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: P868717

Luminaire Tested: EMM2-HTN-SA3B-740-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:	P868717
Test Lab:	INNOVATION CENTER(G3)
Issue Date:	5/19/2026
Manufacturer:	COOPER LIGHTING SOLUTIONS
Product Line:	INVUE
Catalog Number:	EMM2-HTN-SA3B-740-U-5MQ
Description:	EPIC MODERN TALL HOUSING DISCRETE LED ARRAYS 150W 70CRI 4000K FIXTURE w/ TYPE V SQUARE MEDIUM DISTRIBUTION OPTIC
Light Source:	(30) 4000K CCT, 70 CRI LEDS
Ballast/Driver:	-

Summary

Lumens per Lamp:	N/A
Luminaire Lumens:	19801.6 lumens
Efficiency:	N/A
Efficacy:	147.8 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):	134
Input Voltage (V):	120
Input Current (Ain):	NR
Voltage Rise (V):	NR
Power Factor:	0.99
Total Harmonic Distortion (THDi):	6.70%
Frequency (hertz):	60
Stabilization Time:	NR
Operation Time:	NR
Ambient Temperature (°C):	NR
Test Distance:	28.75 FT

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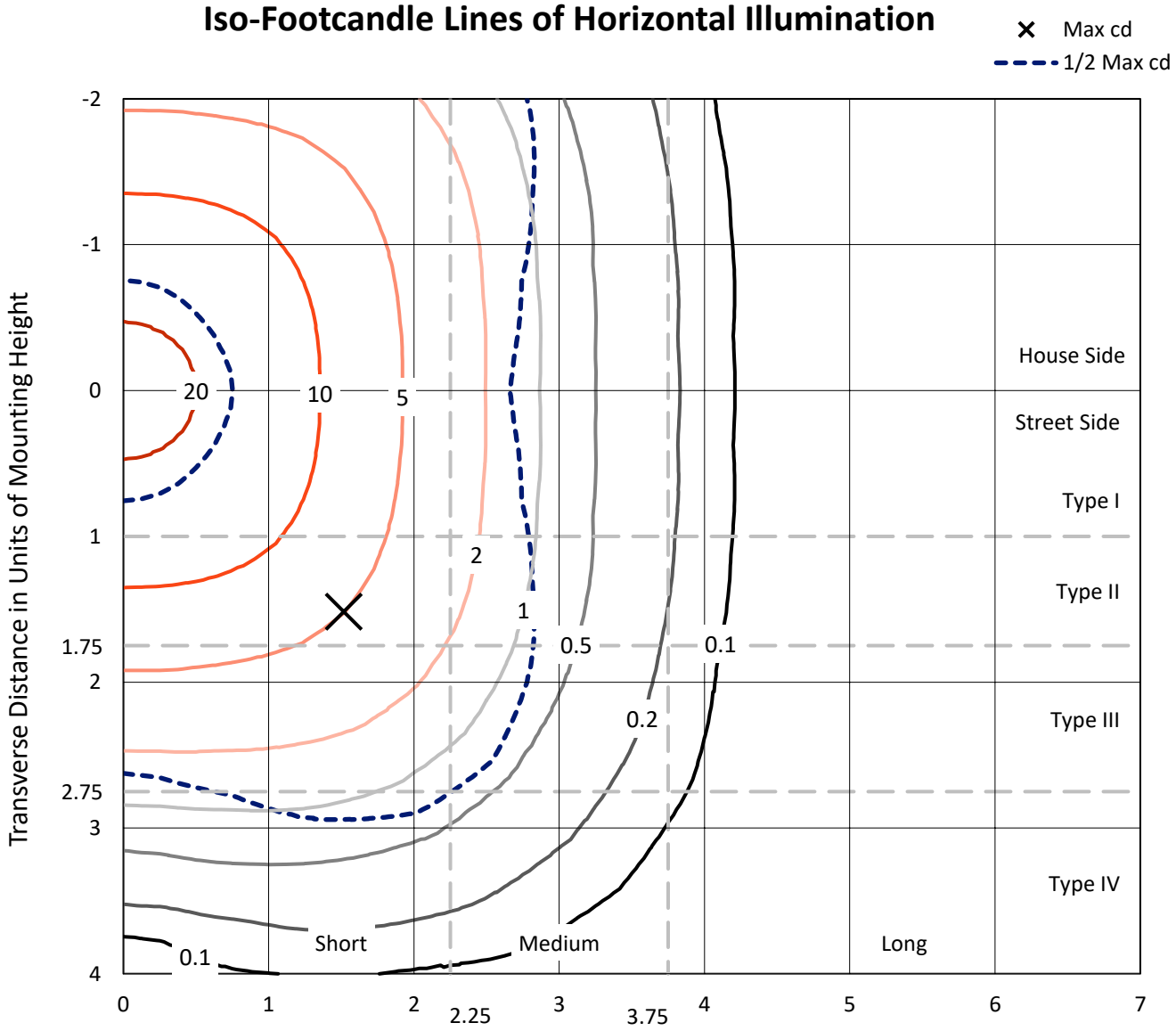
Scaled Data Report

REPORT NUMBER: P868717
CATALOG NUMBER: EMM2-HTN-SA3B-740-U-5MQ

Iso-Footcandle Lines of Horizontal Illumination



Based on 10 foot mounting height. Maximum calculated value = 24.6 fc
Type V - Short - N/A

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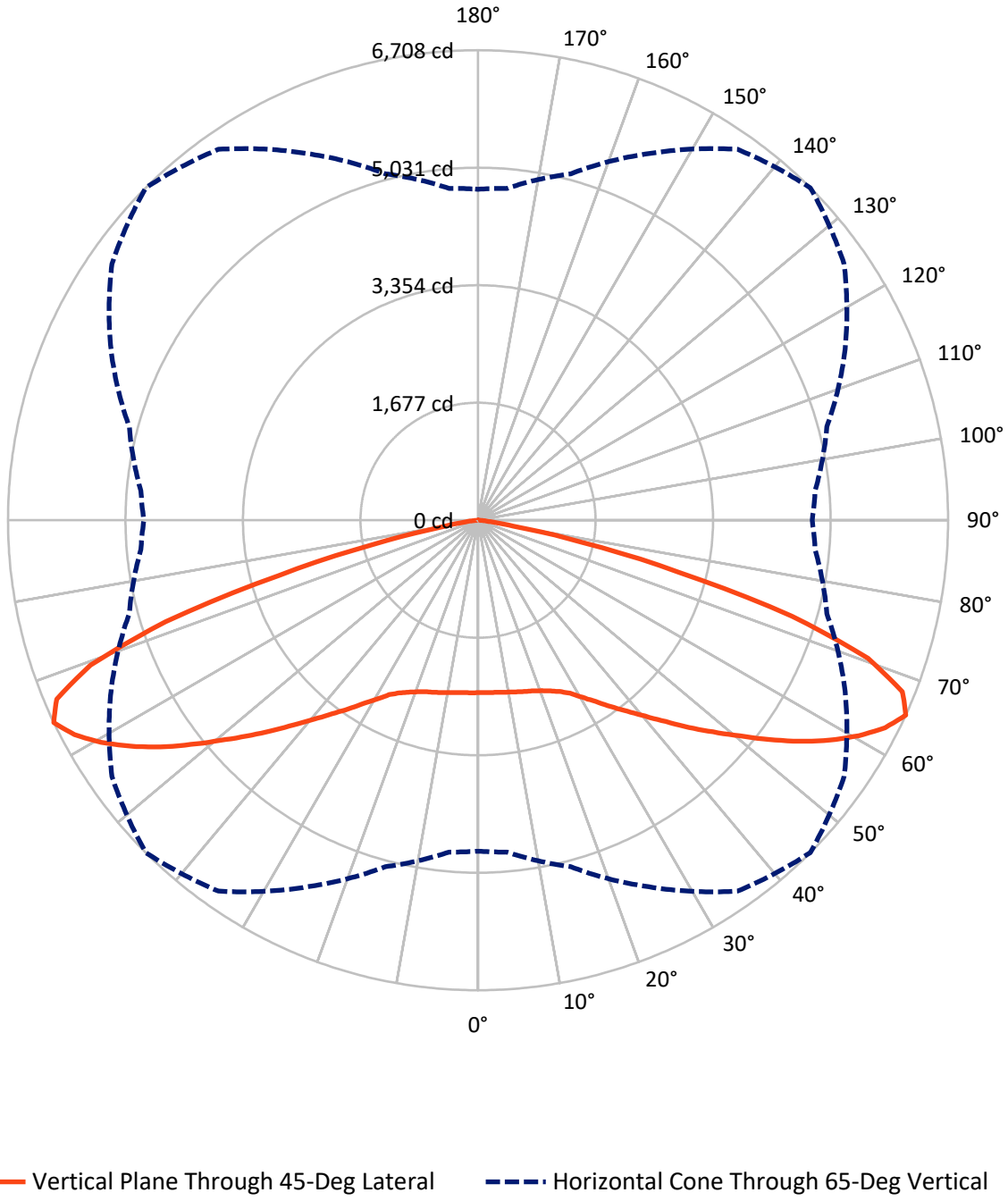
Luminous Intensity Polar Plot



