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: P870589

Luminaire Tested: **MEM2-HSN-SA-90-830-U-5WQ**

Issue Date: 09/05/2024

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:	P870589
Test Lab:	INNOVATION CENTER(G3)
Issue Date:	09/05/2024
Manufacturer:	COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line:	STREETWORKS
Catalog Number:	MEM2-HSN-SA-90-830-U-5WQ
Description:	EPIC MODERN SHORT HOUSING DISCRETE LED ARRAYS 90W 80CRI 3000K FIXTURE w/ TYPE V SQUARE WIDE DISTRIBUTION OPTIC
Light Source:	(20) 3000K CCT, 80 CRI LEDS
Ballast/Driver:	ELECTRONIC DRIVER

Summary

Lumens per Lamp:	N/A
Luminaire Lumens:	11583.9 lumens
Efficiency:	N/A
Efficacy:	128.7 lumens/watt
Luminous Opening:	Rectangular (W 0.67' x L: 0.33' x H: 0')
IES Classification:	Type V - Short
BUG Rating:	B4 - U0 - G2

Input Watts (W):	90
Input Voltage (V):	120
Input Current (Ain):	NR
Voltage Rise (V):	NR
Power Factor:	0.99
Total Harmonic Distortion (THDi):	6.20%
Frequency (hertz):	60
Stabilization Time:	NR
Operation Time:	NR
Ambient Temperature (°C):	NR
Test Distance:	24 FT

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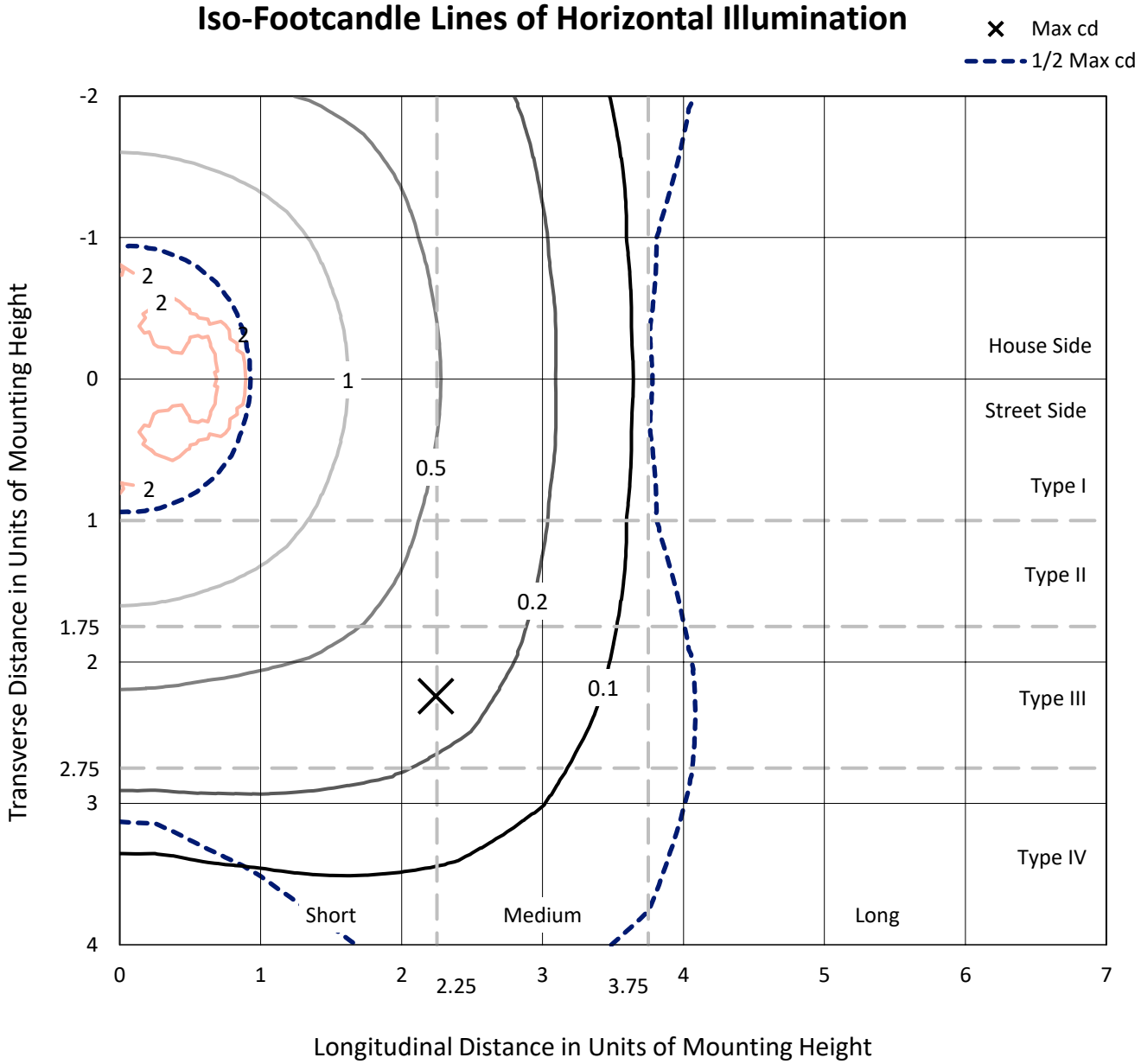
REPORT NUMBER: P870589
CATALOG NUMBER: MEM2-HSN-SA-90-830-U-5WQ

Iso-Footcandle Lines of Horizontal Illumination



Based on 20 foot mounting height. Maximum calculated value = 2.1 fc
Type V - Short - N/A

