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

Scaled data based on original data using

LM-79-2024 Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

Brand: INVUE

Report Number: P869129

Luminaire Tested: EMM2-HSN-SA3A-730-U-5MQ

Issue Date: 08/22/2024

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

Scaled Data Report

Test Information

Test Method:	LM-79-2024
Report Number:	P869129
Test Lab:	INNOVATION CENTER(G3)
Issue Date:	5/20/2026
Manufacturer:	COOPER LIGHTING SOLUTIONS
Product Line:	INVUE
Catalog Number:	EMM2-HSN-SA3A-730-U-5MQ
Description:	EPIC MODERN SHORT HOUSING DISCRETE LED ARRAYS 130W 70CRI 3000K FIXTURE w/ TYPE V SQUARE MEDIUM DISTRIBUTION OPTIC
Light Source:	(30) 3000K CCT, 70 CRI LEDS
Ballast/Driver:	-

Summary

Lumens per Lamp:	N/A
Luminaire Lumens:	16525.2 lumens
Efficiency:	N/A
Efficacy:	146.2 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:	28.75 FT

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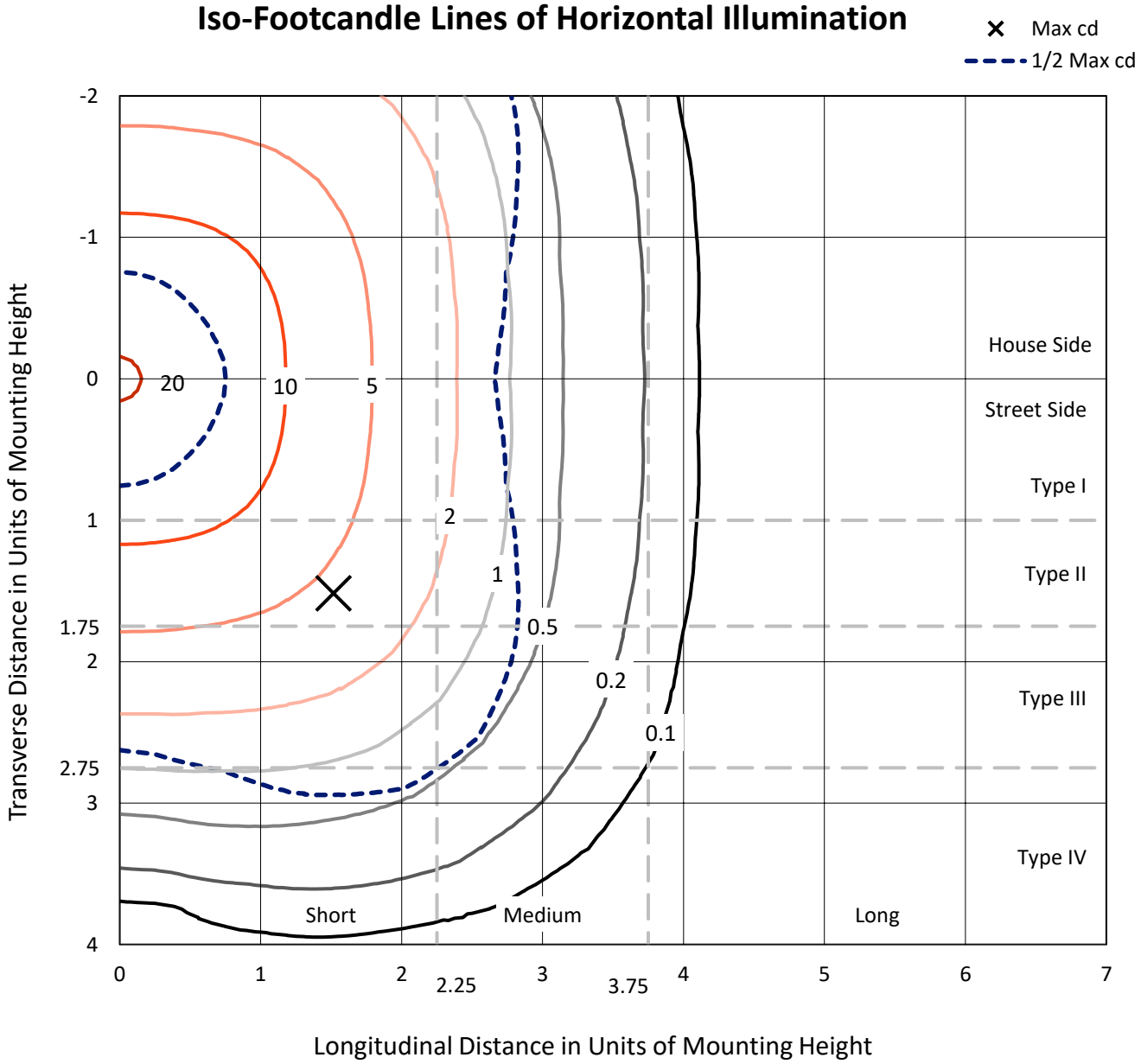
Iso-Footcandle Lines of Horizontal Illumination



Based on 10 foot mounting height. Maximum calculated value = 20.5 fc
Type V - Short - N/A

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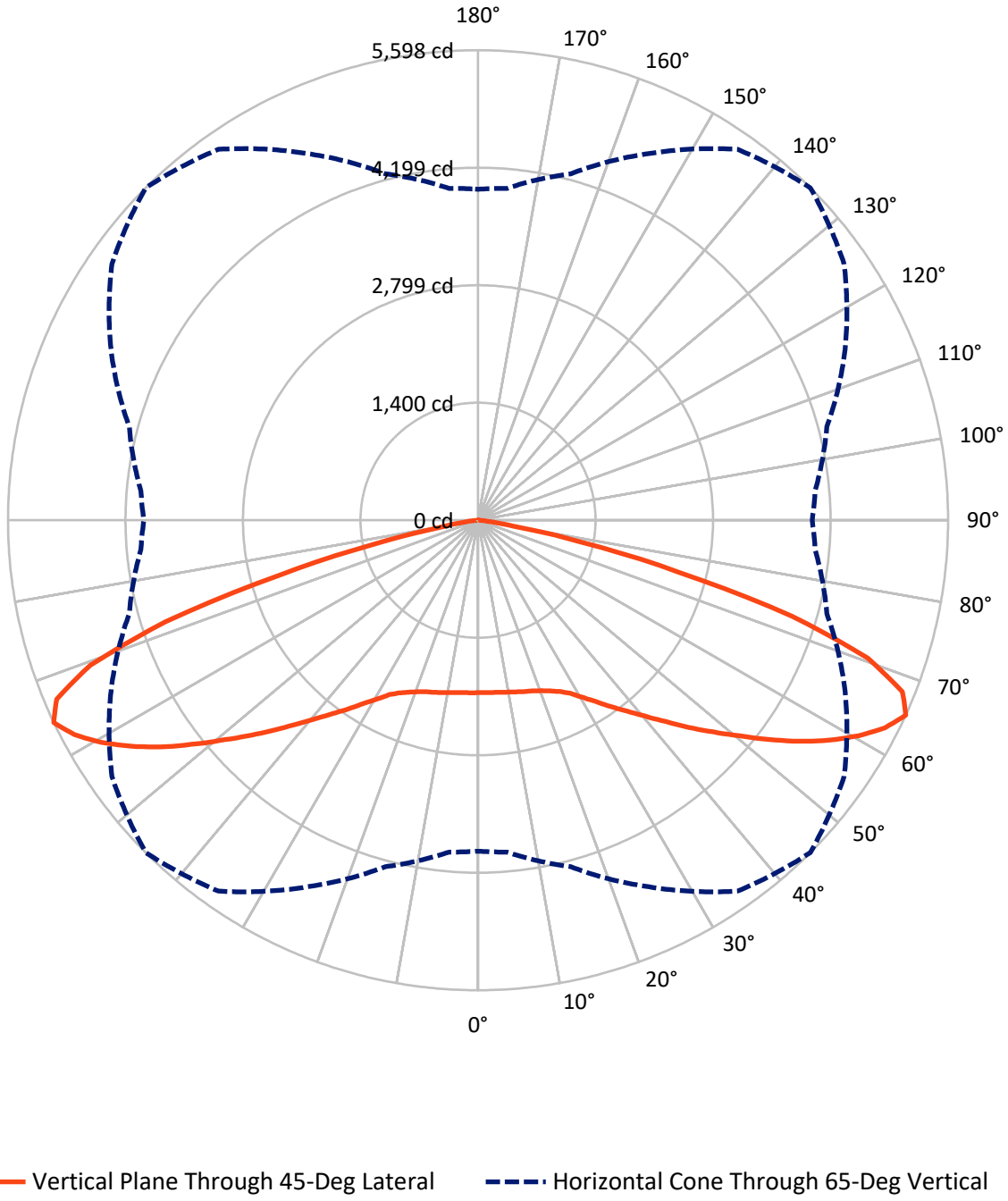
Luminous Intensity Polar Plot