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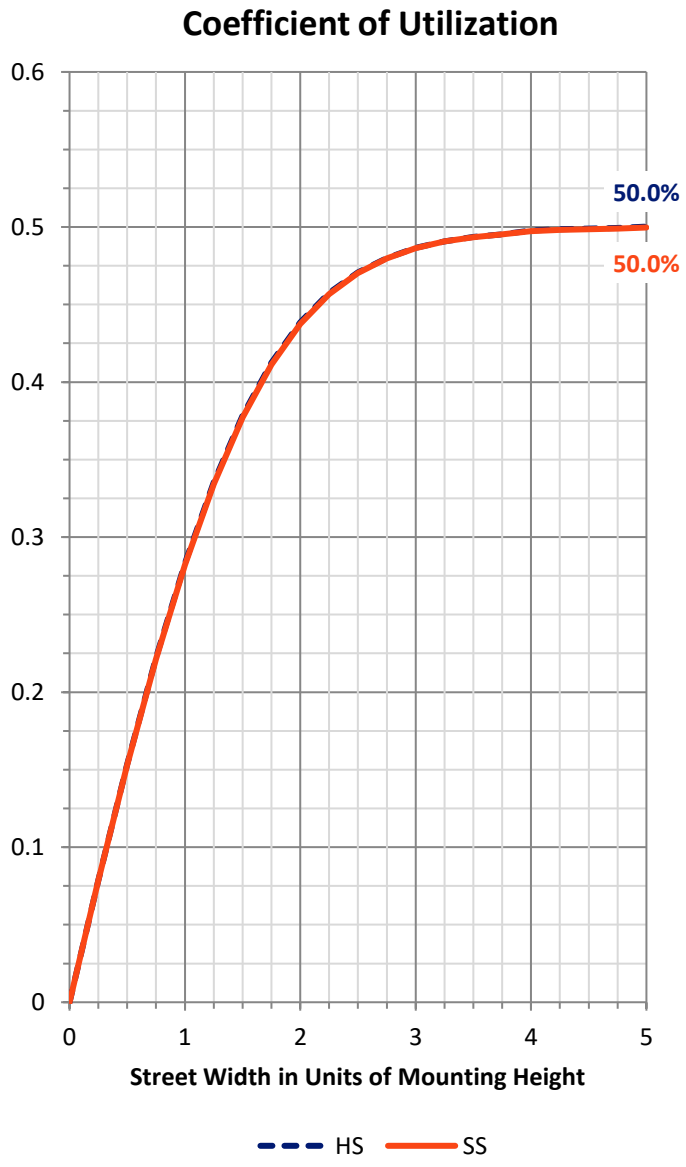
REPORT NUMBER: P868717
CATALOG NUMBER: EMM2-HTN-SA3B-740-U-5MQ

FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	9900.8	0.0	9900.8
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	9900.8	0.0	9900.8
	% Fixture	50.0	0.0	50.0
Total	Lumens	19801.6	0.0	19801.6
	% Fixture	100.0	0.0	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	236.6	1.2
10°-20°	720.1	3.6
20°-30°	1266.7	6.4
30°-40°	2048.6	10.3
40°-50°	3191.0	16.1
50°-60°	4666.0	23.6
60°-70°	5373.1	27.1
70°-80°	2194.4	11.1
80°-90°	105.0	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°	19801.6	100.0
0°-180°	19801.6	100.0



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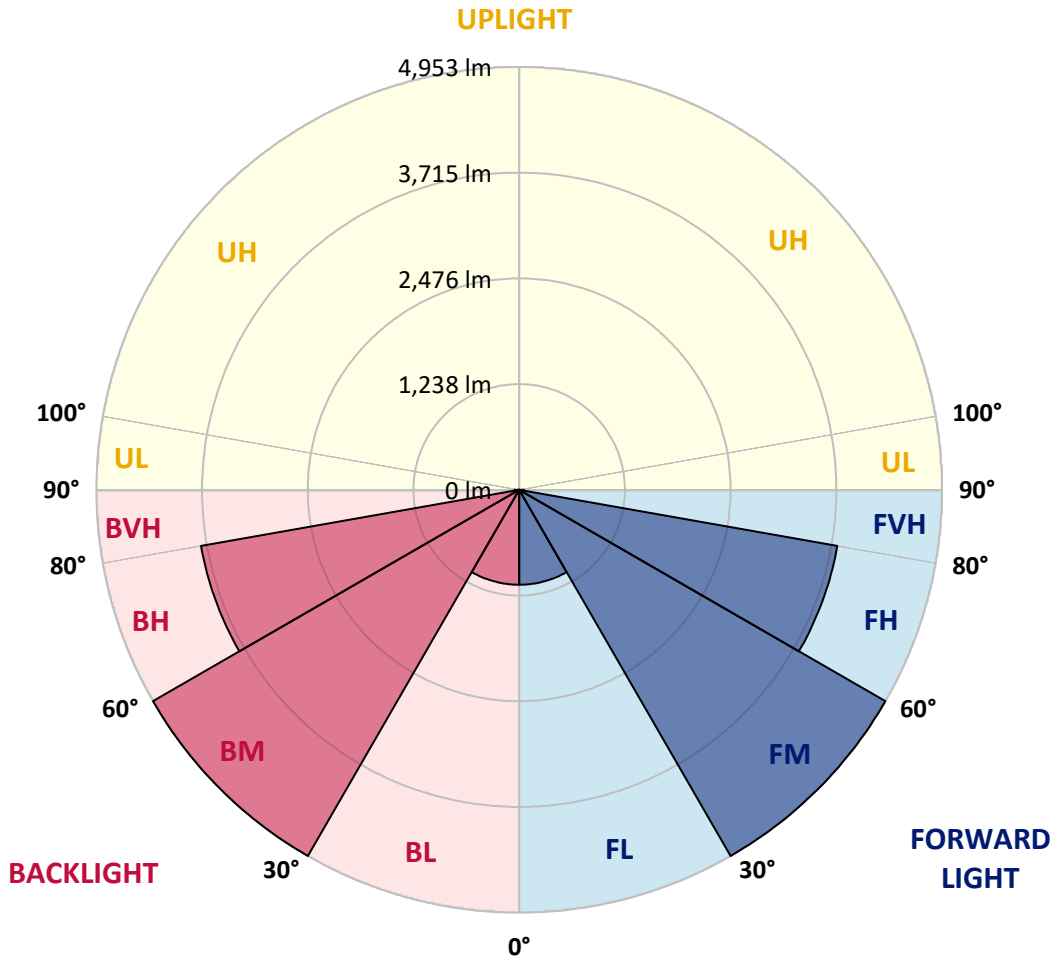
REPORT NUMBER: P868717
CATALOG NUMBER: EMM2-HTN-SA3B-740-U-5MQ

