COOLEDGE™

COOLEDGE LIGHT QUALITY METRICS: FABRICATED LUMINAIRES - TUNABLE WHITE

NOTES ABOUT LIGHT QUALITY METRICS DATA:

- 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 nominal 4x8 (1200x2400) FABRICated Luminaire models only; however, spectral and color rendering data is applicable to all luminaire sizes, models, and flux levels 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

- **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.

COOLEDGE LIGHT QUALITY METRICS: FABRICATED LUMINAIRES
TUNABLE WHITE 2700K-5700K (BOTH CHANNELS @50%)
4' X 8' RECESSED GRID (T-BAR)

LIGHTING PROPERTIES: TYPICAL PERFORMANCE

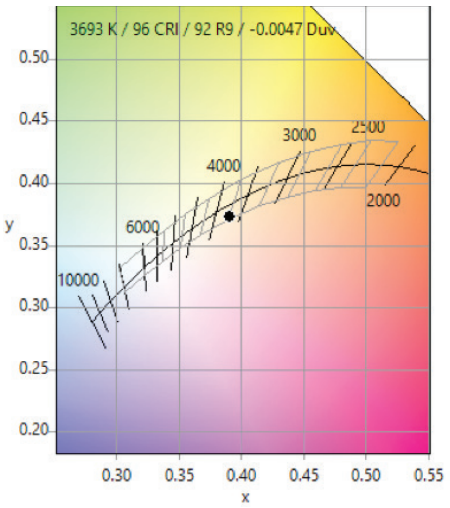
TEST CONDITIONS

Temp (ºC)	DC Voltage (V)	Current (A)	Power (W)
23.0	58	3.16	183.0

COLOR RENDERING INDEX DETAILS

Refernce	Value
R1	98
R2	97
R3	98
R4	96
R5	96
R6	94
R7	94
R8	94
R9	92
R10	96
R11	97
R12	76
R13	98
R14	100
R15	97

NOMINAL CCT QUADRANGLES



CHROMATICITY COORDINATES

Chromaticity (x)	0.3908
Chromaticity (y)	0.3727
Chromaticity (u)	0.2336
Chromaticity (v)	0.3342
Chromaticity (u')	0.2336
Chromaticity (v')	0.5013
Duv	-0.0047

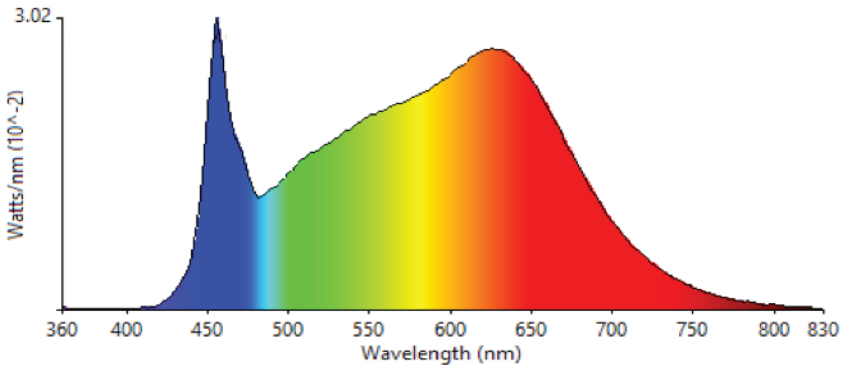
SUMMARY OF RESULTS

Total Lumen Output	12300 Lumens
Luminaire Efficacy	67 lm/W
Maximum Candela	4277.5 Candela
CCT	3693 K
CRI (Ra)	96
Duv	-0.0047
TM-30 R_f	90
TM-30 R_g	99

INTENSITY (CANDLEPOWER) SUMMARY

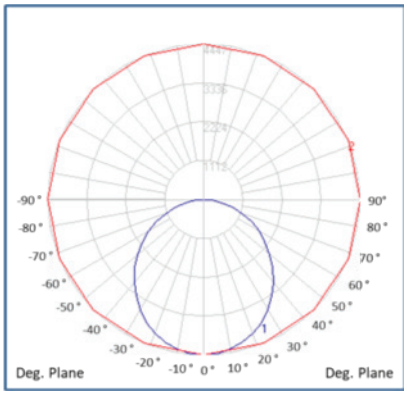
Angle	Mean CP	Lumens
0	100%	100%
5	99%	
10	98%	98%
15	95%	
20	92%	90%
25	87%	
30	82%	78%
35	76%	
40	70%	63%
45	63%	
50	56%	45%
55	48%	
60	42%	28%
65	34%	
70	26%	13%
75	19%	
80	12%	3%
85	5%	
90	0%	

SPECTRAL POWER DISTRIBUTION (SPD)



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

POLAR GRAPH



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