

### hola, hello, bonjour

10 – 12 JUNE 2025 | NOKIA ARENA - TAMPERE, FINLAND



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GLASS PERFORMANCE DAYS 2025

# Measuring See-through Distortion

Advancing quality control practices within the architectural glass industry

July 11 Stage 4, 15:40

> Adrian Betanzos, VIA Louis Moreau, MOGLEX

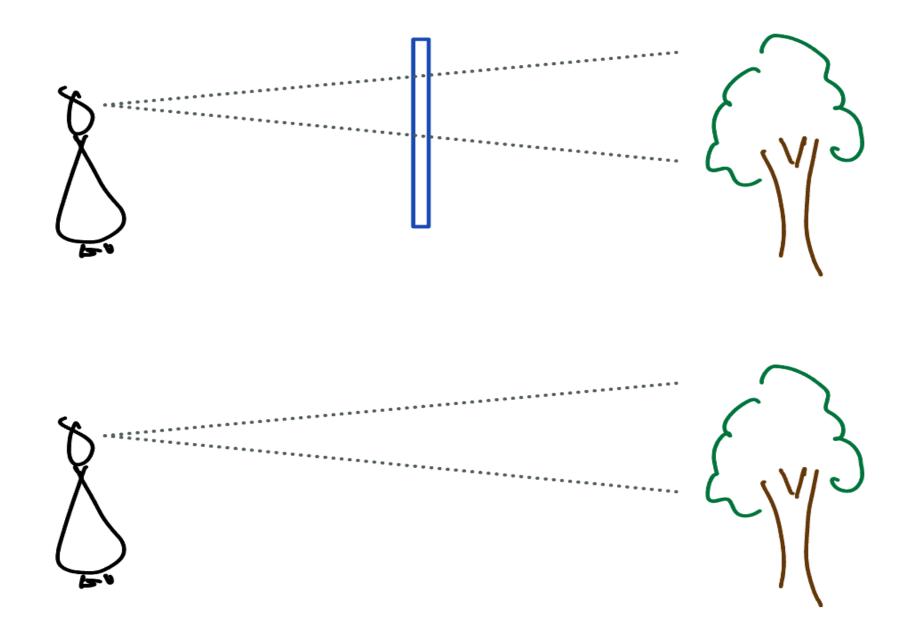
### **Reflected distortion**

Vs.