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REPORT NUMBER: P869129
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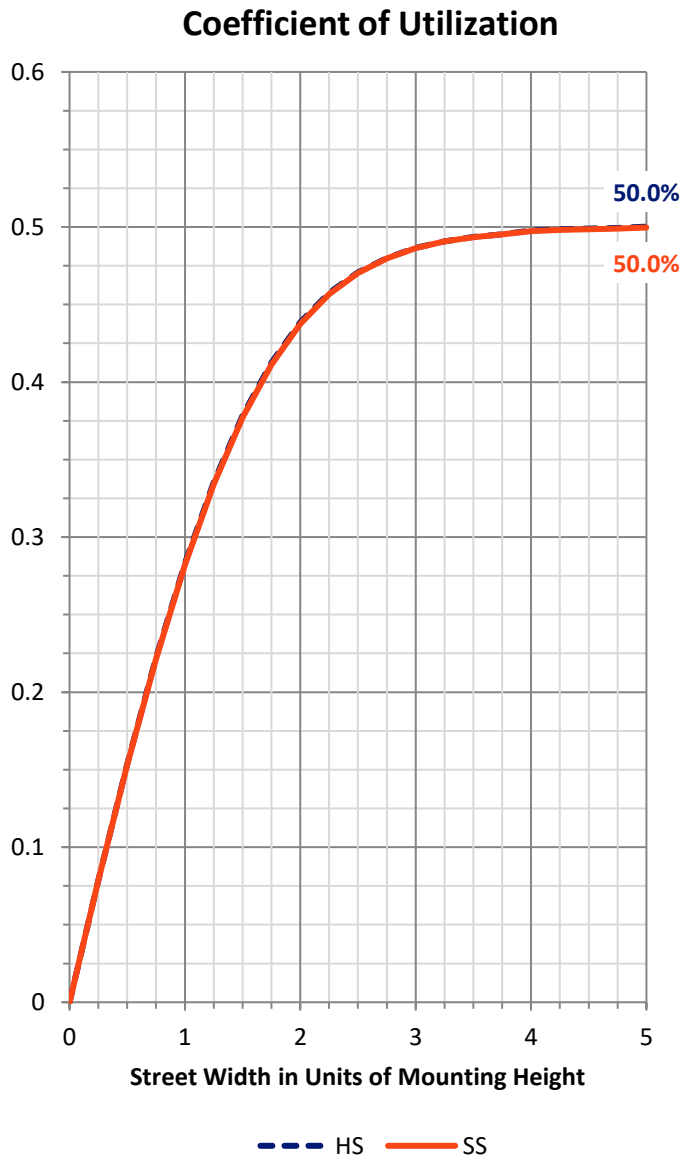
FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	8262.6	0.0	8262.6
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	8262.6	0.0	8262.6
	% Fixture	50.0	0.0	50.0
Total	Lumens	16525.2	0.0	16525.2
	% Fixture	100.0	0.0	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	197.4	1.2
10°-20°	601.0	3.6
20°-30°	1057.1	6.4
30°-40°	1709.6	10.3
40°-50°	2663.0	16.1
50°-60°	3894.0	23.6
60°-70°	4484.1	27.1
70°-80°	1831.3	11.1
80°-90°	87.6	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°	16525.2	100.0
0°-180°	16525.2	100.0



