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: STREETWORKS

Report Number: P880033

Luminaire Tested: **MEM2-HTN-VA-110-830-U-MQ**

Issue Date: 10/01/2024

Report Generated By 670245763

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

Scaled Data Report

Test Information

Test Method:	LM-79-08
Report Number:	P880033
Test Lab:	INNOVATION CENTER(G3)
Issue Date:	10/01/2024
Manufacturer:	COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line:	STREETWORKS
Catalog Number:	MEM2-HTN-VA-110-830-U-MQ
Description:	EPIC MODERN TALL HOUSING 110W 80CRI 3000K VISUAL COMFORT FIXTURE w/ TYPE V MEDIUM DISTRIBUTION OPTIC
Light Source:	(1) 3000K CCT, 80 CRI LEDS
Ballast/Driver:	ELECTRONIC DRIVER

Summary

Lumens per Lamp:	N/A
Luminaire Lumens:	10477.3 lumens
Efficiency:	N/A
Efficacy:	98.8 lumens/watt
Luminous Opening:	Circular (Dia: 1.12' x H: 0')
IES Classification:	Type V - Short
BUG Rating:	B3 - U0 - G3

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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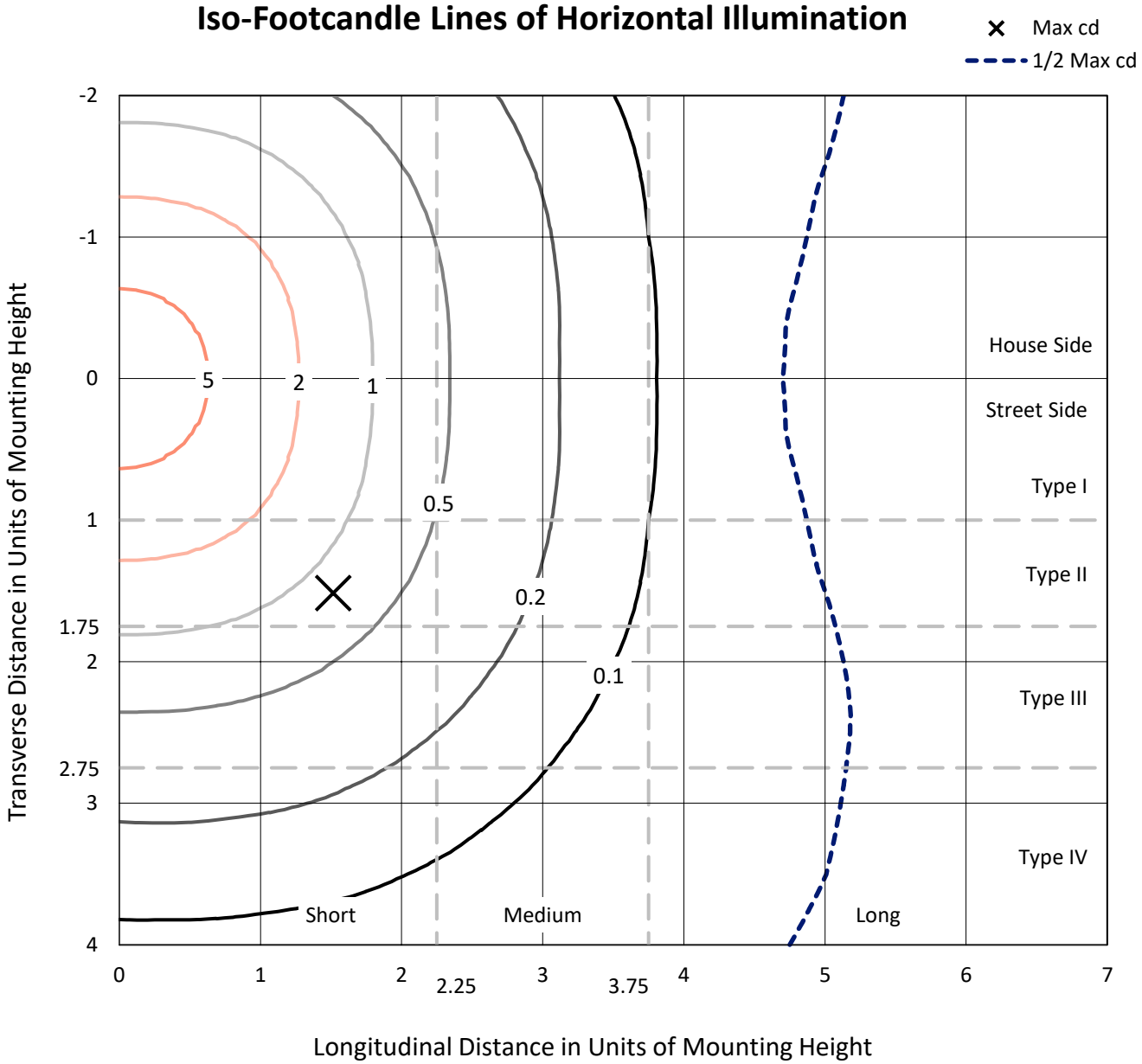
Scaled Data Report

REPORT NUMBER: P880033
CATALOG NUMBER: MEM2-HTN-VA-110-830-U-MQ

Iso-Footcandle Lines of Horizontal Illumination



Based on 15 foot mounting height. Maximum calculated value = 8.6 fc
Type V - Short - N/A

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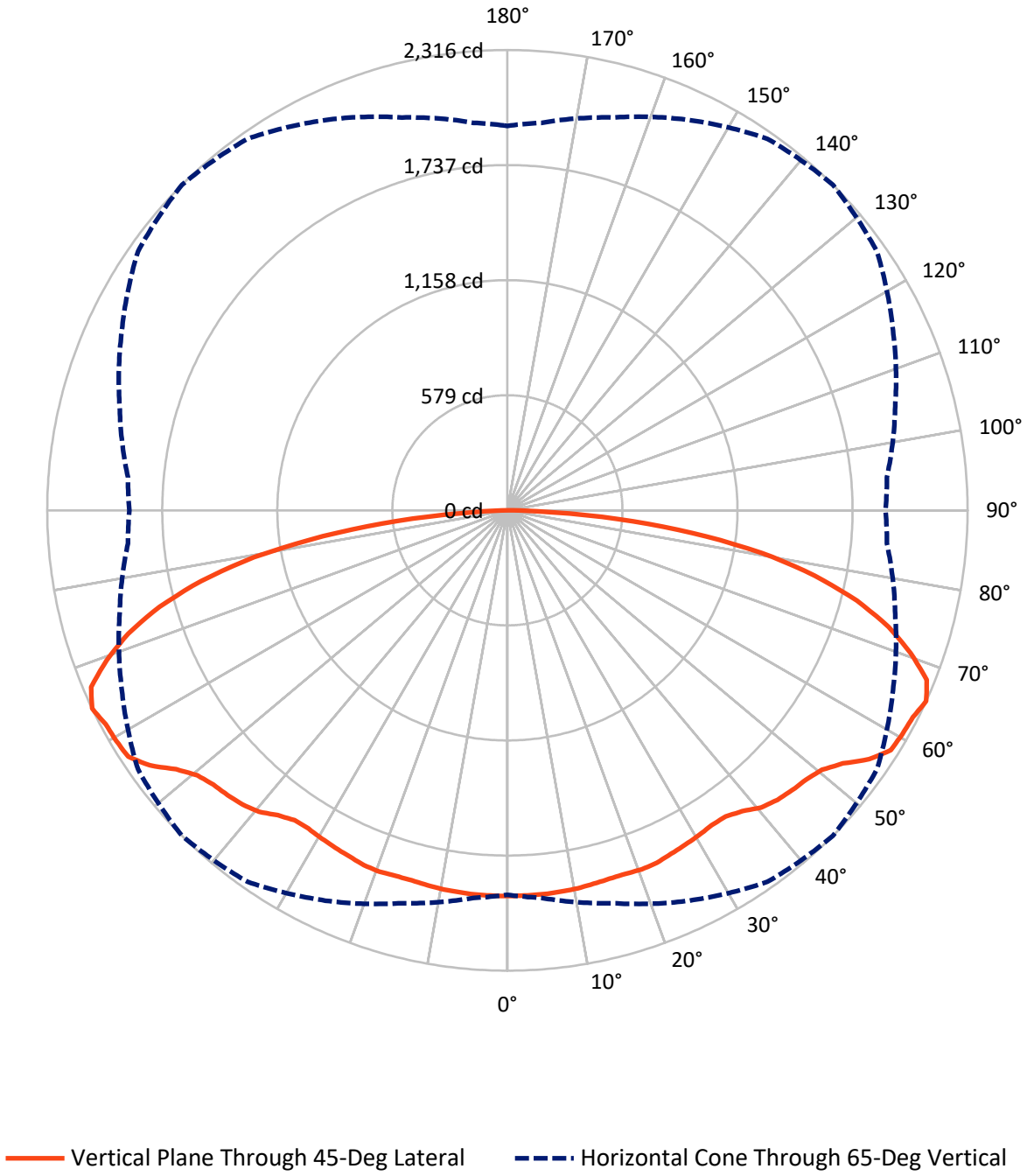
Scaled Data Report

