

Signify Classified - Internal
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: P348730

Luminaire Tested: **ARCH-N-PA1-19-827-24VDC-5WQ**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P348730
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-2)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: STREETWORKS
Catalog Number: ARCH-N-PA1-19-827-24VDC-5WQ
Description: ARCHEON ROADWAY AND AREA LUMINAIRE
(1) 80 CRI, 2700K, 370mA LIGHT ENGINE WITH 16 LEDS AND
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2270 lumens
Efficiency: N/A
Efficacy: 119.5 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 0.75' x H: 0')
IES Classification: Type V - Short
BUG Rating: B2 - U0 - G1

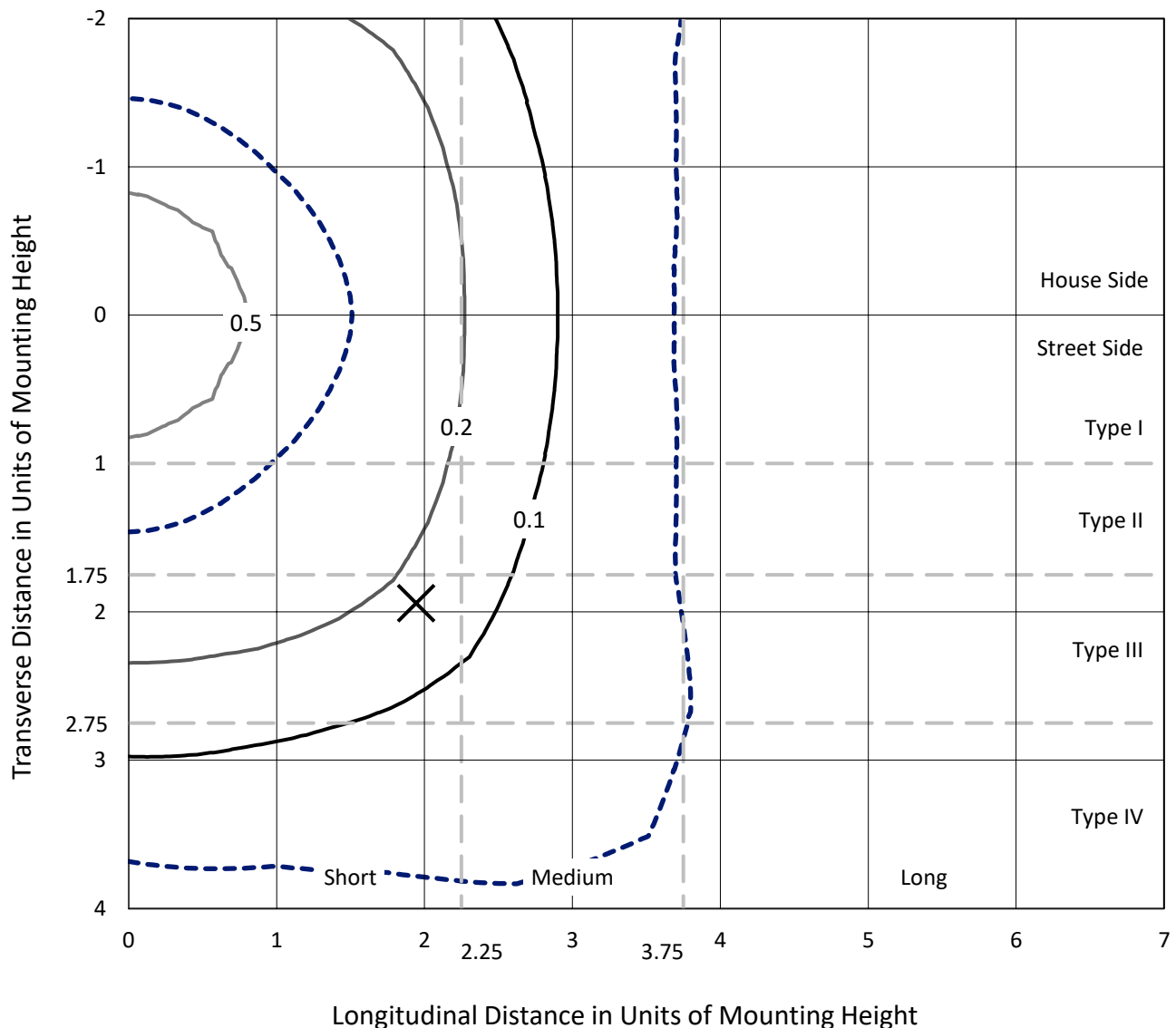
Input Watts (W): 19
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT

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CATALOG NUMBER: ARCH-N-PA1-19-827-24VDC-5WQ

Iso-Footcandle Lines of Horizontal Illumination

✕ Max cd
 - - - 1/2 Max cd

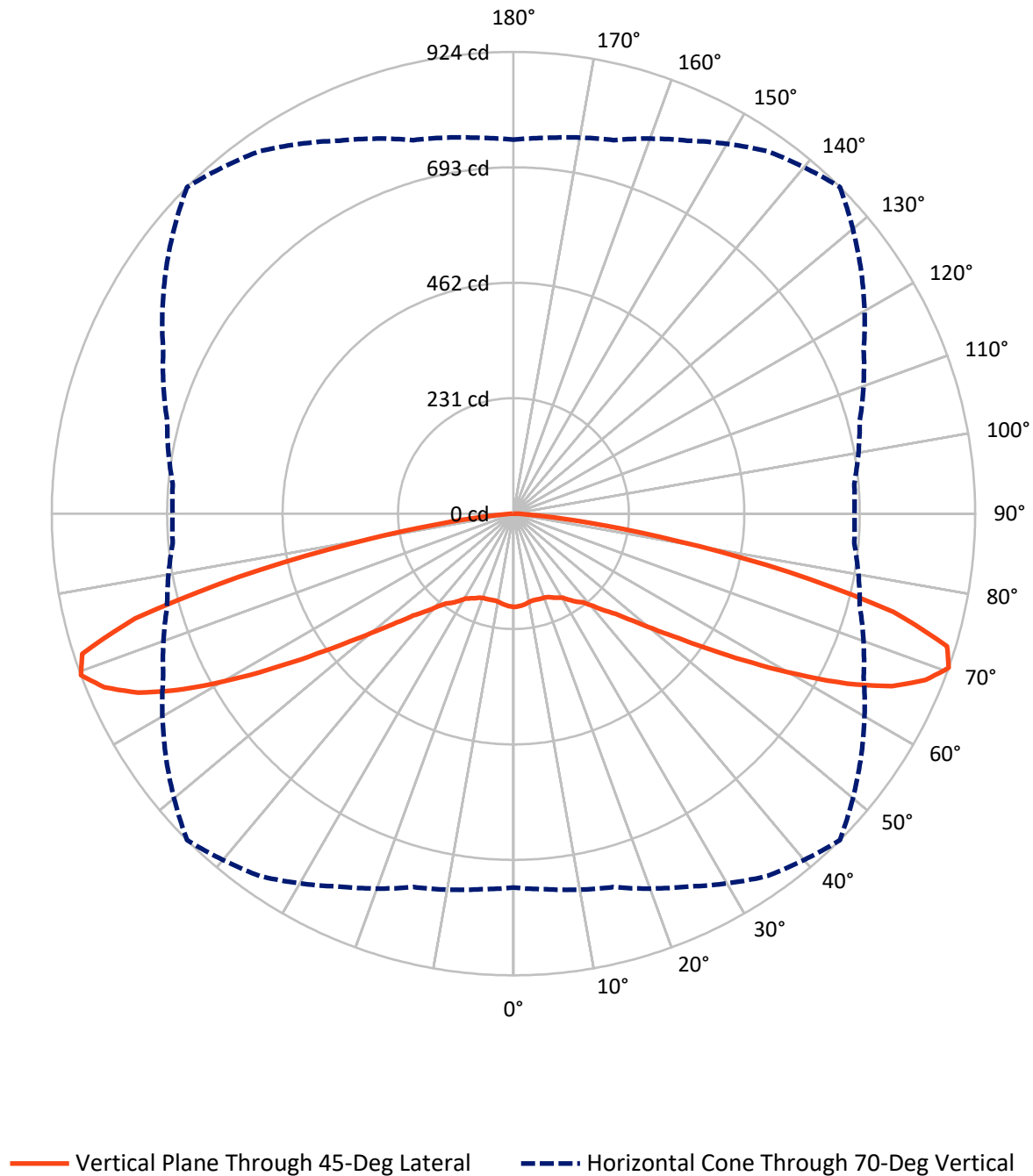


Based on 15 foot mounting height. Maximum calculated value = 0.8 fc
 Type V - Short - N/A

