The table below describes the files that were selected to be included as part of this package.

Supplements, such as Figures and Illustrations, will appear as X number of Figures, X number of Illustrations, etc., rather than naming each one.

E158873-A6200-DescriptionUL
Figure-19-Total

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:	Public View Monitor
Model:	SMT-3231PV, SMT-3221PV
Rating:	1. 24Vdc, 2.1A 2. HPoE(53 Vdc), 1.1A
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.

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

Prepared By: Seohwan Kim / Project Handler Reviewed By: SungIl Kim / 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

Public View Monitor has been designed for indoor use and satationary equipment

It is a commercial equipment supplied from 24 Vdc or HPoE(53Vdc)

Model Differences

SMT-3231PV is basic model

SMT-3221PV is identical to SMT-3231PV except for model designation and software

Test Item Particulars

Product group	end product
Classification of use by	Ordinary person Children likely to be present
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	stationary
Over voltage category (OVC)	OVC I
Class of equipment	Class III
Special installation location	N/A
Pollution degree (PD)	PD 2
Manufacturer’s specified Tma (°C)	40
IP protection class	IPX0
Power systems	not AC mains
Altitude during operation (m)	2000 m or less
Altitude of test laboratory (m)	2000 m or less
Mass of equipment (kg)	12.05

Technical Considerations

- The product was submitted and evaluated for use at the maximum ambient temperature (Tma) permitted by the manufacturer's specification of : 40
- Considered current rating of protective device as part of the building installation (A) : N/A
- The following are available from the Applicant upon request : Installation (Safety) Instructions / Manual

Additional Information

4790993253
- Tests were not considered necessary to determine compliance with Standard UL 62368-1, 3rd Ed, 2021-10-22 and CAN/CSA C22.2 No. 62368-1:19, 3rd Ed, 2021-10-22 based upon previous evaluation under the IEC 62368-1: 2018 for the CB Scheme Test Certificate, Ref. Certi. DK-147387-UL and Report Ref. No. C23IA068-M0A0 dated 2023-11-17 were prepared by UL International Demko A/S, Borupvang 5A, DK-146175 Ballerup, Denmark.
- Maximum Normal Load: Full White Screen, Max. Brightness, 1/8 Pmax for speaker, Contrast, Resolution 1 920 x 1 080.

4791235858
- Tests were not considered necessary to determine compliance with Standard UL 62368-1, 3rd Ed, 2021-10-22 and CAN/CSA C22.2 No. 62368-1:19, 3rd Ed, 2021-10-22 based upon previous evaluation under the IEC 62368-1: 2018 for the CB Scheme Test Certificate, Ref. Certi. DK-147387-M1-UL and Report Ref. No. C23IA068-M1A0 dated 2024-03-22 were prepared by UL Solutions (Demko), Borupvang 5A DK-2750 Ballerup, DENMARK.
- Add model name: SMT-3221PV

Additional Standards

The product fulfills the requirements of: N/A

Markings and Instructions

Clause Title	Marking or Instruction Details
See Installation Instructions	The symbol 
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)
(Website) Manual - 1	This product is intended to be supplied by a UL Listed Power Supply Unit marked "Class 2" or "LPS" or "PS2".

(Website) Manual - 2	The wired LAN hub providing power over the Ethernet (PoE) in accordance with IEEE 802.3bt 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 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.
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
-	-	-	-	-	-

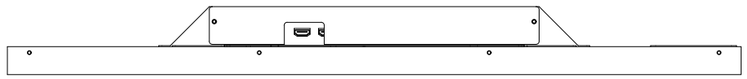
4.1.2	TABLE: List of critical components					Pass
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Product Category CCN(s)	Mark(s) of conformity	Supplement ID
Metal enclosure	Interchangeable	Interchangeable	Steel, approximately 737.6 mm by 480.9 mm by 52.0 mm, Min. 1.0 mm thickness	-	-	
LCD Panel	LG Display Co., Ltd.	LD320EUN	32.0 inch LCD, LED backlight: 24 Vdc, 1.33 A max. LCD Logic: 12 Vdc, 0.492 A max	-	-	
Network Camera	HANWHA VISION CO LTD	TNB-C6005	Input: 24 Vdc, 0.21 A	-	-	
Fuse (F1) for Network board	LITTELFUSE INC	454*	125 Vac, 1.5 A	JDYX2	UL (E10480)	
Fuse (F1) for Network board_Alternate	SEMITEL ELECTRONICS CO LTD	S6125S	125 Vac, 1.5 A	JDYX2	UL (E338954)	
Fuse (F1) for Network board_Alternate	LITTELFUSE INC	449*	125 Vac, 1.5 A	JDYX2	UL (E10480)	
Transformer (T1)	KYUNGWON ELECTRONICS CO., LTD.	TWC7030BT	130 deg.C	-	-	
Transformer (T1)_Alternate	WEIHAI YILIAN ELECTRICS CO., LTD.	7030BT	130 deg.C	-	-	
Opto-coupler (PC1)	EVERLIGHT ELECTRONICS CO LTD	EL3H7	Isolation Voltage: 3 750. Max. Operation Temperature: 110 deg.C	FPQU2	UL (E214129)	
Opto-coupler (PC1)_Alternate	COSMO ELECTRONICS CORP	KPS2801	Isolation Voltage: 3 750. Max. Operation	FPQU2	UL (E169586)	

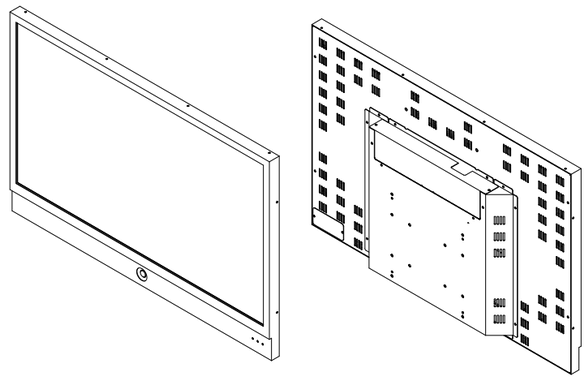
			Temperature: 100 deg.C			
Lithium Battery (BAT1)	SEIKO INSTRUMENTS INC MICRO-ENERGY DIV	ML414H	Lithium (Coin), Rechargeable, Max. ChargingVoltage: 3.4 Vdc, Max. ChargingCurrent: 300 mAh	BBCV2	UL (MH15628)	
Reverse Current Protection Circuit for Lithium Coin Battery (BAT1)	Interchangeable	Interchangeable	Diode (D2, 80 V, 300 mA) and resistor (R79, 3.3 kohm) in series.	-	-	
Thermal pad	KOMOTECH CO LTD	KGP-1(a)	V-0, 150 deg.C, Min. 5.0 mm	QMFZ2	UL (E245303)	
FFC cable	Interchangeable	Interchangeable	Marked VW-1; Min. 60 V, 105 deg.C	AVLV2	UL	
PWB	HANNSTAR BOARD CORP	MV-4	Min. V-0, 130 deg.C	ZPMV2	UL (E89382)	

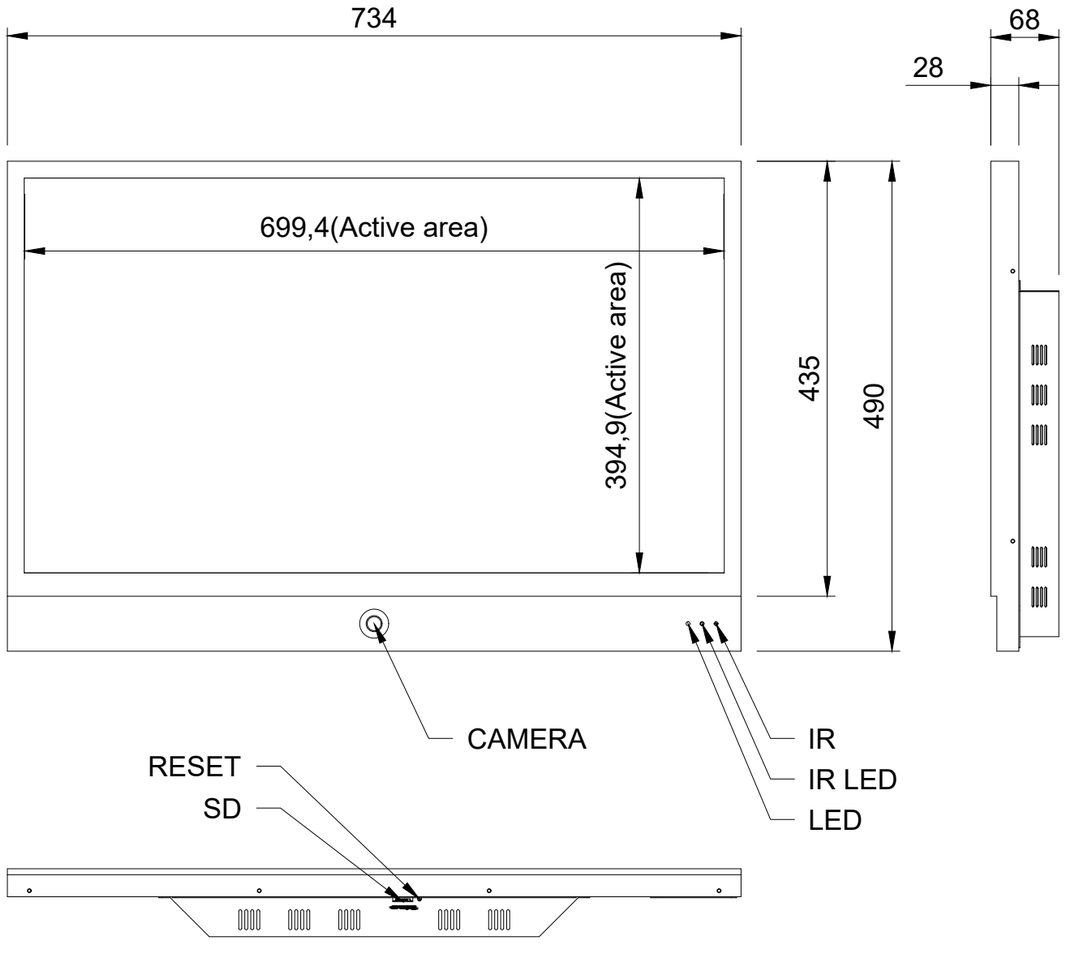
Enclosures

Type	Supplement Id	Description
Photographs	03-01	Front View
Photographs	03-02	Rear View
Photographs	03-03	Internal View
Photographs	03-04	Network Camera board_top
Photographs	03-05	Network Camera board_bottom
Photographs	03-06	PoE board_top
Photographs	03-07	PoE board_bottom
Photographs	03-08	RMM411 board_top
Photographs	03-09	RMM411 board_bottom
Photographs	03-10	LED driver board_top
Photographs	03-11	LED driver board_bottom
Photographs	03-12	Pannel board_top
Photographs	03-13	Port view
Photographs	03-14	Pannel board_bottom
Photographs	03-15	LED Board
Diagrams	04-01	Appearance
Manuals	06-01	Manuals
Miscellaneous	07-01	Label
Miscellaneous	07-02	Trans Specification

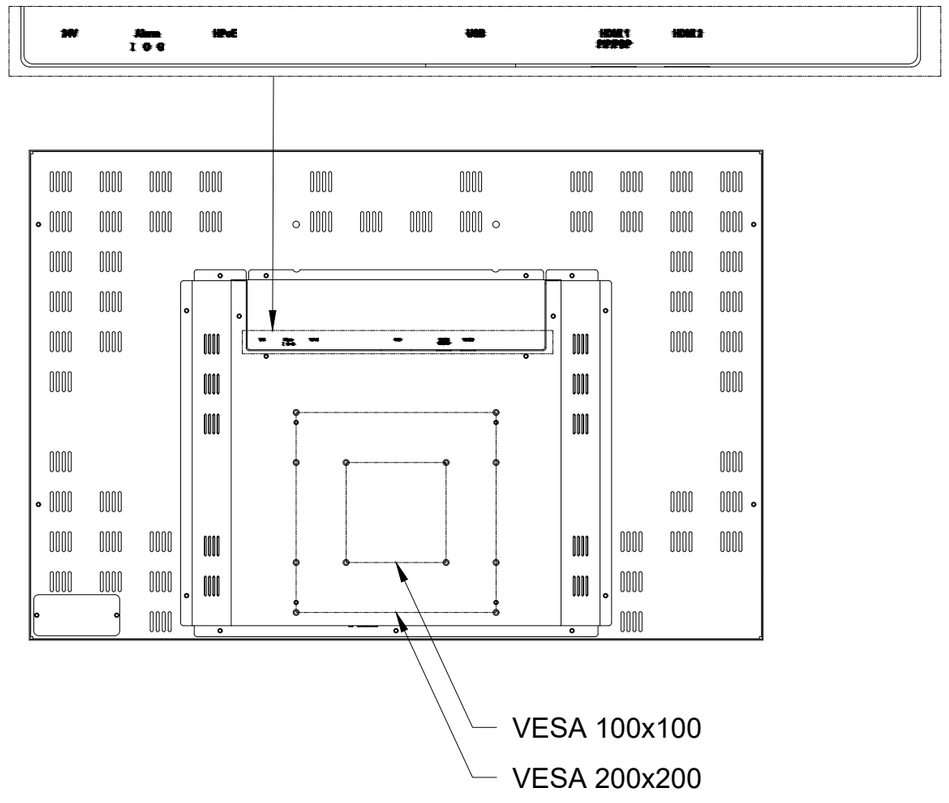
The following Page(s) are related to Diagrams-01. The next supplement, if applicable, will be identified with a new Supplement Page Heading.






