

Classified
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: METALUX

Report Number: P981627

Luminaire Tested: **4WNLED-LD4-40SL-F-UNV-L830-CD1-U**

Issue Date: 04/17/2025

Test Information

Test Method: LM-79-08
Report Number: P981627
Test Lab: INNOVATION CENTER(P3)
Issue Date: 04/17/2025
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: METALUX
Catalog Number: 4WNLED-LD4-40SL-F-UNV-L830-CD1-U
Description: METALUX 4FT WNLED WRAPAROUND 4000LM PACKAGE 80CRI 3000K TROFFER
Light Source: 3000K CCT, 80+ CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

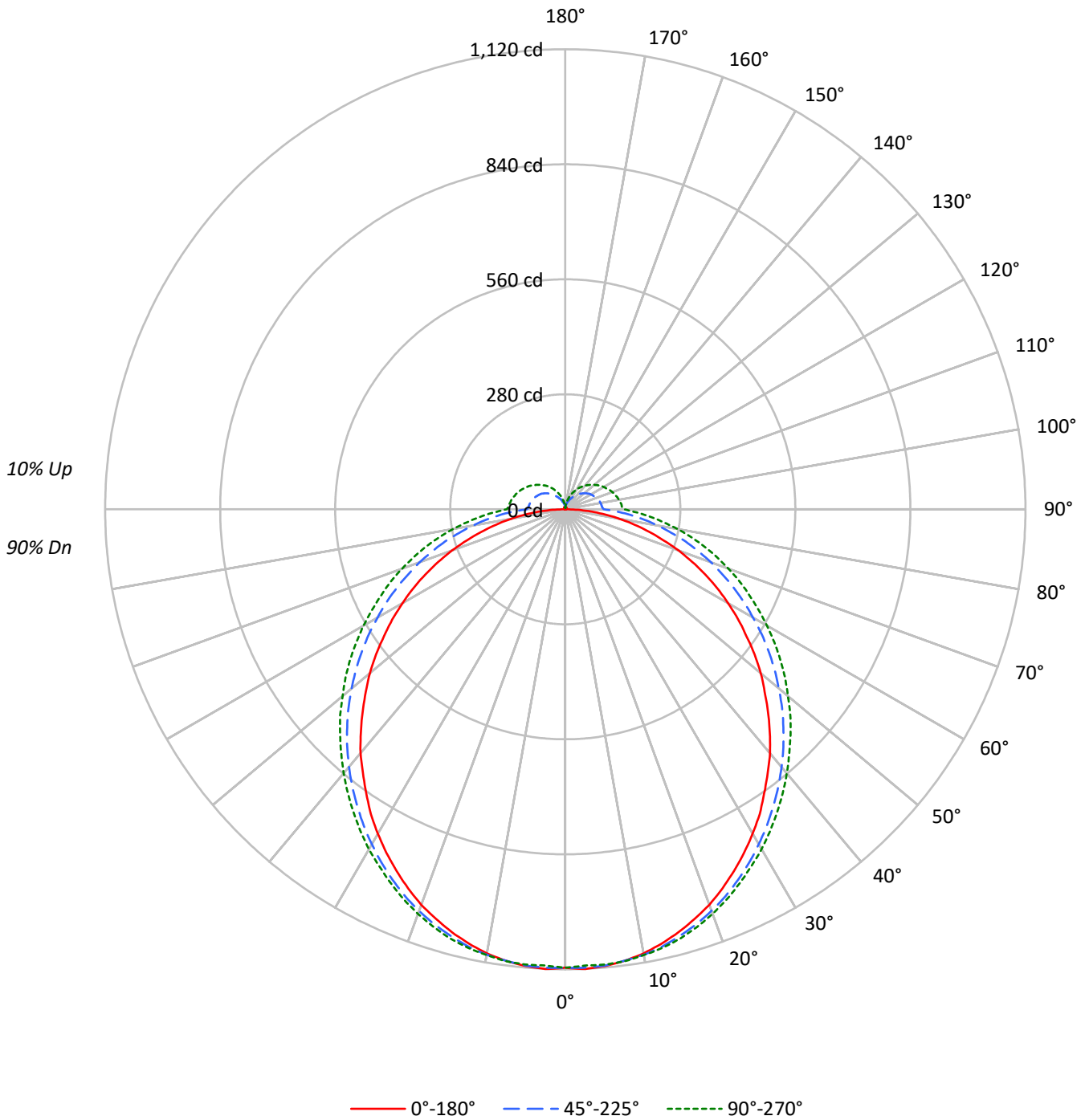
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3809.8 lumens
Efficiency: N/A
Efficacy: 124.5 lumens/watt
Spacing Criteria (0/90/45): 1.22 / 1.27 / 1.38
Luminous Opening: Rectangular w/ Sides (W: 0.75' x L: 4' x H: 0.17')
CIE Type: Direct

