COSMETIC SPECIFICATION FOR ZYBRID®/ZYPOS® TOUCH SENSORS

SCOPE

This document is intended to specify the cosmetic and inspection criteria for ZYBRID/ZYPOS touch sensors manufactured by Zytronic. This document is intended to serve as a default specification when a formal customer specification is not referenced/agreed, or available.

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

Customer furnished material for incorporation into Zytronic ZYBRID/ZYPOS 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 standard glass effects such as scratches, blemishes and standard laminate effects such as, lint or hairs, which are generally long and thin in nature. These types of defects are to be examined at their widest points.

Display size under 13" (<13")	
Specification	
Width (W) >0.1mm (0.004")	None.
W>0.05mm (0.002") ≤0.1mm (0.004")	Individual lengths not exceeding 6mm and no more than 3 per laminate, min spacing 10mm.
W<0.05mm (0.002")	Disregard.

Display size 13" – 25" (≥13" - <25")	
Specification	
Width (W) >0.1mm (0.004")	None.
W>0.05mm (0.002") ≤0.1mm (0.004")	Individual lengths not exceeding 10mm and no more than 3 per laminate, min spacing 20mm.
W<0.05mm (0.002")	Disregard.

Display size 25" – 46" (≥25" - <46")	
Specification	
Width (W) >0.1mm (0.004")	None.
W>0.05mm (0.002") ≤0.1mm (0.004")	Individual lengths not exceeding 10mm and no more than 7 per laminate, min spacing 50mm.
W<0.05mm (0.002")	Disregard.

For hairs / fibres which are not straight, then the hair or fibre should fit within 10 – 1mm squares (6 – 1mm squares for displays <13") on transparency template Rev 1c (see figure 1).

Any above defects found in the non-active area as defined by the respective mechanical drawing shall be disregarded and classed as acceptable.

b) Circular defects.

This class of defects includes surface defects such as digs, burns and coating blemishes and internal laminate defects such as bubbles, foreign matter, coiled hairs/lint 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.

Display Size under 13" (<13")	
Specification	
Mean Diameter (D) > 0.5mm	None.
D. >0.25mm ≤ 0.5mm	5 per laminate, min spacing 20mm. *
D. <0.25mm	Disregard.

Display size 13" – 25" (≥13" - <25")	
Specification	
Mean Diameter (D) > 1.0mm	None.
D. >0.4mm ≤ 1.0mm	3 per laminate, min spacing 30mm. *
D. <0.4mm	Disregard.

Display size 25" – 46" (≥25" - <46")	
Specification	
Mean Diameter (D) > 1.0mm	None.
D. >0.4mm ≤ 1.0mm	5 per laminate, min spacing 50mm. *
D. <0.4mm	Disregard.

*Any Touch Sensors that have an anti-reflective/anti-glare/anti-scratch coating an additional allowance of 3 per laminate will be allowed on the surface only.

Any above defects found in the non-active area as defined by the respective mechanical drawing shall be disregarded and classed as acceptable.

c) Edge chips.

Edge chips are permissible so long as they do not encroach into the active area and do not exceed 3mm(Length) x 0.5mm(Width) x 0.5mm(Depth) in size and 3-Off total in frequency, so long as they are no closer than 100mm to one another.

d) Non-critical border.

A perimeter of 6mm all around the screen shall be classified as a non-critical border on non-printed screens.

e) Printed Borders (Where applicable).

Where a printed border has been applied, any defect which is behind the print and not visible when viewed through the front face shall be deemed *Fit for Purpose*, so long as the functionality of the screen is not affected.

Print Faults.
This class of defects includes pin holes and print spot faults, which are generally round or circular in nature.

Specification	
D. >1.0mm	None.
D. >0.4mm <1.0mm	5 per laminate
D. <0.4mm	Disregard

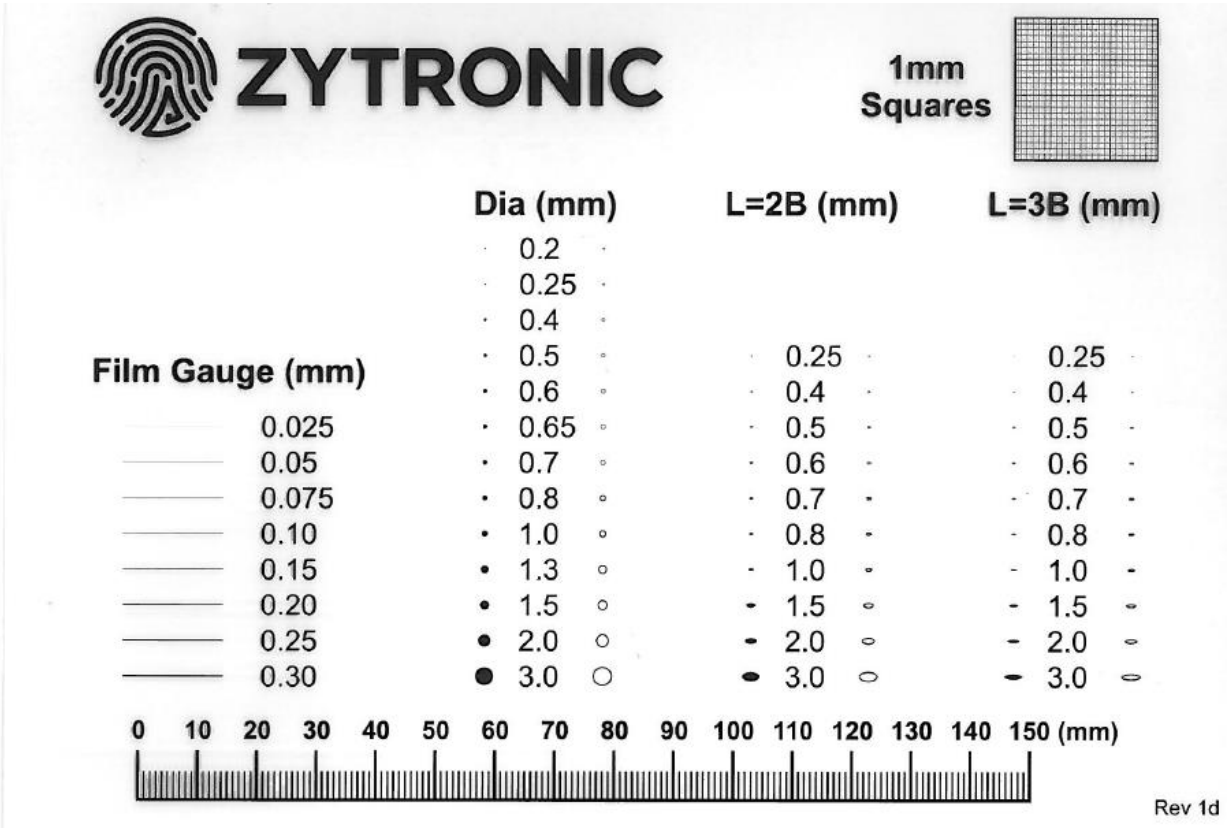

Figure 1

CHANGE LOG				
CHANGE	Date	REQUESTED BY	ITEM/SECTION	MODIFICATION OR REASON
1	03/04/2014	C Thompson	All Sections	Initial Document Creation/Approval
2	12/02/2015	C Thompson	All Sections	Review
3	16/01/2017	K Gleghorn	All Sections	Document reformatted Document reformatted, Film Gauge Rev 1c change
4	12/06/2023	C Thompson	All sections	Updated