### **Transmittal distortion**

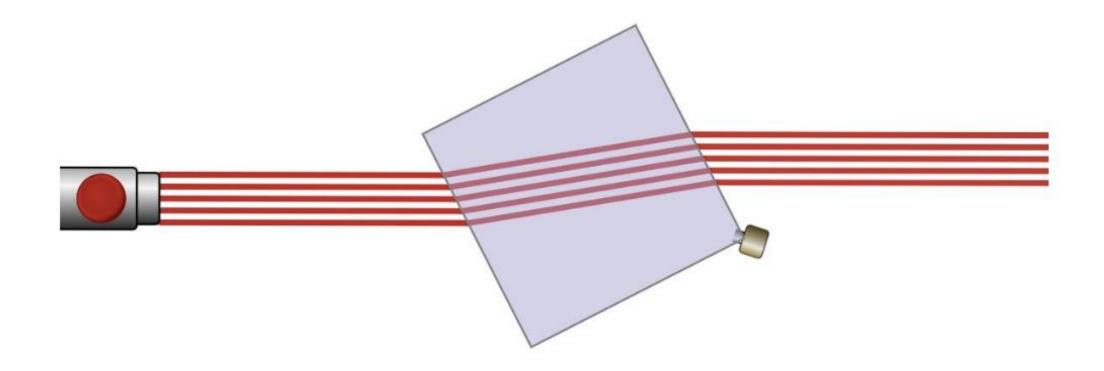






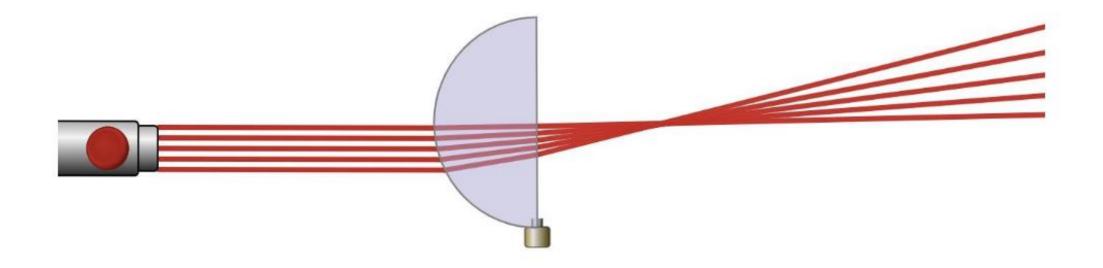






Lateral Displacement





Angular Displacement

## Perfect Reflection













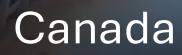


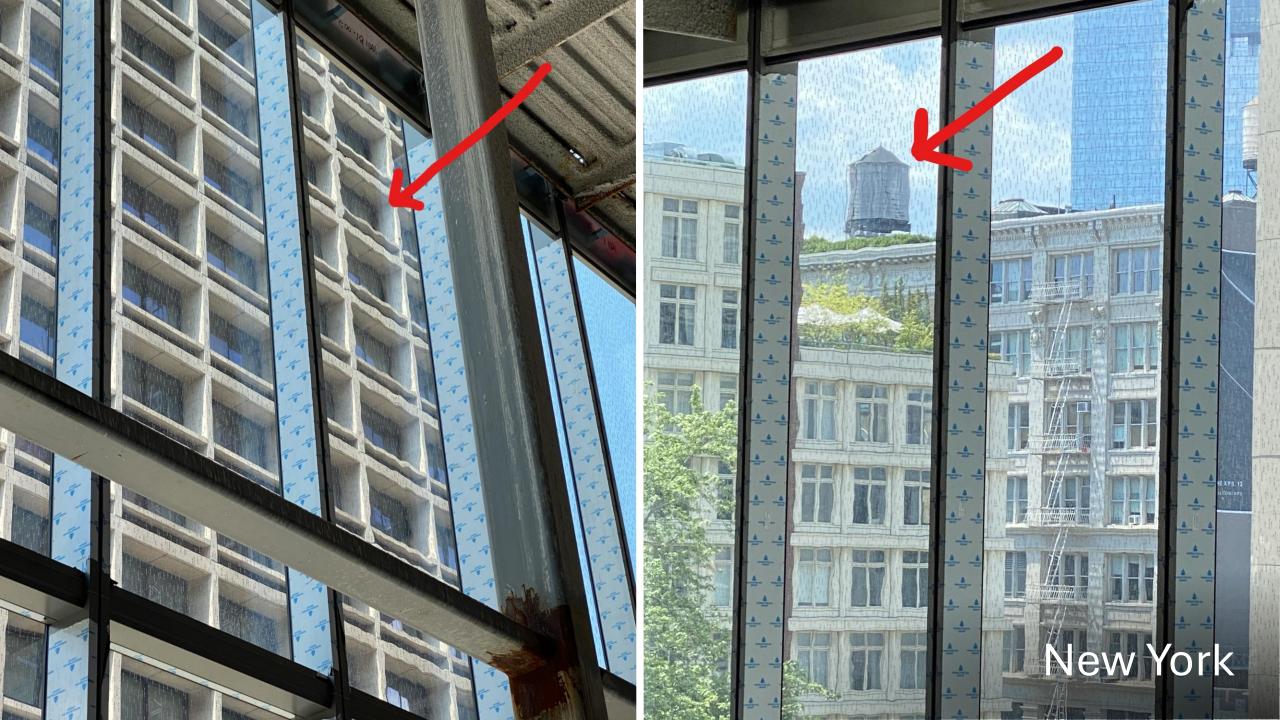






CAN PARSE







"The glass was manufactured and **inspected** inline with industry standards, which have allowable tolerances; therefore subjective reviews looking through the glass at acute angles to accentuate visual distortion do **not** warrant rejection or replacement, and is not an industry recognized method of assessing glass flatness or quality."



