

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: P880302

Luminaire Tested: **EMM2-HTN-VA5-735-U-WQ**

Issue Date: 10/01/2024



**Test Information**

Test Method: LM-79-08  
Report Number: P880302  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 10/01/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: INVUE  
Catalog Number: EMM2-HTN-VA5-735-U-WQ  
Description: EPIC MODERN TALL HOUSING 5W 70CRI 3500K VISUAL COMFORT FIXTURE w/  
TYPE V WIDE DISTRIBUTION OPTIC  
Light Source: (1) 3500K CCT, 70 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

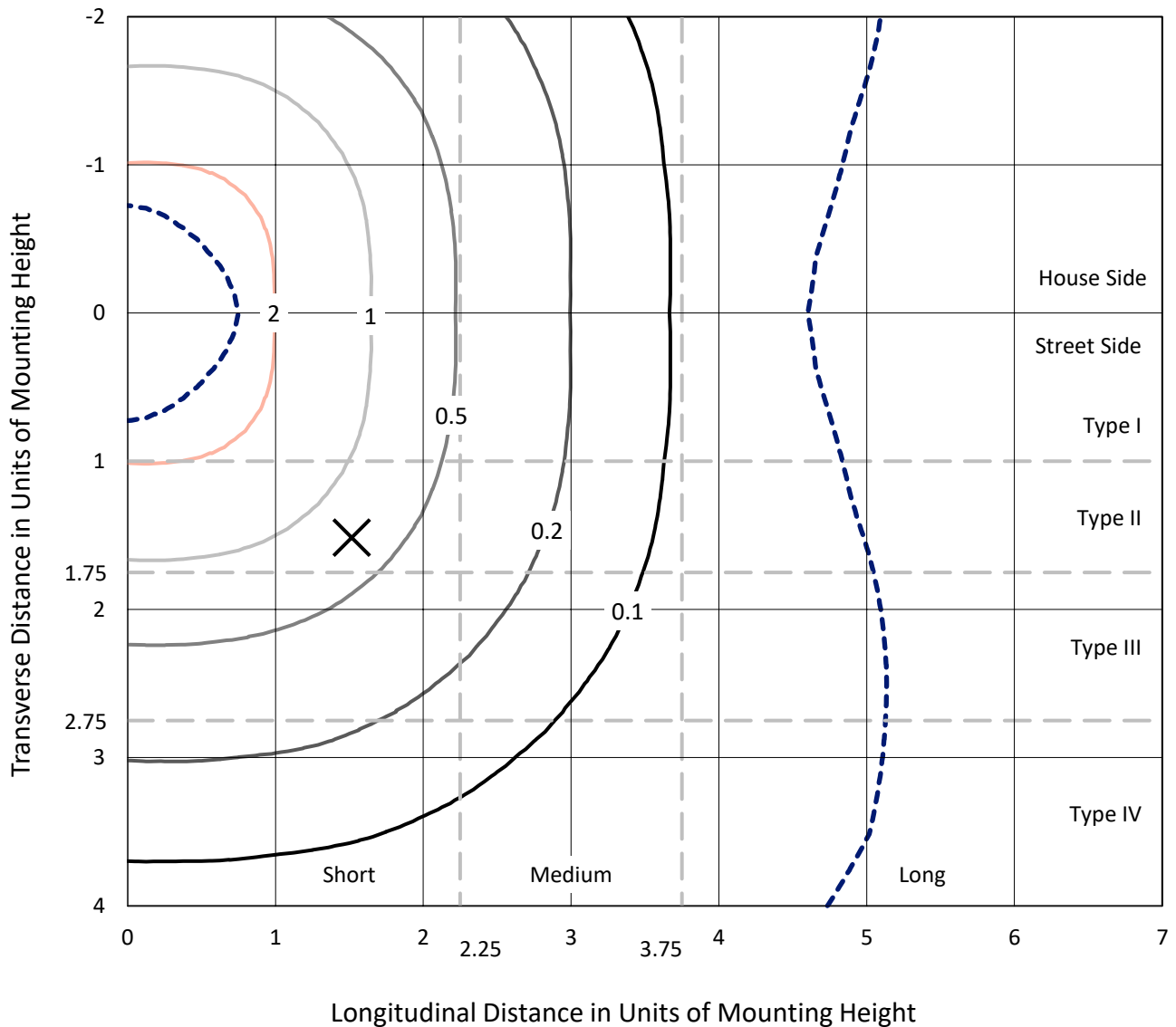
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 7655.2 lumens  
Efficiency: N/A  
Efficacy: 98.1 lumens/watt  
Luminous Opening: Circular (Dia: 1.12' x H: 0')  
IES Classification: Type V - Short  
BUG Rating: B3 - U0 - G3  
  
Input Watts (W): 78  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.99  
Total Harmonic Distortion (THDi): 6%  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

