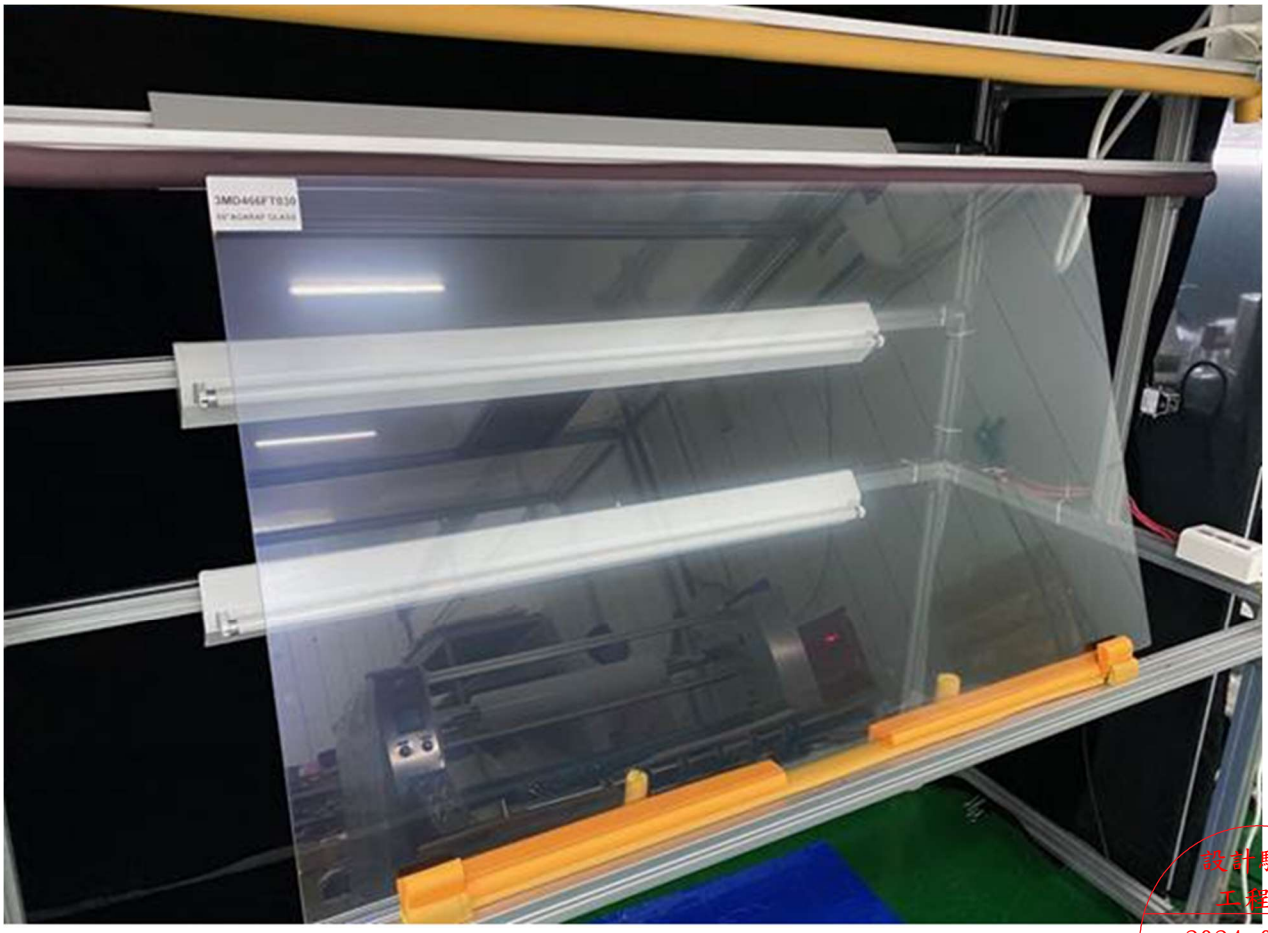

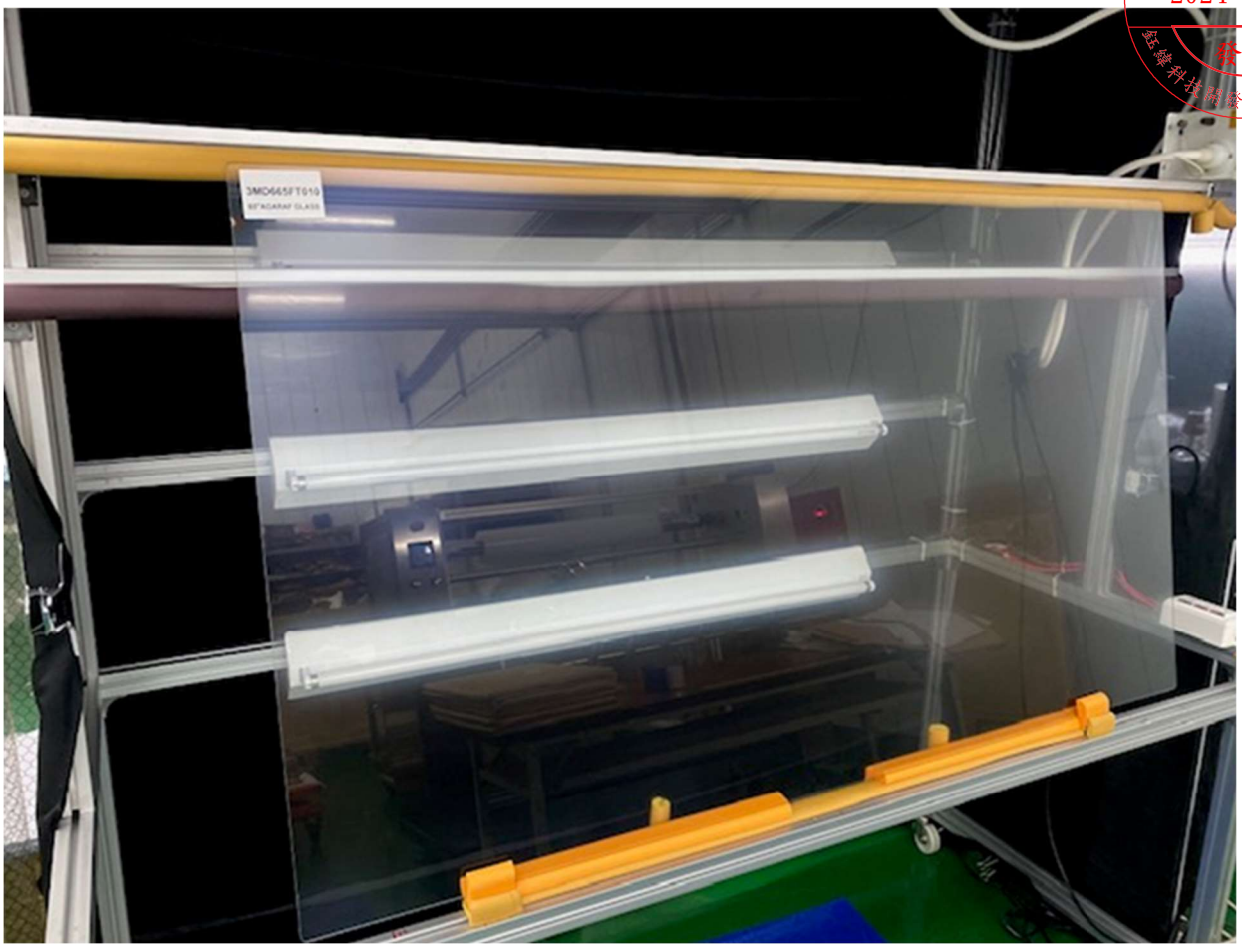

設計驗證
工程課
2024-06-27
發行
鈺鐘科技開發股份有限公司

SPECIFICATION FOR APPROVAL

CUSTOMER NAME: DIVA Laboratories Ltd.
CUST. PT/NO: 3MD665FT010，AGAR COATING GLASS (RUG6513AMI) (M3495)
SBI PT/NO: GARGF-100-65A
SUBMIT NO: DIVA65A

APPROVAL BY:

設計驗證
工程課
2024 -06- 27
發行
泰懋科技開發股份有限公司

Issue Date: Sep.22,2023

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THIS DOCUMENT SHALL REVIEWED WITHIN 1 YEAR OF THE LATEST LEASE DATE BY THE RELEASING AUTHORITY

Version Management List

版本履歷管理明細

Version 版 本	Release description 變 更 說 明	Remarks 備 註
01	Release Version	
1-1	Add 2-4.5 annotation	
1-2	Change 2-2.5 warpage inspect method	

Note:1.若有版本變更時，必須簡要說明變更理由並於變更章節以反黑圓形記號標示變更處及最新版本(例如:⓾)。

2.「參考版本 Reference Ver.」屬於產品開發階段製品，任何變更將不受此紀錄版本管制。

3. 產品規範若沒有任何特殊理由或是議定，將以最新版本為基準，前一版本於新版本正式發行起自動失效。

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1. Generally 前言

