

Signify Classified - Internal  
Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269



Scaled data based on original data using  
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Test Report Prepared for  
Cooper Lighting Solutions  
(formerly Eaton)

Brand: INVUE

Report Number: P880489

Luminaire Tested: **EMM2-HSN-VA6-740-U-CQ**

Issue Date: 10/01/2024



**Test Information**

Test Method: LM-79-08  
Report Number: P880489  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 10/01/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: INVUE  
Catalog Number: EMM2-HSN-VA6-740-U-CQ  
Description: EPIC MODERN SHORT HOUSING 6W 70CRI 4000K VISUAL COMFORT FIXTURE w/  
TYPE V CONCENTRATED DISTRIBUTION OPTIC  
Light Source: (1) 4000K CCT, 70 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

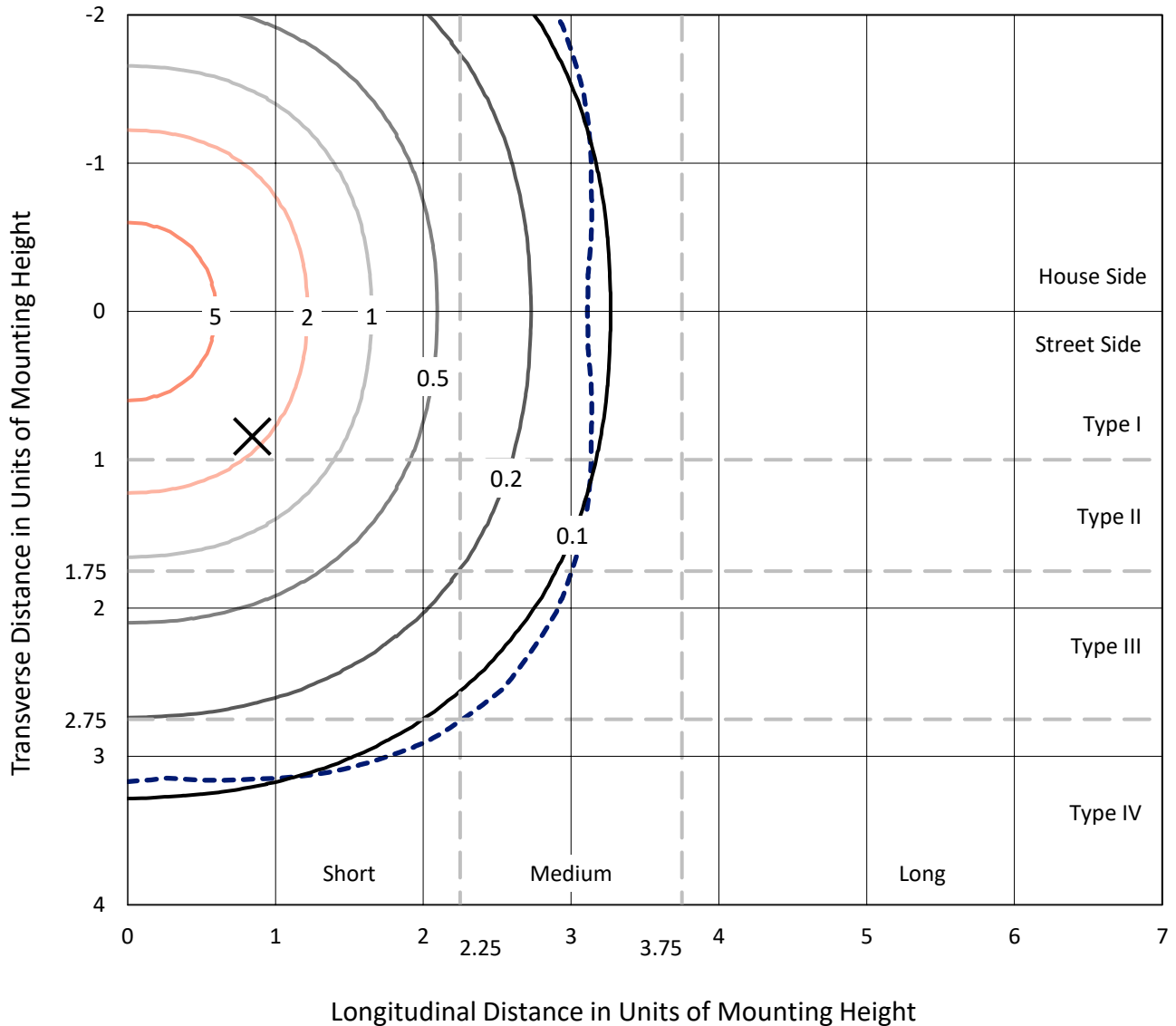
Lumens per Lamp: N/A  
Luminaire Lumens: 8211.9 lumens  
Efficiency: N/A  
Efficacy: 77.5 lumens/watt  
Luminous Opening: Circular (Dia: 1.12' x H: 0')  
IES Classification: Type V - Short  
BUG Rating: B3 - U0 - G1

Input Watts (W): 106  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.99  
Total Harmonic Distortion (THDi): 5%  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

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 CATALOG NUMBER: EMM2-HSN-VA6-740-U-CQ