REPORT NUMBER: P880302  
 CATALOG NUMBER: EMM2-HTN-VA5-735-U-WQ

### Iso-Footcandle Lines of Horizontal Illumination

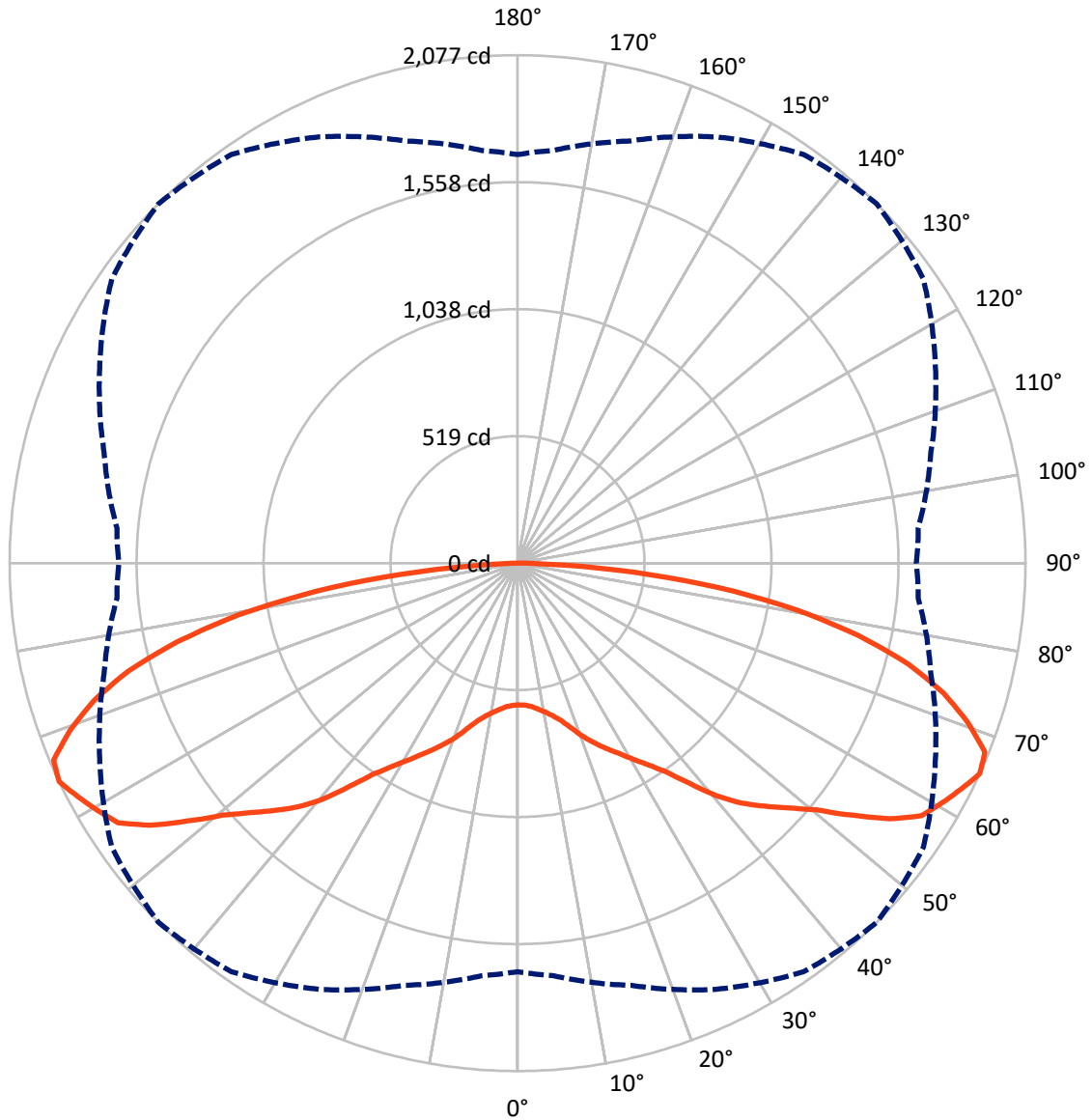
× Max cd  
 - - - 1/2 Max cd



Based on 15 foot mounting height. Maximum calculated value = 2.8 fc  
 Type V - Short - N/A

REPORT NUMBER: P880302  
CATALOG NUMBER: EMM2-HTN-VA5-735-U-WQ

### Luminous Intensity Polar Plot



— Vertical Plane Through 45-Deg Lateral      - - - Horizontal Cone Through 65-Deg Vertical

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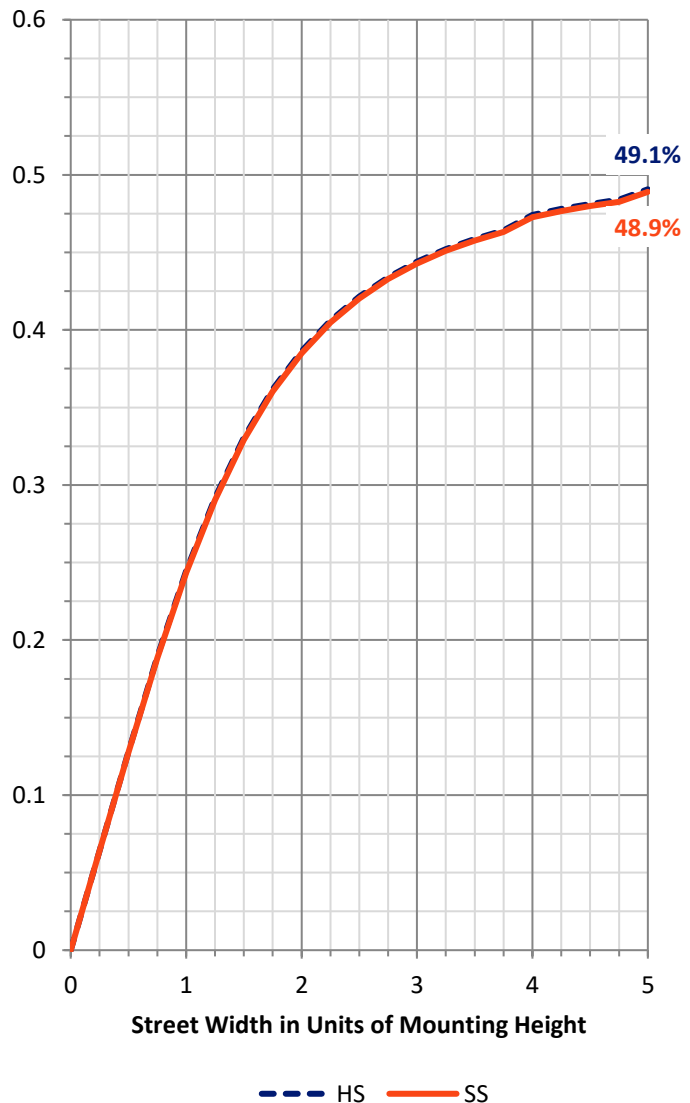
**FLUX DISTRIBUTION:**