This specification is applied to DIVA Laboratories Ltd. for the anti-glare, anti-reflectance and anti-fingerprint high resolution optical functional chemical strengthen glass protect application, it's using the wet and dry both coating processes.
本規格書為提供給鈺緯公司的抗眩光、抗反射和抗指紋高清晰光學功能化學強化玻璃製品使用，該製品是採用乾濕式兩種鍍膜方式進行生產。

2. Specifications 規格

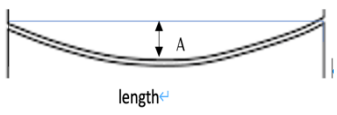
2.1 Construction 結構

PE Protect film (with black mark) PE 保護膜(有**黑字標記**)
Anti-Fingerprint Coating (Hydrophobic) 抗指紋鍍膜
Multi-layers AR Coating 抗反射多層鍍膜
Fine AG Coating 高清晰抗眩鍍膜
Chemical Strengthen Glass 化強玻璃
PE Protect film PE 保護膜

Front side (or call as coating side)
正面(或稱為鍍膜面)

Note:保護膜非固定某種型號，會依據市場實際供應狀況進行更動，廠商保留更動權利。

2.2 Dimension & Relevant properties 尺寸及相關特性

No 項次	Item 項目	Specifications 規格	Inspect Method 檢查方法
1	Base Material 材 料	Chemical Strengthen Glass 化學強化玻璃	Soda Lime Glass 鈉鈣玻璃
2	Size 外型尺寸	1449.38x824.42(±1) mm	Vernier caliper 游標卡尺
3	Thickness 厚 度	2.9 (± 0.15) mm	Vernier caliper 游標卡尺
4	Weight 重 量 (Glass gravity 比重:2.5)	8.6±0.5kg	Electronic Scale 電子秤
1-2 5	Warpage 翹曲度	Warpage A: ≦4.0mm 	Feeler Gauge 厚薄規