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit B	U	G
FL	(0°-30°)	1111.7	5.6			
FM	(30°-60°)	4952.8	25.0			
FH	(60°-80°)	3783.8	19.1			G2/5000
FVH	(80°-90°)	52.5	0.3			G1/100
BL	(0°-30°)	1111.7	5.6	B3/2500		
BM	(30°-60°)	4952.8	25.0	B3/5000		
BH	(60°-80°)	3783.8	19.1	B4/5000		G2/5000
BVH	(80°-90°)	52.5	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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CATALOG NUMBER: EMM2-HTN-SA3B-740-U-5MQ

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	2460.5	2460.5	2460.5	2460.5	2460.5	2460.5	2460.5	2460.5	2460.5	2460.5	2460.5
2.5°	2468.1	2468.1	2464.3	2464.3	2456.7	2464.3	2460.5	2464.3	2460.5	2460.5	2464.3
5°	2475.7	2475.7	2468.1	2471.9	2464.3	2468.1	2464.3	2471.9	2468.1	2464.3	2471.9
7.5°	2487.1	2487.1	2479.5	2483.3	2475.7	2479.5	2475.7	2483.3	2479.5	2479.5	2483.3
10°	2498.5	2502.3	2494.7	2490.9	2490.9	2494.7	2498.5	2502.3	2498.5	2498.5	2506.1
12.5°	2517.5	2521.3	2513.7	2509.9	2509.9	2513.7	2517.5	2525.1	2513.7	2513.7	2513.7
15°	2536.5	2536.5	2532.7	2528.9	2532.7	2536.5	2536.5	2544.1	2536.5	2528.9	2528.9
17.5°	2544.1	2547.9	2544.1	2551.7	2555.5	2559.3	2563.1	2563.1	2551.7	2547.9	2547.9
20°	2570.7	2574.5	2566.9	2570.7	2582.1	2597.4	2597.4	2597.4	2597.4	2585.9	2585.9
22.5°	2616.4	2620.2	2616.4	2616.4	2631.6	2646.8	2646.8	2658.2	2643.0	2635.4	2635.4
25°	2692.4	2692.4	2688.6	2692.4	2700.0	2707.6	2722.9	2730.5	2730.5	2726.7	2730.5
27.5°	2783.7	2787.5	2783.7	2783.7	2779.9	2795.1	2817.9	2829.3	2833.1	2836.9	2836.9
30°	2905.4	2913.0	2909.2	2913.0	2920.6	2932.0	2939.6	2943.4	2943.4	2935.8	2935.8
32.5°	3038.5	3046.1	3038.5	3057.5	3084.1	3084.1	3076.5	3091.7	3080.3	3072.7	3065.1
35°	3194.4	3194.4	3202.0	3209.6	3247.6	3266.7	3266.7	3259.1	3236.2	3224.8	3232.4
37.5°	3373.1	3376.9	3384.5	3388.4	3422.6	3456.8	3453.0	3434.0	3407.4	3376.9	3376.9
40°	3586.1	3578.5	3582.3	3608.9	3635.5	3677.4	3681.2	3654.6	3608.9	3578.5	3578.5
42.5°	3780.0	3783.9	3799.1	3833.3	3894.1	3928.4	3909.3	3863.7	3814.3	3776.2	3772.4
45°	3985.4	3981.6	4023.4	4095.7	4175.5	4217.4	4187.0	4122.3	4046.2	3996.8	3996.8
47.5°	4194.6	4190.8	4259.2	4377.1	4479.8	4514.0	4483.6	4399.9	4297.2	4225.0	4213.6
50°	4411.3	4426.5	4498.8	4666.1	4799.2	4837.2	4799.2	4688.9	4552.0	4457.0	4441.7
52.5°	4658.5	4669.9	4765.0	4947.5	5111.0	5198.5	5141.5	4977.9	4803.0	4688.9	4673.7
55°	4886.7	4894.3	5031.2	5251.8	5453.3	5571.2	5479.9	5270.8	5050.2	4905.7	4890.5
57.5°	5046.4	5065.4	5240.3	5525.6	5784.2	5921.1	5784.2	5559.8	5267.0	5088.2	5076.8
60°	5149.1	5179.5	5381.1	5738.5	6096.0	6244.3	6103.6	5791.8	5430.5	5198.5	5187.1
62.5°	5095.8	5137.7	5396.3	5864.0	6362.2	6521.9	6339.4	5902.0	5411.5	5118.7	5088.2
65°	4723.2	4753.6	5118.7	5772.7	6461.1	6708.3	6377.4	5780.4	5152.9	4829.6	4768.8
67.5°	3951.2	4004.4	4487.4	5331.6	6248.1	6533.3	6115.0	5343.0	4586.3	4190.8	4122.3
70°	3034.7	3129.8	3658.4	4574.8	5582.6	5905.8	5445.7	4510.2	3620.3	3217.2	3091.7
72.5°	1753.1	1901.4	2677.2	3570.9	4441.7	4685.1	4038.6	3152.6	2403.4	2118.2	2084.0
75°	581.8	635.1	1274.0	2057.3	2833.1	2954.8	2525.1	1988.9	1582.0	1353.8	1365.2
77.5°	285.2	285.2	384.1	753.0	1289.2	1521.1	1380.4	962.1	692.1	524.8	509.6
80°	228.2	228.2	266.2	368.9	433.5	509.6	433.5	315.6	258.6	235.8	247.2
82.5°	110.3	106.5	125.5	178.7	182.5	174.9	163.5	163.5	155.9	144.5	140.7
85°	7.6	7.6	15.2	34.2	57.0	76.1	87.5	83.7	79.9	68.5	76.1
87.5°	3.8	3.8	3.8	3.8	3.8	3.8	3.8	7.6	7.6	7.6	7.6
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-79-2008: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

McGRAW-EDISON

Report Number: SP1-1908-441-3-R4

Test Date: 10/02/2019

Luminaire Tested: SA1C-740-U-5WQ

Data in this report applies to families of products SA1C-740-U-5WQ

Data valid for all products using SA and SB light squares

Report Generated By FNC07603 / LDUCLS01DT446
Version: v6.13

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

Test Information

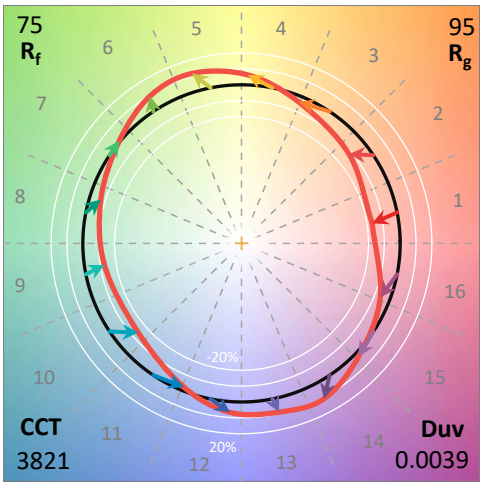
Test Method:	LM-79-2008
Report Number:	SP1-1908-441-3-R4
Test Lab:	COOPER LIGHTING SOLUTIONS
Photometer:	SP1 - 76IN SPHERE
Measurement Geometry:	4π
Issue Date:	11/05/2024
Manufacturer:	COOPER LIGHTING SOLUTIONS
Product Line:	McGRAW-EDISON
Catalog Number:	**SA1C-740-U-5WQ**
Description:	McGRAW EDISON ROADWAY AND AREA LUMINAIRE

THIS IS A REVISION OF SP1-1908-441-3-R3. TO UPDATE THE CATALOG INFORMATION.TESTED IN SITU. ROADWAY AND AREA LUMINAIRE. (1) 70 CRI, 4000K, 1050MA LIGHTSQUARE WITH 16 LEDS AND TYPE V WIDE OPTICS.

