Report – Luminous & Spectral Reflectance Measurements

25JAN2015

Ceilume
PO Box 511
Graton, CA 95444 USA
+1 (800) 557-0654
www.ceilume.com

Ceilume Luminous Ceiling Tiles and Panels
Translucent

The total Luminous Transmission for the 10° Observer under Illuminant D-65 is equal to:

CIE $Y_{D65\text{-}10°}$ = 31.62

Measurement Modality

The measurement of transmittance was made on a hemispherical / D8° geometry modality. This is in accordance with ASTM E 1348-11 *Standard Test Method for Transmittance and Color by Spectrophotometry Using Hemispherical Geometry*.

Certification

Color Science Consultancy certifies that the data are accurate and a true representation of the material. Further, Color Science Consultancy certifies that all the statements in this report are true and accurate to the best of my knowledge and belief.

Jack A. Ladson
Color Science Consultancy

Color Science Consultancy
1000 Plowshare Road
Yardley, PA 19067
215-369-5005
Jack.Ladson@verizon.net

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Report on Luminous and Spectral Transmittance Measurements

Location

Transmittance test - the sample was measured at Hemmendinger Color Laboratory located in Tatamy, PA.

Equipment Used

The transmittance measurements were made on a Datacolor Spectraflash 500 spectrometer, serial number 209CT. The calibration, data reduction and validation of the measurements with this instrument are based on the transmittance and reflectance standards from NIST, Gaithersburg, M.D. and the NPL, Teddington, UK.

Equipment Condition

The Datacolor Spectroflash 500 spectrometer, serial number 209CT, use to make these measurements is in good working order. This was attested to by measuring standard reference materials BCRA set CCS-1, and comparing results to internationally accepted values.

Environment

The average temperature at the time of measurement was 24.8°C.

Interferences

There was no change in the standard laboratory conditions, which would affect the test results or have a negative influence on precision.

Deviations from Normal Procedure

There were no deviations from normal laboratory procedures or the applicable ASTM specifications that occurred during the measurement sequence.

Tristimulus Weighting Factors

The tristimulus weighting factors used to prepare the tristimulus data in this report are based on ASTM D 308, *Standard practice for computing the colors of objects by using the CIE system*. The tables and provide bandpass compensation in the calculation were selected.

Sampling

A single specimen was measured in multiple locations to ensure a statistically rigorous value.

Conditioning

The specimen was allowed ample time to stabilize to the measurement environment.

Precision

The instrumental uncertainty (repeatability) is less than 0.01 CIE Y, standard deviation unit under illuminant D-65 for the 1964 standard 10° observer. This is in accordance with the practice describing E 1345-98 (2014), *Standard practice for reducing the effect of variability of color measurement by the use of multiple measurements*.

The specimen was measured two times with replacement to achieve a measurement variation of less than 0.03 CIE Y standard deviation unit under illuminant D-65 for the 1964 10° observer. This is in accordance with the practice described in E 1345-98 (2014), *Standard practice for reducing the effect of variability of color measurement by the use of multiple measurements*.

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Data Report

	Translucent
380	0.83
390	6.21
400	16.93
410	24.23
420	26.41
430	27.37
440	28.04
450	28.60
460	29.10
470	29.44
480	29.90
490	30.25
500	30.54
510	30.75
520	30.99
530	31.17
540	31.33
550	31.43
560	31.64
570	31.89
580	32.17
590	32.38
600	32.63
610	33.11
620	33.76
630	34.35
640	34.88
650	35.38
660	35.82
670	36.19
680	36.59
690	36.99
700	37.42
710	37.81
720	38.15
730	38.54
740	38.93
750	39.34
760	39.34
770	39.34
780	39.34
CIE X	**30.18**
CIE Y	**31.62**
CIE Z	**30.41**
CIE L*	**63.02**
CIE a*	**0.78**
CIE b*	**4.88**