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CATALOG NUMBER: ARCH-N-PA1-19-827-24VDC-5WQ

Luminous Intensity Polar Plot



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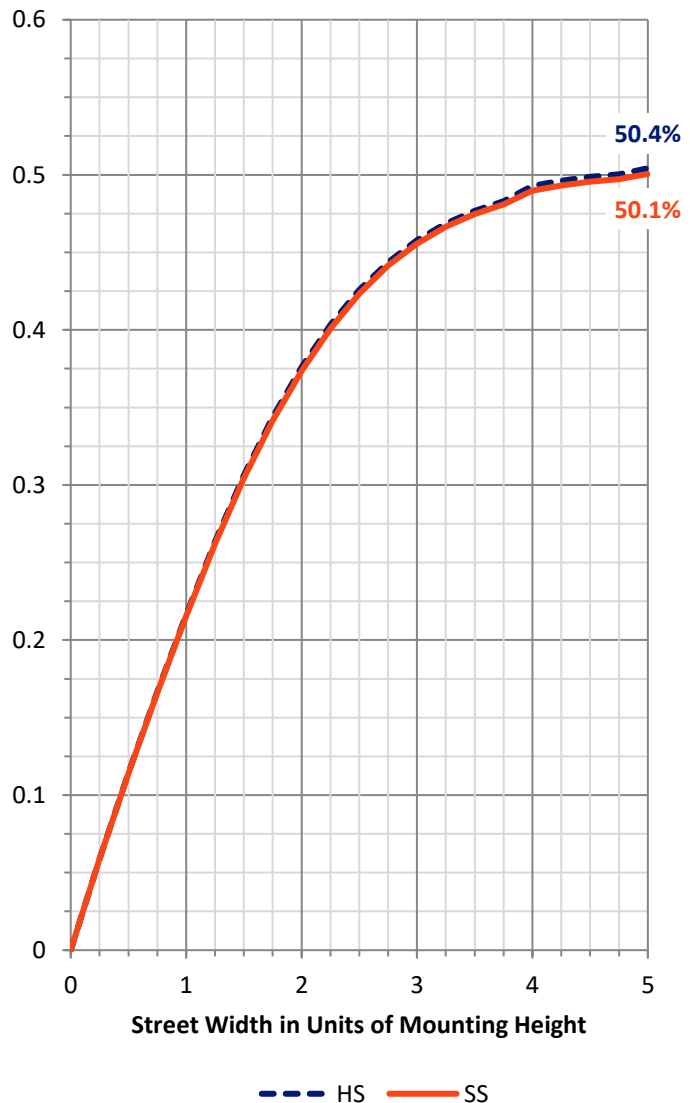
FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	1135.0	0.0	1135.0
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	1135.0	0.0	1135.0
	% Fixture	50.0	0.0	50.0
Total	Lumens	2270.0	0.0	2270.0
	% Fixture	100.0	0.0	100.0

Coefficient of Utilization

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	17.4	0.8
10°-20°	50.9	2.2
20°-30°	86.8	3.8
30°-40°	135.7	6.0
40°-50°	230.0	10.1
50°-60°	419.4	18.5
60°-70°	721.9	31.8
70°-80°	565.9	24.9
80°-90°	42.0	1.8
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°	2270.0	100.0
0°-180°	2270.0	100.0



REPORT NUMBER: P348730

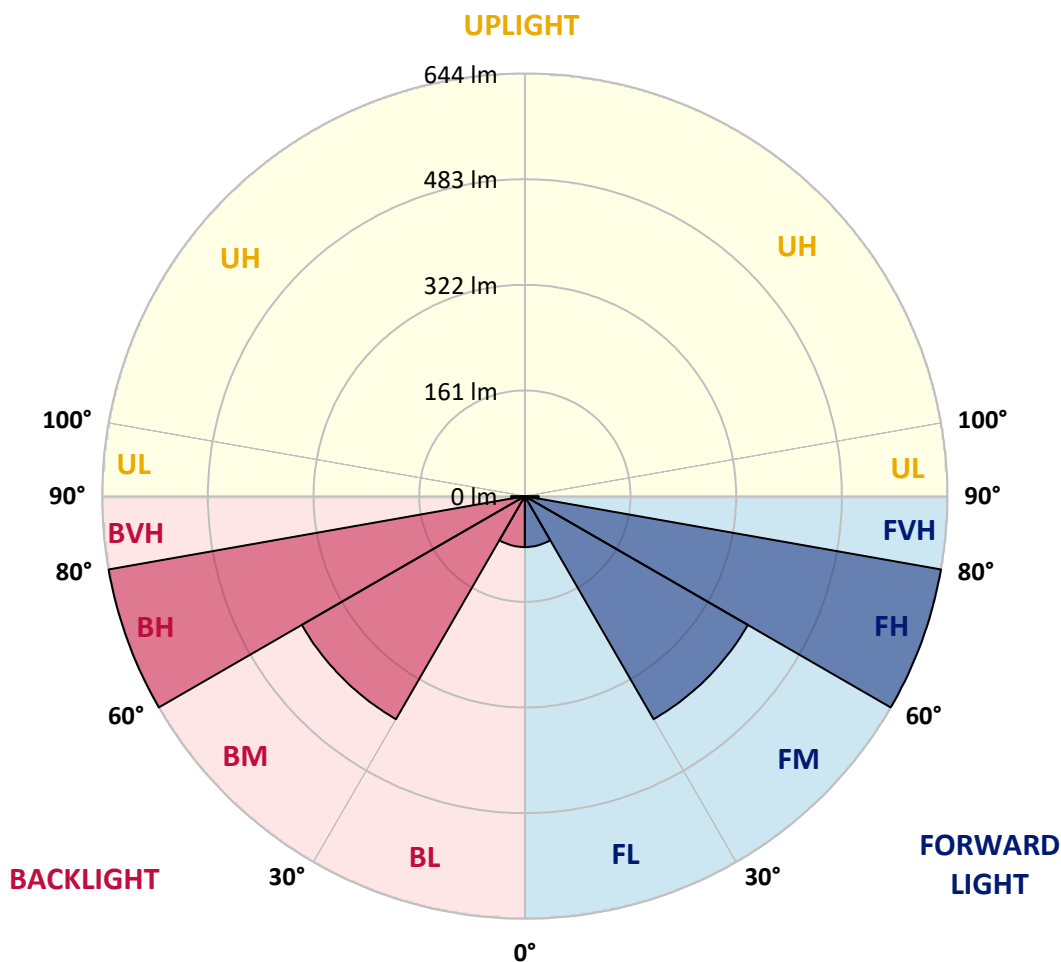
CATALOG NUMBER: ARCH-N-PA1-19-827-24VDC-5WQ