734
68
28
699,4(Active area)
394,9(Active area)
435
490
CAMERA
IR
IR LED
LED
RESET
SD

*COVER OPEN


VESA 100x100
VESA 200x200

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

PUBLIC VIEW MONITOR

SMT-2731PV
SMT-3231PV

CE

SAFETY INSTRUCTIONS

1. WARNING

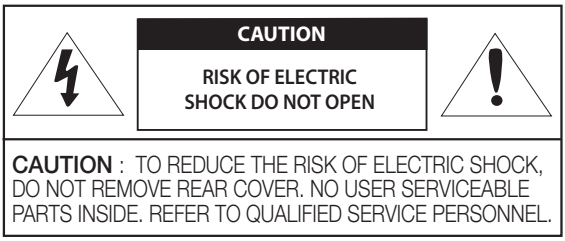
To reduce the risk of fire or electric shock, do not expose this product to rain or moisture.

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.

2. CAUTION



3. 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.

CAUTION

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

ATTENTION

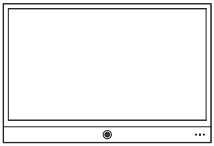
IL Y A RISQUE D’EXPLOSION SI LA BATTERIE EST REMPLACÉE PAR UNE BATTERIE DE TYPE INCORRECT.
METTRE AU REBUT LES BATTERIES USAGÉES CONFORMÉMENT AUX INSTRUCTIONS.

※ 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.

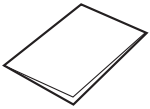
※ Select an installation site that can hold at least 4 times the monitor weight.

PACKAGE CONTENTS

Please check the following contents are included in addition to the main unit.

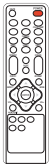


Public View Monitor



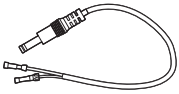
Quick Start Guide

Alarm terminal block



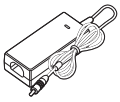
Remote Controller

Battery



Power Inverter Harness

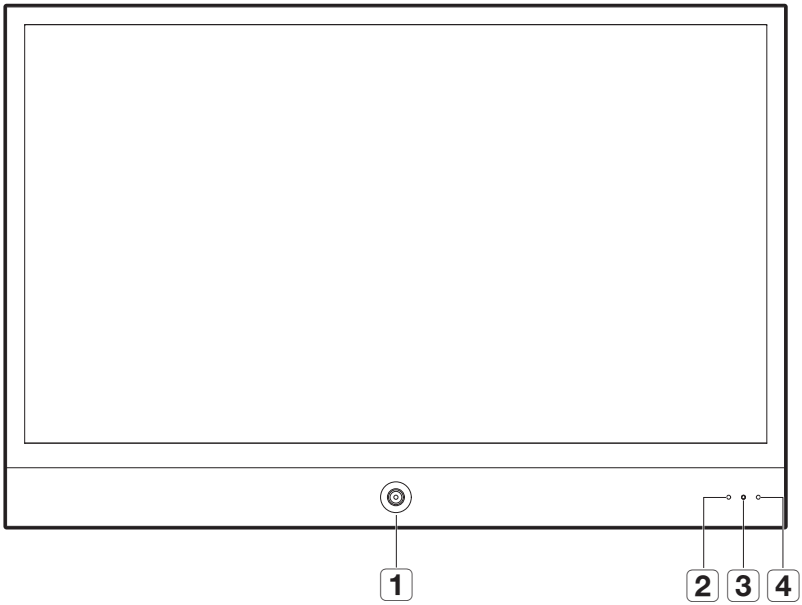
SEPARATELY SOLD PRODUCT

Appearance	Item Name	Description	Model Name
	HPoE Injector	Connects power supply and network	SPO-8315
	Adpater	DC 24V power supply	SPU-60240

The wired LAN hub providing power over the Ethernet (PoE) in accordance with IEEE 802.3bt 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.

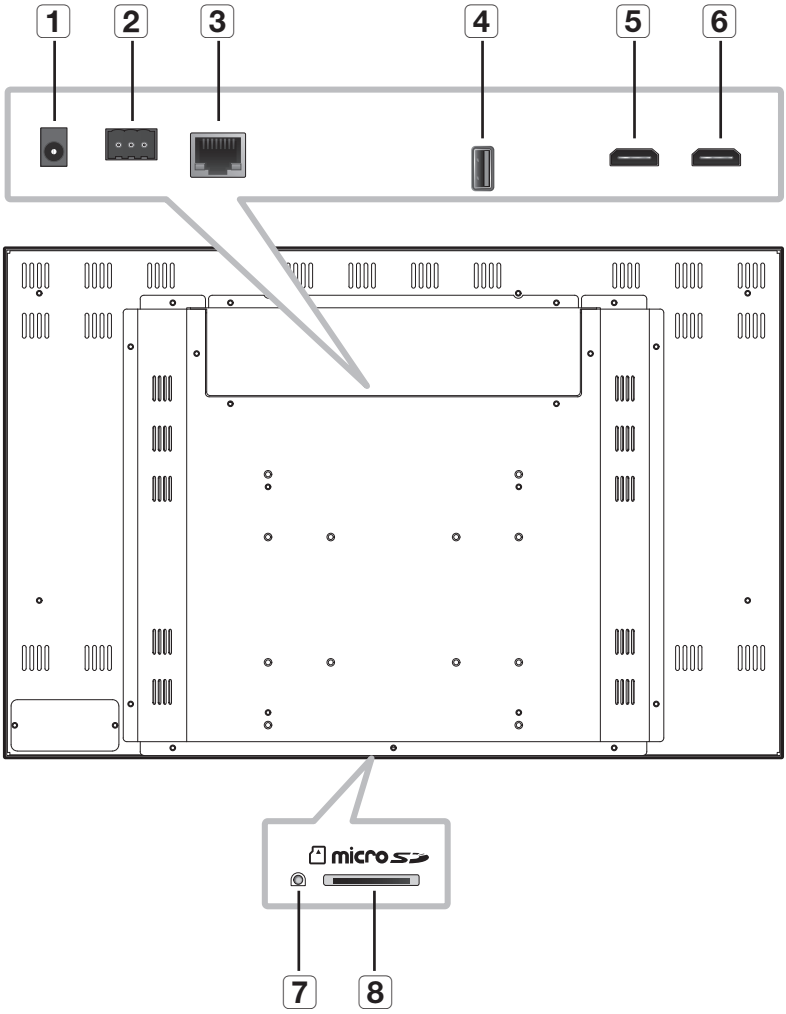
NAMES AND FUNCTIONS OF EACH PART

Front



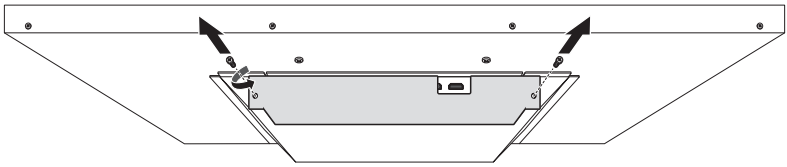
Name		Description of functions
1	Camera Lens	IP camera is installed.
2	ALARM LED	Displayed when an alarm output occurs.
3	LED	Displays the power ON/OFF status. ON – GREEN OFF – RED
4	IR Receiver	Receive IR signal from Remote Controller.

Back



Name		Description of functions
1	24V	This is the DC 24V Power input terminal.
2	ALARM	ALARM signal input / output
3	HPoE	Used to connect the HPoE or Ethernet cable for network connection.
4	USB	Connect the USB Devices for Monitor F/W update.
5	HDMI1 PIP/PBP	HDMI Input terminal for PIP/PBP
6	HDMI2	HDMI Input terminal (not support PIP/PBP in Web viewer)
7	RESET	Resets the camera installed in the monitor to its factory default settings. ■ If you forget your password, use the RESET button.
8	Micro SD card slot	Compartment for the Micro SD card.

■ Detach the terminal cover by rotating the fastening screw in a counterclockwise direction to loosen it, then connect the cable.



■ This product is intended to be supplied by a UL Listed Power Supply Unit marked “Class 2” or “LPS” or “PS2”.

■ This product dose not support LLDP.

connecting with other device

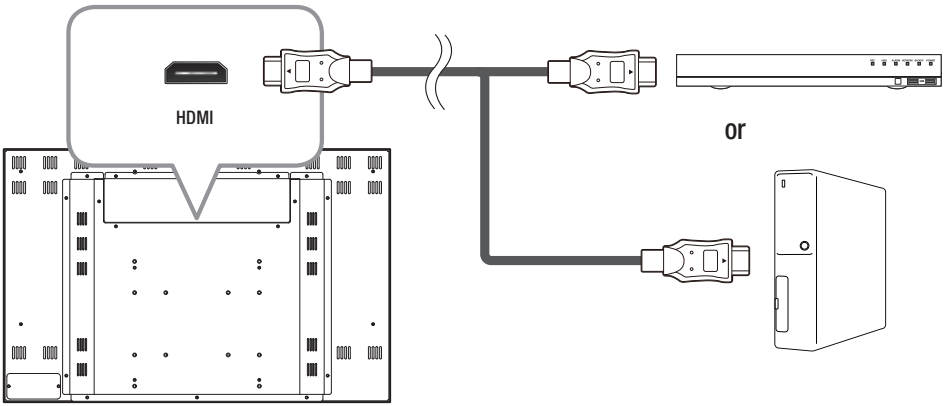
THINGS TO CHECK BEFORE CONNECTION

Check before connecting

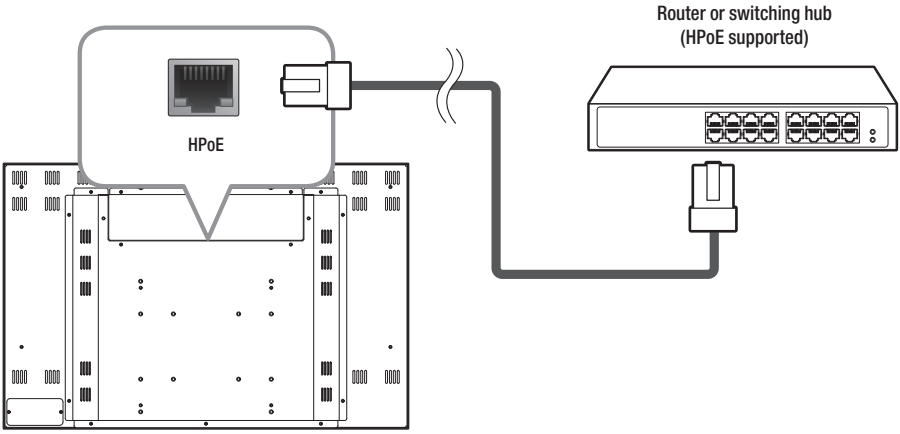
- When connecting, refer to the instruction manual of the product to be connected. The number and position of external devices may differ depending on the product.
- Do not connect the power until all connections are complete. Connecting the power supply during connection may damage the product.
- Check the type of terminal behind the product you want to connect.

CONNECTING WITH EXTERNAL DEVICES

HDMI cable connection method

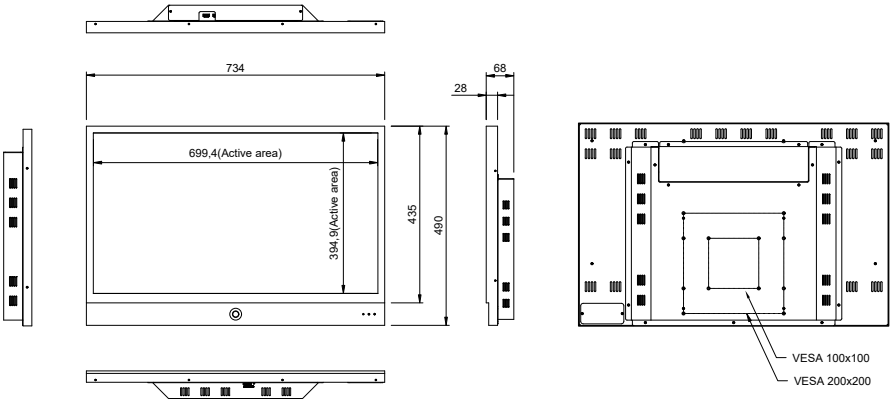


Powering and networking



SMT-3231PV

unit : mm



- Since the use of a screw longer than the standard size may cause a problem, the above recommended screw must be used.

TROUBLESHOOTING

When the following troubles are occurred, follow the trouble shooting.
Before contacting service center.

Problems and Symptoms	Troubleshooting
The screen doesn't show up	• Make sure if the power supply is connected property • Turn on the power. • Select the input signal right for the connected port.
The screen is too light or to dark	• Control the BRIGHTNESS

Hanwha Vision cares for the environment at all product manufacturing stages, and is taking measures to provide customers with more environmentally friendly products.
The Eco mark represents Hanwha Vision's devotion to creating environmentally friendly products, and indicates that the product satisfies the EU RoHS Directive.

Correct Disposal of This Product (Waste Electrical & Electronic Equipment)

(Applicable in the European Union and other European countries with separate collection systems)

This marking on the product, accessories or literature indicates that the product and its electronic accessories (e.g. charger, headset, USB cable) should not be disposed of with other household waste at the end of their working life. To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate these items from other types of waste and recycle them responsibly to promote the sustainable reuse of material resources.

Household users should contact either the retailer where they purchased this product, or their local government office, for details of where and how they can take these items for environmentally safe recycling.

Business users should contact their supplier and check the terms and conditions of the purchase contract. This product and its electronic accessories should not be mixed with other commercial wastes for disposal.

Correct disposal of batteries in this product

(Applicable in the European Union and other European countries with separate battery return systems.)

This marking on the battery, manual or packaging indicates that the batteries in this product should not be disposed of with other household waste at the end of their working life. Where marked, the chemical symbols Hg, Cd or Pb indicate that the battery contains mercury, cadmium or lead above the reference levels in EC Directive 2006/66. If batteries are not properly disposed of, these substances can cause harm to human health or the environment.

