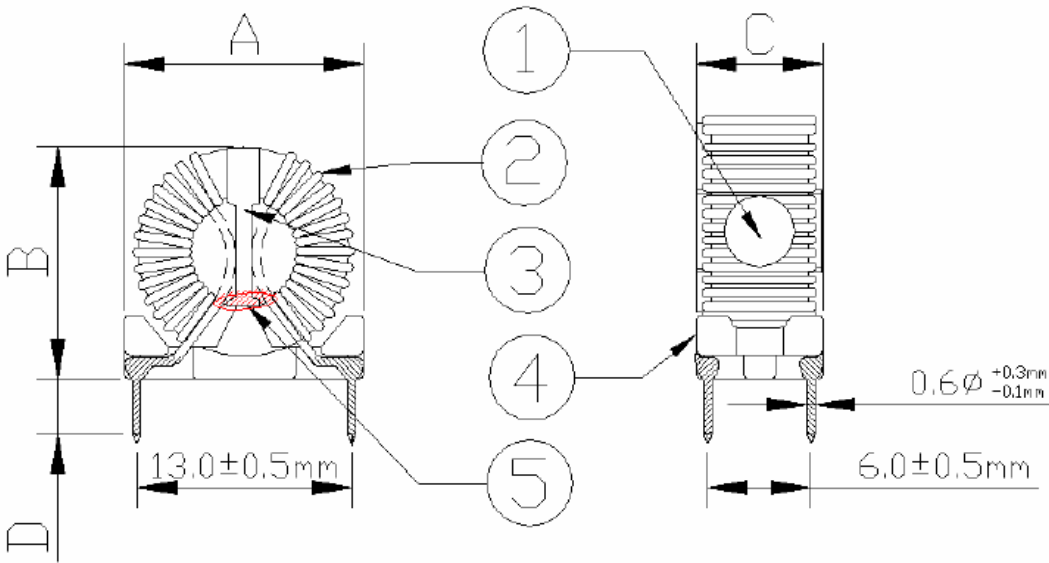
 TNC CO.,LTD	DESIGN	CHECK	APPROVAL	PAGE
	 R&D	 R&D	 R&D	3/13

SPECIFICATIONS	ITEM		LINE FILTER	Rev
	TNC SPEC NO		CV36045USA2	0

6. WINDING SPECIFICATION

NO	TERMINAL		WIRE	TURNS	WINDING METHOD	UNBALANCE SPECIFICATION
	START	FINISH				
L1	1	3	UEW 0.7Φ	9 ±1Ts	HANDMADE	BETWEEN L1 AND L2 (52.78uH MAX)
L2	2	4				

7. SHAPE AND DIMENSION



DIMENSION	A	B	C	D
	18.0mm MAX	18.5mm MAX	10.0mm MAX	4.0±1.0mm

<div>TNC</div> <div>TNC CO.,LTD</div>	DESIGN	CHECK	APPROVAL	PAGE
	<div>RYU.H.E</div> <div>R&D</div>	<div>KANG.S.W</div> <div>R&D</div>	<div>KOO.J.H</div> <div>R&D</div>	4/13

SPECIFICATIONS	ITEM	LINE FILTER	Rev
	TNC SPEC NO	CV36045USA2	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 Equal.	GRAY	
2	Enamel Wire	UEW 0.7Φ / 9±1Ts	UEW	Hwa Il Electronics Co.,Ltd	YELLOW	E140246
			UEW	SHANDONG PENGTAI STOCK CO LTD Equal.	YELLOW	E166187
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 LTD	BLACK	E59481
5	Epoxy	EPOXY RESIN	NA-010	ND Chemical	WHITE	
			EA610A / EA610B	Chem Tech	Transparent	

 TNC CO.,LTD	DESIGN	CHECK	APPROVAL	PAGE
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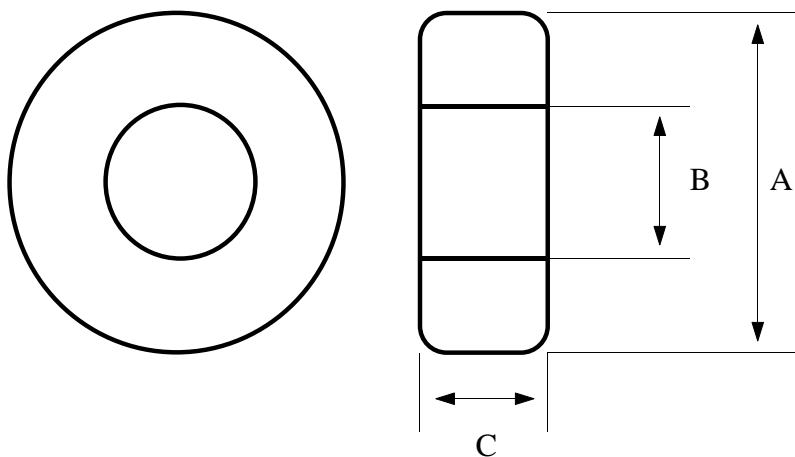
SPECIFICATIONS	ITEM	LINE FILTER	Rev
	TNC SPEC NO	CV36045USA2	0

14. FERRITE CORE SPECIFICATION

- Characteristics

Symbol	Unit	MA100 R-13/7/5	R10KF TR13X7X5C
μ_i	-	10,000±25%	10,000±30%
Bms	mT	415	390
Hcms	A/m	3.0	7.0
Brms	mT	76	100
Tc	℃	>115	>120
TAN δ / μ iac	*10 ⁻⁶	<1.9	<7.0
$\alpha_{\mu r}$	*10 ⁻⁶ /℃	-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-06. The next supplement, if applicable, will be identified with a new Supplement Page Heading.