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit		
				B	U	G
FL	(0°-30°)	77.6	3.4			
FM	(30°-60°)	392.5	17.3			
FH	(60°-80°)	643.9	28.4			G0/660
FVH	(80°-90°)	21.0	0.9			G1/100
BL	(0°-30°)	77.6	3.4	B0/110		
BM	(30°-60°)	392.5	17.3	B1/1000		
BH	(60°-80°)	643.9	28.4	B2/1000		G0/660
BVH	(80°-90°)	21.0	0.9			G1/100
UL	(90°-100°)	0.0	0.0		U0/0	
UH	(100°-180°)	0.0	0.0		U0/0	

BUG Rating: B2-U0-G1

Type V Short





REPORT NUMBER: P348730

CATALOG NUMBER: ARCH-N-PA1-19-827-24VDC-5WQ

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	186.8	186.8	186.8	186.8	186.8	186.8	186.8	186.8	186.8	186.8	186.8
2.5°	186.0	186.2	186.0	186.1	185.8	185.9	185.9	185.9	185.8	185.9	185.8
5°	184.3	184.5	184.2	184.3	184.1	184.3	184.4	184.3	184.2	184.3	184.0
7.5°	181.9	182.0	181.8	182.0	181.7	182.1	182.0	181.8	181.6	181.6	181.3
10°	180.5	180.6	180.0	179.8	179.1	179.2	179.5	179.7	179.9	180.4	180.3
12.5°	180.6	180.6	179.7	178.7	177.7	178.0	178.3	179.2	180.1	180.9	181.0
15°	181.3	181.3	179.9	178.3	177.7	178.3	178.6	179.1	180.5	181.9	182.0
17.5°	181.9	181.9	179.8	178.0	177.9	178.9	178.9	179.1	180.7	182.8	182.8
20°	182.8	182.8	180.1	178.2	178.2	179.3	179.4	179.8	181.3	183.7	184.0
22.5°	185.0	185.1	182.2	180.7	180.8	181.5	181.7	182.3	183.7	186.3	186.7
25°	188.1	188.2	185.3	184.4	184.9	186.2	186.1	186.5	188.1	190.6	191.0
27.5°	192.4	192.0	189.3	188.9	189.4	190.4	190.3	190.4	191.6	193.9	194.4
30°	197.9	197.8	195.8	196.1	195.8	195.5	195.6	196.2	196.9	198.7	199.2
32.5°	203.3	203.5	202.3	203.4	205.1	206.2	204.5	202.8	202.1	203.0	203.5
35°	213.1	213.5	211.6	210.8	213.1	216.4	211.5	208.8	210.3	211.6	212.0
37.5°	229.7	229.9	226.8	223.8	222.1	225.3	220.4	220.6	225.9	228.3	228.2
40°	248.6	248.7	246.6	244.0	241.1	241.9	239.9	240.5	244.0	246.1	246.7
42.5°	271.1	270.9	267.6	263.9	263.0	263.8	260.5	260.0	264.0	267.9	268.0
45°	300.4	299.8	295.6	291.4	287.4	285.8	285.0	287.1	292.6	296.2	296.3
47.5°	331.8	330.4	328.1	324.8	321.4	319.7	318.4	319.4	323.4	324.8	325.0
50°	364.2	364.5	364.9	363.7	362.4	361.9	358.3	356.3	357.5	354.9	354.5
52.5°	402.6	403.2	407.5	411.2	413.4	414.5	407.8	400.8	396.9	391.8	390.3
55°	447.8	448.8	455.2	465.4	475.9	481.5	469.4	456.3	444.2	434.7	431.6
57.5°	498.3	500.0	508.8	528.4	550.0	563.1	542.7	518.9	495.6	481.8	479.4
60°	557.5	559.1	571.3	599.4	634.3	654.0	623.1	584.3	555.2	542.1	537.6
62.5°	627.9	628.0	643.0	675.8	721.9	749.4	707.5	655.6	625.6	609.8	605.5
65°	703.7	704.0	719.5	754.9	802.6	832.5	785.2	731.1	694.5	671.1	667.8
67.5°	757.2	758.8	775.1	817.7	862.3	889.3	840.3	779.2	736.8	709.0	706.2
70°	748.6	754.8	773.9	823.7	885.7	924.2	849.3	773.5	717.6	684.7	682.4
72.5°	652.9	664.7	690.2	755.5	854.7	907.7	800.5	692.8	629.5	601.5	597.3
75°	444.6	463.7	502.3	596.5	730.2	785.9	673.9	552.4	492.9	454.1	451.3
77.5°	198.2	202.6	251.4	359.9	503.9	564.4	489.7	361.3	271.2	216.3	204.8
80°	55.3	55.9	74.6	134.0	252.2	331.6	270.8	140.8	79.1	55.8	52.6
82.5°	17.6	19.1	23.3	34.8	84.8	151.3	87.0	37.5	26.7	21.3	19.2
85°	8.6	8.5	11.8	14.1	21.6	33.5	23.1	17.4	15.2	10.1	9.2
87.5°	3.6	3.7	5.5	5.0	6.3	5.4	7.4	7.8	8.2	4.5	3.9
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

STREETWORKS

Report Number: SP1-2101-121-9

Luminaire Tested: IFLD-S-SA2A-827-U-T2

Test Date: 03/05/2021

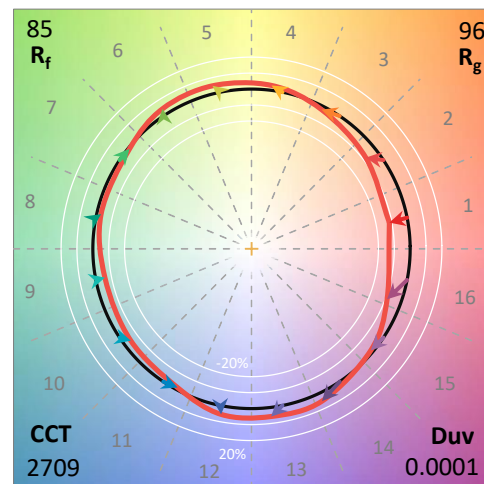
Test Information

Test Method: LM-79-08
 Report Number: SP1-2101-121-9
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1
 Measurement Geometry: 4π
 Issue Date: 03/05/2021
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
 Product Line: STREETWORKS
 Catalog Number: **IFLD-S-SA2A-827-U-T2**
 Description: STREETWORKS INF FLOOD

PROGRAMMED @ 615mA.

