



# OPTICAL DATA ASSOCIATES, LLC

*precision spectrophotometric measurements*

5237 E. Seventh Street • Tucson, AZ 85711 • Phone & Fax (800) 494-7333

Internet: optical@opdata.com • WWW: www.opdata.com

The three samples were run on September 12, 2010 with a Cary 500E UV-Vis-NIR double-beam spectrophotometer equipped with a Labsphere Spectralon 150-mm integrating sphere. The total transmittance [T] was measured on one side [both sides are equivalent] and the total reflectance [R] on the film and glass sides [the sides are not equivalent]. The three samples are denoted by #1, #2, and #3 as follows:

- #1 - ClassicVue Exterior Mount Window Film,
- #2 - ImageVue Exterior Mount Window Film, and
- #3 - SunSecure Interior Mount Window Film.

The data appear in the plot on the next page. The x-axis runs from 250 to 2500 nm; the y-axis runs from -0.1 to 1.1 [-10 to 110%] total T and R factor. The baselines run before and after appear superposed at  $y = 1.0 = 100\%$ ; the zero line appears at  $y = 0.0 = 0\%$ . The sample traces appear in between.

For T, Sample #1 is higher than #2 or #3, which are similar. This is simply due to the higher open area for #1.

For the film side solar R, the results are again obvious. Sample #2, which is white and has the lower open area, the solar R is highest. Sample #1, white with a higher open area is second, and Sample #3, which is black, is lowest.

For the glass side solar R, #3, with the white side of the film as the second surface, has the highest value. #1 and #2, with the black sides facing the beam and getting a small boost for the glass R, are much lower and very similar.

The solar values for T,  $R_{\text{film}}$  and  $R_{\text{glass}}$  appear in the small table below.

Sample	Solar T	Solar R FilmSide	Solar R Glass Side
#1 ClassicView Exterior	0.360	0.391	0.079
#2 ImageVue Exterior	0.242	0.483	0.080
#3 SunSecure Interior	0.251	0.058	0.287

The  $T_{\text{vis}}$  and  $R_{\text{vis}}$  values appear in the next table.

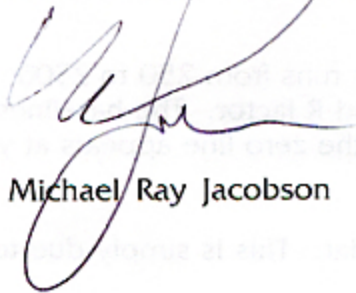
Sample	Vis T	Vis R FilmSide	Vis R Glass Side
#1 ClassicView Exterior	0.391	0.457	0.085
#2 ImageVue Exterior	0.261	0.564	0.086
#3 SunSecure Interior	0.274	0.057	0.377

Please note that the  $T_{Vis}$  values for Samples #2 and #3 differ by 0.013, or 1.3%. This approaches the 2% difference that you reported for the two samples.

Finally, the  $T_{UV}$ ,  $R_{UV}$ , and UV blockage values are shown in the following table using a straight average from 250 to 380 nm.

Sample	$T_{UV}$	$R_{UV}$ FilmSide	$R_{UV}$ GlassSide	UV Blockage
#1 ClassicView Exterior	0.123	0.075	0.073	0.877
#2 ImageVue Exterior	0.083	0.080	0.075	0.917
#3 SunSecure Interior	0.083	0.065	0.084	0.917

Tabular data corresponding to the plot are available on request.



Michael Ray Jacobson

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