		Downward	Upward	Total
<b>House Side</b>	Lumens	3827.6	0.0	3827.6
	% Fixture	50.0	0.0	50.0
<b>Street Side</b>	Lumens	3827.6	0.0	3827.6
	% Fixture	50.0	0.0	50.0
<b>Total</b>	Lumens	7655.2	0.0	7655.2
	% Fixture	100.0	0.0	100.0

**Coefficient of Utilization**

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	57.2	0.7
10°-20°	192.6	2.5
20°-30°	387.0	5.1
30°-40°	655.0	8.6
40°-50°	1047.2	13.7
50°-60°	1512.5	19.8
60°-70°	1821.3	23.8
70°-80°	1508.9	19.7
80°-90°	473.5	6.2
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°	7655.2	100.0
0°-180°	7655.2	100.0



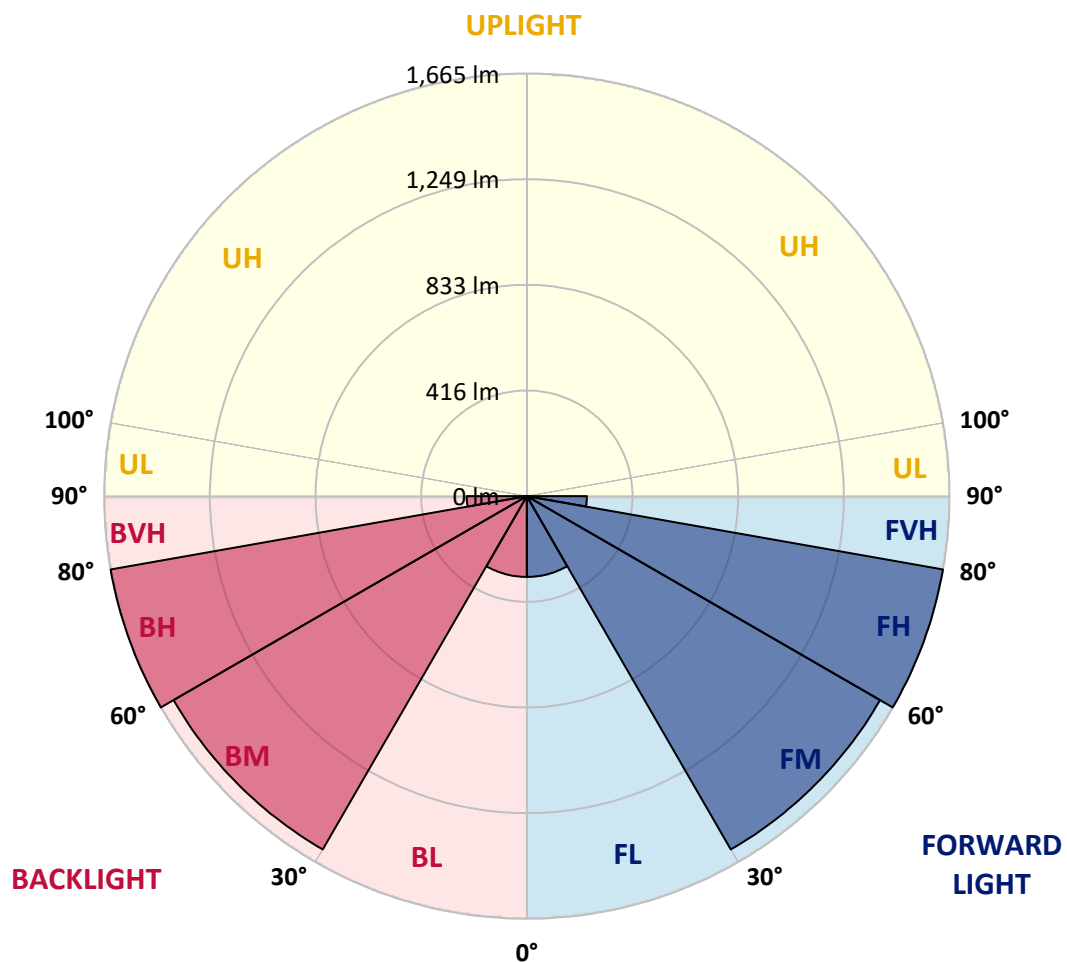
REPORT NUMBER: P880302  
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**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

Zone	Lumens	% Fixture	Zone Rating/Lumen Limit		
			B	U	G
FL (0°-30°)	318.4	4.2			
FM (30°-60°)	1607.4	21.0			
FH (60°-80°)	1665.1	21.8			G1/1800
FVH (80°-90°)	236.7	3.1			G3/500
BL (0°-30°)	318.4	4.2	B1/500		
BM (30°-60°)	1607.4	21.0	B2/2500		
BH (60°-80°)	1665.1	21.8	B3/2500		G1/1800
BVH (80°-90°)	236.7	3.1			G3/500
UL (90°-100°)	0.0	0.0		U0/0	
UH (100°-180°)	0.0	0.0		U0/0	

