SPECIFICATION FOR APPROVAL

Customer Name : DIVA Laboratories,Ltd.
CUST. PT/NO : 3MD642FT010 (M3476)
SBI PT/NO : GWAR100-27B-A2
SUBMIT NO : 27”AR GLASS COVER

APPROVAL BY:



Date :SEP.,12,2023

SBI Material Technology Co.

TEL:+886-3-5566148
FAX:+886-3-5568055
www.sbi.com.tw

THIS INFORMATION IS PROPERIETARY TO SBI SHALL NOT BE REPRODUCED OR COPIED WITHOUT WRITTEN PERMISSION FROM SBI MATERIAL TECHNOLOGY CO.
THIS DOCUMENT SHALL REVIEWED WITHIN 1 YEAR OF THE LATEST LEASE DATE BY THE RELEASING AUTHORITY

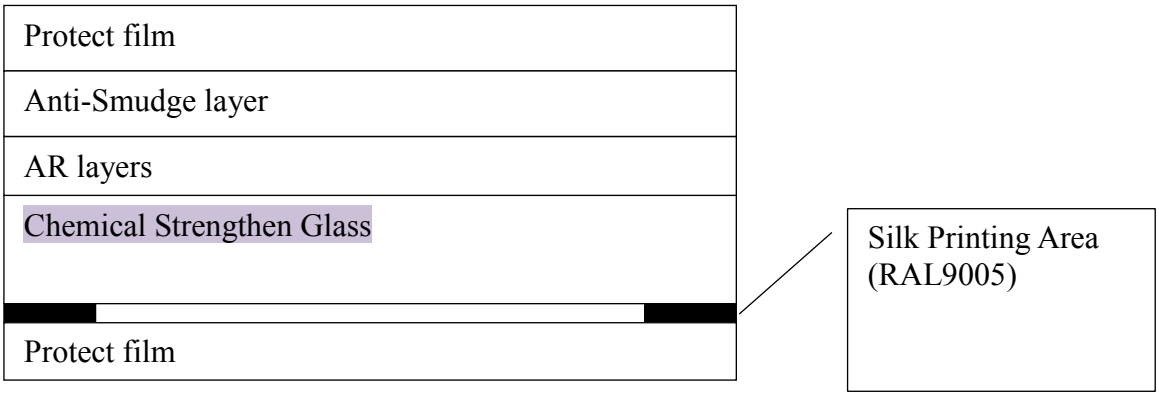
Ver.	Release description	Remarks
00	New version release	Sep. 12.2023

1. Generally

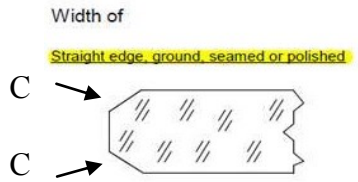
This specification is applied to DIVA Laboratories,Ltd. for Glass protect plate with multi-layers AR coating and AS Coating, using the E-Beam coating deposition process.

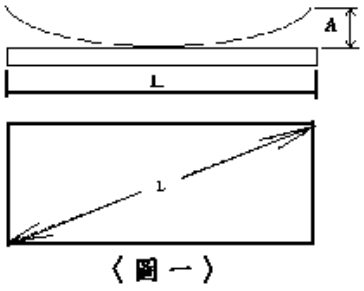
2. Specifications

2.1 Construction



2.2 Dimension & Physical properties

No	Item	Specification	Inspect Method
1	Base Material	SODA-LIME GLASS	Asahi glass or Equivalent item.
2	Outline Dimension & C cut edge definition	1.As Attached Page 2.Glass grinding C cut edge:C0.3~0.5 	Vernier caliper
3	Thickness	2.8 ± 0.2 mm	Dial gauge
4	Weight (Glass gravity:2.5)	2.0± 0.1kg	Electronic scales