REPORT NUMBER: P880033
CATALOG NUMBER: MEM2-HTN-VA-110-830-U-MQ

Luminous Intensity Polar Plot



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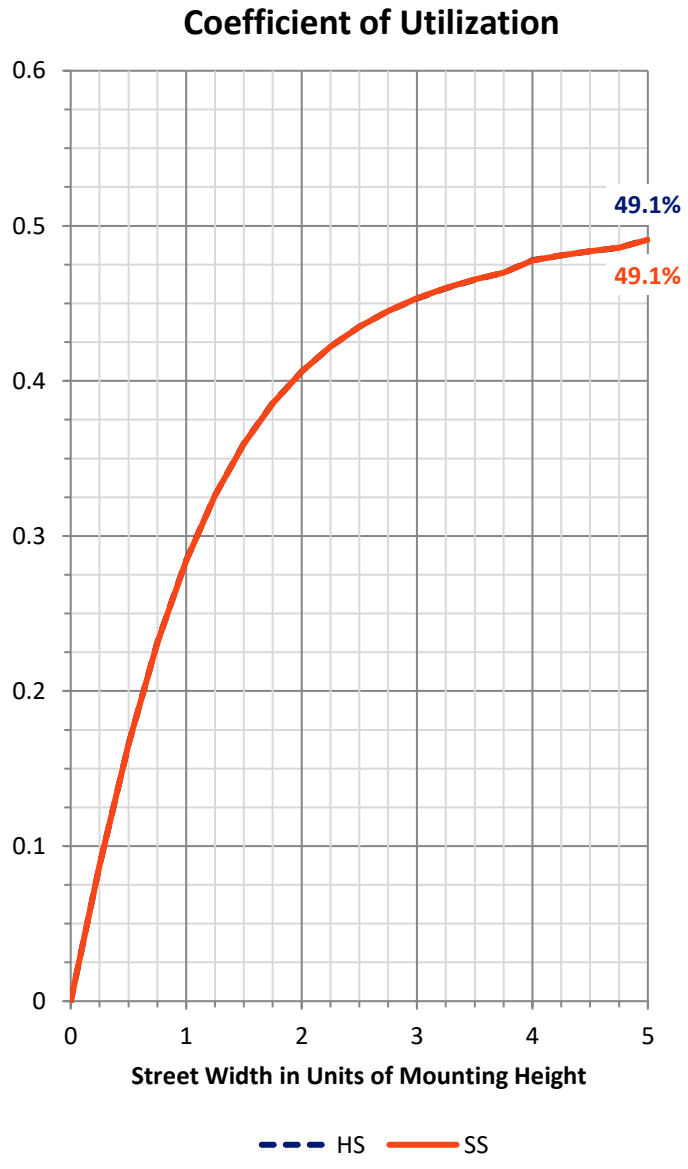
REPORT NUMBER: P880033
CATALOG NUMBER: MEM2-HTN-VA-110-830-U-MQ

FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	5238.6	0.0	5238.6
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	5238.6	0.0	5238.6
	% Fixture	50.0	0.0	50.0
Total	Lumens	10477.3	0.0	10477.3
	% Fixture	100.0	0.0	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	185.0	1.8
10°-20°	545.4	5.2
20°-30°	883.2	8.4
30°-40°	1186.9	11.3
40°-50°	1514.7	14.5
50°-60°	1863.5	17.8
60°-70°	2075.1	19.8
70°-80°	1684.4	16.1
80°-90°	539.2	5.1
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°	10477.3	100.0
0°-180°	10477.3	100.0



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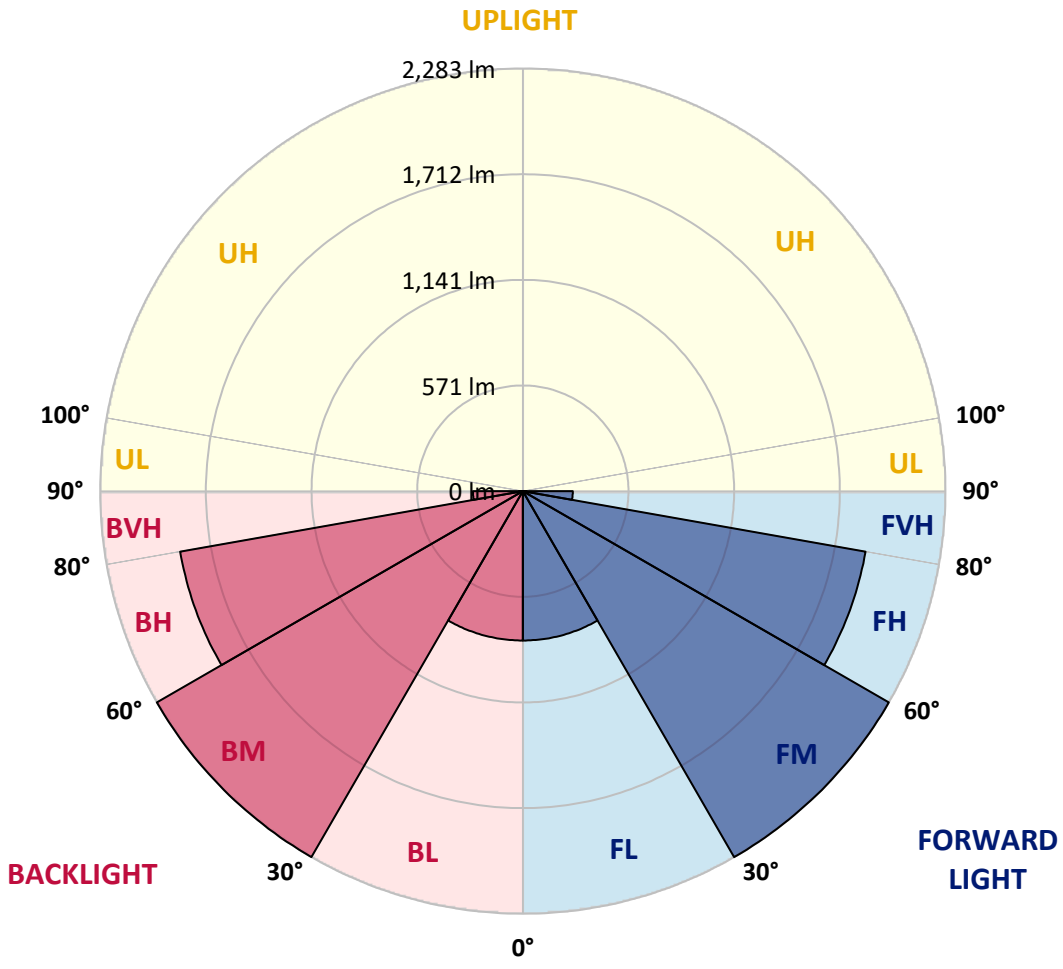
Scaled Data Report