**BUG Rating: B3-U0-G3**

Type V Short





REPORT NUMBER: P880302

CATALOG NUMBER: EMM2-HTN-VA5-735-U-WQ

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	579.4	579.4	579.4	579.4	579.4	579.4	579.4	579.4	579.4	579.4	579.4
2.5°	581.7	581.7	581.7	581.7	581.7	581.7	581.7	581.7	581.7	581.7	581.7
5°	591.1	591.1	591.1	588.7	588.7	588.7	591.1	591.1	591.1	591.1	591.1
7.5°	602.8	602.8	602.8	602.8	602.8	602.8	600.4	600.4	600.4	600.4	602.8
10°	619.1	621.4	621.4	619.1	619.1	619.1	616.8	616.8	619.1	619.1	616.8
12.5°	642.5	642.5	642.5	642.5	640.1	640.1	640.1	640.1	640.1	640.1	640.1
15°	668.2	668.2	668.2	668.2	668.2	668.2	668.2	668.2	665.8	663.5	663.5
17.5°	700.9	698.5	703.2	700.9	705.5	707.9	703.2	700.9	698.5	696.2	693.9
20°	740.6	742.9	747.6	749.9	752.3	754.6	747.6	745.3	740.6	738.3	735.9
22.5°	787.3	787.3	792.0	792.0	796.7	796.7	794.3	787.3	782.6	782.6	780.3
25°	827.0	829.4	834.0	834.0	838.7	838.7	836.4	831.7	824.7	820.0	817.7
27.5°	869.1	869.1	871.4	878.4	880.8	880.8	878.4	871.4	862.1	857.4	857.4
30°	908.8	911.1	913.5	922.8	927.5	929.8	920.5	913.5	901.8	897.1	897.1
32.5°	955.5	955.5	960.2	974.2	981.2	983.6	974.2	962.5	948.5	939.2	939.2
35°	1006.9	1004.6	1018.6	1032.6	1049.0	1049.0	1042.0	1023.3	1002.3	990.6	988.2
37.5°	1074.7	1077.0	1091.0	1116.7	1142.4	1142.4	1135.4	1102.7	1079.3	1058.3	1053.6
40°	1154.1	1156.4	1182.1	1212.5	1240.5	1249.9	1235.9	1203.2	1163.5	1133.1	1130.7
42.5°	1221.9	1231.2	1256.9	1299.0	1327.0	1341.0	1320.0	1282.6	1238.2	1203.2	1196.2
45°	1287.3	1296.6	1329.3	1373.7	1408.8	1418.1	1399.4	1355.0	1303.6	1266.2	1261.6
47.5°	1348.0	1357.4	1390.1	1448.5	1485.9	1495.2	1478.8	1427.4	1364.4	1327.0	1322.3
50°	1404.1	1425.1	1464.8	1527.9	1581.6	1586.3	1563.0	1502.2	1436.8	1385.4	1378.4
52.5°	1481.2	1490.5	1546.6	1630.7	1691.4	1712.5	1675.1	1609.7	1513.9	1453.1	1441.5
55°	1574.6	1579.3	1640.0	1738.2	1817.6	1845.6	1798.9	1714.8	1605.0	1544.3	1534.9
57.5°	1628.4	1649.4	1719.5	1824.6	1911.1	1948.4	1904.0	1794.2	1686.8	1609.7	1588.6
60°	1651.7	1672.8	1749.9	1876.0	1969.5	1992.8	1960.1	1852.6	1712.5	1626.0	1612.0
62.5°	1675.1	1696.1	1773.2	1911.1	2002.2	2034.9	1983.5	1887.7	1735.8	1651.7	1633.0
65°	1670.4	1693.8	1787.2	1922.7	2039.5	2076.9	2025.5	1885.4	1749.9	1644.7	1630.7
67.5°	1623.7	1644.7	1742.8	1892.4	2020.9	2060.6	2004.5	1859.7	1707.8	1600.3	1584.0
70°	1530.2	1555.9	1651.7	1815.3	1934.4	1953.1	1911.1	1780.2	1621.4	1506.9	1485.9
72.5°	1404.1	1429.8	1527.9	1696.1	1789.6	1822.3	1775.5	1663.4	1502.2	1385.4	1366.7
75°	1254.6	1270.9	1362.0	1520.9	1621.4	1651.7	1616.7	1495.2	1331.7	1238.2	1217.2
77.5°	1079.3	1102.7	1184.5	1317.6	1397.1	1425.1	1392.4	1306.0	1154.1	1074.7	1058.3
80°	848.1	876.1	950.9	1051.3	1135.4	1156.4	1128.4	1035.0	939.2	852.7	834.0
82.5°	612.1	619.1	686.9	759.3	822.4	834.0	813.0	761.6	661.2	602.8	577.1
85°	320.1	329.4	378.5	432.2	471.9	478.9	469.6	413.5	380.8	327.1	306.0
87.5°	72.4	74.8	88.8	98.1	119.1	116.8	123.8	98.1	93.4	77.1	67.8
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: SP1-2407-176-4

Test Date: 09/24/2024

Luminaire Tested: MEM2-HTN-VA-30-735-U-WQ

Data in this report applies to families of products including MEM2-HTN-VA-30-735-U-WQ



**Test Information**

Test Method: LM-79-2019  
 Report Number: SP1-2407-176-4  
 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-30-735-U-WQ**  
 Description: EPIC MODERN VISUAL COMFORT 30W WAVESTREAM WIDE

