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: P869143

Luminaire Tested: **EMM2-HSN-SA3A-750-U-T5M**

Issue Date: 08/22/2024

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:	P869143
Test Lab:	INNOVATION CENTER(G3)
Issue Date:	08/22/2024
Manufacturer:	COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line:	INVUE
Catalog Number:	EMM2-HSN-SA3A-750-U-T5M
Description:	EPIC MODERN SHORT HOUSING DISCRETE LED ARRAYS 130W 70CRI 5000K FIXTURE w/ TYPE V SQUARE MEDIUM DISTRIBUTION OPTIC
Light Source:	(30) 5000K CCT, 70 CRI LEDS
Ballast/Driver:	ELECTRONIC DRIVER

Summary

Lumens per Lamp:	N/A
Luminaire Lumens:	17292.7 lumens
Efficiency:	N/A
Efficacy:	153.0 lumens/watt
Luminous Opening:	Rectangular (W 1' x L: 0.33' x H: 0')
IES Classification:	Type V - Short
BUG Rating:	B4 - U0 - G2

Input Watts (W):	113
Input Voltage (V):	120
Input Current (Ain):	NR
Voltage Rise (V):	NR
Power Factor:	0.99
Total Harmonic Distortion (THDi):	7.77%
Frequency (hertz):	60
Stabilization Time:	NR
Operation Time:	NR
Ambient Temperature (°C):	NR
Test Distance:	24 FT

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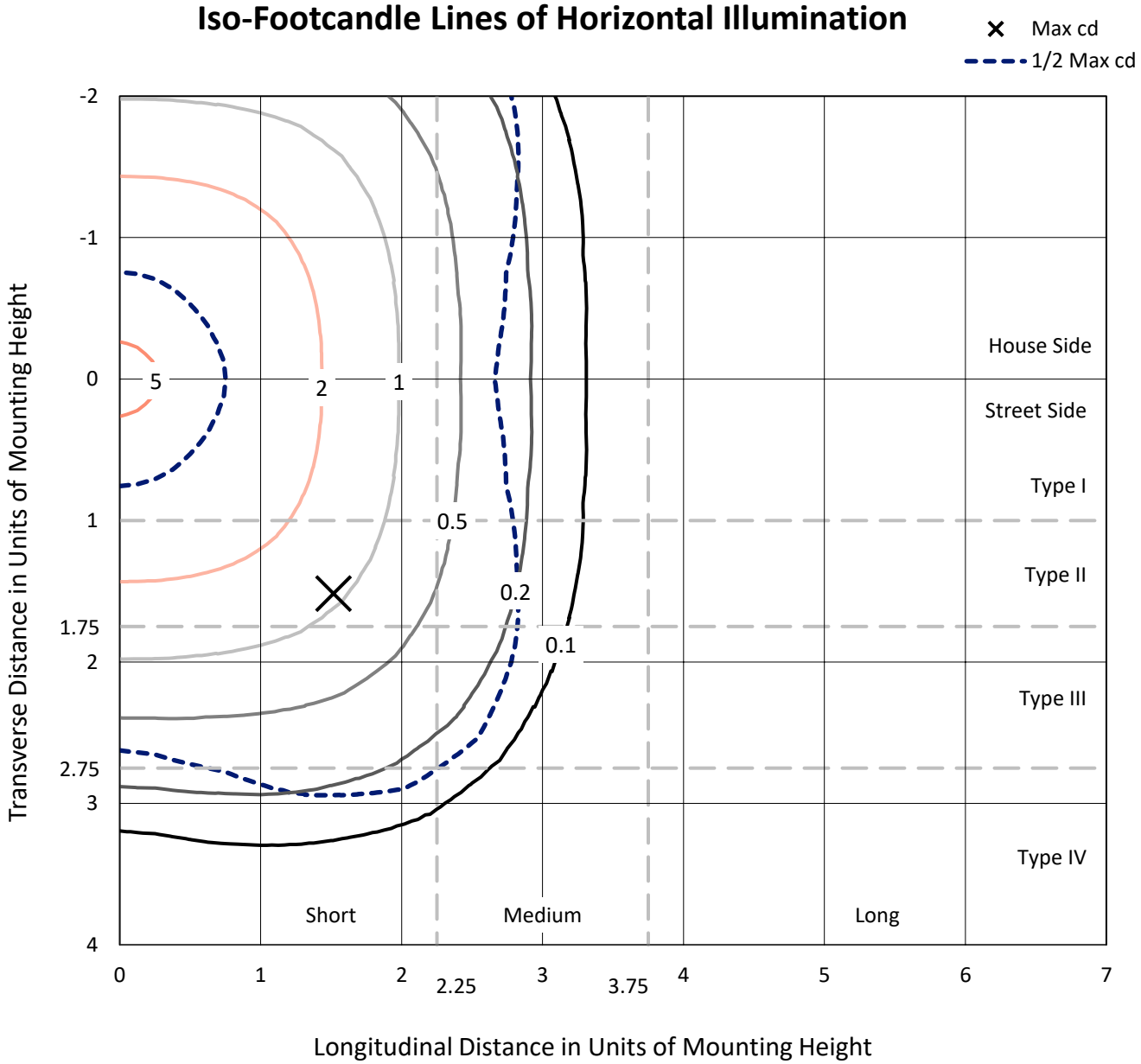
Scaled Data Report

REPORT NUMBER: P869143
CATALOG NUMBER: EMM2-HSN-SA3A-750-U-T5M

Iso-Footcandle Lines of Horizontal Illumination



Based on 20 foot mounting height. Maximum calculated value = 5.4 fc
Type V - Short - N/A