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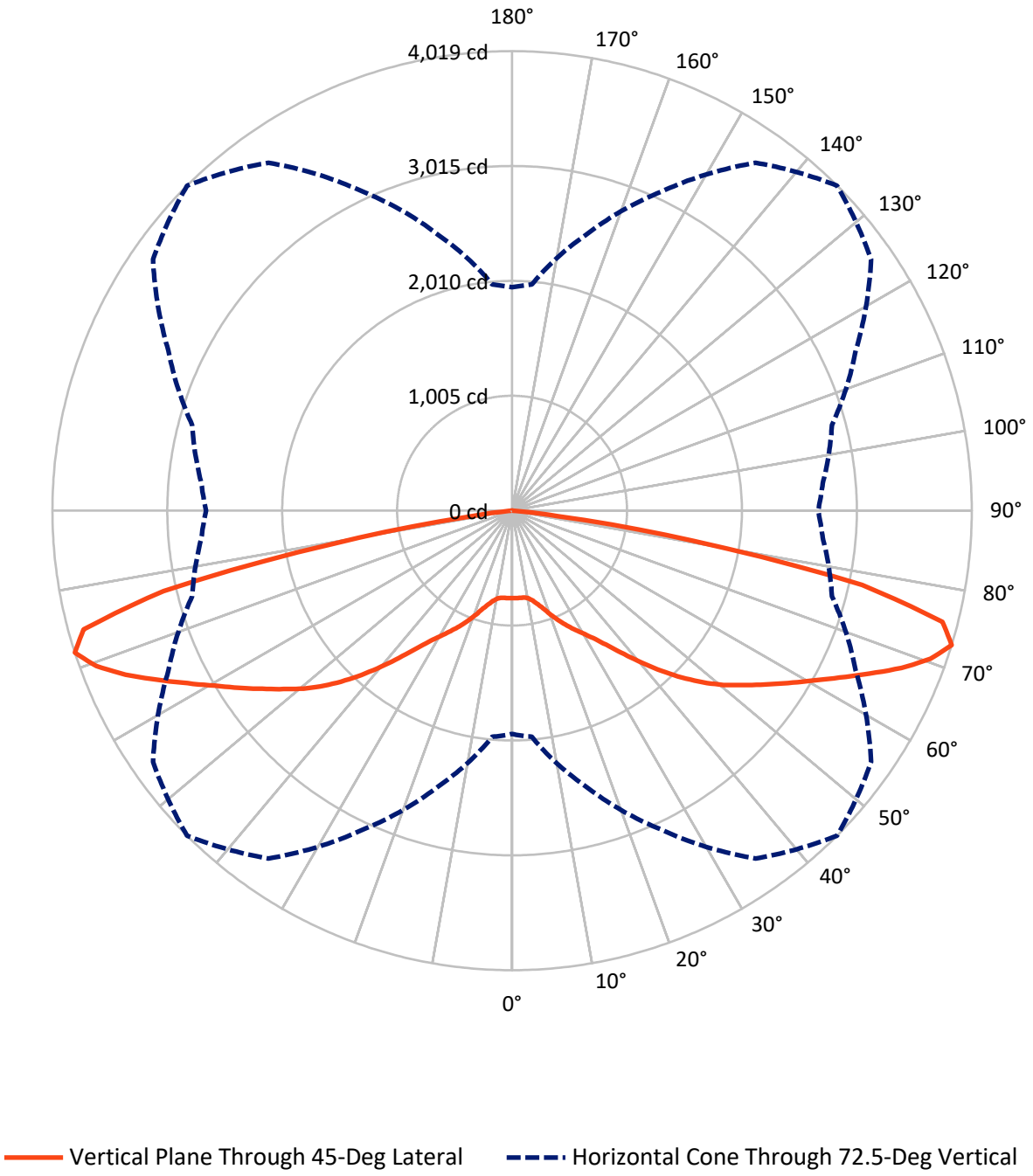
Luminous Intensity Polar Plot



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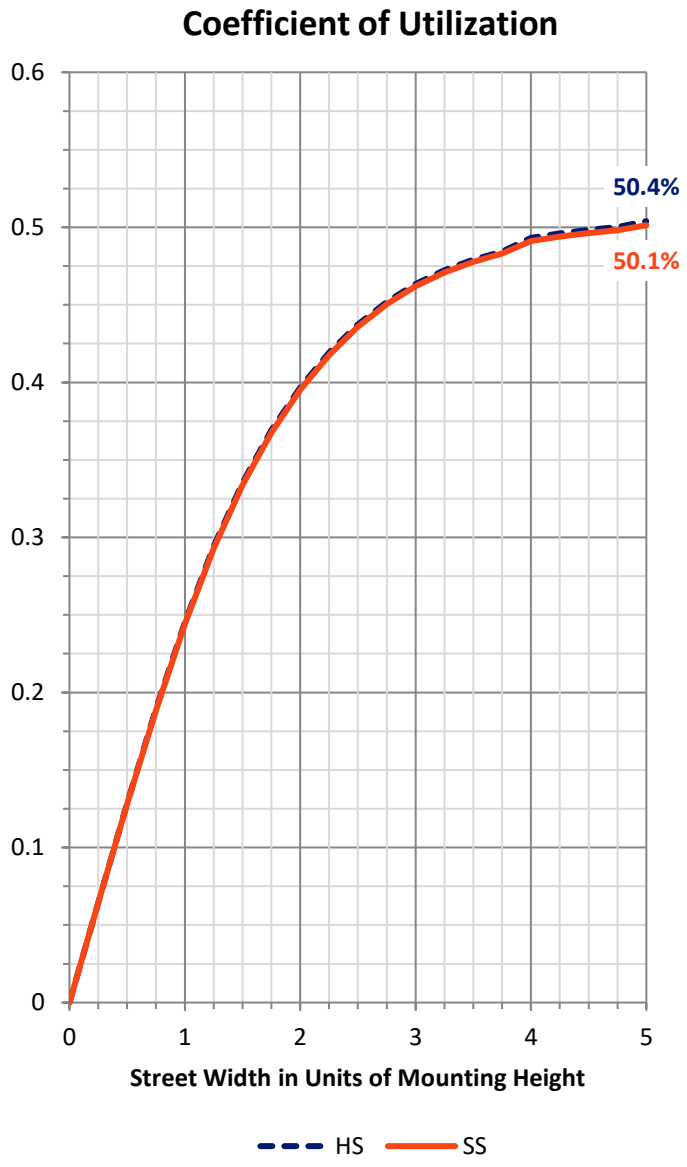
REPORT NUMBER: P870589
CATALOG NUMBER: MEM2-HSN-SA-90-830-U-5WQ

FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	5791.9	0.0	5791.9
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	5791.9	0.0	5791.9
	% Fixture	50.0	0.0	50.0
Total	Lumens	11583.9	0.0	11583.9
	% Fixture	100.0	0.0	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	73.3	0.6
10°-20°	244.6	2.1
20°-30°	504.7	4.4
30°-40°	929.2	8.0
40°-50°	1633.7	14.1
50°-60°	2369.5	20.5
60°-70°	3088.9	26.7
70°-80°	2567.6	22.2
80°-90°	172.4	1.5
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°	11583.9	100.0
0°-180°	11583.9	100.0



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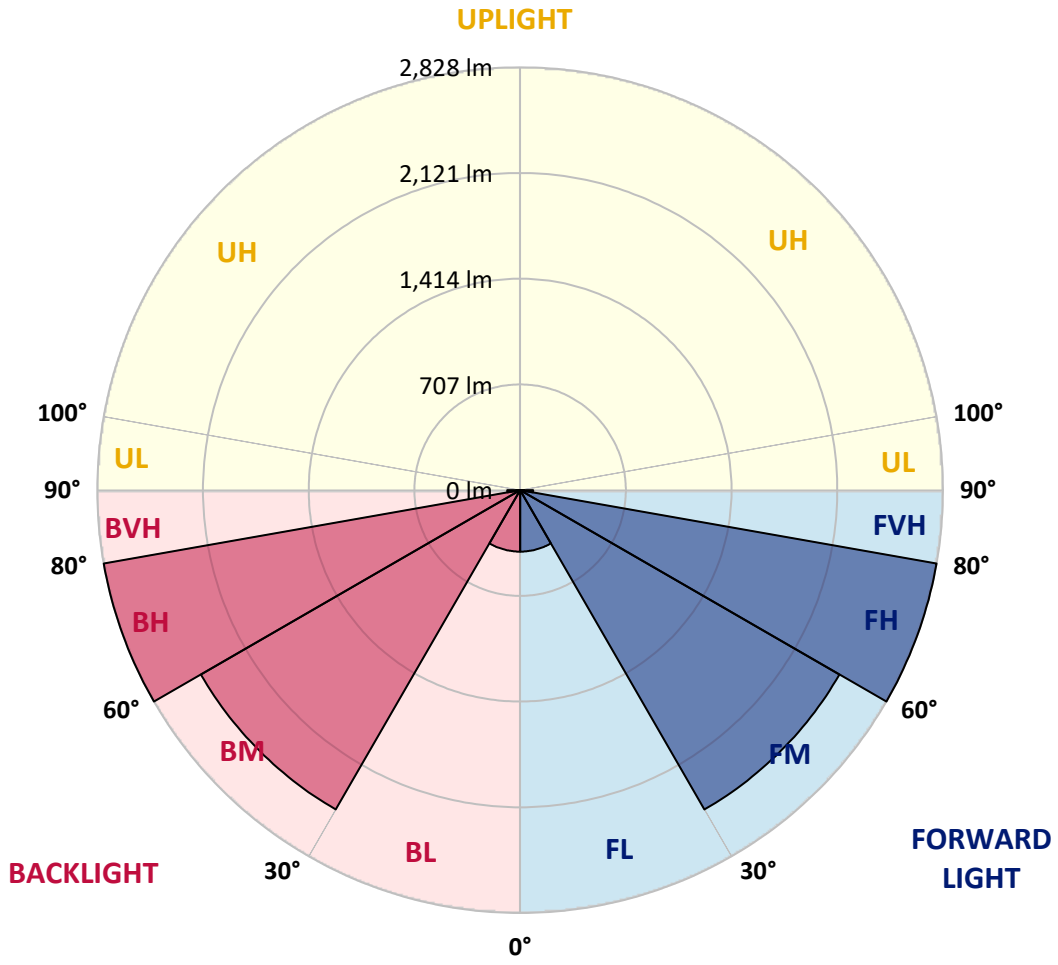
REPORT NUMBER: P870589
CATALOG NUMBER: MEM2-HSN-SA-90-830-U-5WQ