5	Warp	Warp A: ≦±1.3mm , (A/L ≦ ±2%)  〈圖一〉	Thick gauge

2.3 Characteristics

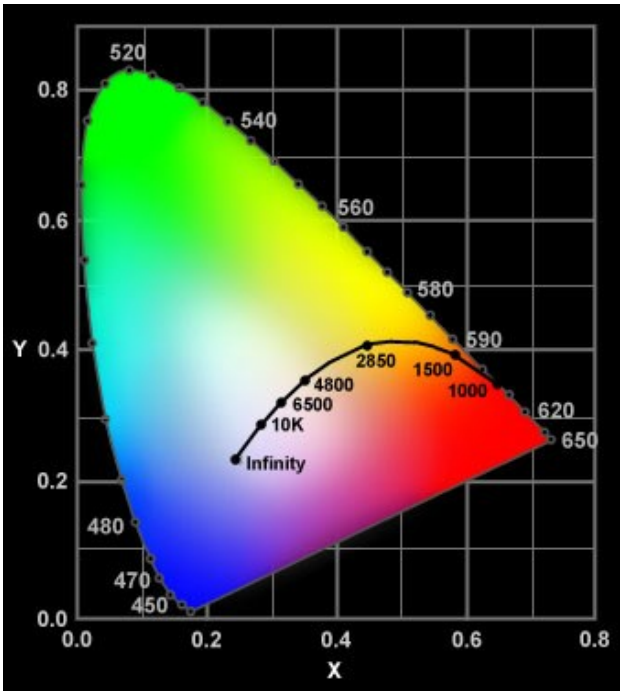
Item	Specification	Inspect Method
1.Transmittance (Measure by both side)	95%±1% (450~650nm avg.)	ISO 9050 : 2003(E)
2.Reflection (Measure by AR side only)	≦1.0% (450~650nm avg.)	ISO 9050 : 2003(E)
3. Surface hardness	≧6H	ISO 15184 (@1000g)
4. Anti-Smudge (ARAS side)	≧110 degree	Pure water contact angle meter (PWCA)
5. Ion exchange layers (Chemical Strengthen)	≧ 7um	Ion exchange layers meter
6. Center Stress (Chemical Strengthen)	> 400MPa	Center Stress meter
7. Reflection Color (Activity Area not Printing area)	Greenish~Natural color	By naked eye or measure by CIE(x,y)value as [Notice].

[**Notice**] Reflection color definition by CIE (x , y) value excepting naked eye inspection.

If the measure value is under the x , y zone definition that will be acceptable.
Measure Area: Center location of AA' Zone of AR glass.
Measurement Equipment: Hunterlab Spectrophotometer

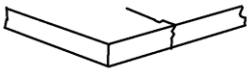
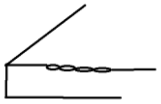
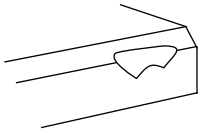
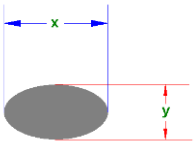
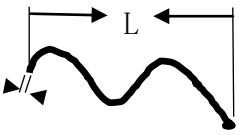
[Definition of x , y color zone]

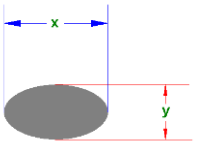
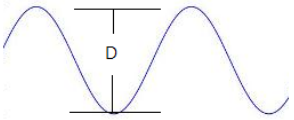
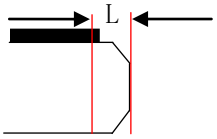
Axis	Min.	Std.	Max.
x	0.2747	0.3053	0.3358
y	0.2876	0.3196	0.3515



[CIE Chart]

2.4 Appearance

<table>
<tr><th>Item</th><th colspan="4">Specification</th><th>Inspect Method</th></tr>
<tr><td>1.Fracture</td><td colspan="4">Not allowed </td><td>Visual by eye</td></tr>
<tr><td>2.Chipping</td><td colspan="4">D ≦0.1 </td><td>Visual by eye</td></tr>
<tr><td>3.Chip on edges</td><td colspan="4"> x≦0.3 y≦0.3 D≦1/2t</td><td>Visual by eye</td></tr>
<tr><td rowspan="4">4.Scratch</td><td>(L)</td><td colspan="2">(W)</td><td>allow amount</td><td rowspan="5">Inspection environment: Under the lighting source of 40W(800± 200lux) fluorescent -lamp
(follow product spec)
unit:mm
D=(x+y)/2