**Spectral Parameters**

CCT (K): 3348  
 CIE u': 0.2384  
 CIE v': 0.5184  
 Duv: 0.0030  
 CIE x: 0.4177  
 CIE y: 0.4036  
 CIE z: 0.1787  
 Peak Wavelength (nm): 593  
 Dominant Wavelength (nm): 580  
 Purity: 46.5223  
 Rf: 75.8  
 Rg: 95.8

CRI (Ra):	73.4		
R1:	70.8	R9:	-19.2
R2:	79.9	R10:	52.5
R3:	87.6	R11:	68.0
R4:	72.6	R12:	42.6
R5:	69.3	R13:	72.0
R6:	71.3	R14:	92.6
R7:	82.1	R15:	63.8
R8:	53.3		



**Test Conditions**

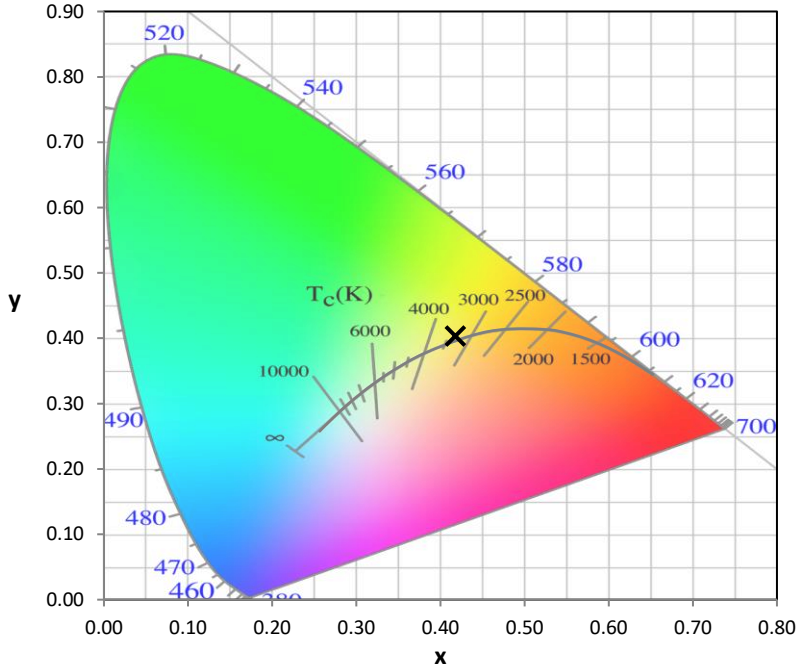
Stabilization Time: 30M  
 Operation Time: 1H 30M  
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2407-176-4

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

REPORT NUMBER: SP1-2407-176-4

CIE 1931 Chromaticity Diagram



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



Point lies inside the ANSI 3500K 4-step quadrangle

REPORT NUMBER: SP1-2407-176-4

**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	110	NR	620	844	NR	750	28	NR	880	0	NR
365	0	NR	495	150	NR	625	792	NR	755	25	NR	885	0	NR
370	0	NR	500	214	NR	630	737	NR	760	22	NR	890	0	NR
375	0	NR	505	293	NR	635	683	NR	765	19	NR	895	0	NR
380	0	NR	510	376	NR	640	625	NR	770	16	NR	900	0	NR
385	0	NR	515	458	NR	645	566	NR	775	14	NR	905	0	NR
390	0	NR	520	526	NR	650	509	NR	780	12	NR	910	0	NR
395	1	NR	525	584	NR	655	453	NR	785	10	NR	915	0	NR
400	3	NR	530	631	NR	660	401	NR	790	9	NR	920	0	NR
405	5	NR	535	671	NR	665	353	NR	795	8	NR	925	0	NR
410	10	NR	540	704	NR	670	308	NR	800	7	NR	930	0	NR
415	21	NR	545	737	NR	675	269	NR	805	6	NR	935	0	NR
420	44	NR	550	766	NR	680	235	NR	810	5	NR	940	0	NR
425	90	NR	555	797	NR	685	204	NR	815	4	NR	945	0	NR
430	171	NR	560	832	NR	690	177	NR	820	4	NR	950	0	NR
435	305	NR	565	866	NR	695	152	NR	825	3	NR	955	0	NR
440	455	NR	570	901	NR	700	131	NR	830	3	NR	960	0	NR
445	615	NR	575	933	NR	705	112	NR	835	3	NR	965	0	NR
450	771	NR	580	963	NR	710	96	NR	840	2	NR	970	0	NR
455	579	NR	585	984	NR	715	80	NR	845	2	NR	975	0	NR
460	313	NR	590	1000	NR	720	67	NR	850	2	NR	980	0	NR
465	221	NR	595	999	NR	725	55	NR	855	1	NR	985	0	NR
470	156	NR	600	990	NR	730	46	NR	860	1	NR	990	0	NR
475	103	NR	605	968	NR	735	40	NR	865	1	NR	995	0	NR
480	89	NR	610	937	NR	740	35	NR	870	1	NR	1000	0	NR
485	93	NR	615	893	NR	745	31	NR	875	1	NR			