SPECIFICATIONS	ITEM	LINE FILTER	Rev
	TNC SPEC NO	CV320070SB5	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	141.0 mΩ MAX			HIOKI 3540 (25℃±2℃)
6	WITHSTANDING VOLTAGE	LINE TO LINE	AC 1,500V 1 MINUTE.			TOS-5101 CUT OFF CURRENT (5mA)

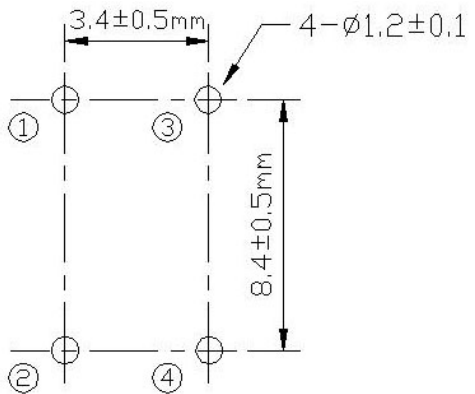
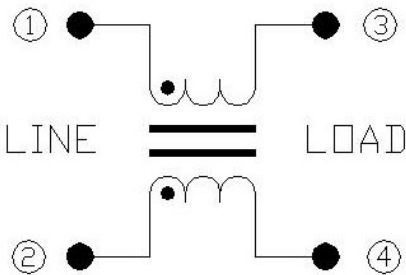
3. OPERATING TEMPERATURE RANGE

-40℃ TO +105℃ INCLUDING TEMPERATURE RISE.

4. KEEP TEMPERATURE RANGE

-40℃ ~ +105℃.

5. CIRCUIT DIAGRAM



PCB layout requirements

※PCB LAYOUT is strictly required..

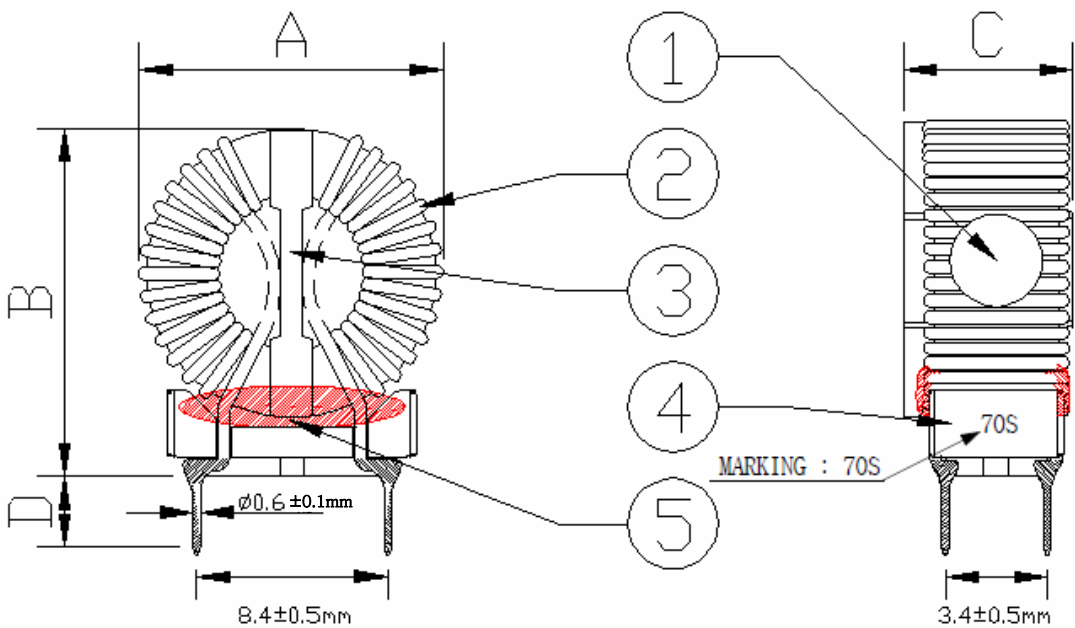
 TNC CO.,LTD	DESIGN	CHECK	APPROVAL	PAGE
	 R&D	 R&D	 R&D	3/15

SPECIFICATIONS	ITEM	LINE FILTER	Rev
	TNC SPEC NO	CV320070SB5	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
	16.0mm MAX	18.5mm MAX	10.0mm MAX	Not include solder fillet 3.3 ± 0.5mm

<div>TNC</div> <div>TNC CO.,LTD</div>	DESIGN	CHECK	APPROVAL	PAGE
	<div>CHOL.J.K</div> <div>R&D</div>	<div>KANG.S.W</div> <div>R&D</div>	<div>KOO.J.H</div> <div>R&D</div>	4/15

SPECIFICATIONS	ITEM	LINE FILTER	Rev
	TNC SPEC NO	CV320070SB5	0

8. MATERIAL LIST

No.	NAME	SPECIFICATION		MANUFACTURER	UL No.
1	Ferrite Core	MA100 R-13/7/5 M10K T13X7X5C		JFE Ferrite Corp SUZHOU TIANMING MAGENETIC TECHNOLOGY CO.,LTD	
2	Enamel Wire	UEW 0.40Φ / 35±2Ts	UEW	HWA-IL ELECTRONICS CO LTD	E140246
			UEW	YANTAI ROME ELECTRONIC CO LTD	E166187
			UEW	SIAM PACIFIC ELECTRIC WIRE & CABLE CO.,LTD	E142108
			UEW	LIAONING DONGGANG MAGNET WIRE CO LTD	E229247
3	Coil Separator	LCP L304T40		TORAY INDUSTRIES INC	E41797
		NYLON A 50H1(r3)(f2)		BASF Engineering Plastics (Shanghai) Co., Ltd.	E507491
4	Coil Base	Phenolic (PF 2736(a)(b)) UL 94 V-0 Class		Hexion GmbH	E61040
		Phenolic (T375HF) UL 94 V-0 Class		CHANG CHUN PLASTICS CO LTD	E59481
5	Epoxy	EPOXY RESIN	EA610A / EA610B	Chem Tech	
			HB5225A10/ HB5225B10	SUZHOU ROUTEN ELECTRONICS CO., LTD	
A	Marking	Bon Mar Que		T&K Toka	
		IR-254WTSPB/MC-254WT		DOMINO	