[Definition of D]

[Definition of L]</td></tr>
<tr><td>-</td><td colspan="2">≦0.05</td><td>≦3pcs/per10cm diameter circle</td></tr>
<tr><td>≦10mm</td><td colspan="2">≦0.10 ＞0.05</td><td>≦2pcs/per10cm diameter circle</td></tr>
<tr><td>-</td><td colspan="2">＞0.10</td><td>0</td></tr>
<tr><td rowspan="5">5.spot defects , Particles , Dent. coating defects</td><td>Size (D)</td><td colspan="3">allow amount</td></tr>
<tr><td>≦0.2</td><td colspan="3">ignore</td></tr>
<tr><td>≦0.4 ＞0.2</td><td colspan="3">≦5pcs/ per 10cm diameter circle</td></tr>
<tr><td>≦0.60 ＞0.40</td><td colspan="3">≦3pcs/ per 10cm diameter circle</td></tr>
<tr><td>＞0.60</td><td colspan="3">0</td></tr>
<tr><td colspan="2">6.Glass Bubble</td><td colspan="2">≦0.2</td><td colspan="2">ignore</td></tr>
<tr><td rowspan="3">7. Printing Particle</td><td rowspan="3">Greasy dirt & spot</td><td colspan="2">≦0.15mm</td><td colspan="2">Ignore</td></tr>
<tr><td colspan="2">0.15＜D≦0.4mm</td><td colspan="2">Distance ≧ 50mm,3pcs</td></tr>
<tr><td colspan="2">＞0.4mm</td><td colspan="2">not allowed</td></tr>
</table>

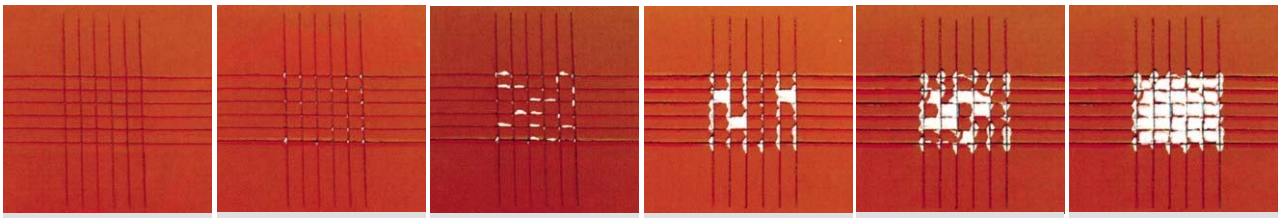
8. printing zone-Pervious to light	≦0.20mm	ignore	Inspection environment: Under the light source of 40W (800±200lux) fluorescent -lamp unit:mm D=(x+y)/2  refer to limit sample
	0.2＜D≦0.5mm	patching allow , thickness≦0.3mm n≦8pcs	
	0.5mm＜D≦1.0mm	patching allow , thickness≦0.3mm n≦5 pcs	
	>1.0mm	Not allowed	
9.Display zone-ink spot	not allowed		
10.Saw Edge of Printing	D≦0.35mm: Acceptable		
11.Non-effect area of printing	L ≦ 1.5mm from the edge of glass, ignore area of inspection.		
12.Adhesion of Printing	Cross Cut testing method for ink layers.Tape test by 3M#610 . Result≧4B		Refer. figure 2.4.1
13. Printing color	base on limit sample		Max. /Min.limited Or measure by spectrophotometer
14. Printing dimension	base on artwork drawing		

Definition Notice : Non-effect area of printing edge.



The distance defines L≦1.5mm between printing edge and glass edge. Not concern above area when inspection.