REPORT NUMBER: P880033
CATALOG NUMBER: MEM2-HTN-VA-110-830-U-MQ

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit B	U	G
FL	(0°-30°)	806.8	7.7			
FM	(30°-60°)	2282.5	21.8			
FH	(60°-80°)	1879.7	17.9			G2/5000
FVH	(80°-90°)	269.6	2.6			G3/500
BL	(0°-30°)	806.8	7.7	B2/1000		
BM	(30°-60°)	2282.5	21.8	B2/2500		
BH	(60°-80°)	1879.7	17.9	B3/2500		G2/5000
BVH	(80°-90°)	269.6	2.6			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



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REPORT NUMBER: P880033
CATALOG NUMBER: MEM2-HTN-VA-110-830-U-MQ

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	1940.4	1940.4	1940.4	1940.4	1940.4	1940.4	1940.4	1940.4	1940.4	1940.4	1940.4
2.5°	1940.4	1940.4	1940.4	1940.4	1940.4	1940.4	1940.4	1940.4	1940.4	1940.4	1940.4
5°	1940.4	1940.4	1940.4	1940.4	1940.4	1940.4	1940.4	1940.4	1937.5	1940.4	1940.4
7.5°	1937.5	1937.5	1937.5	1937.5	1937.5	1937.5	1937.5	1937.5	1937.5	1937.5	1937.5
10°	1934.6	1934.6	1934.6	1934.6	1934.6	1934.6	1934.6	1934.6	1934.6	1934.6	1934.6
12.5°	1928.9	1928.9	1928.9	1928.9	1928.9	1928.9	1928.9	1928.9	1928.9	1928.9	1928.9
15°	1920.3	1923.1	1923.1	1923.1	1923.1	1923.1	1923.1	1923.1	1923.1	1920.3	1920.3
17.5°	1917.4	1917.4	1917.4	1920.3	1923.1	1923.1	1923.1	1920.3	1917.4	1914.5	1914.5
20°	1920.3	1920.3	1920.3	1923.1	1926.0	1928.9	1926.0	1923.1	1917.4	1917.4	1917.4
22.5°	1917.4	1920.3	1920.3	1923.1	1926.0	1926.0	1923.1	1920.3	1917.4	1914.5	1914.5
25°	1908.8	1908.8	1911.6	1914.5	1914.5	1914.5	1914.5	1908.8	1905.9	1903.0	1903.0
27.5°	1897.3	1900.2	1900.2	1903.0	1905.9	1905.9	1903.0	1897.3	1894.4	1891.6	1891.6
30°	1882.9	1882.9	1885.8	1891.6	1894.4	1897.3	1891.6	1885.8	1877.2	1874.3	1874.3
32.5°	1868.6	1871.5	1877.2	1882.9	1885.8	1888.7	1882.9	1877.2	1868.6	1862.9	1860.0
35°	1862.9	1862.9	1871.5	1882.9	1891.6	1891.6	1885.8	1874.3	1862.9	1851.4	1851.4
37.5°	1871.5	1874.3	1885.8	1905.9	1920.3	1920.3	1917.4	1897.3	1877.2	1860.0	1857.1
40°	1891.6	1894.4	1914.5	1940.4	1963.3	1966.2	1954.7	1928.9	1900.2	1880.1	1874.3
42.5°	1903.0	1908.8	1931.7	1963.3	1983.4	1992.0	1977.7	1951.8	1914.5	1888.7	1885.8
45°	1908.8	1914.5	1940.4	1974.8	2000.6	2009.2	1994.9	1960.4	1920.3	1891.6	1888.7
47.5°	1911.6	1917.4	1943.2	1986.3	2015.0	2023.6	2012.1	1971.9	1923.1	1894.4	1891.6
50°	1914.5	1926.0	1957.6	2003.5	2046.6	2052.3	2035.1	1986.3	1934.6	1900.2	1891.6
52.5°	1934.6	1943.2	1989.1	2055.2	2098.2	2115.4	2089.6	2040.8	1963.3	1911.6	1905.9
55°	1983.4	1986.3	2040.8	2124.1	2187.2	2210.2	2170.0	2104.0	2009.2	1957.6	1954.7
57.5°	1997.8	2015.0	2075.3	2170.0	2247.5	2276.2	2241.7	2141.3	2055.2	1986.3	1969.1
60°	1983.4	1997.8	2069.5	2178.6	2261.8	2284.8	2259.0	2164.2	2037.9	1960.4	1946.1
62.5°	1969.1	1986.3	2060.9	2184.3	2264.7	2290.5	2247.5	2167.1	2029.3	1951.8	1937.5
65°	1934.6	1957.6	2046.6	2167.1	2281.9	2316.4	2270.4	2141.3	2020.7	1917.4	1903.0
67.5°	1868.6	1880.1	1977.7	2118.3	2241.7	2276.2	2227.4	2092.5	1949.0	1848.5	1837.0
70°	1745.2	1771.0	1862.9	2017.9	2135.5	2152.8	2115.4	1980.5	1839.9	1733.7	1719.3
72.5°	1581.6	1618.9	1719.3	1877.2	1971.9	2006.4	1957.6	1848.5	1702.1	1581.6	1561.5
75°	1409.3	1429.4	1532.8	1687.8	1785.4	1816.9	1773.9	1667.7	1492.6	1409.3	1389.2
77.5°	1219.9	1234.2	1326.1	1463.9	1555.7	1581.6	1538.5	1452.4	1294.5	1217.0	1208.4
80°	955.8	984.5	1070.6	1188.3	1257.2	1297.4	1251.5	1168.2	1053.4	961.6	947.2
82.5°	683.1	703.2	780.7	861.1	927.1	938.6	918.5	838.1	752.0	680.3	663.0
85°	373.1	381.8	430.6	513.8	539.6	559.7	531.0	470.7	427.7	381.8	367.4
87.5°	97.6	100.5	114.8	134.9	146.4	149.3	146.4	129.2	106.2	83.2	91.9
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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

Report Prepared for

Cooper Lighting Solutions

Streetworks

Report Number: SP1-2407-176-7

Test Date: 09/27/2024

Luminaire Tested: MEM2-HTN-VA-30-830-U-WQ

Data in this report applies to families of products including MEM2-HTN-VA-30-830-U-WQ

Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.04

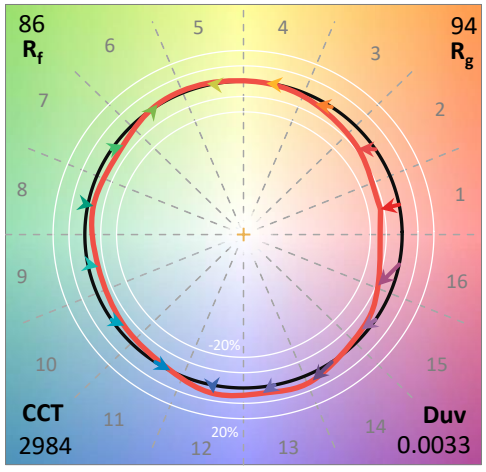
Test Information

Test Method:	LM-79-2019
Report Number:	SP1-2407-176-7
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-30-830-U-WQ**
Description:	EPIC MODERN VISUAL COMFORT 30W WAVESTREAM WIDE

Spectral Parameters

CCT (K):	2984
CIE u':	0.2500
CIE v':	0.5264
Duv:	0.0033
CIE x:	0.4431
CIE y:	0.4147
CIE z:	0.1422
Peak Wavelength (nm):	601
Dominant Wavelength (nm):	581
Purity:	57.4798
Rf:	85.8
Rg:	94.1

CRI (Ra):	81.8
R1:	79.4
R2:	89.9
R3:	96.6
R4:	80.6
R5:	80.1
R6:	88.9
R7:	82.6
R8:	56.0
R9:	-1.1
R10:	78.4
R11:	80.8
R12:	72.8
R13:	81.7
R14:	98.5
R15:	70.2



Test Conditions

Stabilization Time:	29M
Operation Time:	1H 29M
Sphere Temperature (°C):	25.2

REPORT NUMBER: SP1-2407-176-7

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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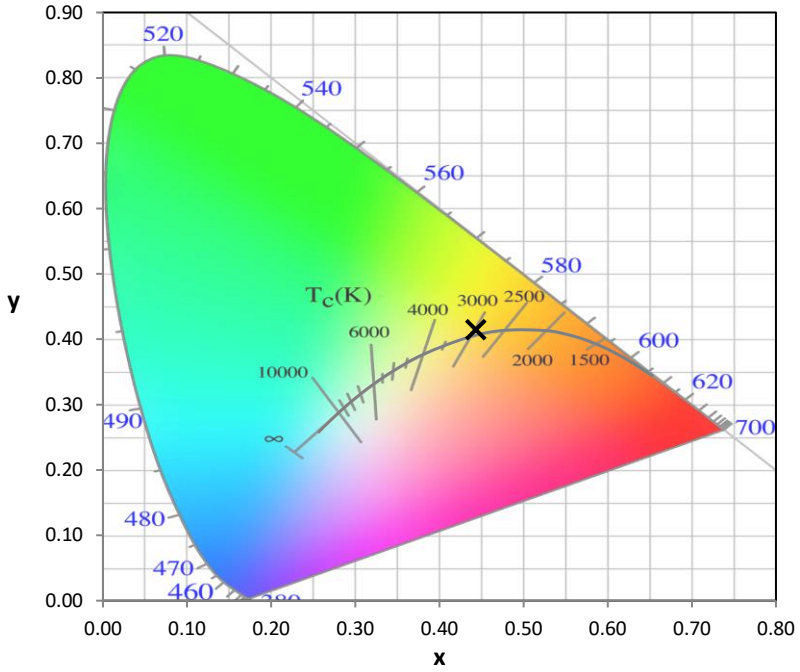
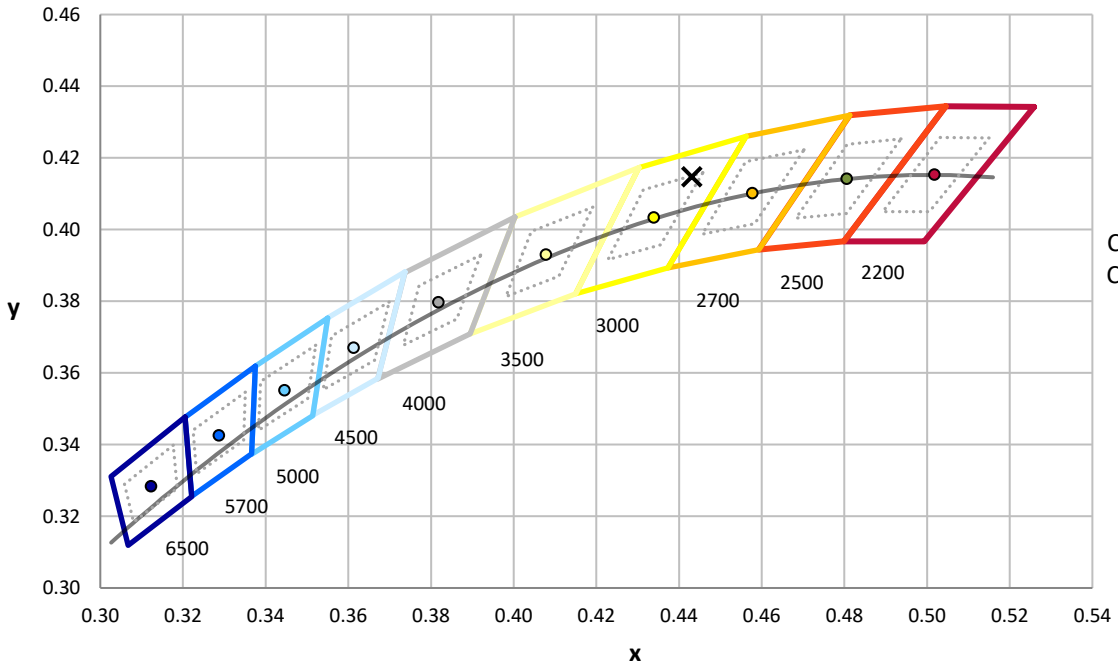
CIE 1931 Chromaticity Diagram



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



CCT = 2984K
CIE x = 0.4431
CIE y = 0.4147
Duv = 0.0033

Point lies inside the ANSI 3000K 4-step quadrangle

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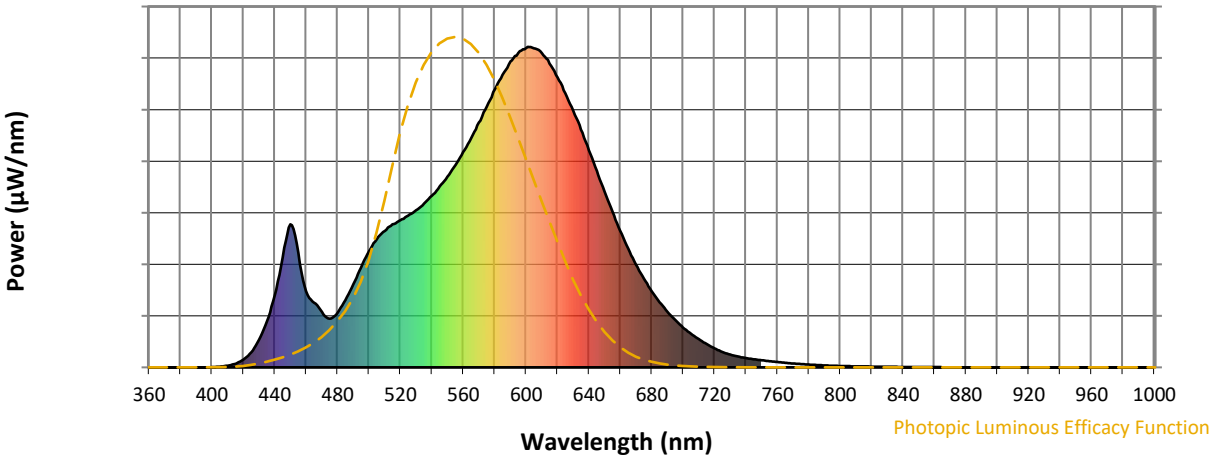
Photopic Flux vs. Wavelength