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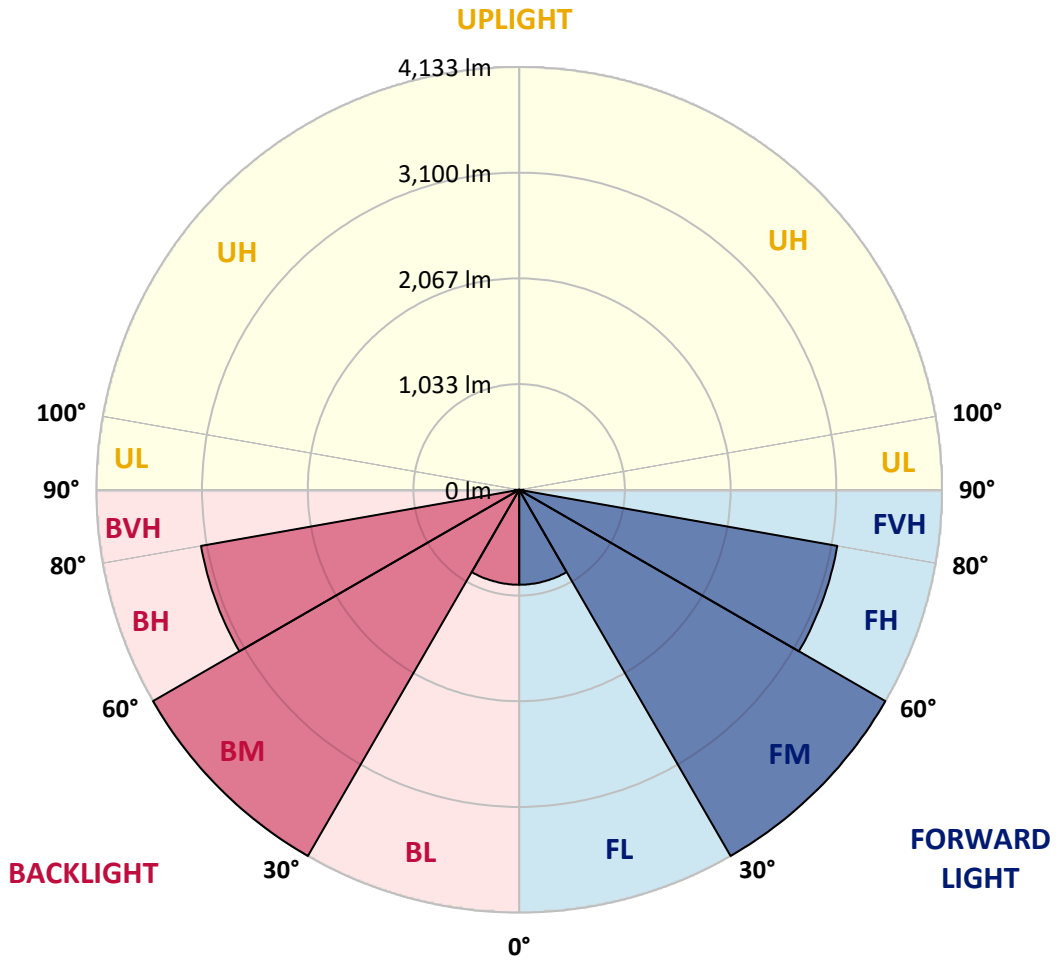
LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit B	U	G
FL	(0°-30°)	927.8	5.6			
FM	(30°-60°)	4133.3	25.0			
FH	(60°-80°)	3157.7	19.1			G2/5000
FVH	(80°-90°)	43.8	0.3			G1/100
BL	(0°-30°)	927.8	5.6	B2/1000		
BM	(30°-60°)	4133.3	25.0	B3/5000		
BH	(60°-80°)	3157.7	19.1	B4/5000		G2/5000
BVH	(80°-90°)	43.8	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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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	2053.3	2053.3	2053.3	2053.3	2053.3	2053.3	2053.3	2053.3	2053.3	2053.3	2053.3
2.5°	2059.7	2059.7	2056.5	2056.5	2050.2	2056.5	2053.3	2056.5	2053.3	2053.3	2056.5
5°	2066.0	2066.0	2059.7	2062.9	2056.5	2059.7	2056.5	2062.9	2059.7	2056.5	2062.9
7.5°	2075.6	2075.6	2069.2	2072.4	2066.0	2069.2	2066.0	2072.4	2069.2	2069.2	2072.4
10°	2085.1	2088.3	2081.9	2078.7	2078.7	2081.9	2085.1	2088.3	2085.1	2085.1	2091.4
12.5°	2101.0	2104.1	2097.8	2094.6	2094.6	2097.8	2101.0	2107.3	2097.8	2097.8	2097.8
15°	2116.8	2116.8	2113.6	2110.5	2113.6	2116.8	2116.8	2123.2	2116.8	2110.5	2110.5
17.5°	2123.2	2126.3	2123.2	2129.5	2132.7	2135.9	2139.0	2139.0	2129.5	2126.3	2126.3
20°	2145.4	2148.6	2142.2	2145.4	2154.9	2167.6	2167.6	2167.6	2167.6	2158.1	2158.1
22.5°	2183.5	2186.6	2183.5	2183.5	2196.2	2208.9	2208.9	2218.4	2205.7	2199.3	2199.3
25°	2246.9	2246.9	2243.8	2246.9	2253.3	2259.6	2272.3	2278.7	2278.7	2275.5	2278.7
27.5°	2323.1	2326.3	2323.1	2323.1	2319.9	2332.6	2351.7	2361.2	2364.4	2367.5	2367.5
30°	2424.7	2431.0	2427.8	2431.0	2437.4	2446.9	2453.2	2456.4	2456.4	2450.1	2450.1
32.5°	2535.7	2542.1	2535.7	2551.6	2573.8	2573.8	2567.5	2580.2	2570.7	2564.3	2558.0
35°	2665.9	2665.9	2672.2	2678.6	2710.3	2726.2	2726.2	2719.8	2700.8	2691.2	2697.6
37.5°	2815.0	2818.2	2824.5	2827.7	2856.3	2884.8	2881.7	2865.8	2843.6	2818.2	2818.2
40°	2992.7	2986.4	2989.6	3011.8	3034.0	3068.9	3072.1	3049.9	3011.8	2986.4	2986.4
42.5°	3154.6	3157.8	3170.5	3199.0	3249.8	3278.4	3262.5	3224.4	3183.2	3151.4	3148.3
45°	3326.0	3322.8	3357.7	3418.0	3484.7	3519.6	3494.2	3440.2	3376.8	3335.5	3335.5
47.5°	3500.5	3497.4	3554.5	3652.9	3738.6	3767.1	3741.7	3671.9	3586.2	3525.9	3516.4
50°	3681.4	3694.1	3754.4	3894.1	4005.1	4036.9	4005.1	3913.1	3798.9	3719.5	3706.8
52.5°	3887.7	3897.2	3976.6	4128.9	4265.4	4338.4	4290.8	4154.3	4008.3	3913.1	3900.4
55°	4078.1	4084.5	4198.7	4382.8	4551.0	4649.4	4573.2	4398.7	4214.6	4094.0	4081.3
57.5°	4211.4	4227.3	4373.3	4611.3	4827.1	4941.4	4827.1	4639.9	4395.5	4246.3	4236.8
60°	4297.1	4322.5	4490.7	4789.0	5087.4	5211.1	5093.7	4833.5	4532.0	4338.4	4328.9
62.5°	4252.7	4287.6	4503.4	4893.8	5309.5	5442.8	5290.5	4925.5	4516.1	4271.7	4246.3
65°	3941.7	3967.1	4271.7	4817.6	5392.0	5598.3	5322.2	4823.9	4300.3	4030.5	3979.7
67.5°	3297.4	3341.8	3744.9	4449.4	5214.3	5452.3	5103.2	4459.0	3827.4	3497.4	3440.2
70°	2532.6	2611.9	3053.0	3817.9	4658.9	4928.7	4544.7	3763.9	3021.3	2684.9	2580.2
72.5°	1463.0	1586.8	2234.2	2980.1	3706.8	3909.9	3370.4	2631.0	2005.7	1767.7	1739.2
75°	485.6	530.0	1063.2	1716.9	2364.4	2465.9	2107.3	1659.8	1320.2	1129.8	1139.3
77.5°	238.0	238.0	320.5	628.4	1075.9	1269.5	1152.0	802.9	577.6	438.0	425.3
80°	190.4	190.4	222.2	307.8	361.8	425.3	361.8	263.4	215.8	196.8	206.3
82.5°	92.0	88.9	104.7	149.2	152.3	146.0	136.5	136.5	130.1	120.6	117.4
85°	6.3	6.3	12.7	28.6	47.6	63.5	73.0	69.8	66.6	57.1	63.5
87.5°	3.2	3.2	3.2	3.2	3.2	3.2	3.2	6.3	6.3	6.3	6.3
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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Version: v6.13

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Test Information

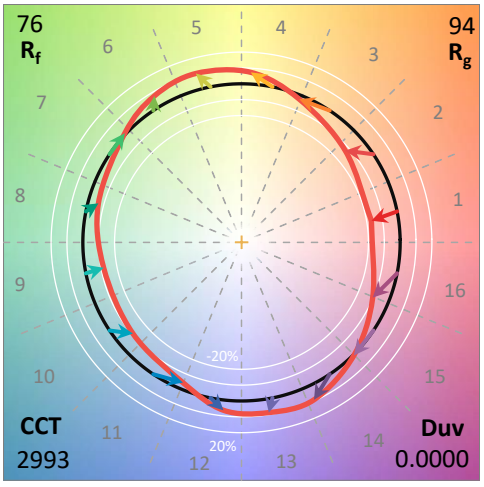
Test Method:	LM-79-2008
Report Number:	SP1-1908-441-2-R4
Test Lab:	COOPER LIGHTING SOLUTIONS
Photometer:	SP1 - 76IN SPHERE
Measurement Geometry:	4π
Issue Date:	10/28/2024
Manufacturer:	COOPER LIGHTING SOLUTIONS
Product Line:	McGRAW-EDISON
Catalog Number:	**SA1C-730-U-5WQ**
Description:	McGRAW EDISON ROADWAY AND AREA LUMINAIRE

THIS IS A REVISION OF SP1-1908-441-2-R3. TO UPDATE THE CATALOG INFORMATION.TESTED IN SITU. (1) 70 CRI, 3000K, 1050MA LIGHTSQUARE WITH 16 LEDS AND TYPE V WIDE OPTICS.