Figure 2.4.1 [Ink adhesion test]

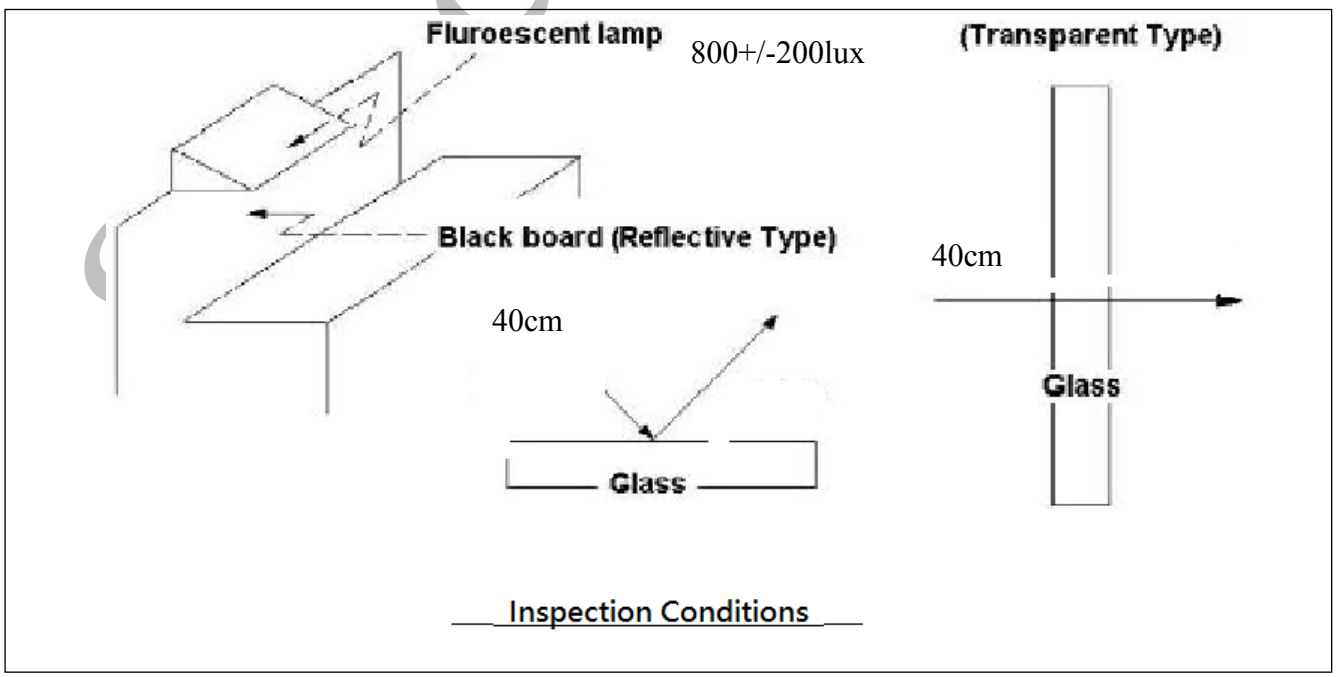


ISO class 0 ASTM class 5B	ISO class 1 ASTM class 4B	ISO class 2 ASTM class 3B	ISO class 3 ASTM class 2B	ISO class 4 ASTM class 1B	ISO class 5 ASTM class 0B
Cutting edge is perfectly and Ink no peeling.	Has a small crack at cross cut edge. Peeling off area <5%of all area.	Has a small crack at cross cut edge. Peeling off area 5% ～15% of all area.	Has a small crackor whole chip peeling at cross cut edge.Peeling off area 15%～35% of all area	Has abigcrackor whole chip peeling at cross cut edge.Peeling off area 35%～65% of all area	Has abigcrackor whole chip peeling at cross cut edge. Peeling off area >65% of all area.