Spectral Parameters

CCT (K):	3821	CRI (Ra):	72.3		
CIE u':	0.2264	R1:	68.5	R9:	-33.5
CIE v':	0.5098	R2:	78.5	R10:	50.8
Duv:	0.0039	R3:	88.2	R11:	69.2
CIE x:	0.3918	R4:	72.2	R12:	48.9
CIE y:	0.3921	R5:	69.0	R13:	69.8
CIE z:	0.2161	R6:	71.0	R14:	93.4
Peak Wavelength (nm):	585	R7:	80.4		
Dominant Wavelength (nm):	577	R8:	50.4		
Purity:	35.4				

Rf:	75.5
Rg:	94.8



Test Conditions

Stabilization Time:	67M
Operation Time:	12H
Room Temperature (°C) / RH%:	25.0./44%
Sphere Temperature (°C):	25.7

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REPORT NUMBER: SP1-1908-441-3-R4

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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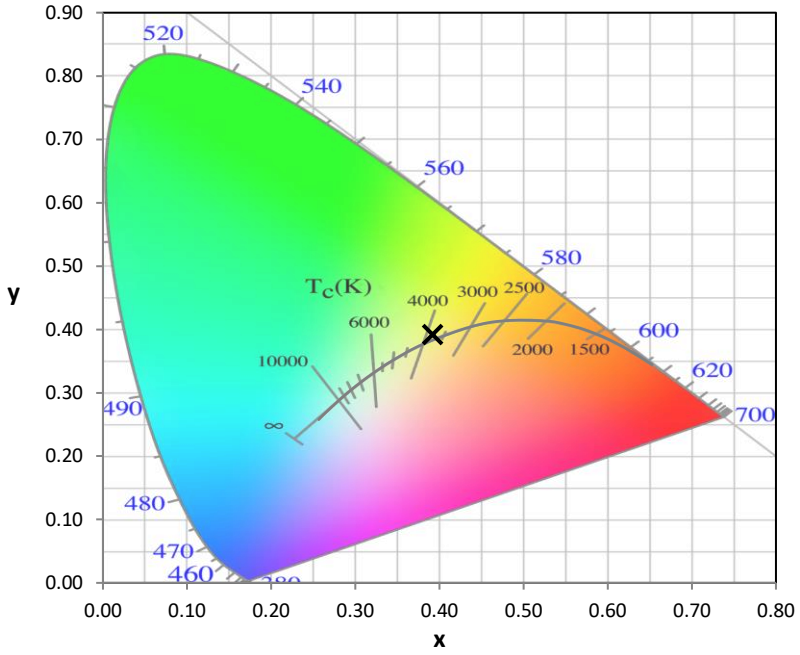
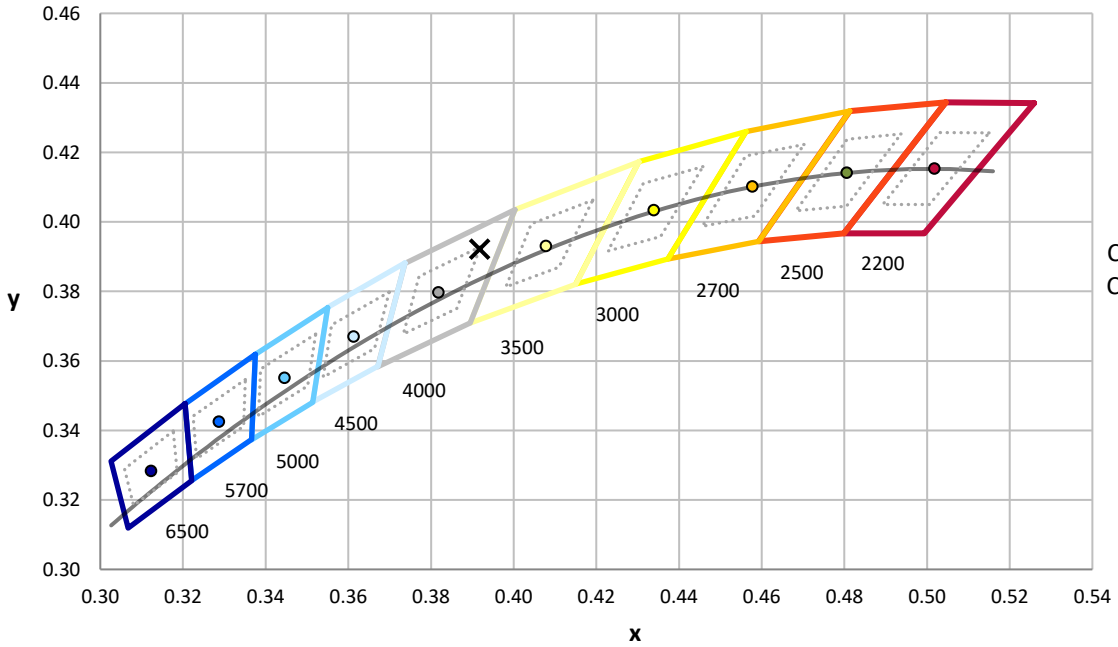
CIE 1931 Chromaticity Diagram



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



CCT = 3821K
CIE x = 0.3918
CIE y = 0.3921
Duv = 0.0039

Point lies inside the ANSI 4000K 7-step quadrangle

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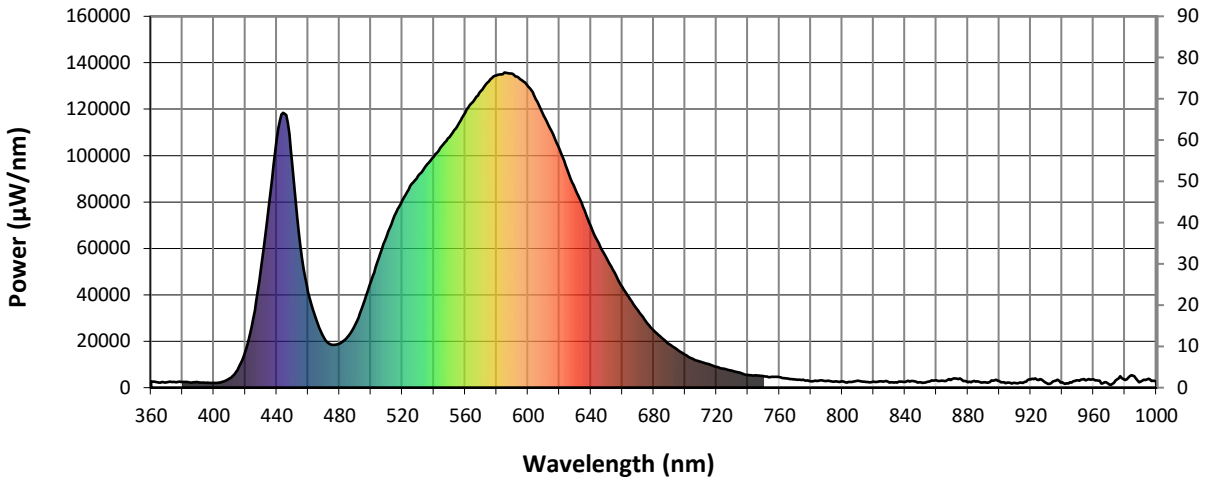
Photopic Flux vs. Wavelength