Spectral Parameters

CCT (K):	2709	CRI (Ra):	82.1		
CIE u':	0.2620	R1:	80.4	R9:	4.5
CIE v':	0.5273	R2:	91.2	R10:	81.3
Duv:	0.0001	R3:	95.2	R11:	81.0
CIE x:	0.4591	R4:	80.5	R12:	79.0
CIE y:	0.4107	R5:	81.2	R13:	82.9
CIE z:	0.1301	R6:	90.9	R14:	97.9
Peak Wavelength (nm):	606	R7:	81.1		
Dominant Wavelength (nm):	584	R8:	56.0		
Purity:	61.2				
Rf:	85.2				
Rg:	96.4				



Test Conditions

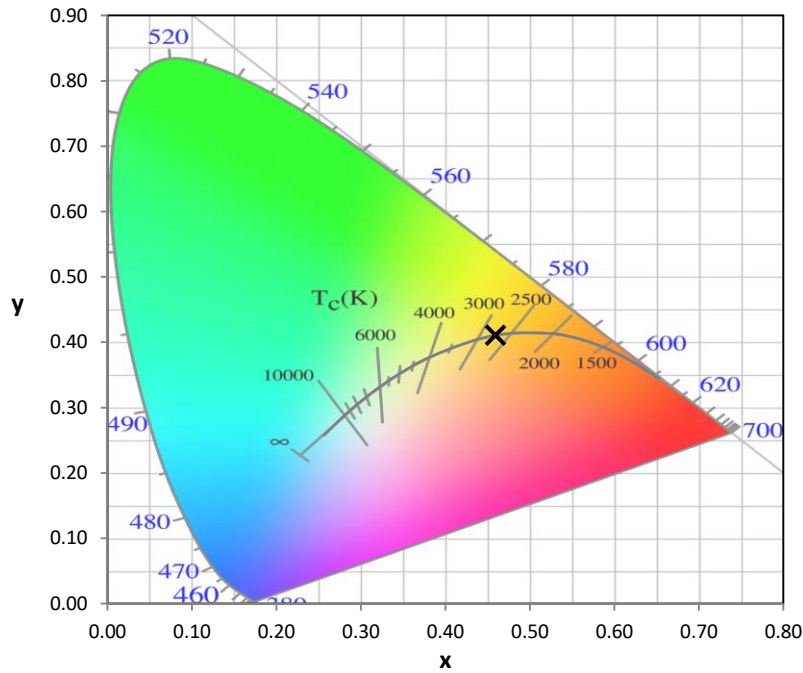
Stabilization Time: 60M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 24.9/31%
 Sphere Temperature (°C): 24.4

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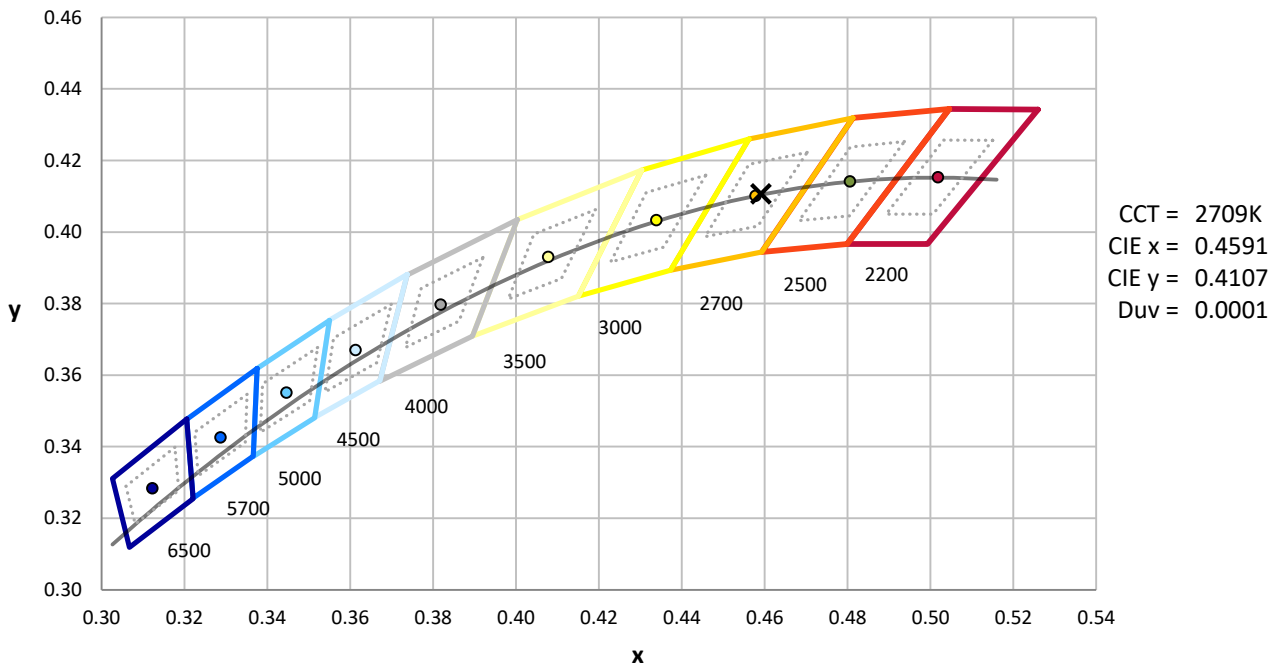
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	IN0058	1/31/2021	7/31/2021
Power Meter	IN0071	12/1/2020	12/1/2021
AC Power Source	IN0063	12/1/2020	12/1/2021
DC Power Source	IN0208	12/1/2020	12/1/2021
Sphere Thermometer	IN0085	12/1/2020	12/1/2021
Room Thermometer	IN0046	12/1/2020	12/1/2021

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CIE 1931 Chromaticity Diagram



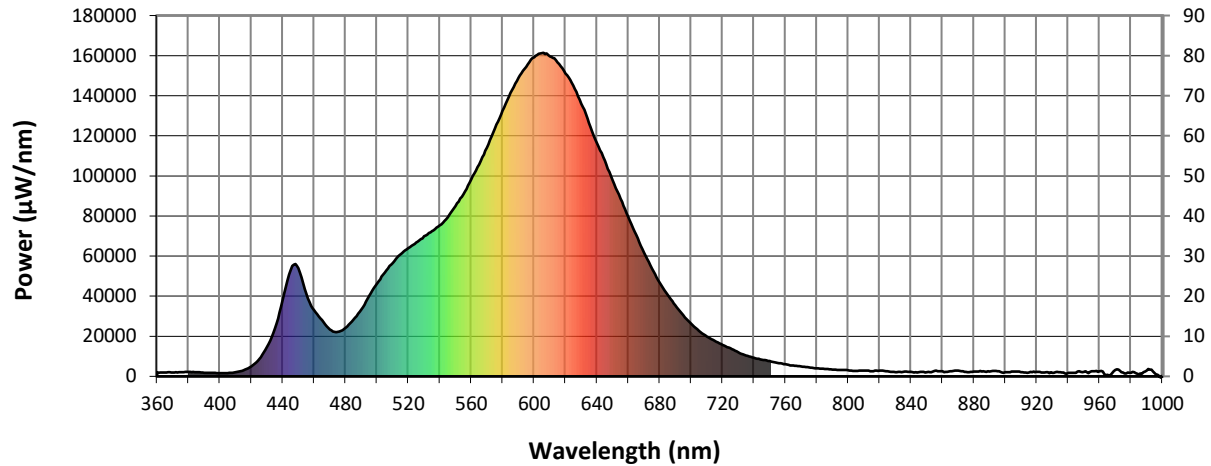
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 2700K 4-step quadrangle

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Photopic Flux vs. Wavelength