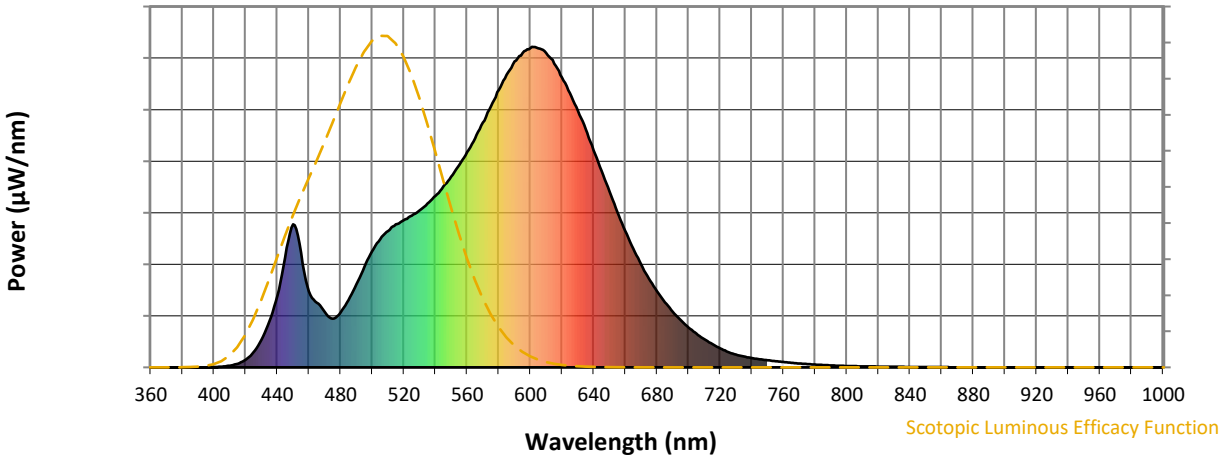


Photopic Lumens: NR

λ (nm)	Power W^/nm	Lumens (ϕ/nm)	λ (nm)	Power W^/nm	Lumens (ϕ/nm)	λ (nm)	Power W^/nm	Lumens (ϕ/nm)	λ (nm)	Power W^/nm	Lumens (ϕ/nm)	λ (nm)	Power W^/nm	Lumens (ϕ/nm)
360	0	NR	490	260	NR	620	905	NR	750	22	NR	880	0	NR
365	0	NR	495	312	NR	625	856	NR	755	19	NR	885	0	NR
370	0	NR	500	362	NR	630	801	NR	760	17	NR	890	0	NR
375	0	NR	505	399	NR	635	742	NR	765	14	NR	895	0	NR
380	0	NR	510	425	NR	640	677	NR	770	12	NR	900	0	NR
385	0	NR	515	446	NR	645	613	NR	775	10	NR	905	0	NR
390	0	NR	520	459	NR	650	549	NR	780	9	NR	910	0	NR
395	0	NR	525	473	NR	655	485	NR	785	7	NR	915	0	NR
400	1	NR	530	490	NR	660	425	NR	790	6	NR	920	0	NR
405	2	NR	535	511	NR	665	371	NR	795	5	NR	925	0	NR
410	5	NR	540	535	NR	670	321	NR	800	4	NR	930	0	NR
415	11	NR	545	565	NR	675	276	NR	805	4	NR	935	0	NR
420	24	NR	550	595	NR	680	238	NR	810	3	NR	940	0	NR
425	47	NR	555	631	NR	685	203	NR	815	3	NR	945	0	NR
430	86	NR	560	672	NR	690	174	NR	820	2	NR	950	0	NR
435	144	NR	565	715	NR	695	148	NR	825	2	NR	955	0	NR
440	224	NR	570	763	NR	700	124	NR	830	2	NR	960	0	NR
445	342	NR	575	814	NR	705	105	NR	835	2	NR	965	0	NR
450	446	NR	580	866	NR	710	88	NR	840	1	NR	970	0	NR
455	357	NR	585	912	NR	715	73	NR	845	1	NR	975	0	NR
460	237	NR	590	954	NR	720	59	NR	850	1	NR	980	0	NR
465	202	NR	595	981	NR	725	48	NR	855	1	NR	985	0	NR
470	172	NR	600	996	NR	730	40	NR	860	1	NR	990	0	NR
475	152	NR	605	996	NR	735	34	NR	865	1	NR	995	0	NR
480	171	NR	610	980	NR	740	29	NR	870	0	NR	1000	0	NR
485	210	NR	615	947	NR	745	25	NR	875	0	NR			