To protect natural resources and to promote material reuse, please separate batteries from other types of waste and recycle them through your local, free battery return system.


Hanwha
Vision

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


Public View Monitor
MODEL: SMT-3231PV
INPUT : DC24V ⎓ 2.10A
HPoE(53V ⎓) 1.10A
M/C: SMT-3231PV/KUS
2023.08 S/N: ZTCJ71MW800001J
MAC ADDRESS: E4-30-22-E7-CB-F1
Canada ICES-003 Class A /
Canada NMB-003 Class A
Factory ID : O
Made in Korea
Hanwha Vision Co., Ltd
Hanwha Vision
I.T.E.
c UL US LISTED
E158873
CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN
WARING : TO PREVENT FIRE OR SHOCK HAZARD
DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE
AVIS : RISQUE DE CHOC ELECTRIQUE - NE PAS OUVRIR

Public View Monitor
MODEL: SMT-3231PV
INPUT : DC24V ⎓ 2.10A
HPoE(53V ⎓) 1.10A
M/C: SMT-3231PV/KUS
2023.08 S/N: ZTCJ71MW800001J
MAC ADDRESS: E4-30-22-E7-CB-F1
Canada ICES-003 Class A /
Canada NMB-003 Class A
Factory ID : O
Made in Korea
Hanwha Vision Co., Ltd
Hanwha Vision
I.T.E.
c UL US LISTED
E158873
CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN
WARING : TO PREVENT FIRE OR SHOCK HAZARD
DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE
AVIS : RISQUE DE CHOC ELECTRIQUE - NE PAS OUVRIR

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

CUSTOMER	

SPECIFICATIONS

ITEM	SWITCHING TRANSFORMER
DISCRIPTION	EFD2020 H 6+6 SMD
CODE NO	
MODEL NO.	7030BT
DATE	2022.07.18

Approve by

WEIHAI YILIAN ELECTRICS CO.,LTD

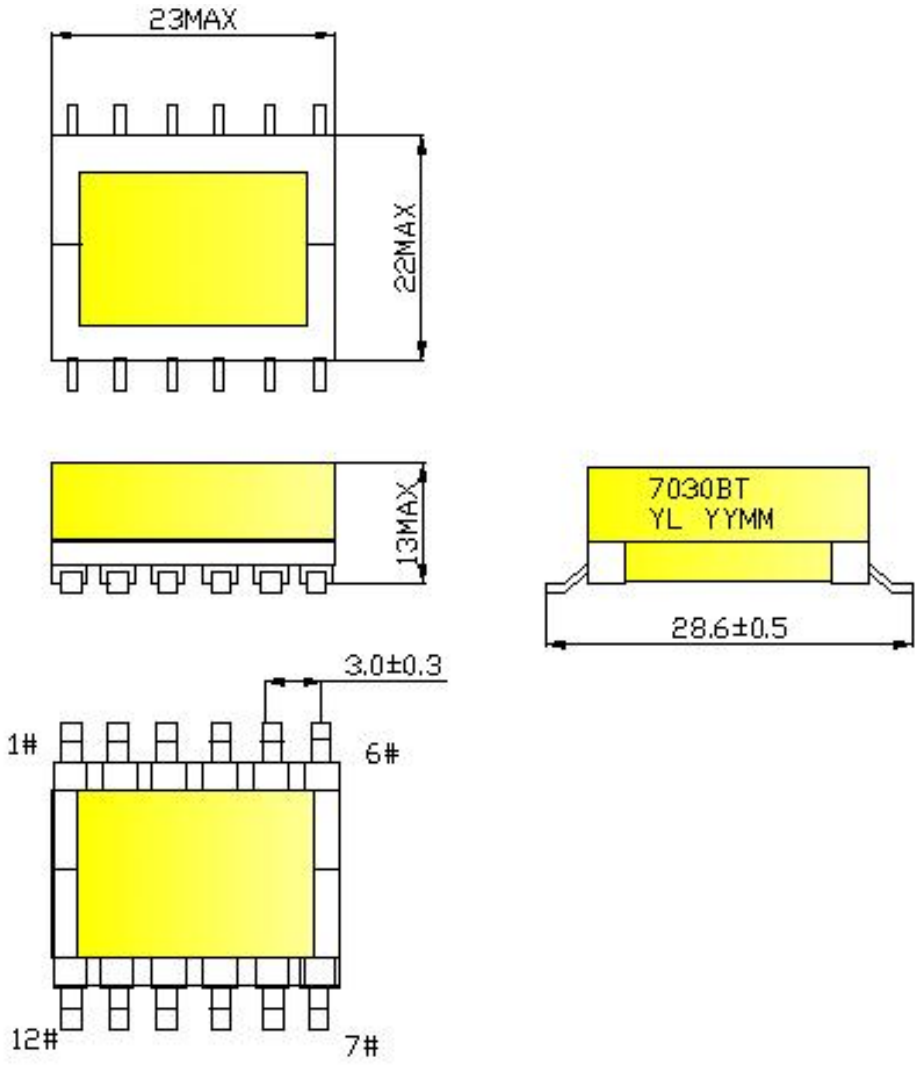
WEIHAI JINGJIJISHUKAIFAQU HUANSHANLUXI

DONGSHANKOUCUNBEI SHANDONG CHINA

TEL 13563133134

SPECIFICATIONS		SHEET NO.	2 OF 9
PART NAME	TRANSFORMER	MODEL NAME	
PART NO.	7030BT	TYPE	EFD2020 H 6+6 SMD

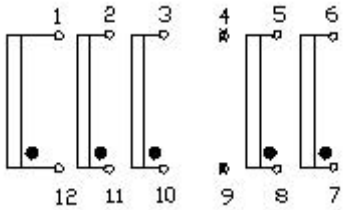
1、DIMENSION (unit : mm)



NO.	REVISION	DESIGN	CHECK	APPROVAL
		丁春敏	高秀菊	沙芳芳
		2022.07.18	2022.07.18	2022.07.18

SPECIFICATIONS		SHEET NO.	3 OF 9
PART NAME	TRANSFORMER	MODEL NAME	
PART NO.	7030BT	TYPE	EFD2020 H 6+6 SMD

2、PIN CONNECTION



WINDING	SECONDARY VIEW	C.C.W
BOBBIN INSERT	SECONDARY	
REMOVE PIN	4,9#	
CUT PIN		
TUBE		

"●" MARKS ARE START POINT

3、 WINDING SPECIFICATION

	TERMNAL		WIRE	TURNS	WINDING METHOD	INSULATION		BARRIER TAPE	
	S	F				T/W	T/S	PRI	SEC
								mm	`mm
N1	7	6	UEW0.26Φ×2	20	SOLENOID	0.025T*13.5 mm(Y)	1		
N2	12	1	UEW 0.32Φ×2	5	BIFILAR SOLENOID	0.025T*13.5 mm(Y)	1		
	11	2	UEW 0.32Φ×2	5					
	10	3	UEW 0.32Φ×2	5					
N3	7	6	UEW0.26Φ×2	20	SOLENOID	0.025T*13.5 mm(Y)	1		
N4	12	1	UEW 0.32Φ×2	5	BIFILAR SOLENOID	0.025T*13.5 mm(Y)	1		
	11	2	UEW 0.32Φ×2	5					
	10	3	UEW 0.32Φ×2	5					
N5	7	6	UEW0.26Φ×2	20	SOLENOID	0.025T*13.5 mm(Y)	1		
N6	8	5	UEW0.15Φ×1	5	SPACE	0.025T*13.5 mm(Y)	3		
CORE FIXING TAPE						0.025t*6.5mm(Y)	3		

NO.	REVISION	DESIGN	CHECK	APPROVAL
1		丁春敏	高秀菊	沙芳芳
		2017.04.05	2017.04.05	2017.04.05

SPECIFICATIONS		SHEET NO.	4 OF 9
PART NAME	TRANSFORMER	MODEL NAME	
PART NO.	7030BT	TYPE	EFD2020 H 6+6 SMD

4、ELECTRICAL CHARACTERISTICS

NO	ITEM	TERMINAL	ELECTRICAL CHARACTERISTICS	TOLERANCE	CONDITION
1	INDUCTANCE	7－6	50μH	±10%	HP 4263A LCR METER OR EQUIVALENT 100KHz,1V（25℃±2℃）
2	LEAKAGE INDUCTANCE	7--6 (SECONDARY ALL SHORT)	5μH	MAX	
3	DC RESISTANCE	7－6	0.5Ω	MAX	
5	DIELECTRIC STRENGTH	AC1.5KV, 1MINUTE,10mA,(COIL TO CORE)			AN9605W HIGH POT TESTER OR EQUIVALENT
6	INSULATION RESISTANCE	DC 500V 100 MΩ MIN (ANY COIL TO CORE)			MG 8350 DIGITAL INSULATION RESISTANCE TESTER OR EQUIVALEN

NO.	REVISION	DESIGN	CHECK	APPROVAL
		丁春敏	高秀菊	沙芳芳
		2022.07.18	2022.07.18	2022.07.18

SPECIFICATIONS		SHEET NO.	6 OF 9
PART NAME	TRANSFORMER	MODEL NAME	
PART NO.	7030BT	TYPE	EFD2020 H 6+6 SMD

6、LIST OF MATERIALS

NO	COMPONENT	MATERIALS	MANUFACTURES	UL FILE NO
1	CORE	EFD2020 PC40	SHANGHAI JISHUN ELECTRONICS CO.,LTD	
		EFD2020 PC40	SUZHOU GUANDA ELECTRONICS CO.,LTD	
		EFD2020 PC40	ZAOZHUANG XIANGSHENG ELECTRONICS CO.,LTD	
2	BOBBIN	PHENOLIC (94V-0), EFD2020,12PIN(6+6)	CHANG CHUN PLASTICS CO.,LTD	E59481
3	WIRE	POLYURETHANE UEW Φ0.26 UEW Φ0.32 UEW Φ0.15	JIANGSU DATONG QINGJIANG M&E CO.,LTD	E237377
4	INSULATION TAPE	POLYESTER TAPE 0.025*13.5Y	GUANGDONG KANGLI NEW ENERGY MATERIAL TECHNOLOGY CO.,LTD	E511186
5	CORE FIXXING TAPE	POLYESTER TAPE 0.025*6.5Y		
6	VARNISH	VARNISH	JIANGYIN CITY DENGFENG ELETRICAL MATERIAL CO.,LTD	E236421
		DVA-1411		
7	SOLDER	Sn 99.3% BAR	TIANJIN SONGBEN ENVIRONMENTAL PROTECTION CO., LTD	
8	FLUX	Pb FREE		
9	MARKING	INK	WUHAN WIDODA CO.，LTD.	

NO.	REVISION	DESIGN	CHECK	APPROVAL
		丁春敏	高秀菊	沙芳芳
		2022.07.18	2022.07.18	2022.07.18

SPECIFICATIONS		SHEET NO.	7 OF 9
PART NAME	TRANSFORMER	MODEL NAME	
PART NO.	7030BT	TYPE	EFD2020 H 6+6 SMD

BOBBIN

Plastics - Component

See General Information for Plastics - Component

CHANG CHUN PLASTICS CO LTD E59481
7TH FL
301 SONGKIANG RD
TAIPEI, 104 TAIWAN

									H	D	
		Min.		H	H	RTI			V	4	C
		Thk	Flame	W	A	Elec	Mech		T	9	T
Material Dsg	Color	mm	Class	I	I		Imp	Str	R	5	I
Epoxy Casting Compound (EP - Casting), potting, "SUMIKON", furnished as granular material, pellets.											
EME-1200	BK	0.37	V-0	-	-	130	130	130	-	-	2

WIRE

Magnet Wire - Component
JIANGSU DARTONG QINGJIANG M & E CO LTD E237377
ECONOMY DEVELOPMENT ZONE 1 DARTONG RD, HUAIAN,
JIANGSU 223001 CHINA

Mtl Dsg	Mark Dsg	Coat Type BC	Coat Type OC	ANSI Type	Temp Class
UEW	(1)	Polyurethane	—	MW 79-C	155
				MW 75-C	130
EIW	(1)	Polyester-imide	—	MW30#	180
				@	200
UEW	UEW/180	Polyurethane	—	MW82	180
EI/AIW	(1)	Polyester-imide	Polyamide-imide	MW35#, MW73#	200
				@	220
PEW	(1)	Polyester	—	MW5	155
PEW/NY	(1)	Polyester	Polyamide	MW76	180
				MW24#	155
UEW/NY	(1)	Polyurethane	Polyamide	MW80	155

8/23/2005 Underwriters Laboratories Inc. Card 1 of 2

NO.	REVISION	DESIGN	CHECK	APPROVAL
		丁春敏	高秀菊	沙芳芳
		2022.07.18	2022.07.18	2022.07.18

SPECIFICATIONS		SHEET NO.	8 OF 9
PART NAME	TRANSFORMER	MODEL NAME	
PART NO.	7030BT	TYPE	EFD2020 H 6+6 SMD

TAPE

OANZ2.E511186 - Insulating Tape - Component

Insulating Tape - Component

See General Information for Insulating Tape - Component

GUANGDONG KANGLI NEW ENERGY MATERIALS TECHNOLOGY CO LTD E51118
BUILDING 4, NO. 109, YADI SOUTH ROAD, QIAOTOU TOWN, DONGGUAN CITY, GUANGDONG CHINA
523000 DONGGUAN, CHINA

Cat. No.	Color	Temp (°C)	Optional Ratings: Flame Retardant+	Optional Ratings: Sunlight Resistant+	Optional Ratings: Cold Resistant+
PET film insulating tape with Acrylic adhesive					
KL-168	All except clear	130	Yes	No	No
PI film insulating tape with Silicone adhesive					
KL-158	Amber	180	Yes	No	No

NO.	REVISION	DESIGN	CHECK	APPROVAL
		丁春敏	高秀菊	沙芳芳
		2022.07.18	2022.07.18	2022.07.18

SPECIFICATIONS		SHEET NO.	9 OF 9
PART NAME	TRANSFORMER	MODEL NAME	
PART NO.	7030BT	TYPE	EFD2020 H 6+6 SMD

VARNISH

JIANGYIN CITY DENGFENG ELECTRICAL MATERIAL CO LTD E236421
RIVER EAST ZHOU ZHANG TOWN JIANGYIN CITY, JIANSU
214423 CHINA

Varnish Dsg	ANSI Magnet Wire Type	TP	Varnish Thermal Class C HC	CE
319-5(a)	MW80	155	—	—
	MW76	180	180	—
	MW5	155	—	—

Marking: Company name and varnish designation on shipping container.