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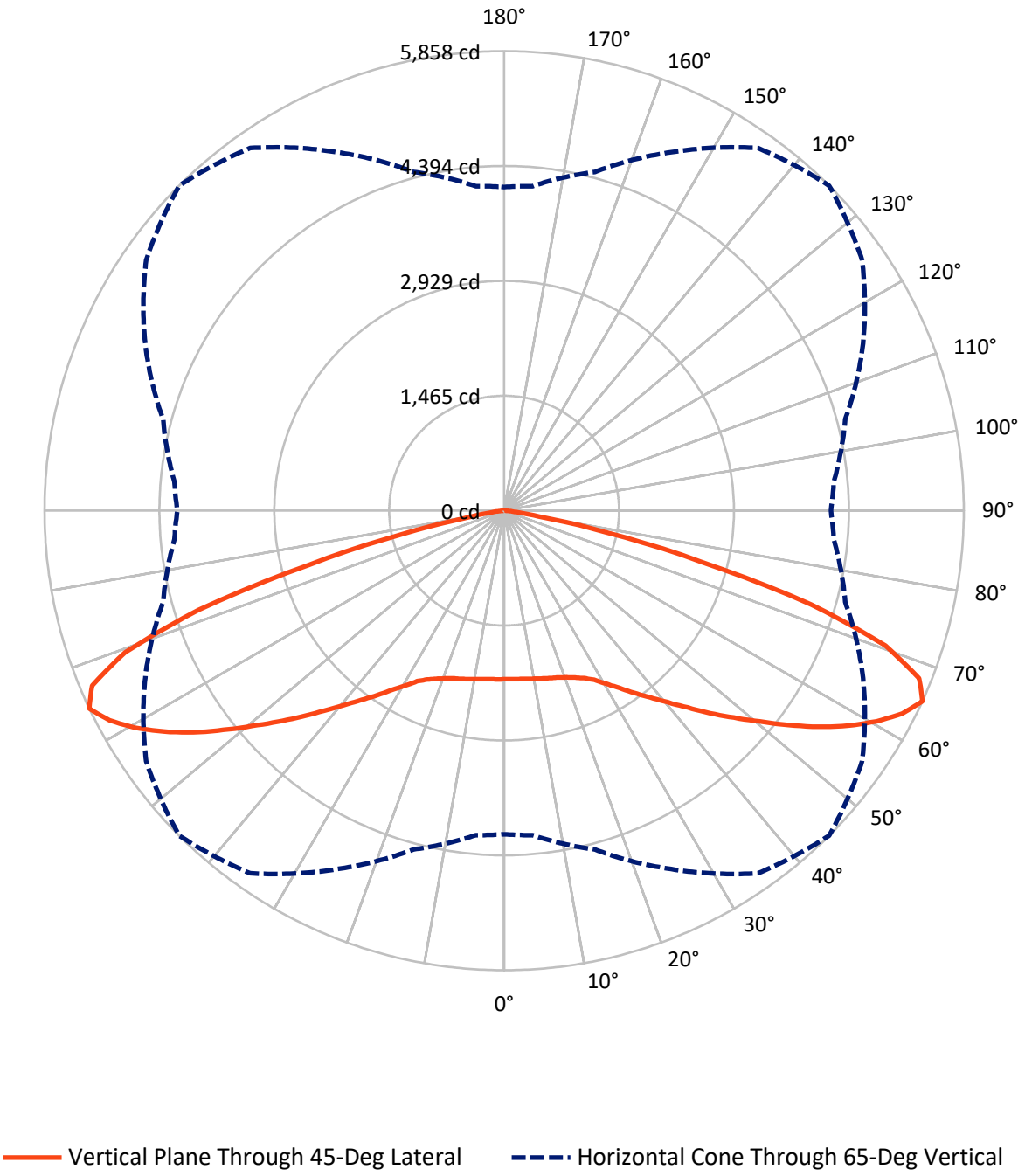
Luminous Intensity Polar Plot



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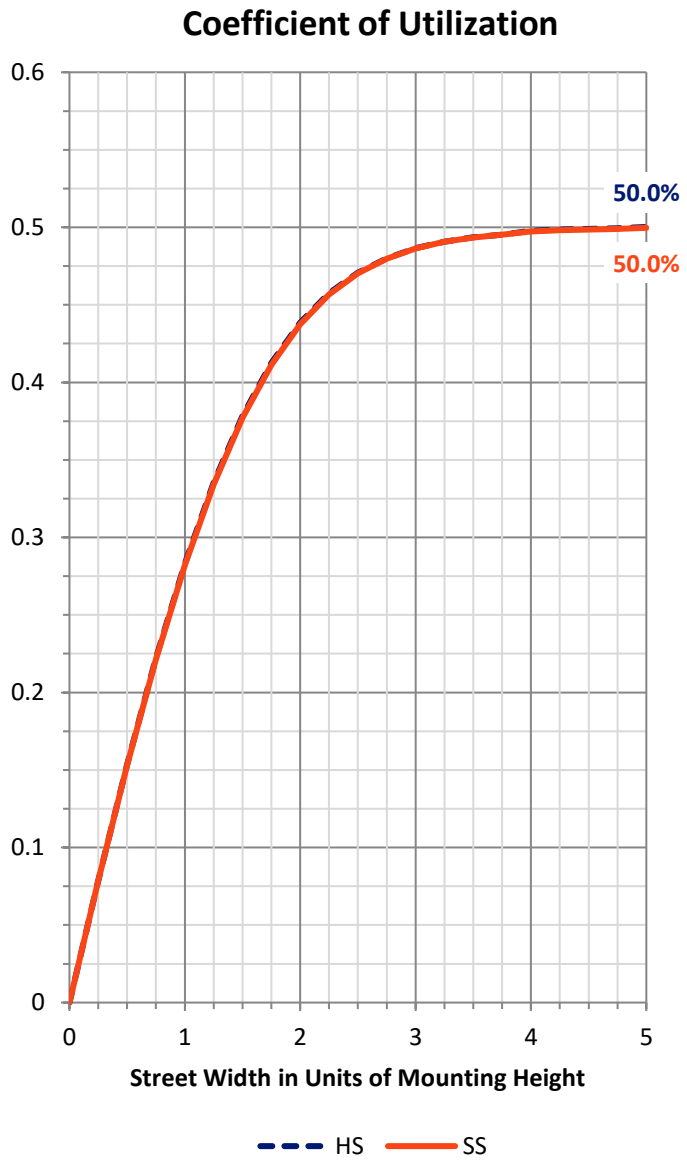
REPORT NUMBER: P869143
CATALOG NUMBER: EMM2-HSN-SA3A-750-U-T5M

FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	8646.3	0.0	8646.3
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	8646.3	0.0	8646.3
	% Fixture	50.0	0.0	50.0
Total	Lumens	17292.7	0.0	17292.7
	% Fixture	100.0	0.0	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	206.6	1.2
10°-20°	628.9	3.6
20°-30°	1106.2	6.4
30°-40°	1789.0	10.3
40°-50°	2786.7	16.1
50°-60°	4074.8	23.6
60°-70°	4692.3	27.1
70°-80°	1916.4	11.1
80°-90°	91.7	0.5
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°	17292.7	100.0
0°-180°	17292.7	100.0



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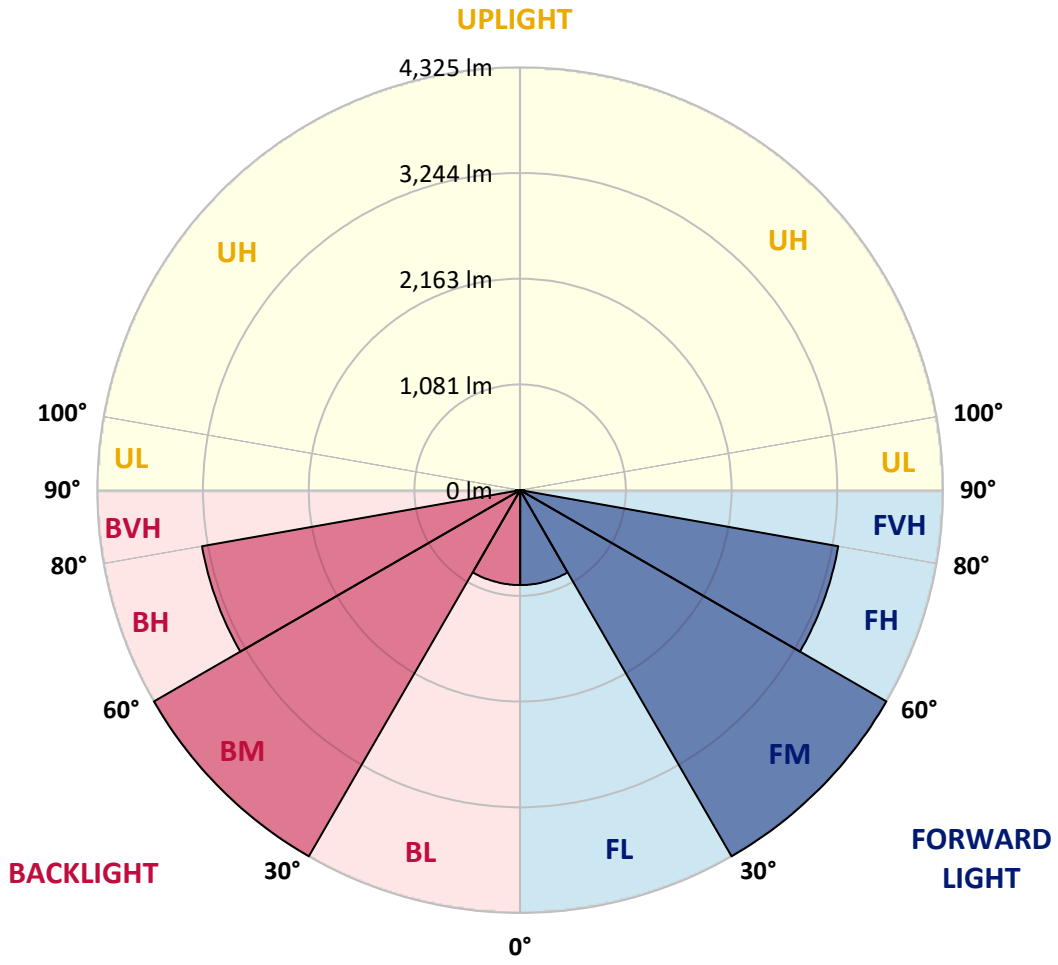
Scaled Data Report