**Possible causes** 

Float

Lamination

Multiple layers interaction

Heat Treatment

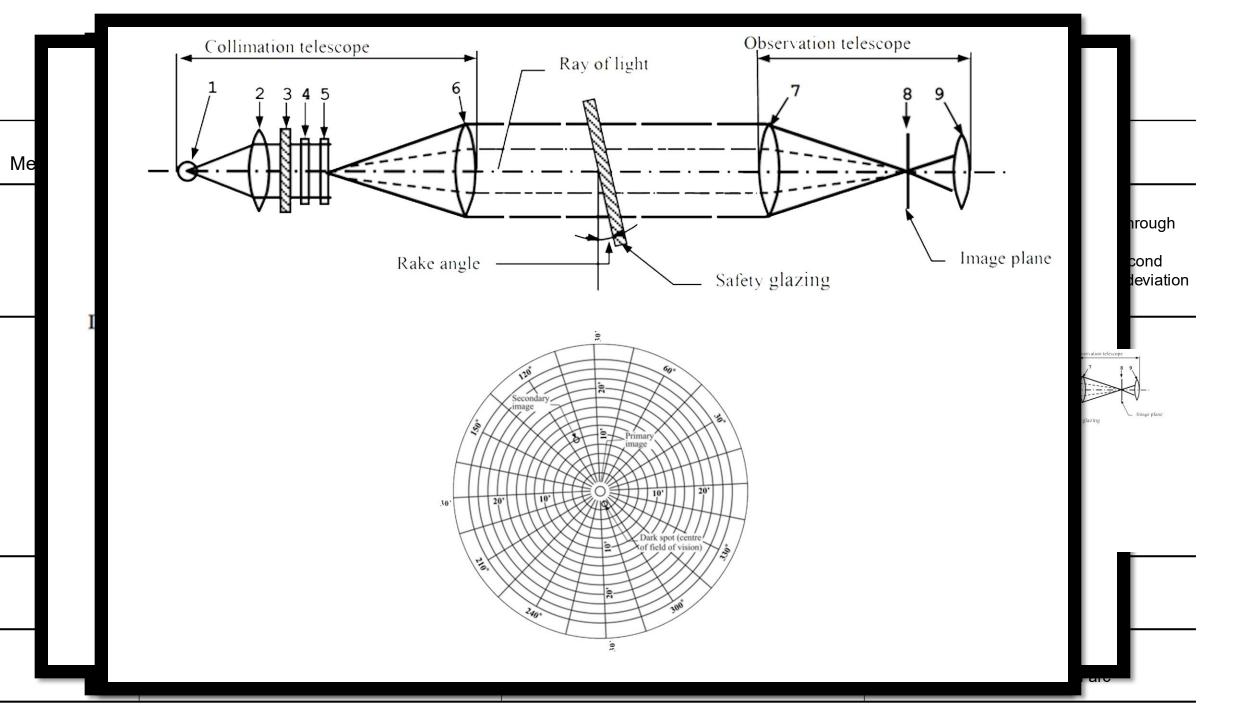
Polishing marks

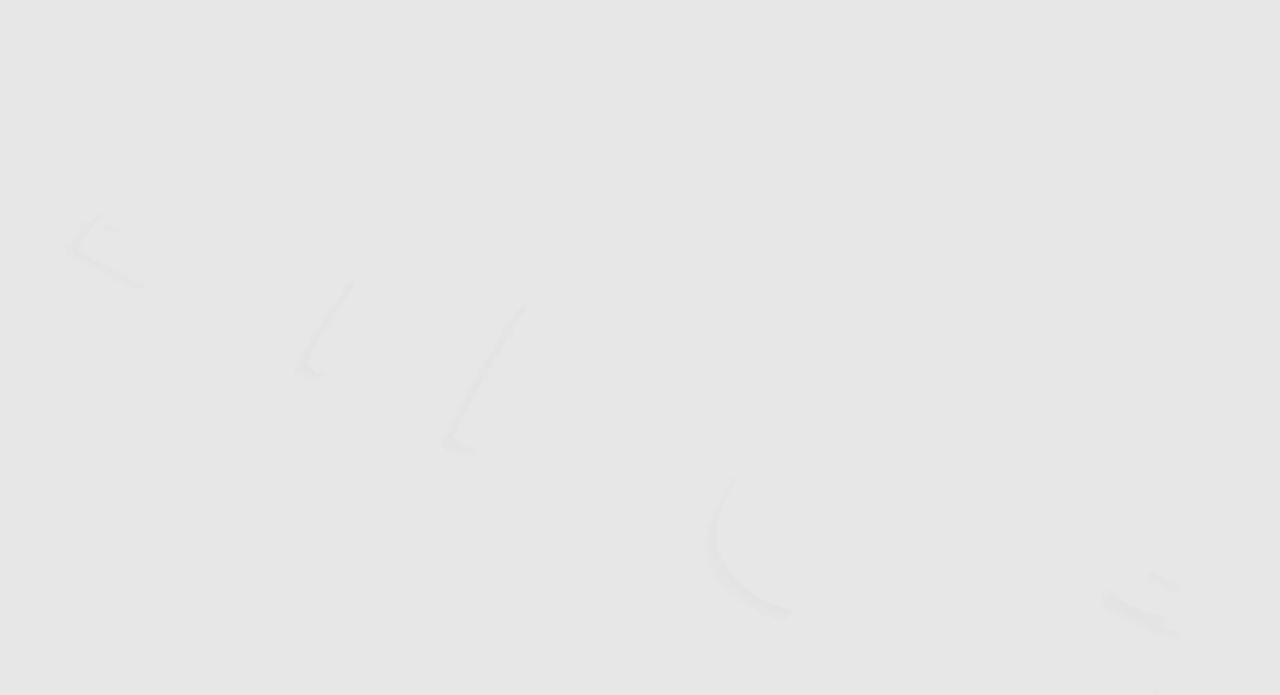
## **Comparative methodologies**

Automotive