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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	2662	NR	490	27227	NR	620	102725	NR	750	4998	NR	880	2294	NR
365	2227	NR	495	35672	NR	625	94018	NR	755	4638	NR	885	2526	NR
370	2351	NR	500	45857	NR	630	85530	NR	760	4579	NR	890	2275	NR
375	2487	NR	505	55772	NR	635	77990	NR	765	3952	NR	895	3151	NR
380	2507	NR	510	65358	NR	640	69405	NR	770	3495	NR	900	2915	NR
385	2244	NR	515	73945	NR	645	62112	NR	775	3353	NR	905	2197	NR
390	2299	NR	520	80747	NR	650	55830	NR	780	2778	NR	910	2048	NR
395	2056	NR	525	86794	NR	655	49542	NR	785	2954	NR	915	2045	NR
400	2025	NR	530	91185	NR	660	43371	NR	790	2859	NR	920	3527	NR
405	2414	NR	535	95640	NR	665	38089	NR	795	2638	NR	925	3296	NR
410	3944	NR	540	99533	NR	670	33284	NR	800	2710	NR	930	2096	NR
415	7705	NR	545	104097	NR	675	28574	NR	805	2390	NR	935	2810	NR
420	15513	NR	550	107982	NR	680	24590	NR	810	2947	NR	940	2304	NR
425	29927	NR	555	112790	NR	685	21480	NR	815	2387	NR	945	2250	NR
430	51389	NR	560	118428	NR	690	18698	NR	820	2557	NR	950	3082	NR
435	78905	NR	565	123208	NR	695	16372	NR	825	2693	NR	955	3173	NR
440	106921	NR	570	127740	NR	700	14200	NR	830	2208	NR	960	3569	NR
445	118008	NR	575	131879	NR	705	12325	NR	835	2160	NR	965	1744	NR
450	95722	NR	580	134489	NR	710	11122	NR	840	2493	NR	970	1283	NR
455	61053	NR	585	135793	NR	715	10157	NR	845	2809	NR	975	3622	NR
460	41109	NR	590	135243	NR	720	8957	NR	850	2287	NR	980	3346	NR
465	29591	NR	595	132928	NR	725	8084	NR	855	2564	NR	985	5229	NR
470	21545	NR	600	129738	NR	730	7241	NR	860	3166	NR	990	2613	NR
475	18425	NR	605	124239	NR	735	6387	NR	865	2867	NR	995	3838	NR
480	19056	NR	610	116984	NR	740	5430	NR	870	3742	NR	1000	2626	NR
485	21740	NR	615	110543	NR	745	5284	NR	875	3912	NR			

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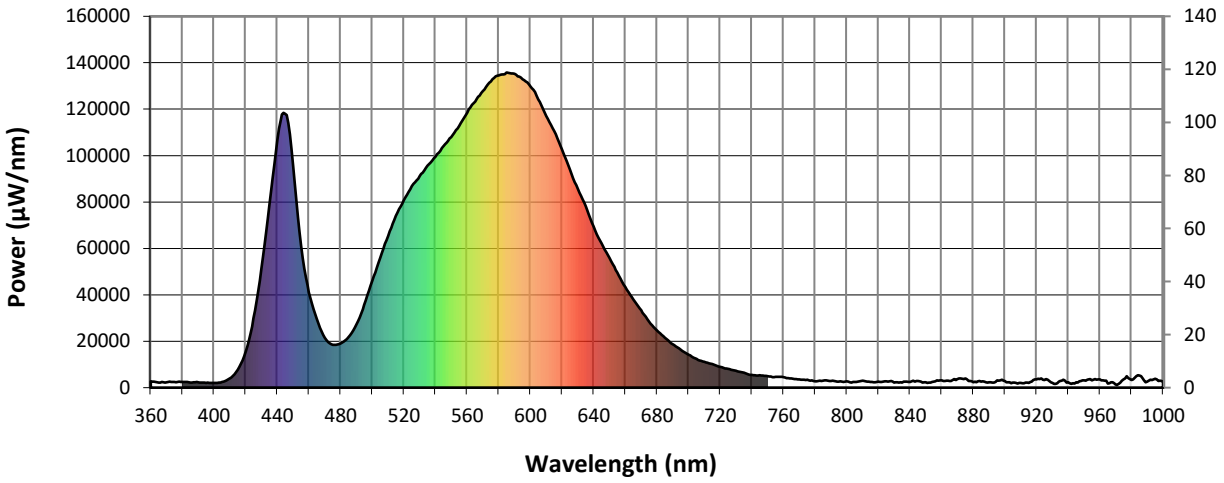
Scotopic Flux vs. Wavelength