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit B	U	G
FL	(0°-30°)	411.3	3.6			
FM	(30°-60°)	2466.2	21.3			
FH	(60°-80°)	2828.2	24.4			G2/5000
FVH	(80°-90°)	86.2	0.7			G1/100
BL	(0°-30°)	411.3	3.6	B1/500		
BM	(30°-60°)	2466.2	21.3	B2/2500		
BH	(60°-80°)	2828.2	24.4	B4/5000		G2/5000
BVH	(80°-90°)	86.2	0.7			G1/100
UL	(90°-100°)	0.0	0.0		U0/0	
UH	(100°-180°)	0.0	0.0		U0/0	

BUG Rating: B4-U0-G2
Type V Short



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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	764.7	764.7	764.7	764.7	764.7	*764.7*	764.7	764.7	764.7	764.7	764.7
2.5°	762.3	763.5	763.5	763.5	764.7	*765.9*	767.1	768.3	770.7	771.9	771.9
5°	765.9	764.7	763.5	765.9	765.9	*765.9*	767.1	768.3	768.3	768.3	769.5
7.5°	762.3	763.5	762.3	762.3	765.9	*767.1*	765.9	764.7	764.7	765.9	765.9
10°	775.5	774.3	773.1	773.1	776.7	*777.9*	776.7	775.5	775.5	777.9	777.9
12.5°	805.6	808.0	800.8	800.8	805.6	*808.0*	804.4	803.2	804.4	806.8	806.8
15°	852.4	851.2	846.4	841.6	846.4	*850.0*	845.2	842.8	844.0	850.0	845.2
17.5°	904.0	905.2	900.4	895.6	899.2	*904.0*	896.8	890.8	892.0	894.4	892.0
20°	961.6	960.4	959.2	959.2	966.4	*972.4*	961.6	947.2	943.6	941.2	941.2
22.5°	1003.6	1007.2	1008.4	1019.2	1036.1	*1042.1*	1027.7	1008.4	994.0	986.8	982.0
25°	1069.7	1066.1	1063.7	1075.7	1100.9	*1111.7*	1093.7	1067.3	1052.9	1051.7	1055.3
27.5°	1129.7	1129.7	1134.5	1146.5	1170.5	*1181.3*	1165.7	1139.3	1132.1	1132.1	1128.5
30°	1207.7	1204.1	1208.9	1229.3	1247.3	*1254.6*	1241.3	1223.3	1217.3	1217.3	1211.3
32.5°	1299.0	1300.2	1307.4	1320.6	1338.6	*1339.8*	1335.0	1326.6	1323.0	1319.4	1325.4
35°	1438.2	1438.2	1435.8	1445.4	1450.2	*1452.6*	1455.0	1451.4	1451.4	1451.4	1446.6
37.5°	1611.1	1601.5	1600.3	1591.9	1585.9	*1591.9*	1602.7	1614.7	1624.3	1618.3	1615.9
40°	1782.8	1778.0	1763.6	1750.4	1745.6	*1748.0*	1761.2	1786.4	1797.2	1797.2	1806.8
42.5°	1967.7	1958.1	1940.1	1924.4	1911.2	*1914.8*	1926.8	1958.1	1982.1	1992.9	1988.1
45°	2133.3	2124.9	2106.9	2092.5	2082.9	*2081.7*	2097.3	2117.7	2150.1	2159.8	2167.0
47.5°	2275.0	2269.0	2253.4	2239.0	2242.6	*2243.8*	2248.6	2266.6	2293.0	2306.2	2305.0
50°	2390.3	2385.5	2371.0	2377.0	2386.7	*2396.3*	2390.3	2402.3	2419.1	2425.1	2429.9
52.5°	2495.9	2488.7	2479.1	2489.9	2515.1	*2534.3*	2537.9	2529.5	2534.3	2537.9	2534.3
55°	2600.3	2591.9	2589.5	2608.7	2647.2	*2683.2*	2679.6	2655.6	2649.6	2642.4	2638.8
57.5°	2685.6	2679.6	2689.2	2721.6	2796.0	*2844.1*	2828.4	2773.2	2749.2	2732.4	2727.6
60°	2739.6	2738.4	2760.0	2835.6	2948.5	*3015.7*	2990.5	2895.7	2841.7	2826.0	2818.8
62.5°	2768.4	2769.6	2808.0	2942.5	3122.6	*3213.8*	3169.4	3024.1	2940.1	2924.5	2926.9
65°	2794.8	2791.2	2841.7	3032.5	3311.1	*3434.7*	3374.7	3179.0	3056.5	3025.3	3025.3
67.5°	2814.0	2817.6	2893.3	3122.6	3494.7	*3671.2*	3583.6	3343.5	3181.4	3134.6	3128.6
70°	2571.5	2606.3	2842.9	3182.6	3640.0	*3880.1*	3764.9	3444.3	3186.2	3052.9	3039.7
72.5°	*1953.3*	*1985.7*	*2497.1*	*3075.8*	*3714.4*	*4019.4*	*3832.1*	*3315.9*	*2895.7*	*2726.4*	*2676.0*
75°	1288.2	1311.0	1860.8	2686.8	3507.9	*3887.3*	3489.9	2856.1	2279.8	2060.1	2073.3
77.5°	573.9	647.1	1186.1	2096.1	2889.7	*3128.6*	2661.6	1948.5	1392.6	1178.9	1156.1
80°	240.1	262.9	447.8	1117.7	1674.7	*1602.7*	1133.3	653.1	415.4	322.9	312.1
82.5°	69.6	72.0	88.8	193.3	341.0	*401.0*	241.3	122.5	116.5	92.4	85.2
85°	4.8	4.8	7.2	12.0	16.8	*27.6*	31.2	36.0	40.8	34.8	34.8
87.5°	2.4	2.4	2.4	3.6	3.6	*4.8*	3.6	3.6	3.6	3.6	3.6
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: SP1-2407-157-7

Test Date: 09/05/2024

Luminaire Tested: MEM2-HTN-SA-30-830-U-5WQ

Data in this report applies to families of products including MEM2-HTN-SA-30-830-U-5WQ

Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.04

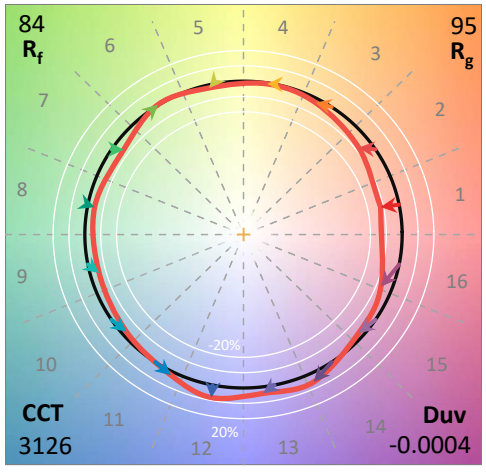
Test Information

Test Method:	LM-79-2019
Report Number:	SP1-2407-157-7
Test Lab:	COOPER LIGHTING SOLUTIONS
Photometer:	SP1 - 76IN SPHERE
Measurement Geometry:	4π
Issue Date:	09/05/2024
Manufacturer:	COOPER LIGHTING SOLUTIONS
Product Line:	Streetworks
Catalog Number:	**MEM2-HTN-SA-30-830-U-5WQ**
Description:	Epic Modern Light Square 30W 5WQ Optic

Spectral Parameters

CCT (K):	3126
CIE u':	0.2465
CIE v':	0.5182
Duv:	-0.0004
CIE x:	0.4277
CIE y:	0.3997
CIE z:	0.1727
Peak Wavelength (nm):	601
Dominant Wavelength (nm):	582
Purity:	48.31913
Rf:	84.4
Rg:	94.7

CRI (Ra):	82.6
R1:	81.4
R2:	92.2
R3:	94.9
R4:	80.1
R5:	81.8
R6:	90.5
R7:	81.8
R8:	58.0
R9:	5.1
R10:	82.2
R11:	79.8
R12:	70.4
R13:	84.2
R14:	97.9
R15:	73.6



Test Conditions

Stabilization Time:	22M
Operation Time:	1H 22M
Sphere Temperature (°C):	24.3

REPORT NUMBER: SP1-2407-157-7

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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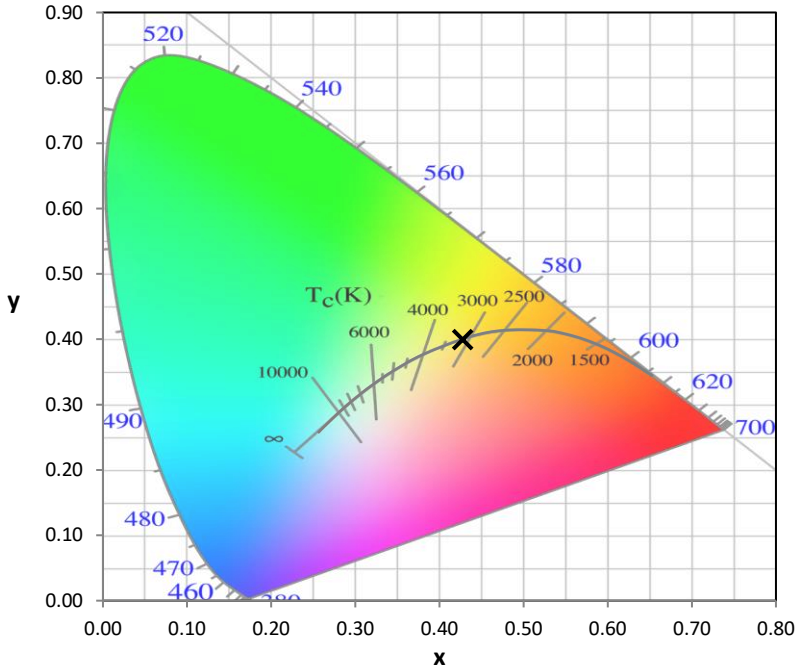
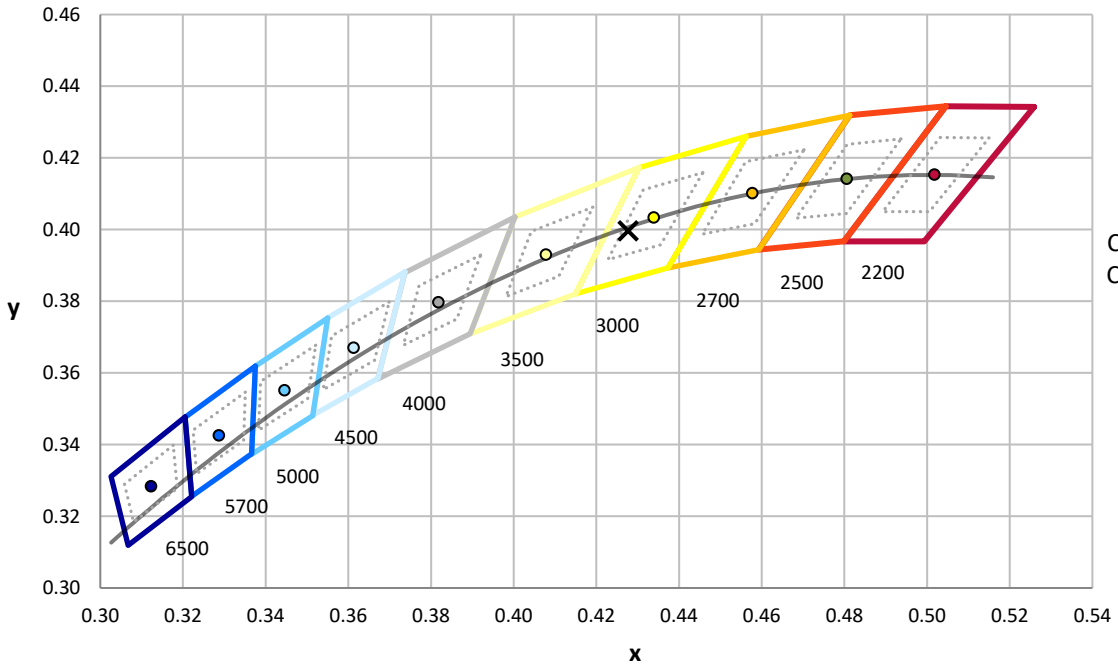
CIE 1931 Chromaticity Diagram



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



CCT = 3126K
CIE x = 0.4277
CIE y = 0.3997
Duv = -0.0004

Point lies inside the ANSI 3000K 4-step quadrangle

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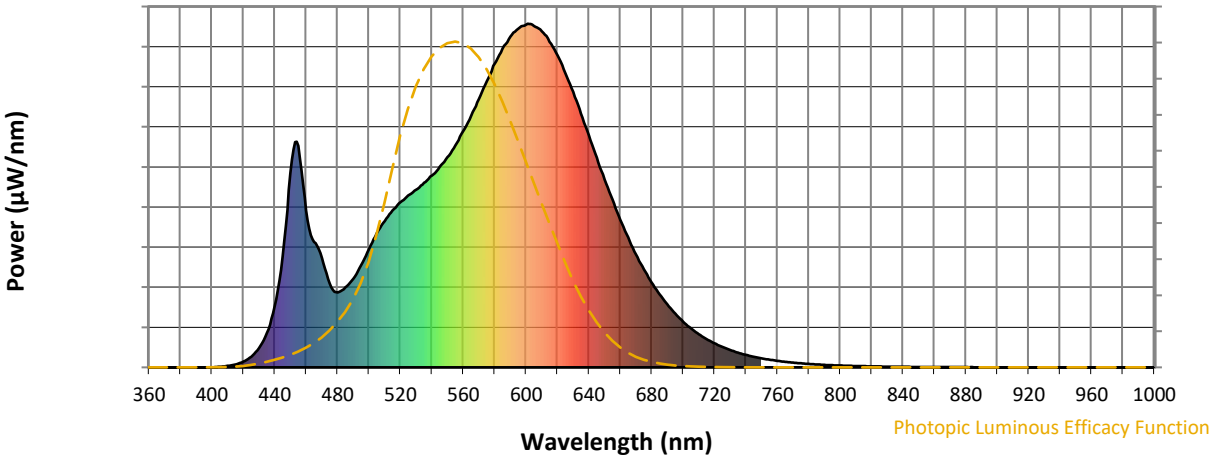
Photopic Flux vs. Wavelength