Aeronautical

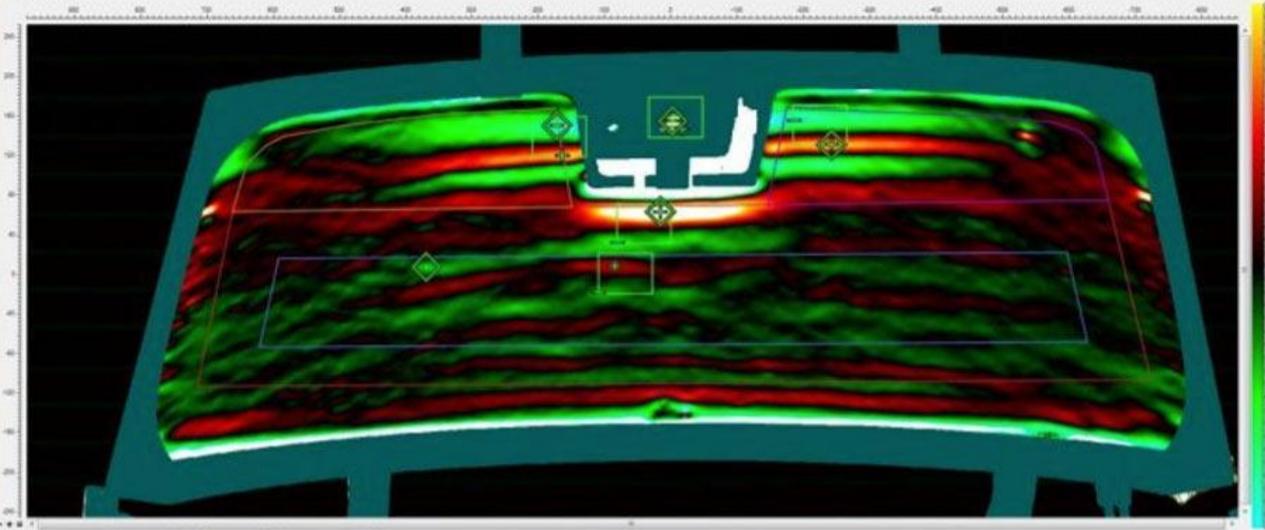
Architectural





DREADY | Quelly Presson - Industrian | ALRA Sydees - ARA 2229 28 An/17 resources

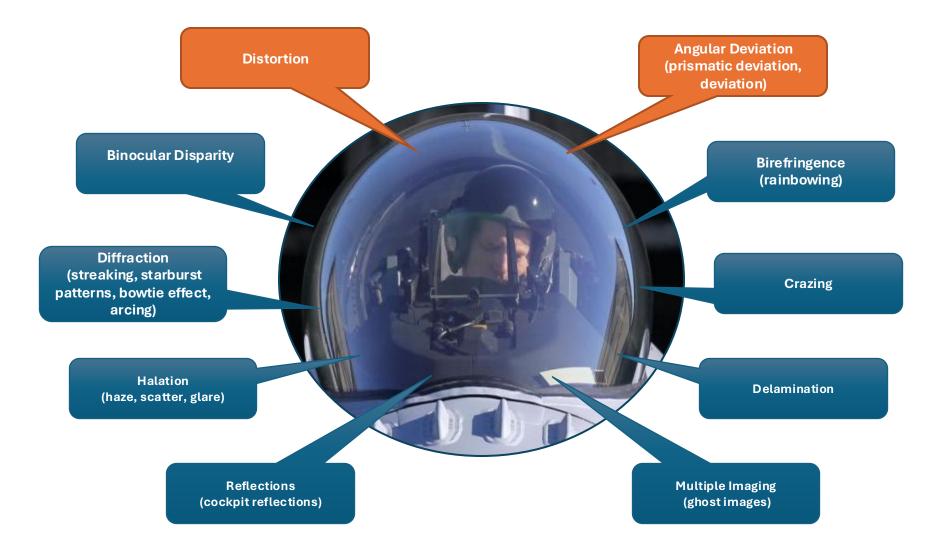