REPORT NUMBER: P869143
CATALOG NUMBER: EMM2-HSN-SA3A-750-U-T5M

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit B	U	G
FL	(0°-30°)	970.9	5.6			
FM	(30°-60°)	4325.3	25.0			
FH	(60°-80°)	3304.4	19.1			G2/5000
FVH	(80°-90°)	45.8	0.3			G1/100
BL	(0°-30°)	970.9	5.6	B2/1000		
BM	(30°-60°)	4325.3	25.0	B3/5000		
BH	(60°-80°)	3304.4	19.1	B4/5000		G2/5000
BVH	(80°-90°)	45.8	0.3			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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REPORT NUMBER: P869143
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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	2148.7	2148.7	2148.7	2148.7	2148.7	*2148.7*	2148.7	2148.7	2148.7	2148.7	2148.7
2.5°	2155.4	2155.4	2152.0	2152.0	2145.4	*2152.0*	2148.7	2152.0	2148.7	2148.7	2152.0
5°	2162.0	2162.0	2155.4	2158.7	2152.0	*2155.4*	2152.0	2158.7	2155.4	2152.0	2158.7
7.5°	2172.0	2172.0	2165.3	2168.6	2162.0	*2165.3*	2162.0	2168.6	2165.3	2165.3	2168.6
10°	2181.9	2185.2	2178.6	2175.3	2175.3	*2178.6*	2181.9	2185.2	2181.9	2181.9	2188.6
12.5°	2198.5	2201.8	2195.2	2191.9	2191.9	*2195.2*	2198.5	2205.2	2195.2	2195.2	2195.2
15°	2215.1	2215.1	2211.8	2208.5	2211.8	*2215.1*	2215.1	2221.8	2215.1	2208.5	2208.5
17.5°	2221.8	2225.1	2221.8	2228.4	2231.7	*2235.1*	2238.4	2238.4	2228.4	2225.1	2225.1
20°	2245.0	2248.3	2241.7	2245.0	2255.0	*2268.3*	2268.3	2268.3	2268.3	2258.3	2258.3
22.5°	2284.9	2288.2	2284.9	2284.9	2298.2	*2311.4*	2311.4	2321.4	2308.1	2301.5	2301.5
25°	2351.3	2351.3	2348.0	2351.3	2357.9	*2364.6*	2377.9	2384.5	2384.5	2381.2	2384.5
27.5°	2431.0	2434.3	2431.0	2431.0	2427.7	*2441.0*	2460.9	2470.9	2474.2	2477.5	2477.5
30°	2537.3	2543.9	2540.6	2543.9	2550.6	*2560.5*	2567.2	2570.5	2570.5	2563.8	2563.8
32.5°	2653.5	2660.1	2653.5	2670.1	2693.4	*2693.4*	2686.7	2700.0	2690.0	2683.4	2676.8
35°	2789.7	2789.7	2796.3	2803.0	2836.2	*2852.8*	2852.8	2846.1	2826.2	2816.2	2822.9
37.5°	2945.8	2949.1	2955.7	2959.0	2988.9	*3018.8*	3015.5	2998.9	2975.6	2949.1	2949.1
40°	3131.7	3125.1	3128.4	3151.7	3174.9	*3211.4*	3214.8	3191.5	3151.7	3125.1	3125.1
42.5°	3301.1	3304.4	3317.7	3347.6	3400.7	*3430.6*	3414.0	3374.2	3331.0	3297.8	3294.5
45°	3480.4	3477.1	3513.7	3576.8	3646.5	*3683.0*	3656.5	3600.0	3533.6	3490.4	3490.4
47.5°	3663.1	3659.8	3719.6	3822.5	3912.2	*3942.1*	3915.5	3842.4	3752.8	3689.7	3679.7
50°	3852.4	3865.7	3928.8	4074.9	4191.1	*4224.4*	4191.1	4094.8	3975.3	3892.3	3879.0
52.5°	4068.3	4078.2	4161.3	4320.7	4463.5	*4539.9*	4490.0	4347.2	4194.5	4094.8	4081.6
55°	4267.5	4274.2	4393.7	4586.4	4762.4	*4865.3*	4785.6	4603.0	4410.3	4284.1	4270.9
57.5°	4407.0	4423.6	4576.4	4825.5	5051.3	*5170.9*	5051.3	4855.4	4599.6	4443.5	4433.6
60°	4496.7	4523.3	4699.3	5011.4	5323.6	*5453.1*	5330.3	5057.9	4742.4	4539.9	4529.9
62.5°	4450.2	4486.7	4712.6	5121.0	5556.1	*5695.6*	5536.2	5154.2	4725.8	4470.1	4443.5
65°	*4124.7*	*4151.3*	*4470.1*	*5041.3*	*5642.4*	*5858.3*	*5569.4*	*5048.0*	*4500.0*	*4217.7*	*4164.6*
67.5°	3450.6	3497.1	3918.8	4656.1	5456.5	*5705.5*	5340.2	4666.1	4005.2	3659.8	3600.0
70°	2650.2	2733.2	3194.8	3995.2	4875.3	*5157.6*	4755.7	3938.7	3161.6	2809.6	2700.0
72.5°	1531.0	1660.5	2338.0	3118.5	3879.0	*4091.5*	3526.9	2753.1	2098.9	1849.8	1819.9
75°	508.1	554.6	1112.5	1796.7	2474.2	*2580.4*	2205.2	1736.9	1381.6	1182.3	1192.3
77.5°	249.1	249.1	335.4	657.6	1125.8	*1328.4*	1205.5	840.2	604.4	458.3	445.0
80°	199.3	199.3	232.5	322.1	378.6	*445.0*	378.6	275.6	225.8	205.9	215.9
82.5°	96.3	93.0	109.6	156.1	159.4	*152.8*	142.8	142.8	136.2	126.2	122.9
85°	6.6	6.6	13.3	29.9	49.8	*66.4*	76.4	73.1	69.7	59.8	66.4
87.5°	3.3	3.3	3.3	3.3	3.3	*3.3*	3.3	6.6	6.6	6.6	6.6
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: SP1-2407-157-6

Test Date: 08/07/2024

Luminaire Tested: MEM2-HTN-SA-40-750-U-5WQ-2

Data in this report applies to families of products including MEM2-HTN-SA-40-750-U-5WQ-2

Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.04

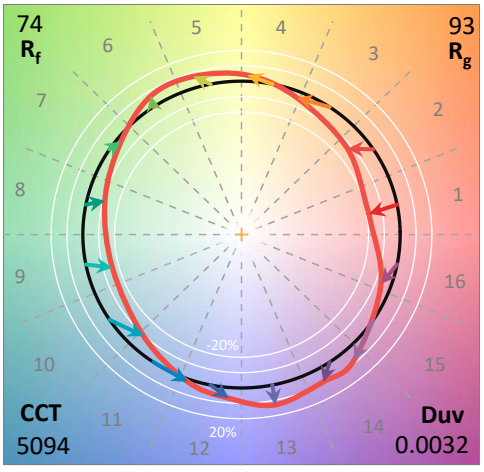
Test Information

Test Method:	LM-79-2019
Report Number:	SP1-2407-157-6
Test Lab:	COOPER LIGHTING SOLUTIONS
Photometer:	SP1 - 76IN SPHERE
Measurement Geometry:	4π
Issue Date:	08/20/2024
Manufacturer:	COOPER LIGHTING SOLUTIONS
Product Line:	Streetworks
Catalog Number:	**MEM2-HTN-SA-40-750-U-5WQ-2**
Description:	Epic Modern Light Square 40W 5WQ Optic and Flare Trim

Spectral Parameters

CCT (K):	5094
CIE u':	0.2082
CIE v':	0.4867
Duv:	0.0032
CIE x:	0.3430
CIE y:	0.3564
CIE z:	0.3006
Peak Wavelength (nm):	451
Dominant Wavelength (nm):	568
Purity:	9.86439
Rf:	73.7
Rg:	93

CRI (Ra):	72.0
R1:	68.6
R2:	78.1
R3:	84.6
R4:	71.6
R5:	69.6
R6:	69.4
R7:	80.9
R8:	53.1
R9:	-39.6
R10:	47.6
R11:	68.2
R12:	41.4
R13:	70.4
R14:	91.4
R15:	61.4



Test Conditions

Stabilization Time:	20M
Operation Time:	1H 20M
Sphere Temperature (°C):	24.2

REPORT NUMBER: SP1-2407-157-6

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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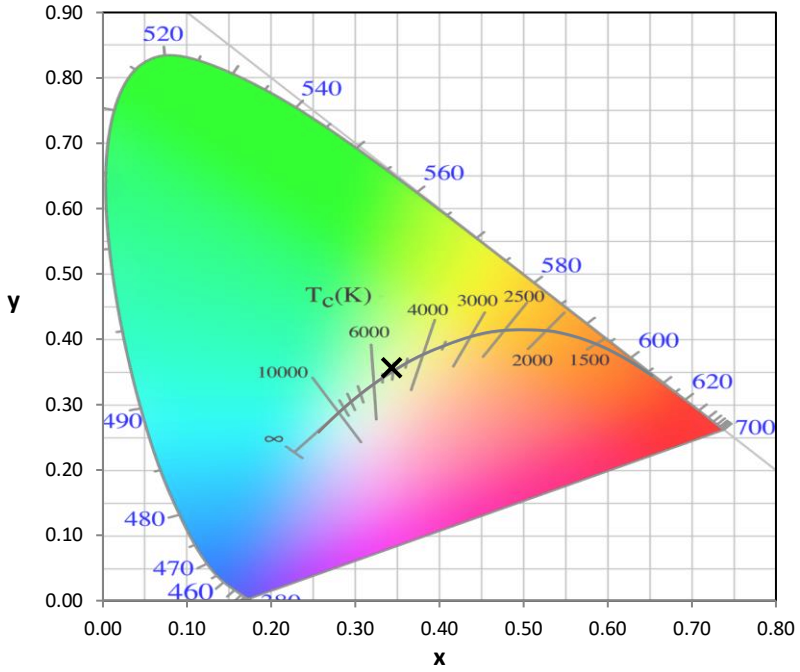
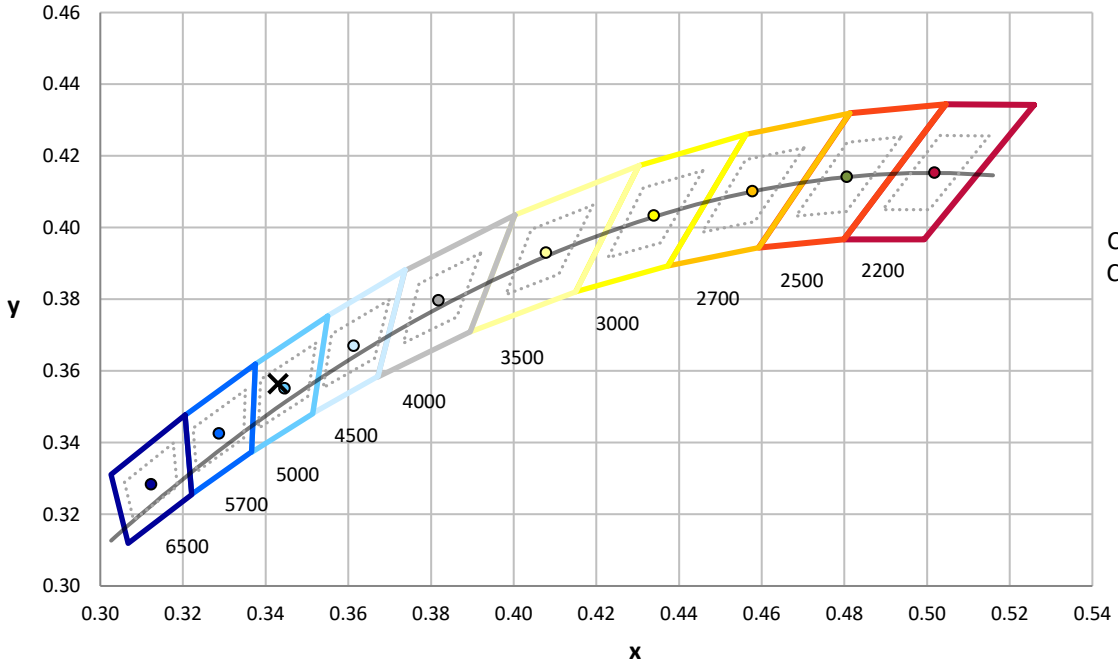
CIE 1931 Chromaticity Diagram



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



CCT = 5094K
CIE x = 0.3430
CIE y = 0.3564
Duv = 0.0032

Point lies inside the ANSI 5000K 4-step quadrangle

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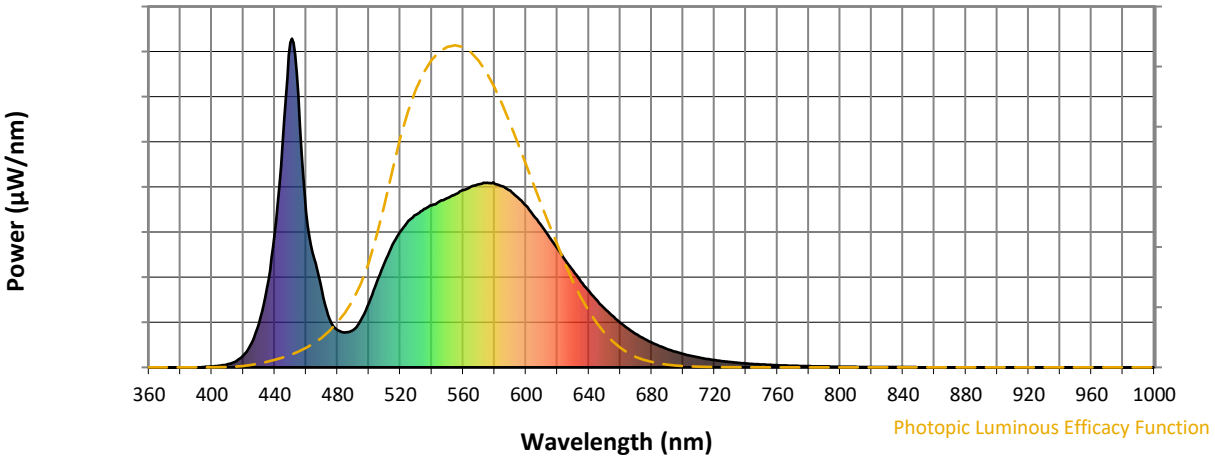
Photopic Flux vs. Wavelength

