

COSMETIC SPECIFICATION FOR ELECTRONIC TOUCH SENSORS

SCOPE

This document is intended to specify the cosmetic and inspection criteria for Electronic Touch Sensors manufactured by Zytronic. 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 Zytronic Electronic Touch Sensor Laminates 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

Laminates to be inspected shall be viewed in both transmitted light and reflected light from the end use viewing side only on an inspection booth which is representative of a monitor, under normal room lighting (about 800lux). Back-lighting in the booth shall be provided by a uniform light source emitting approximately 550 lux.

For inspection in transmitted light, the laminate is positioned on the front of the inspection booth and viewed from approximately 450mm – 600mm distance. The laminate is moved in an up and down and a right to left manner in order that the whole of the surface is examined.

For inspection in reflected light, the laminate is positioned under a fluorescent light and angled so that the fluorescent light source reflects off the face being examined.

The dimensions of any defect observed shall be measured using an appropriate gauge or magnifying eyepiece and reticule.

Should any defect be seen on the inspection booth, then the laminate shall be placed onto a live monitor and a "*Fitness for purpose*" approach taken.

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) >0.076mm (0.003")	None.
W >0.025mm (0.001") <0.075mm (0.0029")	Individual lengths not exceeding 6mm and no more than 3 per laminate.
W<0.024mm (0.0009")	Disregard.

For surface blemishes and scratches: -

Defect Description	Defect Allowance
Width (W) >0.076mm (0.003")	None.
W>0.025mm (0.001") <0.075mm (0.0029")	Maximum accumulated length shall not exceed 25% of the diagonal length up to a maximum of 25mm.
W<0.024mm (0.0009")	Disregard.

b) 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) > 1.016mm (0.040")	None.
D. 0.508mm (0.020") < 1.015mm (0.039")	3 per 75mm Ø circle, min spacing 13mm.*
D. 0.245mm (0.010") < 0.507mm (0.019")	5 per laminate, min spacing 25mm.
D.< 0.244mm (0.0096")	Disregard.

*Any Touch Sensors that have an anti-reflective/anti-glare/anti-scratch coating an additional allowance of 2 per 75mm 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 3.175mm x 0.254mm in size and 3-Off total in frequency, so long as they are no closer than 100mm to one another.

d) Distortion/Rippling

An edge border of 25mm will be allowed for edge distortion or rippling of the polyester film encapsulated within the Touchscreen sensor. Should a bezel be utilised then a 25mm border toward the centre of the screen shall be acceptable.

CHANGE LOG

CHANGE	Date	REQUESTED BY	ITEM/SECTION	MODIFICATION OR REASON
1	03/04/2014	C Thompson	All Sections	Initial Document Creation/Approval
2	16/01/2017	K Gleghorn	All Sections	Document reformatted