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	258	NR	620	908	NR	750	26	NR	880	1	NR
365	0	NR	495	297	NR	625	857	NR	755	22	NR	885	0	NR
370	0	NR	500	345	NR	630	801	NR	760	19	NR	890	0	NR
375	0	NR	505	391	NR	635	738	NR	765	16	NR	895	0	NR
380	0	NR	510	426	NR	640	675	NR	770	14	NR	900	0	NR
385	0	NR	515	456	NR	645	610	NR	775	12	NR	905	0	NR
390	0	NR	520	480	NR	650	547	NR	780	10	NR	910	0	NR
395	0	NR	525	500	NR	655	488	NR	785	9	NR	915	0	NR
400	0	NR	530	517	NR	660	429	NR	790	7	NR	920	0	NR
405	2	NR	535	538	NR	665	378	NR	795	6	NR	925	0	NR
410	4	NR	540	558	NR	670	328	NR	800	5	NR	930	0	NR
415	9	NR	545	584	NR	675	285	NR	805	5	NR	935	0	NR
420	16	NR	550	611	NR	680	247	NR	810	4	NR	940	0	NR
425	31	NR	555	646	NR	685	212	NR	815	3	NR	945	0	NR
430	56	NR	560	687	NR	690	183	NR	820	3	NR	950	0	NR
435	101	NR	565	731	NR	695	156	NR	825	3	NR	955	0	NR
440	178	NR	570	780	NR	700	133	NR	830	2	NR	960	0	NR
445	323	NR	575	832	NR	705	114	NR	835	2	NR	965	0	NR
450	566	NR	580	883	NR	710	96	NR	840	2	NR	970	0	NR
455	645	NR	585	927	NR	715	82	NR	845	1	NR	975	0	NR
460	457	NR	590	963	NR	720	70	NR	850	1	NR	980	0	NR
465	365	NR	595	985	NR	725	59	NR	855	1	NR	985	0	NR
470	317	NR	600	998	NR	730	50	NR	860	1	NR	990	0	NR
475	244	NR	605	994	NR	735	43	NR	865	1	NR	995	0	NR
480	218	NR	610	978	NR	740	36	NR	870	1	NR	1000	0	NR
485	233	NR	615	947	NR	745	31	NR	875	1	NR			

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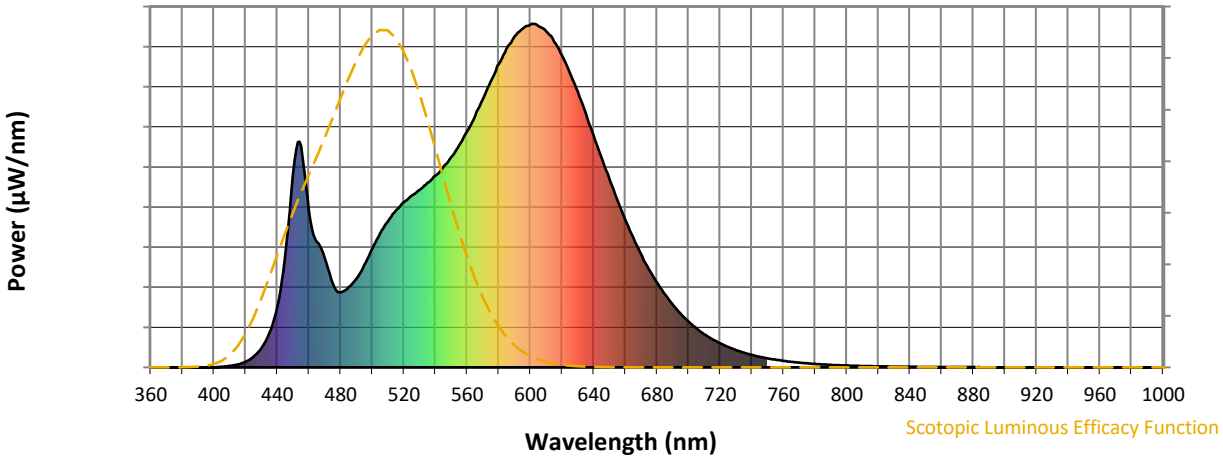
Scotopic Flux vs. Wavelength



Scotopic Lumens: NR **S/P: 1.42**

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	258	NR	620	908	NR	750	26	NR	880	1	NR
365	0	NR	495	297	NR	625	857	NR	755	22	NR	885	0	NR
370	0	NR	500	345	NR	630	801	NR	760	19	NR	890	0	NR
375	0	NR	505	391	NR	635	738	NR	765	16	NR	895	0	NR
380	0	NR	510	426	NR	640	675	NR	770	14	NR	900	0	NR
385	0	NR	515	456	NR	645	610	NR	775	12	NR	905	0	NR
390	0	NR	520	480	NR	650	547	NR	780	10	NR	910	0	NR
395	0	NR	525	500	NR	655	488	NR	785	9	NR	915	0	NR
400	0	NR	530	517	NR	660	429	NR	790	7	NR	920	0	NR
405	2	NR	535	538	NR	665	378	NR	795	6	NR	925	0	NR
410	4	NR	540	558	NR	670	328	NR	800	5	NR	930	0	NR
415	9	NR	545	584	NR	675	285	NR	805	5	NR	935	0	NR
420	16	NR	550	611	NR	680	247	NR	810	4	NR	940	0	NR
425	31	NR	555	646	NR	685	212	NR	815	3	NR	945	0	NR
430	56	NR	560	687	NR	690	183	NR	820	3	NR	950	0	NR
435	101	NR	565	731	NR	695	156	NR	825	3	NR	955	0	NR
440	178	NR	570	780	NR	700	133	NR	830	2	NR	960	0	NR
445	323	NR	575	832	NR	705	114	NR	835	2	NR	965	0	NR
450	566	NR	580	883	NR	710	96	NR	840	2	NR	970	0	NR
455	645	NR	585	927	NR	715	82	NR	845	1	NR	975	0	NR
460	457	NR	590	963	NR	720	70	NR	850	1	NR	980	0	NR
465	365	NR	595	985	NR	725	59	NR	855	1	NR	985	0	NR
470	317	NR	600	998	NR	730	50	NR	860	1	NR	990	0	NR
475	244	NR	605	994	NR	735	43	NR	865	1	NR	995	0	NR
480	218	NR	610	978	NR	740	36	NR	870	1	NR	1000	0	NR
485	233	NR	615	947	NR	745	31	NR	875	1	NR			

