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TEST REPORT

Report Date: 15 May 2017

Project Name: Aura® 196 Prismatic White Retroreflective Sheeting
Batch # 30P73-3B

Submitted by: Aura Optical Systems
Ft. Worth, TX 76118

Test Laboratory: Calcoast – ITL
San Leandro, CA 94577

Products Tested: Three (3) 7.9" x 8.0" panels premade by Aura

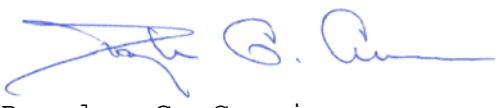
SUMMARY

Above samples were submitted for measurement of Coefficient of Retroreflection and Daytime Color and Luminance per ASTM D4956.

Coefficient of Retroreflection measured at entrance angles of -4° and +30° and observation angles of 0.2°, 0.5°, and 1.0° without comparison to any sheeting class or reflectivity table.

Daytime Color and Luminance compared to ASTM D4956-16b Tables 2 and 11 non-Type V requirements.

Written by:



Douglas G. Cummins
Photometric Engineer

Approved by:

Mark A. Evans
Laboratory Director

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TEST DATA SHEET

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6.2 Coefficient of Retroreflection

Requirement: none
Test Method: ASTM E810 - Test Distance 100 feet (30.5 m)
Entrance angle = β_1. β_2 = 0. Observation Angle = α
Projector: Hoffman GPS-102 (Illuminant A, 1.0 fc, 30" diameter)
Sample Area: 7.9 in. x 8.0 in, 0.439 ft²

Coefficient of Retroreflection (R_A) determined by measuring three (3) aluminum panels at two rotation angles (ε=0° and ε=90°) and averaging. ε=0° arbitrarily defined as orientation with roll direction as indicated on label parallel to projector/detector half-plane (see photos).

Unknown if sampling in accordance with D4956 Section 9.1

Units: Candela per footcandle per square foot (Candela per Lux per square meter)

0.2° Observation Angle

Entrance Angle:		-4°				+30°			
Sample		0°	90°	**Avg(R_A)**	Min R_A	0°	90°	**Avg(R_A)**	Min R_A
196 White	#1	383.6	498.4	441.0		244.9	324.2	284.6	
	#2	377.3	495.1	436.2		236.3	317.5	276.9	
	#3	380.2	514.2	447.2		245.5	336.2	290.9	
	Average	380.4	502.6	**441.5**	-	242.2	326.0	**284.1**	-

0.5° Observation Angle

Entrance Angle:		-4°				+30°			
Sample		0°	90°	**Avg(R_A)**	Min R_A	0°	90°	**Avg(R_A)**	Min R_A
196 White	#1	237.4	249.3	243.4		73.3	105.6	89.5	
	#2	229.3	245.2	237.3		72.5	104.3	88.4	
	#3	236.3	256.7	246.5		73.7	114.4	94.1	
	Average	234.3	250.4	**242.4**	-	73.2	108.1	**90.6**	-

1.0° Observation Angle

Entrance Angle:		-4°				+30°			
Sample		0°	90°	**Avg(R_A)**	Min R_A	0°	90°	**Avg(R_A)**	Min R_A
196 White	#1	51.5	66.4	59.0		35.4	44.1	39.8	
	#2	49.9	66.5	58.2		35.4	43.8	39.6	
	#3	50.3	70.6	60.5		35.8	46.1	41.0	
	Average	50.6	67.8	**59.2**	-	35.5	44.7	**40.1**	-

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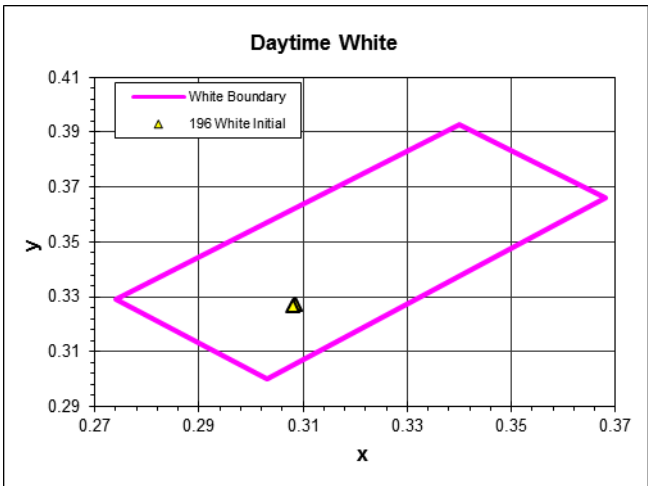
6.3 Daytime Color and Luminance

Requirement: ASTM D4956 Tables 2 and 11 (non-Type V Sheeting)
Test Method: ASTM E308, E1347, E1349, E991, E1164
(Illuminant D65, 2° Observer, Annular 45/0 Geometry)
Average of 8 reads, each read oriented 45° apart
Instrument: Hunterlab Colorflex A60 Spectrocolorimeter (No SCF available)

Product		x	y	Y		
				Measured	Minimum	Maximum
196 White	#1	0.3083	0.3268	55.52	27	-
	#2	0.3085	0.3269	56.47		
	#3	0.3082	0.3266	54.65		

Samples meet Daytime Color and Luminance requirements.



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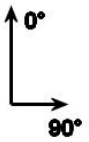
Photographs



Sheeting Orientation