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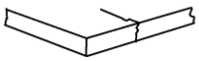
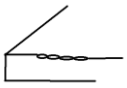
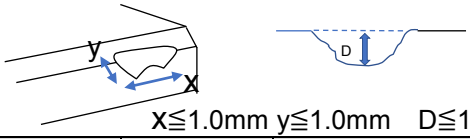
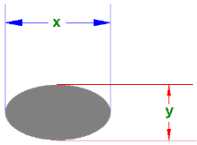
2.3 Characteristics 特性

Item 項目	Specifications 規格	Inspect Method 檢查方法
1.Transmittance (%) avg. 平均穿透率	93.5 ± 1(@450~650nm)	ISO 9050: 2003(E) Photopic Wavelength
2.Reflectance (%) avg. 平均反射率	≦5.0(@450~650nm)	ISO 9050: 2003(E) Photopic Wavelength
3.Glossiness 光澤度	65±15GU	ASTM-D523 by 60° geometrics angle
4.Pencil Hardness 鉛筆硬度	≧7H	ISO 15184
5. Anti-Fingerprint 抗指紋	110°±10°	Pure water (H_2O) contact angle meter **＊Coating side only**
6. Ion Exchange Layers 離子置換層	≧ 7um	Ion exchange layers meter chemical strengthen
7. Compress Stress 應力	≧350Mpa	Center stress meter

2.4 Appearance 外觀

Item **項目**	**Specifications** **規格**			**Inspect Method** **檢查方法**
1. Fracture 破裂	Not allowed  不允許			Visual by naked eyes
2. Chipping 毛邊 邊緣處連續不平整	D ≦0.3mm 			Visual by naked eyes
3. Chip on edges 玻璃邊緣崩邊	 x≦1.0mm y≦1.0mm D≦1/3t			Visual by naked eyes t: thickness of glass
4. Feeling Scratch & Line defects 有感刮傷及線條缺點	(L)	(W)	allow amount 可允許	D=(x+y)/2  [Definition of D] D 尺寸定義
	--	≦0.2	Ignore 不計	
	≦30	≦0.2 >0.25	≦3pcs/ per 10cm diameter circle	
	>30	>0.25	0	

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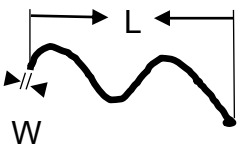
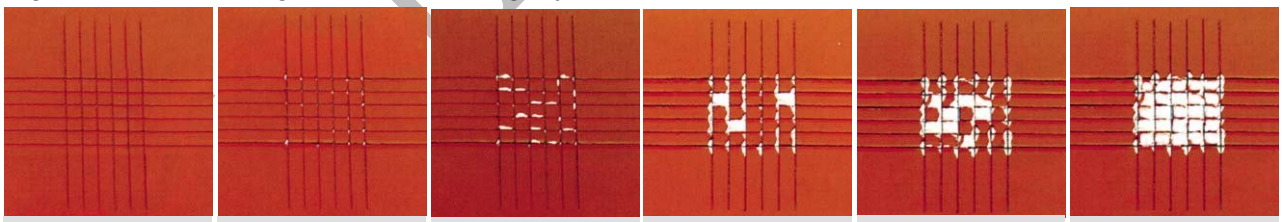
5. 1-1 Non-feeling Scratch & Line defects （for rear side） 無感刮傷及擦傷(背面)	--	≦0.5	Ignore 不計	 [Definition of L & W] 線狀缺陷定義 Inspection environment: Under the lighting source of (600~800lux) fluorescent -lamp Inspect condition as article 2.4.2/2.4.3/2.4.4 unit: mm 檢查環境光源：使用燈光亮度 600~800lux 的螢光燈，檢查方式及條件參考 2.4.2/2.4.3/2.4.4。
	≦50	>0.5 ≦0.7	≦3pcs/ per 10cm diameter circle	
	>50	>0.7	0	
6 .Spot defects Particles coating defects Black Point 白(黑)點、 鍍膜亮(暗)點 等點狀缺點	Size (D)	allow amount 可允許		
	≦0.6	Ignore 不計		
	≦0.8 ＞0.6	≦8pcs/ per 10cm diameter circle		
	≦1.0 ＞0.8	≦4pcs/ per 10cm diameter circle		
	＞1.0	0		
7.Glass Bubble 玻璃泡點	≦0.35	≦2pcs/ per 10cm diameter circle		
8.Coating Adhesion 膜層密著性	≧4B	As the definition Figure 2.4.1		
9. Foggy,Stain, Finger-print 白霧,髒污,指紋	Cleanable is acceptable			

Figure 2.4.1 [Testing criteria of coating layer adhesion]膜層附著度試驗規範



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 crack whole chip peeling at cross cut edge Peeling off area 15%～35% of all area	Has a big crack whole chip peeling at cross cut edge. Peeling off area 35%～65% of all area	Has a big crack whole chip peeling at cross cut edge. Peeling off area >65% of all area.

