

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: INVUE

Report Number: P553677

Luminaire Tested: **ARB-B4-LED-D1-T5-8030**

Issue Date: 7/12/2021

Test Information

Test Method: LM-79-08
Report Number: P553677
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P34659)
Test Lab: INNOVATION CENTER
Issue Date: 7/12/2021
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: INVUE
Catalog Number: ARB-B4-LED-D1-T5-8030
Description: ARBOR OUTDOOR ARCHITECTURAL POST TOP
80 CRI, 3000K LEDS AND TYPE V OPTIC
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 7904 lumens
Efficiency: N/A
Efficacy: 82.3 lumens/watt
Luminous Opening: Circular (Dia: 1.62' x H: 0')
IES Classification: Type V - Short
BUG Rating: B3 - U0 - G3

Input Watts (W): 96
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: 24 FT

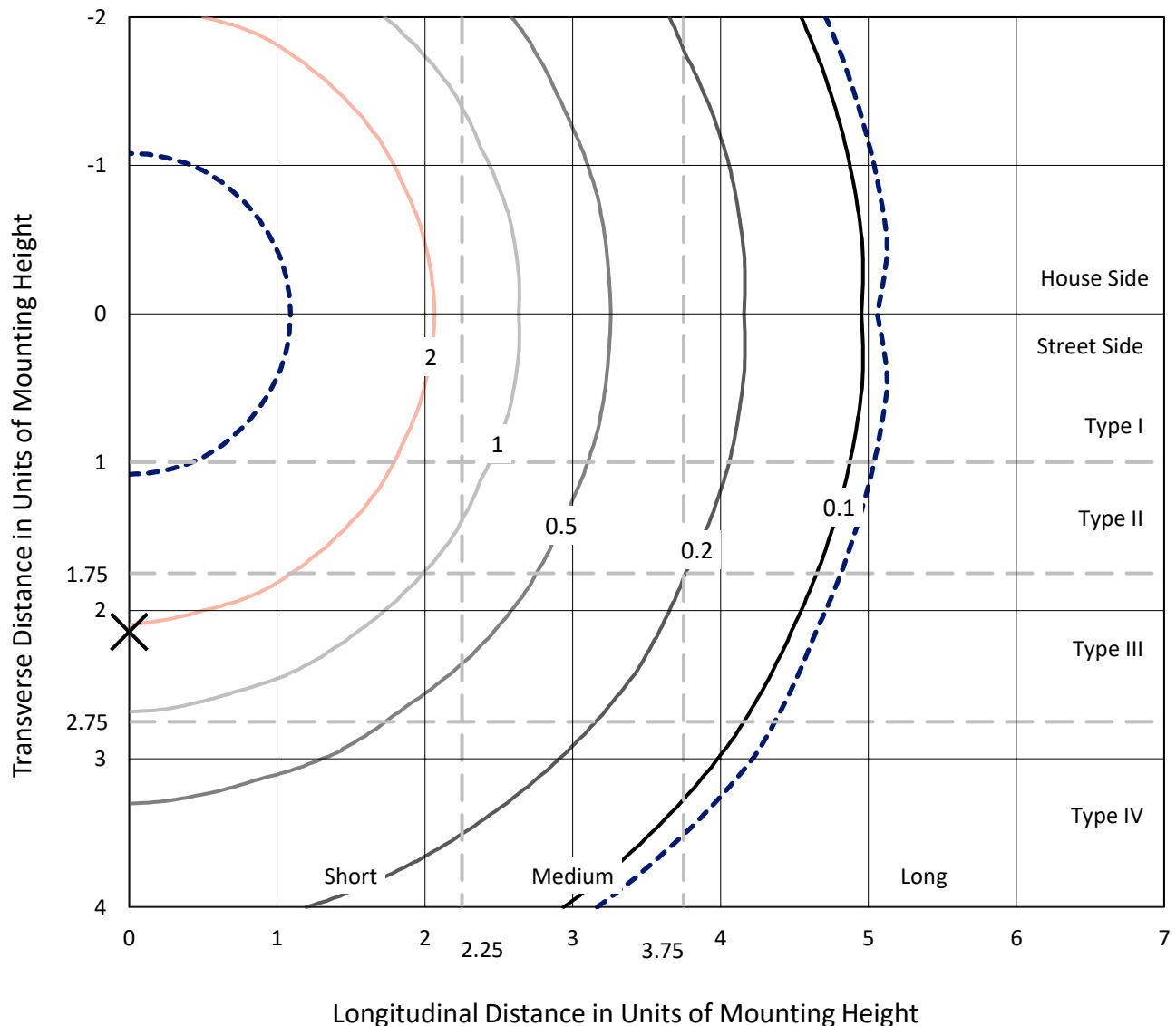


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CATALOG NUMBER: ARB-B4-LED-D1-T5-8030