See General Information Preceding These Recognitions
For use only in equipment where the acceptability of the combination is determined by Underwriters Laboratories Inc.

NO.	REVISION	DESIGN	CHECK	APPROVAL
		丁春敏	高秀菊	沙芳芳
		2022.07.18	2022.07.18	2022.07.18

승 인	
정식승인	( )
한도승인	( )

SPECIFICATIONS

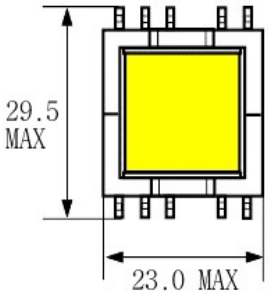
CUSTOMER	테크웨어㈜
PART NAME	S/W TRANSFORMER
PART NO	TWC7030BT
MODEL NO	
DATE	2022 . 07 . 22 .

검 토	심 사	승 인
승인유효기간	승인일로부터	년

신청회사명	KYUNGWON ELECTRONICS CO., LTD.	TEL	032 - 555 - 6715
		FAX	032 - 555 - 6716
주 소	738-3, Jakjeon-dong, Gyeyang-gu, Incheon, Korea		

SPECIFICATIONS		SHEET NO.	1 OF 10
		DATE	2022. 07. 22.
PART NAME	S/W TRANSFORMER	MODEL NO	
PART NO.	TWC7030BT	TYPE	EFD2020

1.DIMENSION(UNIT:mm)



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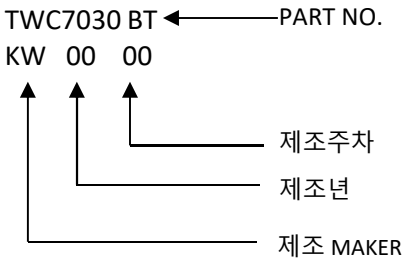
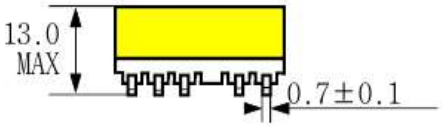
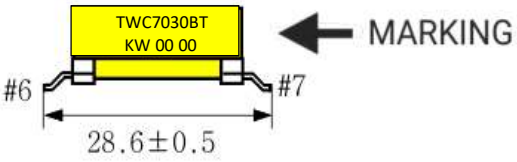
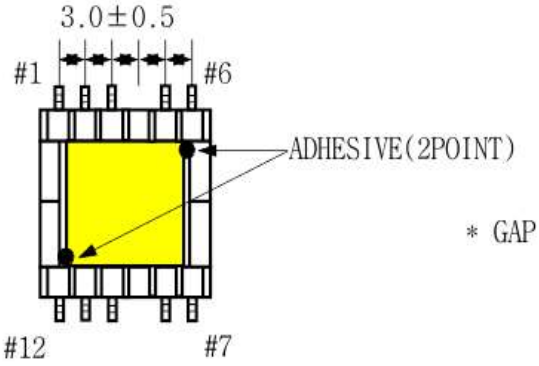








* GAP : CENTER AIR GAP

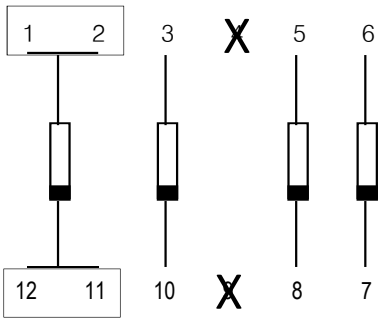
KYUNGWON ELECTRONICS CO., LTD.	DESIGN	CHECK	APPROVAL
	개발실 G.R.LEE 22.07.22	개발실 J.P.KIM 22.07.22	관리부 T.W.LEE 22.07.22
	FILE NO.	KW - 220722 - 01	

SPECIFICATIONS

		SHEET NO.	2 OF 10
		DATE	2022. 07. 22.
PART NAME	S/W TRANSFORMER	MODEL NO	
PART NO.	TWC7030BT	TYPE	EFD2020

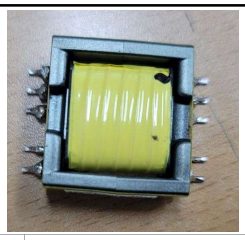
2. SCHEMATIC DIAGRAM (BOTTOM VIEW

**중점관리 POINT: W6 간격 정렬 권선



* BOBBIN INSERT : #1~#6 (한국권선기 기준)

* PCB PATTEN간 SHORT : #1,2 / 11,12



WINDNG	BOTTOM VIEW	C.C.W
TEFLON TUBE		
REMOVE PIN	# 4,9	
CUT PIN	#	

3. WINDING SPECIFICATION

NO	TERMINAL		WIRE	Ts	WINDING METHOD	INSULATION		BARRIER	
	S	F				MATERIAL (t / mm)	Ts	PRI	SEC
W1	7	6	2UEW 0.26Φ * 2P	20	SOLENOID	0.025 /13.5 YELLOW	1		
W2	12	1	2UEW 0.32Φ * 2P	5	BIFILAR SOLENOID	0.025 /13.5 YELLOW	1		
	11	2	2UEW 0.32Φ * 2P	5					
	10	3	2UEW 0.32Φ * 2P	5					
W3	7	6	2UEW 0.26Φ * 2P	20	SOLENOID	0.025 /13.5 YELLOW	1		
W4	12	1	2UEW 0.32Φ * 2P	5	BIFILAR SOLENOID	0.025 /13.5 YELLOW	1		
	11	2	2UEW 0.32Φ * 2P	5					
	10	3	2UEW 0.32Φ * 2P	5					
W5	7	6	2UEW 0.26Φ * 2P	20	SOLENOID	0.025 /13.5 YELLOW	1		
W6	8	5	2UEW 0.15Φ	5	SPACE	0.025 /13.5 YELLOW	2		
CORE FIXING TAPE				POLYESTER TAPE YELLOW 0.025 / 6.0			2		

KYUNGWON ELECTRONICS CO., LTD.

DESIGN	CHECK	APPROVAL
개발실 G.R.LEE 22.07.22	개발실 J.P.KIM 22.07.22	관리부 T.W.LEE 22.07.22
FILE NO.	KW - 220722 - 01	

SPECIFICATIONS		SHEET NO.	3 OF 10
		DATE	2022. 07. 22.
PART NAME	S/W TRANSFORMER	MODEL NO	
PART NO.	TWC7030BT	TYPE	EFD2020

4. ELECTRICAL CHARACTERISTICS

NO	CLOSURE	TERMINAL NO.	SPECIFICATION	CONDITION
1	INDUCTANCE	7 - 6	50 uH ± 10%	LCR METER AG 4304 HP-4274A at 100KHz 1V
2	LEAKAGE INDUCTANCE	7 - 6 (SEC COIL ALL SHORT)	uH MAX	
3	DC RESISTANCE (20℃)		1.0 ohm MAX	WHEATSTONE BRIDGE HIOKI 3540 (mΩ METER)
4	WITHSTANDING VOLTAGE	PRI . - CORE	AC 2.0 KV RMS 1 MIN. CC=10mA	KIKUSUI TOS-5050 , TOS-8750
		SEC. - CORE	AC 2.0 KV RMS 1 MIN. CC=10mA	
		PRI. - SEC.	AC 3.0 KV RMS 1 MIN. CC=10mA	
5	INSULATION RESISTANCE	COIL - COIL COIL - CORE	100 Mohm MIN at DC 500V	MEGOHM METER (SM-5E)

KYUNGWON ELECTRONICS CO., LTD.	DESIGN	CHECK	APPROVAL
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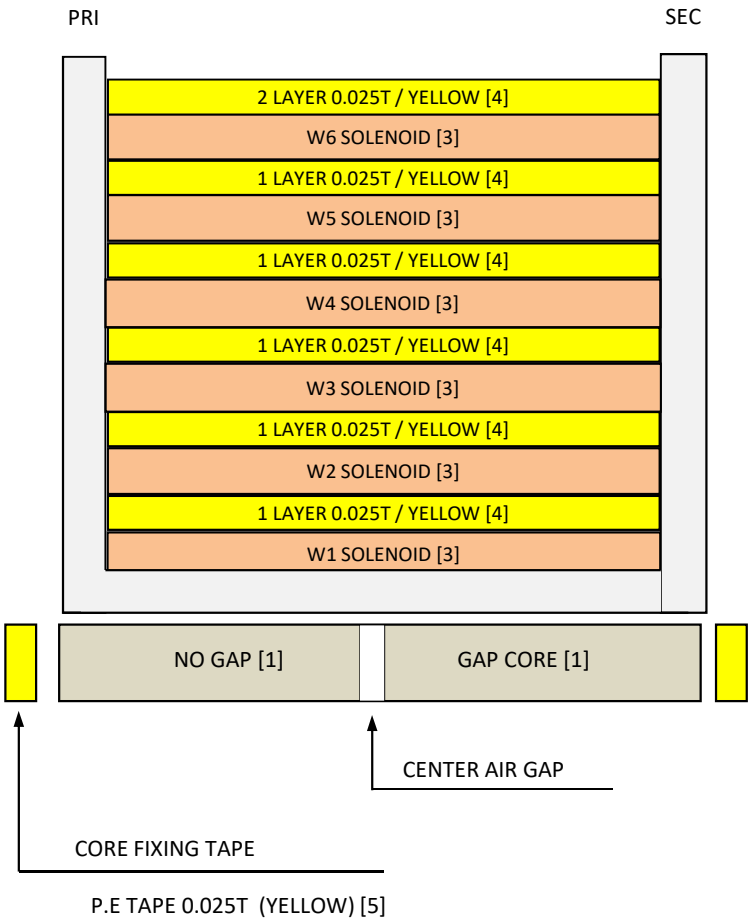
	FILE NO.	KW - 220722 - 01	

SPECIFICATIONS		SHEET NO.	4 OF 10
		DATE	2022. 07. 22.
PART NAME	S/W TRANSFORMER	MODEL NO	
PART NO.	TWC7030BT	TYPE	EFD2020

5. CONSTRUCTION



* WIRE :

* TAPE :

KYUNGWON ELECTRONICS CO., LTD.	DESIGN	CHECK	APPROVAL
	개발실 G.R.LEE 22.07.22	개발실 J.P.KIM 22.07.22	관리부 T.W.LEE 22.07.22
	FILE NO.	KW - 220722 - 01	

SPECIFICATIONS		SHEET NO.	5 OF 10
		DATE	2022. 07. 22.
PART NAME	S/W TRANSFORMER	MODEL NO	
PART NO.	TWC7030BT	TYPE	EFD2020

6. MATERIAL LIST

NO	COMPONENT	NAME OF MATERIAL	MANUFACTURER OF MATERIAL	REMARKS
1	CORE	EFD 2020 (PM7) EFD 2020 (NH2C) EFD 2020 (GP4) EFD 2020 (YR28) EFD 2020 (KH40) EFD 2020 (HX-4P)	TODAISU CO.,LTD. LFG MAGNETICS CO.,LTD. GUANDA MAGNETICS CO.,LTD. YAORUN ELECTRONICS SHANDONG KAITONG ELECTRON CO.,LTD. NANTONG HUAXING MAGNETIC MATERIAL CO.,LTD.	
2	BASE	PHENOLIC 94V-0 EFD2020 12P SMD H-TYPE	CHANG CHUN PLASTICS CO.,LTD	E59481
3	WIRE	POLYURETHANE 2UEW 0.15Φ,0.26Φ,0.32Φ	TAIHAN ELECTRIC WIRE CO., LTD. JIANGSU DARTONG M&E CO.,LTD	E109312(N) E237377
4	INSULATION TAPE	POLYESTER FILM TAPE 0.025mm CAT NO.DTS-204A or CAT NO. 800 CAT NO. YL-168* or CAT NO. YL-188* CAT NO. CT	DUCKSUNG TAPE CO.,LTD.	E105147
5	CORE FIXING TAPE	POLYESTER FILM TAPE 0.025mm CAT NO.DTS-204A or CAT NO. 800 CAT NO. YL-168* or CAT NO. YL-188* CAT NO. CT	WEIHAI KANGLI TAPE CO.,LTD	E475896
6	SOLDER	SN 98%, CU 2%	ALPHA SOLDER CO.,LTD. TIANJIAN SONGBEN TECHNOLOGY CO.,LTD	
7	VARNISH	319-5	JIANGYIN CITY DENGFENG ELECTICAL	E236421

KYUNGWON ELECTRONICS CO., LTD.	DESIGN	CHECK	APPROVAL
	개발실 G.R.LEE 22.07.22	개발실 J.P.KIM 22.07.22	관리부 T.W.LEE 22.07.22
	FILE NO.	KW - 220722 - 01	

7. UL LIST

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QMFZ2.E59481
Plastics - Component

For enhanced search functionality, please visit UL's iQ™ Family of Databases.
Click on a product designation for complete information.

