

VISUAL INSPECTION CRITERIA

When Cardinal IG Units are viewed in the guidelines outlined below, they must pass or exceed the listed criteria.

Glass or Coating blemishes shall be inspected using the following guidelines:

- In transmission with 20/20 vision (naked eye or corrected).
- A viewing angle of 90° to the specimen (not horizontal)
- Viewing distances from the sample are listed in the sections below.
- Lighting needs to be a bright uniform background: either daylight (without direct sunlight), or a diffused light panel (minimum 1700 lux) simulating daylight. (No spotlights)
- A minimum distance of 12 inches between the glass and diffuse light panel shall be maintained during viewing.

Observation Duration

Unit Size	Maximum Observation Duration
≤ 6 ft ²	5 seconds
6 - 25 ft ²	10 seconds
> 25 ft ²	20 seconds

When viewing the coatings for blemishes the glass is divided in two areas: Central Area & Outer Area. Each area has different blemish criteria. If a glass or coating scratch is readily apparent under these viewing conditions, the below criteria under “Allowable Blemish Size” applies. If the scratch is not readily apparent under these viewing conditions, the glass should be accepted as is.

VISIBLE BLEMISHES

Blemishes are only rejectable if observable under the inspection conditions and exceed the visible blemish size and frequency standards listed in this document. No demarcation of the blemish shall be used to aid in finding the blemish while using the Inspection Conditions. This includes circling or highlighting of the blemish in any way.

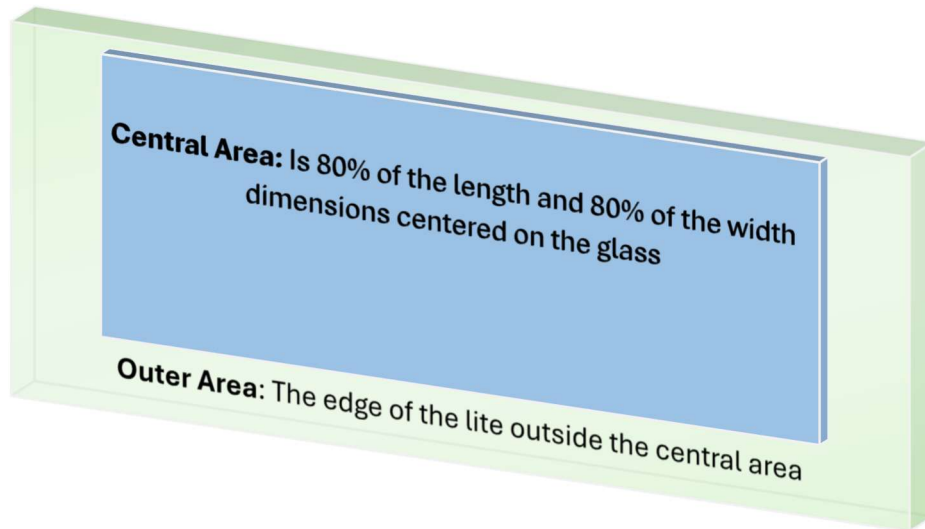
Blemish Criteria

Blemish	Viewing Distance	Allowable Blemish Size	
		Central Area	Outer Area
Pinhole/Spot/Debris	10 ft	1/16” (1.6 mm)	3/32” (2.4 mm)
		No more than 2 allowed in a 3” or 75mm area and no more than 5 allowed in a 12” or 300 mm area. ²	
Linear Blemish (Scratch) (Coated and Clear Glass)	10 ft	Not allowed	Not allowed
	6 ft	2” (50 mm) max length	3” (75 mm) max length
Coating Rub	10 ft	Not allowed	Length plus width not to exceed 3/4 in (19 mm)
Mark/Contaminant	10 ft	2” (50 mm) max length	3” (75 mm) max length
Corrosion	10 ft	Not allowed	Not allowed
Crazing/Arcing	10 ft	Length plus width not to exceed 2” (50 mm)	Length plus width not to exceed 3” (75 mm)
Knots, Dirt, Stones, Crush, Seeds ¹	6 ft	1/16” (1.6 mm)	1/8” (3.2 mm)
		One in a 24” circular area ²	

1) Knots, Dirt, Stones, Crush, Seeds are measured by averaging the maximum length and width.

2) Separation is measured by the two closest points between the blemishes.

3) Blemishes within the edge deletion are not subject to blemish criteria.



VIEWING CONDITIONS

Viewing Conditions for Blemish Detection

Diffuse Uniform
Light Source w/ minimum
luminance of 1700 lux (160
foot-candles)



See Glass & Laminated Glass
Blemish Criteria Tables