Iso-Footcandle Lines of Horizontal Illumination

× Max cd
 - - - 1/2 Max cd

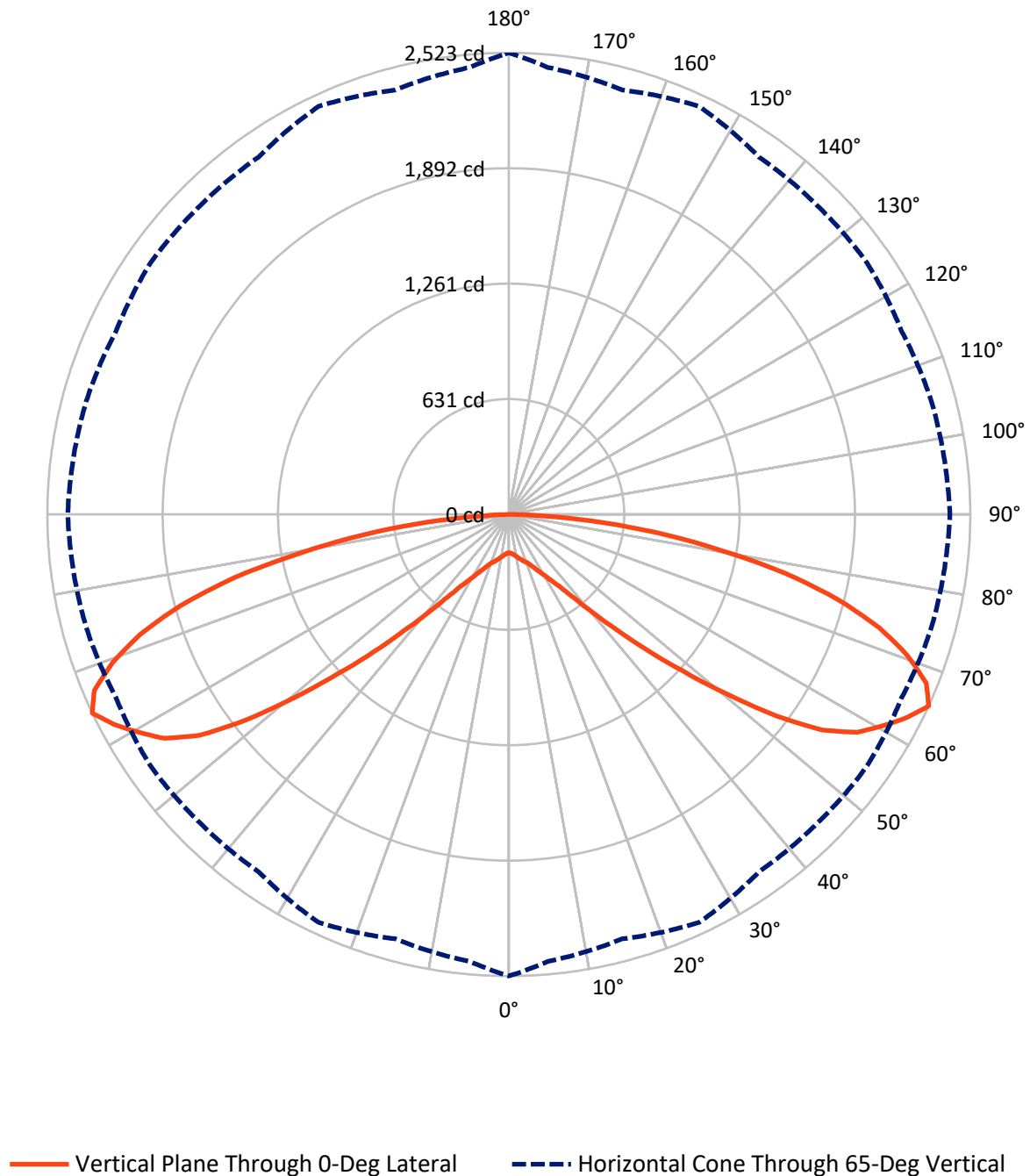


Based on 10 foot mounting height. Maximum calculated value = 4.1 fc
 Type V - Short - N/A

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CATALOG NUMBER: ARB-B4-LED-D1-T5-8030

Luminous Intensity Polar Plot



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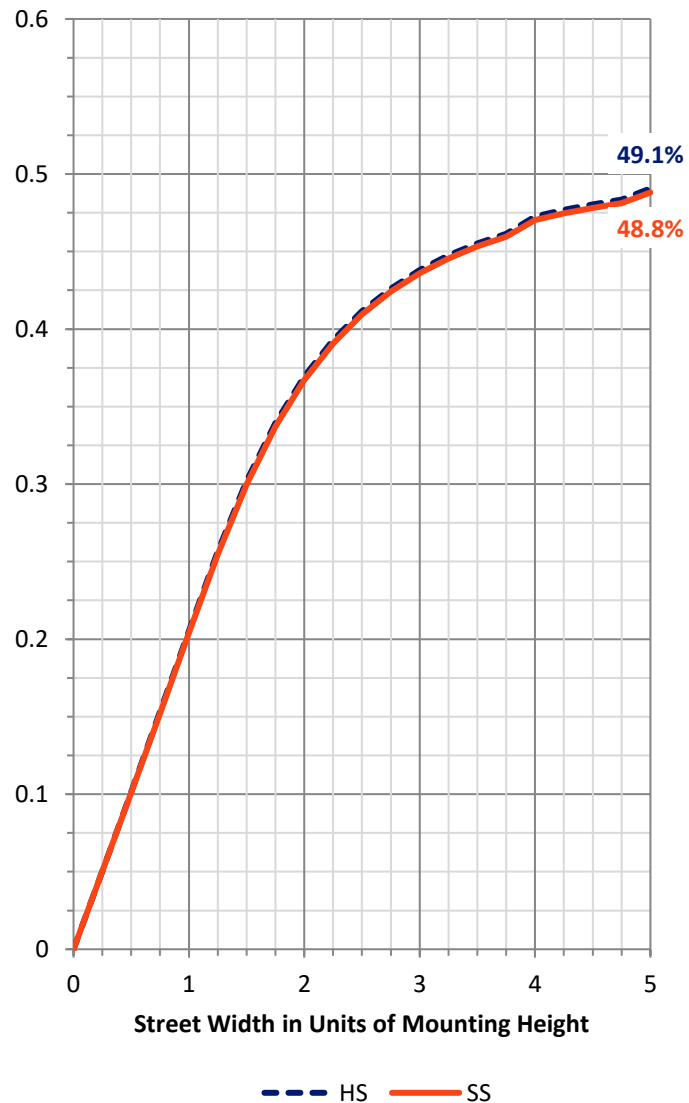
FLUX DISTRIBUTION:

		Downward	Upward	Total
House Side	Lumens	3952.0	0.0	3952.0
	% Fixture	50.0	0.0	50.0
Street Side	Lumens	3952.0	0.0	3952.0
	% Fixture	50.0	0.0	50.0
Total	Lumens	7904.0	0.0	7904.0
	% Fixture	100.0	0.0	100.0

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	21.2	0.3
10°-20°	72.7	0.9
20°-30°	149.8	1.9
30°-40°	323.6	4.1
40°-50°	834.7	10.6
50°-60°	1800.9	22.8
60°-70°	2341.8	29.6
70°-80°	1835.3	23.2
80°-90°	523.9	6.6
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°	7904.0	100.0
0°-180°	7904.0	100.0

Coefficient of Utilization



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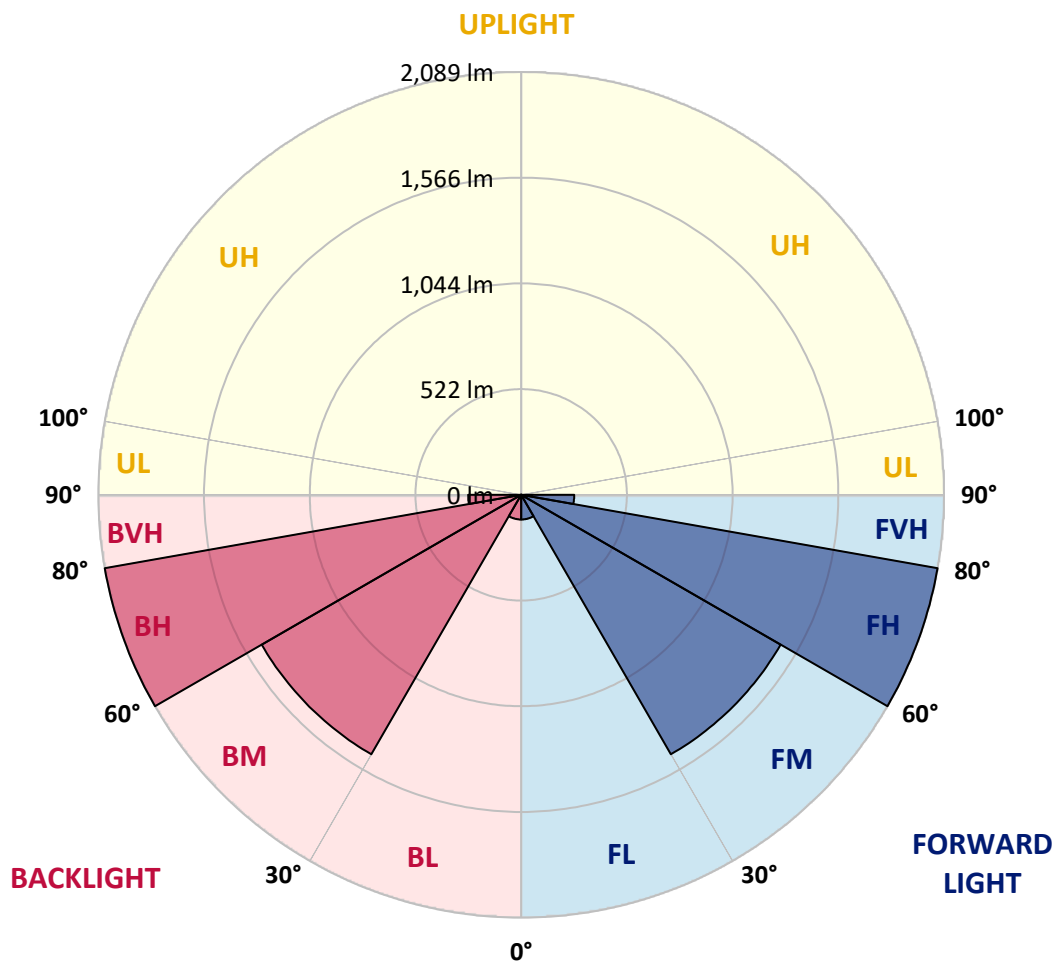
CATALOG NUMBER: ARB-B4-LED-D1-T5-8030