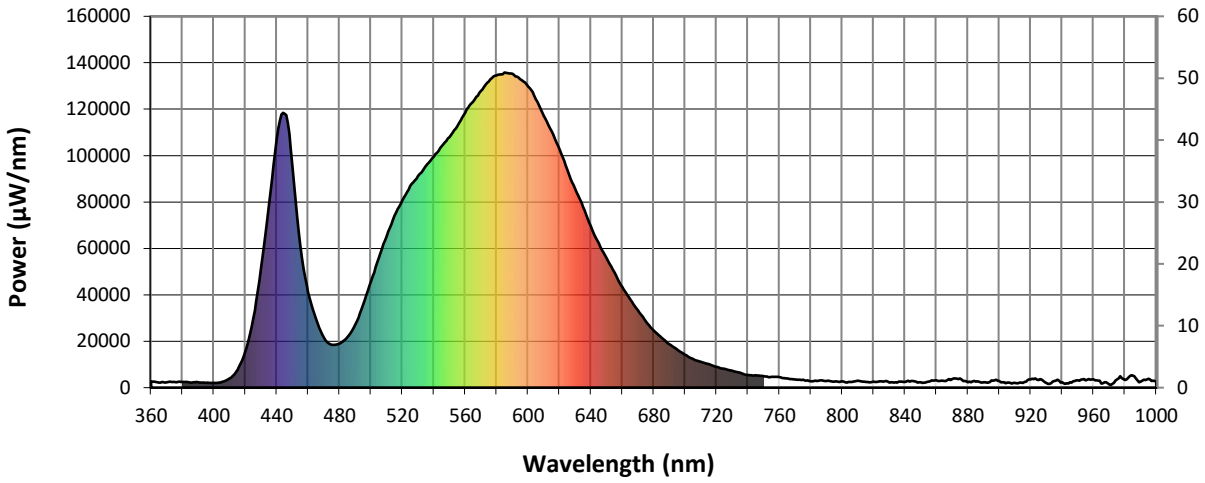
Scotopic Lumens: 10930.8 **S/P: 1.47**

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	2662	NR	490	27227	NR	620	102725	NR	750	4998	NR	880	2294	NR
365	2227	NR	495	35672	NR	625	94018	NR	755	4638	NR	885	2526	NR
370	2351	NR	500	45857	NR	630	85530	NR	760	4579	NR	890	2275	NR
375	2487	NR	505	55772	NR	635	77990	NR	765	3952	NR	895	3151	NR
380	2507	NR	510	65358	NR	640	69405	NR	770	3495	NR	900	2915	NR
385	2244	NR	515	73945	NR	645	62112	NR	775	3353	NR	905	2197	NR
390	2299	NR	520	80747	NR	650	55830	NR	780	2778	NR	910	2048	NR
395	2056	NR	525	86794	NR	655	49542	NR	785	2954	NR	915	2045	NR
400	2025	NR	530	91185	NR	660	43371	NR	790	2859	NR	920	3527	NR
405	2414	NR	535	95640	NR	665	38089	NR	795	2638	NR	925	3296	NR
410	3944	NR	540	99533	NR	670	33284	NR	800	2710	NR	930	2096	NR
415	7705	NR	545	104097	NR	675	28574	NR	805	2390	NR	935	2810	NR
420	15513	NR	550	107982	NR	680	24590	NR	810	2947	NR	940	2304	NR
425	29927	NR	555	112790	NR	685	21480	NR	815	2387	NR	945	2250	NR
430	51389	NR	560	118428	NR	690	18698	NR	820	2557	NR	950	3082	NR
435	78905	NR	565	123208	NR	695	16372	NR	825	2693	NR	955	3173	NR
440	106921	NR	570	127740	NR	700	14200	NR	830	2208	NR	960	3569	NR
445	118008	NR	575	131879	NR	705	12325	NR	835	2160	NR	965	1744	NR
450	95722	NR	580	134489	NR	710	11122	NR	840	2493	NR	970	1283	NR
455	61053	NR	585	135793	NR	715	10157	NR	845	2809	NR	975	3622	NR
460	41109	NR	590	135243	NR	720	8957	NR	850	2287	NR	980	3346	NR
465	29591	NR	595	132928	NR	725	8084	NR	855	2564	NR	985	5229	NR
470	21545	NR	600	129738	NR	730	7241	NR	860	3166	NR	990	2613	NR
475	18425	NR	605	124239	NR	735	6387	NR	865	2867	NR	995	3838	NR
480	19056	NR	610	116984	NR	740	5430	NR	870	3742	NR	1000	2626	NR
485	21740	NR	615	110543	NR	745	5284	NR	875	3912	NR			

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

REPORT NUMBER: SP1-1908-441-3-R4

Melanopic Flux vs. Wavelength



Melanopic Lumens: 4115.9 **M/P: 0.55**

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	2662	NR	490	27227	NR	620	102725	NR	750	4998	NR	880	2294	NR
365	2227	NR	495	35672	NR	625	94018	NR	755	4638	NR	885	2526	NR
370	2351	NR	500	45857	NR	630	85530	NR	760	4579	NR	890	2275	NR
375	2487	NR	505	55772	NR	635	77990	NR	765	3952	NR	895	3151	NR
380	2507	NR	510	65358	NR	640	69405	NR	770	3495	NR	900	2915	NR
385	2244	NR	515	73945	NR	645	62112	NR	775	3353	NR	905	2197	NR
390	2299	NR	520	80747	NR	650	55830	NR	780	2778	NR	910	2048	NR
395	2056	NR	525	86794	NR	655	49542	NR	785	2954	NR	915	2045	NR
400	2025	NR	530	91185	NR	660	43371	NR	790	2859	NR	920	3527	NR
405	2414	NR	535	95640	NR	665	38089	NR	795	2638	NR	925	3296	NR
410	3944	NR	540	99533	NR	670	33284	NR	800	2710	NR	930	2096	NR
415	7705	NR	545	104097	NR	675	28574	NR	805	2390	NR	935	2810	NR
420	15513	NR	550	107982	NR	680	24590	NR	810	2947	NR	940	2304	NR
425	29927	NR	555	112790	NR	685	21480	NR	815	2387	NR	945	2250	NR
430	51389	NR	560	118428	NR	690	18698	NR	820	2557	NR	950	3082	NR
435	78905	NR	565	123208	NR	695	16372	NR	825	2693	NR	955	3173	NR
440	106921	NR	570	127740	NR	700	14200	NR	830	2208	NR	960	3569	NR
445	118008	NR	575	131879	NR	705	12325	NR	835	2160	NR	965	1744	NR
450	95722	NR	580	134489	NR	710	11122	NR	840	2493	NR	970	1283	NR
455	61053	NR	585	135793	NR	715	10157	NR	845	2809	NR	975	3622	NR
460	41109	NR	590	135243	NR	720	8957	NR	850	2287	NR	980	3346	NR
465	29591	NR	595	132928	NR	725	8084	NR	855	2564	NR	985	5229	NR
470	21545	NR	600	129738	NR	730	7241	NR	860	3166	NR	990	2613	NR
475	18425	NR	605	124239	NR	735	6387	NR	865	2867	NR	995	3838	NR
480	19056	NR	610	116984	NR	740	5430	NR	870	3742	NR	1000	2626	NR
485	21740	NR	615	110543	NR	745	5284	NR	875	3912	NR			

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

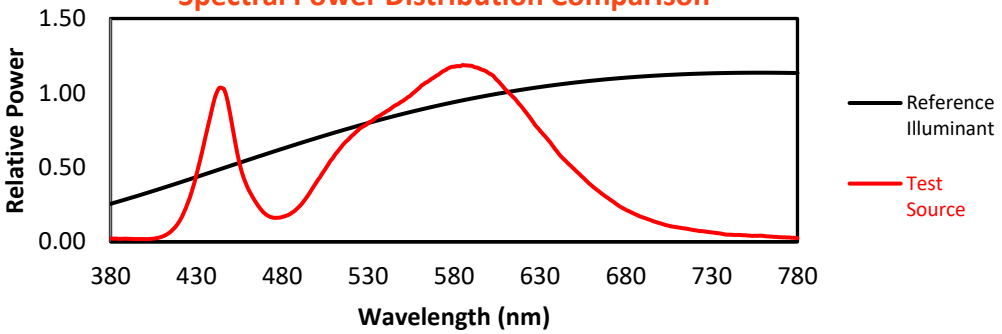
REPORT NUMBER: SP1-1908-441-3-R4

TM-30-18

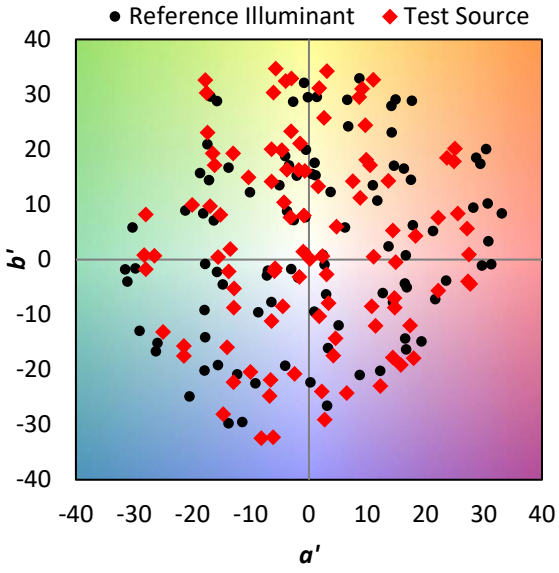
Summary

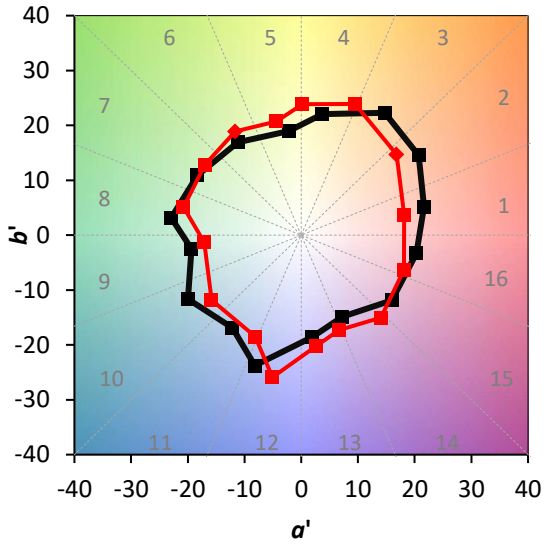
R_f = 75.5
R_g = 94.8
CIE R_a = 72.3
R_9 = -33.5