Spectral Parameters

CCT (K):	2993	CRI (Ra):	71.8		
CIE u':	0.2508	R1:	67.5	R9:	-38.3
CIE v':	0.5215	R2:	82.9	R10:	62.5
Duv:	0.0000	R3:	94.7	R11:	63.7
CIE x:	0.4374	R4:	67.7	R12:	57.8
CIE y:	0.4043	R5:	67.9	R13:	70.4
CIE z:	0.1583	R6:	77.6	R14:	97.3
Peak Wavelength (nm):	593	R7:	76.0		
Dominant Wavelength (nm):	582	R8:	40.5		
Purity:	53				

Rf:	75.7
Rg:	93.9



Test Conditions

Stabilization Time:	53M
Operation Time:	12H
Room Temperature (°C) / RH%:	25.0./44%
Sphere Temperature (°C):	25.7

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Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	6/28/2019	12/28/2019
Power Meter	IN0071	12/5/2018	12/5/2019
AC Power Source	IN0063	12/5/2018	12/5/2019
DC Power Source	IN0208	12/5/2018	12/5/2019
Sphere Thermometer	IN0085	12/5/2018	12/5/2019
Room Thermometer	IN0046	12/5/2018	12/5/2019

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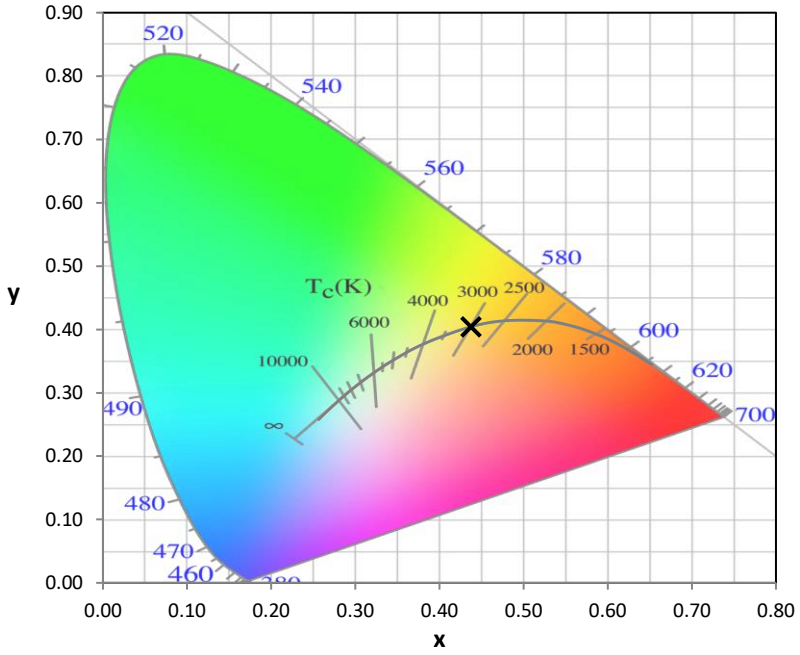
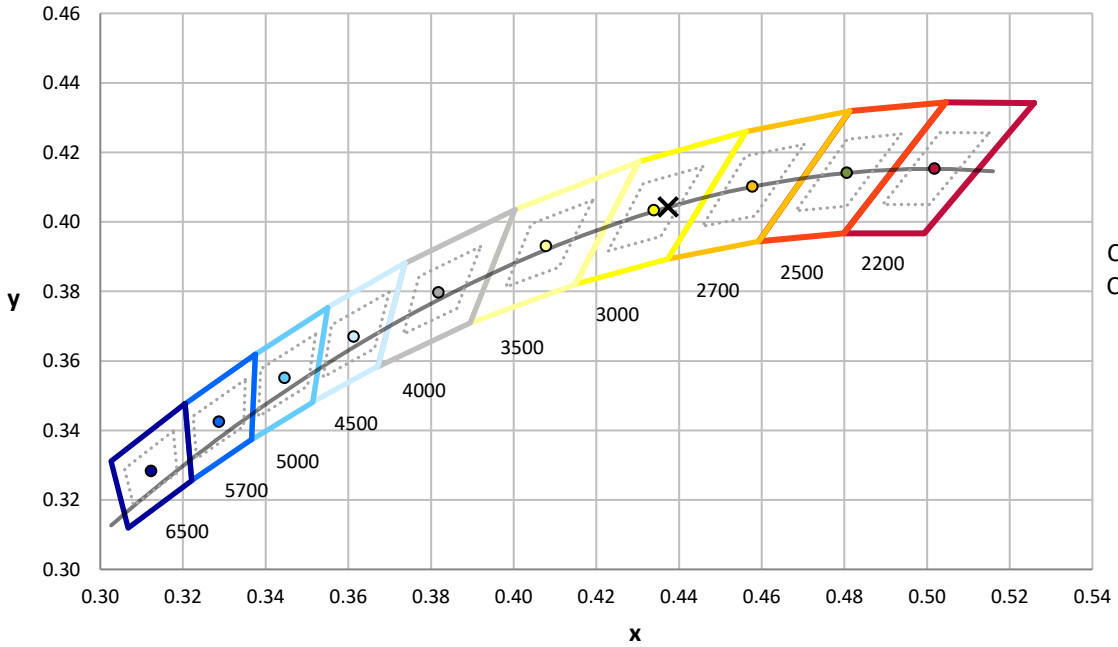
CIE 1931 Chromaticity Diagram



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



CCT = 2993K
CIE x = 0.4374
CIE y = 0.4043
Duv = 0.0000

Point lies inside the ANSI 3000K 4-step quadrangle

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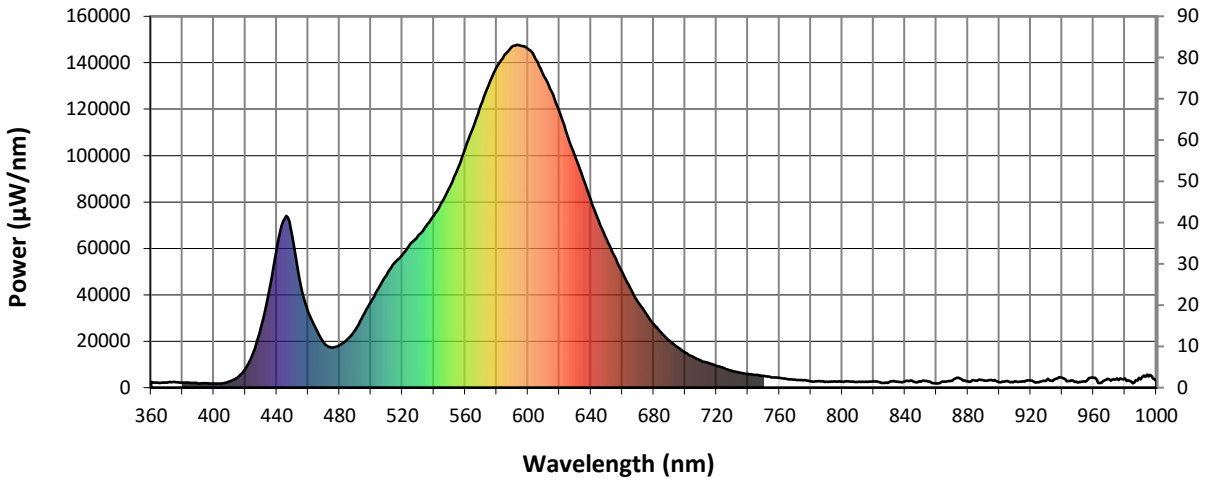
Photopic Flux vs. Wavelength