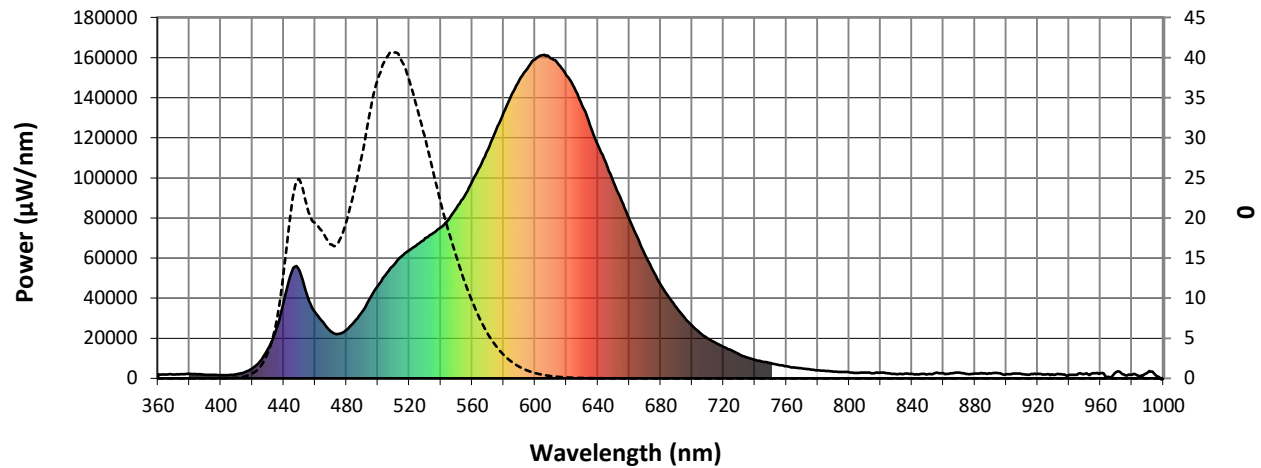


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λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)	λ (nm)	Power (μW/nm)	Lumens (Φ/nm)
360	2013	0.0	490	33356	4.7	620	150993	39.3	750	7593	0.0	880	2373	0.0
365	1908	0.0	495	40031	7.3	625	145077	32.0	755	6765	0.0	885	2481	0.0
370	1889	0.0	500	46287	10.2	630	136072	24.6	760	6000	0.0	890	2394	0.0
375	2095	0.0	505	51783	14.5	635	126417	19.0	765	5393	0.0	895	2574	0.0
380	2228	0.0	510	56588	19.4	640	116412	13.9	770	5030	0.0	900	2048	0.0
385	2074	0.0	515	60751	25.2	645	107525	10.4	775	4491	0.0	905	2381	0.0
390	1820	0.0	520	63966	31.0	650	97857	7.2	780	3943	0.0	910	2017	0.0
395	1728	0.0	525	66683	35.8	655	88582	5.1	785	3682	0.0	915	1904	0.0
400	1557	0.0	530	69869	41.1	660	79462	3.3	790	3402	0.0	920	2254	0.0
405	1644	0.0	535	72510	45.0	665	70606	2.2	795	3156	0.0	925	1998	0.0
410	2044	0.0	540	75299	49.1	670	61774	1.4	800	3062	0.0	930	1776	0.0
415	3009	0.0	545	79297	52.8	675	53771	0.9	805	2712	0.0	935	2086	0.0
420	4992	0.0	550	84946	57.7	680	46786	0.5	810	2896	0.0	940	1766	0.0
425	8631	0.0	555	90790	62.0	685	40747	0.4	815	2605	0.0	945	1738	0.0
430	14680	0.1	560	98231	66.8	690	35400	0.2	820	2901	0.0	950	2303	0.0
435	23899	0.3	565	105738	70.3	695	30445	0.1	825	2541	0.0	955	2567	0.0
440	38159	0.6	570	114034	74.1	700	26278	0.1	830	2014	0.0	960	2492	0.0
445	53061	1.1	575	123632	76.9	705	22703	0.0	835	2258	0.0	965	810	0.0
450	53893	1.4	580	132443	78.7	710	19853	0.0	840	2203	0.0	970	3201	0.0
455	41221	1.4	585	141502	78.6	715	17730	0.0	845	2073	0.0	975	1858	0.0
460	32969	1.4	590	148917	77.0	720	15616	0.0	850	2096	0.0	980	1769	0.0
465	28048	1.4	595	154326	73.2	725	13986	0.0	855	2751	0.0	985	1043	0.0
470	23347	1.5	600	159208	68.6	730	12029	0.0	860	2501	0.0	990	2950	0.0
475	22136	1.7	605	161290	62.5	735	10461	0.0	865	2512	0.0	995	1643	0.0
480	24192	2.3	610	159549	54.8	740	9230	0.0	870	2913	0.0	1000	292	0.0
485	28231	3.3	615	156663	47.3	745	8376	0.0	875	2299	0.0			

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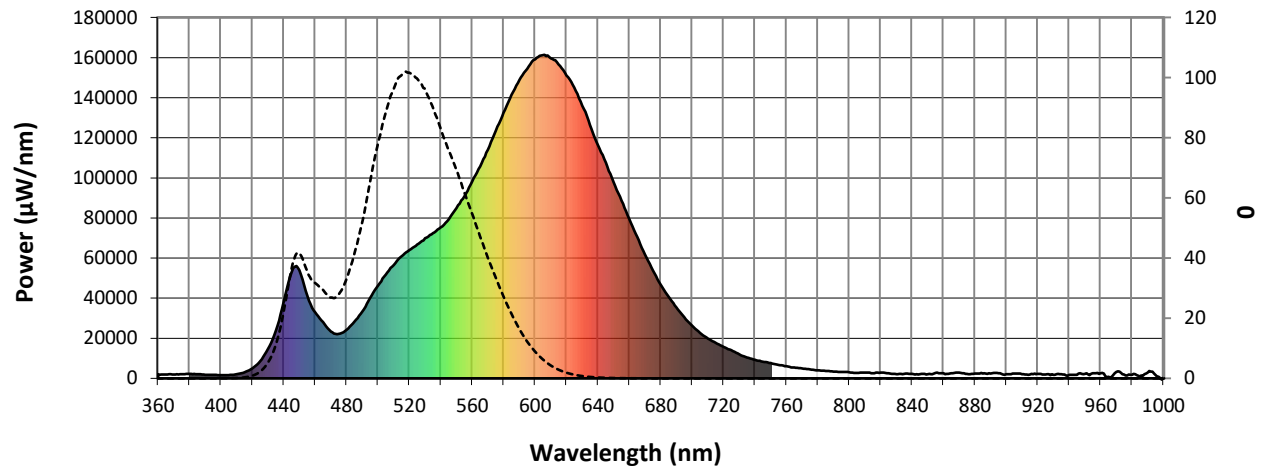
Scotopic Flux vs. Wavelength


Scotopic Lumens: 8911.3
S/P: 1.22

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	2013	0.0	490	33356	51.4	620	150993	1.9	750	7593	0.0	880	2373	0.0
365	1908	0.0	495	40031	64.7	625	145077	1.2	755	6765	0.0	885	2481	0.0
370	1889	0.0	500	46287	77.4	630	136072	0.8	760	6000	0.0	890	2394	0.0
375	2095	0.0	505	51783	88.0	635	126417	0.5	765	5393	0.0	895	2574	0.0
380	2228	0.0	510	56588	95.9	640	116412	0.3	770	5030	0.0	900	2048	0.0
385	2074	0.0	515	60751	100.7	645	107525	0.2	775	4491	0.0	905	2381	0.0
390	1820	0.0	520	63966	101.7	650	97857	0.1	780	3943	0.0	910	2017	0.0
395	1728	0.0	525	66683	99.8	655	88582	0.1	785	3682	0.0	915	1904	0.0
400	1557	0.0	530	69869	96.3	660	79462	0.0	790	3402	0.0	920	2254	0.0
405	1644	0.1	535	72510	90.4	665	70606	0.0	795	3156	0.0	925	1998	0.0
410	2044	0.1	540	75299	83.2	670	61774	0.0	800	3062	0.0	930	1776	0.0
415	3009	0.3	545	79297	76.0	675	53771	0.0	805	2712	0.0	935	2086	0.0
420	4992	0.8	550	84946	69.5	680	46786	0.0	810	2896	0.0	940	1766	0.0
425	8631	2.1	555	90790	62.0	685	40747	0.0	815	2605	0.0	945	1738	0.0
430	14680	5.0	560	98231	54.9	690	35400	0.0	820	2901	0.0	950	2303	0.0
435	23899	10.7	565	105738	47.4	695	30445	0.0	825	2541	0.0	955	2567	0.0
440	38159	21.3	570	114034	40.2	700	26278	0.0	830	2014	0.0	960	2492	0.0
445	53061	35.5	575	123632	33.7	705	22703	0.0	835	2258	0.0	965	810	0.0
450	53893	41.8	580	132443	27.3	710	19853	0.0	840	2203	0.0	970	3201	0.0
455	41221	36.0	585	141502	21.6	715	17730	0.0	845	2073	0.0	975	1858	0.0
460	32969	31.8	590	148917	16.6	720	15616	0.0	850	2096	0.0	980	1769	0.0
465	28048	29.6	595	154326	12.3	725	13986	0.0	855	2751	0.0	985	1043	0.0
470	23347	26.9	600	159208	9.0	730	12029	0.0	860	2501	0.0	990	2950	0.0
475	22136	27.7	605	161290	6.3	735	10461	0.0	865	2512	0.0	995	1643	0.0
480	24192	32.7	610	159549	4.3	740	9230	0.0	870	2913	0.0	1000	292	0.0
485	28231	40.9	615	156663	2.9	745	8376	0.0	875	2299	0.0			