#### Second Screen

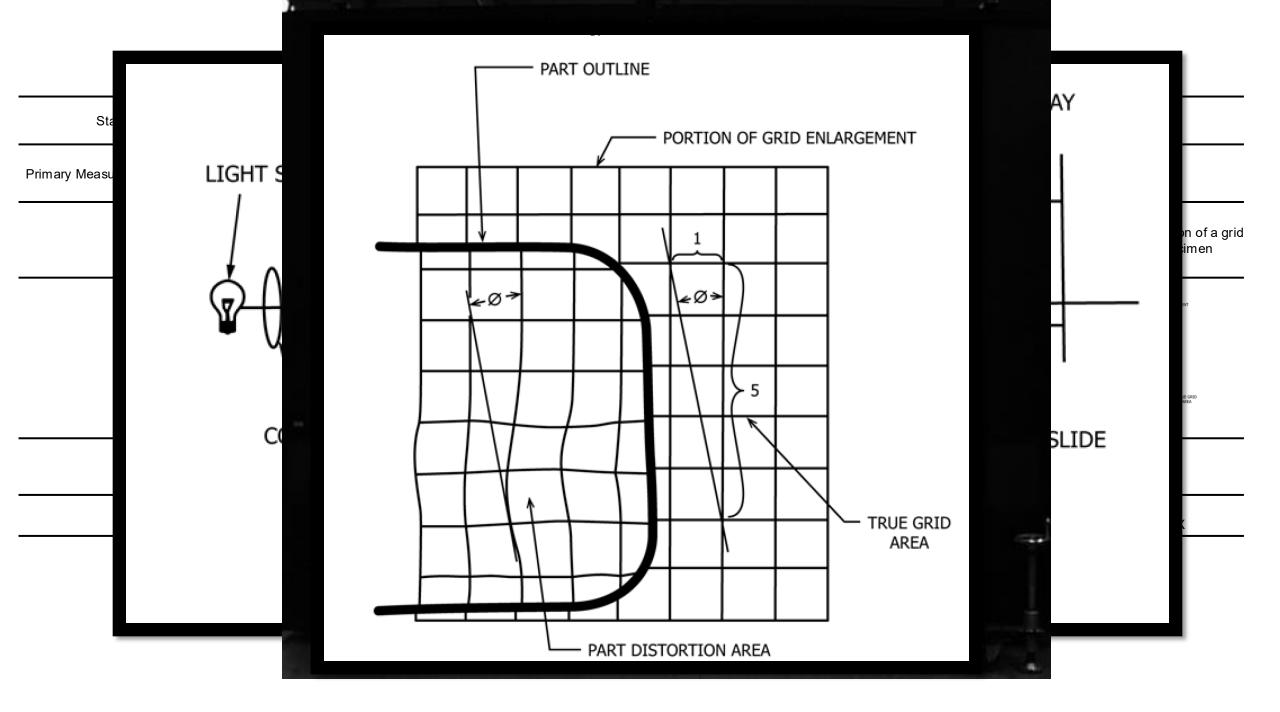


SYNERGX

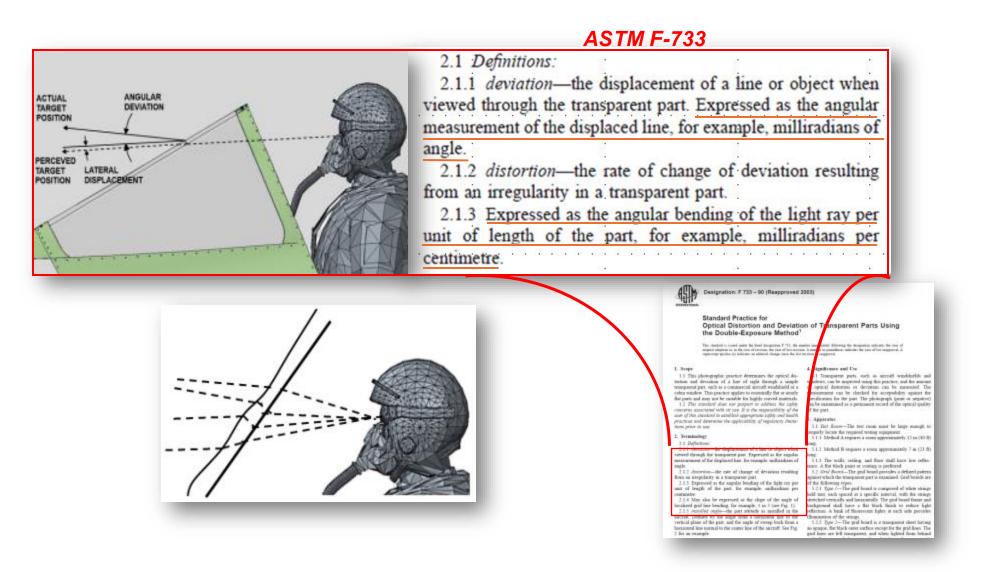
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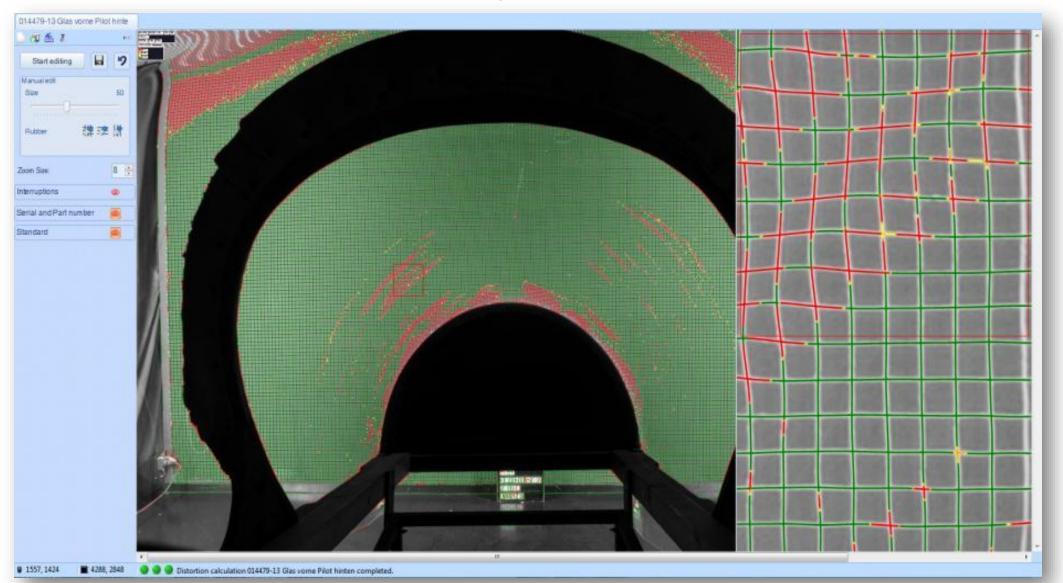