Note: **[Inspection Condition and Checking Environment]**

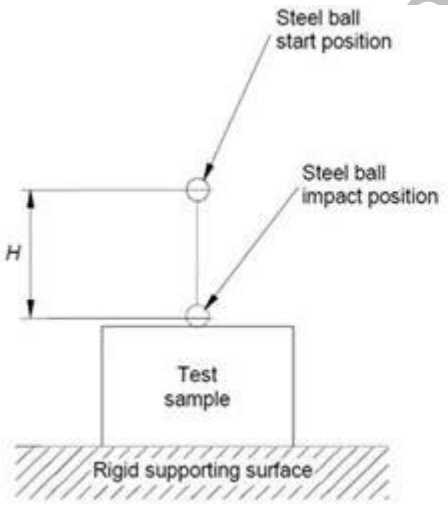
1.To inspect the defects by naked eyes (1.0 after eyes correction). (Horizontal±35° /Vertical±15°)The inspection method by transmission and reflectance visual, visual distance and inspection time is 40 cm/15sec per piece, the lamp (800 +/-200lux) is set upper side on object (with black background).

2.Cosmetic defect of Printing: Not concern the defect of printing size if defect not influence or impact the cosmetic performance of front side.



2.5 Reliability

Item	Specification	Test method
1.High temperature	Not allow peeling	60℃ for 168hrs 1. Rubbing by an eraser 2. Cellophane tape test(3M#600) (MIL-C-675C)
2.Low temperature	Not allow peeling	-20℃for 168hrs 1.Rubbing by an eraser 2.Cellophane tape test(3M#600) (MIL-C-675C)
3.Temp & humidity	Not allow peeling	60℃/90%RH 168hrs 1.Rubbing by an eraser 2.Cellophane tape test(3M#600) (MIL-C-675C)
4.Thermal cycle	Not allow peeling	(-20℃/24hrs+60℃/24hrs)1 cycle 1.Rubbing by an eraser 2.Cellophane tape test(3M#600) (MIL-C-675C)
5.Adhesion test	Ink peeling-not allow	60℃/90%RH 168hrs Cellophane tape test (3M#600)(MIL-C-675C)
6.Impact Test	Not allow broken	Dropping test by steel ball, 500g weight /1.2m high.(About 5.88J)

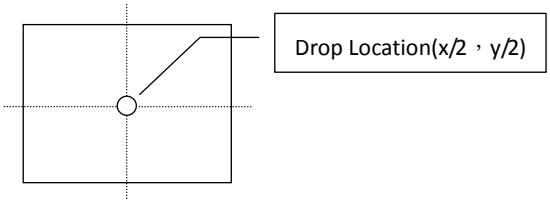


Impact Test Condition:

