



Document No.
Issue Date: 2007/12/21
VERSION: 1.0 A

OLED Full Color Inspection Specification

Model No.: C0240QGLZ

Customer :
Approval By

Approved By



Document No.
Issue Date: 2007/12/21
VERSION: 1.0 A

Revision History

Version	Date	Page	Section	Description

Inspection Standards for OLED Modules

1.Description

These inspection standards shall be applied to OLED Module supplied by CHI MEI EL CORPORATION.

2.Inspection provision

MIL-STD-105E/inspection level II/normal inspection/single sample inspection

AQL: Major 1.0; minor 1.5

3.The environmental condition of inspection

The environmental condition and visual inspection shall be conducted as below.

- (1) Ambient temperature : 15~25°C
- (2) Humidity: 25~75 %RH
- (3) External appearance inspection shall be conducted by using a single 20W fluorescent lamp or equivalent illumination.
- (4) Panel visual inspection on the operation condition for cosmetic shall be conducted at the distance 30cm or more between the OLED module and eyes of inspector. And, the viewing angle shall be 90 degree to the front surface of display panel.
Ambient Illumination: 400 ~ 500 Lux for external appearance inspection
Ambient Illumination: 100 ~ 200 Lux for light on inspection

4.Classification of defects

Defects are classified two types, major defect and minor defect according to the defect. And, the definition of defects is classified as below.

(1) Major defect

Any defect may result in functional failure, or reduce the usability of product for its purpose. For example, electrical failure, deformation and etc..

(2) Minor defect

A defect that is not to reduce the usability of product for its intended purpose and un-uniformity, dot defect and etc..









The criteria on major and/or minor judgement will be according with the classification of defects.

5. Specification for quality check

(1) Electrical/Outline characteristics

Level	Inspection item	Defect	Remark
Major	Displaying	Non-displaying	
		Line defects	
		Power consumption	
		Malfunction	
	Panel	Glass cracked	
	FPC / COG	FPC dimension out of specification	
		Other function defects	
Outline dimension	Outline dimension out of specification		
Minor	Displaying	Dim spot 、Bright spot 、dust	Appearance defect
		Non-uniformity	
		Mura	
	Panel	Glass scratch	
		Glass cutting NG	
		Glass chip	
	Polarizer	Polarizer scratch	
		Stains on surface	
		Polarizer bubbles	
	FPC / COG	Damage	
		Foreign material	
	Metal Frame	Appearance	


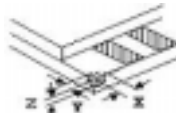

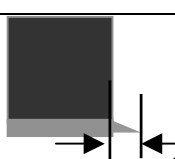
(2) Test Pattern


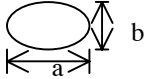
Item	Pattern
W	
Black	
R	
G	
B	
Border	
50% White	
Cross talk	

(3) Definition of dot defect induced from the panel inside

- a) The definition of dot: The size of a defective dot over 1/2 of whole dot is regarded as one defective dot.
- b) Bright dot: Dots appear bright and unchanged in size in which module is displaying under black pattern.
- c) Dark dot: Dots appear dark and unchanged in size in which module is displaying under pure red, green, blue picture.

(4) External appearance defect

Item	Description	Criterion							
Panel	Glass scratch	$0.05 < W \leq 0.1 \text{mm}$, $0.3 < L \leq 2.0 \text{mm}$, $N \leq 3$							
	Glass crack	Crack: Propagation crack is not acceptable 							
	Glass chip	Chip on corner  <table border="1" data-bbox="1165 716 1436 851"> <tr> <td>x</td> <td>$\leq 3.0 \text{ mm}$</td> </tr> <tr> <td>y</td> <td>$\leq 3.0 \text{ mm}$</td> </tr> <tr> <td>z</td> <td>$\leq t$</td> </tr> </table> 1.) t=Glass thickness 2.) Chip on the corner extending into the ITO contact is not acceptable 3.) Chip on the corner is not acceptable when it extends into the seal or makes the exposure	x	$\leq 3.0 \text{ mm}$	y	$\leq 3.0 \text{ mm}$	z	$\leq t$	
		x	$\leq 3.0 \text{ mm}$						
	y	$\leq 3.0 \text{ mm}$							
z	$\leq t$								
	 Lead & customer alignment mark can't be damaged.								
Glass burr	 $y \leq 0.5 \text{mm}$								
Polarizer	Scratch	Line type in accordance with criteria of "Glass item"							
	Stains on surface	Stains which cannot be moved even when wiped lightly with a soft cloth or similar cleaning are not acceptable							
	Polarizer bubble	<table border="1" data-bbox="750 1568 1308 1769"> <thead> <tr> <th>Size</th> <th>Number of pieces permitted</th> </tr> </thead> <tbody> <tr> <td>$\phi \leq 0.3 \text{mm}$</td> <td>Ignore</td> </tr> <tr> <td>$0.3 \text{mm} < \phi \leq 0.5 \text{mm}$</td> <td>2</td> </tr> <tr> <td>$\phi > 0.5 \text{mm}$</td> <td>0</td> </tr> </tbody> </table>	Size	Number of pieces permitted	$\phi \leq 0.3 \text{mm}$	Ignore	$0.3 \text{mm} < \phi \leq 0.5 \text{mm}$	2	$\phi > 0.5 \text{mm}$
Size	Number of pieces permitted								
$\phi \leq 0.3 \text{mm}$	Ignore								
$0.3 \text{mm} < \phi \leq 0.5 \text{mm}$	2								
$\phi > 0.5 \text{mm}$	0								
Displaying	Power consumption	The module operating current consumption should not go beyond the standard indicated in product specification							
	Pixel size	The tolerance of display pixel dimension should be within $\pm 25\%$ of specification							

	Non-displaying	Not allowable		
	Line defect	Not allowable		
	Black line/White line/Particle/Scratch	 $0.05 < W \leq 0.1 \text{ mm}, 0.3 < L \leq 3.0 \text{ mm}, N \leq 4$		
	Color	Refer to the spec		
	Luminance	Refer to the spec		
	Dimming spot, Lighting spot, Dust	 $0.15 \text{ mm} < D \leq 0.3 \text{ mm}, N \leq 5$ $D = (a+b)/2$		
	Dot defect	Bright dot	$N \leq 0$	
		Dark dot	$N \leq 14$	
Mura	Allowable.			
FPC / COG	Dimension Out of spec.	FPC dimension out of spec.		
	Damage	Crack on the FPC/COG deep scratch on the FPC/COG, deep fold on the FPC, deep pressure mark on the FPC/COG or other damage are not acceptable		
	Foreign material	Conductive foreign material sticking to the leads, foreign material and pin-hole between the FPC/COG and the glass are not acceptable		
Metal Frame	Appearance	Any scratch or contamination outside the viewing can be ignored.		
Dimension	Dimension out of spec	Refer to the drawing of the spec		