Page Bottom

Plastics - Component

See General Information for Plastics - Component

CHANG CHUN PLASTICS CO LTD E59481
7TH FL
301 SONGKIANG RD
TAIPEI, 104 TAIWAN

									H	D	
		Min.		H	H	RTI			V	4	C
		Thk	Flame	W	A	Elec	Mech		T	9	T
Material Dsg	Color	mm	Class	I	I		Imp	Str	R	5	I
Phenolic Molding Compound (PMC), "LONGLITE", furnished as granular material.											
T375J	BK, BN	0.45	V-0	-	-	150	150	150	4	5	3
		0.75	V-0	1	0	150	150	150			
		1.5	V-0	0	0	150	150	150			
		3.0	V-0	0	0	150	150	150			

Magnet Wire - Component

See General Information for Magnet Wire - Component

JIANGSU DARTONG M & E CO LTD E237377
1 DARTONG RD
HUAIAN ECONOMY DEVELOPMENT ZONE
HUAIAN, JIANGSU 223238 CHINA

Material Designation	Mark Dsg	Base Coat	Top Coat	ANSI Type	Temp Class
Q (ZY/XY) BP-x/200	Q (ZY/XY) BP-x/200	Polyester	Polyamide-imide	MW 35-C	200
		Polyester	Polyamide-imide	MW 73-C	200
QY(F)x/240/UL	QY(F)x/240/UL	Polyimide	-	MW 16-C	240
xEI/AIW	xEI/AIW	Polyester-imide	Polyamide-imide	MW 37-C	220
		Polyester-imide	Polyamide-imide	MW 35-C	200[#]
		Polyester-imide	Polyamide-imide	MW 73-C	200[#]
xEI/AIW-220(AL)	xEI/AIW-220(AL)	Polyester-imide	Polyamide-imide	MW 35-A	220
xEIW	xEIW	Polyester-imide	-	MW 30-C	180[#]
xPEW	xPEW	Polyester	-	MW 5-C	155[#]
xPEW/NY	xPEW/NY	Polyester	Polyamide	MW 76-C	180
		Polyester	Polyamide	MW 24-C	155[#]
xUEW	xUEW	Polyurethane	-	MW 79-C	155
		Polyurethane	-	MW 75-C	130
xUEW/180	xUEW/180	Polyurethane	-	MW 82-C	180
xUEW/NY	xUEW/NY	Polyurethane	Polyamide	MW 80-C	155[#]
		Polyurethane	Polyamide	MW 28-C	130[#]

Insulating Tape

See General Information for Insulating Tape

DUCK SUNG HITECH CO LTD E105147
225-2 SHINNEUNG-RI SEOUN-MYEON
ANSEONG-SI, GYEONGGI-DO 456-850 REPUBLIC OF KOREA

		Optional Ratings		
Cat. No.	Color	Flame Retardant+	Sunlight Resistant+	Cold Resistant+
Thermoplastic PVC tapes with synthetic rubber adhesive. For use as sole insulation				
270D	All except clear	Yes	Yes	Yes

+ Complies with "Flame Retardant" and/or "Cold Resistant" and/or "Sunlight Resistant" requirements if authorized in the table above and when so marked.

Trademark and/or Tradename: "E105147" ,

Last Updated on 2015-06-24

Insulating Tape - Component

See General Information for Insulating Tape - Component

WEIHAI KANGLI TAPE CO LTD E475896
No.233 Huoju Road, High-tech Industrial Development Zone
Weihai city, Shandong 264200 CHINA

			Optional Ratings		
Cat. No.	Color	Temp (°C)	Flame Retardant+	Sunlight Resistant+	Cold Resistant+
PET film with acrylic adhesive insulating tape					
KL-168	All except clear	130	Yes	No	No
PET film/ Nonwoven cloth tape with acrylic adhesive insulating tape					
KL-188	White	130	Yes	No	No

+ Complies with "Flame Retardant" and/or "Cold Resistant" and/or "Sunlight Resistant" requirements if authorized in the table above and when so marked.

Marking: Company name and catalog designation printed on the central paper core or outer package.

Last Updated on 2016-03-26

Varnishes - Component

See General Information for Varnishes - Component

JIANGYIN CITY DENGFENG ELECTRICAL MATERIAL CO LTD E236421
ZHOUZHUANG VILLAGE
ZHOUZHUANG TOWN
JIANGYIN, JIANGSU 214423 CHINA

		Thermal Class (°C)		
Varnish Designation	**ANSI Type**	**Twisted Pair**	**Helical Coil**	**Curved Electrode**
319-5(a)	MW 5-C	155	-	-
	MW 76-C	180	180	-
	MW 80-C	155	-	-

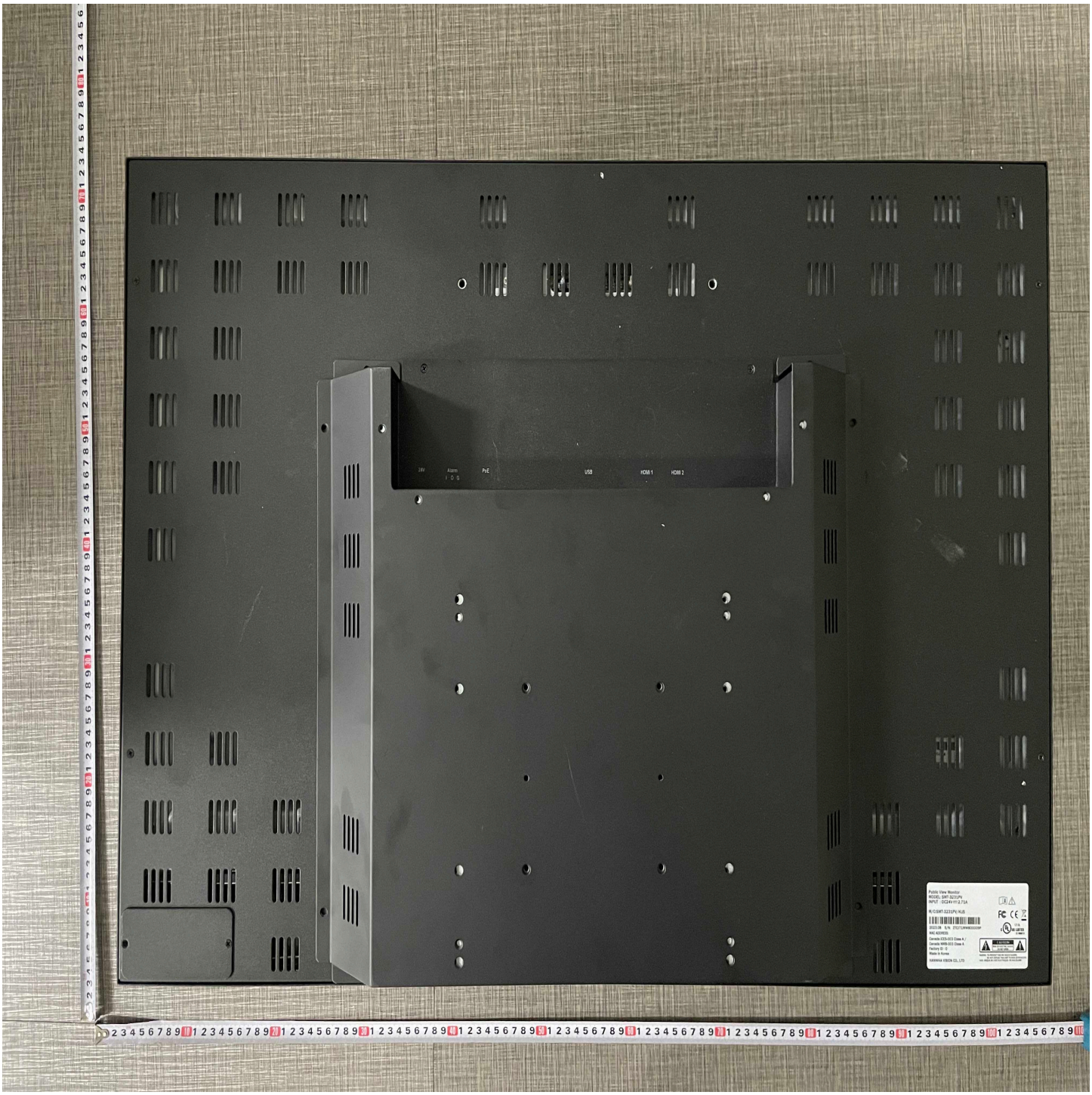
(a) - May be followed by one or two numbers and/or one or two letters indicating the viscosity changes accomplished via inorganic fillers, solvents or a small amount of monomer.

Marking: Company name and model designation.

Last Updated on 2014-05-26

Photographs-01 Page-1

Photographs-02 Page-1



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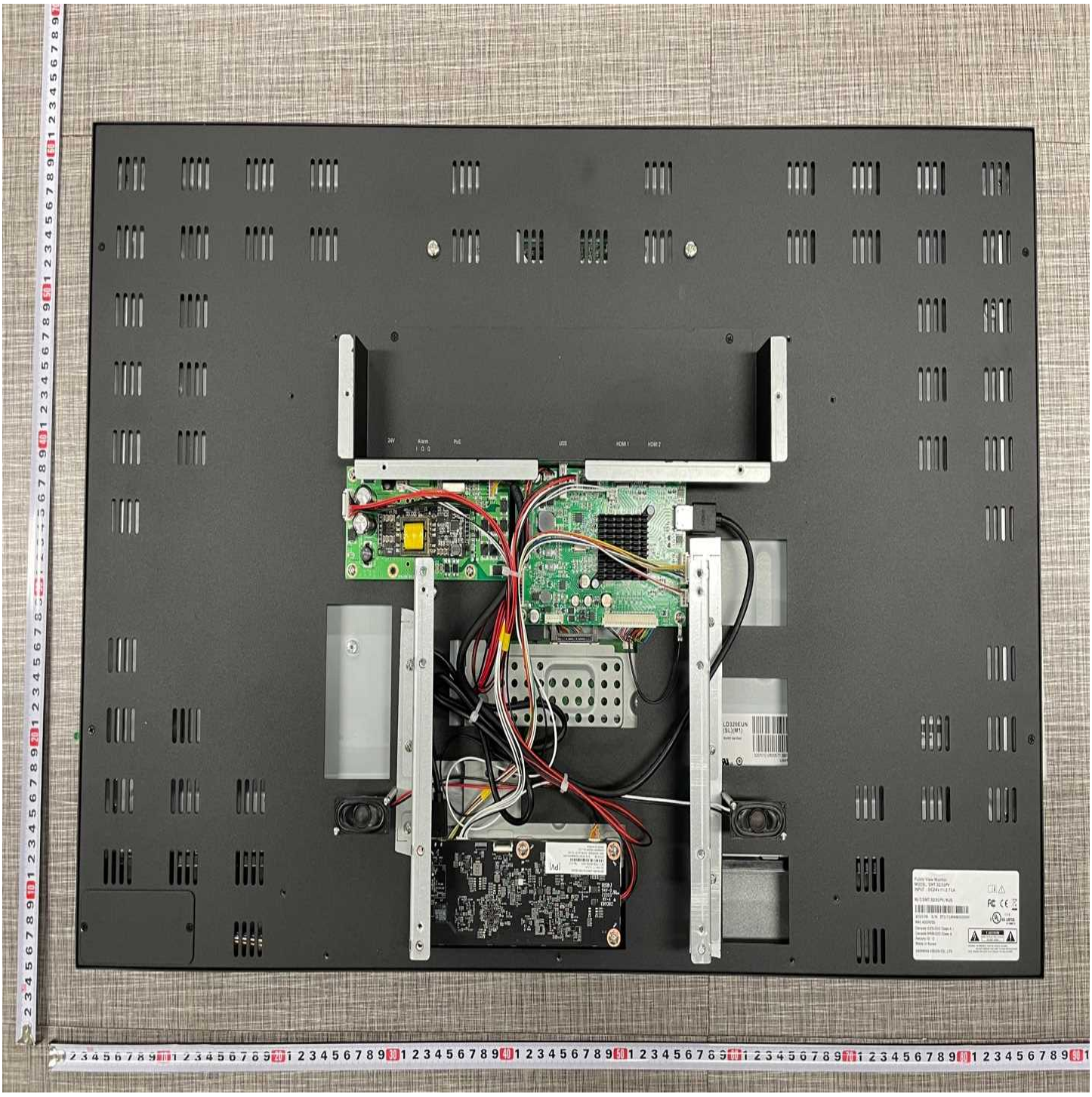

