

OPPORTUNITY

What is the potential benefit to Land Ports of Entry?

PROVIDE DIRECT LINE OF SIGHT

an uninterrupted visual path between the observer and the area under surveillance

TECHNOLOGY

How do electrochromic (EC) windows work?



TRANSITION FROM CLEAR TO DARK

using photosensor readings and sun path calculations

M&V

Where did Measurement and Verification occur?

LAWRENCE BERKELEY NATIONAL LABORATORY measured glare reduction and occupant satisfaction with electrochromic windows provided by SageGlass at the Donna Land Port of Entry along the Texas border with Mexico.

RESULTS

How did electrochromic windows perform in M&V?

GLARE REDUCTION

below perceptible glare threshold²

NIGHTTIME VISIBILITY REDUCED

with increased interior reflection³

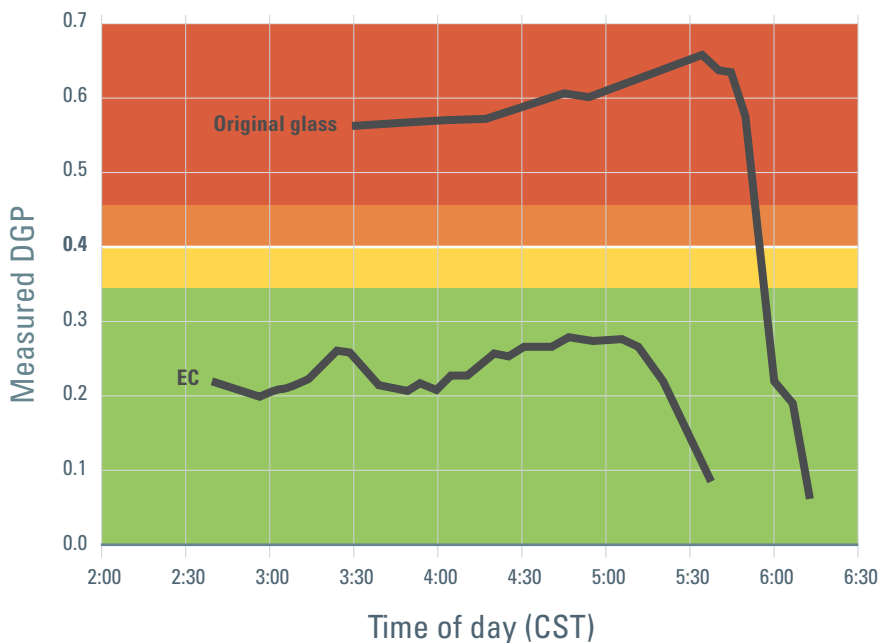
100%

USER PREFERENCE

over conventional windows⁴

Daylight Glare Probability (DGP) in Vehicle Inspection Booths Facing West

Booth with EC windows has much lower glare throughout a sunny afternoon



DGP	Qualitative Interpretation
> 0.45	Intolerable glare
0.40 to 0.45	Disturbing glare
0.35 to 0.40	Perceptible glare
< 0.35	Imperceptible glare

DGP is a metric for visual comfort, with values from 0 to 1, representing the probability that a person would experience disturbing glare in a particular situation.

DEPLOYMENT

Where does M&V recommend deploying electrochromic windows?

LAND PORTS OF ENTRY

And other facilities where window glare compromises mission-critical outdoor visibility*

¹Electrochromic Window Demonstration at the Donna Land Port of Entry. Eleanor S. Lee (LBNL), May 2015, p.4 ²Ibid, p.43 ³Ibid, p.4
⁴Subject to evaluation and approval by GSA-IT and Security