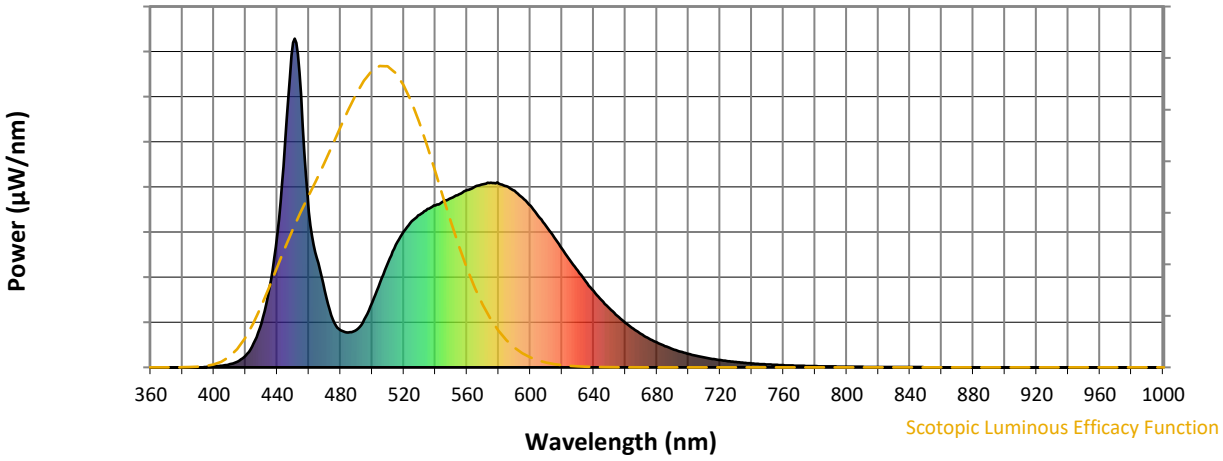


Photopic Lumens: NR

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	114	NR	620	361	NR	750	9	NR	880	0	NR
365	0	NR	495	145	NR	625	326	NR	755	8	NR	885	0	NR
370	0	NR	500	197	NR	630	294	NR	760	7	NR	890	0	NR
375	0	NR	505	259	NR	635	261	NR	765	6	NR	895	0	NR
380	0	NR	510	319	NR	640	232	NR	770	5	NR	900	0	NR
385	0	NR	515	373	NR	645	204	NR	775	4	NR	905	0	NR
390	0	NR	520	414	NR	650	179	NR	780	4	NR	910	0	NR
395	1	NR	525	445	NR	655	157	NR	785	3	NR	915	0	NR
400	3	NR	530	465	NR	660	136	NR	790	3	NR	920	0	NR
405	5	NR	535	482	NR	665	118	NR	795	2	NR	925	0	NR
410	9	NR	540	493	NR	670	102	NR	800	2	NR	930	0	NR
415	18	NR	545	505	NR	675	87	NR	805	2	NR	935	0	NR
420	36	NR	550	515	NR	680	75	NR	810	2	NR	940	0	NR
425	72	NR	555	527	NR	685	65	NR	815	1	NR	945	0	NR
430	134	NR	560	540	NR	690	56	NR	820	1	NR	950	0	NR
435	242	NR	565	550	NR	695	48	NR	825	1	NR	955	0	NR
440	407	NR	570	557	NR	700	41	NR	830	1	NR	960	0	NR
445	684	NR	575	561	NR	705	35	NR	835	1	NR	965	0	NR
450	988	NR	580	559	NR	710	30	NR	840	1	NR	970	0	NR
455	828	NR	585	551	NR	715	26	NR	845	1	NR	975	0	NR
460	473	NR	590	537	NR	720	22	NR	850	1	NR	980	0	NR
465	333	NR	595	516	NR	725	19	NR	855	0	NR	985	0	NR
470	232	NR	600	491	NR	730	16	NR	860	0	NR	990	0	NR
475	146	NR	605	461	NR	735	14	NR	865	0	NR	995	0	NR
480	113	NR	610	429	NR	740	12	NR	870	0	NR	1000	0	NR
485	106	NR	615	395	NR	745	10	NR	875	0	NR			

REPORT NUMBER: SP1-2407-157-6

Scotopic Flux vs. Wavelength



Scotopic Lumens: NR **S/P: 1.81**

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	114	NR	620	361	NR	750	9	NR	880	0	NR
365	0	NR	495	145	NR	625	326	NR	755	8	NR	885	0	NR
370	0	NR	500	197	NR	630	294	NR	760	7	NR	890	0	NR
375	0	NR	505	259	NR	635	261	NR	765	6	NR	895	0	NR
380	0	NR	510	319	NR	640	232	NR	770	5	NR	900	0	NR
385	0	NR	515	373	NR	645	204	NR	775	4	NR	905	0	NR
390	0	NR	520	414	NR	650	179	NR	780	4	NR	910	0	NR
395	1	NR	525	445	NR	655	157	NR	785	3	NR	915	0	NR
400	3	NR	530	465	NR	660	136	NR	790	3	NR	920	0	NR
405	5	NR	535	482	NR	665	118	NR	795	2	NR	925	0	NR
410	9	NR	540	493	NR	670	102	NR	800	2	NR	930	0	NR
415	18	NR	545	505	NR	675	87	NR	805	2	NR	935	0	NR
420	36	NR	550	515	NR	680	75	NR	810	2	NR	940	0	NR
425	72	NR	555	527	NR	685	65	NR	815	1	NR	945	0	NR
430	134	NR	560	540	NR	690	56	NR	820	1	NR	950	0	NR
435	242	NR	565	550	NR	695	48	NR	825	1	NR	955	0	NR
440	407	NR	570	557	NR	700	41	NR	830	1	NR	960	0	NR
445	684	NR	575	561	NR	705	35	NR	835	1	NR	965	0	NR
450	988	NR	580	559	NR	710	30	NR	840	1	NR	970	0	NR
455	828	NR	585	551	NR	715	26	NR	845	1	NR	975	0	NR
460	473	NR	590	537	NR	720	22	NR	850	1	NR	980	0	NR
465	333	NR	595	516	NR	725	19	NR	855	0	NR	985	0	NR
470	232	NR	600	491	NR	730	16	NR	860	0	NR	990	0	NR
475	146	NR	605	461	NR	735	14	NR	865	0	NR	995	0	NR
480	113	NR	610	429	NR	740	12	NR	870	0	NR	1000	0	NR
485	106	NR	615	395	NR	745	10	NR	875	0	NR			