 TNC CO.,LTD	DESIGN	CHECK	APPROVAL	PAGE
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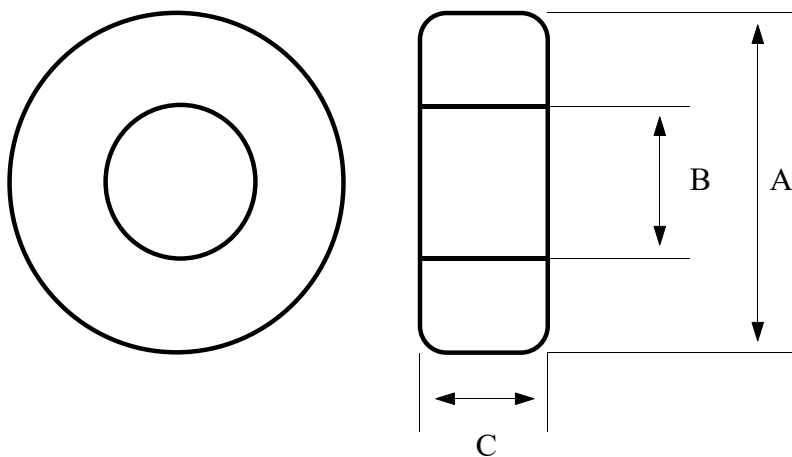
SPECIFICATIONS	ITEM	LINE FILTER	Rev
	TNC SPEC NO	CV320070SB5	0

14. FERRITE CORE SPECIFICATION

- Characteristics

Symbol	Unit	MA100 R-13/7/5	M10K T13X7X5C
μ_i	-	10,000±30%	10,000±30%
B _{ms}	mT	415	380
H _{cms}	A/m	3.0	6.0
B _{rms}	mT	76	120
T _c	℃	>115	>120
TANδ /μiac	*10 ⁻⁶	<1.9	<20
α _{μr}	*10 ⁻⁶ /℃	-0.5~2.0	-0.5~1.5
ρ	Ω.m	0.1	0.2
d	g/cm ³	5.0	4.9

- 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-07. 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