### Iso-Footcandle Lines of Horizontal Illumination

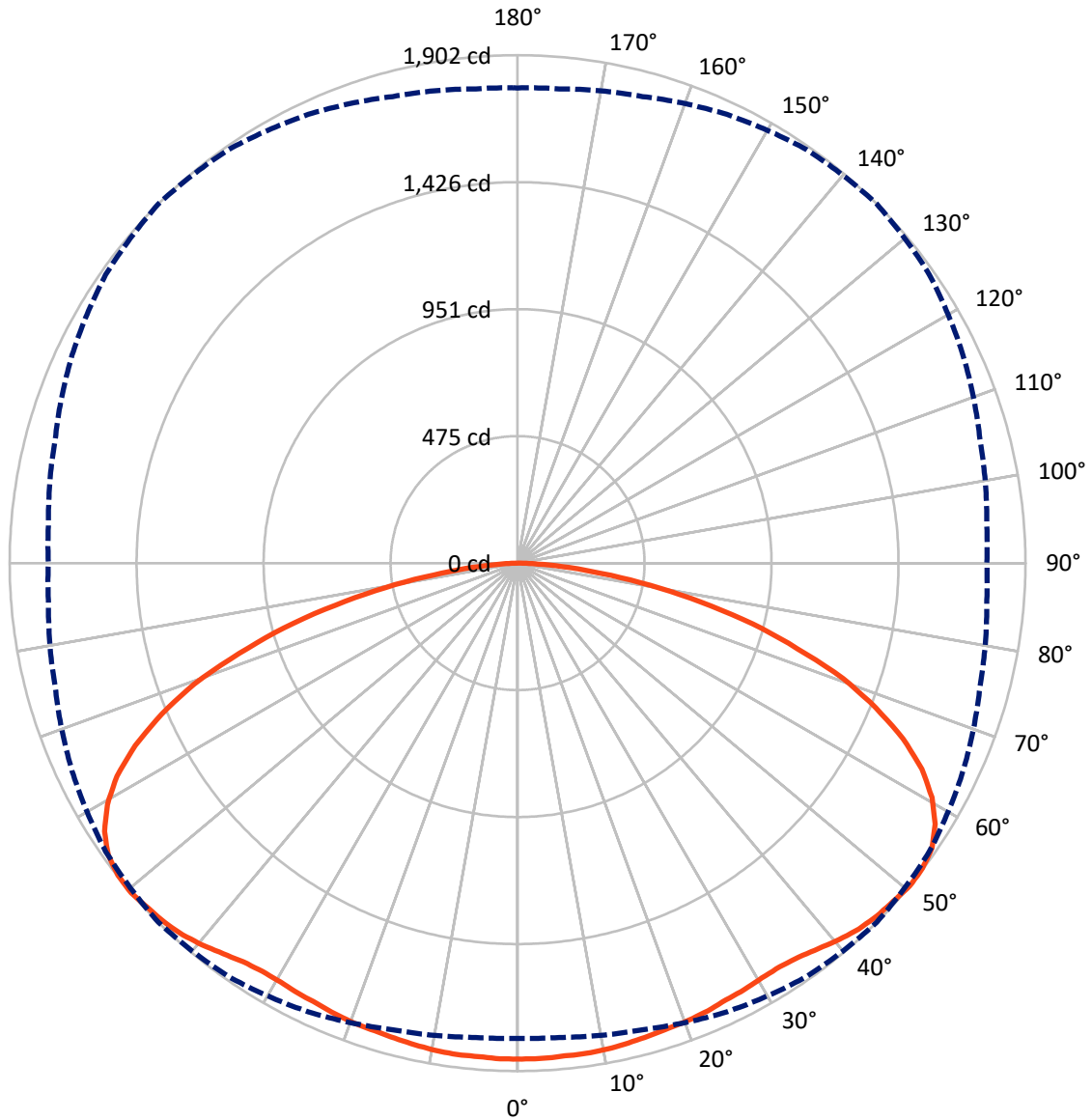
✕ Max cd  
 - - - 1/2 Max cd



Based on 15 foot mounting height. Maximum calculated value = 8.3 fc  
 Type V - Short - N/A

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### Luminous Intensity Polar Plot



— Vertical Plane Through 45-Deg Lateral    - - - Horizontal Cone Through 50-Deg Vertical

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**FLUX DISTRIBUTION:**

		Downward	Upward	Total
<b>House Side</b>	Lumens	4106.0	0.0	4106.0
	% Fixture	50.0	0.0	50.0
<b>Street Side</b>	Lumens	4106.0	0.0	4106.0
	% Fixture	50.0	0.0	50.0
<b>Total</b>	Lumens	8211.9	0.0	8211.9
	% Fixture	100.0	0.0	100.0

**Coefficient of Utilization**

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	176.9	2.2
10°-20°	520.3	6.3
20°-30°	837.0	10.2
30°-40°	1130.0	13.8
40°-50°	1420.6	17.3
50°-60°	1596.9	19.4
60°-70°	1454.2	17.7
70°-80°	878.1	10.7
80°-90°	197.9	2.4
90°-100°	0.0	0.0
100°-110°	0.0	0.0
110°-120°	0.0	0.0
120°-130°	0.0	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-90°	8211.9	100.0
0°-180°	8211.9	100.0