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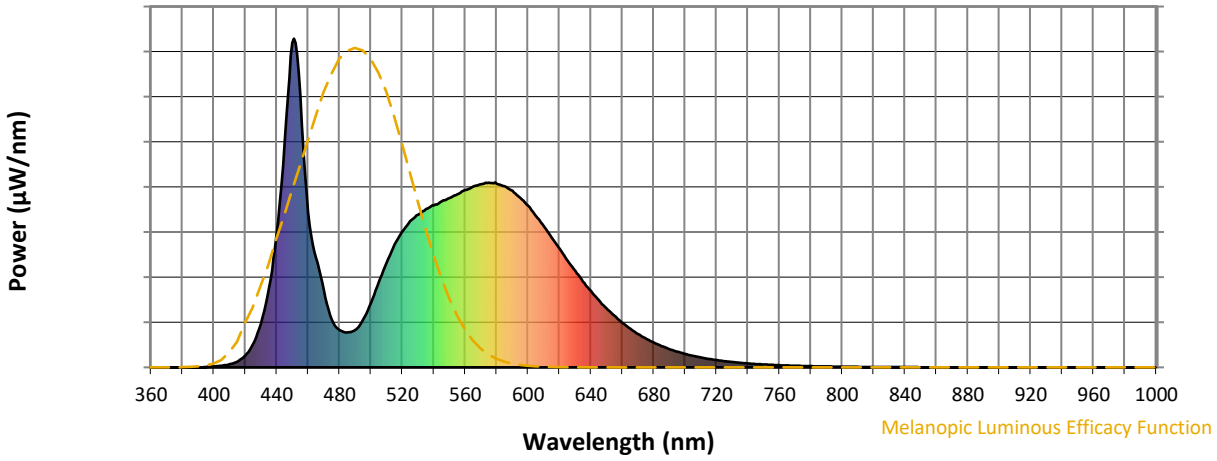
Melanopic Flux vs. Wavelength



Melanopic Lumens: NR **M/P: 3.73**

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	114	NR	620	361	NR	750	9	NR	880	0	NR
365	0	NR	495	145	NR	625	326	NR	755	8	NR	885	0	NR
370	0	NR	500	197	NR	630	294	NR	760	7	NR	890	0	NR
375	0	NR	505	259	NR	635	261	NR	765	6	NR	895	0	NR
380	0	NR	510	319	NR	640	232	NR	770	5	NR	900	0	NR
385	0	NR	515	373	NR	645	204	NR	775	4	NR	905	0	NR
390	0	NR	520	414	NR	650	179	NR	780	4	NR	910	0	NR
395	1	NR	525	445	NR	655	157	NR	785	3	NR	915	0	NR
400	3	NR	530	465	NR	660	136	NR	790	3	NR	920	0	NR
405	5	NR	535	482	NR	665	118	NR	795	2	NR	925	0	NR
410	9	NR	540	493	NR	670	102	NR	800	2	NR	930	0	NR
415	18	NR	545	505	NR	675	87	NR	805	2	NR	935	0	NR
420	36	NR	550	515	NR	680	75	NR	810	2	NR	940	0	NR
425	72	NR	555	527	NR	685	65	NR	815	1	NR	945	0	NR
430	134	NR	560	540	NR	690	56	NR	820	1	NR	950	0	NR
435	242	NR	565	550	NR	695	48	NR	825	1	NR	955	0	NR
440	407	NR	570	557	NR	700	41	NR	830	1	NR	960	0	NR
445	684	NR	575	561	NR	705	35	NR	835	1	NR	965	0	NR
450	988	NR	580	559	NR	710	30	NR	840	1	NR	970	0	NR
455	828	NR	585	551	NR	715	26	NR	845	1	NR	975	0	NR
460	473	NR	590	537	NR	720	22	NR	850	1	NR	980	0	NR
465	333	NR	595	516	NR	725	19	NR	855	0	NR	985	0	NR
470	232	NR	600	491	NR	730	16	NR	860	0	NR	990	0	NR
475	146	NR	605	461	NR	735	14	NR	865	0	NR	995	0	NR
480	113	NR	610	429	NR	740	12	NR	870	0	NR	1000	0	NR
485	106	NR	615	395	NR	745	10	NR	875	0	NR			

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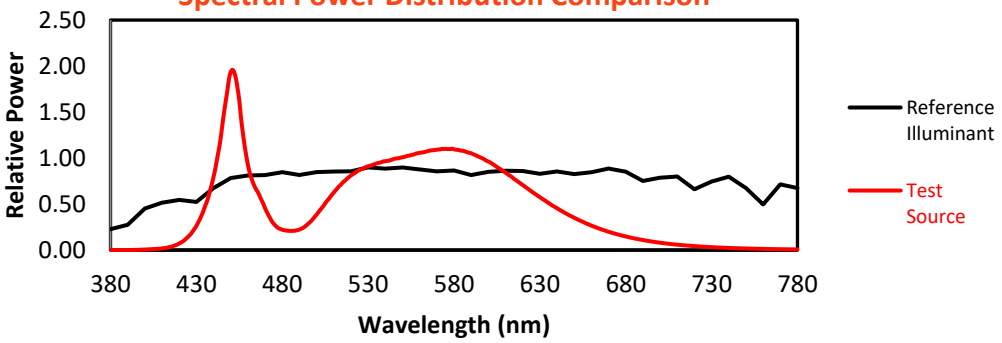
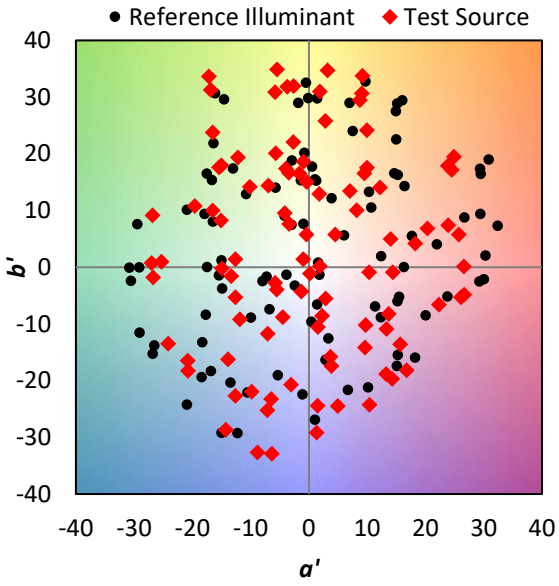
Summary

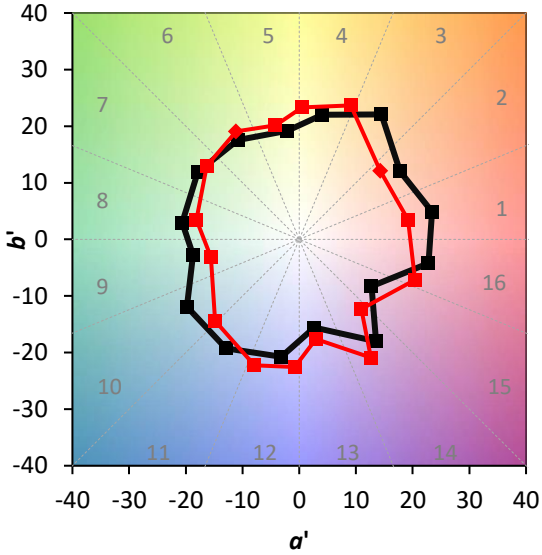
R_f = 73.7
R_g = 93
CIE R_a = 72.0
R_9 = -39.6