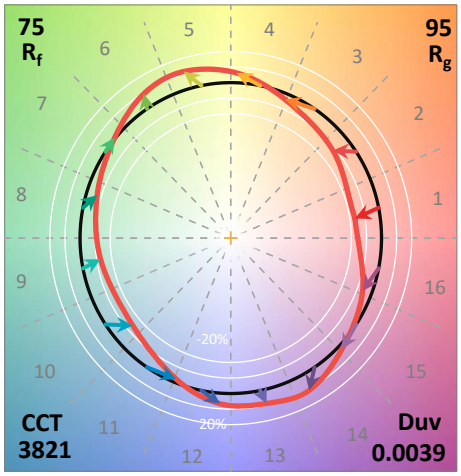
Spectral Power Distribution Comparison

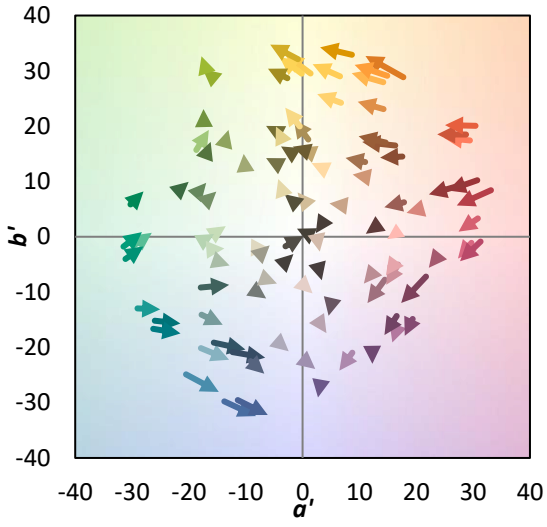


Color Vector Graphics









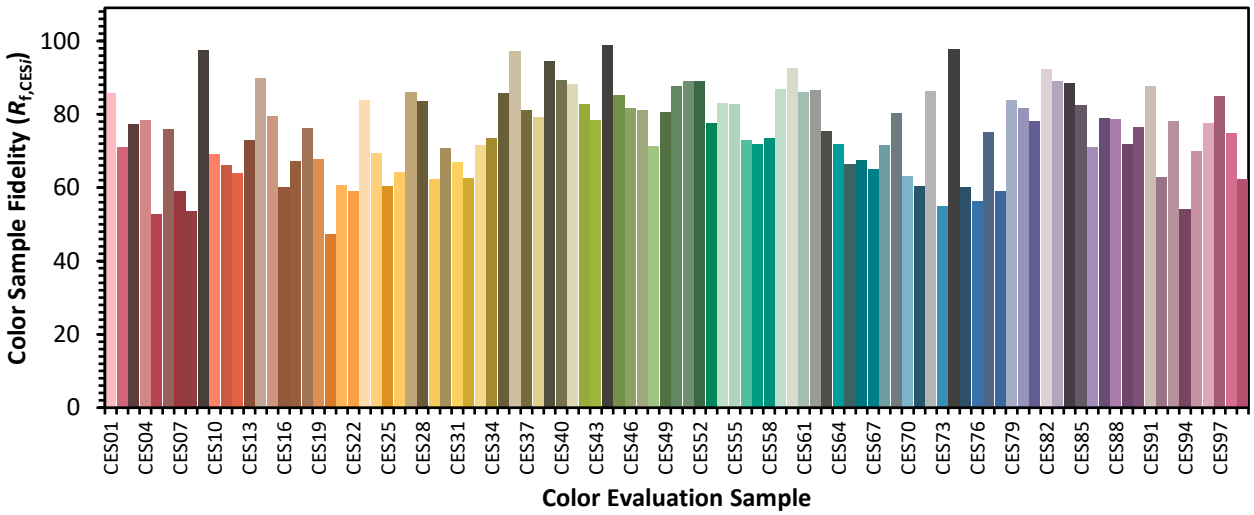
Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

REPORT NUMBER: SP1-1908-441-3-R4

TM-30-18

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

CES01 = 85	CES26 = 64	CES51 = 89	CES76 = 56
CES02 = 61	CES27 = 86	CES52 = 89	CES77 = 75
CES03 = 30	CES28 = 83	CES53 = 78	CES78 = 59
CES04 = 70	CES29 = 62	CES54 = 83	CES79 = 84
CES05 = 47	CES30 = 71	CES55 = 83	CES80 = 82
CES06 = 50	CES31 = 67	CES56 = 73	CES81 = 78
CES07 = 40	CES32 = 63	CES57 = 72	CES82 = 92
CES08 = 39	CES33 = 72	CES58 = 73	CES83 = 89
CES09 = 29	CES34 = 73	CES59 = 87	CES84 = 89
CES10 = 74	CES35 = 86	CES60 = 92	CES85 = 83
CES11 = 57	CES36 = 97	CES61 = 86	CES86 = 71
CES12 = 63	CES37 = 81	CES62 = 87	CES87 = 79
CES13 = 42	CES38 = 79	CES63 = 75	CES88 = 79
CES14 = 74	CES39 = 94	CES64 = 72	CES89 = 72
CES15 = 71	CES40 = 89	CES65 = 66	CES90 = 77
CES16 = 46	CES41 = 88	CES66 = 67	CES91 = 88
CES17 = 49	CES42 = 83	CES67 = 65	CES92 = 63
CES18 = 56	CES43 = 78	CES68 = 71	CES93 = 78
CES19 = 72	CES44 = 99	CES69 = 80	CES94 = 54
CES20 = 65	CES45 = 85	CES70 = 63	CES95 = 70
CES21 = 86	CES46 = 82	CES71 = 60	CES96 = 78
CES22 = 78	CES47 = 81	CES72 = 86	CES97 = 85
CES23 = 92	CES48 = 71	CES73 = 55	CES98 = 75
CES24 = 91	CES49 = 81	CES74 = 98	CES99 = 62
CES25 = 72	CES50 = 88	CES75 = 60	

