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台灣 新竹市

新竹科學工業園區力行二路1號

友達光電股份有限公司

BENSON CHENG



BENSON CHENG
AU OPTRONICS CORP
1 LI-HSIN RD 2
HSINCHU SCIENCE PARK
HSINCHU
300 TAIWAN

Date: 2019/11/22
Subscriber: 331388003
PartySite: 119984
File No: E204356
Project No: 4789229033
PD No: 19063935
Type: R
PO Number: AU-UL1954

Subject: **Procedure And/Or Report Material**

The following material resulting from the investigation under the above numbers is enclosed.

Issue

<u>Date</u>	<u>Vol</u>	<u>Sec</u>	<u>Pages</u>	<u>Revised Date</u>
	X4		Index Page(s)	
2019/11/20	X4	A6029	Cert of Compliance	
2019/11/20	X4	A6029	Add New Proc/Report Sect	

If there are illegible images in this package, legible images may be found online via MyHome@UL under My UL Reports/CDA

Please file revised pages and illustrations in place of material of like identity. New material should be filed in its proper numerical order.

NOTE: Follow-Up Service Procedure revisions DO NOT include Cover Pages, Test Records and Conclusion Pages. Report revisions DO NOT include Authorization Pages, Indices, Section General Pages and Appendixes.

Please review this material and report any inaccuracies to UL's Customer Service Professionals. Contact information for all of UL's global offices can be found at <http://ul.com/aboutul/locations>.

If you'd like to receive updated materials FASTER, UL offers electronic access and/or delivery of this material. For more details, contact UL's Customer Service Professionals as shown above.

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TPI File

File		Volume	Page	Date:
E204356	Index	X4	1	20-Nov-19

Index

<u>Product Type</u>	<u>Model/Type Reference</u>	<u>Report Reference #</u>	<u>Status</u>
LCD Panel (LED backlight)	B139KANZZZZ (Where Z may be any alphanumeric character or a dot or blank)	E204356-A6022-UL	
LCD Panel (LED backlight)	P320HVNZZZZ (where Z may be any alphanumeric character or blank)	E204356-A6023-UL	
LCD Panel (LED backlight)	G101EANZZZZ (Where Z may be any alphanumeric character or a dot or blank)	E204356-A6029-UL	
LCD Panel (LED Backlight)	M270HWZZ, M270HVNZZZZ, M270DANZZZZ, M270HTNZZZZ, M270HANZZZZ (where Z may be 0-9, A-Z, or a dot, or blank)	E204356-A6030-UL	
LCD Panel (LED Backlight)	G270ZANZZZZ, G270HANZZZZ (Where Z may be any alphanumeric character or a dot or blank)	E204356-A6031-UL	

CERTIFICATE OF COMPLIANCE

Certificate Number 20191122-E204356
Report Reference E204356-A6029-UL
Issue Date 2019-NOVEMBER-22

Issued to: AU OPTRONICS CORP
1 LI-HSIN RD 2
HSINCHU SCIENCE PARK
HSINCHU
300 TAIWAN

This certificate confirms that COMPONENT - AUDIO/VIDEO, INFORMATION AND
representative samples of COMMUNICATION TECHNOLOGY EQUIPMENT
See Addendum Page

Have been investigated by UL in accordance with the component requirements in the Standard(s) indicated on this Certificate. UL Recognized components are incomplete in certain constructional features or restricted in performance capabilities and are intended for installation in complete equipment submitted for investigation to UL LLC.

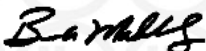
Standard(s) for Safety: UL 62368-1 : Audio/video, information and communication technology equipment Part 1: Safety requirements
CAN/CSA C22.2 No. 62368-1-14 : Audio/video, information and communication technology equipment Part 1: Safety requirements

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 Recognized Component Mark. Only the UL Follow-Up Services Procedure provides authorization to apply the UL Mark.

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

Look for the UL Recognized Component Mark on the product.



Bruce Mahrenholz, Director North American Certification Program

UL LLC

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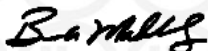
CERTIFICATE OF COMPLIANCE

Certificate Number 20191122-E204356
Report Reference E204356-A6029-UL
Issue Date 2019-NOVEMBER-22

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

LCD Panel (LED backlight) :

G101EANZZZZ (Where Z may be any alphanumeric character or a dot or blank)



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-(Audio/video, information and communication technology equipment Part 1: Safety requirements)
Certification Type:	Component Recognition
CCN:	AZOT2, AZOT8 (Audio/video, Information and Communication Technology Equipment)
Complementary CCN:	N/A
Product:	LCD Panel (LED backlight)
Model:	G101EANZZZZ (Where Z may be any alphanumeric character or a dot or blank)
Rating:	(Optional) 1. N/A (when without LED driver board) 2. 12Vdc, 0.27A max (with LED driver board 10G28-C0X (X=0-9, A-Z))
Applicant Name and Address:	AU OPTRONICS CORP 1 LI-HSIN RD 2 HSINCHU SCIENCE PARK HSINCHU 300 TAIWAN

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: Slash Chang / Senior Project Engineer

Reviewed By: Josh Huang / Project Engineer

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

The equipment under test (EUT) is a Color TFT LCD module with LED type LCD Backlight unit and panel control board with LED driver circuit installed for backlight, intended to use in information technology equipment.

Model Differences

All models are identical except for model designation for Marketing purpose, no technical differences.

Test Item Particulars

Classification of use by	To be determined in end product
Supply Connection	External Circuit - not Mains connected ES1
Supply % Tolerance	None
Supply Connection – Type	To be determine in end product
Considered current rating of protective device as part of building or equipment installation	N/A
Equipment mobility	for building-in
Over voltage category (OVC)	other: No mains connection
Class of equipment	Class III
Access location	N/A
Pollution degree (PD)	PD 2
Manufacturer's specified maximum operating ambient (°C)	80
IP protection class	IPX0
Power Systems	N/A
Altitude during operation (m)	5000 m
Altitude of test laboratory (m)	2000 m or less
Mass of equipment (kg)	0.161

Technical Considerations

- The product was submitted and evaluated for use at the maximum ambient temperature (T_{ma}) permitted by the manufacturer's specification of : 80°C
- The product is intended for use on the following power systems : No direct connection
- Mains supply tolerance (%) or absolute mains supply values : No direct connection
- The Risk Group of a lamp or lamp system (including LEDs) is : Exempt
- The following are available from the Applicant upon request : Product specification
- The product was investigated to the following additional standards : EN 62368-1:2014 + A11:2017, UL 62368-1 2ND Ed, Issued December 1, 2014, CSA CAN/CSA-C22.2 NO. 62368-1 2nd Ed, Issued December 1, 2014, AS/NZS 62368.1:2018

Engineering Conditions of Acceptability

For use only in or with complete equipment where the acceptability of the combination is determined by UL LLC. When installed in an end-product, consideration must be given to the following:

- The following output circuits are at ES1 energy levels : Output of LED driver board
- The investigated Pollution Degree is : 2
- The following end-product enclosures are required : Fire, Mechanical
- The supply source shall be ES1.
- Classification of PIS has not been conducted. Therefore, all electrical components were assumed to be resistive PIS.
- This component has been evaluated in "control of fire spread" method assuming appropriate fire enclosure is provided in end product.
- The touch temperature for Panel Surface shall be evaluated in end product.