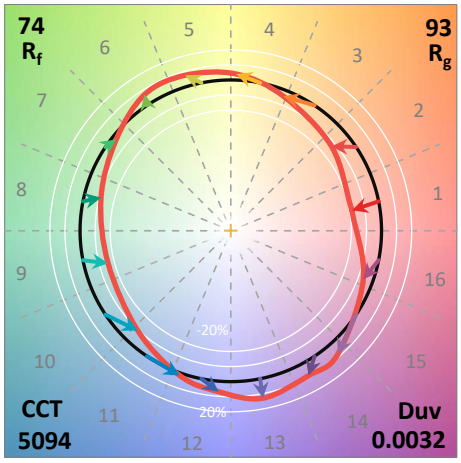
Spectral Power Distribution Comparison

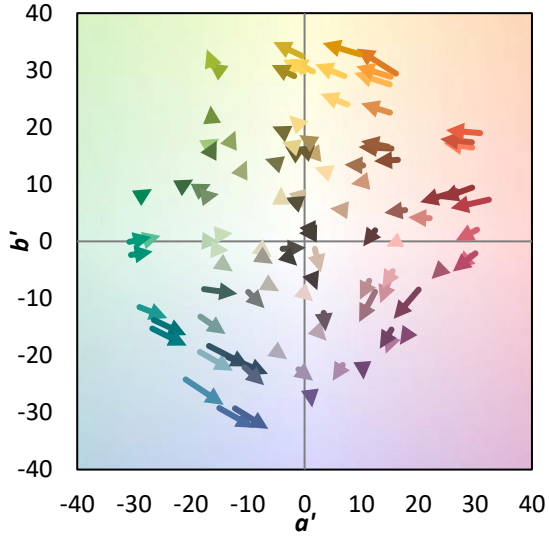


Color Vector Graphics









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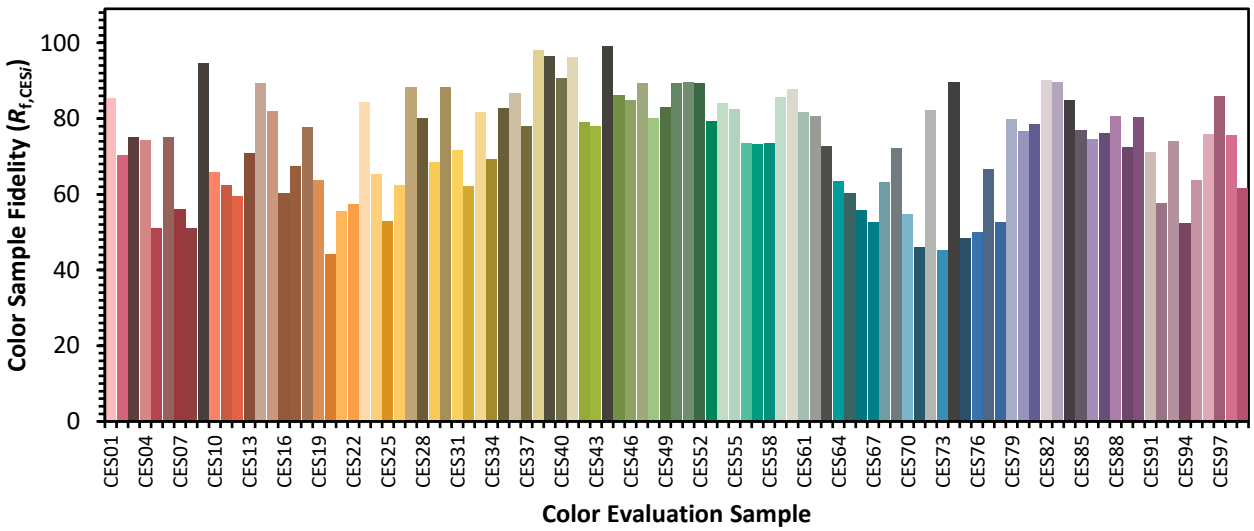
Individual Sample Fidelity Index ($R_{f,i}$)

CES01 = 85	CES26 = 62	CES51 = 90	CES76 = 50
CES02 = 59	CES27 = 88	CES52 = 89	CES77 = 67
CES03 = 30	CES28 = 80	CES53 = 79	CES78 = 53
CES04 = 69	CES29 = 69	CES54 = 84	CES79 = 80
CES05 = 46	CES30 = 88	CES55 = 83	CES80 = 77
CES06 = 50	CES31 = 72	CES56 = 74	CES81 = 78
CES07 = 38	CES32 = 62	CES57 = 73	CES82 = 90
CES08 = 38	CES33 = 82	CES58 = 73	CES83 = 90
CES09 = 29	CES34 = 69	CES59 = 86	CES84 = 85
CES10 = 72	CES35 = 83	CES60 = 88	CES85 = 77
CES11 = 56	CES36 = 87	CES61 = 82	CES86 = 75
CES12 = 61	CES37 = 78	CES62 = 81	CES87 = 76
CES13 = 41	CES38 = 98	CES63 = 73	CES88 = 81
CES14 = 74	CES39 = 96	CES64 = 63	CES89 = 72
CES15 = 70	CES40 = 91	CES65 = 60	CES90 = 80
CES16 = 46	CES41 = 96	CES66 = 56	CES91 = 71
CES17 = 49	CES42 = 79	CES67 = 53	CES92 = 58
CES18 = 55	CES43 = 78	CES68 = 63	CES93 = 74
CES19 = 71	CES44 = 99	CES69 = 72	CES94 = 52
CES20 = 63	CES45 = 86	CES70 = 55	CES95 = 64
CES21 = 85	CES46 = 85	CES71 = 46	CES96 = 76
CES22 = 77	CES47 = 89	CES72 = 82	CES97 = 86
CES23 = 91	CES48 = 80	CES73 = 45	CES98 = 76
CES24 = 90	CES49 = 83	CES74 = 90	CES99 = 62
CES25 = 71	CES50 = 89	CES75 = 48	