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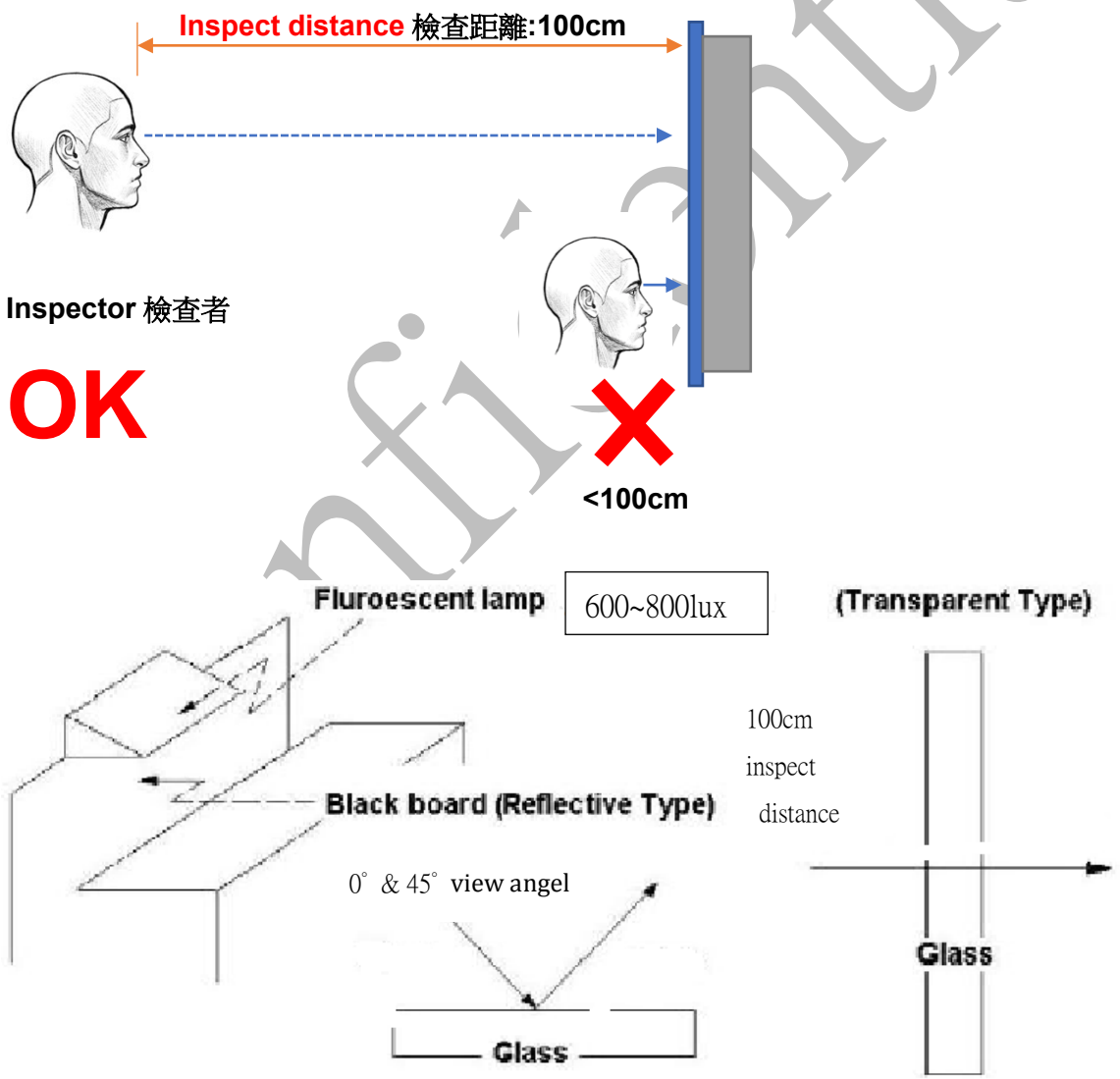
2.4.2 Inspection Condition and Environment 檢查條件和環境

The glass is placed upright to inspect the defects from 0 degree and +/- 45degree view angle by naked eyes. The inspection method by transmission and reflectance visual, visual distance and inspection time is 100cm/45sec. per piece, the fluorescent lamp (600~800lux) is set upper side and behind on object (with black cloth background).

Warning: The inspection distance must comply with the 100cm. It is forbidden to conduct inspections at close distances below 100cm and for long periods of time.

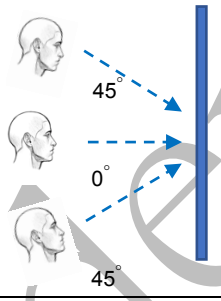
玻璃直立方式置放，肉眼以 0 度及+/-45 度檢查角度檢查缺陷,檢測方法按穿透和反射視覺、視覺距離和檢測時間為 100cm/45 秒，環境光源（燈光亮度 600~800lux）使用上頂光及背面（搭配黑色絨布背景）。