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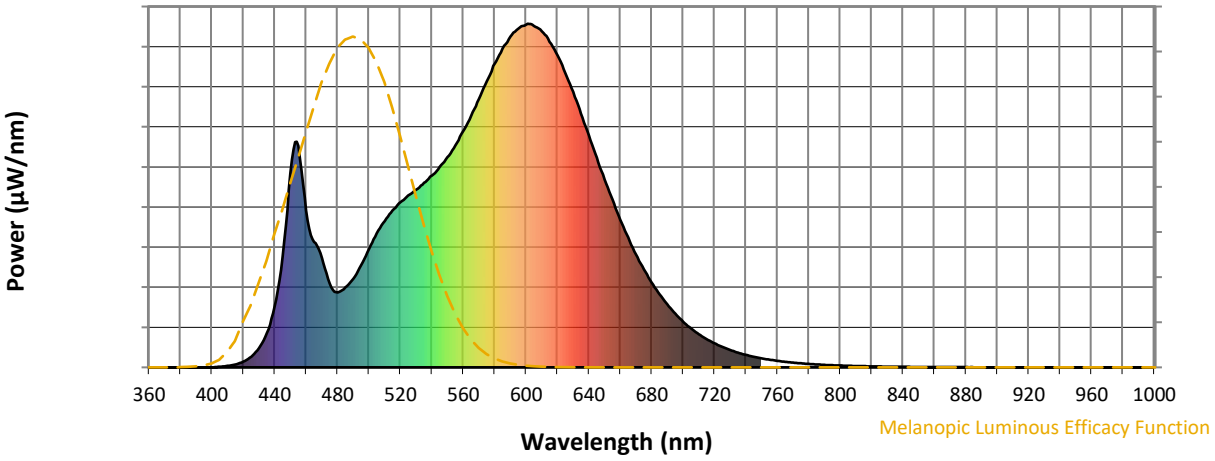
Melanopic Flux vs. Wavelength



Melanopic Lumens: NR **M/P: 2.79**

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	258	NR	620	908	NR	750	26	NR	880	1	NR
365	0	NR	495	297	NR	625	857	NR	755	22	NR	885	0	NR
370	0	NR	500	345	NR	630	801	NR	760	19	NR	890	0	NR
375	0	NR	505	391	NR	635	738	NR	765	16	NR	895	0	NR
380	0	NR	510	426	NR	640	675	NR	770	14	NR	900	0	NR
385	0	NR	515	456	NR	645	610	NR	775	12	NR	905	0	NR
390	0	NR	520	480	NR	650	547	NR	780	10	NR	910	0	NR
395	0	NR	525	500	NR	655	488	NR	785	9	NR	915	0	NR
400	0	NR	530	517	NR	660	429	NR	790	7	NR	920	0	NR
405	2	NR	535	538	NR	665	378	NR	795	6	NR	925	0	NR
410	4	NR	540	558	NR	670	328	NR	800	5	NR	930	0	NR
415	9	NR	545	584	NR	675	285	NR	805	5	NR	935	0	NR
420	16	NR	550	611	NR	680	247	NR	810	4	NR	940	0	NR
425	31	NR	555	646	NR	685	212	NR	815	3	NR	945	0	NR
430	56	NR	560	687	NR	690	183	NR	820	3	NR	950	0	NR
435	101	NR	565	731	NR	695	156	NR	825	3	NR	955	0	NR
440	178	NR	570	780	NR	700	133	NR	830	2	NR	960	0	NR
445	323	NR	575	832	NR	705	114	NR	835	2	NR	965	0	NR
450	566	NR	580	883	NR	710	96	NR	840	2	NR	970	0	NR
455	645	NR	585	927	NR	715	82	NR	845	1	NR	975	0	NR
460	457	NR	590	963	NR	720	70	NR	850	1	NR	980	0	NR
465	365	NR	595	985	NR	725	59	NR	855	1	NR	985	0	NR
470	317	NR	600	998	NR	730	50	NR	860	1	NR	990	0	NR
475	244	NR	605	994	NR	735	43	NR	865	1	NR	995	0	NR
480	218	NR	610	978	NR	740	36	NR	870	1	NR	1000	0	NR
485	233	NR	615	947	NR	745	31	NR	875	1	NR			

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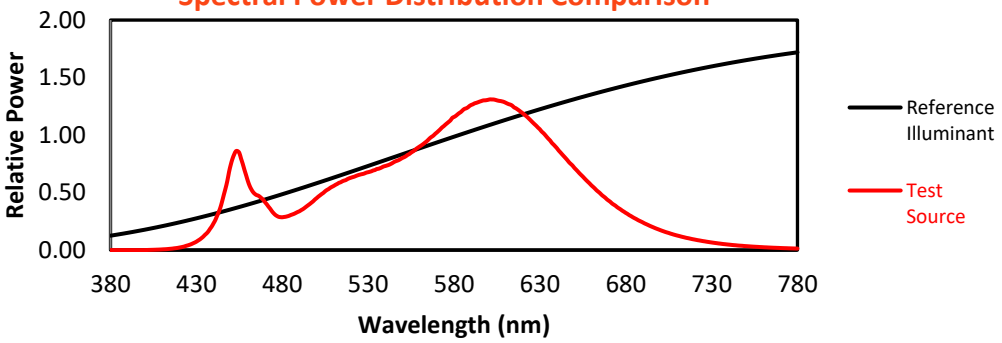
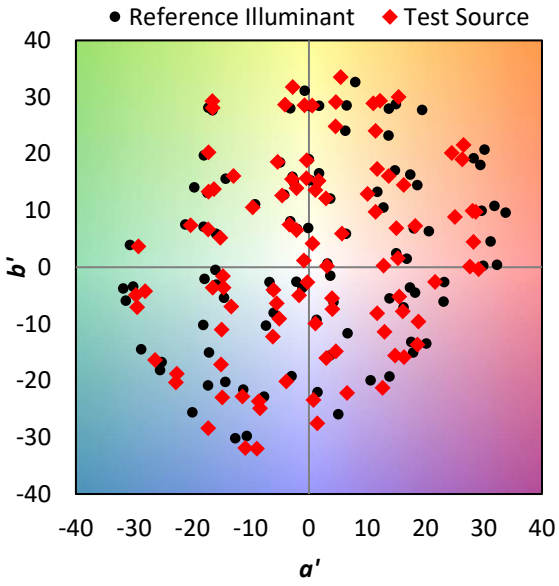
Summary

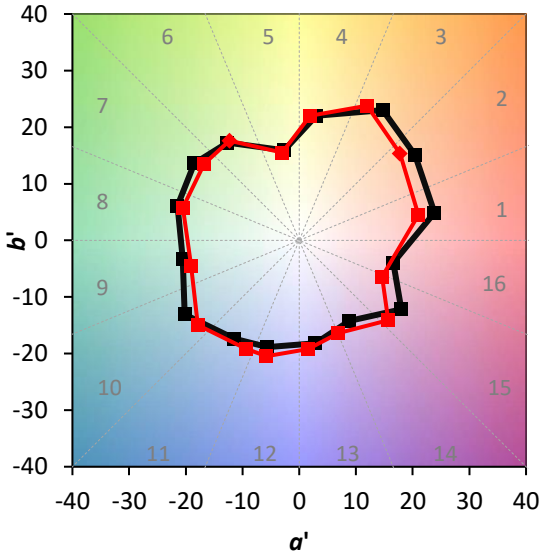
R_f = 84.4
R_g = 94.7
CIE R_a = 82.6
R_9 = 5.1