Iron Ball Weight: 500g+/-10g

Height: 1.2Meter

Drop Test Location: Center of Front Cover



Specification

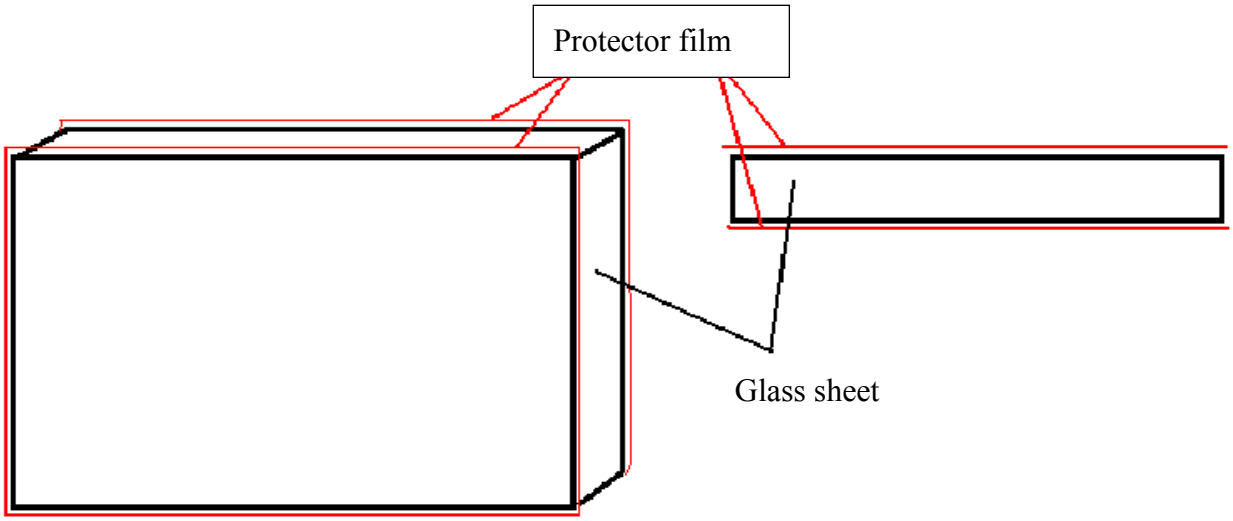
2.6 Chemical Resistance

No.	Item	Test Method	Specification	Result
1	Sulfuric acid 5% (H2SO4)	ARAS surface 24hrs/25℃,65%RH	No damage	PASS
2	Hydrochloric Acid 5% (HCL)		No damage	PASS
3	Coca Cola		No damage	PASS
4	Detergent		No damage	PASS
5	Methyl Ethyl Ketone		No damage	PASS
6	Acetone		No damage	PASS
7	Ethyl Acetate		No damage	PASS
8	Medical Alcohol 95%		No damage	PASS
9	Ethyl Alcohol 99.5%		No damage	PASS
10	Sodium Hydroxide 5% (NaOH)		No damage	PASS

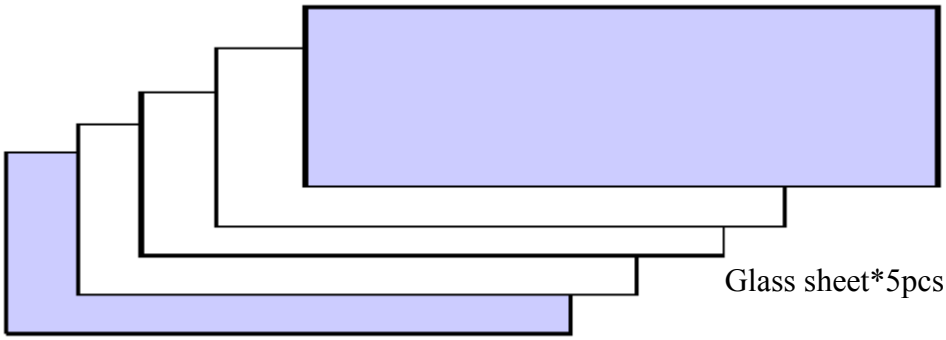
Specification

3. Package

3.1 Glass with protect film:



3.2 Package:



◎ Printing side towards downside

Fig 3.2

5pcs glass plate packing by yellow paper, and 3~6 paper packing in carton case(weight limited <25kg per carton). For the oversea transportation that will be packed by wooden case.

1 wooden: 500~1000pcs depend on the size and weight.

4. Procedure for Dealing with A Rejected Lot

When the Customer's incoming QA has determined the lot number of a reject lot, they will contact the supplier to request for a RETURN MATERIAL AUTHORIZATION (RMA) number. The supplier will request for samples of the rejected lot to be sent to the supplier for evaluation. If the supplier agrees that the lot is REJECTABLE, then the supplier will issue an RMA number. With an RMA number, the customer can then either return the material or destroy the material at the discretion of the supplier. The supplier will replace or CREDIT the goods punctually.

5. Storage Condition

3 months from the date of shipment in the stocked environment of under 20~25℃ and 50~60%RH. Removable stains and haze are acceptable. An insured carrier covers stains and haze caused by transportation.

6. Disclaimer Clause

Make sure the quality before into the production process, if quality defect occurs and confirm the responsibility, we will take the action for SWOP operation, but once the process is being used and confirmed the root cause by customer's manufacturing, SBI is not responsibility to assume.

7. Date of Availability

Changes made to apply to modify specifications are valid before.