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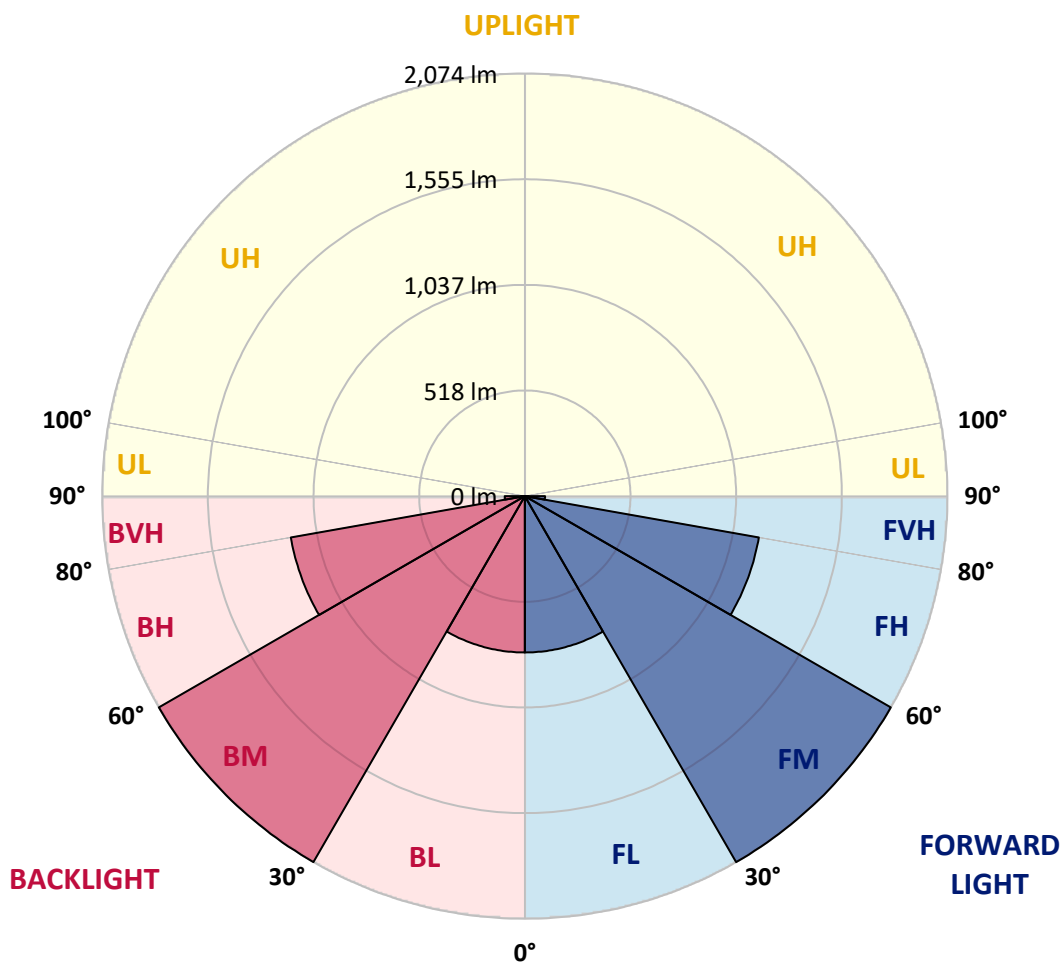
CATALOG NUMBER: EMM2-HSN-VA6-740-U-CQ

**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	767.1	9.3			
FM (30°-60°)	2073.8	25.3			
FH (60°-80°)	1166.1	14.2			G1/1800
FVH (80°-90°)	99.0	1.2			G1/100
BL (0°-30°)	767.1	9.3	B2/1000		
BM (30°-60°)	2073.8	25.3	B2/2500		
BH (60°-80°)	1166.1	14.2	B3/2500		G1/1800
BVH (80°-90°)	99.0	1.2			G1/100
UL (90°-100°)	0.0	0.0		U0/0	
UH (100°-180°)	0.0	0.0		U0/0	