CE UL ITE US LISTED 9T96 E158873 EAC

NETWORK CAMERA
MODEL: QNP-6320H

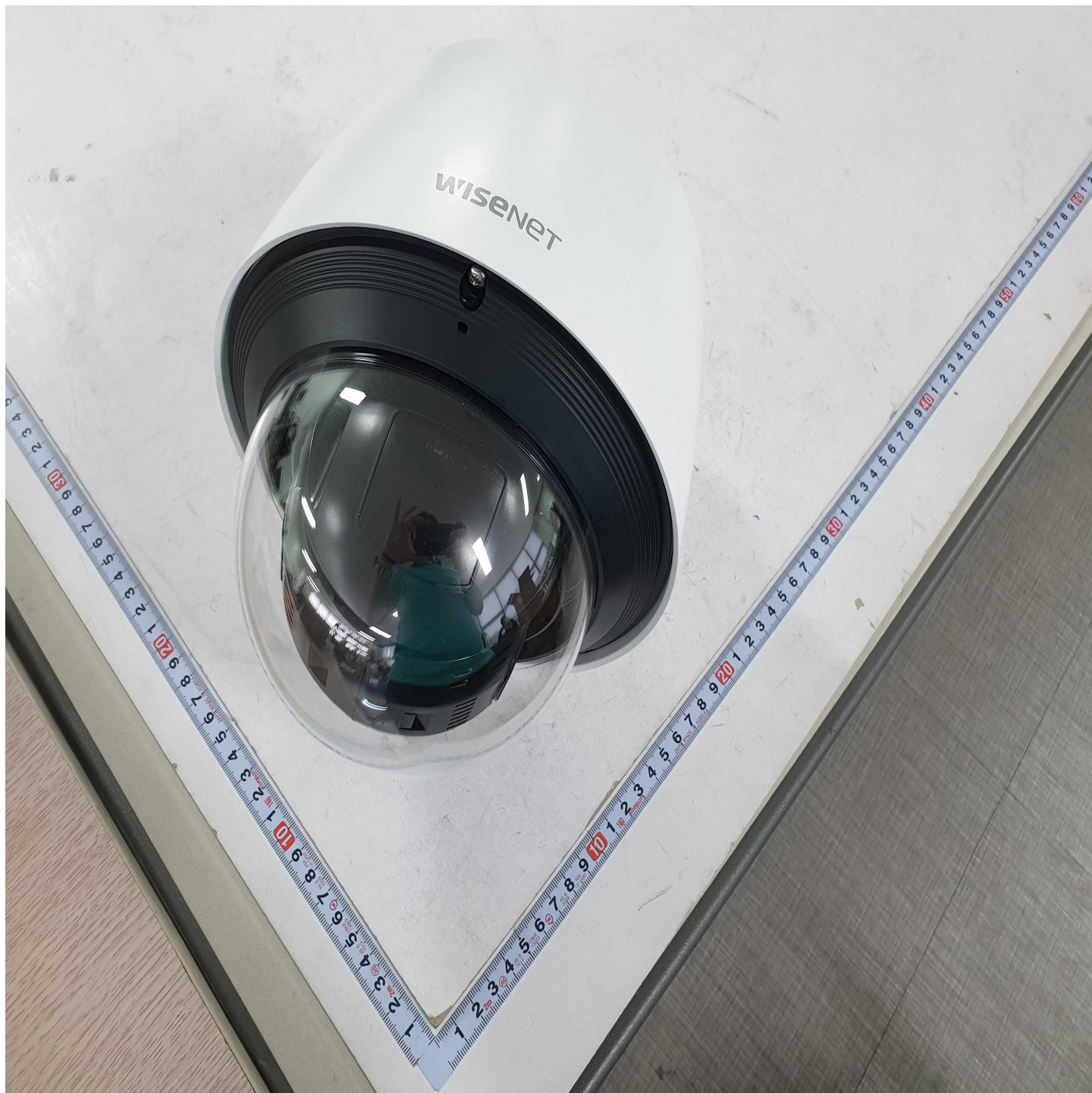
PoE (53V ) 0.44A

M/C: QNP-6320H/KUS Fac. ID: D