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λ (nm)	Power (µW/nm)	Lumens (ϕ/nm)	λ (nm)	Power (µW/nm)	Lumens (ϕ/nm)	λ (nm)	Power (µW/nm)	Lumens (ϕ/nm)	λ (nm)	Power (µW/nm)	Lumens (ϕ/nm)	λ (nm)	Power (µW/nm)	Lumens (ϕ/nm)
360	2397	NR	490	24908	NR	620	118784	NR	750	5037	NR	880	2677	NR
365	2084	NR	495	30998	NR	625	108951	NR	755	4413	NR	885	2940	NR
370	2143	NR	500	37103	NR	630	99573	NR	760	4189	NR	890	3116	NR
375	2413	NR	505	42987	NR	635	90444	NR	765	3677	NR	895	3345	NR
380	2172	NR	510	48702	NR	640	80749	NR	770	3366	NR	900	2312	NR
385	1997	NR	515	53741	NR	645	71664	NR	775	3211	NR	905	2829	NR
390	1830	NR	520	57283	NR	650	63936	NR	780	2682	NR	910	2783	NR
395	1861	NR	525	61876	NR	655	56611	NR	785	2804	NR	915	2662	NR
400	1717	NR	530	65398	NR	660	49763	NR	790	2581	NR	920	3047	NR
405	1761	NR	535	69597	NR	665	42891	NR	795	2711	NR	925	2256	NR
410	2680	NR	540	74214	NR	670	36939	NR	800	2609	NR	930	2976	NR
415	4374	NR	545	79911	NR	675	31946	NR	805	2581	NR	935	3503	NR
420	8071	NR	550	86153	NR	680	27385	NR	810	2404	NR	940	4226	NR
425	15169	NR	555	93952	NR	685	23504	NR	815	2556	NR	945	2930	NR
430	26038	NR	560	102904	NR	690	20210	NR	820	2742	NR	950	2115	NR
435	41316	NR	565	112009	NR	695	17459	NR	825	2014	NR	955	2634	NR
440	59674	NR	570	121662	NR	700	15207	NR	830	2488	NR	960	4200	NR
445	72751	NR	575	130476	NR	705	13322	NR	835	2625	NR	965	1982	NR
450	65091	NR	580	137926	NR	710	11676	NR	840	2754	NR	970	3613	NR
455	44894	NR	585	143406	NR	715	10626	NR	845	2708	NR	975	4034	NR
460	32712	NR	590	147039	NR	720	9416	NR	850	2608	NR	980	3922	NR
465	25296	NR	595	147365	NR	725	8333	NR	855	2605	NR	985	1909	NR
470	19318	NR	600	145800	NR	730	7134	NR	860	1765	NR	990	3617	NR
475	17265	NR	605	141363	NR	735	6437	NR	865	2581	NR	995	4767	NR
480	18260	NR	610	134199	NR	740	5834	NR	870	3016	NR	1000	2528	NR
485	20845	NR	615	127683	NR	745	5500	NR	875	3952	NR			

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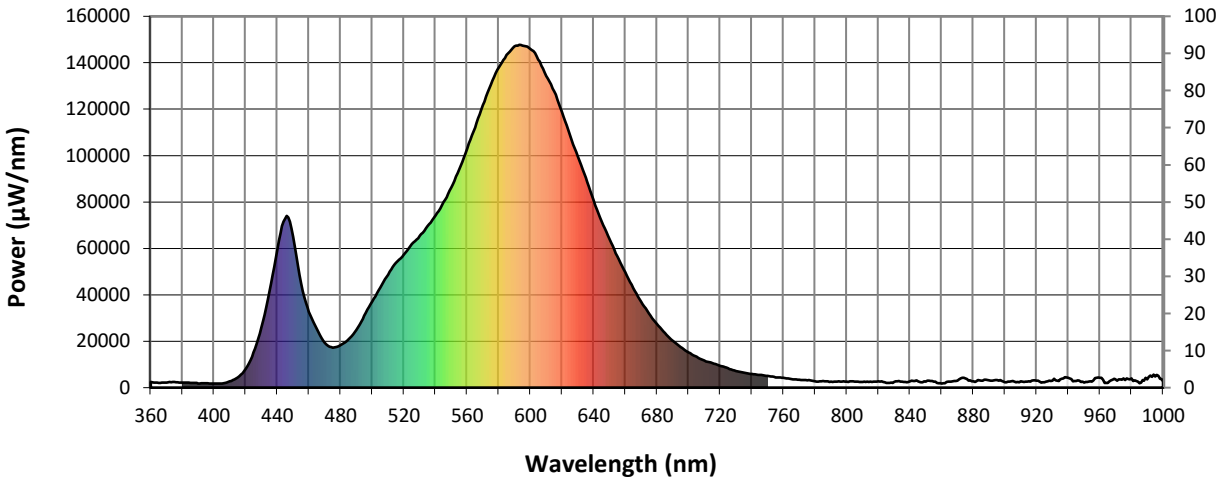
Scotopic Flux vs. Wavelength



Scotopic Lumens: 8494.8 **S/P: 1.23**

λ (nm)	Power (µW/nm)	Lumens (ϕ/nm)	λ (nm)	Power (µW/nm)	Lumens (ϕ/nm)	λ (nm)	Power (µW/nm)	Lumens (ϕ/nm)	λ (nm)	Power (µW/nm)	Lumens (ϕ/nm)	λ (nm)	Power (µW/nm)	Lumens (ϕ/nm)
360	2397	NR	490	24908	NR	620	118784	NR	750	5037	NR	880	2677	NR
365	2084	NR	495	30998	NR	625	108951	NR	755	4413	NR	885	2940	NR
370	2143	NR	500	37103	NR	630	99573	NR	760	4189	NR	890	3116	NR
375	2413	NR	505	42987	NR	635	90444	NR	765	3677	NR	895	3345	NR
380	2172	NR	510	48702	NR	640	80749	NR	770	3366	NR	900	2312	NR
385	1997	NR	515	53741	NR	645	71664	NR	775	3211	NR	905	2829	NR
390	1830	NR	520	57283	NR	650	63936	NR	780	2682	NR	910	2783	NR
395	1861	NR	525	61876	NR	655	56611	NR	785	2804	NR	915	2662	NR
400	1717	NR	530	65398	NR	660	49763	NR	790	2581	NR	920	3047	NR
405	1761	NR	535	69597	NR	665	42891	NR	795	2711	NR	925	2256	NR
410	2680	NR	540	74214	NR	670	36939	NR	800	2609	NR	930	2976	NR
415	4374	NR	545	79911	NR	675	31946	NR	805	2581	NR	935	3503	NR
420	8071	NR	550	86153	NR	680	27385	NR	810	2404	NR	940	4226	NR
425	15169	NR	555	93952	NR	685	23504	NR	815	2556	NR	945	2930	NR
430	26038	NR	560	102904	NR	690	20210	NR	820	2742	NR	950	2115	NR
435	41316	NR	565	112009	NR	695	17459	NR	825	2014	NR	955	2634	NR
440	59674	NR	570	121662	NR	700	15207	NR	830	2488	NR	960	4200	NR
445	72751	NR	575	130476	NR	705	13322	NR	835	2625	NR	965	1982	NR
450	65091	NR	580	137926	NR	710	11676	NR	840	2754	NR	970	3613	NR
455	44894	NR	585	143406	NR	715	10626	NR	845	2708	NR	975	4034	NR
460	32712	NR	590	147039	NR	720	9416	NR	850	2608	NR	980	3922	NR
465	25296	NR	595	147365	NR	725	8333	NR	855	2605	NR	985	1909	NR
470	19318	NR	600	145800	NR	730	7134	NR	860	1765	NR	990	3617	NR
475	17265	NR	605	141363	NR	735	6437	NR	865	2581	NR	995	4767	NR
480	18260	NR	610	134199	NR	740	5834	NR	870	3016	NR	1000	2528	NR
485	20845	NR	615	127683	NR	745	5500	NR	875	3952	NR			