REPORT NUMBER: SP1-2407-176-4

**Scotopic Flux vs. Wavelength**



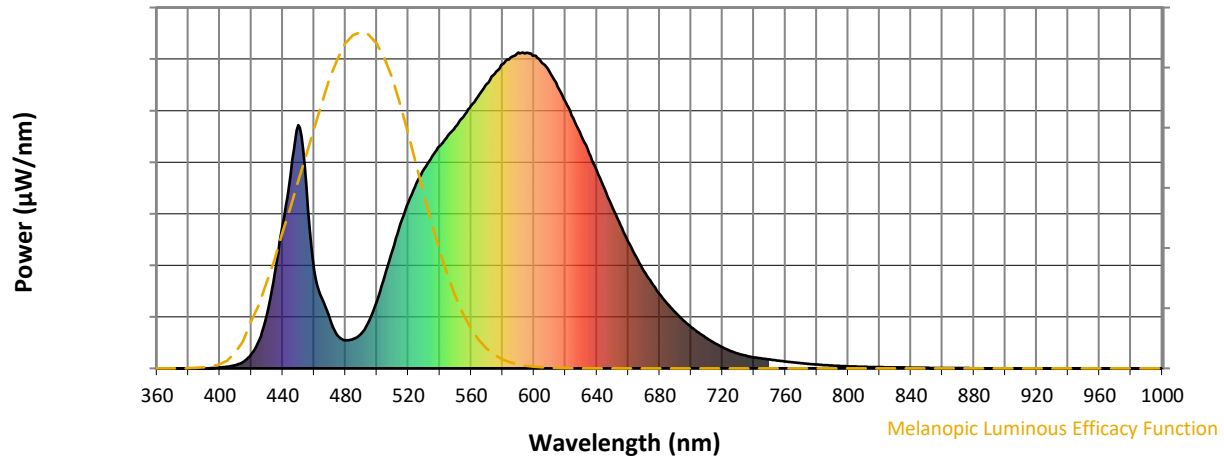
**Scotopic Lumens: NR**

**S/P: 1.31**

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	110	NR	620	844	NR	750	28	NR	880	0	NR
365	0	NR	495	150	NR	625	792	NR	755	25	NR	885	0	NR
370	0	NR	500	214	NR	630	737	NR	760	22	NR	890	0	NR
375	0	NR	505	293	NR	635	683	NR	765	19	NR	895	0	NR
380	0	NR	510	376	NR	640	625	NR	770	16	NR	900	0	NR
385	0	NR	515	458	NR	645	566	NR	775	14	NR	905	0	NR
390	0	NR	520	526	NR	650	509	NR	780	12	NR	910	0	NR
395	1	NR	525	584	NR	655	453	NR	785	10	NR	915	0	NR
400	3	NR	530	631	NR	660	401	NR	790	9	NR	920	0	NR
405	5	NR	535	671	NR	665	353	NR	795	8	NR	925	0	NR
410	10	NR	540	704	NR	670	308	NR	800	7	NR	930	0	NR
415	21	NR	545	737	NR	675	269	NR	805	6	NR	935	0	NR
420	44	NR	550	766	NR	680	235	NR	810	5	NR	940	0	NR
425	90	NR	555	797	NR	685	204	NR	815	4	NR	945	0	NR
430	171	NR	560	832	NR	690	177	NR	820	4	NR	950	0	NR
435	305	NR	565	866	NR	695	152	NR	825	3	NR	955	0	NR
440	455	NR	570	901	NR	700	131	NR	830	3	NR	960	0	NR
445	615	NR	575	933	NR	705	112	NR	835	3	NR	965	0	NR
450	771	NR	580	963	NR	710	96	NR	840	2	NR	970	0	NR
455	579	NR	585	984	NR	715	80	NR	845	2	NR	975	0	NR
460	313	NR	590	1000	NR	720	67	NR	850	2	NR	980	0	NR
465	221	NR	595	999	NR	725	55	NR	855	1	NR	985	0	NR
470	156	NR	600	990	NR	730	46	NR	860	1	NR	990	0	NR
475	103	NR	605	968	NR	735	40	NR	865	1	NR	995	0	NR
480	89	NR	610	937	NR	740	35	NR	870	1	NR	1000	0	NR
485	93	NR	615	893	NR	745	31	NR	875	1	NR			

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**Melanopic Flux vs. Wavelength**