**BUG Rating: B3-U0-G1**

Type V Short





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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	1856.8	1856.8	1856.8	1856.8	1856.8	1856.8	1856.8	1856.8	1856.8	1856.8	1856.8
2.5°	1856.8	1856.8	1856.8	1856.8	1856.8	1856.8	1856.8	1856.8	1856.8	1856.8	1856.8
5°	1853.6	1853.6	1853.6	1853.6	1853.6	1853.6	1853.6	1853.6	1853.6	1853.6	1856.8
7.5°	1850.4	1853.6	1853.6	1850.4	1853.6	1853.6	1853.6	1853.6	1853.6	1853.6	1853.6
10°	1847.1	1847.1	1850.4	1850.4	1850.4	1850.4	1850.4	1850.4	1850.4	1850.4	1847.1
12.5°	1840.7	1843.9	1843.9	1843.9	1843.9	1843.9	1843.9	1843.9	1843.9	1843.9	1843.9
15°	1837.5	1837.5	1837.5	1837.5	1837.5	1837.5	1837.5	1837.5	1834.2	1834.2	1837.5
17.5°	1827.8	1827.8	1831.0	1831.0	1831.0	1831.0	1831.0	1831.0	1827.8	1827.8	1827.8
20°	1821.3	1821.3	1824.6	1824.6	1824.6	1827.8	1824.6	1821.3	1821.3	1821.3	1821.3
22.5°	1814.9	1814.9	1818.1	1818.1	1821.3	1821.3	1818.1	1818.1	1814.9	1814.9	1814.9
25°	1808.5	1808.5	1808.5	1811.7	1814.9	1811.7	1811.7	1808.5	1805.2	1802.0	1802.0
27.5°	1798.8	1798.8	1798.8	1805.2	1805.2	1808.5	1805.2	1802.0	1795.6	1792.3	1792.3
30°	1789.1	1789.1	1792.3	1798.8	1802.0	1802.0	1798.8	1792.3	1785.9	1782.7	1782.7
32.5°	1779.4	1782.7	1785.9	1795.6	1798.8	1802.0	1795.6	1789.1	1779.4	1773.0	1773.0
35°	1779.4	1779.4	1789.1	1798.8	1808.5	1811.7	1805.2	1792.3	1779.4	1769.8	1769.8
37.5°	1782.7	1785.9	1798.8	1811.7	1824.6	1831.0	1821.3	1805.2	1785.9	1773.0	1773.0
40°	1795.6	1795.6	1811.7	1834.2	1850.4	1853.6	1843.9	1821.3	1795.6	1779.4	1776.2
42.5°	1802.0	1805.2	1821.3	1847.1	1866.5	1872.9	1860.0	1834.2	1802.0	1779.4	1776.2
45°	1802.0	1805.2	1824.6	1853.6	1879.4	1885.8	1872.9	1840.7	1805.2	1782.7	1776.2
47.5°	1792.3	1795.6	1821.3	1856.8	1885.8	1892.3	1876.1	1843.9	1802.0	1776.2	1769.8
50°	1779.4	1782.7	1808.5	1853.6	1889.0	1901.9	1882.6	1840.7	1792.3	1763.3	1756.9
52.5°	1753.6	1756.9	1792.3	1840.7	1885.8	1898.7	1876.1	1831.0	1773.0	1740.8	1734.3
55°	1715.0	1721.4	1756.9	1814.9	1866.5	1882.6	1856.8	1805.2	1744.0	1705.3	1698.8
57.5°	1663.4	1666.6	1708.5	1773.0	1827.8	1843.9	1818.1	1763.3	1695.6	1653.7	1650.5
60°	1589.2	1595.7	1644.0	1708.5	1766.5	1782.7	1756.9	1698.8	1627.9	1582.8	1579.6
62.5°	1499.0	1505.4	1550.6	1624.7	1682.7	1698.8	1673.1	1611.8	1540.9	1492.5	1489.3
65°	1386.2	1392.6	1437.7	1508.7	1569.9	1586.0	1563.5	1499.0	1428.1	1382.9	1376.5
67.5°	1260.4	1266.9	1308.8	1370.0	1424.8	1447.4	1424.8	1370.0	1302.3	1247.5	1241.1
70°	1108.9	1108.9	1150.8	1212.1	1263.7	1292.7	1263.7	1208.9	1141.2	1096.0	1096.0
72.5°	951.0	944.5	983.2	1041.2	1083.1	1096.0	1089.6	1041.2	976.8	934.8	928.4
75°	760.8	773.7	802.7	844.6	889.7	909.1	886.5	844.6	799.5	764.0	760.8
77.5°	589.9	599.6	625.4	660.8	686.6	699.5	693.1	660.8	612.5	596.4	589.9
80°	415.8	422.3	444.9	470.6	490.0	502.9	493.2	467.4	441.6	425.5	419.1
82.5°	270.8	267.6	286.9	303.0	319.1	315.9	312.7	293.3	283.7	270.8	267.6
85°	138.6	141.8	141.8	158.0	161.2	167.6	164.4	158.0	141.8	135.4	138.6
87.5°	45.1	45.1	48.4	48.4	54.8	54.8	58.0	51.6	48.4	41.9	41.9
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269



LM-79-2019: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

Streetworks

Report Number: SP1-2407-176-5

Test Date: 09/24/2024

Luminaire Tested: MEM2-HTN-VA-30-740-U-WQ

Data in this report applies to families of products including MEM2-HTN-VA-30-740-U-WQ



**Test Information**

Test Method: LM-79-2019  
 Report Number: SP1-2407-176-5  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1 - 76IN SPHERE  
 Measurement Geometry: 4π  
 Issue Date: 09/27/2024  
 Manufacturer: COOPER LIGHTING SOLUTIONS  
 Product Line: Streetworks  
 Catalog Number: **MEM2-HTN-VA-30-740-U-WQ**  
 Description: EPIC MODERN VISUAL COMFORT 30W WAVESTREAM WIDE

**Spectral Parameters**

CCT (K): 3819  
 CIE u': 0.2261  
 CIE v': 0.5108  
 Duv: 0.0046  
 CIE x: 0.3926  
 CIE y: 0.3942  
 CIE z: 0.2132  
 Peak Wavelength (nm): 450  
 Dominant Wavelength (nm): 577  
 Purity: 36.15483  
 Rf: 75.6  
 Rg: 94.8