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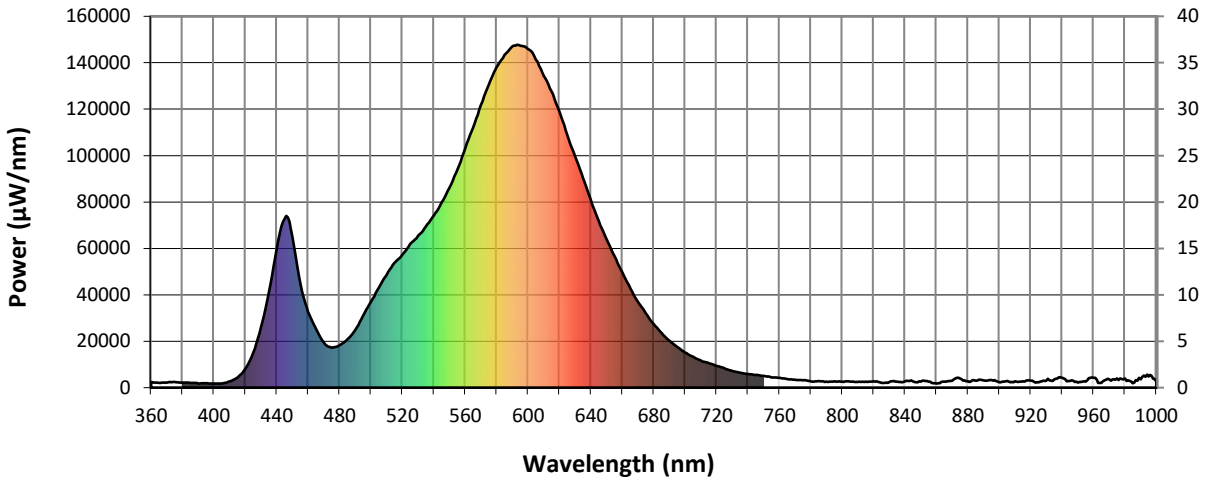
Melanopic Flux vs. Wavelength



Melanopic Lumens: 3101.5 **M/P: 0.45**

λ (nm)	Power (µW/nm)	Lumens (ϕ/nm)	λ (nm)	Power (µW/nm)	Lumens (ϕ/nm)	λ (nm)	Power (µW/nm)	Lumens (ϕ/nm)	λ (nm)	Power (µW/nm)	Lumens (ϕ/nm)	λ (nm)	Power (µW/nm)	Lumens (ϕ/nm)
360	2397	NR	490	24908	NR	620	118784	NR	750	5037	NR	880	2677	NR
365	2084	NR	495	30998	NR	625	108951	NR	755	4413	NR	885	2940	NR
370	2143	NR	500	37103	NR	630	99573	NR	760	4189	NR	890	3116	NR
375	2413	NR	505	42987	NR	635	90444	NR	765	3677	NR	895	3345	NR
380	2172	NR	510	48702	NR	640	80749	NR	770	3366	NR	900	2312	NR
385	1997	NR	515	53741	NR	645	71664	NR	775	3211	NR	905	2829	NR
390	1830	NR	520	57283	NR	650	63936	NR	780	2682	NR	910	2783	NR
395	1861	NR	525	61876	NR	655	56611	NR	785	2804	NR	915	2662	NR
400	1717	NR	530	65398	NR	660	49763	NR	790	2581	NR	920	3047	NR
405	1761	NR	535	69597	NR	665	42891	NR	795	2711	NR	925	2256	NR
410	2680	NR	540	74214	NR	670	36939	NR	800	2609	NR	930	2976	NR
415	4374	NR	545	79911	NR	675	31946	NR	805	2581	NR	935	3503	NR
420	8071	NR	550	86153	NR	680	27385	NR	810	2404	NR	940	4226	NR
425	15169	NR	555	93952	NR	685	23504	NR	815	2556	NR	945	2930	NR
430	26038	NR	560	102904	NR	690	20210	NR	820	2742	NR	950	2115	NR
435	41316	NR	565	112009	NR	695	17459	NR	825	2014	NR	955	2634	NR
440	59674	NR	570	121662	NR	700	15207	NR	830	2488	NR	960	4200	NR
445	72751	NR	575	130476	NR	705	13322	NR	835	2625	NR	965	1982	NR
450	65091	NR	580	137926	NR	710	11676	NR	840	2754	NR	970	3613	NR
455	44894	NR	585	143406	NR	715	10626	NR	845	2708	NR	975	4034	NR
460	32712	NR	590	147039	NR	720	9416	NR	850	2608	NR	980	3922	NR
465	25296	NR	595	147365	NR	725	8333	NR	855	2605	NR	985	1909	NR
470	19318	NR	600	145800	NR	730	7134	NR	860	1765	NR	990	3617	NR
475	17265	NR	605	141363	NR	735	6437	NR	865	2581	NR	995	4767	NR
480	18260	NR	610	134199	NR	740	5834	NR	870	3016	NR	1000	2528	NR
485	20845	NR	615	127683	NR	745	5500	NR	875	3952	NR			

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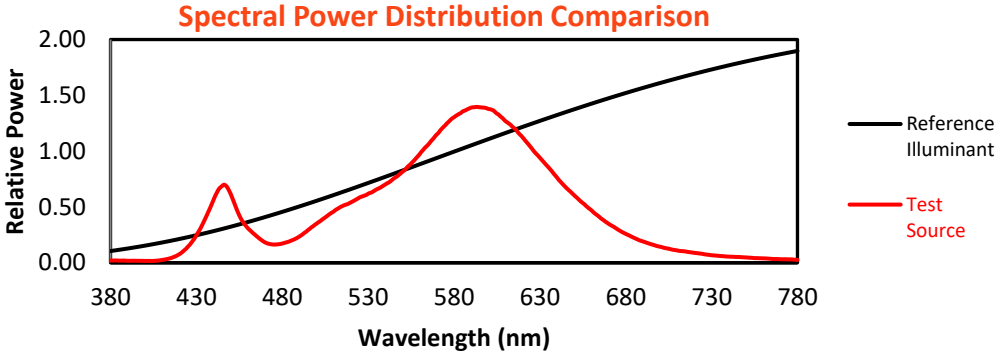
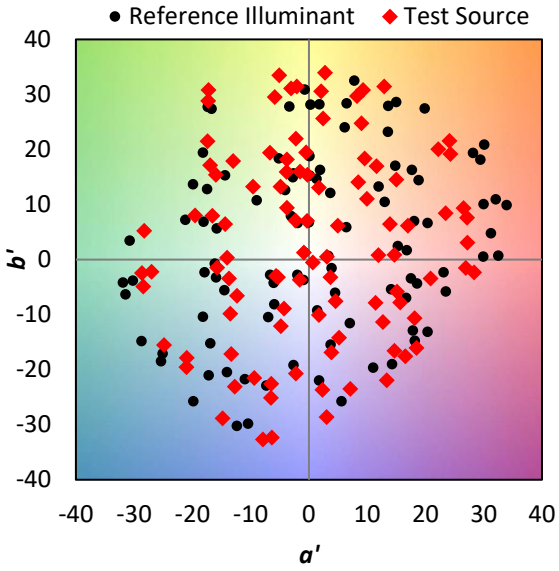
Summary