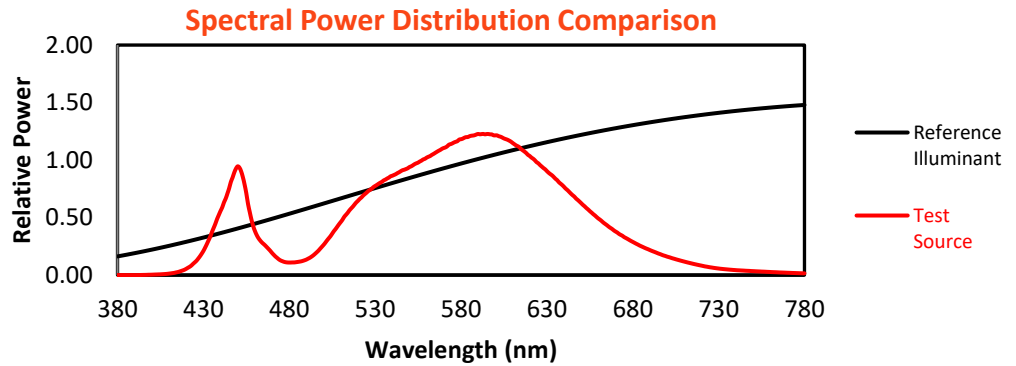
**Melanopic Lumens: NR**

**M/P: 2.4**

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	110	NR	620	844	NR	750	28	NR	880	0	NR
365	0	NR	495	150	NR	625	792	NR	755	25	NR	885	0	NR
370	0	NR	500	214	NR	630	737	NR	760	22	NR	890	0	NR
375	0	NR	505	293	NR	635	683	NR	765	19	NR	895	0	NR
380	0	NR	510	376	NR	640	625	NR	770	16	NR	900	0	NR
385	0	NR	515	458	NR	645	566	NR	775	14	NR	905	0	NR
390	0	NR	520	526	NR	650	509	NR	780	12	NR	910	0	NR
395	1	NR	525	584	NR	655	453	NR	785	10	NR	915	0	NR
400	3	NR	530	631	NR	660	401	NR	790	9	NR	920	0	NR
405	5	NR	535	671	NR	665	353	NR	795	8	NR	925	0	NR
410	10	NR	540	704	NR	670	308	NR	800	7	NR	930	0	NR
415	21	NR	545	737	NR	675	269	NR	805	6	NR	935	0	NR
420	44	NR	550	766	NR	680	235	NR	810	5	NR	940	0	NR
425	90	NR	555	797	NR	685	204	NR	815	4	NR	945	0	NR
430	171	NR	560	832	NR	690	177	NR	820	4	NR	950	0	NR
435	305	NR	565	866	NR	695	152	NR	825	3	NR	955	0	NR
440	455	NR	570	901	NR	700	131	NR	830	3	NR	960	0	NR
445	615	NR	575	933	NR	705	112	NR	835	3	NR	965	0	NR
450	771	NR	580	963	NR	710	96	NR	840	2	NR	970	0	NR
455	579	NR	585	984	NR	715	80	NR	845	2	NR	975	0	NR
460	313	NR	590	1000	NR	720	67	NR	850	2	NR	980	0	NR
465	221	NR	595	999	NR	725	55	NR	855	1	NR	985	0	NR
470	156	NR	600	990	NR	730	46	NR	860	1	NR	990	0	NR
475	103	NR	605	968	NR	735	40	NR	865	1	NR	995	0	NR
480	89	NR	610	937	NR	740	35	NR	870	1	NR	1000	0	NR
485	93	NR	615	893	NR	745	31	NR	875	1	NR			

**Summary**

$R_f = 75.8$   
 $R_g = 95.8$   
 $CIE R_a = 73.4$   
 $R_9 = -19.2$



**Color Vector Graphics**



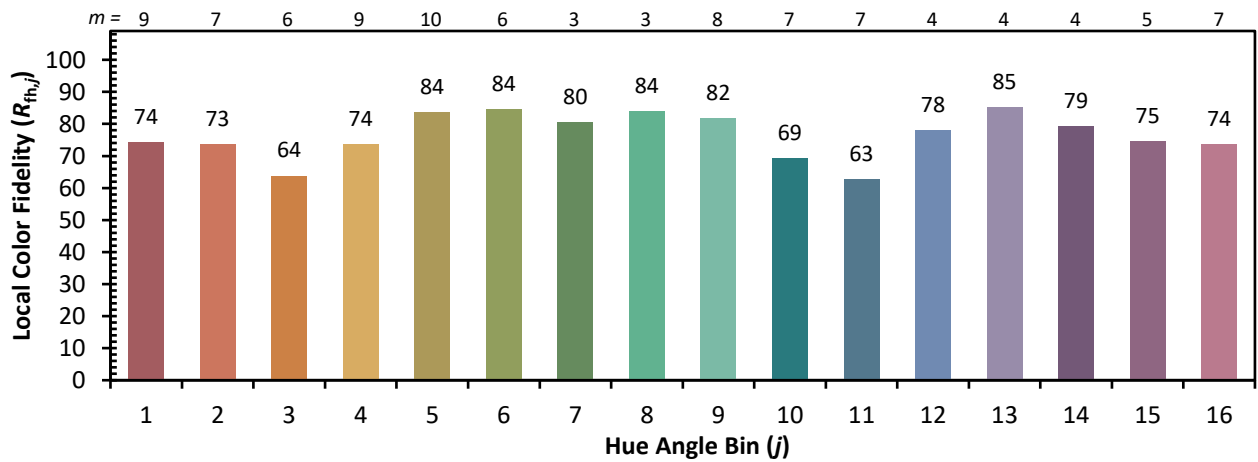
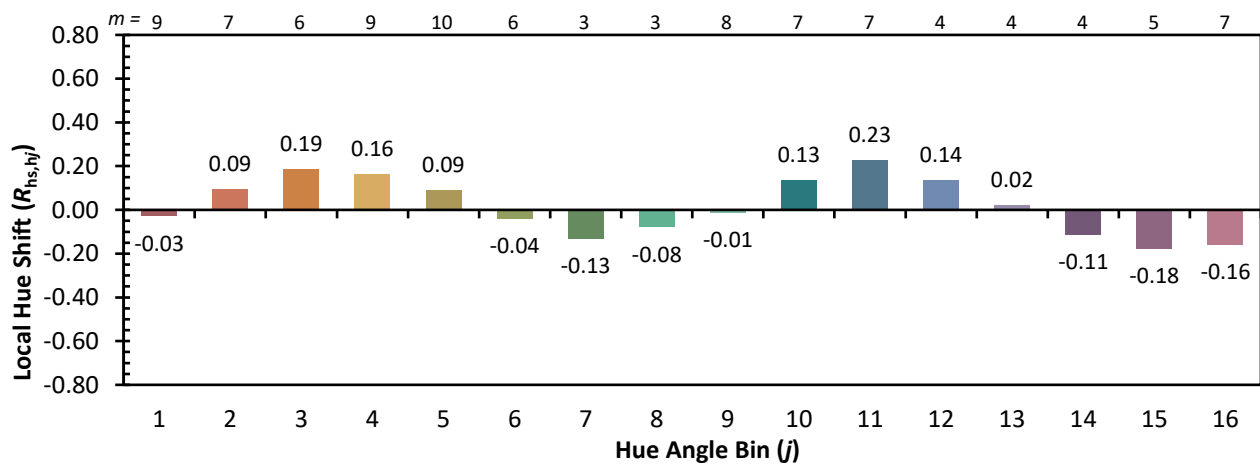
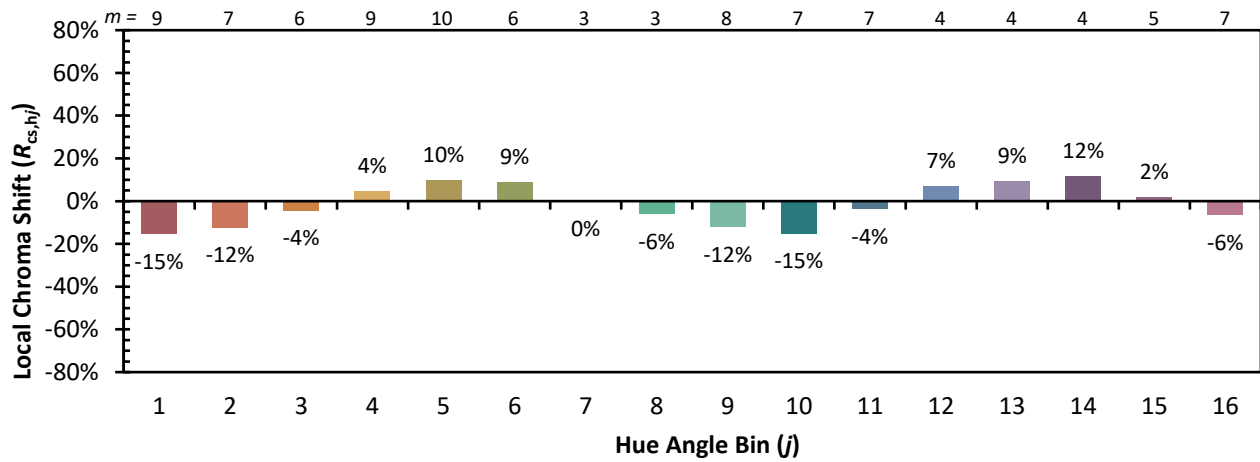
**Individual Sample Fidelity Index ( $R_{f,i}$ )**

