

**COSMETIC SPECIFICATION FOR DISPLAY LAMINATES ABOVE EYE LEVEL****SCOPE**

This document is intended to specify the cosmetic and inspection criteria for optical laminated Displays which are above eye level. This document is intended to serve as a default specification when a formal customer specification is not referenced or available.

Performance and cosmetic characteristics for anti-glare or multi-layer anti-reflective surface coatings will default to the coating manufacturer's specifications.

Customer furnished material for incorporation into a Zytronic laminate must be accompanied by a formal written cosmetic specification. If no formal specification is available then the cosmetic specification will default to that of this document.

However, Zytronic cannot be held responsible for defects in the final laminate, which are as a direct consequence of the quality of customer furnished material.

**INSPECTION METHOD**

The screen shall be mounted vertically and shall be viewed by a person without visual aids other than spectacles if these are normally worn. The screen must be viewed through the front face.

The minimum viewing distance shall be 2-metres and the ambient lighting shall be normal factory lighting.

Vision is to be focused at a point not less than 1-metre on the opposite side of the screen to the observer to ensure that vision is not concentrated on the surface.

Any defect in the screen which is not visible under these conditions shall be deemed acceptable.

The total observation time shall not exceed 20 secs.

**OPTICAL SPECIFICATION**

a) Linear Defects, Opaque and Translucent.

This class of defects covers scratches, surface blemishes, lint or hairs, which are generally long and thin in nature. These types of defects are to be examined at their widest points. For lint and hairs: -

Defect Description	Defect Allowance
Width (W) > 0.11mm (0.0043")	None.
W > 0.05mm (0.002") < 0.10mm (0.0042")	Maximum accumulated length shall not exceed 15mm.
W < 0.049mm (0.0019")	Disregard.

For surface blemishes and scratches: -

Defect Description	Defect Allowance
Width (W) > 0.11mm (0.0043")	None.
W > 0.05mm (0.002") < 0.10mm (0.0042")	Maximum accumulated length shall not exceed 25% of the diagonal length up to a maximum of 50mm.
W < 0.049mm (0.0019")	Disregard.

a) Circular Defects.

This class of defects includes digs, bubbles, foreign matter, coiled hairs/lint and coating blemishes, which are generally round or circular in nature.

The diameter equivalent (D) of irregular shaped defects shall be taken as the arithmetic mean of the defect length (L) and width (W), that is  $D = (L+W)/2$ .

Defect Description.	Defect Allowance.
Mean Diameter (D) > 1.52mm (0.060")	None.
D > 0.76mm (0.030") < 1.51mm (0.059")	3 per 200mm Ø circle.
D < 0.75mm (0.029")	Disregard.

\*Any laminates that have an anti-reflective/anti-glare/anti-scratch coating an additional allowance of 4 per 200mm Ø circle will be allowed on the surface only.

c) Edge Chips

Edge chips are permissible so long as they do not encroach into the viewing area and do not exceed, 6mm x 1mm in size and 5-off total in frequency, so long as they are no closer than 100mm to one another.

**Note:** Should the application for the display laminates be high in the air, i.e. train station display, then a "Fit for Purpose" approach shall be taken.

**CHANGE LOG**

CHANGE	Date	REQUESTED BY	ITEM/SECTION	MODIFICATION OR REASON
1	05/07/2006	C Thompson	All Sections	Initial Document Creation/Approval
2	16/01/2017	K Gleghorn	All Sections	Document reformatted