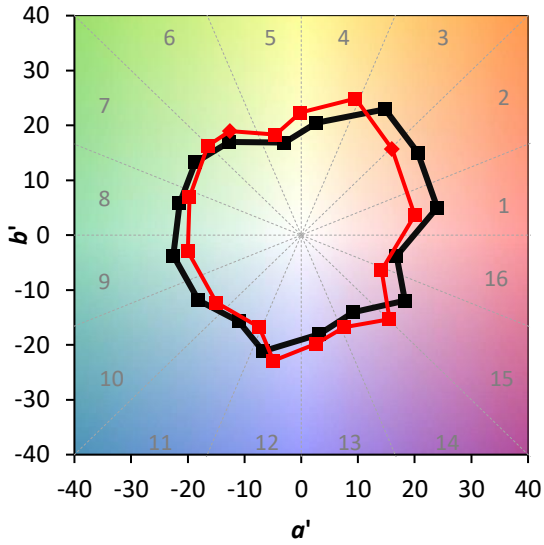
R_f = 75.7
R_g = 93.9
CIE R_a = 71.8
R_9 = -38.3

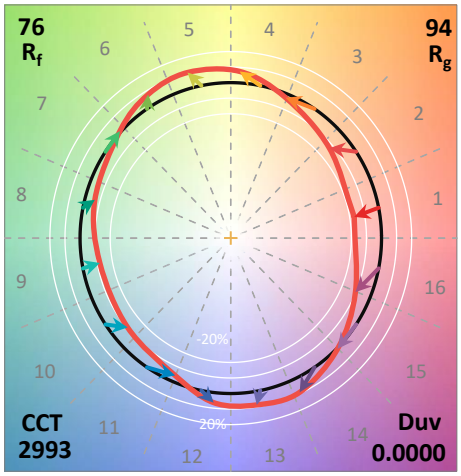
Spectral Power Distribution Comparison

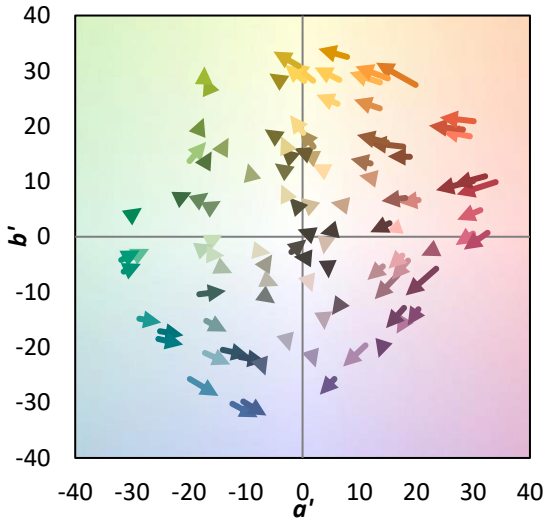


Color Vector Graphics









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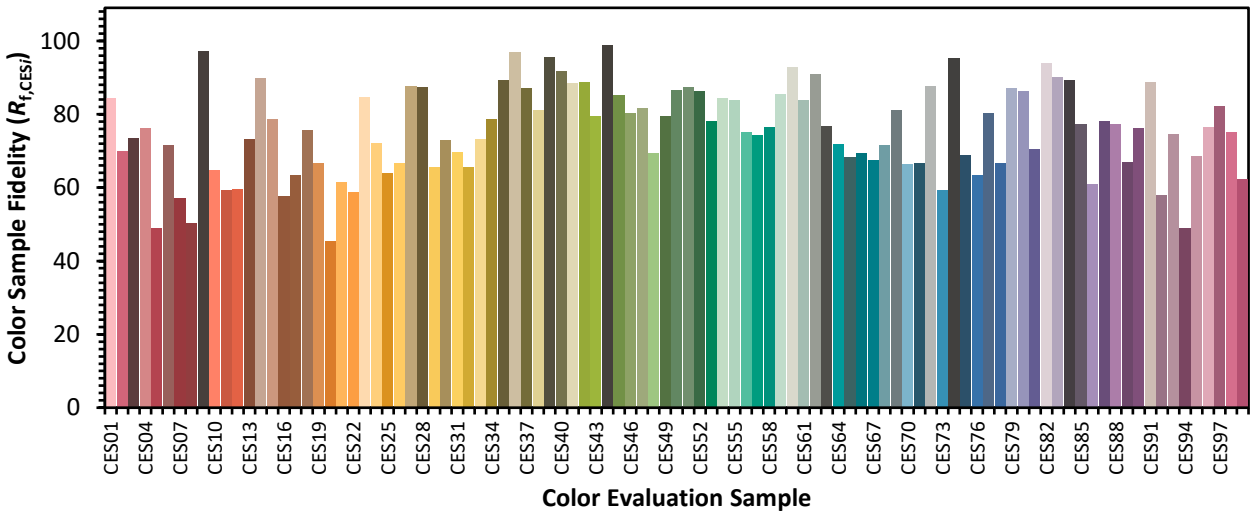
Individual Sample Fidelity Index ($R_{f,i}$)

CES01 = 86	CES26 = 67	CES51 = 87	CES76 = 63
CES02 = 63	CES27 = 88	CES52 = 86	CES77 = 80
CES03 = 31	CES28 = 87	CES53 = 78	CES78 = 67
CES04 = 71	CES29 = 66	CES54 = 84	CES79 = 87
CES05 = 49	CES30 = 73	CES55 = 84	CES80 = 86
CES06 = 51	CES31 = 70	CES56 = 75	CES81 = 71
CES07 = 41	CES32 = 65	CES57 = 74	CES82 = 94
CES08 = 40	CES33 = 73	CES58 = 76	CES83 = 90
CES09 = 29	CES34 = 79	CES59 = 85	CES84 = 89
CES10 = 76	CES35 = 89	CES60 = 93	CES85 = 77
CES11 = 59	CES36 = 97	CES61 = 84	CES86 = 61
CES12 = 65	CES37 = 87	CES62 = 91	CES87 = 78
CES13 = 43	CES38 = 81	CES63 = 77	CES88 = 77
CES14 = 74	CES39 = 95	CES64 = 72	CES89 = 67
CES15 = 71	CES40 = 92	CES65 = 68	CES90 = 76
CES16 = 47	CES41 = 88	CES66 = 69	CES91 = 89
CES17 = 50	CES42 = 89	CES67 = 67	CES92 = 58
CES18 = 56	CES43 = 79	CES68 = 72	CES93 = 74
CES19 = 73	CES44 = 99	CES69 = 81	CES94 = 49
CES20 = 66	CES45 = 85	CES70 = 66	CES95 = 68
CES21 = 87	CES46 = 80	CES71 = 67	CES96 = 76
CES22 = 79	CES47 = 82	CES72 = 88	CES97 = 82
CES23 = 92	CES48 = 69	CES73 = 59	CES98 = 75
CES24 = 91	CES49 = 80	CES74 = 95	CES99 = 62
CES25 = 73	CES50 = 87	CES75 = 69	