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

Zone		Lumens	% Fixture	Zone Rating/Lumen Limit		
				B	U	G
FL	(0°-30°)	121.9	1.5			
FM	(30°-60°)	1479.6	18.7			
FH	(60°-80°)	2088.5	26.4			G2/5000
FVH	(80°-90°)	262.0	3.3			G3/500
BL	(0°-30°)	121.9	1.5	B1/500		
BM	(30°-60°)	1479.6	18.7	B2/2500		
BH	(60°-80°)	2088.5	26.4	B3/2500		G2/5000
BVH	(80°-90°)	262.0	3.3			G3/500
UL	(90°-100°)	0.0	0.0		U0/0	
UH	(100°-180°)	0.0	0.0		U0/0	

BUG Rating: B3-U0-G3

Type V Short



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CATALOG NUMBER: ARB-B4-LED-D1-T5-8030

CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	209.8	209.8	209.8	209.8	209.8	209.8	209.8	209.8	209.8	209.8	209.8
2.5°	211.5	211.5	211.5	211.5	211.5	211.5	211.5	211.5	211.5	211.5	211.5
5°	217.4	217.4	217.4	217.4	217.4	217.4	216.5	216.5	216.5	216.5	216.5
7.5°	224.9	224.9	224.9	224.9	224.9	224.1	224.1	224.1	224.1	224.1	224.1
10°	234.1	234.1	234.1	234.1	234.1	233.3	233.3	233.3	232.5	233.3	233.3
12.5°	245.1	244.2	244.2	244.2	243.4	243.4	242.5	241.7	241.7	241.7	242.5
15°	256.8	256.0	255.1	255.1	254.3	254.3	253.4	252.6	251.8	252.6	252.6
17.5°	269.4	269.4	267.7	266.0	267.7	267.7	266.9	264.4	262.7	262.7	262.7
20°	279.5	278.6	274.4	276.1	277.8	279.5	277.8	271.9	268.6	271.1	271.9
22.5°	298.8	298.8	293.7	293.7	297.9	300.4	295.4	290.4	286.2	288.7	289.5
25°	323.1	323.9	318.1	315.6	320.6	323.9	320.6	311.4	308.0	310.5	311.4
27.5°	352.5	351.6	345.8	342.4	347.4	352.5	349.1	339.9	334.0	335.7	335.7
30°	388.6	388.6	381.0	376.8	383.5	386.9	385.2	374.3	369.3	366.7	367.6
32.5°	433.0	432.2	426.3	425.5	429.7	432.2	428.0	417.9	413.7	414.6	416.3
35°	489.3	491.8	493.5	493.5	495.1	501.0	490.1	480.0	483.4	480.9	480.0
37.5°	578.2	578.2	585.8	590.8	594.2	589.1	575.7	574.9	575.7	580.7	577.4
40°	699.9	696.6	700.8	708.3	705.0	702.4	702.4	689.8	691.5	689.8	694.0
42.5°	852.7	855.2	849.3	856.0	846.8	845.9	854.3	850.1	835.0	839.2	831.7
45°	1049.9	1052.4	1048.2	1038.1	1041.5	1050.7	1046.5	1048.2	1032.3	1027.2	1033.1
47.5°	1275.6	1274.8	1275.6	1260.5	1266.4	1270.6	1274.8	1262.2	1248.8	1253.8	1254.7
50°	1539.2	1529.9	1529.9	1505.6	1530.8	1530.8	1519.0	1524.0	1506.4	1516.5	1515.7
52.5°	1827.0	1827.0	1837.1	1793.4	1823.7	1811.9	1800.2	1803.5	1790.1	1802.7	1812.7
55°	2080.5	2073.7	2074.6	2044.4	2077.1	2057.8	2034.3	2045.2	2034.3	2055.3	2066.2
57.5°	2245.8	2240.8	2224.8	2220.6	2223.1	2214.7	2182.0	2186.2	2196.3	2225.6	2220.6
60°	2346.5	2360.8	2323.8	2321.3	2328.9	2333.1	2297.8	2268.4	2307.9	2333.1	2322.2
62.5°	2443.8	2446.4	2402.7	2405.2	2420.3	2379.2	2391.8	2350.7	2385.9	2392.7	2412.0
65°	2522.7	2452.2	2401.0	2460.6	2384.3	2385.9	2392.7	2369.2	2391.0	2402.7	2411.1
67.5°	2460.6	2407.8	2333.9	2376.7	2335.6	2377.5	2375.0	2286.9	2354.9	2369.2	2323.0
70°	2312.1	2313.8	2232.4	2255.9	2212.2	2207.2	2244.9	2184.5	2239.9	2229.0	2199.6
72.5°	2117.4	2102.3	2022.6	2068.7	1980.6	2026.7	2044.4	2000.7	2034.3	2012.5	2025.9
75°	1858.9	1816.1	1758.2	1767.4	1753.2	1805.2	1809.4	1724.6	1776.7	1763.2	1753.2
77.5°	1545.0	1509.8	1475.4	1451.9	1451.0	1450.2	1479.6	1430.9	1466.1	1472.9	1430.9
80°	1159.0	1162.3	1137.2	1145.6	1101.9	1122.1	1126.3	1130.4	1111.1	1118.7	1102.8
82.5°	808.2	804.8	791.4	777.1	789.7	814.1	798.9	783.8	772.9	787.2	798.9
85°	449.8	454.9	449.8	439.8	461.6	444.8	447.3	434.7	438.9	431.4	432.2
87.5°	126.7	133.4	130.1	127.6	125.0	120.8	141.0	126.7	115.8	120.0	120.8
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Signify Classified - Internal
Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



LM-79-2019: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

INVUE

Report Number: SP1-2205-670-1

Test Date: 07/01/2022

Luminaire Tested: LXS-VA1-830-U-SYM-A

Data in this report applies to families of products including LXS-VA1-830.