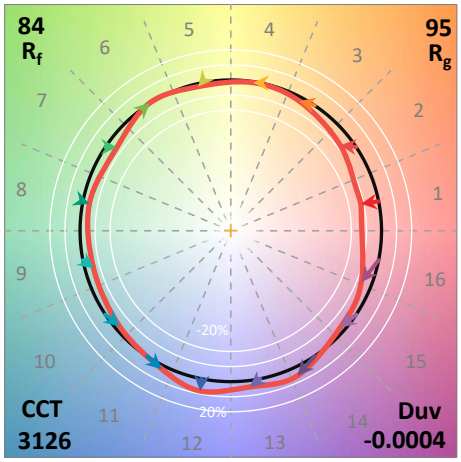
Spectral Power Distribution Comparison

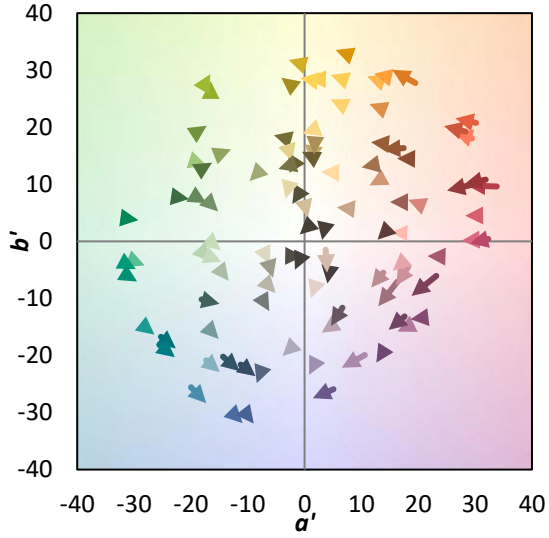


Color Vector Graphics









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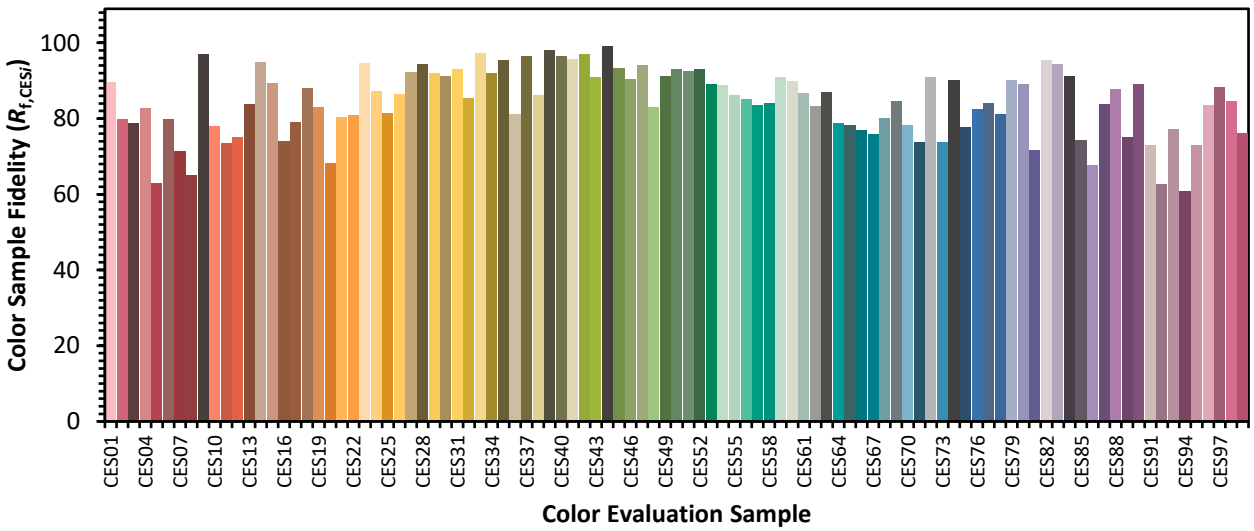
Individual Sample Fidelity Index ($R_{f,i}$)

CES01 = 86	CES26 = 86	CES51 = 93	CES76 = 82
CES02 = 63	CES27 = 92	CES52 = 93	CES77 = 84
CES03 = 31	CES28 = 94	CES53 = 89	CES78 = 81
CES04 = 70	CES29 = 92	CES54 = 89	CES79 = 90
CES05 = 49	CES30 = 91	CES55 = 86	CES80 = 89
CES06 = 51	CES31 = 93	CES56 = 85	CES81 = 72
CES07 = 42	CES32 = 85	CES57 = 83	CES82 = 95
CES08 = 41	CES33 = 97	CES58 = 84	CES83 = 94
CES09 = 29	CES34 = 92	CES59 = 91	CES84 = 91
CES10 = 76	CES35 = 96	CES60 = 90	CES85 = 74
CES11 = 59	CES36 = 81	CES61 = 87	CES86 = 68
CES12 = 65	CES37 = 96	CES62 = 83	CES87 = 84
CES13 = 43	CES38 = 86	CES63 = 87	CES88 = 88
CES14 = 74	CES39 = 98	CES64 = 79	CES89 = 75
CES15 = 71	CES40 = 96	CES65 = 78	CES90 = 89
CES16 = 47	CES41 = 96	CES66 = 77	CES91 = 73
CES17 = 50	CES42 = 97	CES67 = 76	CES92 = 63
CES18 = 56	CES43 = 91	CES68 = 80	CES93 = 77
CES19 = 72	CES44 = 99	CES69 = 85	CES94 = 61
CES20 = 66	CES45 = 93	CES70 = 78	CES95 = 73
CES21 = 87	CES46 = 90	CES71 = 74	CES96 = 84
CES22 = 79	CES47 = 94	CES72 = 91	CES97 = 88
CES23 = 92	CES48 = 83	CES73 = 74	CES98 = 85
CES24 = 91	CES49 = 91	CES74 = 90	CES99 = 76
CES25 = 72	CES50 = 93	CES75 = 78	