Input Watts (W): 30.6
Input Voltage (V): 120
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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Luminous Intensity Polar Plot



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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				20				20
RC	80				70				50				30				10				0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																					
0	117	117	117	117	113	113	113	113	106	106	106	99	99	99	93	93	93	93	93	93	90
1	105	100	95	91	101	97	92	88	91	87	84	85	82	79	80	78	75	75	75	75	73
2	95	86	79	73	91	84	77	71	78	73	68	74	69	65	69	66	62	62	62	62	59
3	86	75	67	60	83	73	65	59	69	62	57	65	59	54	61	56	52	52	52	52	50
4	79	67	57	51	76	65	56	50	61	54	48	57	51	46	54	49	45	45	45	45	42
5	72	59	50	43	70	58	49	43	54	47	41	51	45	40	48	43	39	39	39	39	36
6	67	53	44	38	64	52	43	37	49	42	36	46	40	35	44	38	34	34	34	34	32
7	62	48	39	33	60	47	39	33	44	37	32	42	36	31	40	34	30	30	30	30	28
8	58	44	35	29	55	43	35	29	41	33	28	39	32	28	37	31	27	27	27	27	25
9	54	40	32	26	52	39	31	26	37	30	25	36	29	25	34	28	24	24	24	24	22
10	50	37	29	24	49	36	29	24	35	28	23	33	27	22	32	26	22	22	22	22	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4004	4004	4004
5°	4005	3951	3931
10°	3971	3884	3864
15°	3916	3805	3793
20°	3854	3721	3702
25°	3773	3624	3603
30°	3690	3523	3509
35°	3593	3418	3409
40°	3508	3315	3312
45°	3399	3210	3218
50°	3303	3098	3121
55°	3179	2984	3035
60°	3063	2862	2938
65°	2930	2743	2839
70°	2759	2614	2752
75°	2535	2473	2655
80°	2254	2292	2533
85°	1776	2093	2408



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	105.8	2.8
10°-20°	303.0	8.0
20°-30°	456.6	12.0
30°-40°	548.8	14.4
40°-50°	574.1	15.1
50°-60°	534.3	14.0
60°-70°	440.7	11.6
70°-80°	309.6	8.1
80°-90°	163.5	4.3
90°-100°	88.5	2.3
100°-110°	80.3	2.1
110°-120°	68.8	1.8
120°-130°	54.5	1.4
130°-140°	38.8	1.0
140°-150°	24.3	0.6
150°-160°	12.6	0.3
160°-170°	4.7	0.1
170°-180°	0.8	0.0
0°-30°	865.5	22.7
0°-40°	1414.3	37.1
0°-60°	2522.6	66.2
0°-90°	3436.5	90.2
90°-120°	237.6	6.2
90°-150°	355.2	9.3
90°-180°	373.0	9.8
0°-180°	3809.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1116	1116	1116	1116	1116	
5°	1116	1110	1115	1115	1113	106
15°	1066	1064	1076	1082	1082	301
25°	972	977	995	1004	1004	448
35°	844	857	882	896	899	529
45°	698	720	751	769	775	539
55°	538	567	604	629	639	483
65°	376	409	452	482	494	372
75°	211	252	303	338	350	224
85°	64	107	159	193	207	67
90°	2	44	93	130	142	5
95°	0	40	89	124	137	0
105°	1	38	84	116	127	1
115°	2	36	76	105	116	2
125°	3	31	67	92	101	3
135°	4	24	54	78	84	3
145°	4	19	39	58	66	3
155°	5	15	28	39	46	2
165°	6	11	16	21	26	2
175°	6	6	7	7	8	1
180°	5	5	5	5	5	