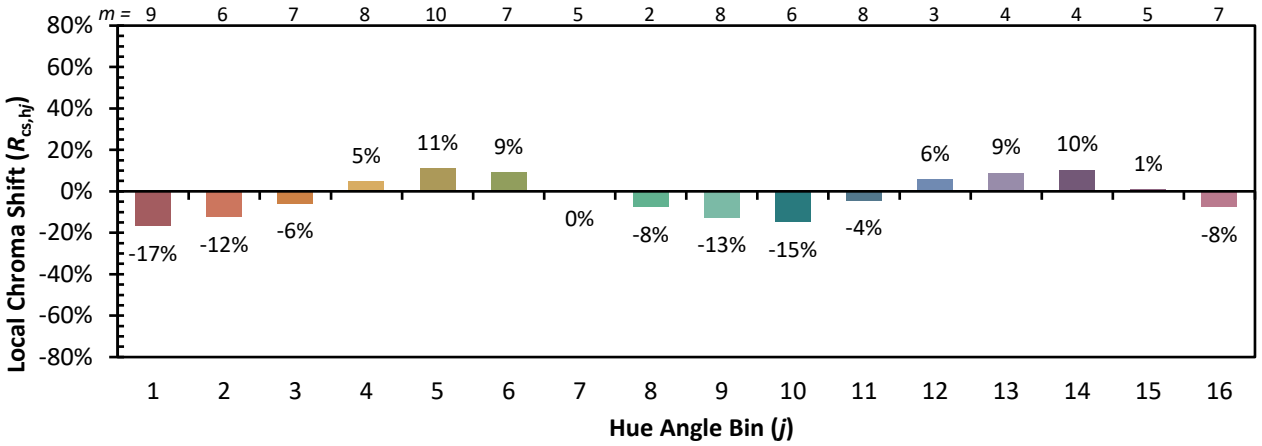


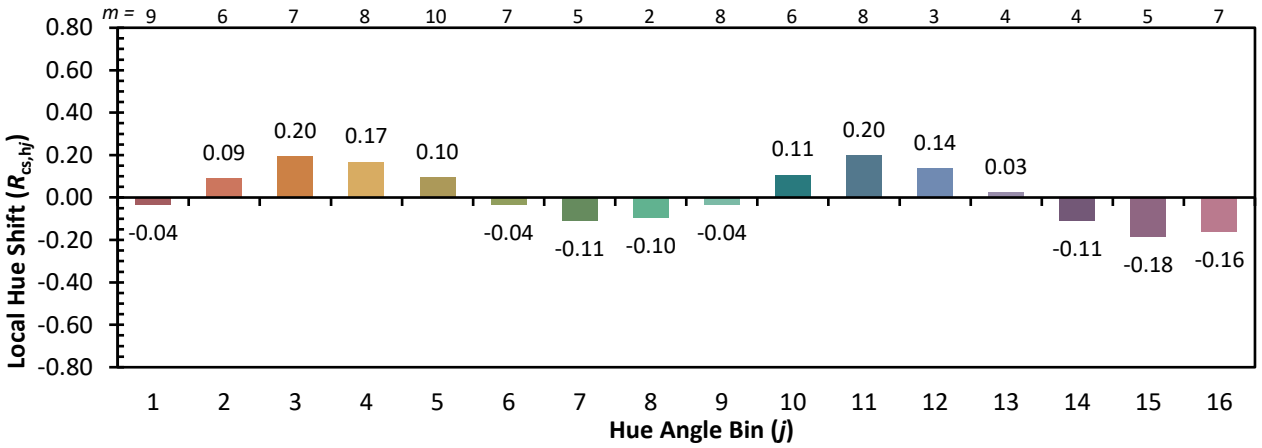
Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

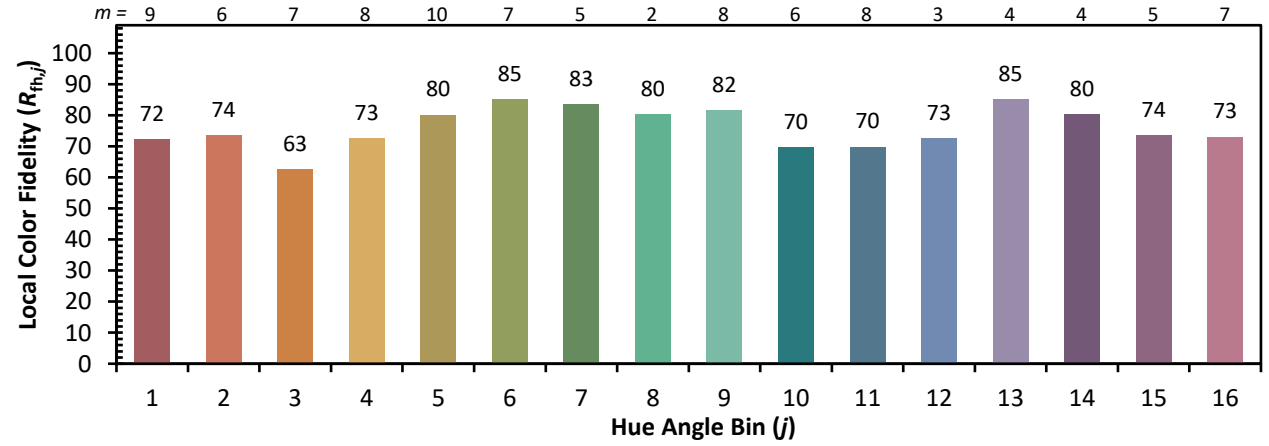
REPORT NUMBER: SP1-1908-441-3-R4

TM-30-18

Color Rendition by Hue-Angle Bin





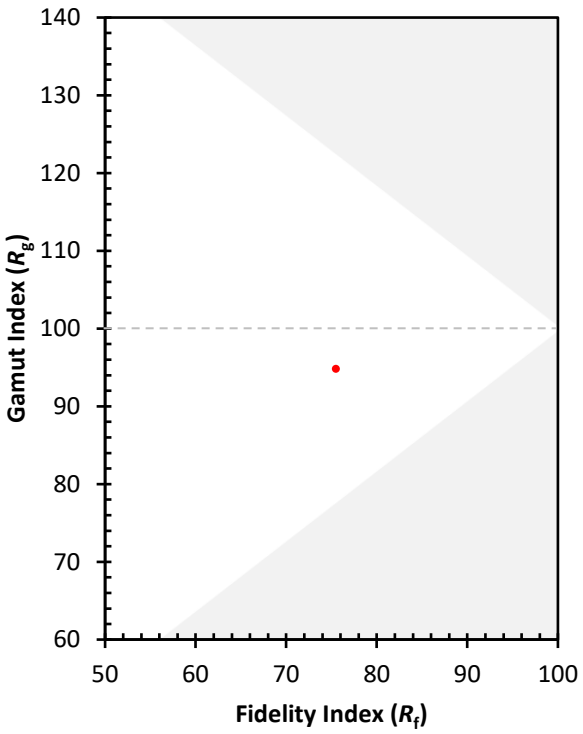


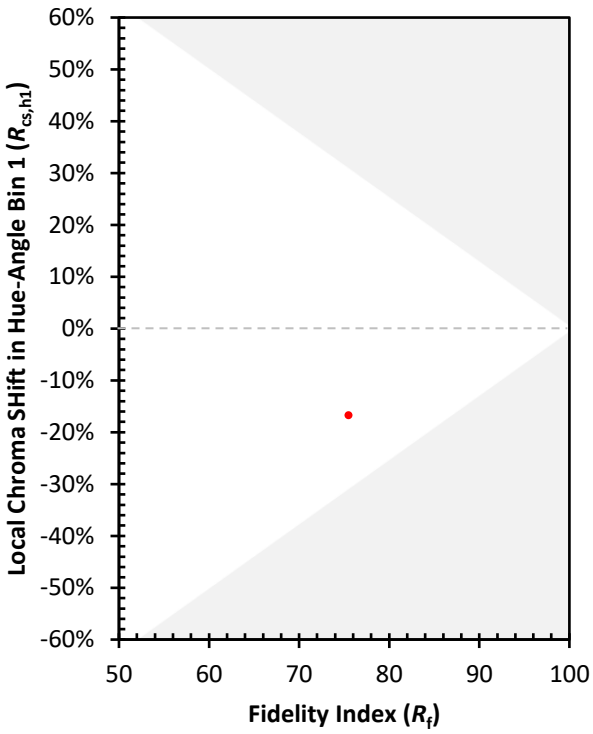
Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

REPORT NUMBER: SP1-1908-441-3-R4

TM-30-18

Measure Comparisons





(END OF REPORT)