

COOLEGE™

## COOLEGE LIGHT QUALITY METRICS: TILE INTERIOR R3 TUNABLE WHITE (2700K-5700K)

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### NOTES ABOUT LIGHT QUALITY METRICS DATA:

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- Values shown are TYPICAL – actual performance of individual units may vary
- The data presented has been generated in accordance with LM-79-08
- A complete summary of LM-79-08 data is provided for 600 lm/sqft (6450 lm/m<sup>2</sup>) TILE models only; however, spectral and color rendering data is applicable to TILE models of the same CCT at lower lumen output levels (150/1600 & 300/3225), including:
  - Spectral Power Distribution (SPD)
  - Nominal CCT
  - Chromaticity
  - $R_f$  and  $R_g$  (TM-30-15)
  - CRI ( $R_a$ ) and R-values
  - $D_{uv}$

### SELECTED DEFINITIONS

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- **Candlepower:** As presented in this document it is the same as “candela” the SI unit of measurement for light intensity.
- **CRI ( $R_a$ ):** The general Color Rendering Index based on 8 CIE reference pastel color samples.
- **$D_{uv}$ :** The American National Standards Institute (ANSI) references  $D_{uv}$ , a metric based on the CIE 1976 color space that quantifies the distance between the chromaticity of a given light source and a blackbody radiator of equal CCT. A negative  $D_{uv}$  indicates that the source is “below” the Planckian locus (blackbody curve), potentially having a red/blue tint, whereas a positive  $D_{uv}$  indicates that the source is “above” the curve, potentially exhibiting a green tint.
- **Nominal CCT Quadrangles:** ANSI has defined acceptable chromaticity quadrangles for LED binning in relation to the blackbody curve within CIE color space. The data presented shows the typical chromaticity coordinate within the relevant quadrangle.
- **R-value ( $R_i$ ):** The R-value is a mathematical calculation measuring how similar a light source renders a particular color compared to a reference blackbody source of the same CCT. R-values are not absolute and therefore cannot be used as a specific measurement of color rendering. For example, a 2700K source may have a lower R9 value than a 5700K source, however, in absolute terms the 2700K source will render saturated red much better than the 5700K source because of the relative abundance of red in the spectral power distribution (SPD) for the 2700K source in comparison.
- **R1-R15:** The data presented include the special CRI set of CIE 14 samples and the Japanese Industrial Standard (JIS) for R15.
- **$R_f$ :** The IESNA TM-30-15 technical memorandum for measuring color rendering defines a “fidelity” index,  $R_f$ , that is similar to CRI and quantifies the average difference in appearance between the test source and a reference source based on 99 reference colors.
- **$R_g$ :** The IESNA TM-30-15 technical memorandum for measuring color rendering defines a “gamut” index,  $R_g$ , that quantifies the average difference in color saturation between the test source and a reference source based on 99 reference colors.

# COOLEGE LIGHT QUALITY METRICS: TILE INTERIOR R3

## TUNABLE WHITE (2700K-5700K)

### LIGHTING PROPERTIES: TYPICAL PERFORMANCE

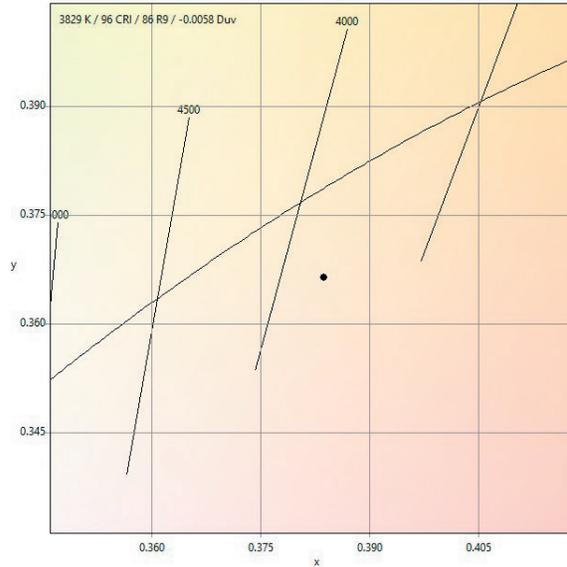
#### TEST CONDITIONS

Temp (°C)	DC Voltage (V)	Current (A)	Power (W)
25.0	54	0.083	4.5

#### COLOR RENDERING INDEX DETAILS

Reference	Value
R1	98
R2	98
R3	98
R4	96
R5	96
R6	94
R7	94
R8	93
R9	86
R10	98
R11	96
R12	73
R13	99
R14	98
R15	97

#### NOMINAL CCT QUADRANGLES



#### CHROMATICITY COORDINATES

Chromaticity (x)	0.3837
Chromaticity (y)	0.3664
Chromaticity (u)	0.2315
Chromaticity (v)	0.3316
Chromaticity (u)	0.2315
Chromaticity (v)	0.4974
Duv	-0.0058

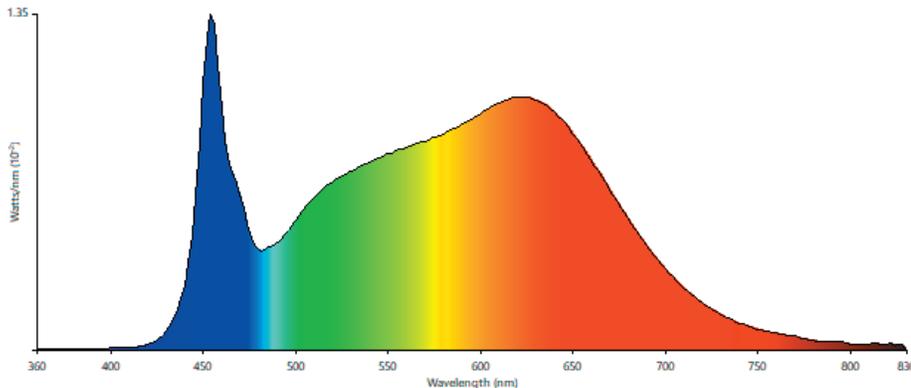
#### SUMMARY OF RESULTS

Total Lumen Output	582 Lumens
Luminaire Efficacy	129 lm/W
Maximum Candela	185 Candela
CCT	3829 K
CRI (Ra)	96
R9	86
TM-30 R <sub>f</sub>	89
TM-30 R <sub>g</sub>	100

#### INTENSITY (CANDLEPOWER) SUMMARY

Angle	Mean CP	Lumens
0	100%	100%
5	100%	
10	99%	97%
15	97%	
20	95%	89%
25	92%	
30	88%	76%
35	84%	
40	78%	60%
45	72%	
50	66%	42%
55	58%	
60	50%	25%
65	41%	
70	32%	12%
75	23%	
80	15%	3%
85	8%	
90	4%	

#### SPECTRAL POWER DISTRIBUTION (SPD)



Testing was performed in accordance with LM-79-08.

#### POLAR GRAPH