CRI (Ra):	72.9		
R1:	70.1	R9:	-21.5
R2:	78.4	R10:	48.5
R3:	85.0	R11:	68.4
R4:	72.9	R12:	39.0
R5:	69.1	R13:	71.1
R6:	69.2	R14:	91.3
R7:	82.8	R15:	63.2
R8:	55.4		



**Test Conditions**

Stabilization Time: 30M  
 Operation Time: 1H 30M  
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2407-176-5

Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/18/2024	12/18/2024
Power Meter	INXT2011004	2/8/2024	2/8/2025
AC Power Source	IN0063	10/24/2023	10/24/2024
DC Power Source	IN0208	10/24/2023	10/24/2024
Sphere Thermometer	IN0085	10/24/2023	10/24/2024
Room Thermometer	IN0046	10/24/2023	10/24/2024

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CIE 1931 Chromaticity Diagram



CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles

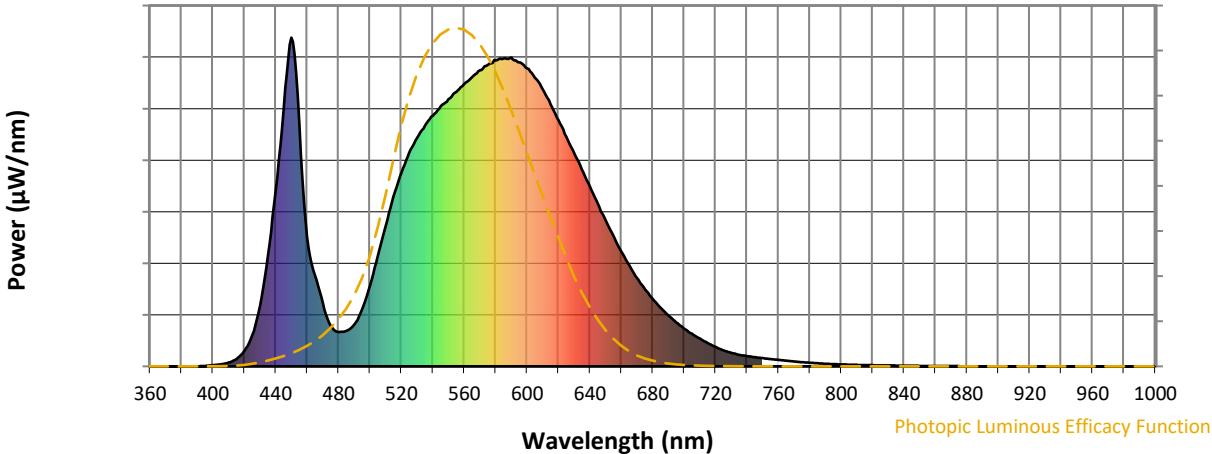


CCT = 3819K  
 CIE x = 0.3926  
 CIE y = 0.3942  
 Duv = 0.0046

Point lies inside the ANSI 4000K 7-step quadrangle

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**Photopic Flux vs. Wavelength**