REPORT NUMBER: SP1-2407-176-7

Scotopic Flux vs. Wavelength

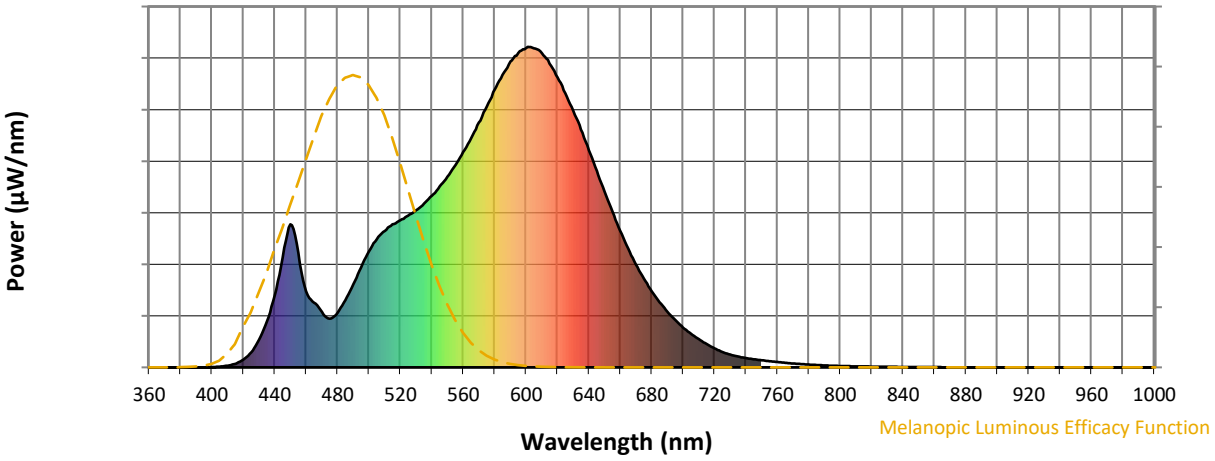


Scotopic Lumens: NR **S/P: 1.32**

λ (nm)	Power W^/nm	Lumens (ϕ/nm)	λ (nm)	Power W^/nm	Lumens (ϕ/nm)	λ (nm)	Power W^/nm	Lumens (ϕ/nm)	λ (nm)	Power W^/nm	Lumens (ϕ/nm)	λ (nm)	Power W^/nm	Lumens (ϕ/nm)
360	0	NR	490	260	NR	620	905	NR	750	22	NR	880	0	NR
365	0	NR	495	312	NR	625	856	NR	755	19	NR	885	0	NR
370	0	NR	500	362	NR	630	801	NR	760	17	NR	890	0	NR
375	0	NR	505	399	NR	635	742	NR	765	14	NR	895	0	NR
380	0	NR	510	425	NR	640	677	NR	770	12	NR	900	0	NR
385	0	NR	515	446	NR	645	613	NR	775	10	NR	905	0	NR
390	0	NR	520	459	NR	650	549	NR	780	9	NR	910	0	NR
395	0	NR	525	473	NR	655	485	NR	785	7	NR	915	0	NR
400	1	NR	530	490	NR	660	425	NR	790	6	NR	920	0	NR
405	2	NR	535	511	NR	665	371	NR	795	5	NR	925	0	NR
410	5	NR	540	535	NR	670	321	NR	800	4	NR	930	0	NR
415	11	NR	545	565	NR	675	276	NR	805	4	NR	935	0	NR
420	24	NR	550	595	NR	680	238	NR	810	3	NR	940	0	NR
425	47	NR	555	631	NR	685	203	NR	815	3	NR	945	0	NR
430	86	NR	560	672	NR	690	174	NR	820	2	NR	950	0	NR
435	144	NR	565	715	NR	695	148	NR	825	2	NR	955	0	NR
440	224	NR	570	763	NR	700	124	NR	830	2	NR	960	0	NR
445	342	NR	575	814	NR	705	105	NR	835	2	NR	965	0	NR
450	446	NR	580	866	NR	710	88	NR	840	1	NR	970	0	NR
455	357	NR	585	912	NR	715	73	NR	845	1	NR	975	0	NR
460	237	NR	590	954	NR	720	59	NR	850	1	NR	980	0	NR
465	202	NR	595	981	NR	725	48	NR	855	1	NR	985	0	NR
470	172	NR	600	996	NR	730	40	NR	860	1	NR	990	0	NR
475	152	NR	605	996	NR	735	34	NR	865	1	NR	995	0	NR
480	171	NR	610	980	NR	740	29	NR	870	0	NR	1000	0	NR
485	210	NR	615	947	NR	745	25	NR	875	0	NR			

REPORT NUMBER: SP1-2407-176-7

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR **M/P: 2.51**

λ (nm)	Power W^/nm	Lumens (ϕ/nm)	λ (nm)	Power W^/nm	Lumens (ϕ/nm)	λ (nm)	Power W^/nm	Lumens (ϕ/nm)	λ (nm)	Power W^/nm	Lumens (ϕ/nm)	λ (nm)	Power W^/nm	Lumens (ϕ/nm)
360	0	NR	490	260	NR	620	905	NR	750	22	NR	880	0	NR
365	0	NR	495	312	NR	625	856	NR	755	19	NR	885	0	NR
370	0	NR	500	362	NR	630	801	NR	760	17	NR	890	0	NR
375	0	NR	505	399	NR	635	742	NR	765	14	NR	895	0	NR
380	0	NR	510	425	NR	640	677	NR	770	12	NR	900	0	NR
385	0	NR	515	446	NR	645	613	NR	775	10	NR	905	0	NR
390	0	NR	520	459	NR	650	549	NR	780	9	NR	910	0	NR
395	0	NR	525	473	NR	655	485	NR	785	7	NR	915	0	NR
400	1	NR	530	490	NR	660	425	NR	790	6	NR	920	0	NR
405	2	NR	535	511	NR	665	371	NR	795	5	NR	925	0	NR
410	5	NR	540	535	NR	670	321	NR	800	4	NR	930	0	NR
415	11	NR	545	565	NR	675	276	NR	805	4	NR	935	0	NR
420	24	NR	550	595	NR	680	238	NR	810	3	NR	940	0	NR
425	47	NR	555	631	NR	685	203	NR	815	3	NR	945	0	NR
430	86	NR	560	672	NR	690	174	NR	820	2	NR	950	0	NR
435	144	NR	565	715	NR	695	148	NR	825	2	NR	955	0	NR
440	224	NR	570	763	NR	700	124	NR	830	2	NR	960	0	NR
445	342	NR	575	814	NR	705	105	NR	835	2	NR	965	0	NR
450	446	NR	580	866	NR	710	88	NR	840	1	NR	970	0	NR
455	357	NR	585	912	NR	715	73	NR	845	1	NR	975	0	NR
460	237	NR	590	954	NR	720	59	NR	850	1	NR	980	0	NR
465	202	NR	595	981	NR	725	48	NR	855	1	NR	985	0	NR
470	172	NR	600	996	NR	730	40	NR	860	1	NR	990	0	NR
475	152	NR	605	996	NR	735	34	NR	865	1	NR	995	0	NR
480	171	NR	610	980	NR	740	29	NR	870	0	NR	1000	0	NR
485	210	NR	615	947	NR	745	25	NR	875	0	NR			

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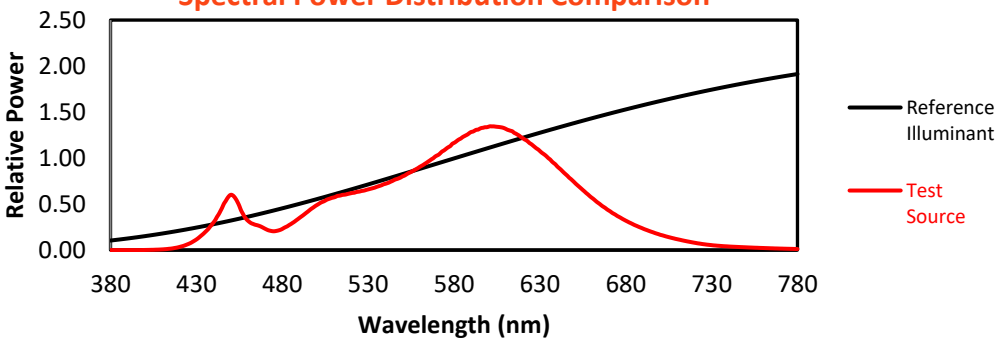
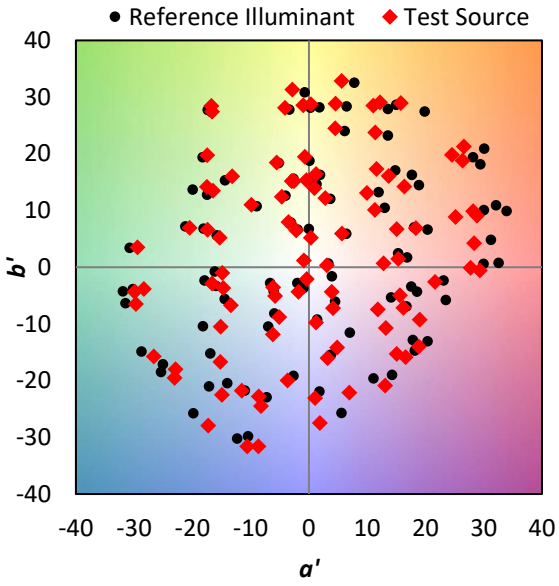
Summary

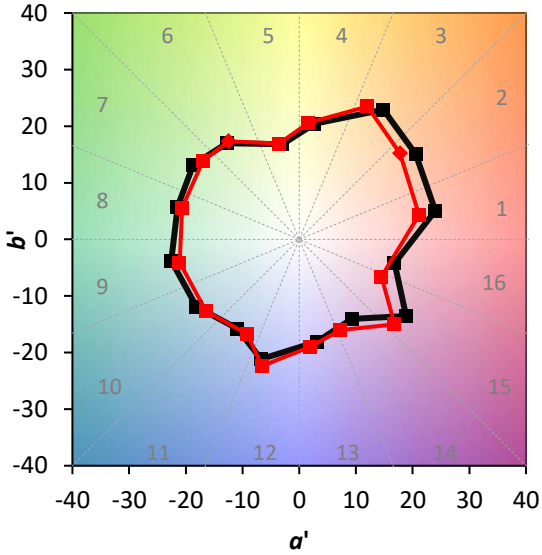
R_f = 85.8
R_g = 94.1
CIE R_a = 81.8
R_9 = -1.1