DATE 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





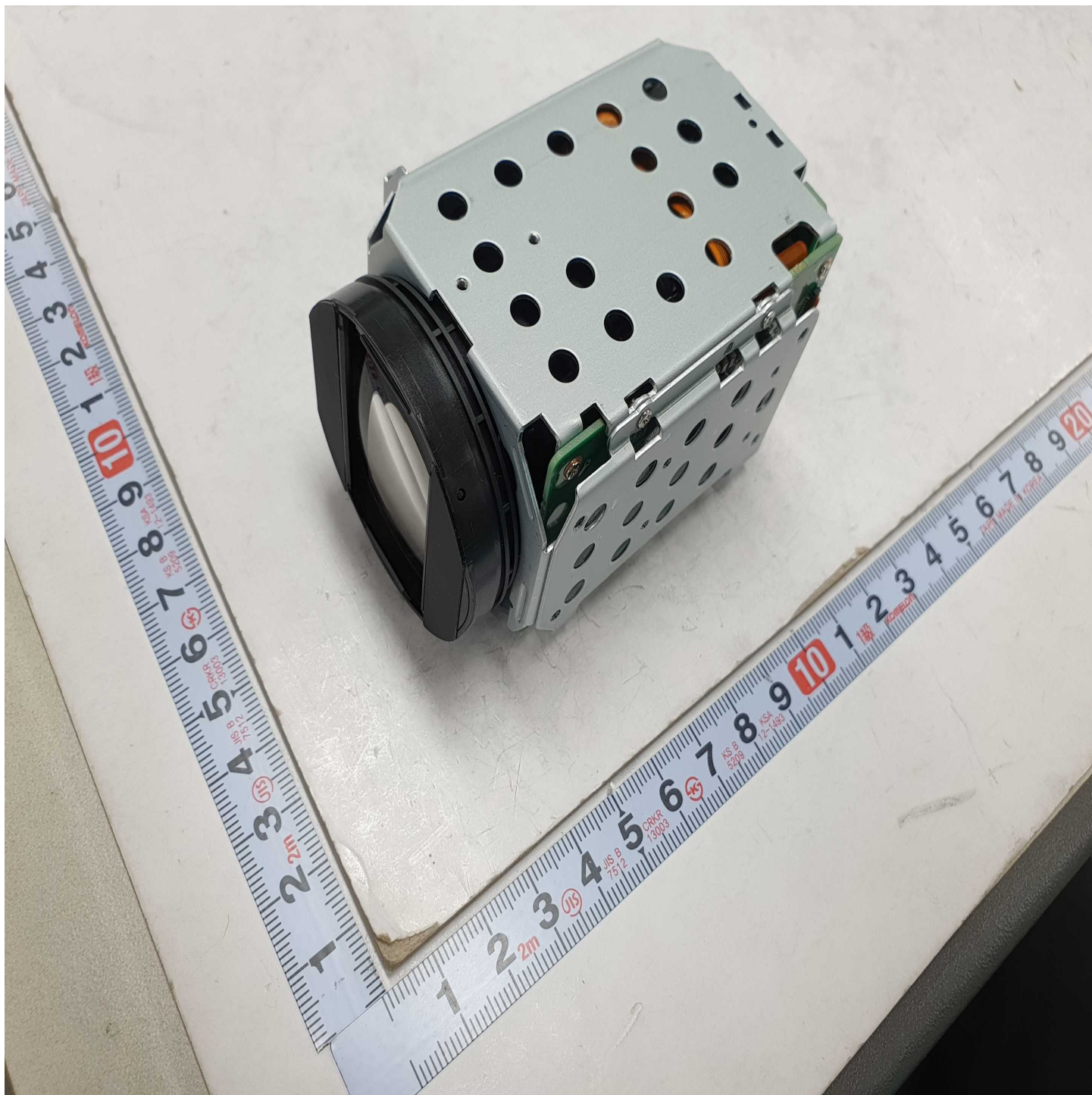




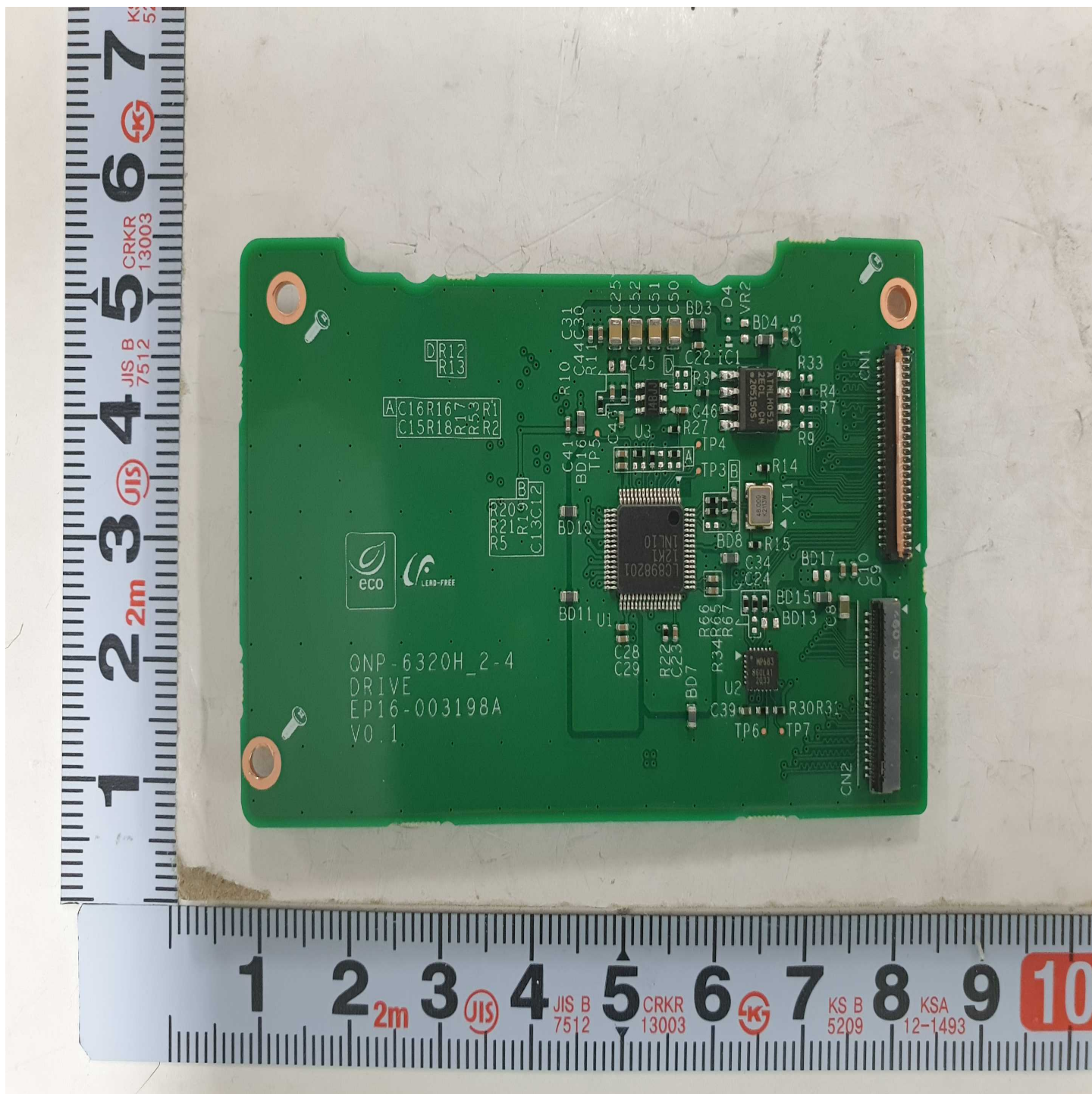