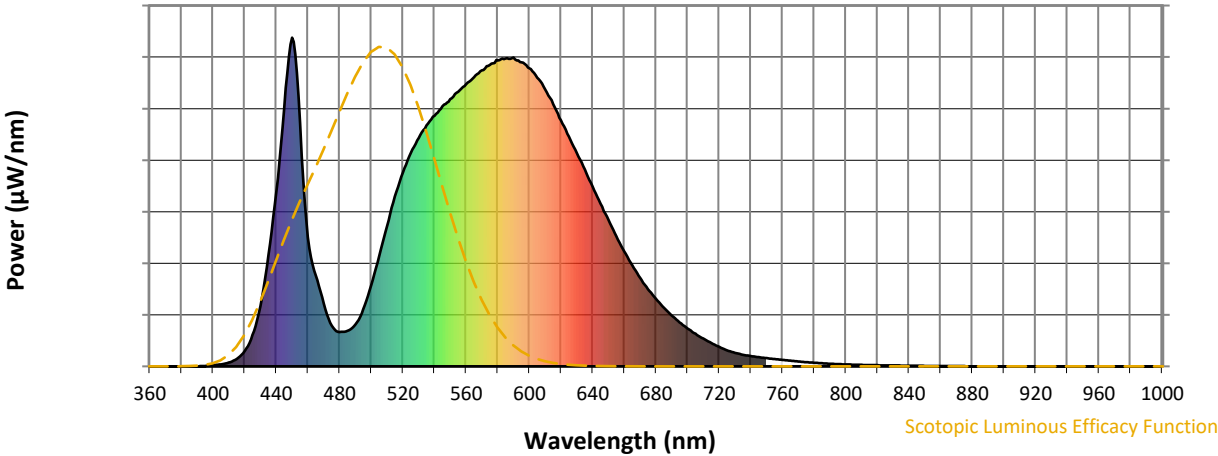


**Photopic Lumens: NR**

λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)
360	0	NR	490	127	NR	620	748	NR	750	25	NR	880	0	NR
365	0	NR	495	173	NR	625	699	NR	755	22	NR	885	0	NR
370	0	NR	500	246	NR	630	648	NR	760	20	NR	890	0	NR
375	0	NR	505	335	NR	635	599	NR	765	17	NR	895	0	NR
380	0	NR	510	427	NR	640	547	NR	770	15	NR	900	0	NR
385	0	NR	515	517	NR	645	495	NR	775	13	NR	905	0	NR
390	0	NR	520	589	NR	650	445	NR	780	11	NR	910	0	NR
395	1	NR	525	649	NR	655	396	NR	785	9	NR	915	0	NR
400	4	NR	530	695	NR	660	349	NR	790	8	NR	920	0	NR
405	6	NR	535	733	NR	665	308	NR	795	7	NR	925	0	NR
410	11	NR	540	763	NR	670	269	NR	800	6	NR	930	0	NR
415	23	NR	545	792	NR	675	235	NR	805	5	NR	935	0	NR
420	46	NR	550	813	NR	680	205	NR	810	5	NR	940	0	NR
425	95	NR	555	835	NR	685	178	NR	815	4	NR	945	0	NR
430	183	NR	560	859	NR	690	155	NR	820	3	NR	950	0	NR
435	338	NR	565	880	NR	695	134	NR	825	3	NR	955	0	NR
440	534	NR	570	900	NR	700	115	NR	830	3	NR	960	0	NR
445	782	NR	575	918	NR	705	99	NR	835	2	NR	965	0	NR
450	1000	NR	580	931	NR	710	84	NR	840	2	NR	970	0	NR
455	739	NR	585	937	NR	715	71	NR	845	2	NR	975	0	NR
460	393	NR	590	939	NR	720	59	NR	850	1	NR	980	0	NR
465	276	NR	595	925	NR	725	49	NR	855	1	NR	985	0	NR
470	190	NR	600	907	NR	730	41	NR	860	1	NR	990	0	NR
475	123	NR	605	878	NR	735	35	NR	865	1	NR	995	0	NR
480	105	NR	610	842	NR	740	31	NR	870	1	NR	1000	0	NR
485	108	NR	615	797	NR	745	28	NR	875	1	NR			

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Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.45

λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)
360	0	NR	490	127	NR	620	748	NR	750	25	NR	880	0	NR
365	0	NR	495	173	NR	625	699	NR	755	22	NR	885	0	NR
370	0	NR	500	246	NR	630	648	NR	760	20	NR	890	0	NR
375	0	NR	505	335	NR	635	599	NR	765	17	NR	895	0	NR
380	0	NR	510	427	NR	640	547	NR	770	15	NR	900	0	NR
385	0	NR	515	517	NR	645	495	NR	775	13	NR	905	0	NR
390	0	NR	520	589	NR	650	445	NR	780	11	NR	910	0	NR
395	1	NR	525	649	NR	655	396	NR	785	9	NR	915	0	NR
400	4	NR	530	695	NR	660	349	NR	790	8	NR	920	0	NR
405	6	NR	535	733	NR	665	308	NR	795	7	NR	925	0	NR
410	11	NR	540	763	NR	670	269	NR	800	6	NR	930	0	NR
415	23	NR	545	792	NR	675	235	NR	805	5	NR	935	0	NR
420	46	NR	550	813	NR	680	205	NR	810	5	NR	940	0	NR
425	95	NR	555	835	NR	685	178	NR	815	4	NR	945	0	NR
430	183	NR	560	859	NR	690	155	NR	820	3	NR	950	0	NR
435	338	NR	565	880	NR	695	134	NR	825	3	NR	955	0	NR
440	534	NR	570	900	NR	700	115	NR	830	3	NR	960	0	NR
445	782	NR	575	918	NR	705	99	NR	835	2	NR	965	0	NR
450	1000	NR	580	931	NR	710	84	NR	840	2	NR	970	0	NR
455	739	NR	585	937	NR	715	71	NR	845	2	NR	975	0	NR
460	393	NR	590	939	NR	720	59	NR	850	1	NR	980	0	NR
465	276	NR	595	925	NR	725	49	NR	855	1	NR	985	0	NR
470	190	NR	600	907	NR	730	41	NR	860	1	NR	990	0	NR
475	123	NR	605	878	NR	735	35	NR	865	1	NR	995	0	NR
480	105	NR	610	842	NR	740	31	NR	870	1	NR	1000	0	NR
485	108	NR	615	797	NR	745	28	NR	875	1	NR			

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Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.76