Additional Information

This report is issued based on previously issued by UL Demko, CB Test Report Reference No.: E204356-A425-CB-1, CB Test Certificate Ref. No. DK-84488-UL in which the equipment was fully investigated to IEC 60950-1. Based on the review of previously conducted testing and the product technical documentation including photos, schematics, wiring diagrams, etc. and the additional tests to IEC 62368-1, it has been determined that the product complies with the IEC 62368-1.
No test was performed in original report.

Additional Standards

The product fulfills the requirements of: EN 62368-1:2014 + A11:2017, UL 62368-1 2nd Edition, Issued December 1, 2014, CSA CAN/CSA-C22.2 No. 62368-1 2nd Edition, Issued December 1, 2014, AS/NZS 62368.1: 2018

Markings and Instructions

Clause Title	Marking or Instruction Details
Equipment identification marking – Manufacturer identification	Listees or Recognized companies name, Trade Name, Trademark or File Number
Equipment identification marking – model identification	Model Number

Special Instructions to UL Representative

Split Inspection program shall be applied.

A sub-assembled unit that consists of the following assembly (#4) is assembled at Hitachi-Omron Terminal Solutions Corp Asahi Works (122091-002) or Hitachi Terminal Mechatronics Corp (100559-729).

#4. Bill Validator Assembly Section (Type ZERO unit)

Please refer to Report, table 1.5.1 for major components in the assemblies listed in above.

The sub-assembled unit will be used to produce equipment at the site or shipped to New Leo Electronics (Shenzhen) Co., Ltd. (123893-001) and Hitachi Financial Equipment System (Shenzhen) Co., Ltd. (100567-644).

In cases where the sub-assembled unit shipped to New Leo Electronics (Shenzhen) Co., Ltd. (123893-001) and Hitachi Financial Equipment System (Shenzhen) Co., Ltd. (100567-644), the unit has Subassembly Identification Marking described below.

Subassembly Identification Marking - An orange round seal. Applied either on each unit or shipping carton. This marking identifies units/lots that have successfully completed the FUS inspection.

If the units are not constructed as described in this Procedure, the variation shall be corrected or the above identifier shall be removed.

All components not provided with "#4" shall be assembled at New Leo Electronics (Shenzhen) Co., Ltd. (123893-001) and Hitachi Financial Equipment System (Shenzhen) Co., Ltd. (100567-644).

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	--	--	--	--	--	--
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.					
	N/A					

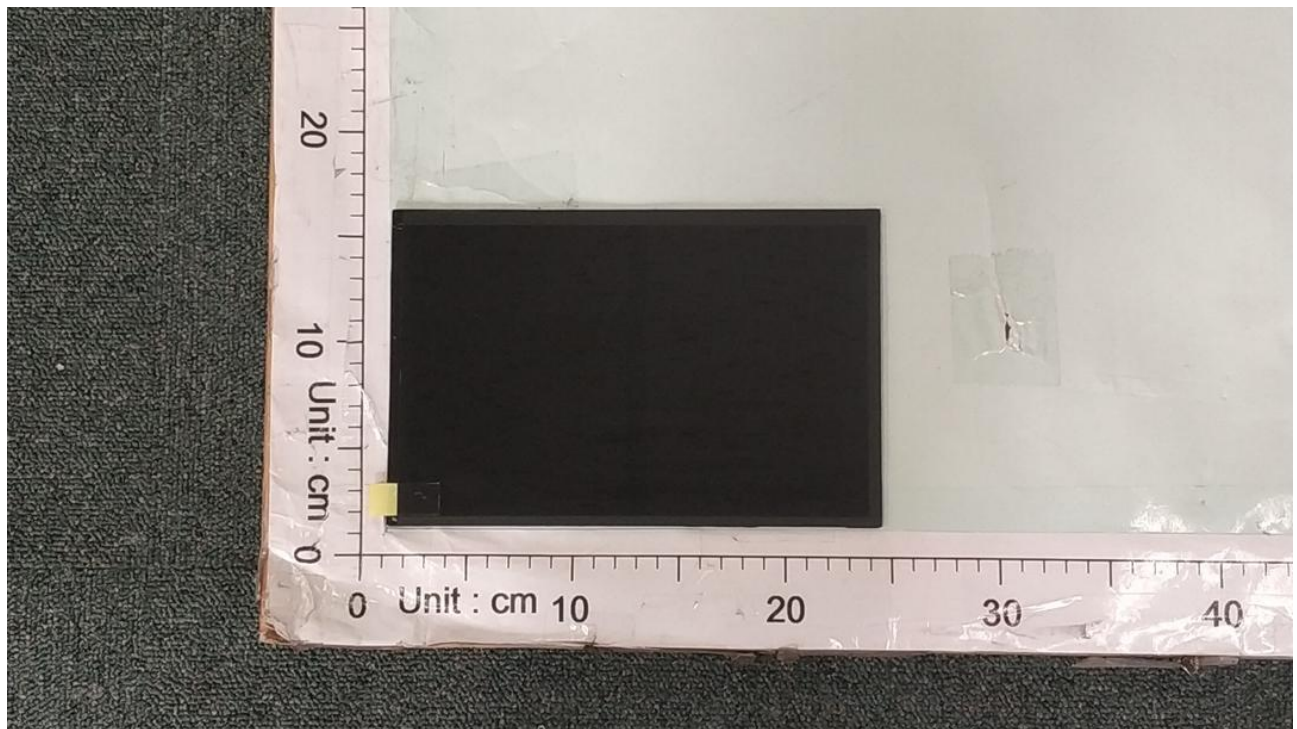
BE1.0	Sample and Test Specifics for Follow-Up Tests at UL				
Model	Component	Material	Test	Sample (s)	Test Specifics
N/A	--	--	--	--	--