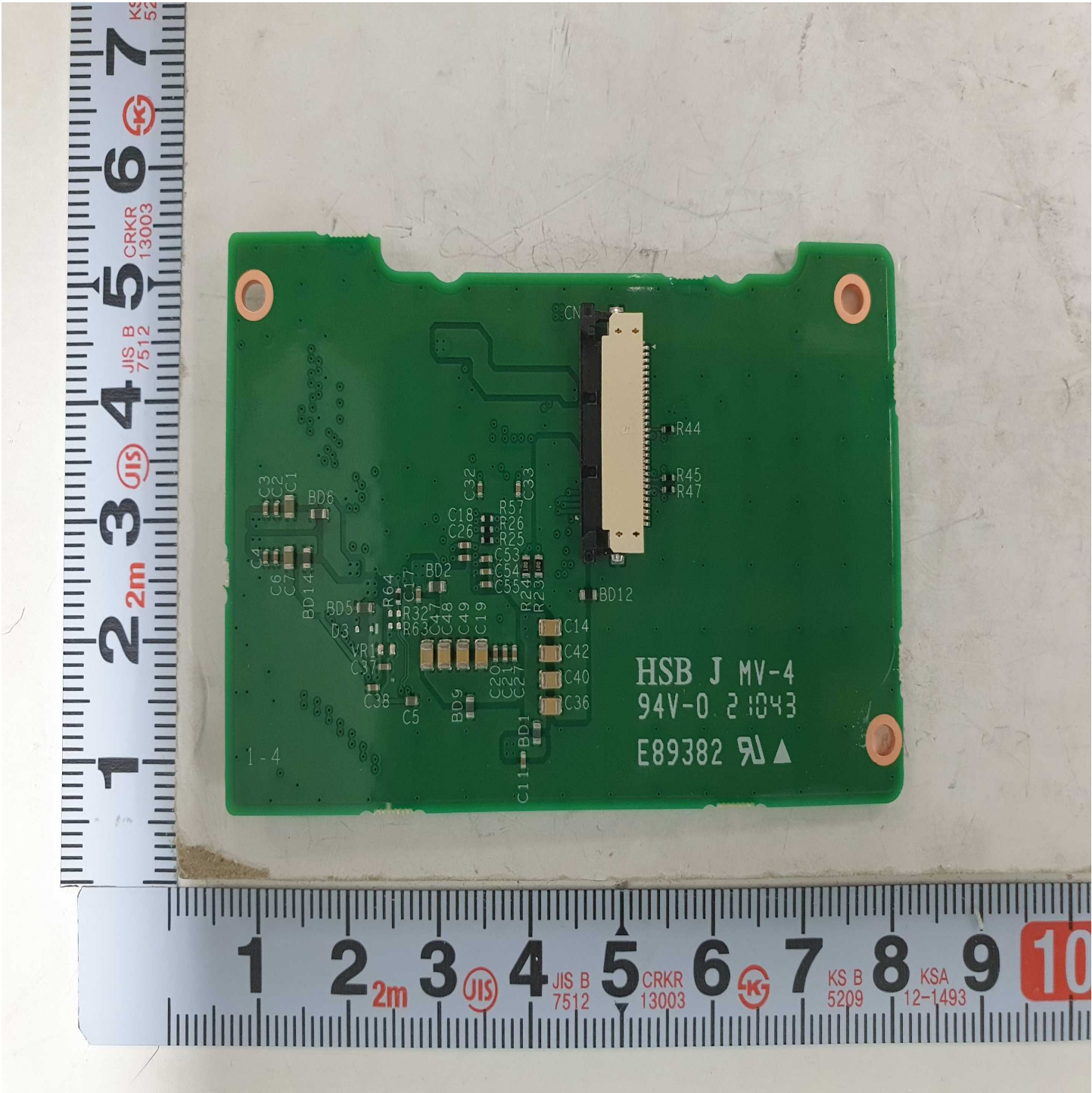








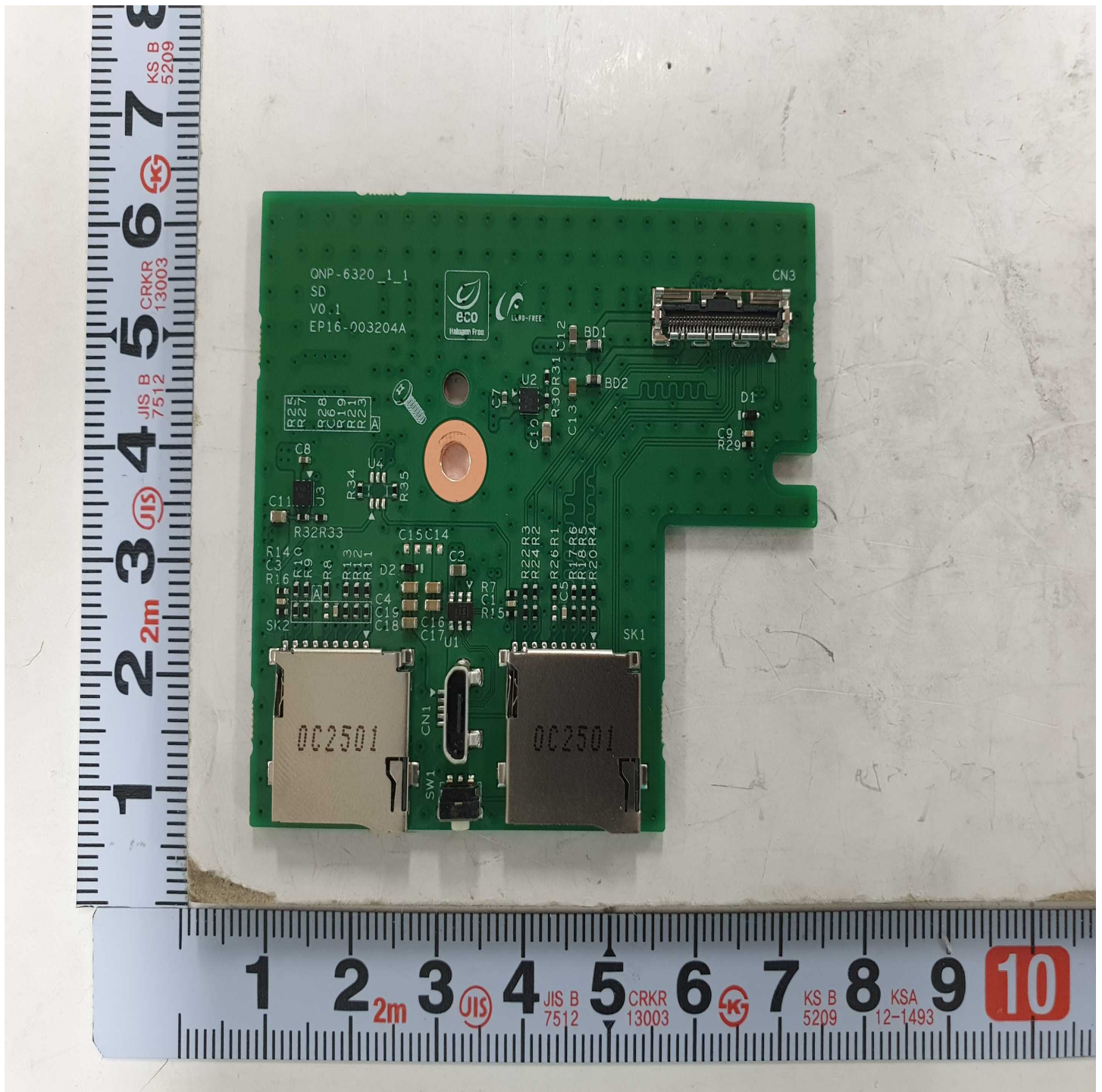


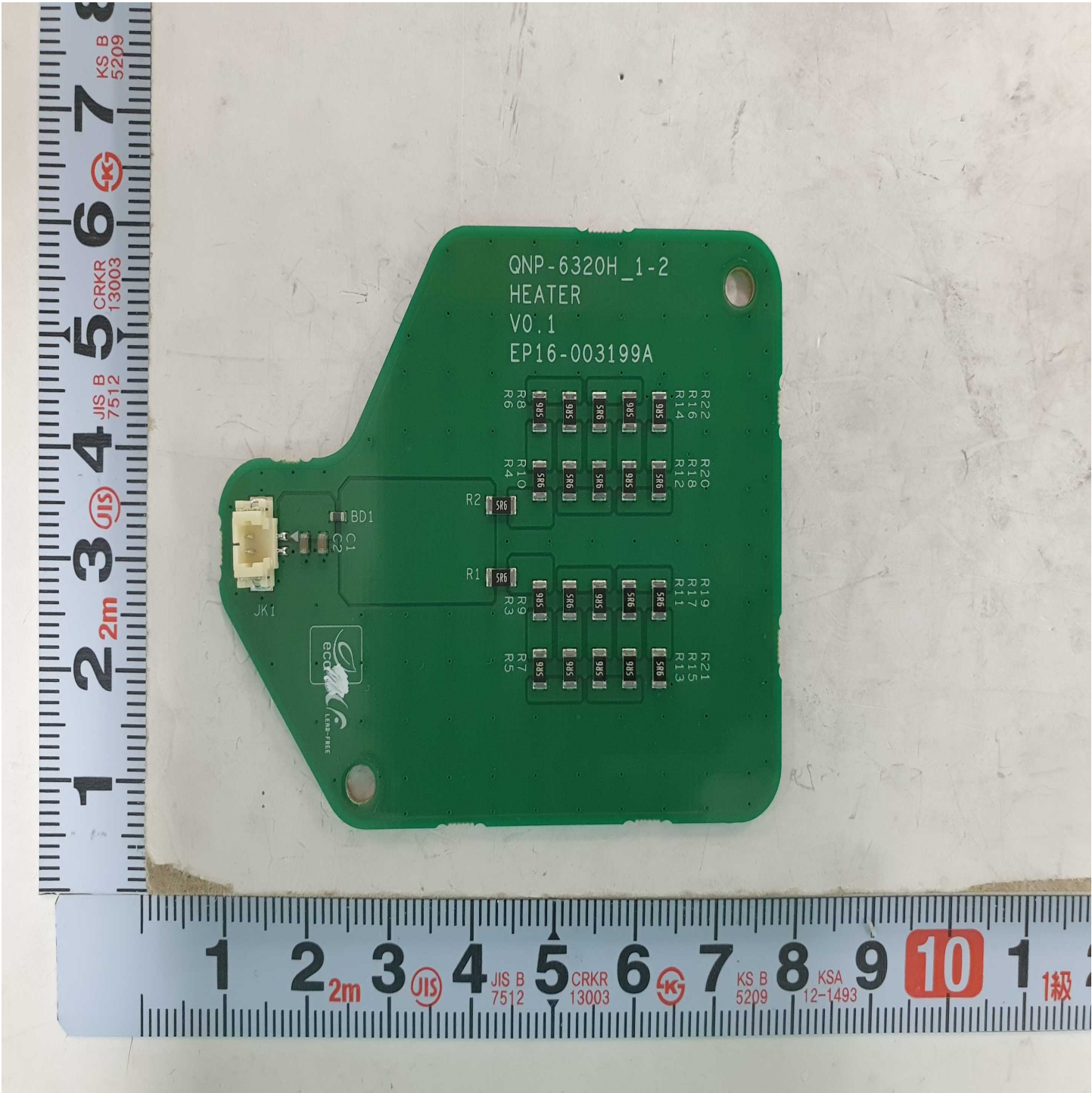


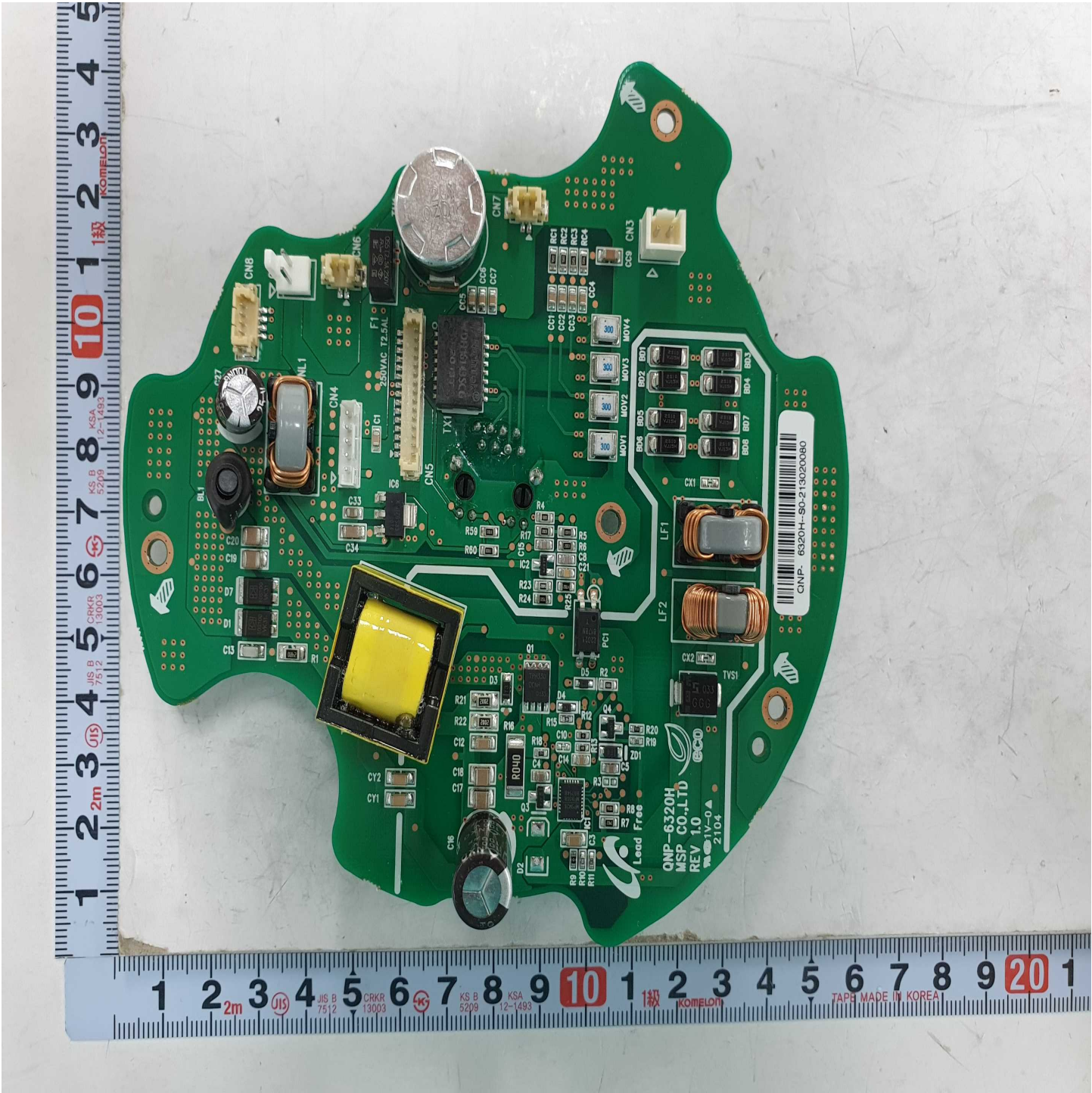