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Melanopic Flux vs. Wavelength


Melanopic Lumens: 3277.6
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	2013	0.0	490	33356	27.8	620	150993	0.1	750	7593	0.0	880	2373	0.0
365	1908	0.0	495	40031	33.0	625	145077	0.1	755	6765	0.0	885	2481	0.0
370	1889	0.0	500	46287	37.2	630	136072	0.0	760	6000	0.0	890	2394	0.0
375	2095	0.0	505	51783	39.7	635	126417	0.0	765	5393	0.0	895	2574	0.0
380	2228	0.0	510	56588	40.6	640	116412	0.0	770	5030	0.0	900	2048	0.0
385	2074	0.0	515	60751	39.7	645	107525	0.0	775	4491	0.0	905	2381	0.0
390	1820	0.0	520	63966	37.2	650	97857	0.0	780	3943	0.0	910	2017	0.0
395	1728	0.0	525	66683	33.8	655	88582	0.0	785	3682	0.0	915	1904	0.0
400	1557	0.0	530	69869	30.2	660	79462	0.0	790	3402	0.0	920	2254	0.0
405	1644	0.0	535	72510	26.1	665	70606	0.0	795	3156	0.0	925	1998	0.0
410	2044	0.1	540	75299	22.0	670	61774	0.0	800	3062	0.0	930	1776	0.0
415	3009	0.2	545	79297	18.4	675	53771	0.0	805	2712	0.0	935	2086	0.0
420	4992	0.6	550	84946	15.2	680	46786	0.0	810	2896	0.0	940	1766	0.0
425	8631	1.3	555	90790	12.2	685	40747	0.0	815	2605	0.0	945	1738	0.0
430	14680	3.1	560	98231	9.7	690	35400	0.0	820	2901	0.0	950	2303	0.0
435	23899	6.4	565	105738	7.4	695	30445	0.0	825	2541	0.0	955	2567	0.0
440	38159	12.8	570	114034	5.6	700	26278	0.0	830	2014	0.0	960	2492	0.0
445	53061	20.9	575	123632	4.1	705	22703	0.0	835	2258	0.0	965	810	0.0
450	53893	24.8	580	132443	3.0	710	19853	0.0	840	2203	0.0	970	3201	0.0
455	41221	21.6	585	141502	2.1	715	17730	0.0	845	2073	0.0	975	1858	0.0
460	32969	19.4	590	148917	1.5	720	15616	0.0	850	2096	0.0	980	1769	0.0
465	28048	18.3	595	154326	1.0	725	13986	0.0	855	2751	0.0	985	1043	0.0
470	23347	16.7	600	159208	0.7	730	12029	0.0	860	2501	0.0	990	2950	0.0
475	22136	16.9	605	161290	0.4	735	10461	0.0	865	2512	0.0	995	1643	0.0
480	24192	19.4	610	159549	0.3	740	9230	0.0	870	2913	0.0	1000	292	0.0
485	28231	23.3	615	156663	0.2	745	8376	0.0	875	2299	0.0			