注意：檢查距離必須符合 100 公分,禁止在規定的距離內以近距離和長時間進行檢查。



Inspection Conditions

2.4.3 Definition of cosmetic checking item 外觀檢查定義說明

項目定義 Definition Item	內容說明 Description Content
燈光亮度 Lamp Brightness	燈光照射到產品表面的光源流明強度 The luminescent intensity of the light source that irradiate on the surface of the product.
檢查距離 Inspect Distance	檢查人員的眼睛與產品(目視物)之間的標準目視距離 Standard visual distance between the inspector's eyes and the product (visual object)
黑色背景 Black Background	以光澤度為<1.0 的黑色絨布做為背景輔助檢查 Use a black cloth with a gloss of 1.0 or less as a background aid check.
電子顯微鏡 Electro-microscope	取代人眼誤判或是買賣雙方有爭議時，以精密儀器做為最終判斷基準 In place of human eye misjudgment or dispute between buyers and sellers, use precision instruments as the ultimate judgement.
檢查角度 Inspect Angle	檢查人員的眼睛與產品(目視物)目視的角度 The visual angle between the inspector's eyes and the product (visual object) 

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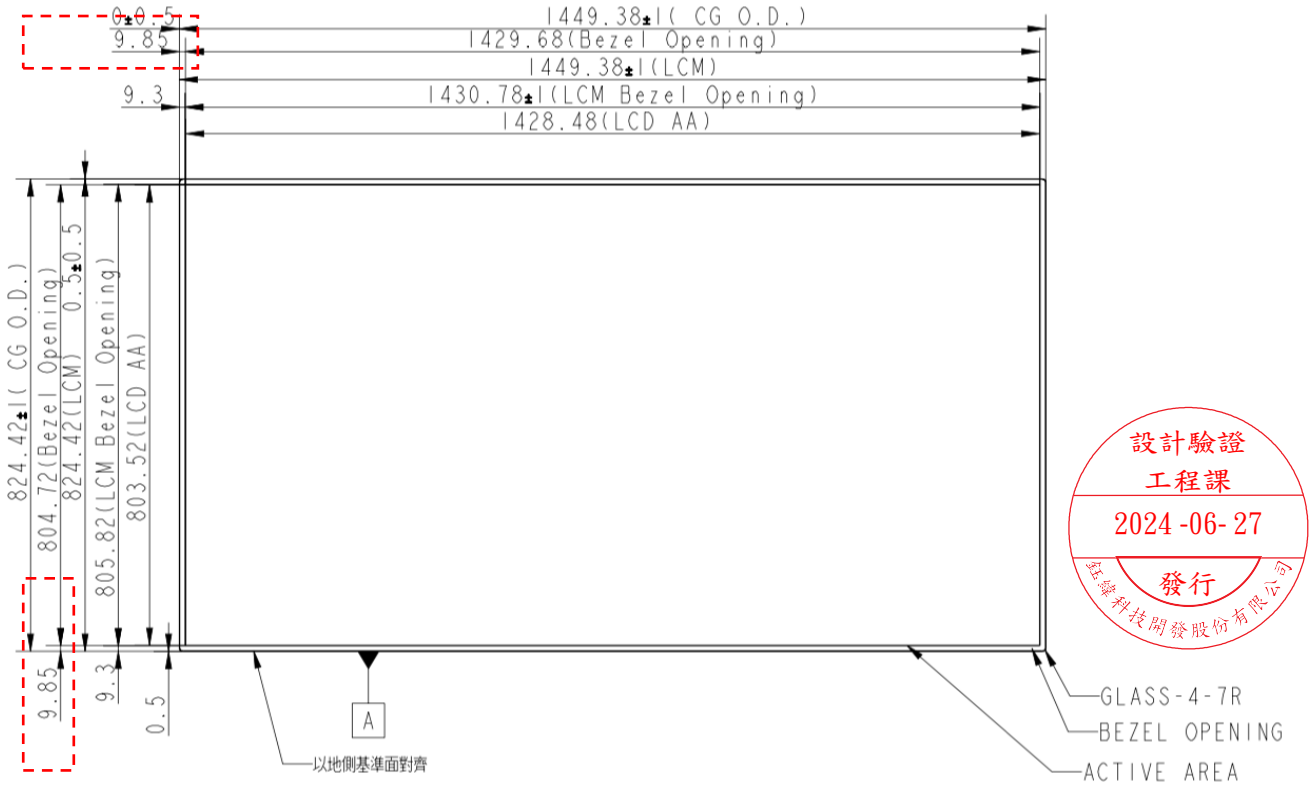
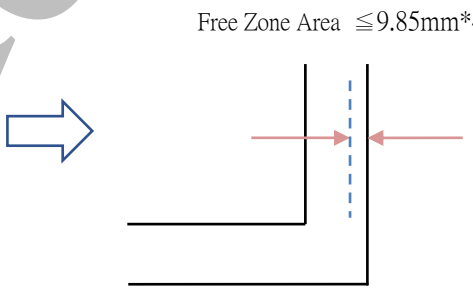
2.4.4 Inspection Area Definition 檢查區域定義



[圖面設計與發行日期：2023/06/13]

Free Zone Area (jig carrier mark)
無效區(鍍膜治具痕)
4 sides ≦9.85mm (skip the inspect)
玻璃四邊(自邊緣起算)≦9.85mm (無需檢查)