### TOPINS

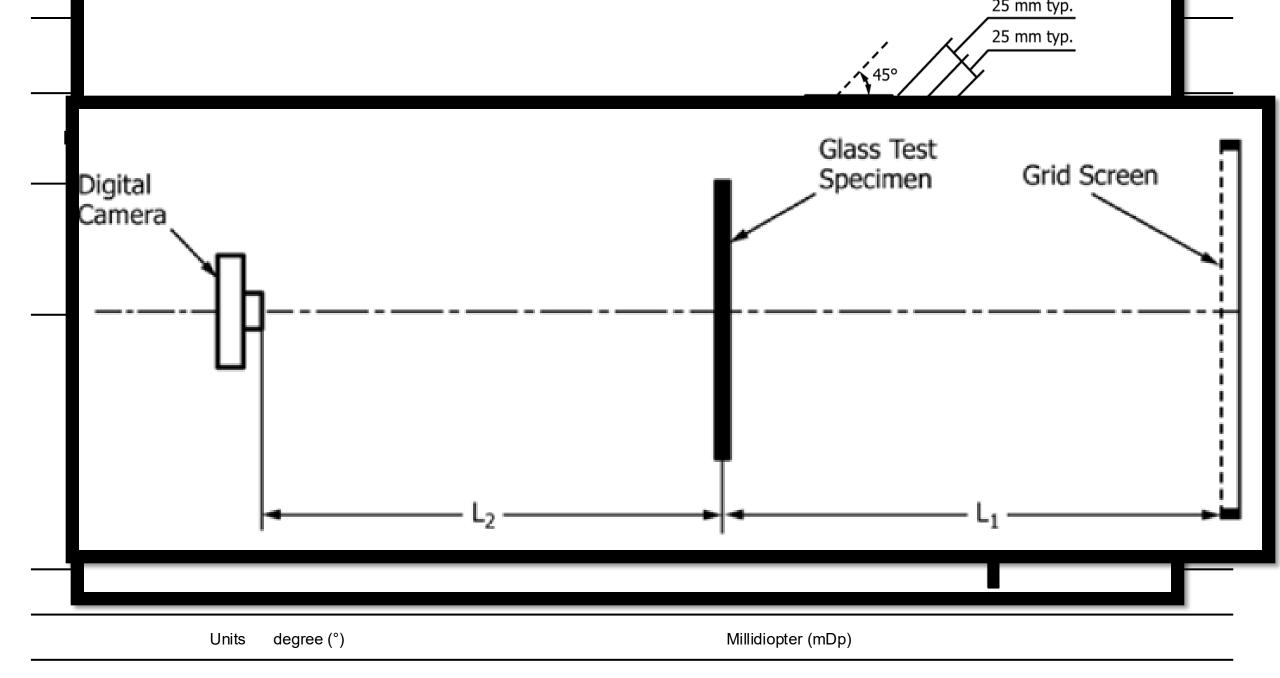




### References – Military Jet

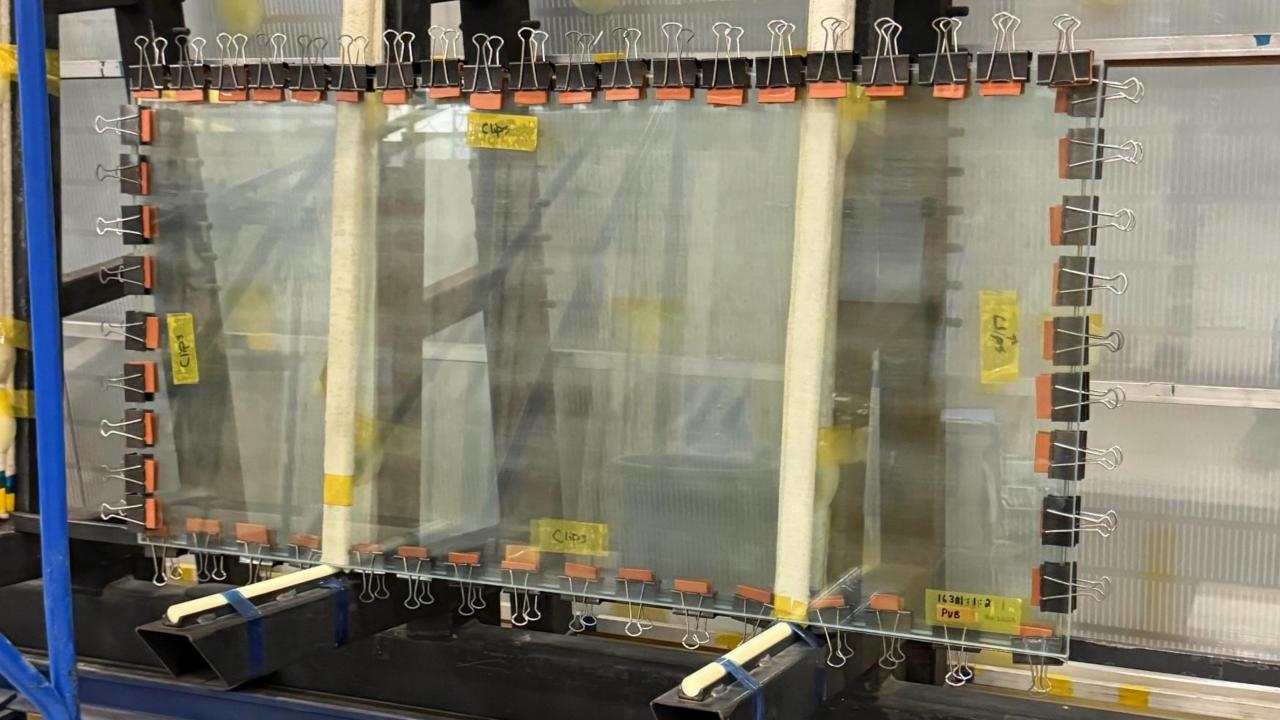


### Result of Distortion Analysis with 1:20 Standard used

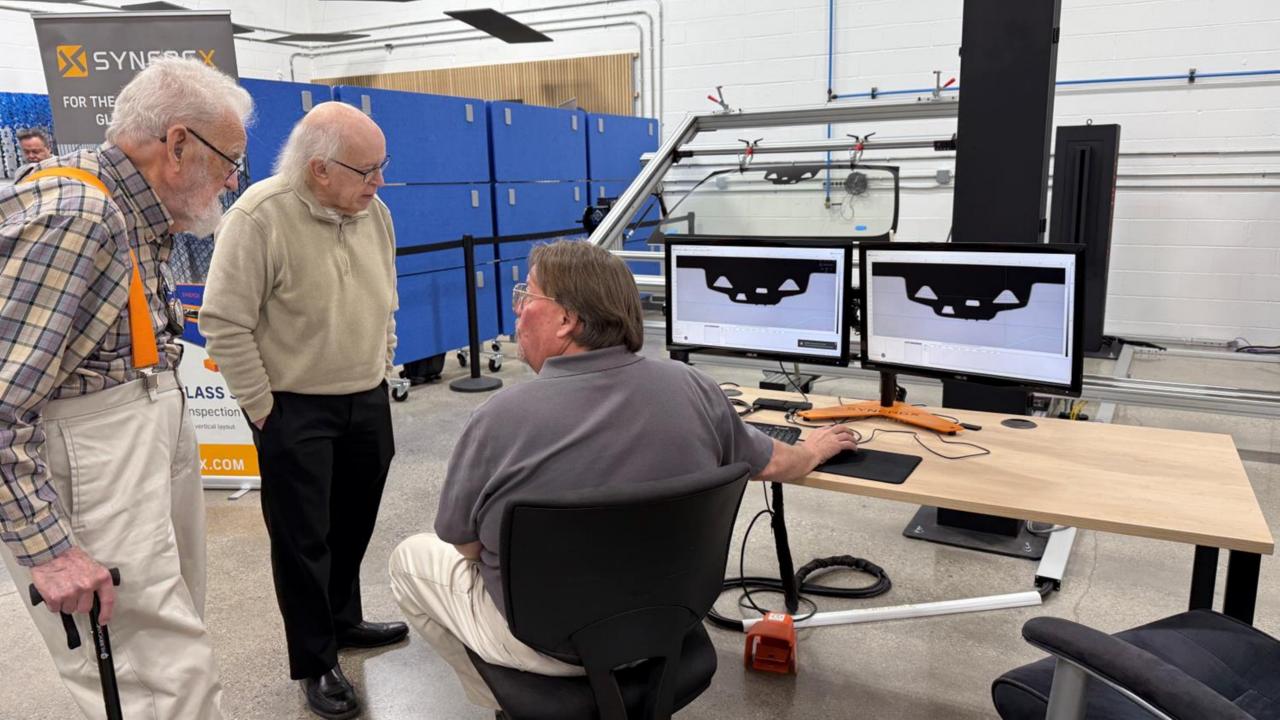


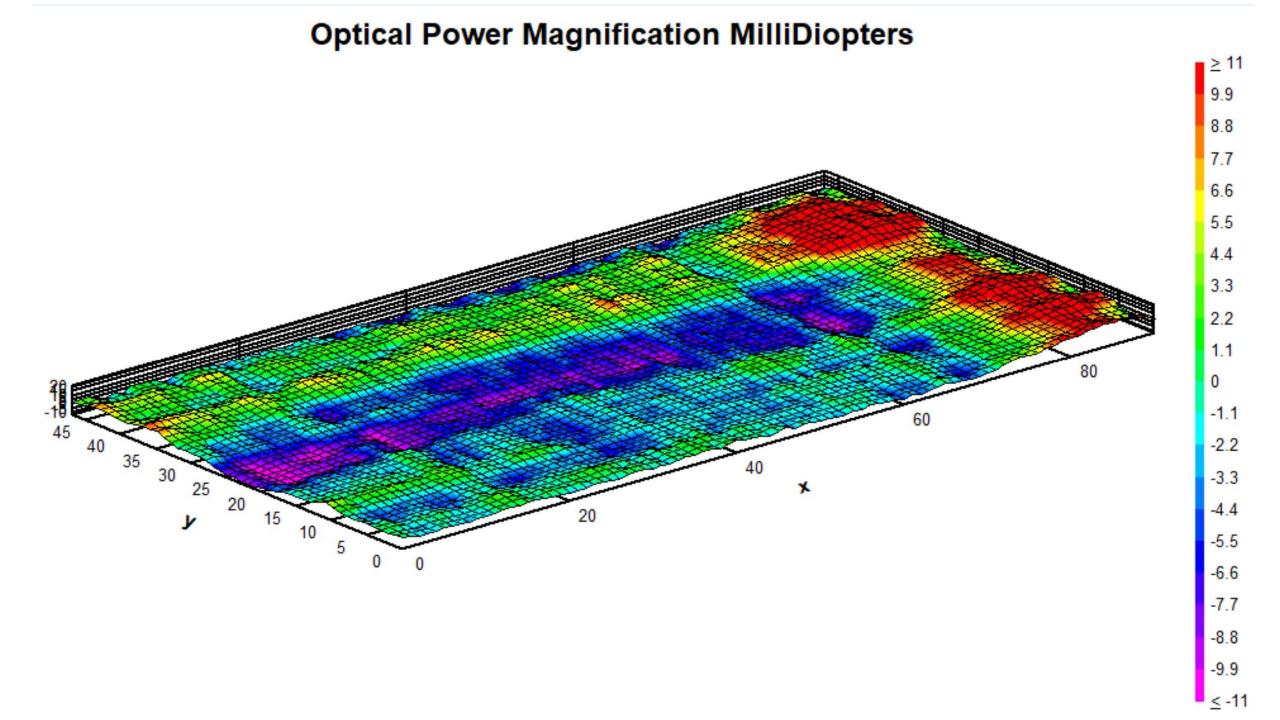