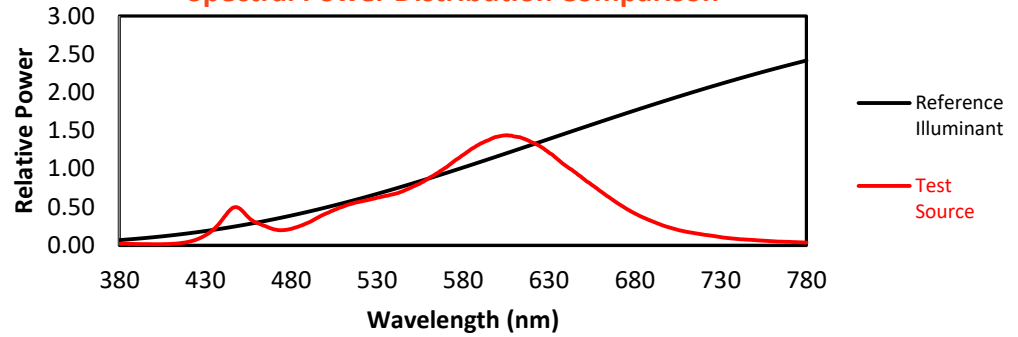
REPORT NUMBER: SP1-2101-121-9

TM-30-18

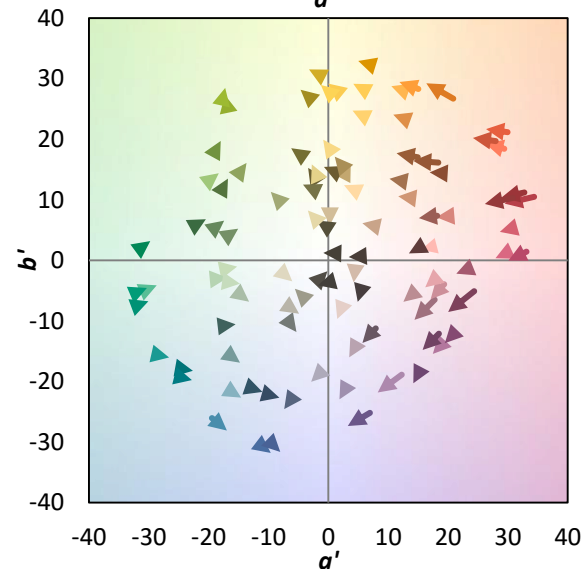
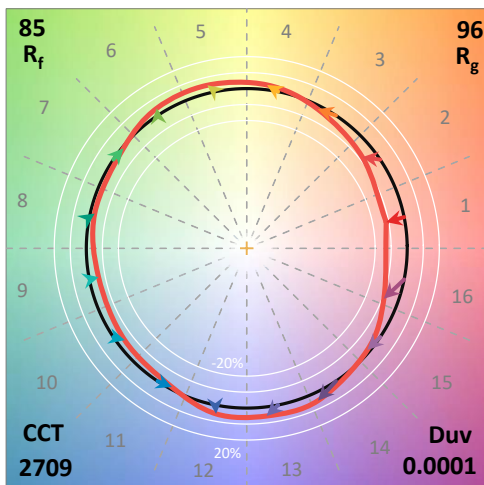
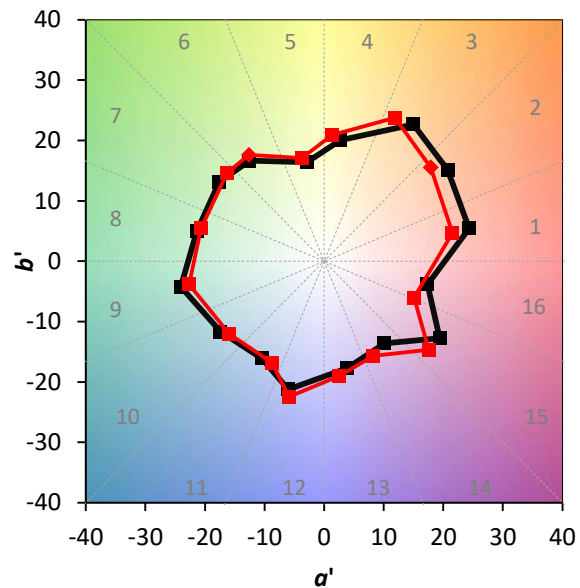
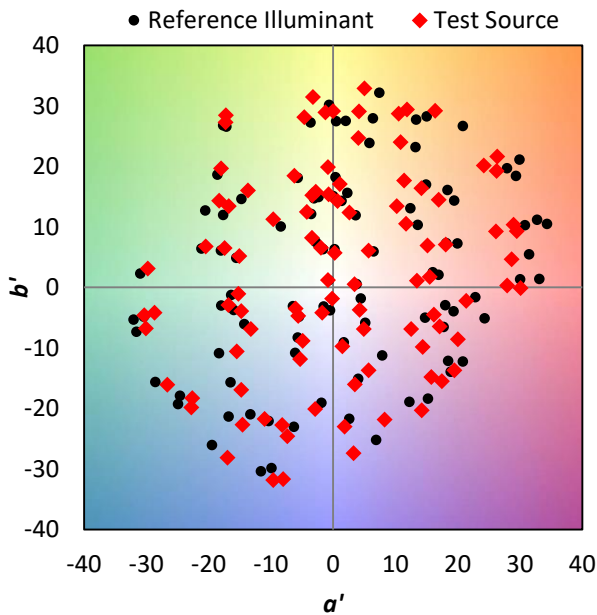
Summary

$R_f = 85.2$
 $R_g = 96.4$
 CIE $R_a = 82.1$
 $R_g = 4.5$

Spectral Power Distribution Comparison

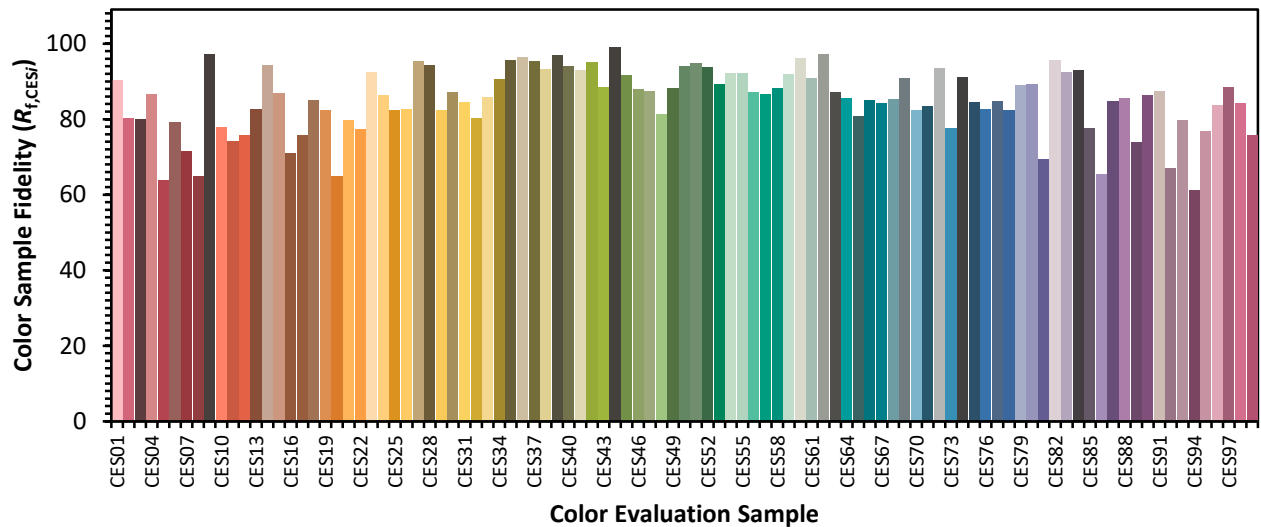


Color Vector Graphics

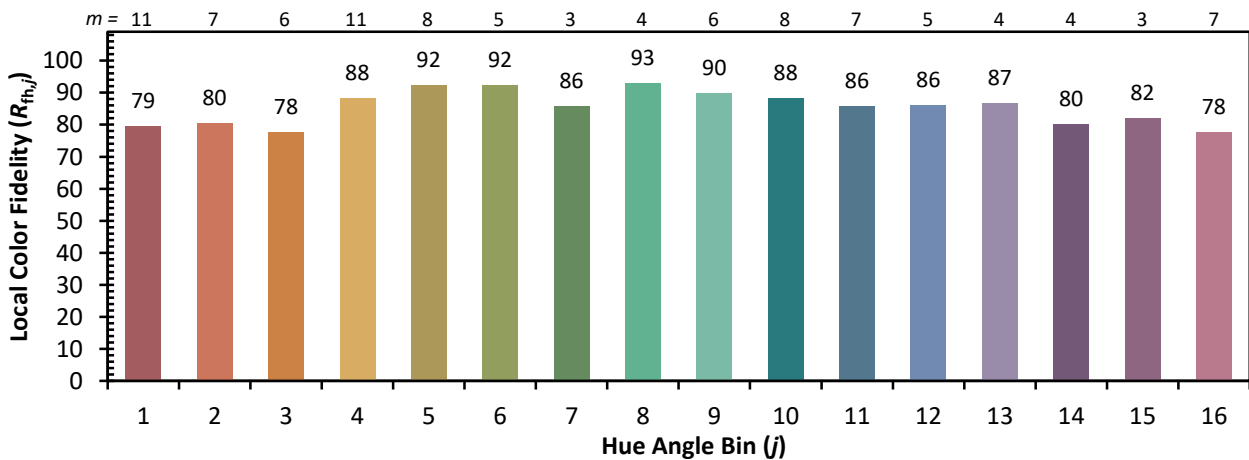
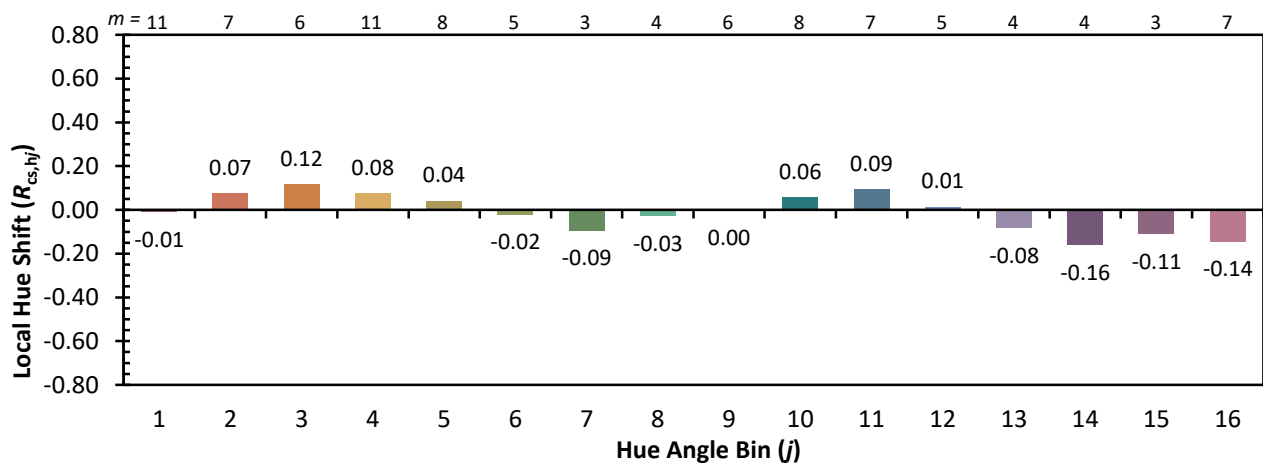
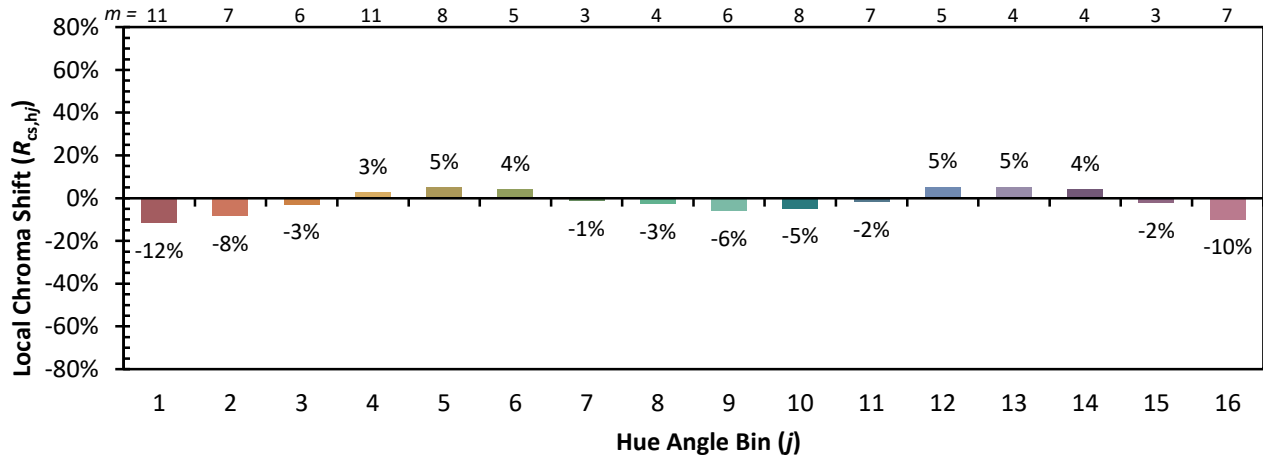