Test Information

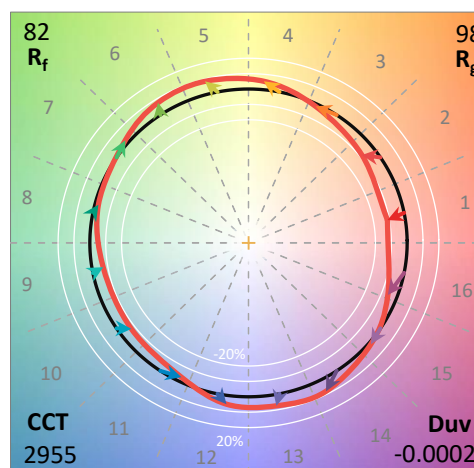
Test Method: LM-79-2019
 Report Number: SP1-2205-670-1
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 07/01/2022
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
 Product Line: INVUE
 Catalog Number: **LXS-VA1-830-U-SYM-A**
 Description: INVUE LUXESCAPE

ARM MOUNT

Spectral Parameters

CCT (K): 2955
 CIE u' : 0.2522
 CIE v' : 0.5220
 Duv: -0.0002
 CIE x: 0.4398
 CIE y: 0.4045
 CIE z: 0.1557
 Peak Wavelength (nm): 605
 Dominant Wavelength (nm): 583
 Purity: 53.5
 R_f: 82.5
 R_g: 98.4

CRI (Ra): 81.3
 R1: 79.3
 R2: 88.2
 R3: 96.0
 R4: 80.3
 R5: 79.3
 R6: 85.2
 R7: 83.2
 R8: 59.1
 R9: 5.7
 R10: 73.5
 R11: 79.8
 R12: 68.8
 R13: 81.0
 R14: 97.8



Test Conditions

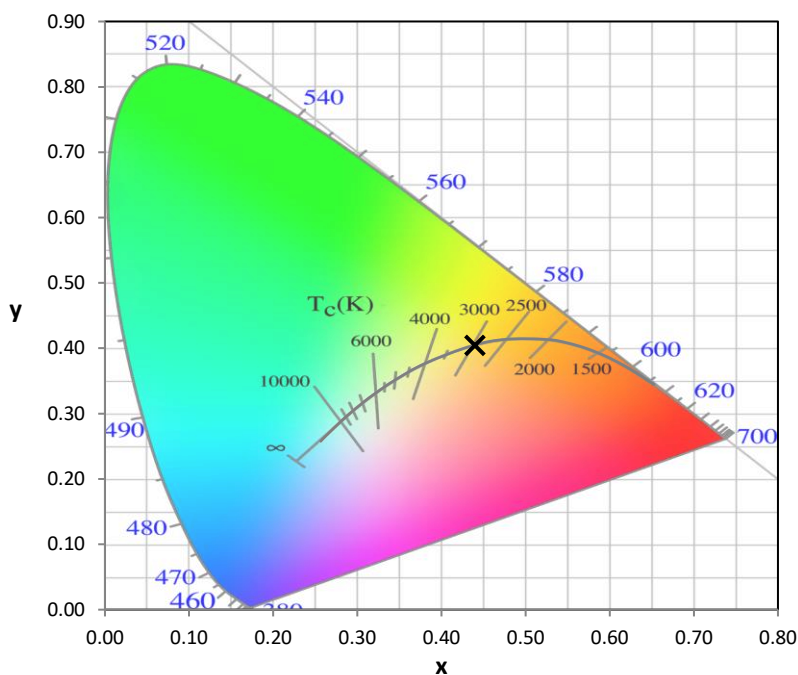
Stabilization Time: 104M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 25.2/57%
 Sphere Temperature (°C): 25.3

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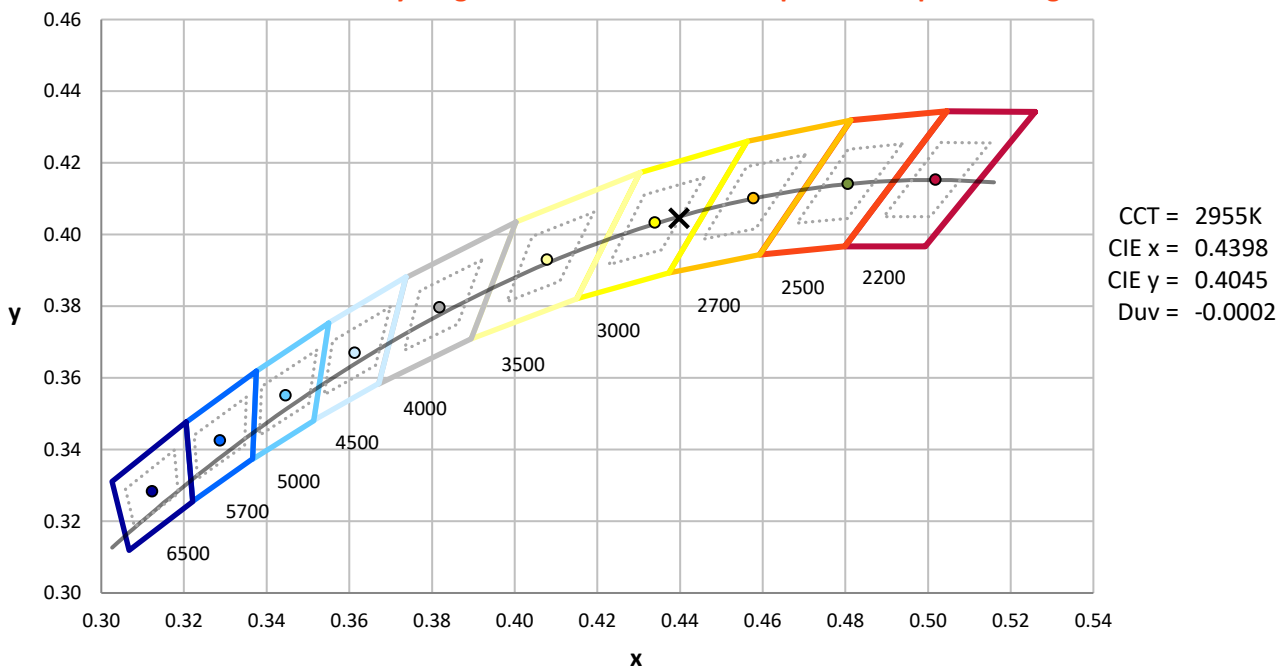
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	76INCH SPHERE IN0058	2/7/2022	8/7/2022
Power Meter	XITRON 2801 IN0071	11/29/2021	11/29/2022
AC Power Source	CHROMA 61603 IN0063	11/29/2021	11/29/2022
DC Power Source	AGILENT E3634A IN0208	11/29/2021	11/29/2022
Sphere Thermometer	ONSET IN0085	11/29/2021	11/29/2022
Room Thermometer	ONSET IN0046	11/29/2021	11/29/2022

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CIE 1931 Chromaticity Diagram



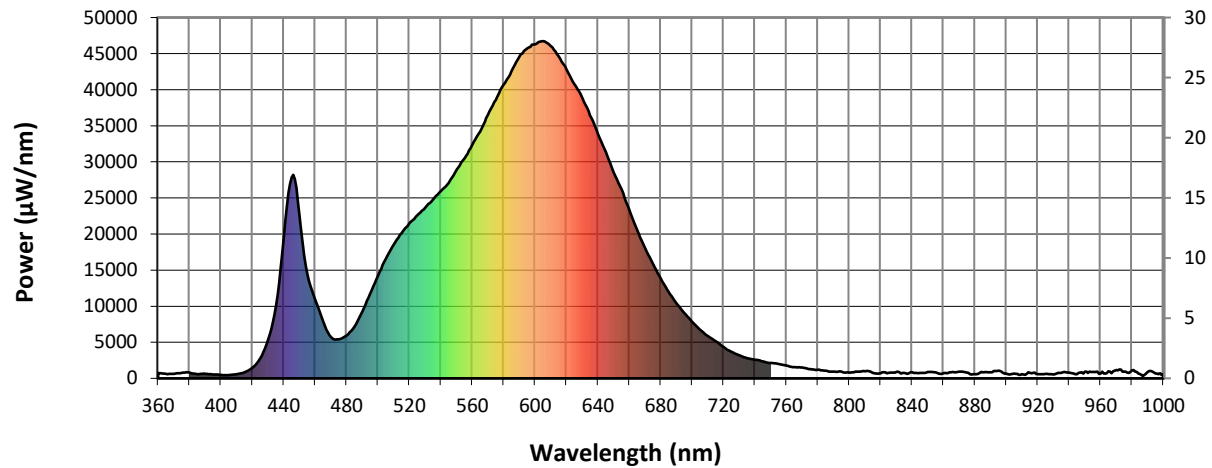
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 3000K 4-step quadrangle