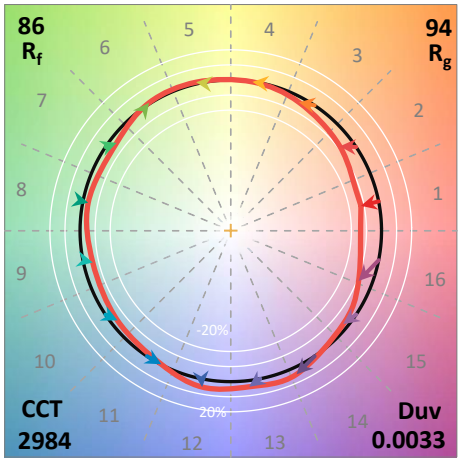
Spectral Power Distribution Comparison

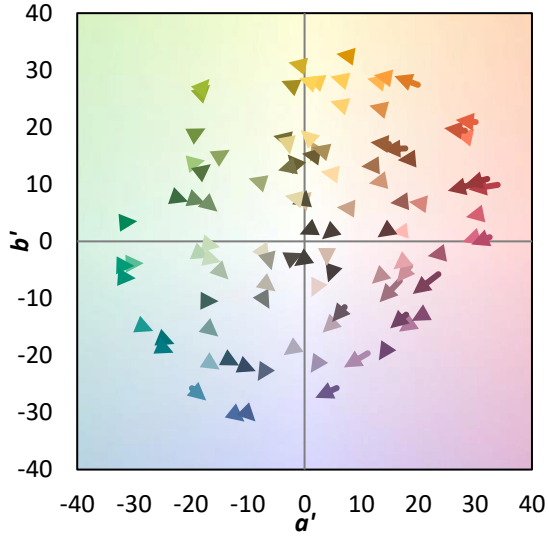


Color Vector Graphics









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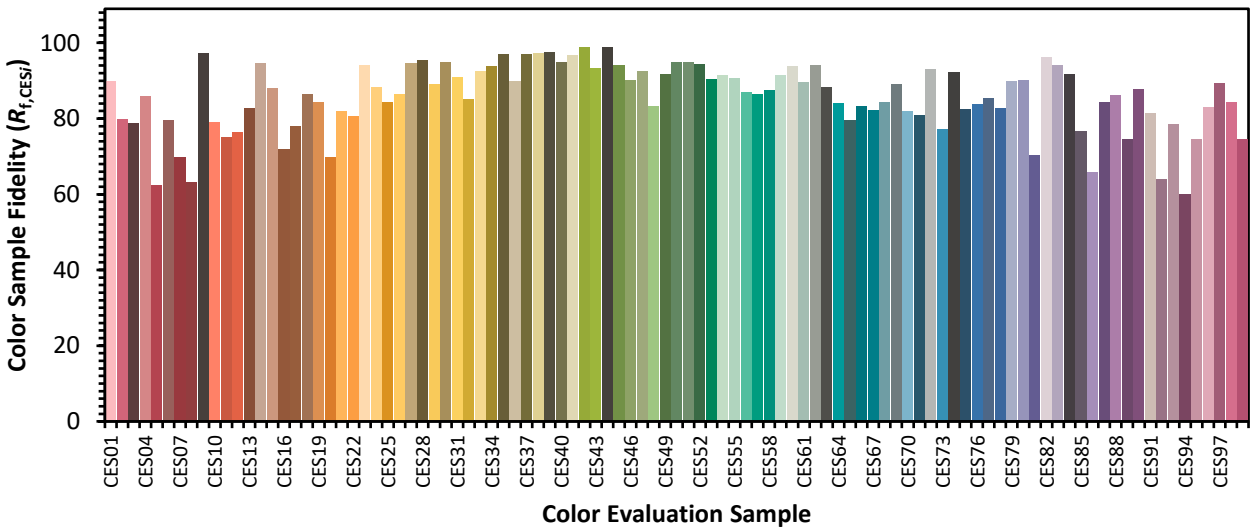
Individual Sample Fidelity Index ($R_{f,i}$)

CES01 = 86	CES26 = 86	CES51 = 95	CES76 = 84
CES02 = 63	CES27 = 95	CES52 = 94	CES77 = 86
CES03 = 31	CES28 = 95	CES53 = 90	CES78 = 83
CES04 = 70	CES29 = 89	CES54 = 91	CES79 = 90
CES05 = 50	CES30 = 95	CES55 = 91	CES80 = 90
CES06 = 51	CES31 = 91	CES56 = 87	CES81 = 70
CES07 = 42	CES32 = 85	CES57 = 86	CES82 = 96
CES08 = 41	CES33 = 93	CES58 = 87	CES83 = 94
CES09 = 29	CES34 = 94	CES59 = 92	CES84 = 92
CES10 = 76	CES35 = 97	CES60 = 94	CES85 = 77
CES11 = 59	CES36 = 90	CES61 = 90	CES86 = 66
CES12 = 65	CES37 = 97	CES62 = 94	CES87 = 84
CES13 = 43	CES38 = 97	CES63 = 88	CES88 = 86
CES14 = 74	CES39 = 98	CES64 = 84	CES89 = 75
CES15 = 72	CES40 = 95	CES65 = 80	CES90 = 88
CES16 = 47	CES41 = 97	CES66 = 83	CES91 = 81
CES17 = 50	CES42 = 99	CES67 = 82	CES92 = 64
CES18 = 56	CES43 = 93	CES68 = 84	CES93 = 79
CES19 = 72	CES44 = 99	CES69 = 89	CES94 = 60
CES20 = 67	CES45 = 94	CES70 = 82	CES95 = 74
CES21 = 87	CES46 = 90	CES71 = 81	CES96 = 83
CES22 = 79	CES47 = 93	CES72 = 93	CES97 = 89
CES23 = 92	CES48 = 83	CES73 = 77	CES98 = 84
CES24 = 91	CES49 = 92	CES74 = 92	CES99 = 75
CES25 = 72	CES50 = 95	CES75 = 83	