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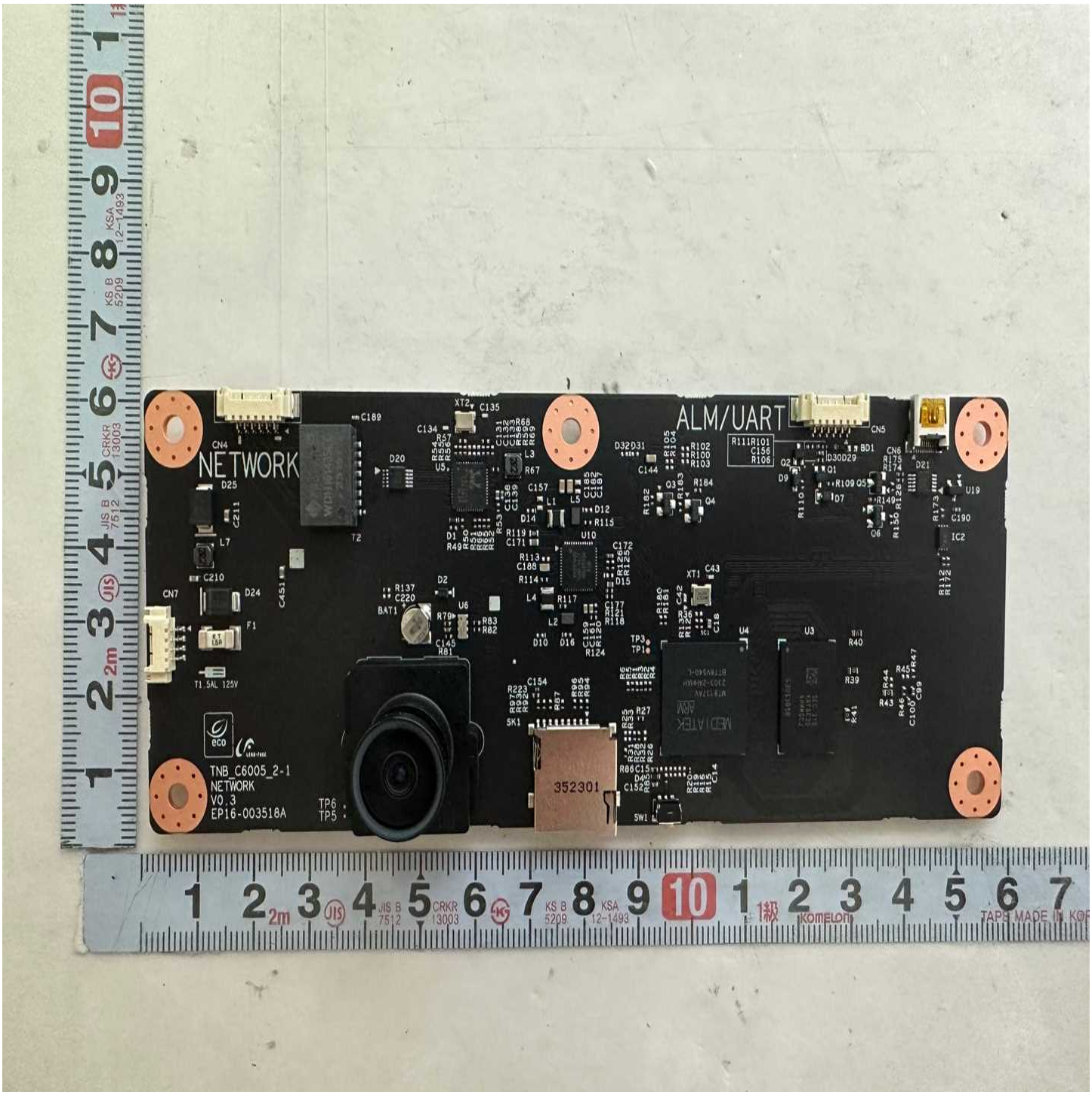
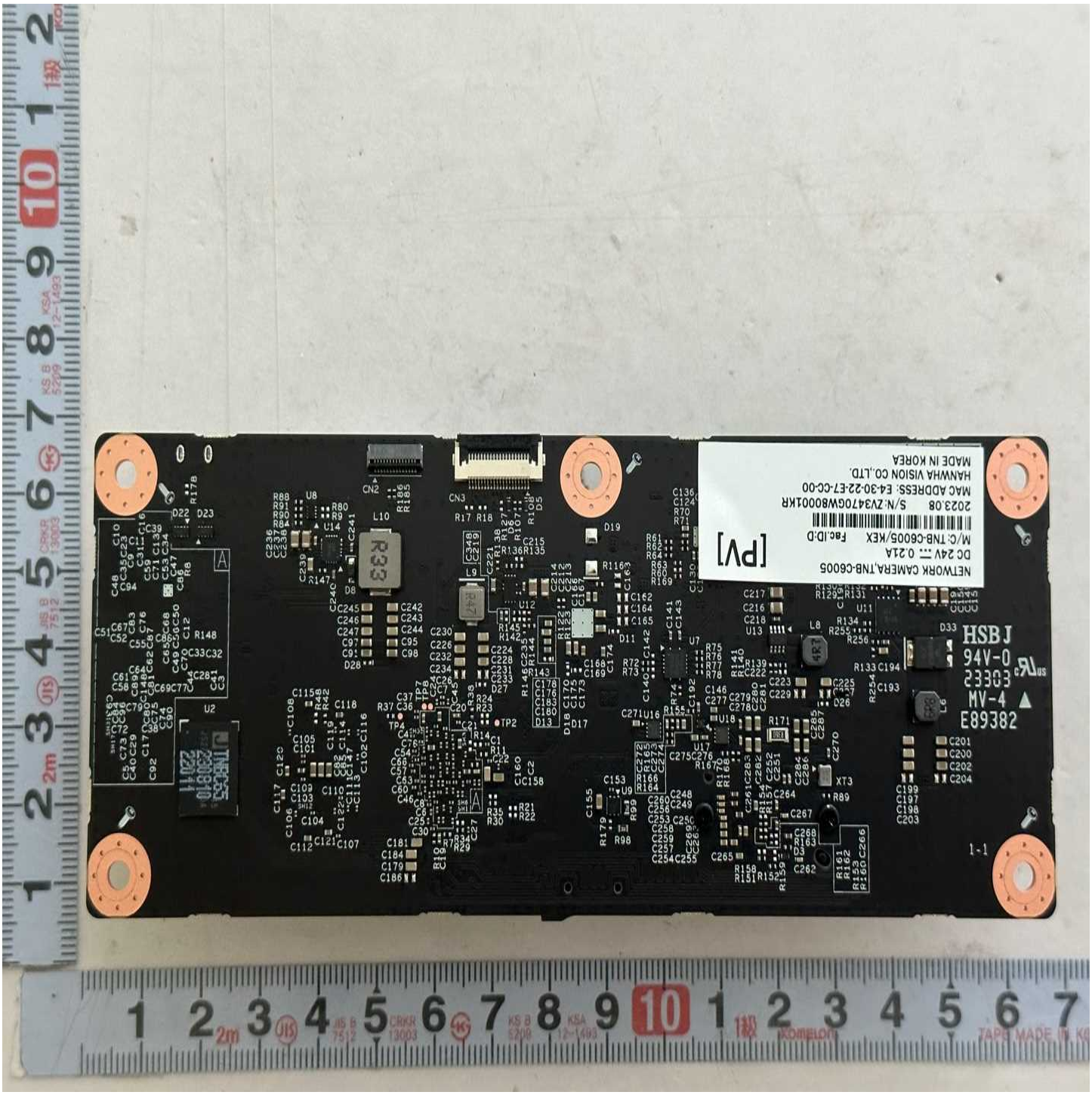
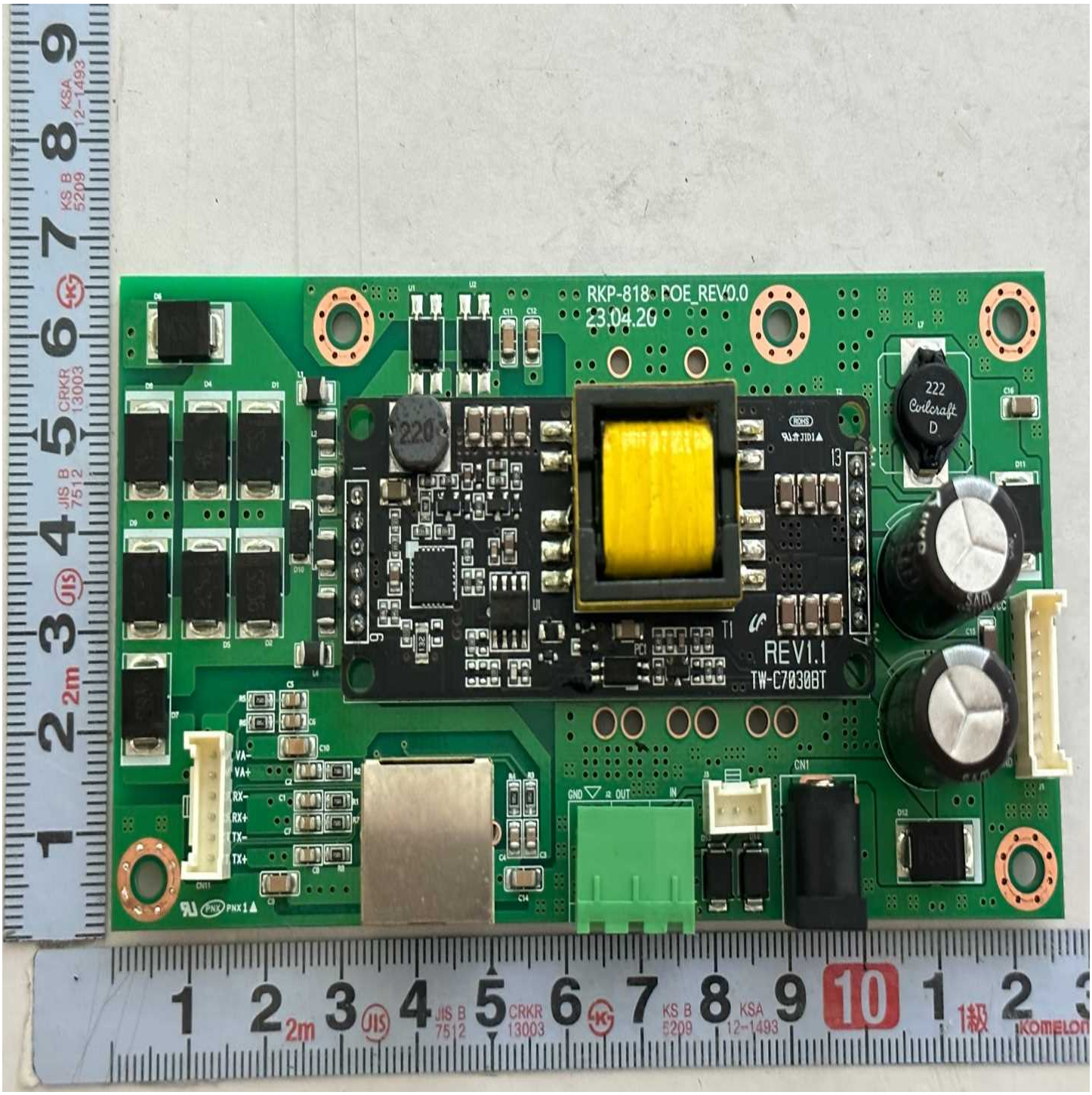