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Photopic Flux vs. Wavelength

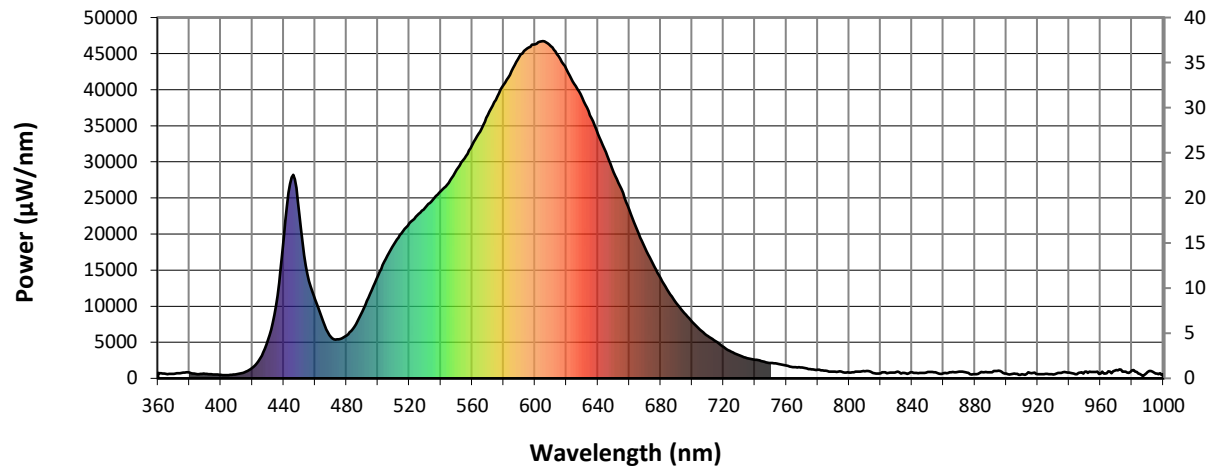


#####

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	740	NR	490	9278	NR	620	42777	NR	750	2144	NR	880	577	NR
365	627	NR	495	11708	NR	625	40790	NR	755	2003	NR	885	848	NR
370	626	NR	500	14248	NR	630	38895	NR	760	1768	NR	890	838	NR
375	772	NR	505	16542	NR	635	36467	NR	765	1569	NR	895	1055	NR
380	791	NR	510	18514	NR	640	33899	NR	770	1528	NR	900	662	NR
385	599	NR	515	20102	NR	645	31336	NR	775	1287	NR	905	649	NR
390	620	NR	520	21504	NR	650	28564	NR	780	1185	NR	910	581	NR
395	551	NR	525	22584	NR	655	26203	NR	785	1067	NR	915	767	NR
400	480	NR	530	23647	NR	660	23363	NR	790	937	NR	920	567	NR
405	459	NR	535	24784	NR	665	20547	NR	795	912	NR	925	634	NR
410	591	NR	540	25934	NR	670	18098	NR	800	802	NR	930	524	NR
415	823	NR	545	27109	NR	675	15862	NR	805	919	NR	935	766	NR
420	1453	NR	550	28875	NR	680	13865	NR	810	988	NR	940	813	NR
425	2788	NR	555	30443	NR	685	11968	NR	815	766	NR	945	565	NR
430	5302	NR	560	32312	NR	690	10419	NR	820	696	NR	950	945	NR
435	10028	NR	565	34204	NR	695	9053	NR	825	763	NR	955	899	NR
440	19314	NR	570	36505	NR	700	7871	NR	830	909	NR	960	653	NR
445	27862	NR	575	38589	NR	705	6747	NR	835	756	NR	965	982	NR
450	22723	NR	580	40645	NR	710	5855	NR	840	825	NR	970	1160	NR
455	14441	NR	585	42567	NR	715	5156	NR	845	742	NR	975	946	NR
460	10958	NR	590	44601	NR	720	4330	NR	850	876	NR	980	1124	NR
465	7931	NR	595	45709	NR	725	3687	NR	855	831	NR	985	606	NR
470	5730	NR	600	46285	NR	730	3188	NR	860	716	NR	990	892	NR
475	5413	NR	605	46727	NR	735	2787	NR	865	845	NR	995	681	NR
480	5957	NR	610	46010	NR	740	2565	NR	870	933	NR	1000	570	NR
485	7154	NR	615	44635	NR	745	2339	NR	875	801	NR			

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Scotopic Flux vs. Wavelength