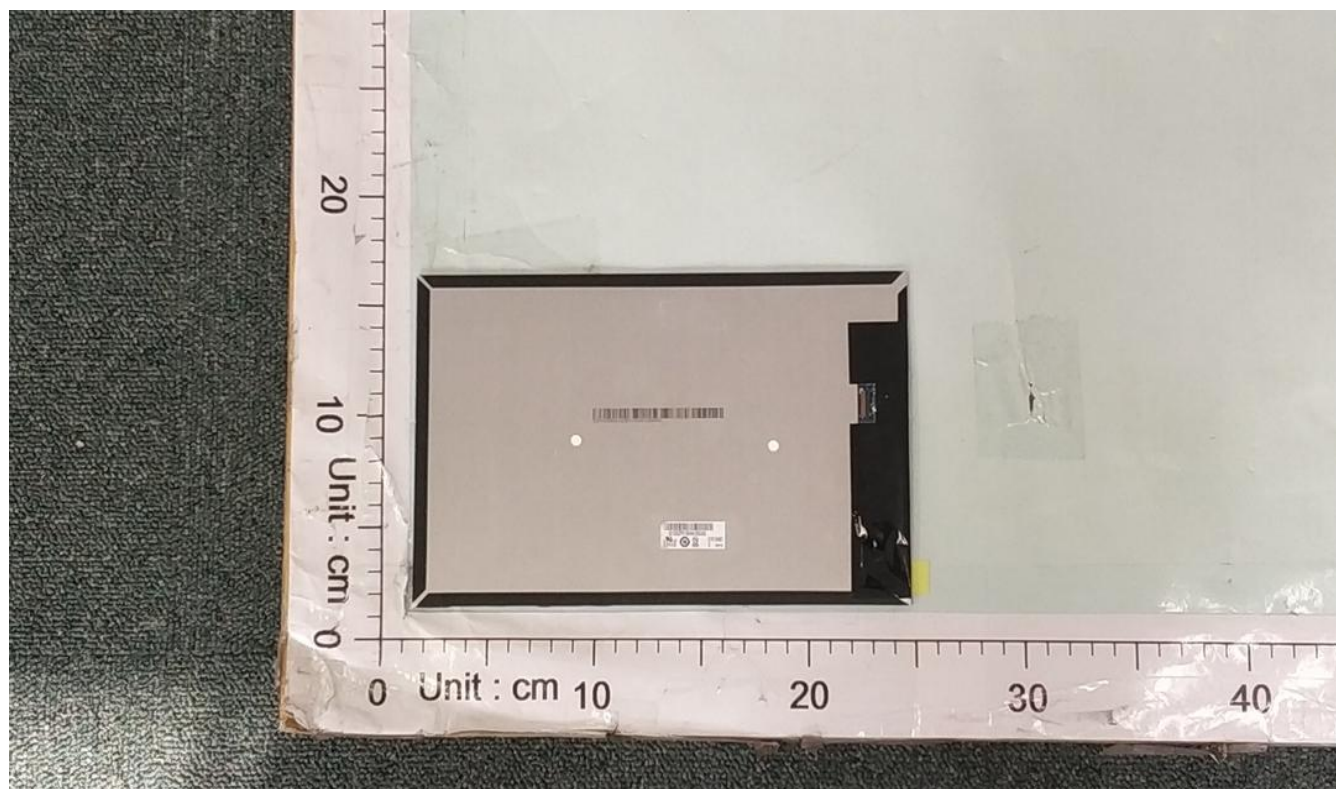
4.1.2	TABLE: List of critical components					Pass
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Product Category CCN(s)	Mark(s) of conformity	Supplement ID
S01. Internal Wirings (Optional)	Interchangeable	Interchangeable	FEP, PTFE, PVC, TFE, neoprene, polyimide or rated VW-1; minimum 30 V, 105 degree C.	AVLV2	UL	
S02. Connectors and Receptacles (Secondary ELV/SELV circuits)	Interchangeable	Interchangeable	--	ECBT2, RTRT2	UL	
S02a. Connectors and Receptacles (Secondary ELV/SELV circuits) (alternate)	Interchangeable	Metal/ Plastic	Copper alloy pins housed in bodies of plastic rated V-2 min.	QMFZ2	UL	
S03. Flexible PWB (Optional)	Interchangeable	Interchangeable	Rated V-2 minimum or VTM-2 minimum, when no components mounted on surface; If components mounted on surface, it should be minimum V-1 or VTM-1, 80 degree C	ZPKX2, ZPMV2	UL	
S03a. Flexible PWB (Optional) (Alternative)	Interchangeable	Interchangeable	Rated V-2 minimum or VTM-2 minimum, when no components mounted on surface, 80 degree C	QMFZ2, QMTS2	UL	
S04. Mylar / Tape (Optional)	Interchangeable	Interchangeable	Rated V-2 minimum or VTM-2 minimum	QMFZ2	UL	
01. Panel	Interchangeable	Interchangeable	TFT-LCD Type, 10.1 inches.	--	--	
02. Enclosure / Chassis	Interchangeable	Interchangeable	Steel Metal or Aluminum	--	--	