Photographs-05 Page-1



Photographs-06 Page-1



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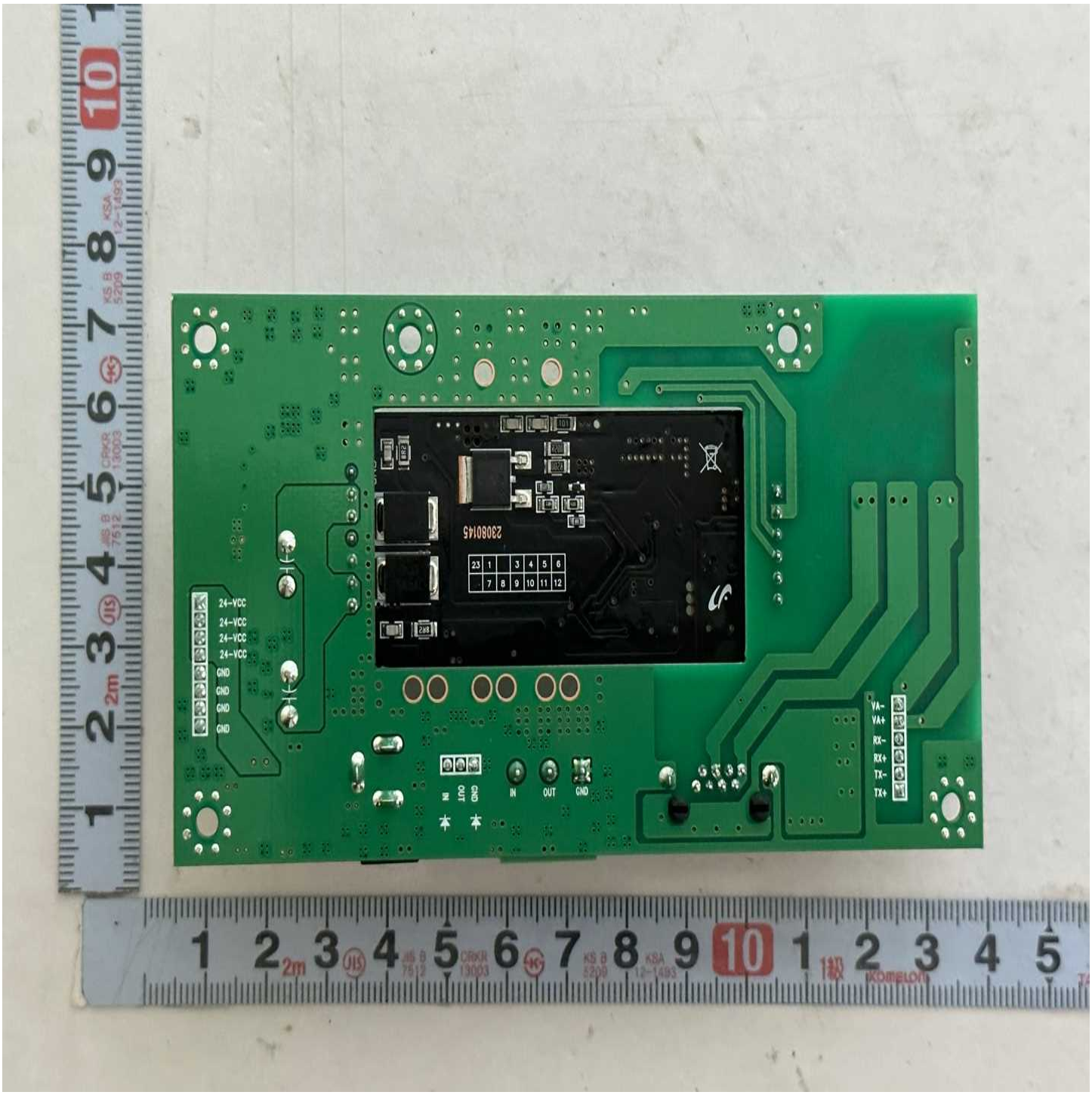
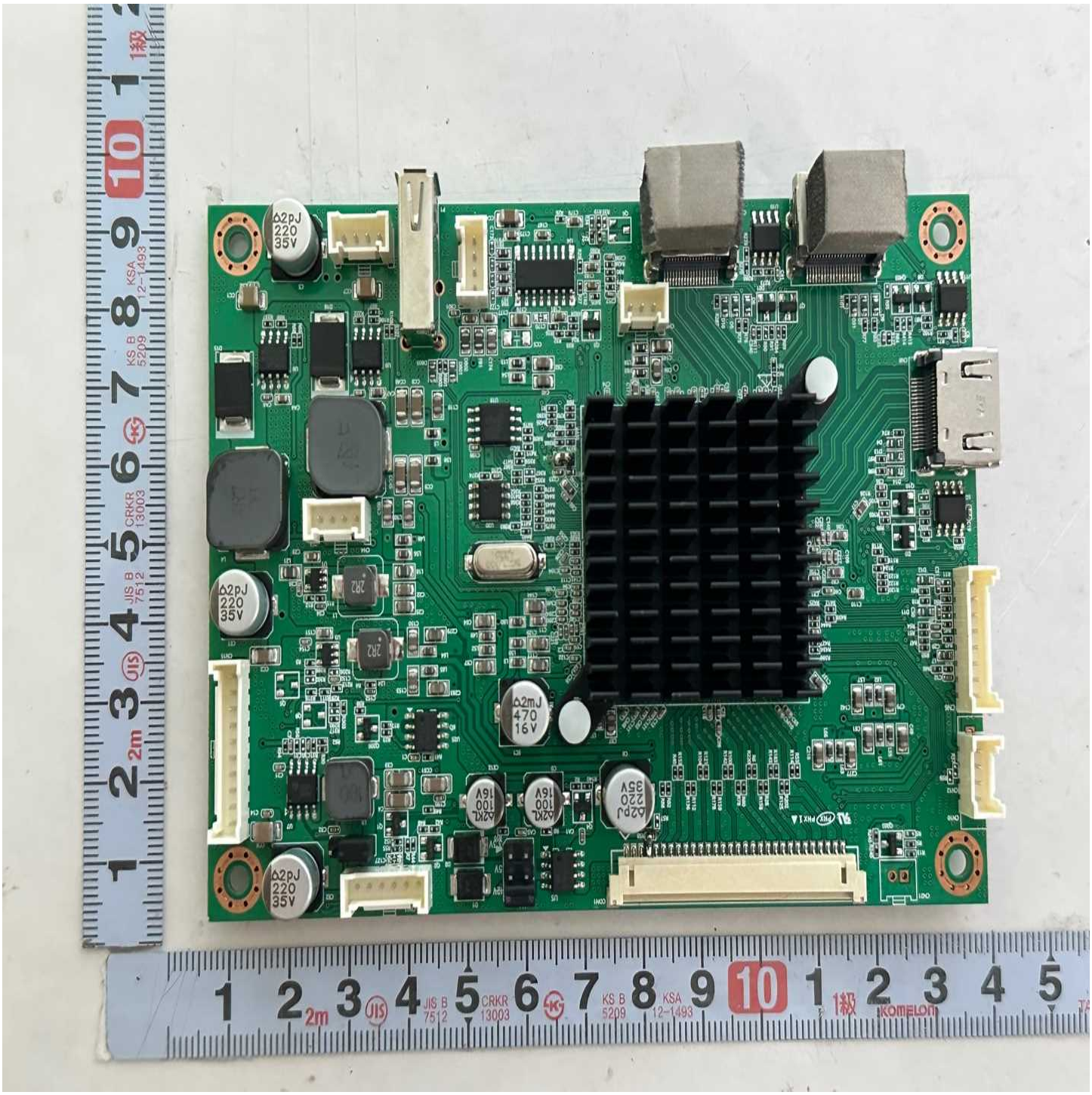
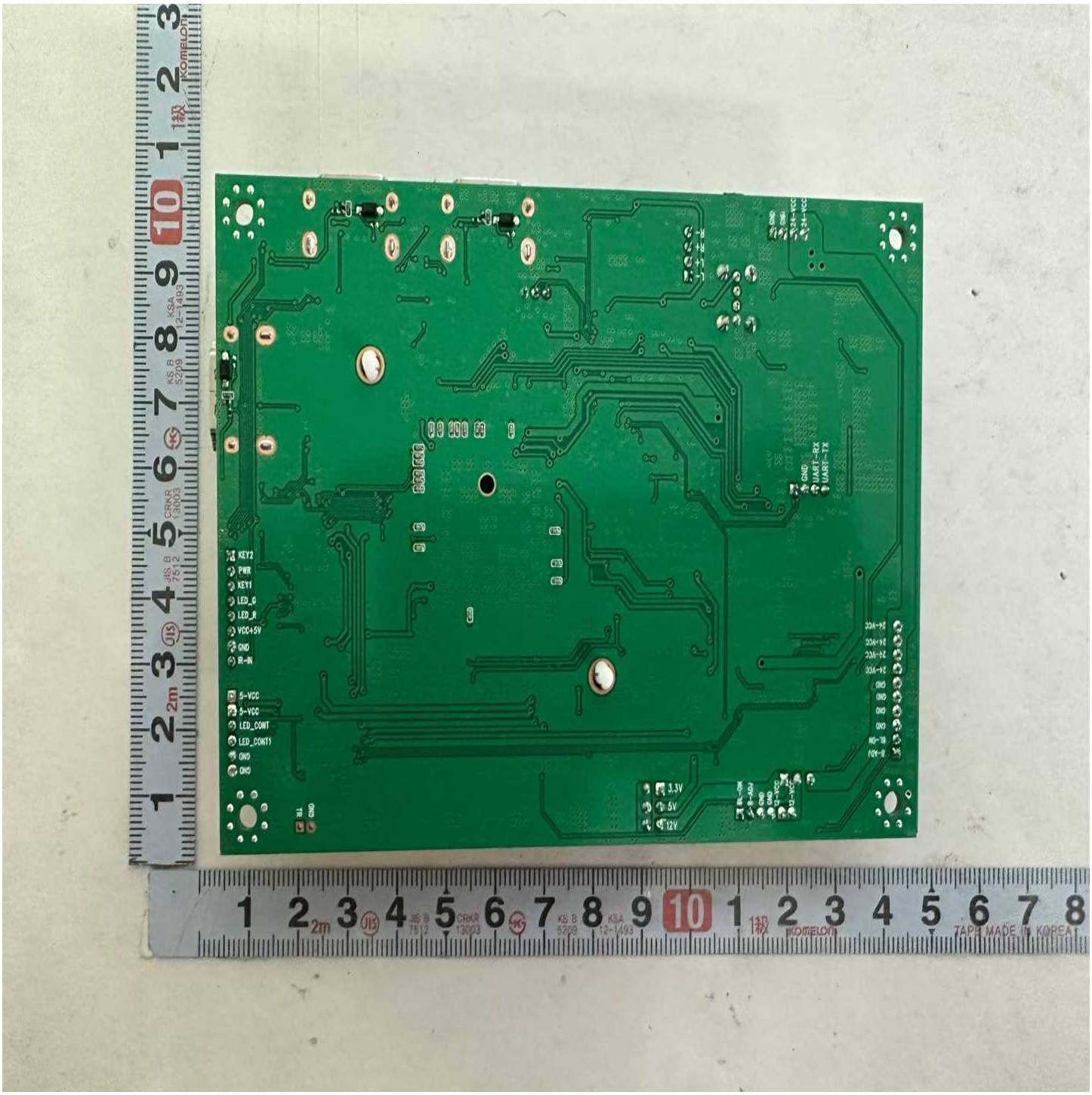