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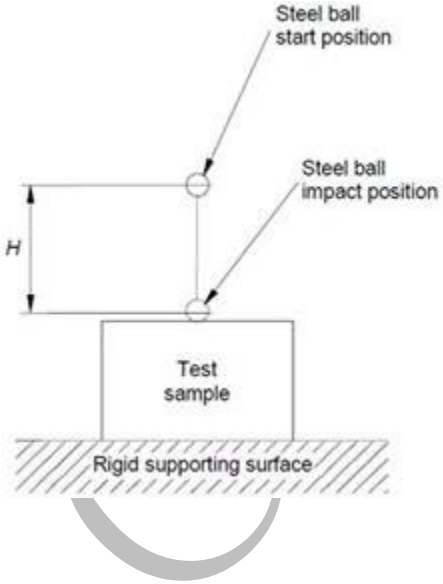
2.5 Reliabilities 信賴性

Item 項目	Specifications 規格	Test method 試驗方法
1. High temperature 高 溫	Not allow peeling 不允許脫膜	60℃,168hrs Cellophane tape test (3M#610) (MIL-C-675C)
2. Low temperature 低 溫	Not allow peeling 不允許脫膜	-20℃,168hrs Cellophane tape test (3M#610) (MIL-C-675C)
3. Temp & humidity 高溫高濕	Not allow peeling 不允許脫膜	60℃/90%RH,168hrs Cellophane tape test (3M#610) (MIL-C-675C)
4. Thermal cycle 冷熱衝擊	Not allow peeling 不允許脫膜	(-20℃/24hrs+60℃/24hrs)10cycles Cellophane tape test (3M#610) (MIL-C-675C)
5. Impact Test 落球試驗	Not allow broken 不允許破裂	Dropping test by steel ball, 500g weight /1.0meter high. (JIS-K6745)

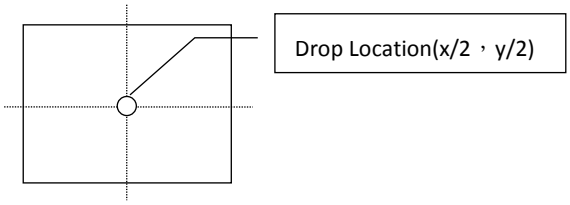


Impact Test Condition:

Iron Ball Weight: 500g+/-10g

Height(H): 1.0 meter

Drop Test Location: Center of Front Cover



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2.6 Chemical Resistance 耐化學藥品性

No. 項次	Item 項目	Method & Conditions 試驗方法&條件
General Reagent & Organic Solvents 通用試劑&有機溶劑		
1	Sulfuric acid 5%(H2SO4) 硫酸	Sulfuric acid 5% 1hr/25°C, peeling off not allowed. 試劑棉球置於表面 1hr，常溫，外觀不得異常
2	Hydrochloric Acid 5% (HCL) 鹽酸	Hydrochloric Acid 5% 1hr/25°C, peeling off not allowed. 試劑棉球置於表面 1hr，常溫，外觀不得異常
3	Cola 可樂	Cola 1hr/25°C, peeling off not allowed. 試劑棉球置於表面 1hr，常溫，外觀不得異常
4	Detergent 洗淨劑	Detergent 1hr/25°C, peeling off not allowed. 試劑棉球置於表面 1hr，常溫，外觀不得異常
5	Methyl Ethyl Ketone 丁酮	MEK 1hr/25°C, peeling off not allowed. 試劑棉球置於表面 1hr，常溫，外觀不得異常
6	Acetone 丙酮	Acetone 1hr/25°C, peeling off not allowed. 試劑棉球置於表面 1hr，常溫，外觀不得異常
7	Ethyl Acetate 乙酸乙酯	Ethyl Acetate 1hr/25°C, peeling off not allowed. 試劑棉球置於表面 1hr，常溫，外觀不得異常
8	Medical Alcohol 95% 藥用乙醇	Medical Alcohol 1hr/25°C, peeling off not allowed. 試劑棉球置於表面 1hr，常溫，外觀不得異常
10	Isopropanol (IPA)100% 乙丙醇	IPA 1hr/25°C, peeling off not allowed. 試劑棉球置於表面 1hr，常溫，外觀不得異常
11	Ethanol 70% 乙醇	Ethanol 70% 1hr/25°C, peeling off not allowed. 試劑棉球置於表面 1hr，常溫，外觀不得異常
Special reagent for the project 專案專用試劑		
12	Chlorhexidine 0.5% in 70% Ethanol	Reagent 1hr/25°C, peeling off not allowed. 試劑棉球置於表面 1hr，常溫，外觀不得異常
13	Haemosol 1% in 1-liter water	Reagent 1hr/25°C, peeling off not allowed. 試劑棉球置於表面 1hr，常溫，外觀不得異常
14	Chlorine 250ppm in 1-liter distilled water	Reagent 1hr/25°C, peeling off not allowed. 試劑棉球置於表面 1hr，常溫，外觀不得異常
15	Artificial Sweat (5% KCl,PH=3)	Reagent 1hr/25°C, peeling off not allowed. 試劑棉球置於表面 1hr，常溫，外觀不得異常
16	Natrium Chloride 0.9%(NaCl)	Reagent 1hr/25°C, peeling off not allowed. 試劑棉球置於表面 1hr，常溫，外觀不得異常