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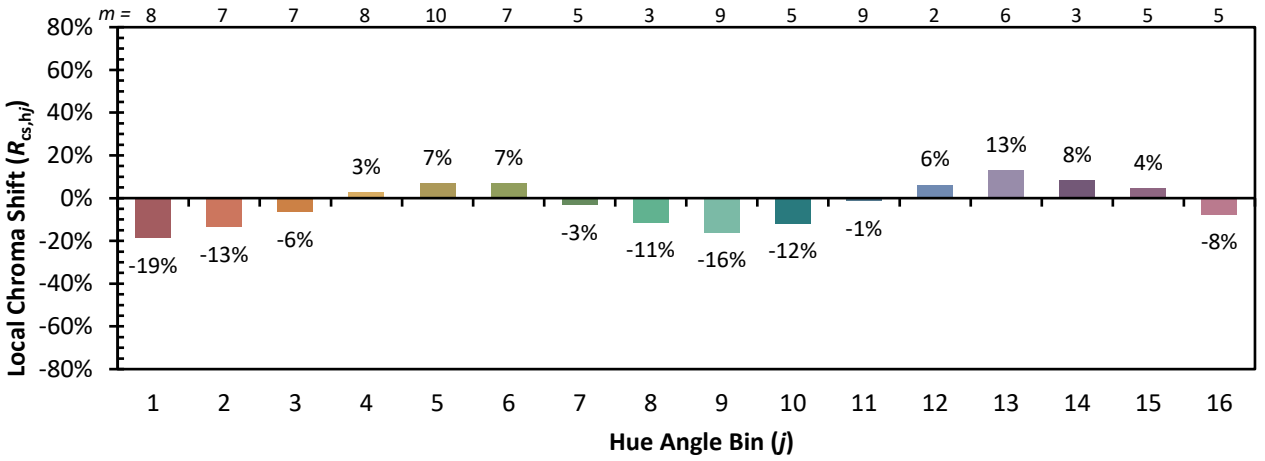
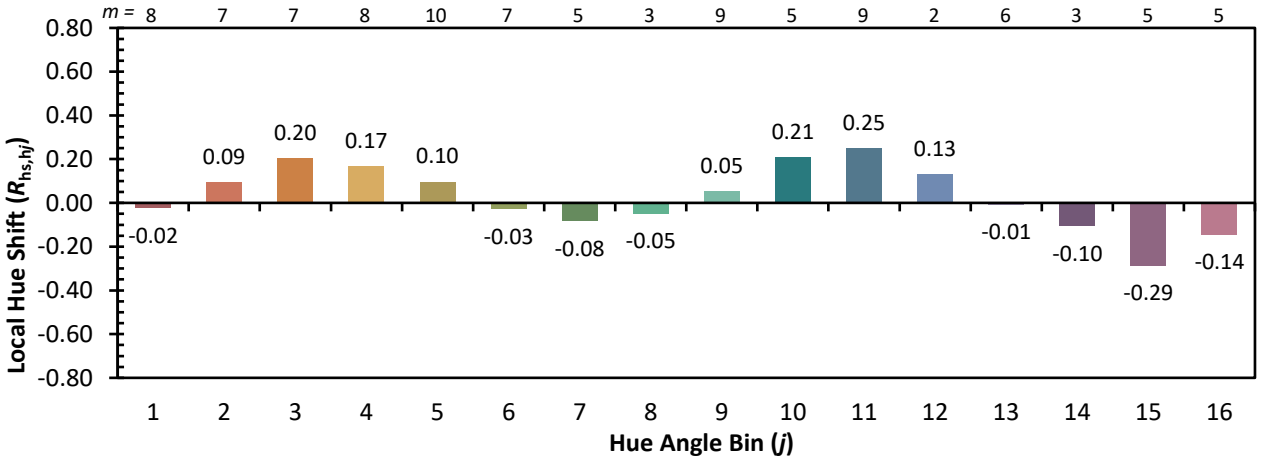
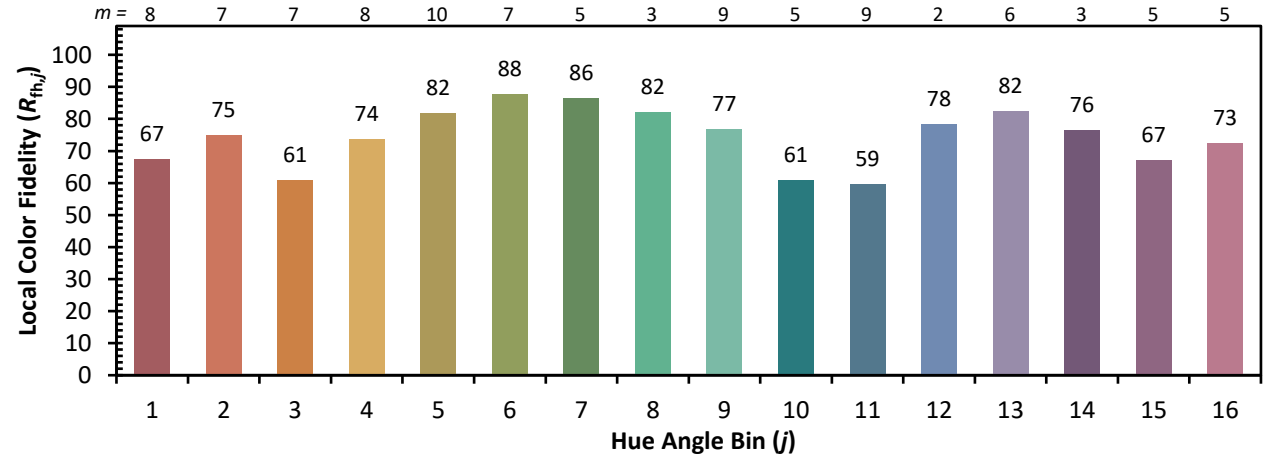
Color Rendition by Hue-Angle Bin







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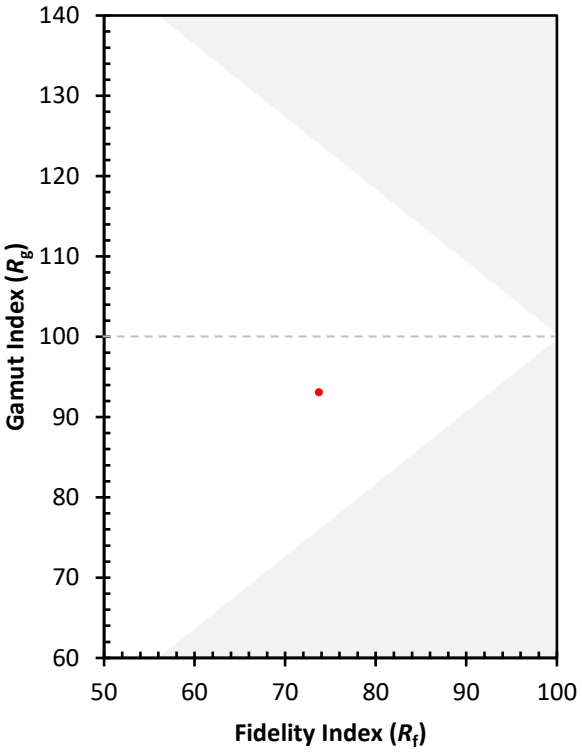
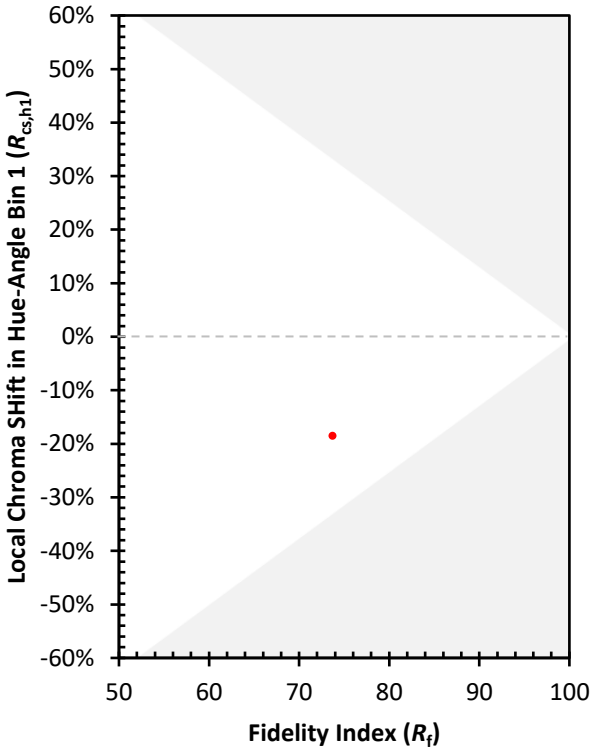
Measure Comparisons





(END OF REPORT)