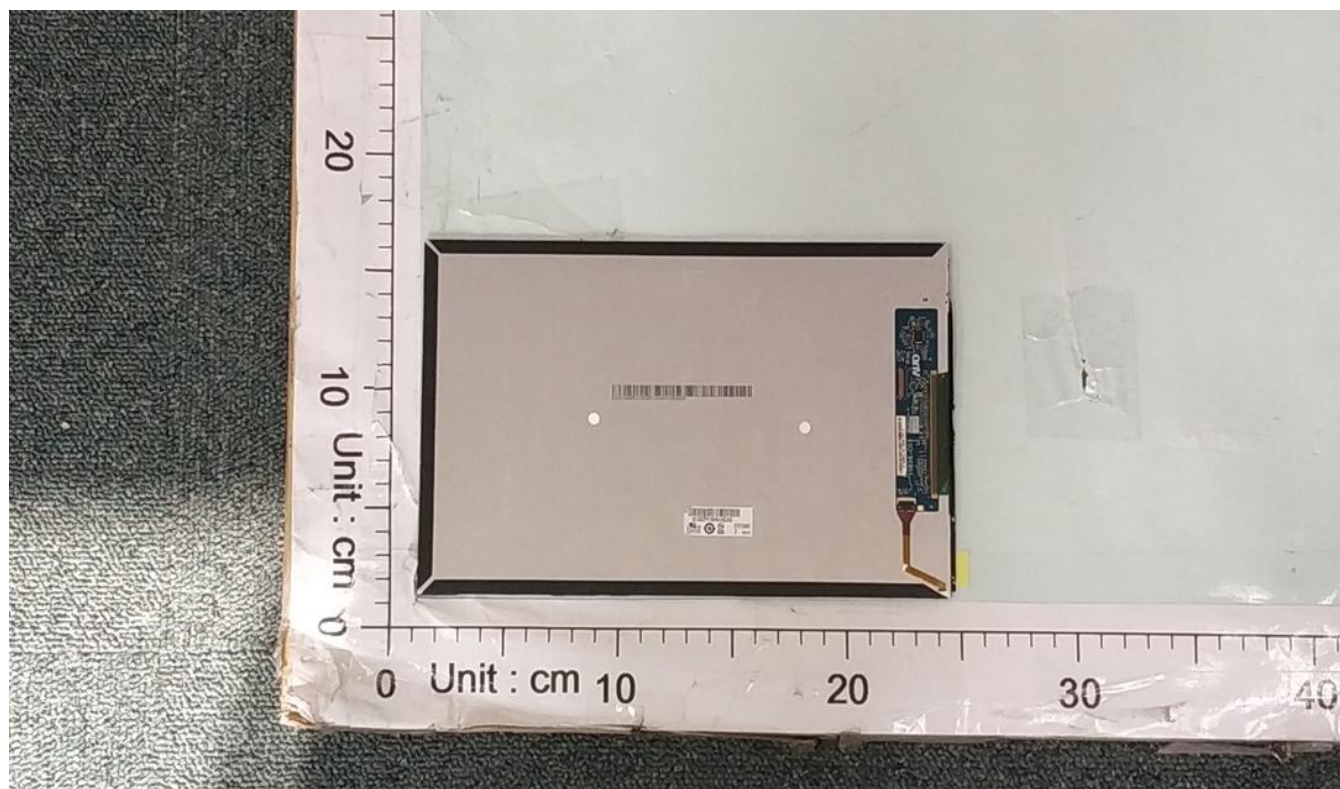
03. PWB	Interchangeable	Interchangeable	Minimum V-1 or better, 105 degree C.	ZPMV2	UL	
04. Label	Interchangeable	Interchangeable	Minimum 85 degree C	PGDQ2 or PGJI2	UL	
05. LED Drive Board (Optional)	AU Optronics Corp.	10G28-C0X (X=0-9, A-Z) for G101EAN02 series	Rating: 12 Vdc, 0.27 A max.	--	--	