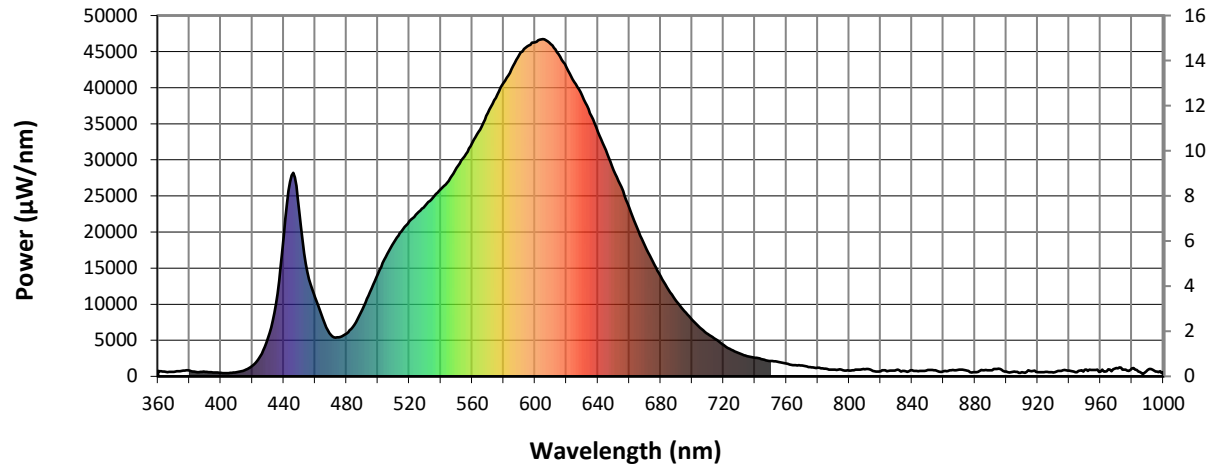
Scotopic Lumens: 2933.1

S/P: 1.28

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	740	NR	490	9278	NR	620	42777	NR	750	2144	NR	880	577	NR
365	627	NR	495	11708	NR	625	40790	NR	755	2003	NR	885	848	NR
370	626	NR	500	14248	NR	630	38895	NR	760	1768	NR	890	838	NR
375	772	NR	505	16542	NR	635	36467	NR	765	1569	NR	895	1055	NR
380	791	NR	510	18514	NR	640	33899	NR	770	1528	NR	900	662	NR
385	599	NR	515	20102	NR	645	31336	NR	775	1287	NR	905	649	NR
390	620	NR	520	21504	NR	650	28564	NR	780	1185	NR	910	581	NR
395	551	NR	525	22584	NR	655	26203	NR	785	1067	NR	915	767	NR
400	480	NR	530	23647	NR	660	23363	NR	790	937	NR	920	567	NR
405	459	NR	535	24784	NR	665	20547	NR	795	912	NR	925	634	NR
410	591	NR	540	25934	NR	670	18098	NR	800	802	NR	930	524	NR
415	823	NR	545	27109	NR	675	15862	NR	805	919	NR	935	766	NR
420	1453	NR	550	28875	NR	680	13865	NR	810	988	NR	940	813	NR
425	2788	NR	555	30443	NR	685	11968	NR	815	766	NR	945	565	NR
430	5302	NR	560	32312	NR	690	10419	NR	820	696	NR	950	945	NR
435	10028	NR	565	34204	NR	695	9053	NR	825	763	NR	955	899	NR
440	19314	NR	570	36505	NR	700	7871	NR	830	909	NR	960	653	NR
445	27862	NR	575	38589	NR	705	6747	NR	835	756	NR	965	982	NR
450	22723	NR	580	40645	NR	710	5855	NR	840	825	NR	970	1160	NR
455	14441	NR	585	42567	NR	715	5156	NR	845	742	NR	975	946	NR
460	10958	NR	590	44601	NR	720	4330	NR	850	876	NR	980	1124	NR
465	7931	NR	595	45709	NR	725	3687	NR	855	831	NR	985	606	NR
470	5730	NR	600	46285	NR	730	3188	NR	860	716	NR	990	892	NR
475	5413	NR	605	46727	NR	735	2787	NR	865	845	NR	995	681	NR
480	5957	NR	610	46010	NR	740	2565	NR	870	933	NR	1000	570	NR
485	7154	NR	615	44635	NR	745	2339	NR	875	801	NR			

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Melanopic Flux vs. Wavelength



Melanopic Lumens: 1081.7 S/P: 0.47

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	740	NR	490	9278	NR	620	42777	NR	750	2144	NR	880	577	NR
365	627	NR	495	11708	NR	625	40790	NR	755	2003	NR	885	848	NR
370	626	NR	500	14248	NR	630	38895	NR	760	1768	NR	890	838	NR
375	772	NR	505	16542	NR	635	36467	NR	765	1569	NR	895	1055	NR
380	791	NR	510	18514	NR	640	33899	NR	770	1528	NR	900	662	NR
385	599	NR	515	20102	NR	645	31336	NR	775	1287	NR	905	649	NR
390	620	NR	520	21504	NR	650	28564	NR	780	1185	NR	910	581	NR
395	551	NR	525	22584	NR	655	26203	NR	785	1067	NR	915	767	NR
400	480	NR	530	23647	NR	660	23363	NR	790	937	NR	920	567	NR
405	459	NR	535	24784	NR	665	20547	NR	795	912	NR	925	634	NR
410	591	NR	540	25934	NR	670	18098	NR	800	802	NR	930	524	NR
415	823	NR	545	27109	NR	675	15862	NR	805	919	NR	935	766	NR
420	1453	NR	550	28875	NR	680	13865	NR	810	988	NR	940	813	NR
425	2788	NR	555	30443	NR	685	11968	NR	815	766	NR	945	565	NR
430	5302	NR	560	32312	NR	690	10419	NR	820	696	NR	950	945	NR
435	10028	NR	565	34204	NR	695	9053	NR	825	763	NR	955	899	NR
440	19314	NR	570	36505	NR	700	7871	NR	830	909	NR	960	653	NR
445	27862	NR	575	38589	NR	705	6747	NR	835	756	NR	965	982	NR
450	22723	NR	580	40645	NR	710	5855	NR	840	825	NR	970	1160	NR
455	14441	NR	585	42567	NR	715	5156	NR	845	742	NR	975	946	NR
460	10958	NR	590	44601	NR	720	4330	NR	850	876	NR	980	1124	NR
465	7931	NR	595	45709	NR	725	3687	NR	855	831	NR	985	606	NR
470	5730	NR	600	46285	NR	730	3188	NR	860	716	NR	990	892	NR
475	5413	NR	605	46727	NR	735	2787	NR	865	845	NR	995	681	NR
480	5957	NR	610	46010	NR	740	2565	NR	870	933	NR	1000	570	NR
485	7154	NR	615	44635	NR	745	2339	NR	875	801	NR			

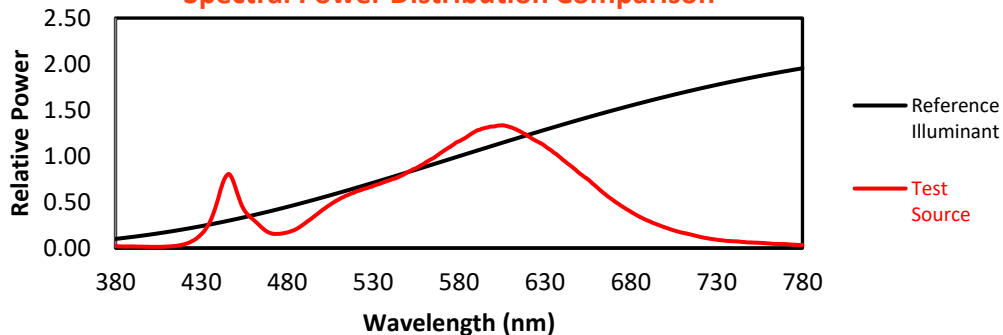
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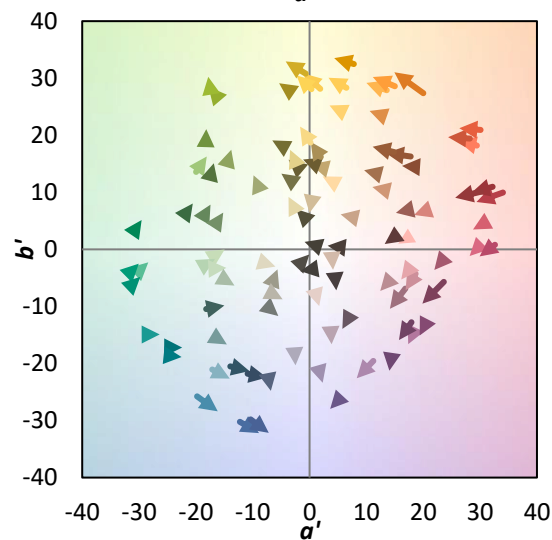
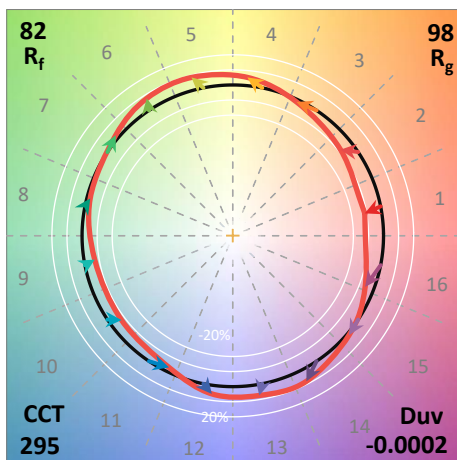
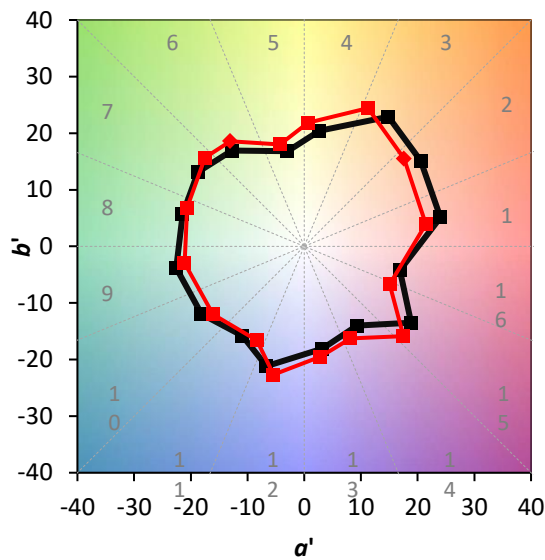
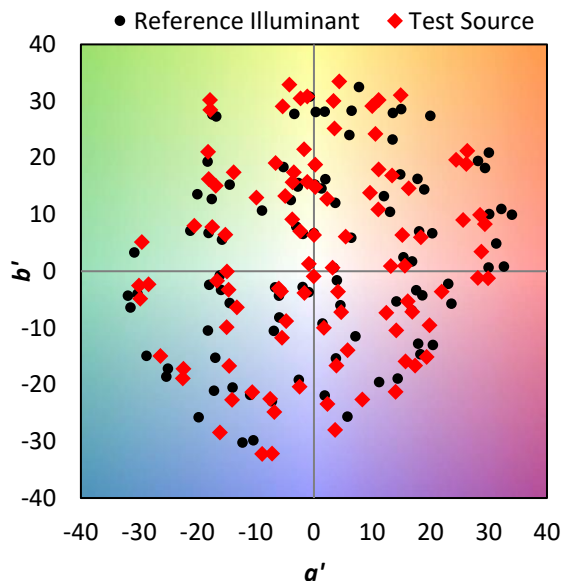
Summary