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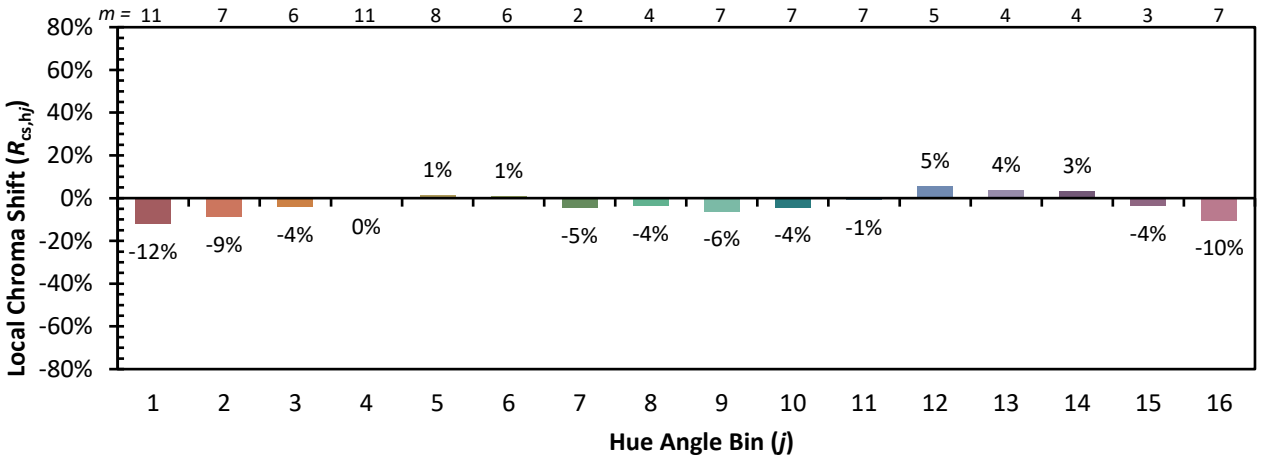
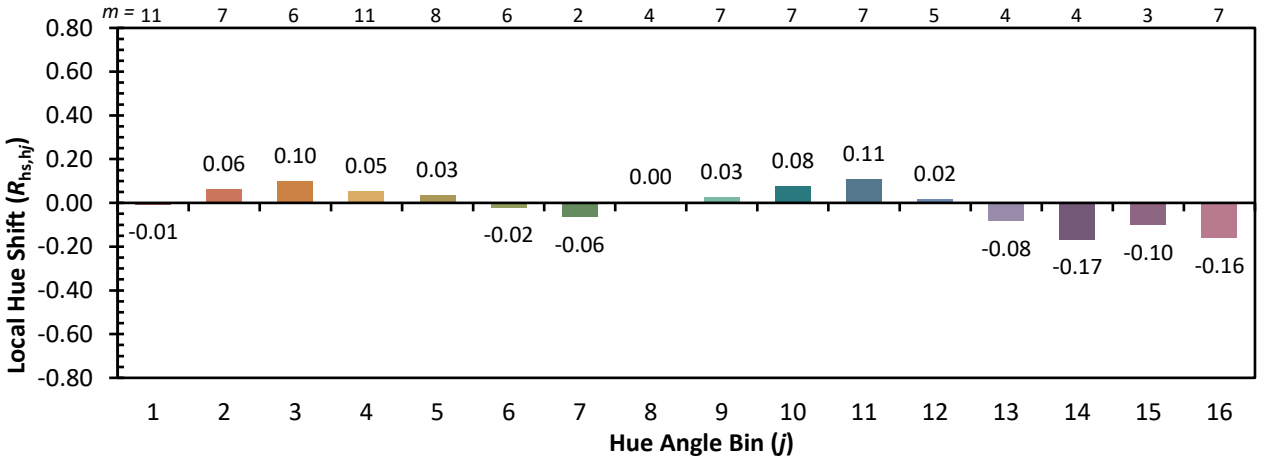
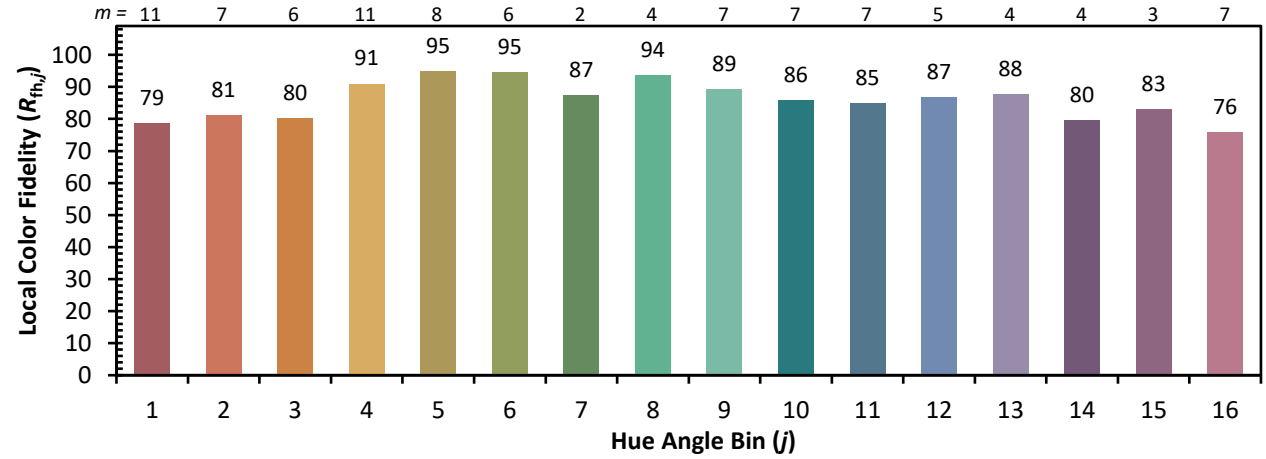
Color Rendition by Hue-Angle Bin







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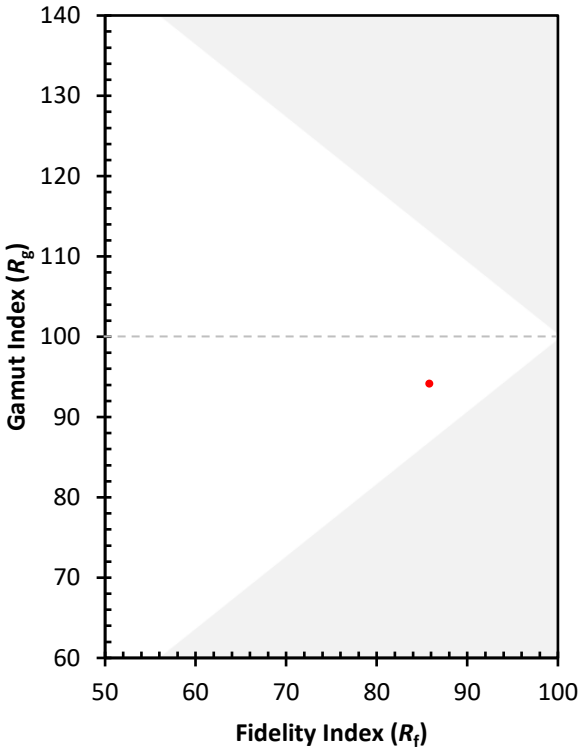
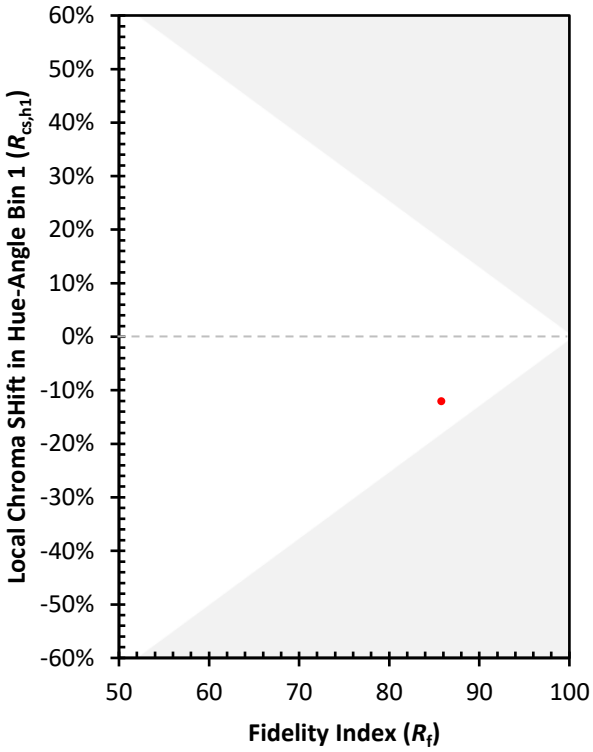
Measure Comparisons





(END OF REPORT)