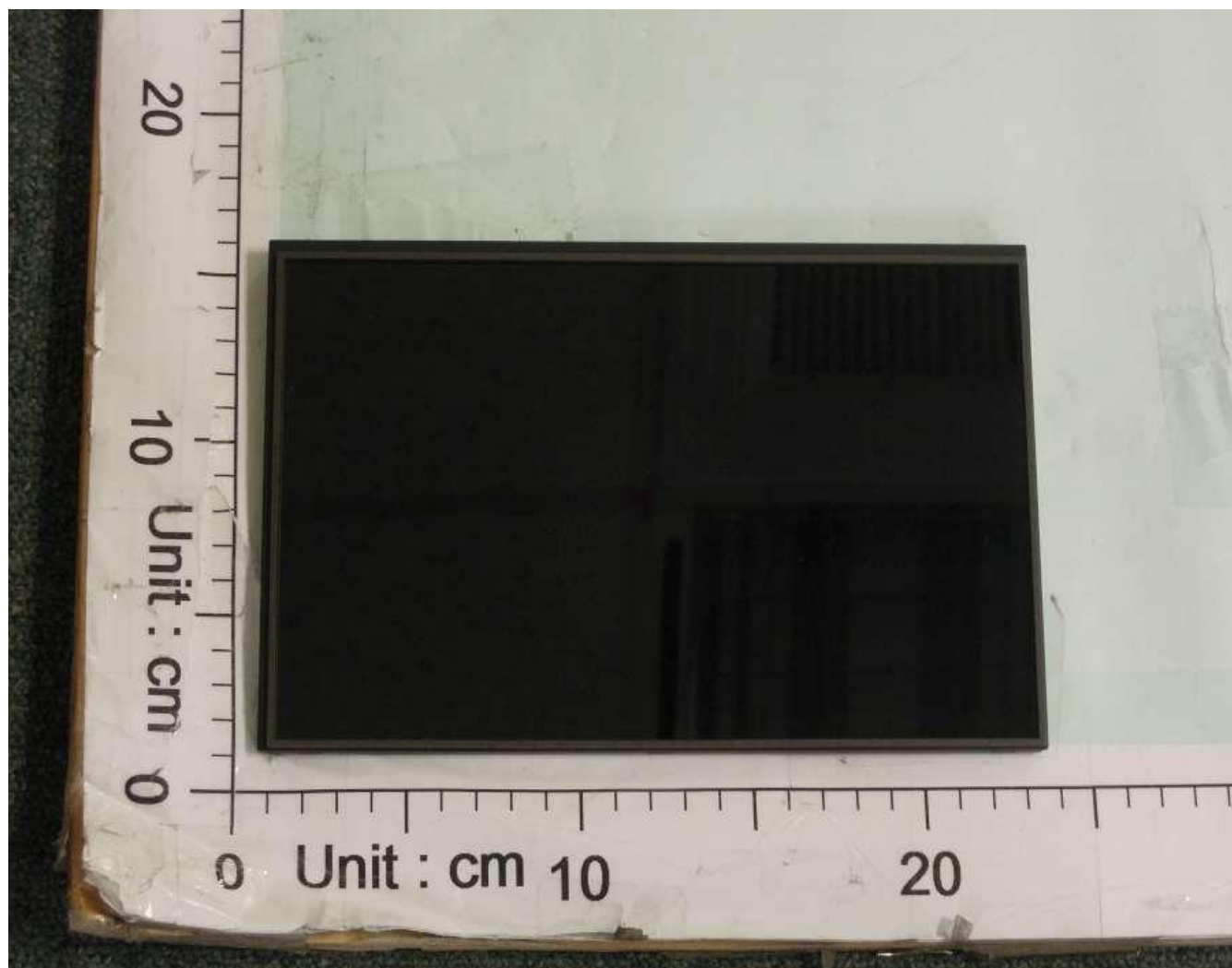
Enclosures

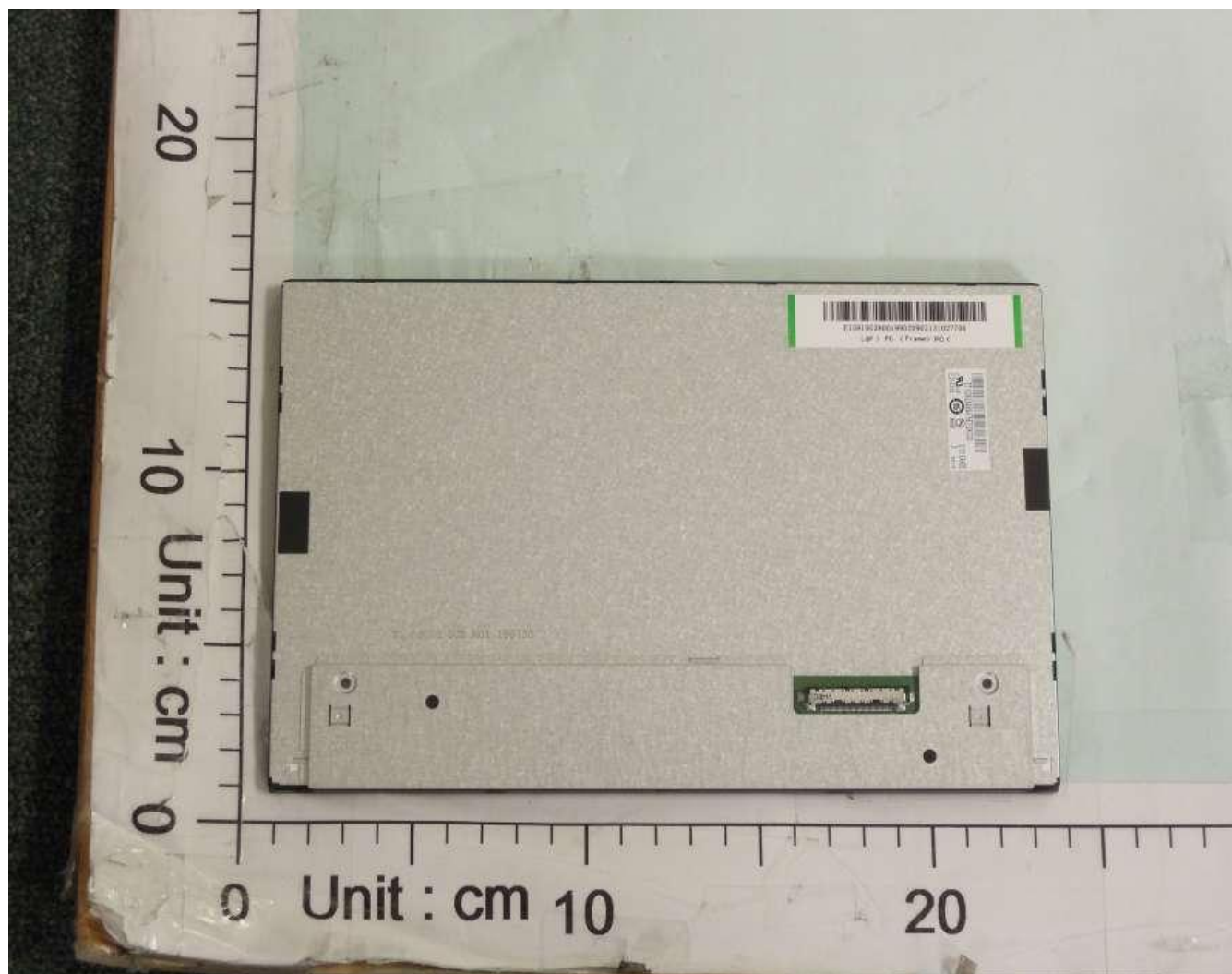
Type	Supplement Id	Description
Photographs	03-01	Front view of model G101EANZZZZ - construction 1
Photographs	03-02	Rear view of model G101EANZZZZ with Mylar, without LED driver board
Photographs	03-03	Rear view of model G101EANZZZZ without Mylar nor LED driver board
Photographs	03-04	Front view of model G101EANZZZZ - construction 2
Photographs	03-05	Rear view of model G101EANZZZZ with metal cover and LED driver board P/N: 10G28-C02
Photographs	03-06	Rear view of model G101EANZZZZ without metal cover, with LED driver board P/N: 10G28-C02
Photographs	03-07	LED driver board P/N: 10G28-C02
Photographs	03-08	Front view of model G101EANZZZZ - construction 3
Photographs	03-09	Rear view of model G101EANZZZZ with Mylar and LED driver board P/N: 10G28-C01
Photographs	03-10	Rear view of model G101EANZZZZ without Mylar and LED driver board P/N: 10G28-C01
Photographs	03-11	LED driver board P/N: 10G28-C01
Miscellaneous	07-01	Equipment list