CES01 = 86	CES26 = 65	CES51 = 88	CES76 = 55
CES02 = 62	CES27 = 88	CES52 = 87	CES77 = 74
CES03 = 31	CES28 = 83	CES53 = 77	CES78 = 58
CES04 = 70	CES29 = 66	CES54 = 86	CES79 = 84
CES05 = 48	CES30 = 79	CES55 = 84	CES80 = 81
CES06 = 51	CES31 = 69	CES56 = 74	CES81 = 78
CES07 = 41	CES32 = 62	CES57 = 73	CES82 = 92
CES08 = 40	CES33 = 75	CES58 = 75	CES83 = 89
CES09 = 29	CES34 = 73	CES59 = 87	CES84 = 88
CES10 = 75	CES35 = 85	CES60 = 91	CES85 = 79
CES11 = 58	CES36 = 95	CES61 = 84	CES86 = 71
CES12 = 64	CES37 = 80	CES62 = 88	CES87 = 79
CES13 = 43	CES38 = 88	CES63 = 73	CES88 = 81
CES14 = 74	CES39 = 96	CES64 = 69	CES89 = 71
CES15 = 71	CES40 = 91	CES65 = 66	CES90 = 80
CES16 = 47	CES41 = 91	CES66 = 62	CES91 = 81
CES17 = 50	CES42 = 81	CES67 = 60	CES92 = 63
CES18 = 56	CES43 = 77	CES68 = 68	CES93 = 78
CES19 = 72	CES44 = 99	CES69 = 76	CES94 = 56
CES20 = 65	CES45 = 85	CES70 = 60	CES95 = 70
CES21 = 87	CES46 = 82	CES71 = 55	CES96 = 79
CES22 = 79	CES47 = 83	CES72 = 85	CES97 = 84
CES23 = 92	CES48 = 75	CES73 = 52	CES98 = 77
CES24 = 91	CES49 = 79	CES74 = 96	CES99 = 68
CES25 = 72	CES50 = 87	CES75 = 57	

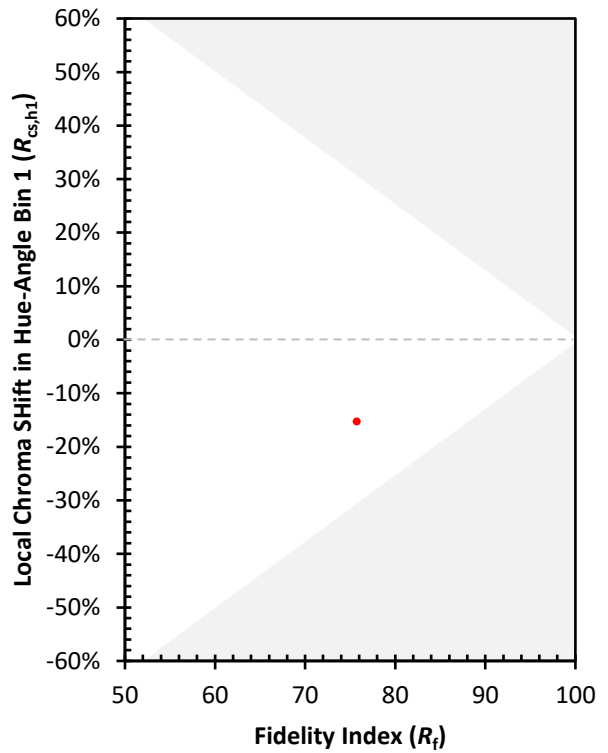




Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)