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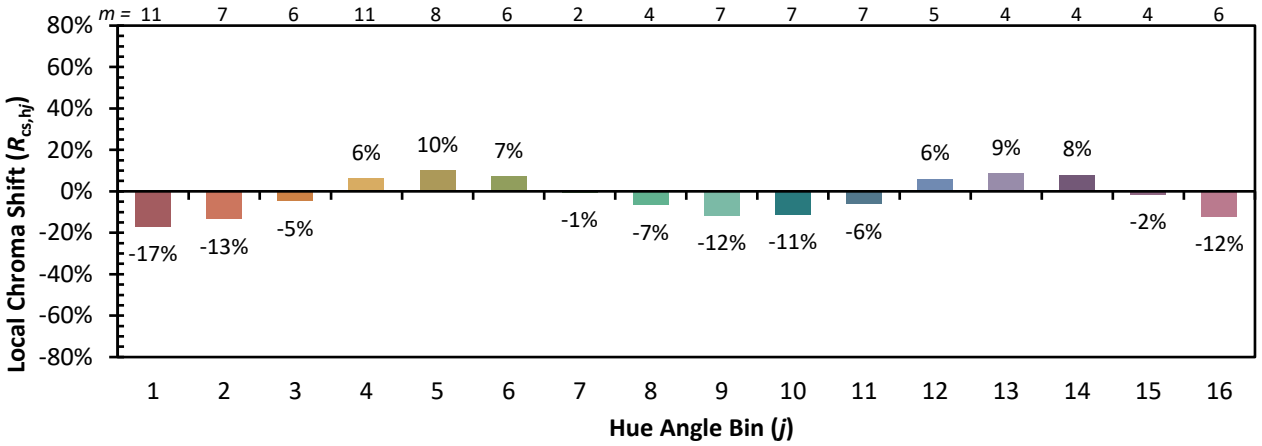
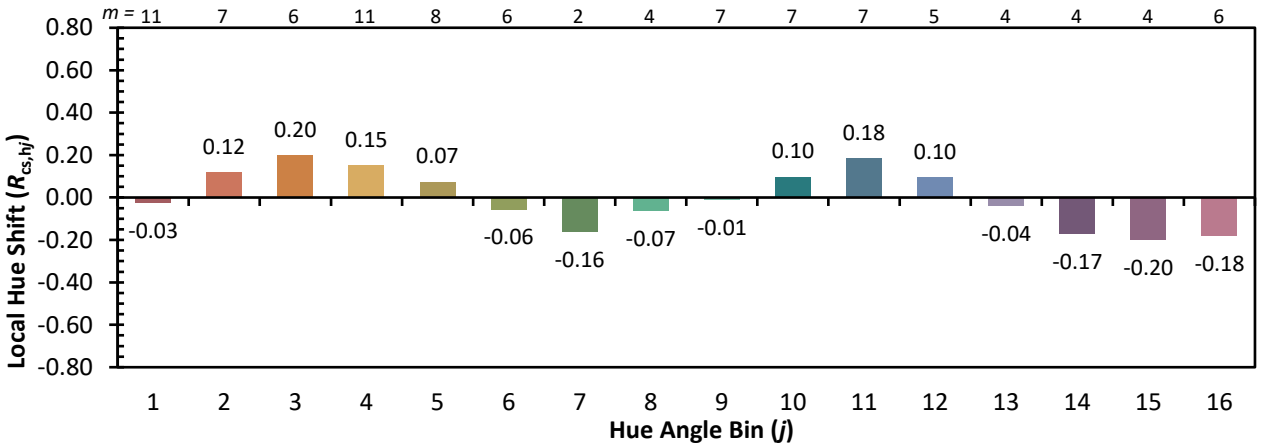
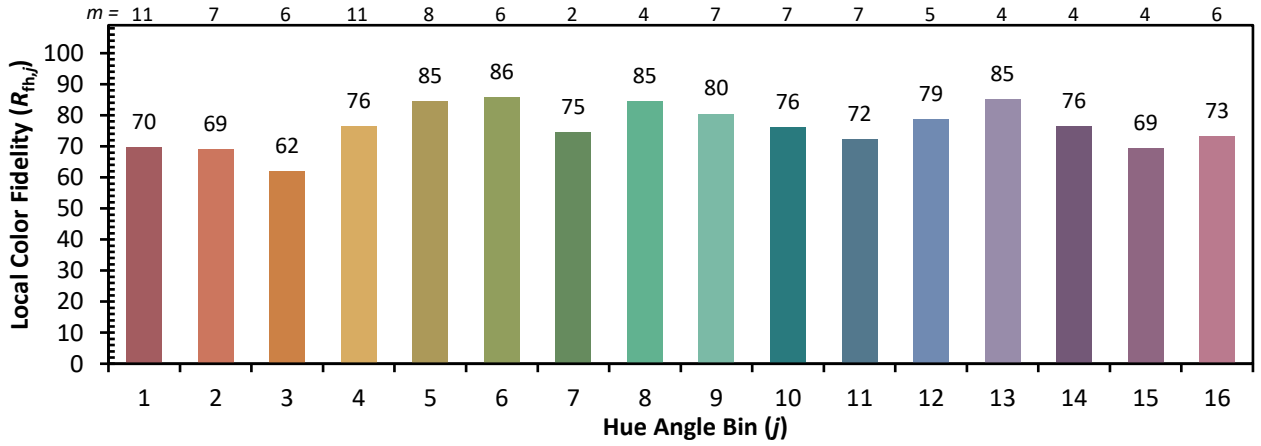
Color Rendition by Hue-Angle Bin







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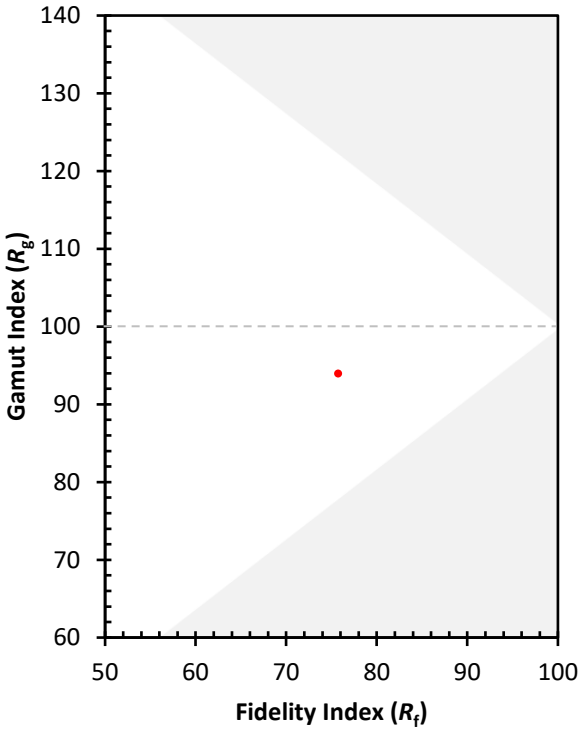
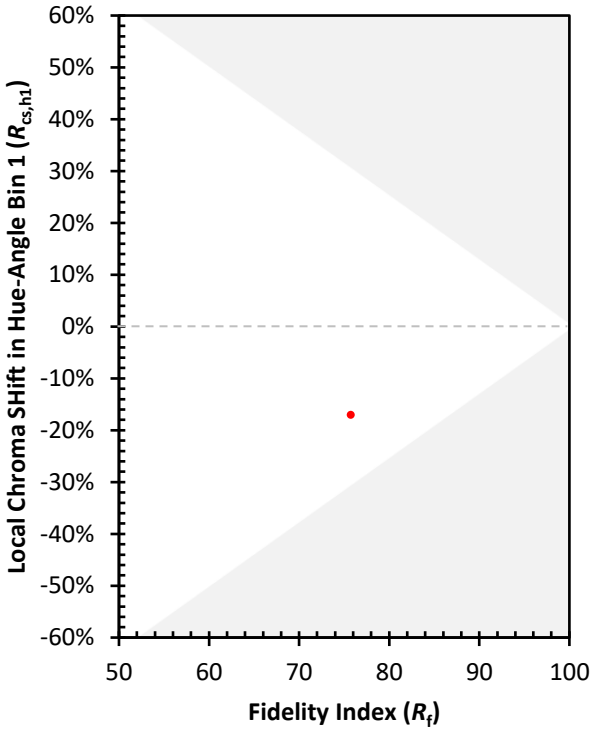
Measure Comparisons





(END OF REPORT)