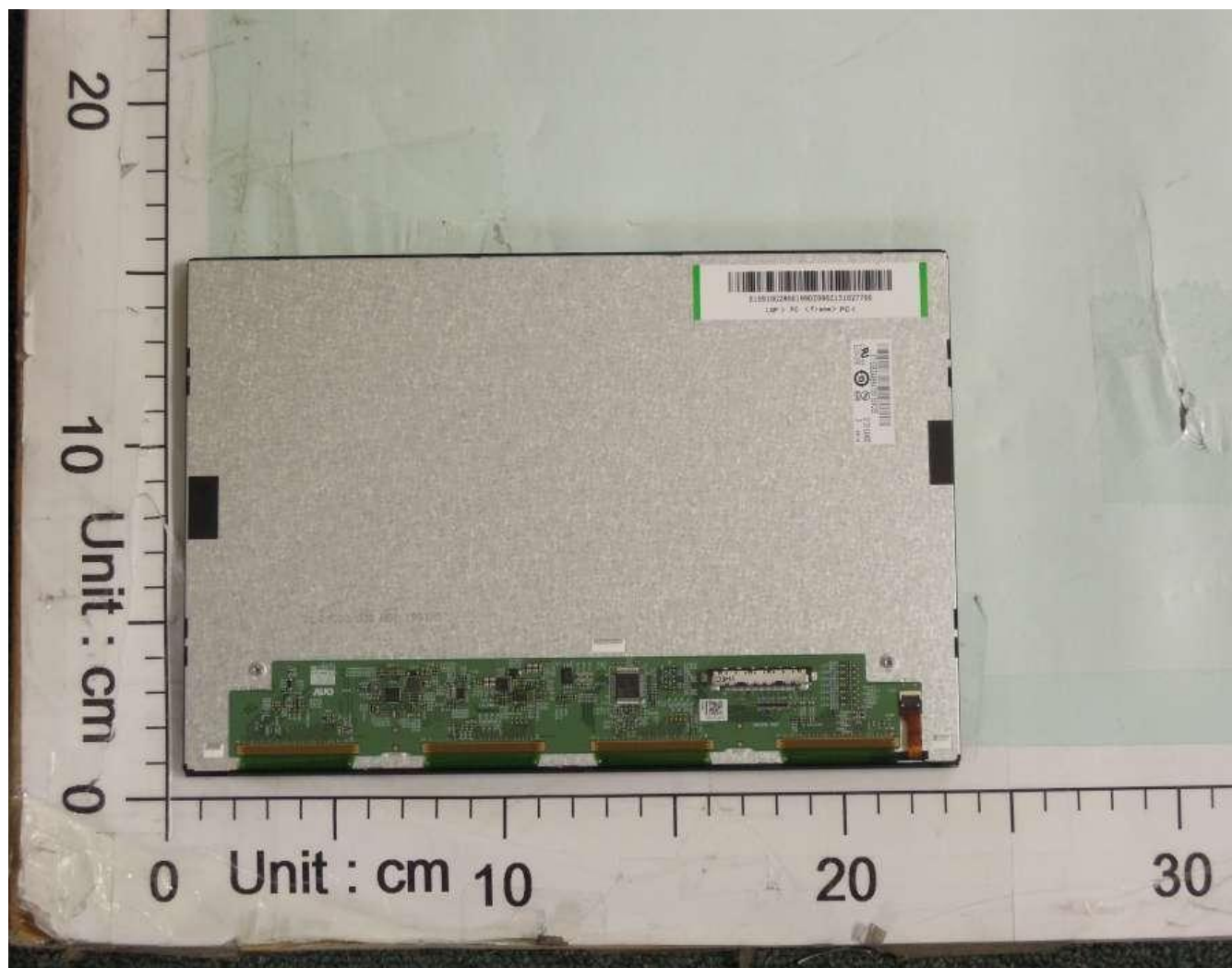


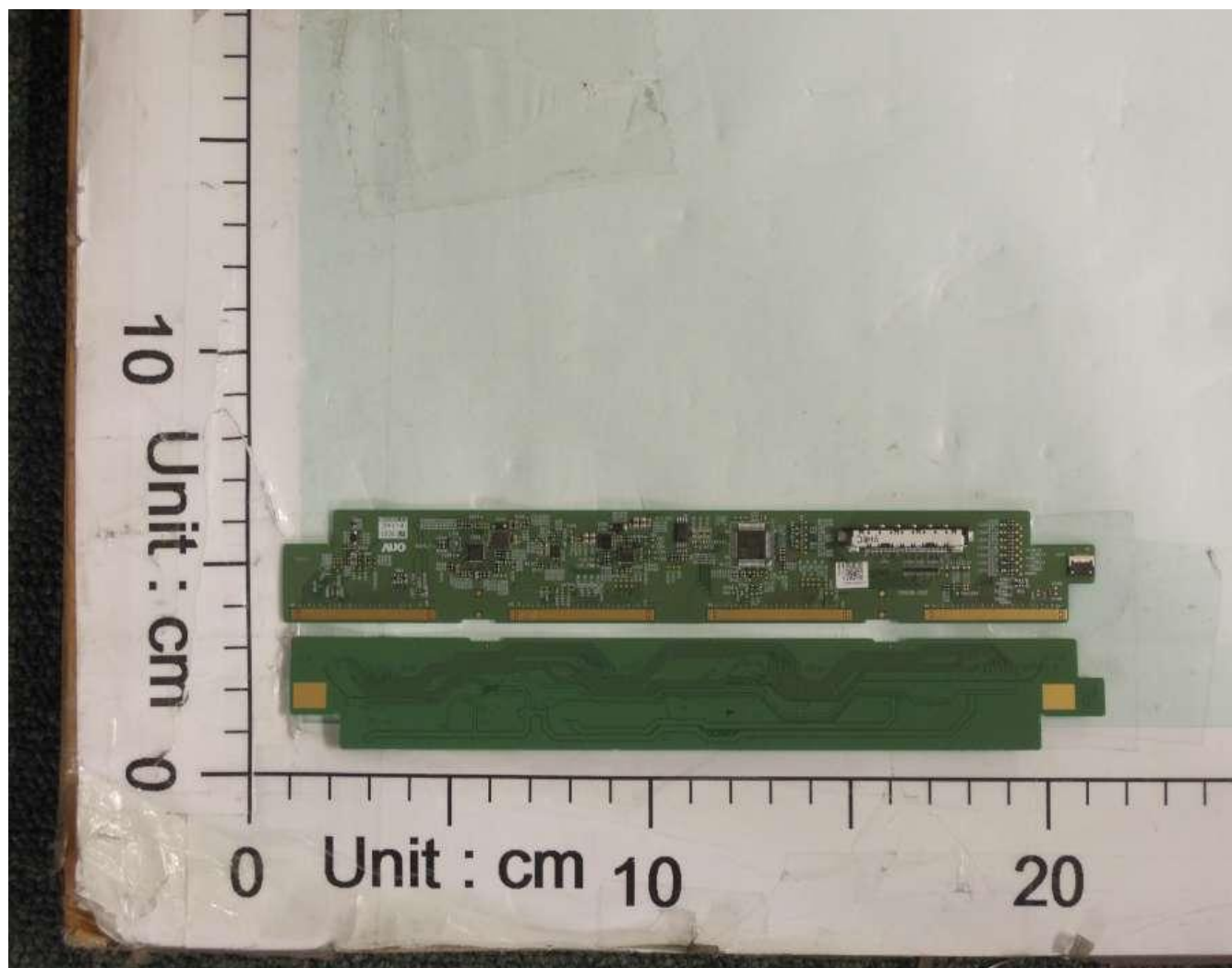


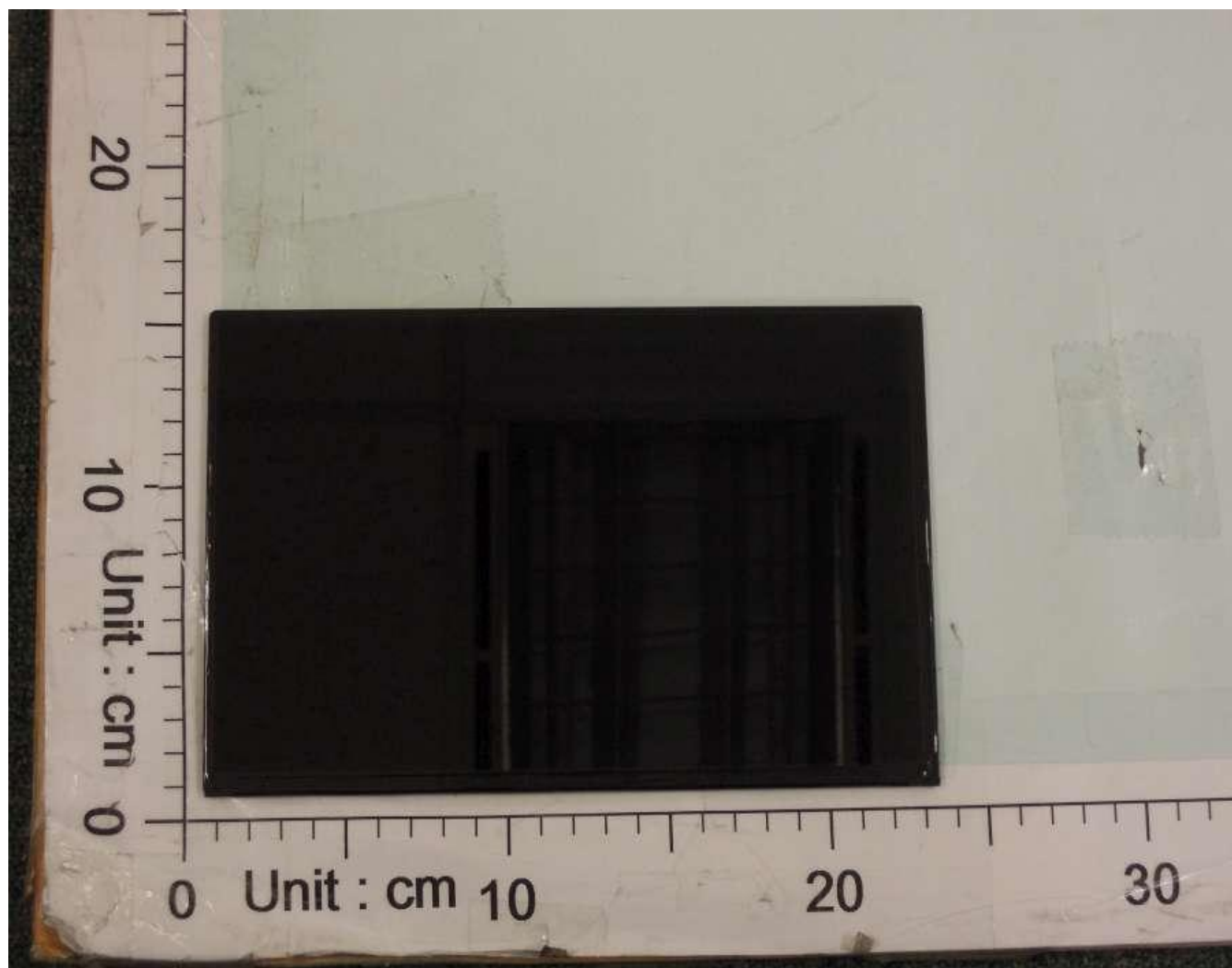




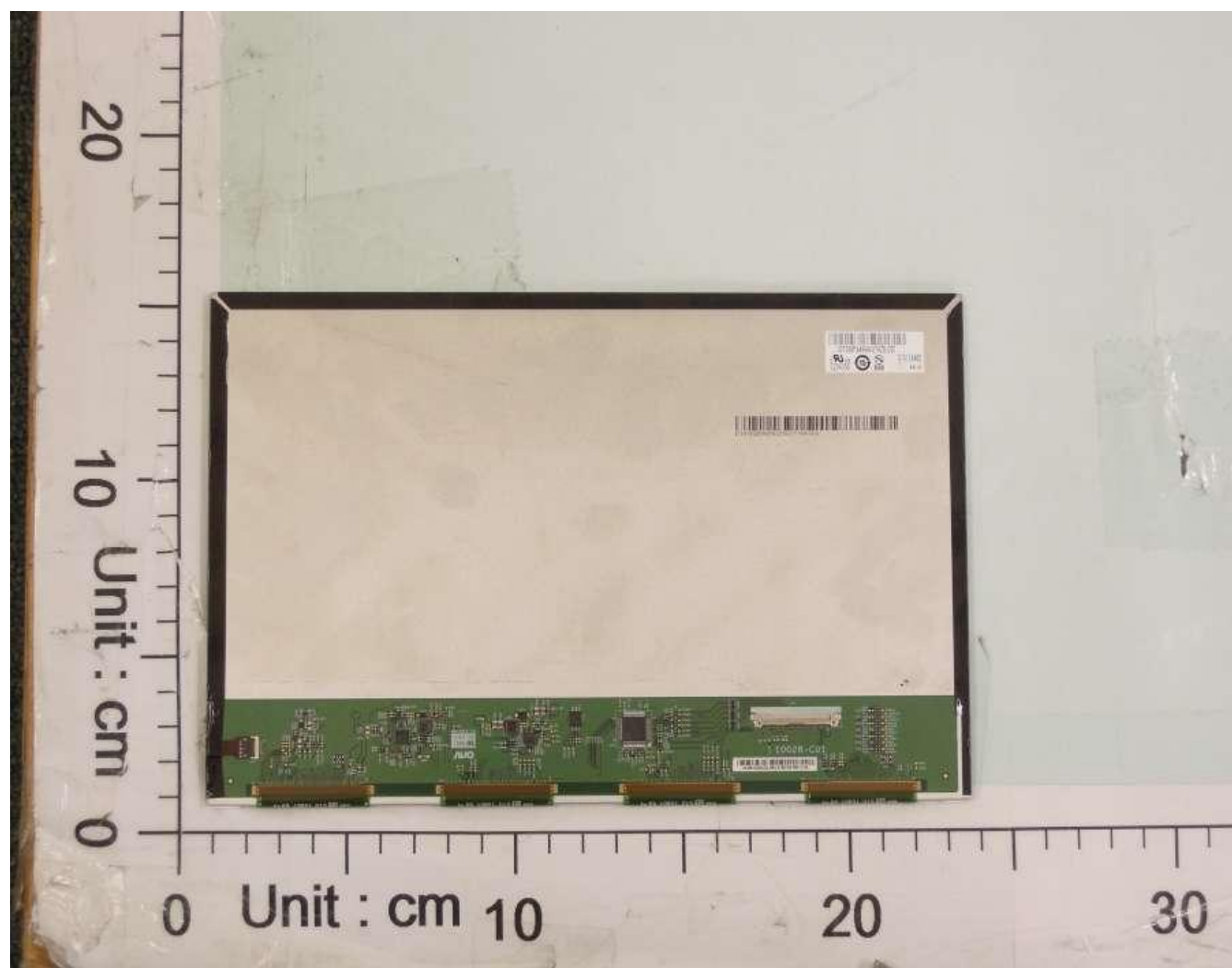


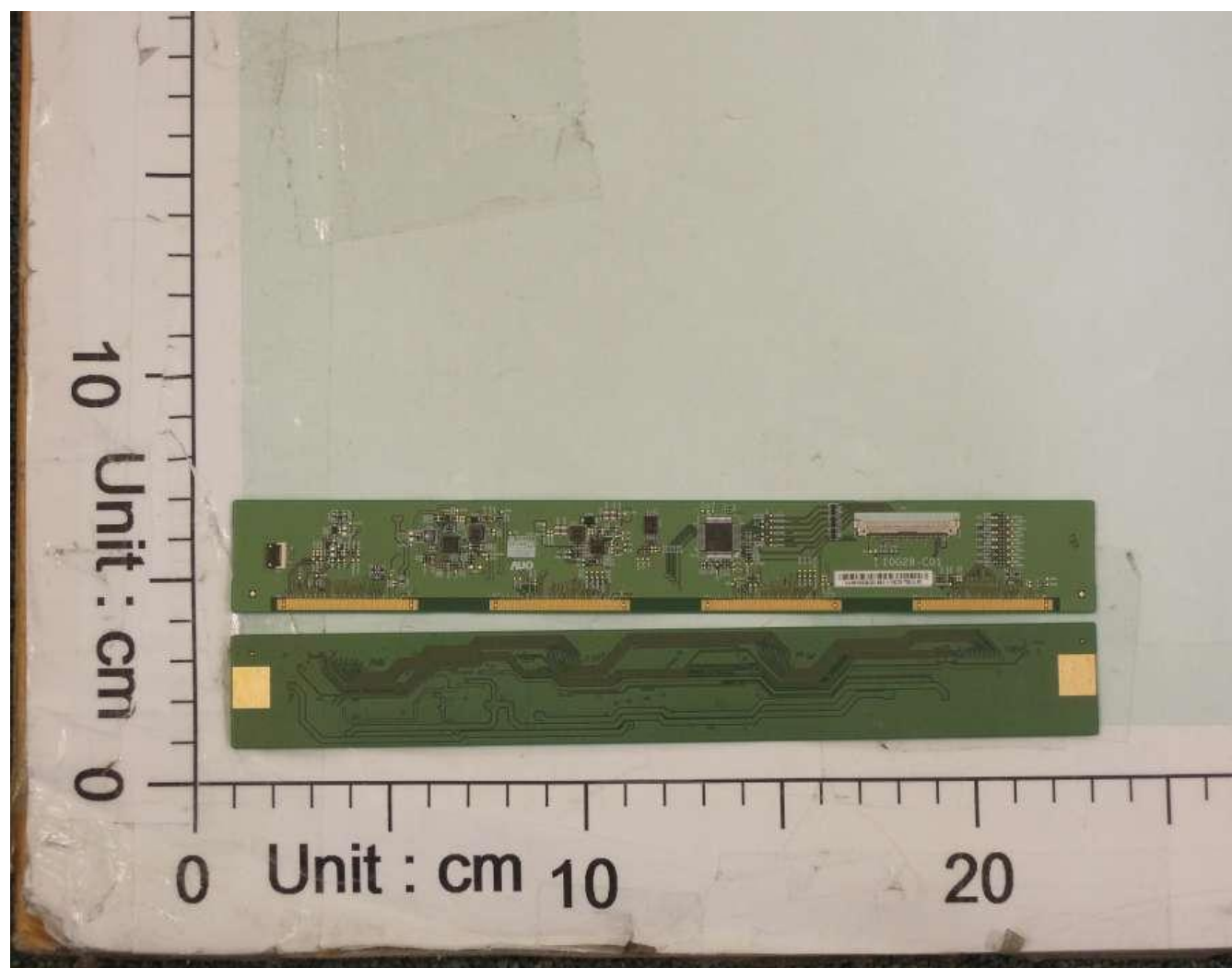












TEST INSTRUMENTS REFERENCE LIST

Instr. Code	Instrument I.D.	Instrument Type	Range Used Or ***	Make and Model **	Calibration Date	
					Last	Due
#1	EI853179	DC power supply	V: Max 30V A: Max 12A	GW/GPC-3060D	2019-10-22	2020-10-21
#2	B041079	Oscilloscope	V: Max 2.5KV Scale: 1MΩ	TEKTRONIX/TDS3012B	2019-10-24	2020-10-23
#3	EI844500	DC power supply	V: Max 30V A: Max 12A	GW/GPC-3060D	2019-10-22	2020-10-21
#4	91K136236	Temperature Recorder	Temperature: 0~200°C	YOKOGAWA/MX100-E-1D	2019-02-21	2020-02-20
#5	809Q07R	Stop Watch	0-5000sec	CASIO/HS-80TW	2019-10-01	2020-09-30

Test Record No. 1

- The manufacturer submitted representative production sample of LCD panel (LED backlight), Models G101EANZZZZ (Where Z may be any alphanumeric character or a dot or blank) for investigation.
- Refer the CB Scheme Test Report Ref. No. E204356-A6019-CB-1-Original for relative test results, CB Scheme Test Certificate Ref. No. DK-89828-UL and Report were prepared by UL (Demko), Borupvang 5A DK-2750 Ballerup, DENMARK.

The following tests were conducted:

Tests performed (name of test and test clause): None	Testing location: None
The following tests were waived: None	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
Attachment	02-01	CRD