備註: 常溫條件 23~25°C,65%+/-10%

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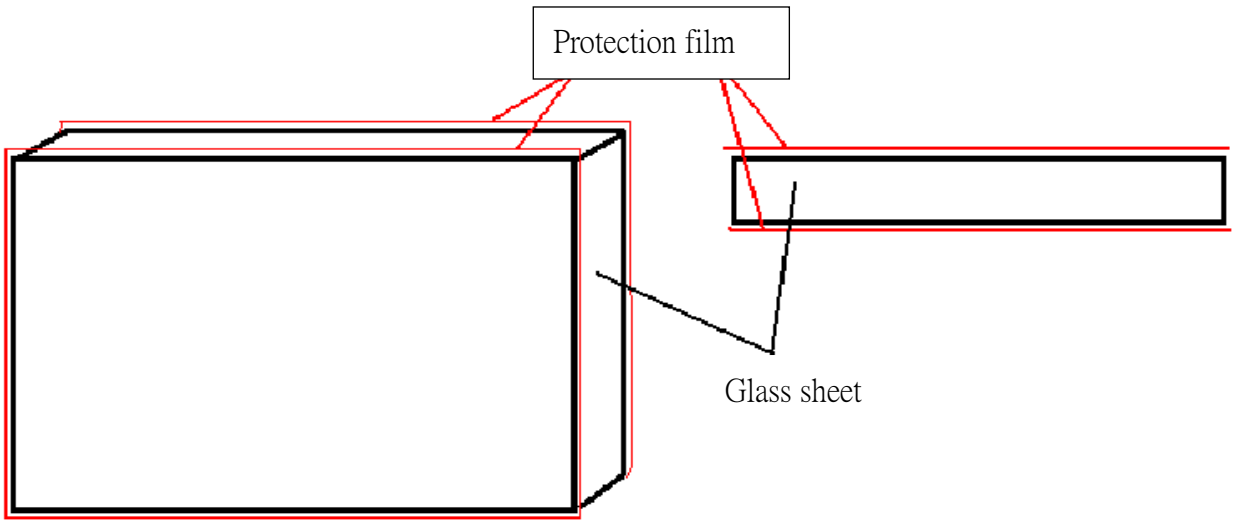
3. Package & Safety Notice 包裝&安全注意

3.1 Glass with protection film on both sides：玻璃雙面有保護膜





[Photo-1 圖一]

The front side of glass plate with black code mark (as the photo-1) and red ink point at the right-upper edge of glass, the front side must be face to final user.

Notice:

1. The back of the glass faces the LCD panel
2. The black text is for reference and illustration, and the correct coding is carried out according to the model.

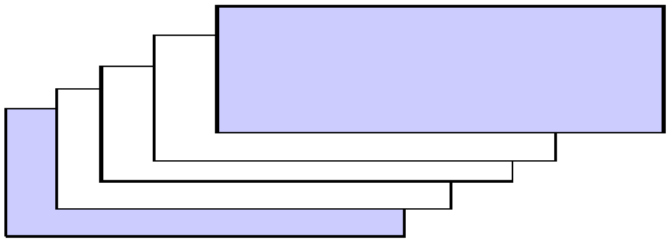
本玻璃製品的『正面』有如圖一的黑字編碼標示，正面即是鍍膜面。

注意事項：

1.玻璃的背面朝向液晶面板，不可混淆

2.黑色字樣為參考示意用，正確編碼依據型號進行作業

3.2 Package: 包裝



Glass sheet*50~100pcs per wooden

＊Wooden case with smoke treatment and IPPC mark.木箱經過煙燻處理及 IPPC 章

Fig 3.2

For the oversea transportation that will be packed by wooden case.

1 wooden: 50~70pcs depend on the size and weight. Gross weight limits that will be controlled under 1 ton per wooden case.

Wooden case with easy opening key design and safety notice label on the open side. The operators must read the safety notice before the operation.

將會以木箱進行包裝以利於海運運輸，依據尺寸及重量每木箱以 50~100pcs 包裝，毛重的限制控制在一公噸以下。

木箱前蓋板附有易開式（蝴蝶扣）扣環及有安全警告標示在玻璃包裝上，作業人員必須在實際作業前留意研讀該「安全注意事項」，以策作業時的安全。

3.3 Description of Safety Notice 安全注意說明

3.3.1 Labels of Notice 「注意」的標籤

Labels 標籤	Location 貼附位置	Description 說明
	The top side of wooden case. 貼於木箱上蓋板	Do not allowed to trample on the top side of wooden case. 禁止踩踏木箱上蓋板
	the front (rear) side of wooden case. 貼於木箱正(反)面位置	Handle with care, don't drop fragile. 光學玻璃製品 操作上需要注意，禁止重摔以及禁止放置在潮濕、雨淋的地方
	Front side of Water proof bag. You can see the label when the front plate is open. 貼於防水袋正面位置，前蓋板打開後可以看見	Warning to check the glass whether has risk of collapse while the front plate is open. 警告:必須在前蓋板打開後，確實確認玻璃沒有傾倒的風險後再剪斷「二號包帶」