$R_f = 82.5$
 $R_g = 98.4$
 CIE $R_a = 81.3$
 $R_g = 5.7$

Spectral Power Distribution Comparison



Color Vector Graphics

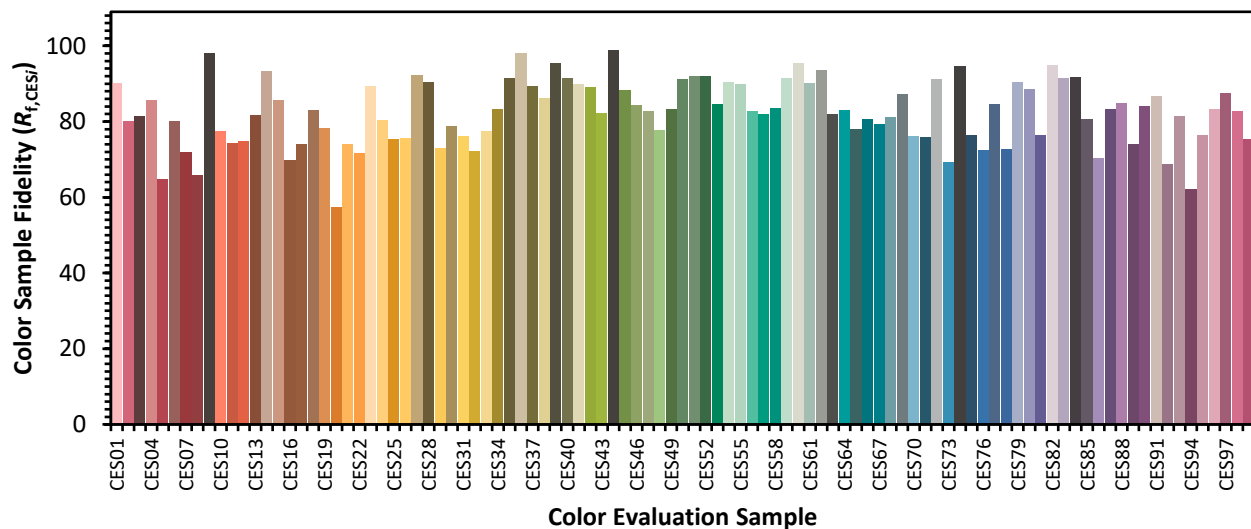


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Individual Sample Fidelity Index ($R_{f,i}$)