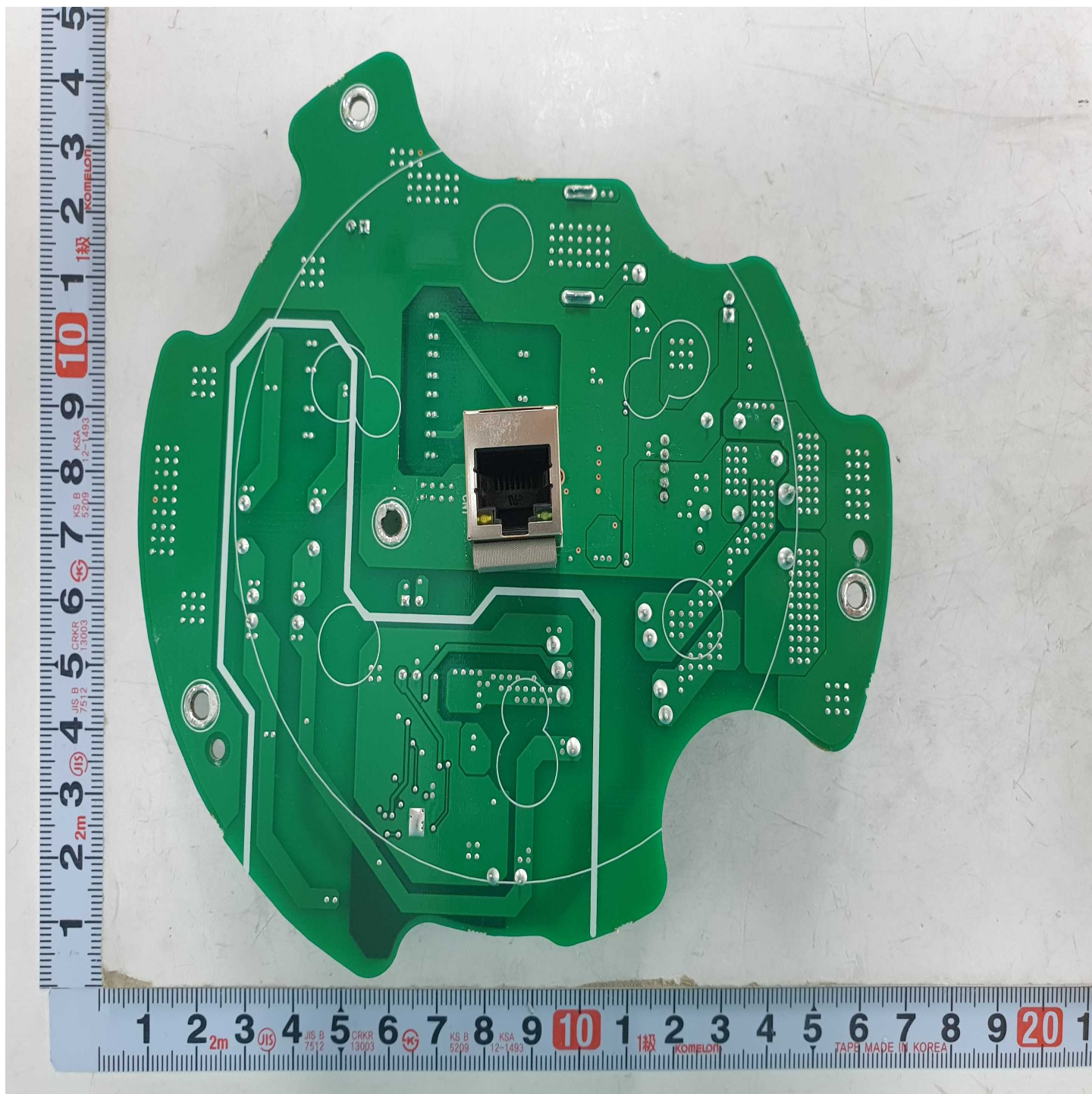














Test Record No. 1

1. Test result relate only to the items tested.
2. The manufacturer submitted representative production samples of NETWORK CAMERA, QNP-6320H.
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
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