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CATALOG NUMBER: 4WNLED-LD4-40SL-F-UNV-L830-CD1-U

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	1116.0	1116.0	1116.0	1116.0	1116.0	1116.0	1116.0	1116.0	1116.0	1116.0	1116.0
2.5°	1120.3	1119.2	1117.1	1115.0	1113.9	1113.9	1112.8	1112.8	1112.8	1116.0	1117.1
5°	1116.0	1115.0	1112.8	1111.8	1110.7	1109.7	1109.7	1109.7	1110.7	1113.9	1115.0
7.5°	1108.6	1107.5	1105.4	1104.3	1103.3	1103.3	1103.3	1103.3	1104.3	1107.5	1108.6
10°	1098.0	1096.9	1094.8	1093.7	1093.7	1093.7	1093.7	1093.7	1095.9	1099.0	1101.2
12.5°	1083.1	1082.0	1081.0	1081.0	1079.9	1079.9	1081.0	1081.0	1083.1	1087.4	1090.5
15°	1066.1	1065.1	1064.0	1064.0	1064.0	1064.0	1065.1	1066.1	1069.3	1073.6	1075.7
17.5°	1045.9	1045.9	1044.9	1045.9	1045.9	1045.9	1047.0	1049.1	1051.3	1056.6	1059.7
20°	1024.7	1023.6	1022.6	1024.7	1024.7	1024.7	1025.8	1029.0	1032.1	1037.4	1040.6
22.5°	999.2	999.2	999.2	1000.3	1001.3	1002.4	1003.5	1006.7	1010.9	1015.2	1019.4
25°	971.6	971.6	971.6	973.7	975.9	976.9	978.0	981.2	986.5	990.7	995.0
27.5°	942.9	942.9	942.9	944.0	947.2	948.3	950.4	954.6	959.9	964.2	969.5
30°	912.1	912.1	913.2	915.3	918.5	919.6	921.7	926.0	932.3	936.6	941.9
32.5°	880.3	879.2	880.3	883.5	886.7	889.8	890.9	896.2	902.6	907.9	913.2
35°	844.2	845.3	847.4	850.6	853.7	856.9	859.1	864.4	871.8	877.1	882.4
37.5°	809.1	810.2	812.3	816.6	820.8	824.0	827.2	831.4	839.9	845.3	851.6
40°	775.2	773.0	777.3	781.5	786.8	790.0	793.2	798.5	807.0	812.3	818.7
42.5°	736.9	736.9	740.1	746.5	751.8	755.0	758.2	764.5	773.0	779.4	785.8
45°	697.7	698.7	703.0	709.3	715.7	719.9	722.1	729.5	738.0	744.4	750.7
47.5°	658.4	660.5	664.7	672.2	678.5	682.8	684.9	693.4	701.9	709.3	715.7
50°	621.2	621.2	626.5	632.9	640.3	644.6	647.7	656.2	664.7	672.2	678.5
52.5°	580.8	580.8	586.2	594.6	601.0	606.3	609.5	619.1	627.6	635.0	642.4
55°	538.4	540.5	545.8	555.4	562.8	567.0	571.3	580.8	589.3	597.8	604.2
57.5°	499.1	500.1	506.5	515.0	523.5	527.8	533.1	541.6	551.1	560.7	567.0
60°	457.7	459.8	465.1	475.7	484.2	488.5	492.7	503.3	512.9	521.4	527.8
62.5°	417.3	418.4	425.8	435.4	443.9	449.2	454.5	464.0	473.6	482.1	490.6
65°	375.9	378.0	384.4	395.0	403.5	408.8	413.1	425.8	434.3	443.9	452.4
67.5°	334.5	336.6	344.0	354.7	364.2	369.5	373.8	385.5	396.1	405.6	414.1
70°	293.1	295.2	303.7	314.3	323.9	329.2	335.6	346.2	357.9	367.4	377.0
72.5°	250.6	253.8	261.2	272.9	285.6	291.0	296.3	309.0	319.6	330.2	338.7
75°	211.3	214.5	223.0	233.6	244.2	251.7	255.9	268.7	282.5	293.1	302.6
77.5°	172.0	175.2	183.7	195.4	207.1	213.4	219.8	231.5	243.2	253.8	264.4
80°	134.9	138.0	147.6	158.2	169.9	177.3	183.7	196.4	208.1	218.7	228.3
82.5°	98.8	101.9	111.5	123.2	135.9	142.3	148.7	160.3	173.1	183.7	194.3
85°	63.7	69.0	77.5	88.1	100.9	107.2	113.6	126.4	138.0	148.7	159.3
87.5°	30.8	35.0	44.6	56.3	68.0	75.4	80.7	92.4	105.1	114.7	125.3
90°	2.1	6.4	14.9	25.5	37.2	43.5	49.9	61.6	73.3	83.9	93.4
92.5°	0.0	4.2	12.7	23.4	35.0	41.4	46.7	58.4	70.1	80.7	90.3
95°	0.0	4.2	12.7	23.4	35.0	40.4	46.7	58.4	69.0	79.6	89.2
97.5°	1.1	4.2	12.7	23.4	34.0	40.4	45.7	57.3	68.0	78.6	88.1
100°	1.1	4.2	12.7	22.3	34.0	39.3	45.7	56.3	66.9	77.5	87.1
102.5°	1.1	4.2	12.7	22.3	34.0	39.3	44.6	55.2	65.8	76.5	86.0
105°	1.1	5.3	12.7	22.3	32.9	38.2	43.5	55.2	64.8	74.3	83.9
107.5°	1.1	5.3	12.7	22.3	32.9	38.2	43.5	54.2	63.7	73.3	81.8
110°	2.1	5.3	12.7	22.3	31.9	37.2	42.5	53.1	62.7	72.2	80.7