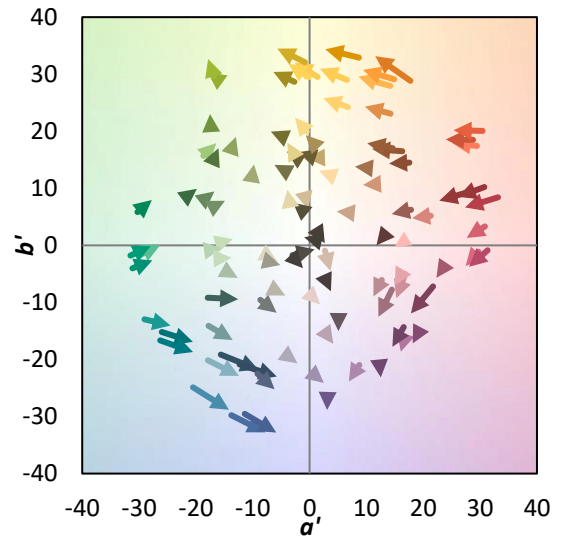
λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)
360	0	NR	490	127	NR	620	748	NR	750	25	NR	880	0	NR
365	0	NR	495	173	NR	625	699	NR	755	22	NR	885	0	NR
370	0	NR	500	246	NR	630	648	NR	760	20	NR	890	0	NR
375	0	NR	505	335	NR	635	599	NR	765	17	NR	895	0	NR
380	0	NR	510	427	NR	640	547	NR	770	15	NR	900	0	NR
385	0	NR	515	517	NR	645	495	NR	775	13	NR	905	0	NR
390	0	NR	520	589	NR	650	445	NR	780	11	NR	910	0	NR
395	1	NR	525	649	NR	655	396	NR	785	9	NR	915	0	NR
400	4	NR	530	695	NR	660	349	NR	790	8	NR	920	0	NR
405	6	NR	535	733	NR	665	308	NR	795	7	NR	925	0	NR
410	11	NR	540	763	NR	670	269	NR	800	6	NR	930	0	NR
415	23	NR	545	792	NR	675	235	NR	805	5	NR	935	0	NR
420	46	NR	550	813	NR	680	205	NR	810	5	NR	940	0	NR
425	95	NR	555	835	NR	685	178	NR	815	4	NR	945	0	NR
430	183	NR	560	859	NR	690	155	NR	820	3	NR	950	0	NR
435	338	NR	565	880	NR	695	134	NR	825	3	NR	955	0	NR
440	534	NR	570	900	NR	700	115	NR	830	3	NR	960	0	NR
445	782	NR	575	918	NR	705	99	NR	835	2	NR	965	0	NR
450	1000	NR	580	931	NR	710	84	NR	840	2	NR	970	0	NR
455	739	NR	585	937	NR	715	71	NR	845	2	NR	975	0	NR
460	393	NR	590	939	NR	720	59	NR	850	1	NR	980	0	NR
465	276	NR	595	925	NR	725	49	NR	855	1	NR	985	0	NR
470	190	NR	600	907	NR	730	41	NR	860	1	NR	990	0	NR
475	123	NR	605	878	NR	735	35	NR	865	1	NR	995	0	NR
480	105	NR	610	842	NR	740	31	NR	870	1	NR	1000	0	NR
485	108	NR	615	797	NR	745	28	NR	875	1	NR			