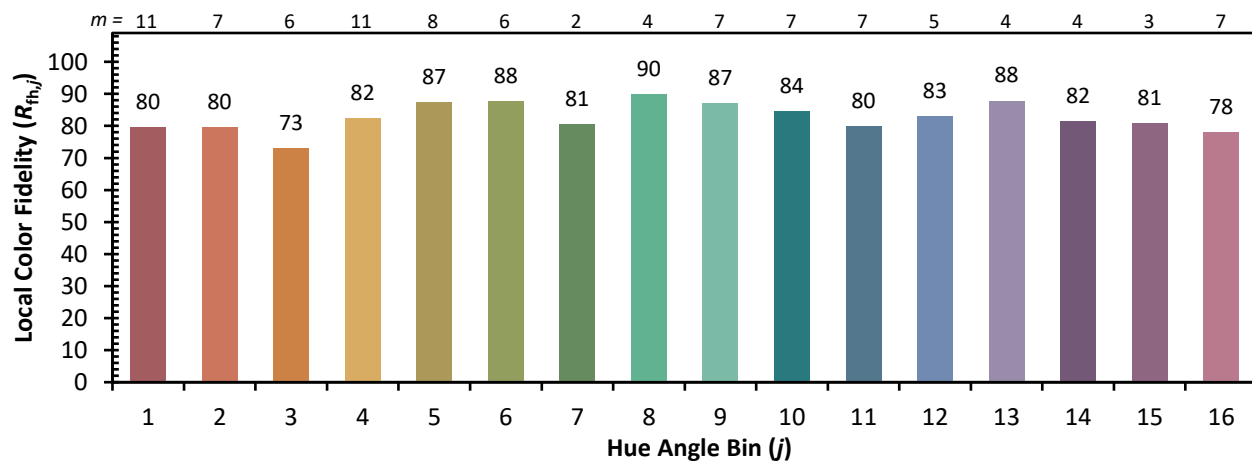
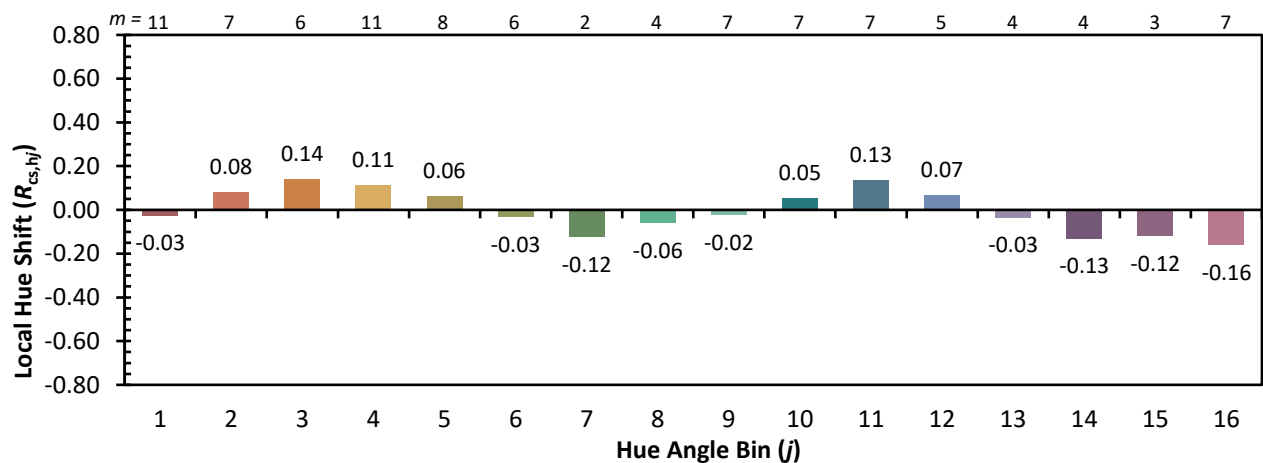
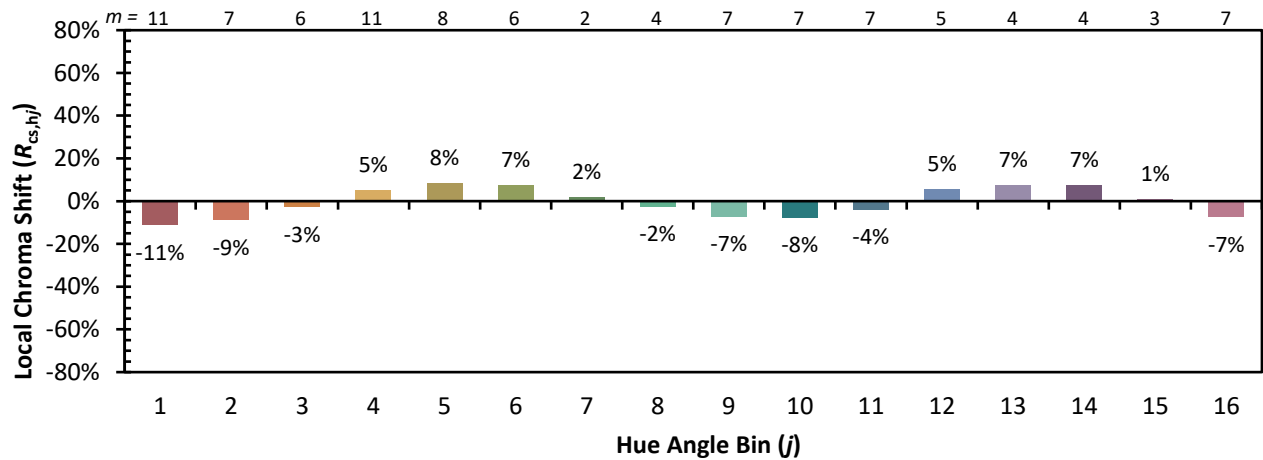
CES01 = 86	CES26 = 76	CES51 = 92	CES76 = 73
CES02 = 63	CES27 = 92	CES52 = 92	CES77 = 85
CES03 = 31	CES28 = 90	CES53 = 85	CES78 = 73
CES04 = 71	CES29 = 73	CES54 = 90	CES79 = 91
CES05 = 50	CES30 = 79	CES55 = 90	CES80 = 89
CES06 = 51	CES31 = 76	CES56 = 83	CES81 = 76
CES07 = 42	CES32 = 72	CES57 = 82	CES82 = 95
CES08 = 41	CES33 = 78	CES58 = 83	CES83 = 92
CES09 = 29	CES34 = 83	CES59 = 91	CES84 = 92
CES10 = 76	CES35 = 91	CES60 = 96	CES85 = 81
CES11 = 59	CES36 = 98	CES61 = 90	CES86 = 70
CES12 = 65	CES37 = 89	CES62 = 93	CES87 = 83
CES13 = 44	CES38 = 86	CES63 = 82	CES88 = 85
CES14 = 74	CES39 = 95	CES64 = 83	CES89 = 74
CES15 = 72	CES40 = 92	CES65 = 78	CES90 = 84
CES16 = 48	CES41 = 90	CES66 = 81	CES91 = 87
CES17 = 50	CES42 = 89	CES67 = 79	CES92 = 69
CES18 = 57	CES43 = 82	CES68 = 81	CES93 = 81
CES19 = 72	CES44 = 99	CES69 = 87	CES94 = 62
CES20 = 67	CES45 = 88	CES70 = 76	CES95 = 76
CES21 = 87	CES46 = 84	CES71 = 76	CES96 = 83
CES22 = 79	CES47 = 83	CES72 = 91	CES97 = 87
CES23 = 92	CES48 = 78	CES73 = 69	CES98 = 83
CES24 = 91	CES49 = 83	CES74 = 95	CES99 = 75
CES25 = 72	CES50 = 91	CES75 = 76	



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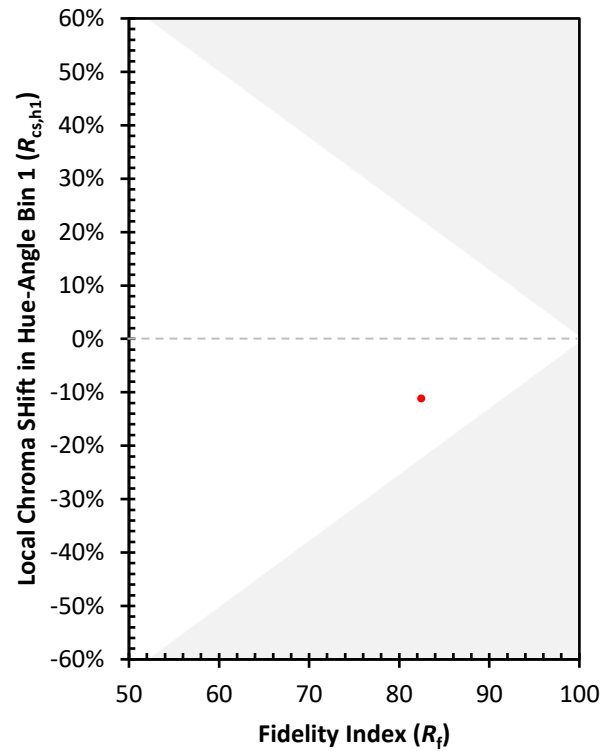
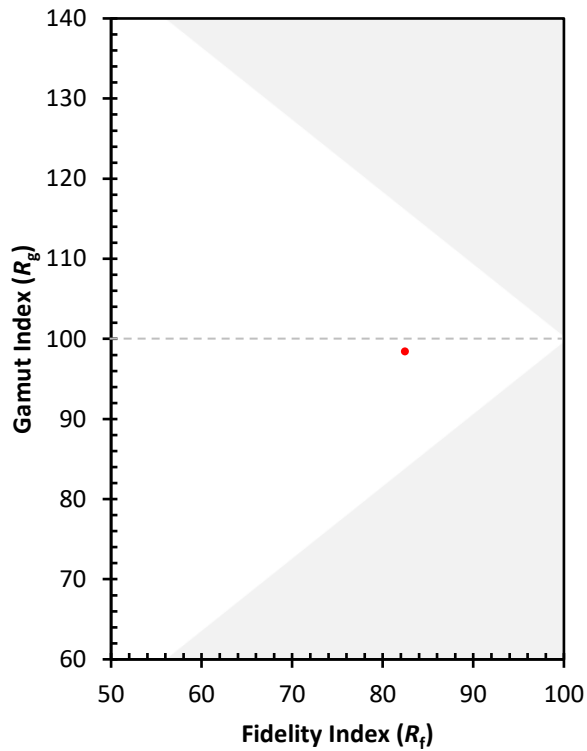
Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)