Individual Sample Fidelity Index ($R_{f,i}$)

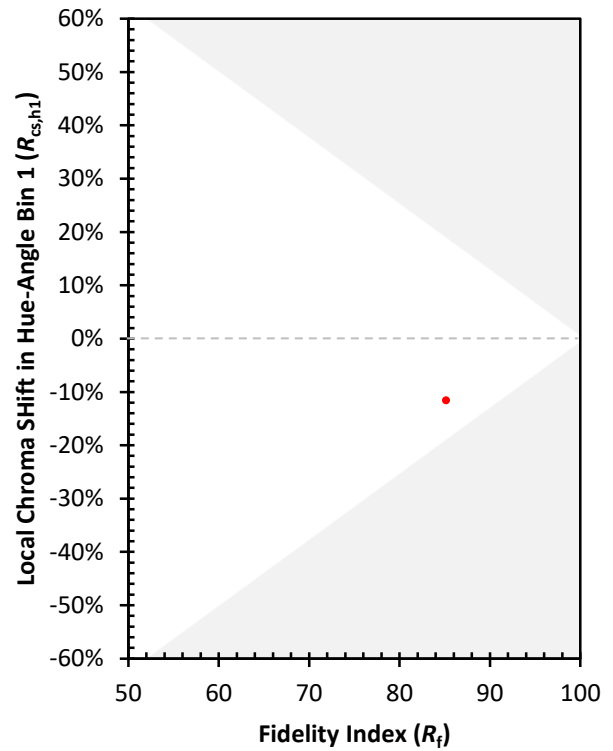
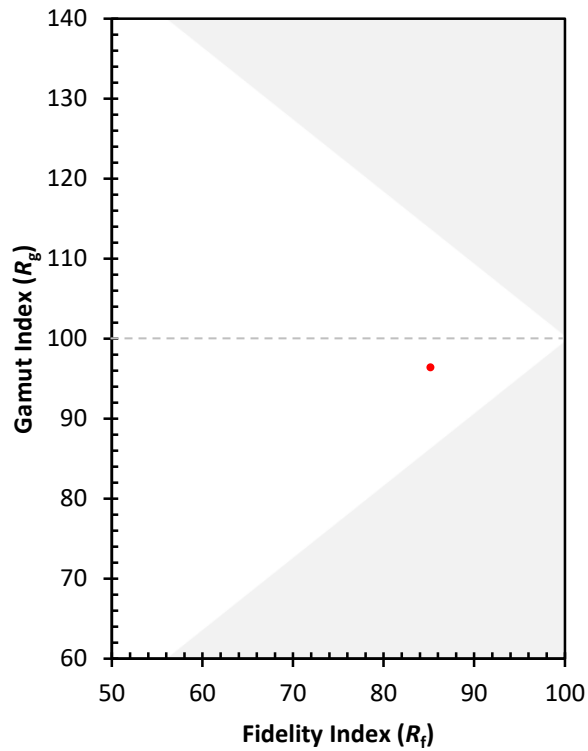
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CES02 = 64	CES27 = 95	CES52 = 94	CES77 = 85
CES03 = 31	CES28 = 94	CES53 = 89	CES78 = 82
CES04 = 71	CES29 = 82	CES54 = 92	CES79 = 89
CES05 = 50	CES30 = 87	CES55 = 92	CES80 = 89
CES06 = 52	CES31 = 85	CES56 = 87	CES81 = 69
CES07 = 43	CES32 = 80	CES57 = 87	CES82 = 96
CES08 = 42	CES33 = 86	CES58 = 88	CES83 = 93
CES09 = 29	CES34 = 91	CES59 = 92	CES84 = 93
CES10 = 77	CES35 = 96	CES60 = 96	CES85 = 78
CES11 = 60	CES36 = 96	CES61 = 91	CES86 = 65
CES12 = 66	CES37 = 95	CES62 = 97	CES87 = 85
CES13 = 44	CES38 = 93	CES63 = 87	CES88 = 86
CES14 = 74	CES39 = 97	CES64 = 86	CES89 = 74
CES15 = 72	CES40 = 94	CES65 = 81	CES90 = 86
CES16 = 48	CES41 = 93	CES66 = 85	CES91 = 87
CES17 = 50	CES42 = 95	CES67 = 84	CES92 = 67
CES18 = 57	CES43 = 88	CES68 = 85	CES93 = 80
CES19 = 73	CES44 = 99	CES69 = 91	CES94 = 61
CES20 = 67	CES45 = 92	CES70 = 82	CES95 = 77
CES21 = 87	CES46 = 88	CES71 = 83	CES96 = 84
CES22 = 79	CES47 = 88	CES72 = 93	CES97 = 88
CES23 = 92	CES48 = 81	CES73 = 78	CES98 = 84
CES24 = 91	CES49 = 88	CES74 = 91	CES99 = 76
CES25 = 72	CES50 = 94	CES75 = 85	



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)