**Summary**

$R_f = 75.6$   
 $R_g = 94.8$   
 $CIE R_a = 72.9$   
 $R_g = -21.5$



**Color Vector Graphics**



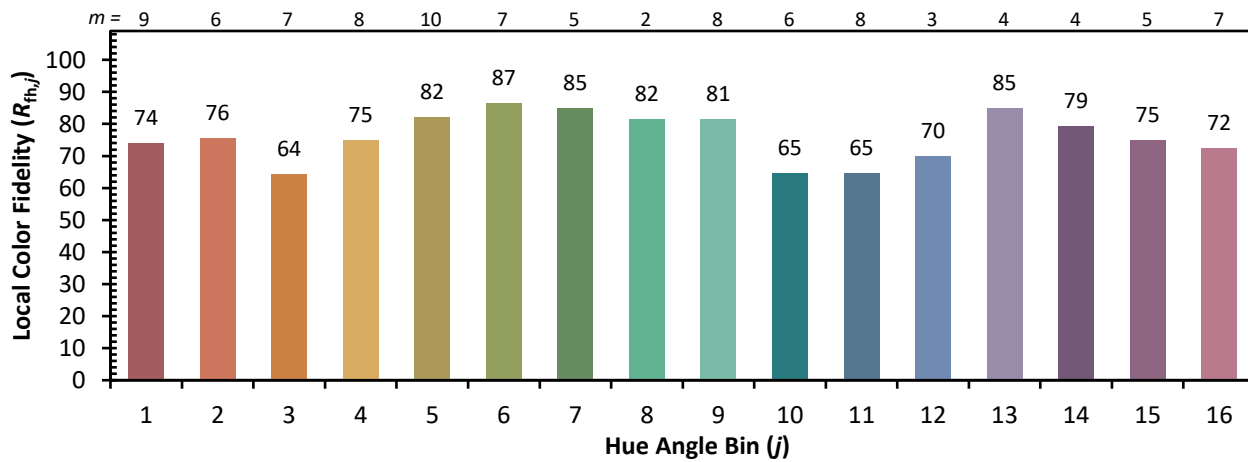
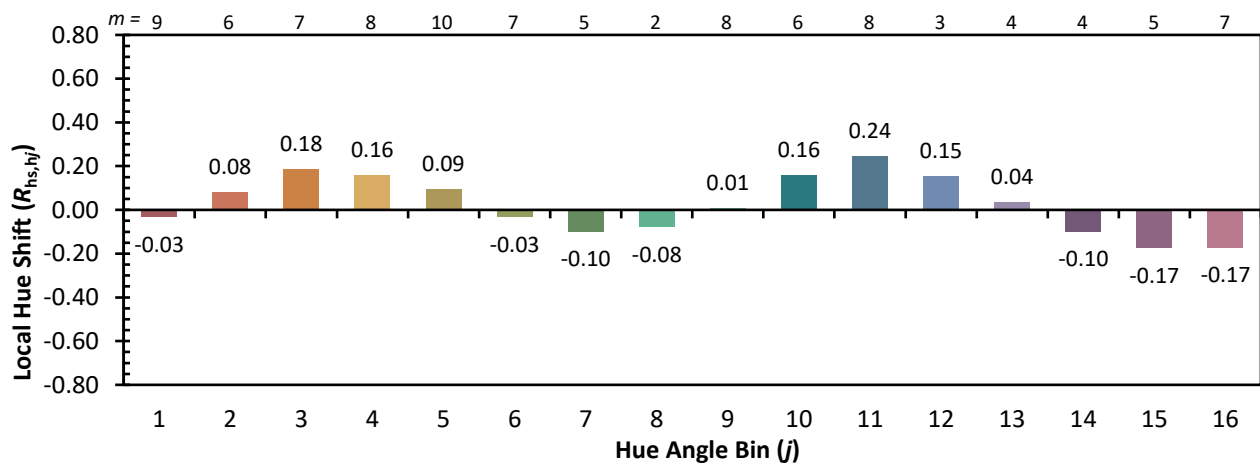
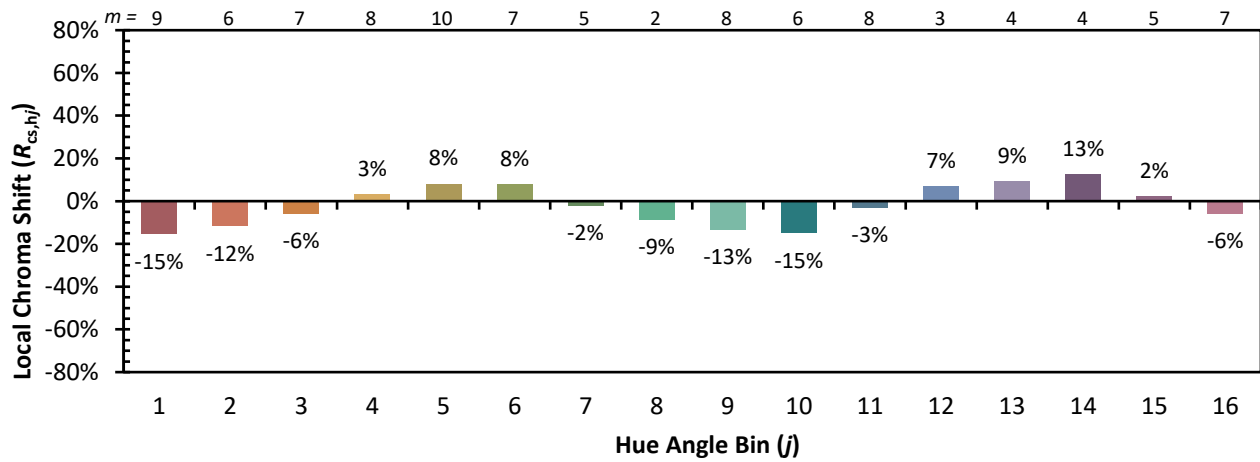
**Individual Sample Fidelity Index ( $R_{f,i}$ )**

CES01 = 85	CES26 = 65	CES51 = 89	CES76 = 53
CES02 = 61	CES27 = 89	CES52 = 88	CES77 = 71
CES03 = 30	CES28 = 82	CES53 = 78	CES78 = 56
CES04 = 70	CES29 = 68	CES54 = 85	CES79 = 83
CES05 = 48	CES30 = 84	CES55 = 84	CES80 = 79
CES06 = 50	CES31 = 71	CES56 = 74	CES81 = 79
CES07 = 40	CES32 = 63	CES57 = 73	CES82 = 91
CES08 = 39	CES33 = 79	CES58 = 74	CES83 = 90
CES09 = 29	CES34 = 72	CES59 = 86	CES84 = 87
CES10 = 74	CES35 = 84	CES60 = 90	CES85 = 78
CES11 = 57	CES36 = 91	CES61 = 84	CES86 = 74
CES12 = 63	CES37 = 79	CES62 = 85	CES87 = 78
CES13 = 42	CES38 = 93	CES63 = 73	CES88 = 82
CES14 = 74	CES39 = 96	CES64 = 67	CES89 = 72
CES15 = 71	CES40 = 91	CES65 = 64	CES90 = 81
CES16 = 47	CES41 = 93	CES66 = 60	CES91 = 75
CES17 = 49	CES42 = 80	CES67 = 57	CES92 = 62
CES18 = 56	CES43 = 78	CES68 = 66	CES93 = 77
CES19 = 72	CES44 = 99	CES69 = 75	CES94 = 57
CES20 = 65	CES45 = 86	CES70 = 58	CES95 = 68
CES21 = 86	CES46 = 83	CES71 = 51	CES96 = 78
CES22 = 78	CES47 = 86	CES72 = 84	CES97 = 85
CES23 = 92	CES48 = 78	CES73 = 49	CES98 = 77
CES24 = 91	CES49 = 81	CES74 = 93	CES99 = 67
CES25 = 72	CES50 = 88	CES75 = 53	





Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)