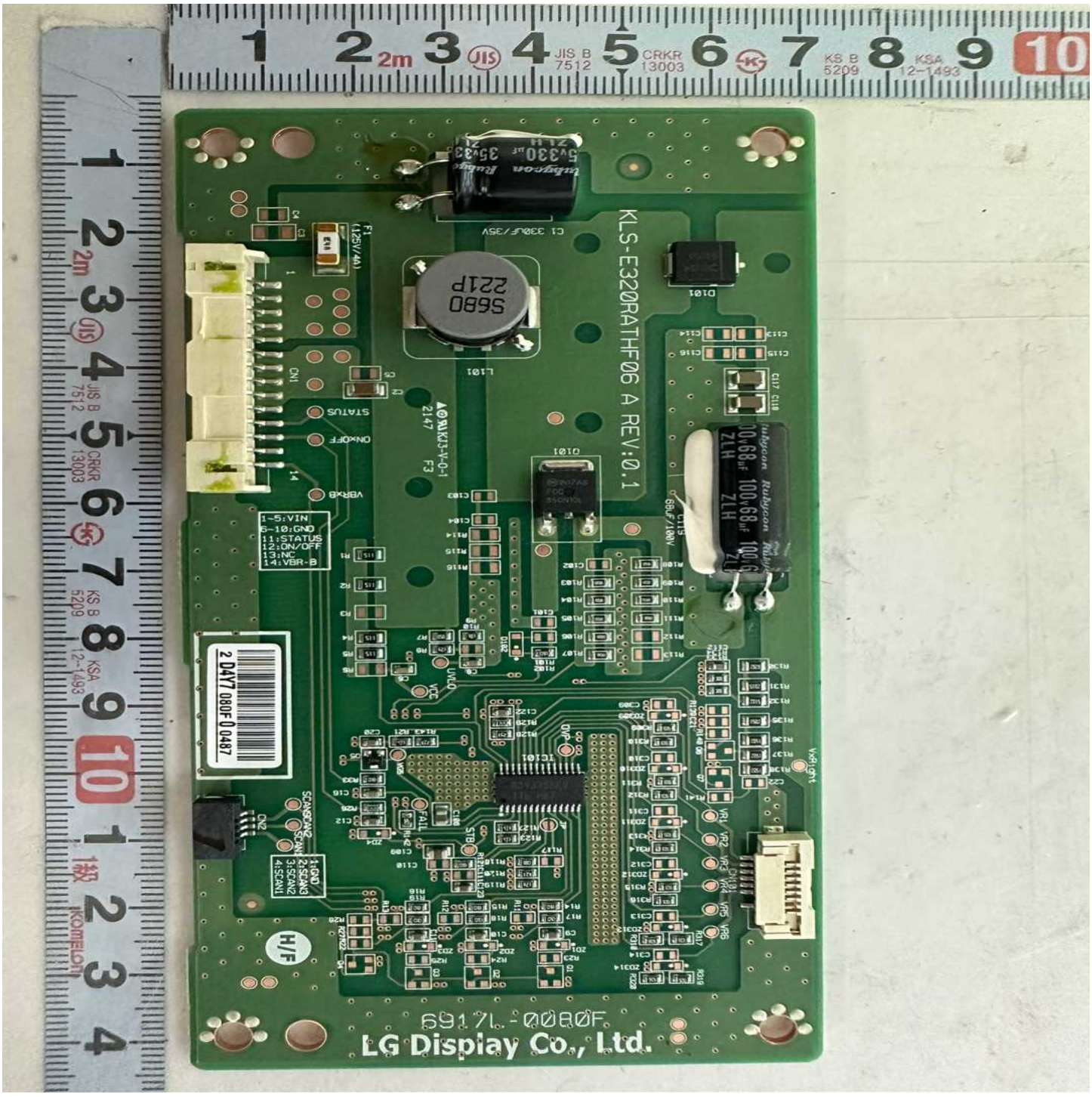
Photographs-08 Page-1



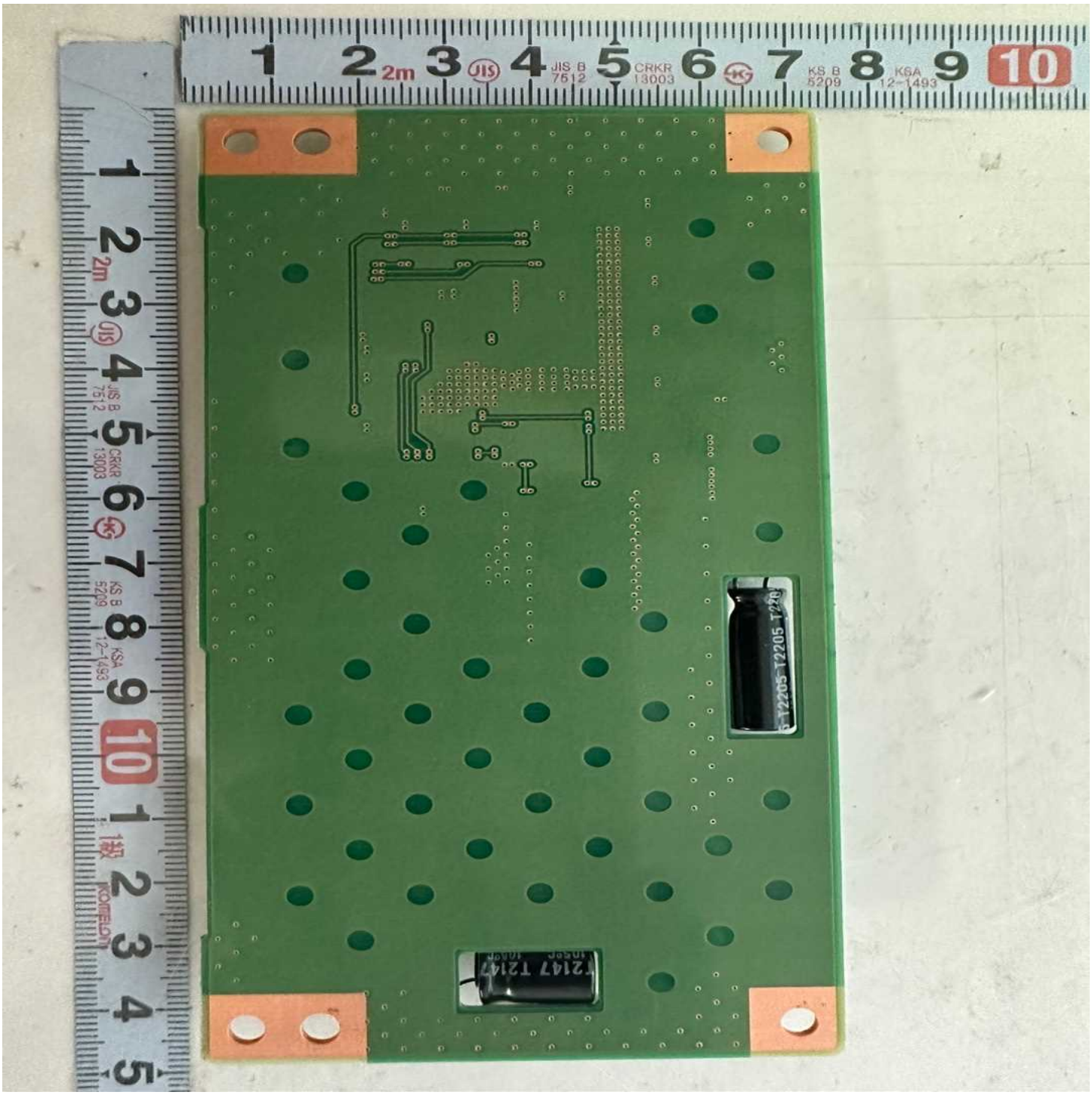
Photographs-09 Page-1



Photographs-10 Page-1



Photographs-11 Page-1



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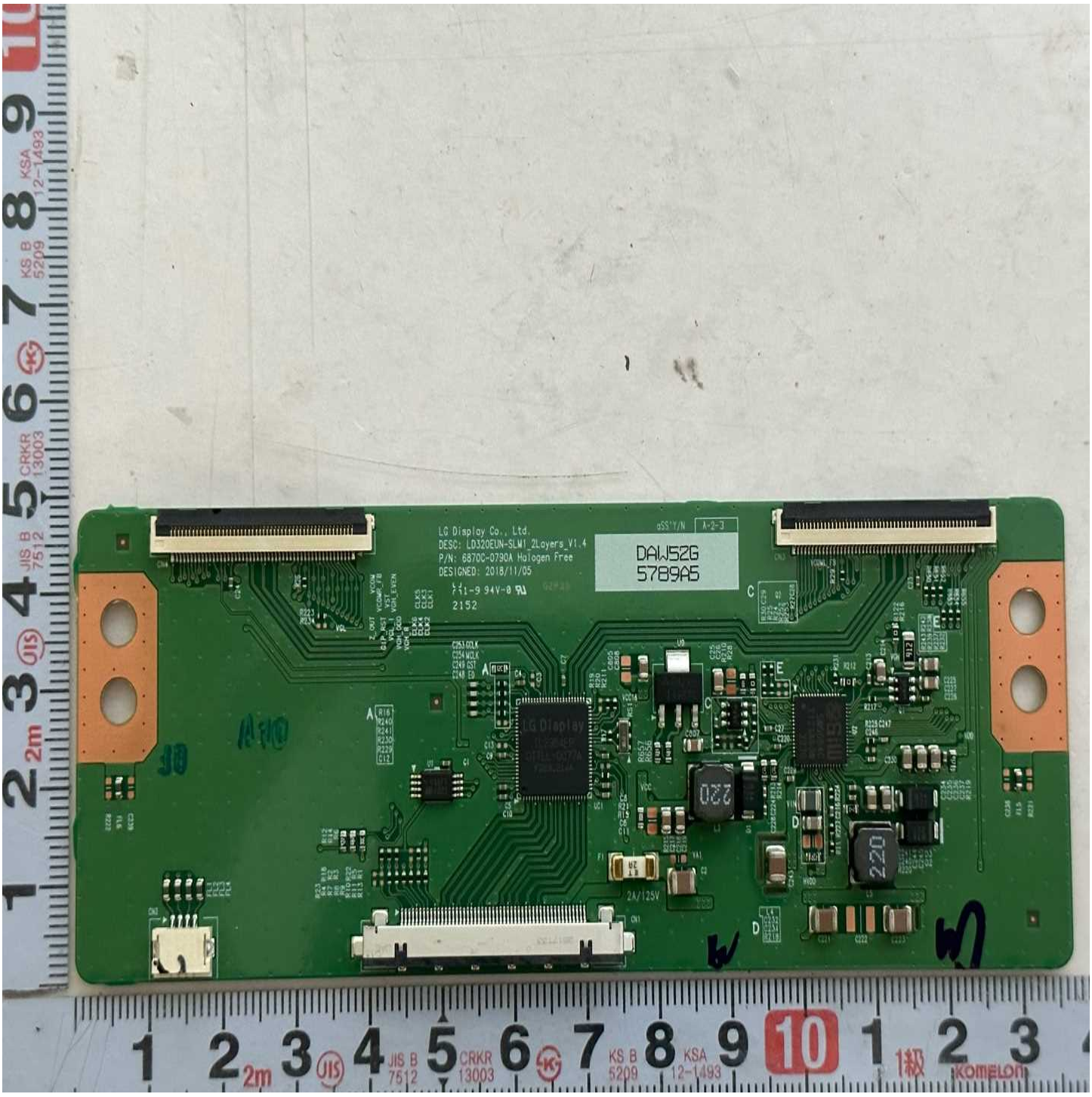

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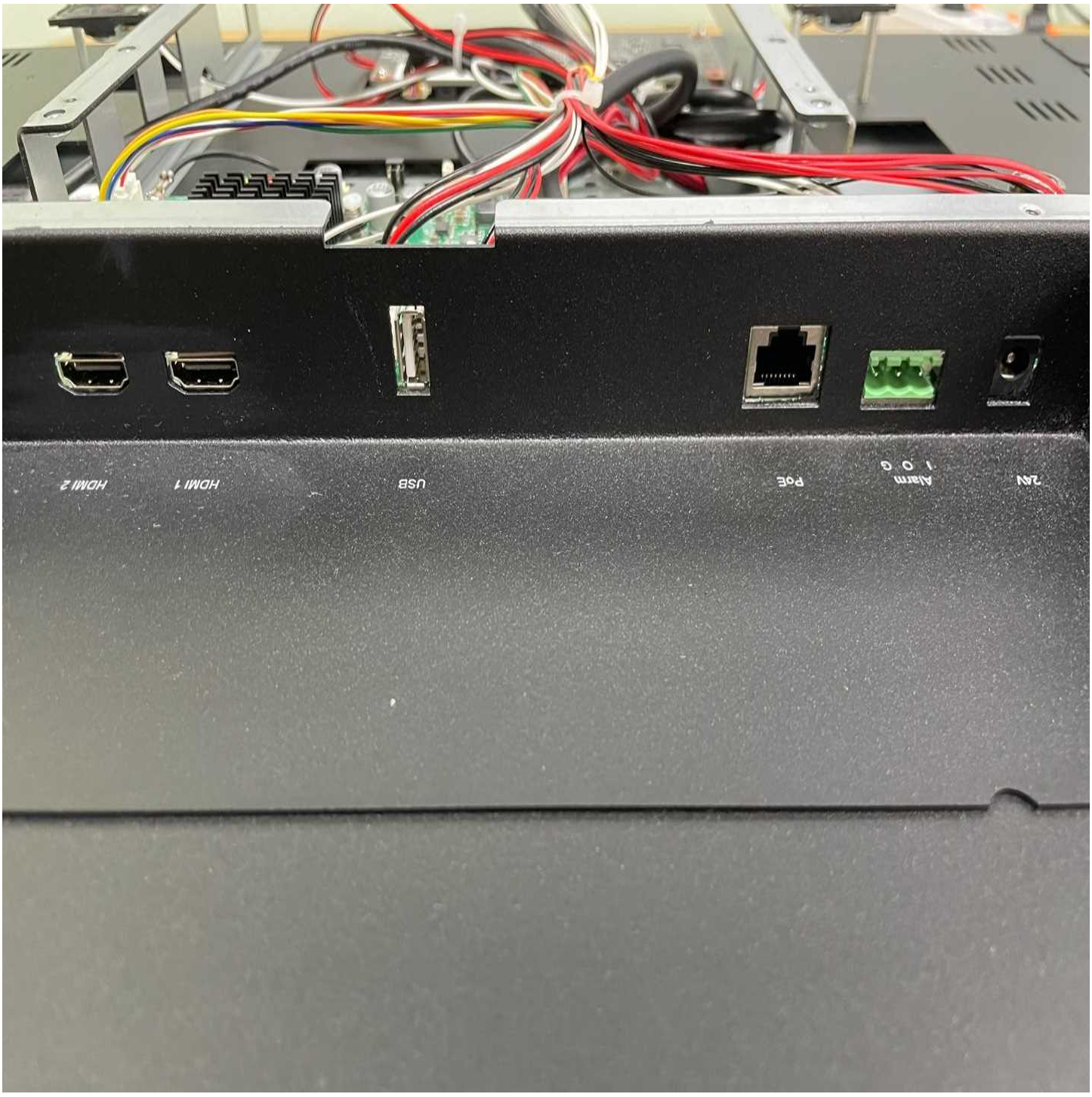

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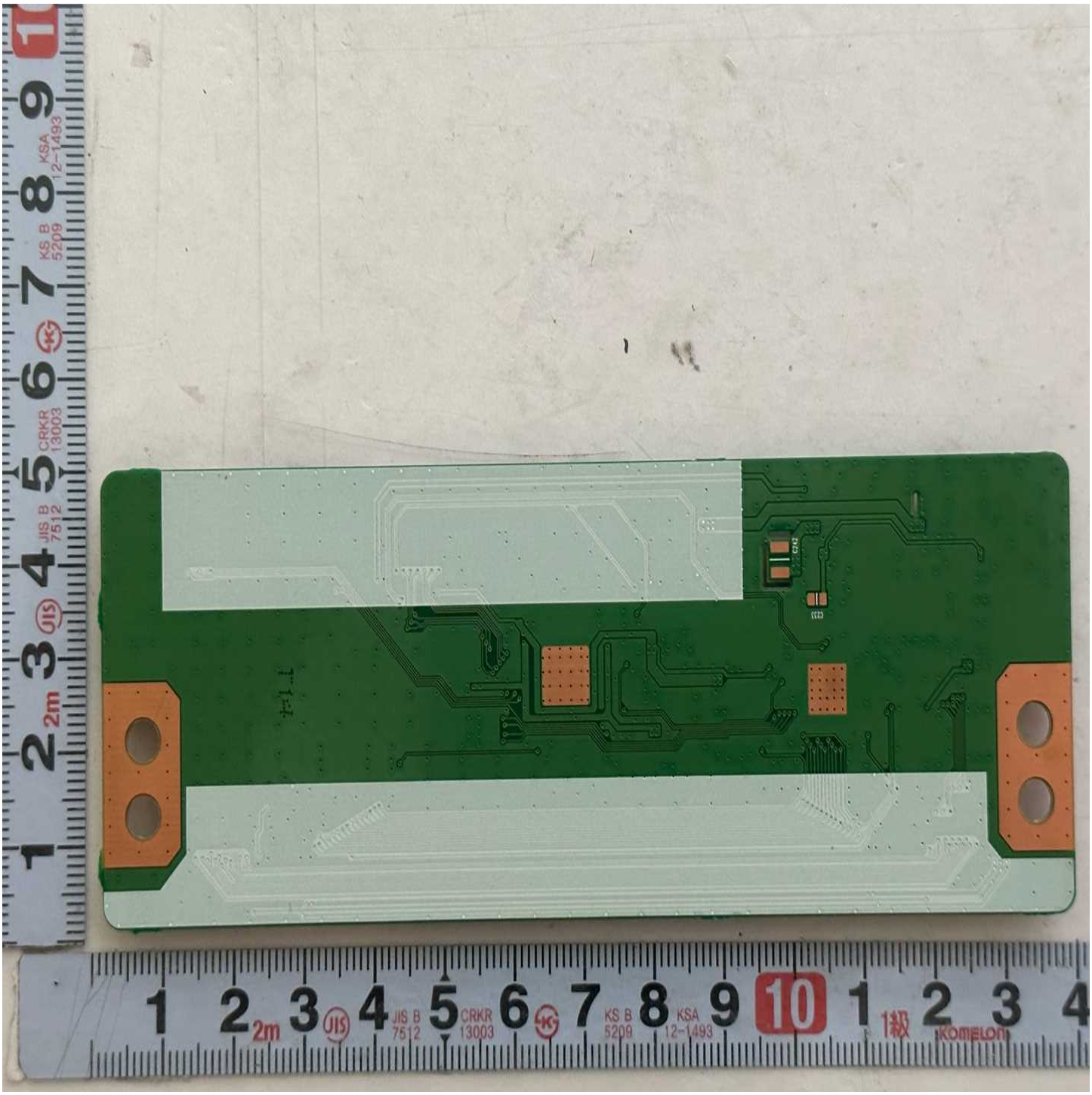

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