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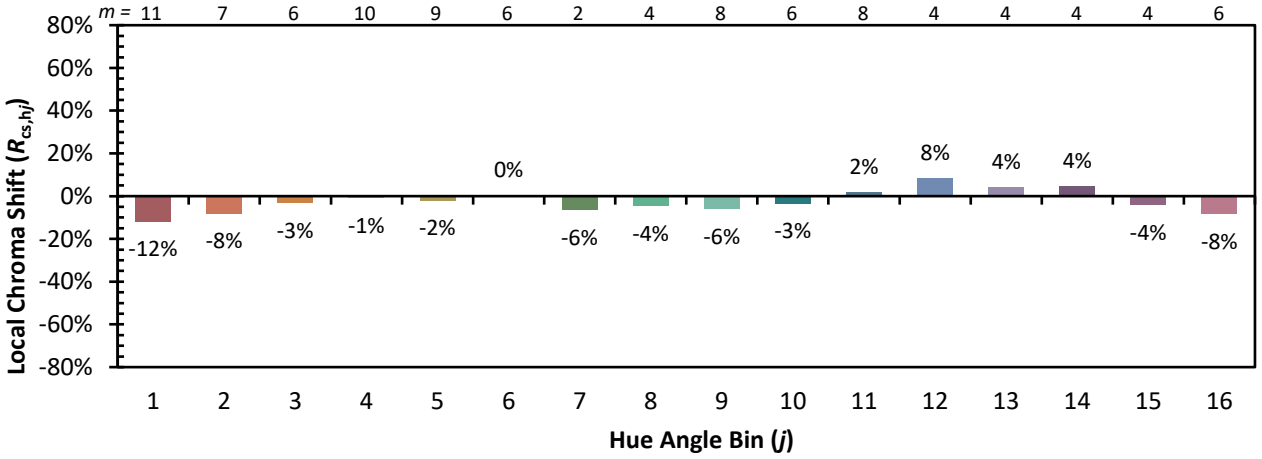
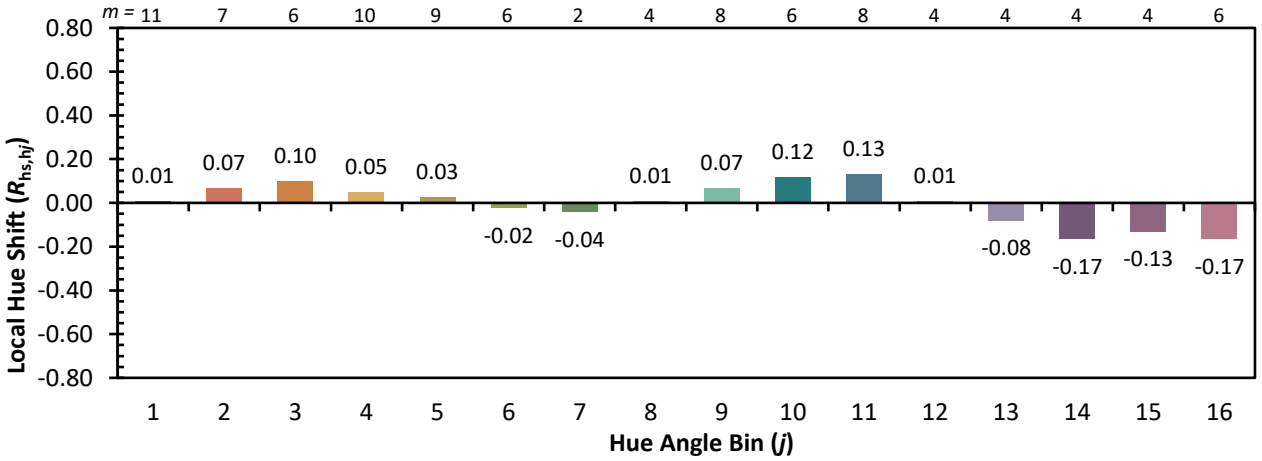
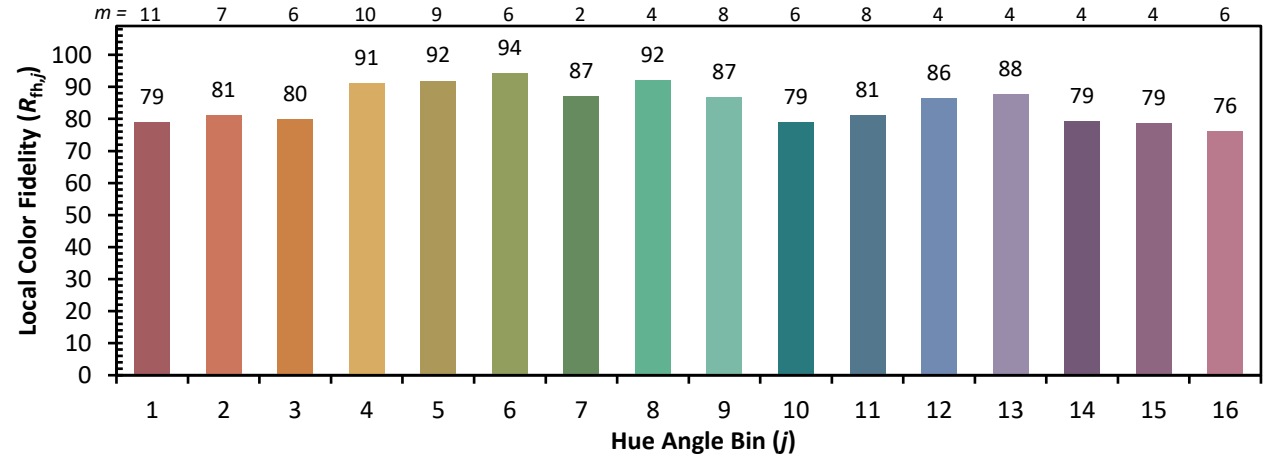
Color Rendition by Hue-Angle Bin







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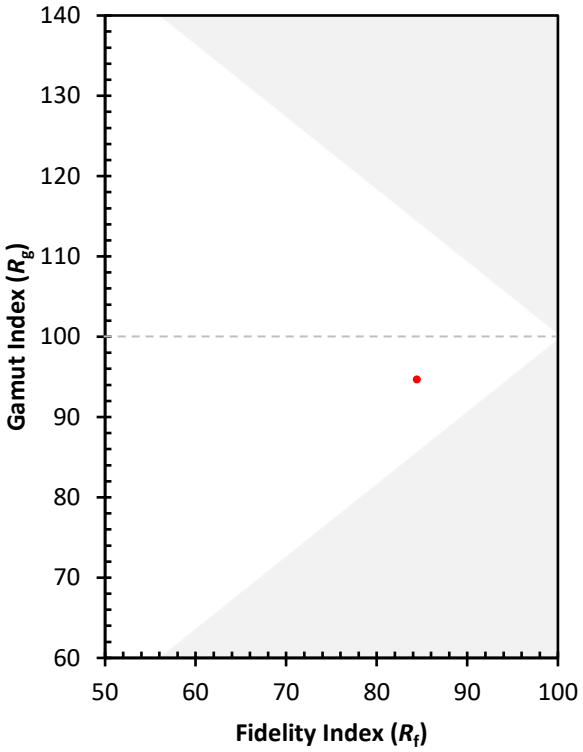
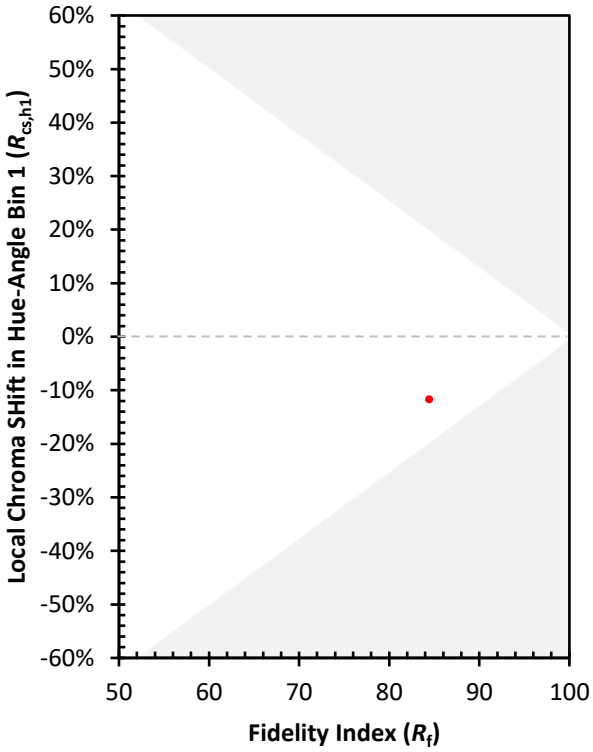
Measure Comparisons





(END OF REPORT)