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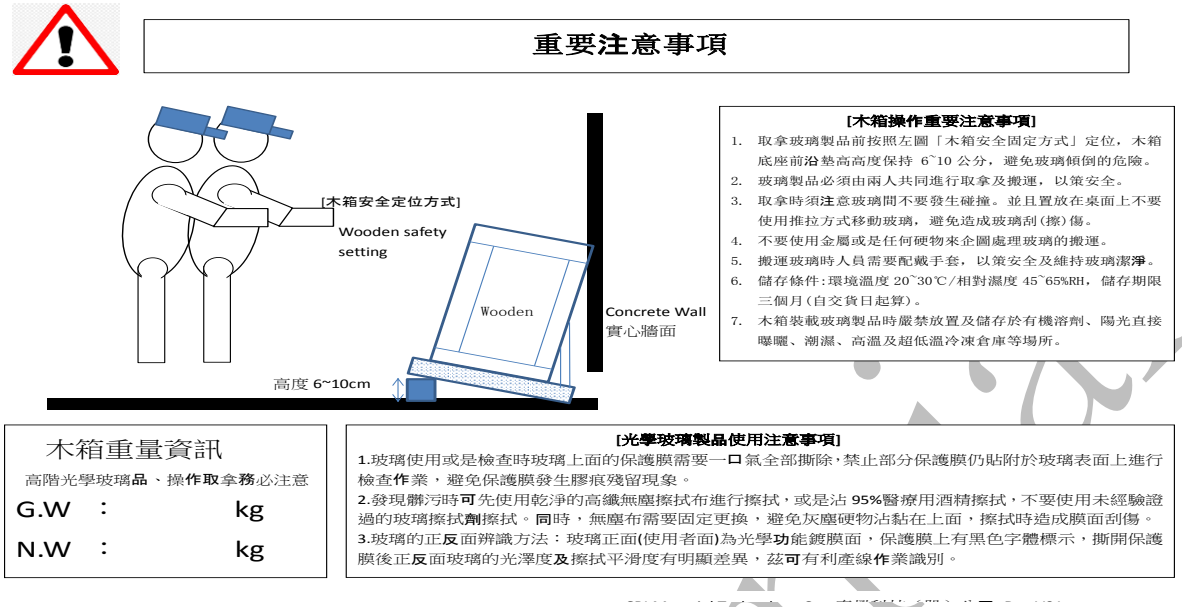
3.3.2 Attention to operation and use: 操作與使用的注意



4. Procedure for Dealing with A Rejected Lot 退換貨處理程序

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.

當客戶的ＱＡ已確定批號的不良品很多的時候，可聯繫供應商要求退貨授權（ＲＭＡ）號碼。供應商將請求被拒絕的不良樣品發送到供應商進行分析。如果供應商同意該品質問題為可拒絕的品質，供應商將會發出一個ＲＭＡ號碼，客戶可以按照雙方議處的結論，根據ＲＭＡ號碼返回或是銷毀材料，供應商將替換貨物或是折讓處理。

5. Storage Condition 儲存條件

3 months from the date of shipment in the stocked environment of under 20~25℃ and 50~60%RH. Do not place next to organic solvents, sun exposure, humidity, high temperature, ultra-low temperature environments. The removable stains and haze are acceptable. An insured carrier covers stains and haze caused by transportation. After receiving the glass products, please use them online as soon as possible to avoid the problem of transfer of protective film adhesive. If there is a long-term storage, it is

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recommended that the protective film must be replaced by itself within 6 months to facilitate the quality of long-term storage.

保證期限自裝運日期起 3 個月，保存期間環境條件為溫度設定在 20~25℃ 攝氏度和濕設定 40~60%RH。禁止儲放在有機溶劑旁、陽光曝曬、潮濕、高溫、超低溫等環境中儲存期間若發生污漬和白霧（PE 保護膜轉印），可擦拭乾淨是可被接受的。玻璃製品收到後儘速上線使用，避免發生保護膜背膠轉印的問題。若發生有長期儲放的情況，建議每 6 個月必須自行更換保護膜，以利長期儲放品質。

6. Disclaimer Clause 免責條款

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.

請在投入量產產線前確認產品品質，若是品質缺陷發生並請確認為供應商責任，我們將採取退換貨程序操作，但一旦產品進入量產程序使用，相關衍生的品質缺陷，供應商沒有承擔的責任。

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首件檢驗報告
First article inspection(FAI)

客戶名	鈺緯	品名	3MD665FT010 (M3495)	出貨日期	2023/9/19
訂單號碼	4100040020	數量	16 pcs	批號	20230919001

類別	編號	尺寸	規格(mm)			抽樣數(n)					判 定
			尺寸	Max.	Min.	1	2	3	4	5	
尺寸	1	長度	1449.38+/-1.0	1450.38	1448.38	1449.62					OK
		寬度	824.42+/-1.0	825.42	823.42	824.62					OK
		厚度	2.9+/-0.15	3.05	2.75	2.88					OK
		弧角	6.5			6.51					OK
		翹曲	<4			1.89					OK
	編號	項 目	檢測方法			規 格			實測值		判 定
鍍膜	2	外 觀	目視			依照檢驗規範書			PASS		OK
	3	光澤度 by 60 deg.	Rhopoint 光澤度計			65+/-15GU			62.60%		OK
	4	反射率 @450~650nm avg	光譜儀/PHOTOPIC			≤5%			4.82%		OK
	5	穿透率 @450~650nm avg	光譜儀/PHOTOPIC			93.5+/-1%			93.35%		OK
	6	純水接觸角	純水接觸測量儀			110deg+/-10deg			113.5		OK
	7	鉛筆硬度	鉛筆硬度計			≧7H			8H		OK
	8	膜層附著性	3M610膠帶+百格測試			≧4B			5B		OK
	9	玻璃強化應力	表面應力測量儀			≧350Mpa			420		OK
	10	玻璃強化深度	表面應力測量儀			≧7um			8		OK
	總判定	■合格 □特採 □不合格	QC/SBI:蕭英仁								