### **Practical Tests**

Specimen Induced distortion Review as per C1652





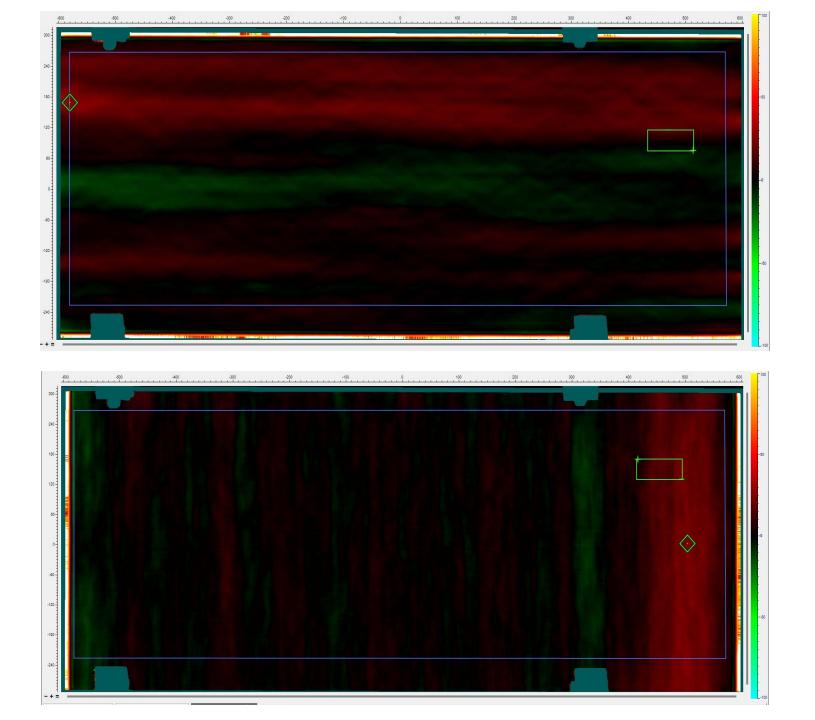












## Next steps

See through distortion can be measured using a combination of analyses, mainly based on the ASTMC1652



to create a measuring device and methodology to precisely measure transmittal distortion at the factory line (and repeatable on site)



## Special thank You To AGNORA Robert Maltby & Gary Brinker SYNERGX

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Merci, Gracias, Thank you

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