8. Others

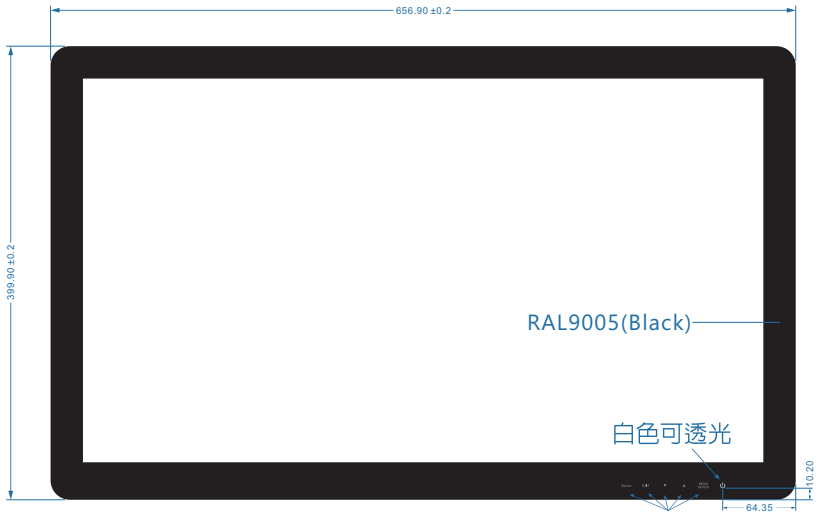
8.1 Didn't have RoHS substances of high concern.

8.2 Not qualified protect film is prohibited to laminate on AR side of glass. SBI is exclusion responsibility if customer change the protect film.

Specification

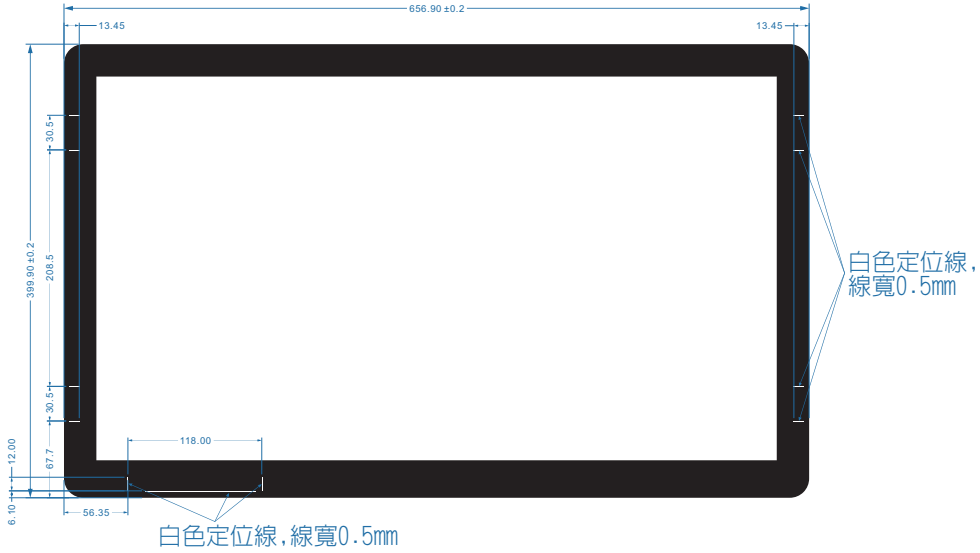
REV.	DATE	DESCRIPTION	BY	APVD
A	20221121	Add 2 white lines	Albert	

Front





Rear



NOTE:
1. Printing:
   Boader color: RAL9005(Black)
   Text & Symbol color: 透光度5%±2%黑色油墨、白色可透光
2. RoHS Compliant.
3. IQC INSPECTION DOCUMENT: QWI-022

設計驗證
工程課
2023.09.20
發行
鈺緯科技開發股份有限公司

3MD642FT010(M3476)

THIRD ANGLE PROJECTION	UNITS: mm	SCALE: 1/1	SHEET: 1/1	MODEL NO.: SC27820
	MATERIAL:		TREATMENT:	
DSGD by Albert	2022/12/06	PART NAME: COVER GLASS PRINTING		
APVD by	2023/09/13	PART NO.:		VER. A
APVD NO.:	FILE NAME: SC27820.cdr	DIVA Laboratories, Ltd.		