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
112.5°	2.1	5.3	12.7	21.2	31.9	36.1	41.4	52.0	61.6	70.1	78.6
115°	2.1	5.3	12.7	21.2	30.8	36.1	40.4	51.0	59.5	69.0	76.5
117.5°	2.1	6.4	12.7	20.2	29.7	35.0	39.3	48.8	58.4	66.9	74.3
120°	3.2	6.4	11.7	20.2	28.7	34.0	38.2	47.8	56.3	64.8	72.2
122.5°	3.2	6.4	11.7	19.1	27.6	31.9	37.2	45.7	54.2	62.7	70.1
125°	3.2	6.4	11.7	18.1	26.5	30.8	35.0	43.5	52.0	59.5	66.9
127.5°	3.2	6.4	11.7	18.1	25.5	28.7	32.9	41.4	48.8	56.3	63.7
130°	3.2	6.4	10.6	17.0	23.4	27.6	30.8	39.3	45.7	53.1	60.5
132.5°	3.2	6.4	10.6	15.9	22.3	26.5	29.7	37.2	43.5	49.9	57.3
135°	4.2	6.4	10.6	15.9	21.2	24.4	27.6	34.0	40.4	46.7	54.2
137.5°	4.2	6.4	9.6	14.9	20.2	23.4	26.5	31.9	38.2	44.6	49.9
140°	4.2	6.4	9.6	13.8	19.1	22.3	24.4	29.7	36.1	41.4	46.7
142.5°	4.2	6.4	9.6	13.8	18.1	20.2	23.4	27.6	32.9	38.2	43.5
145°	4.2	6.4	9.6	12.7	17.0	19.1	21.2	26.5	30.8	35.0	39.3
147.5°	5.3	6.4	9.6	12.7	15.9	18.1	20.2	24.4	28.7	31.9	36.1
150°	5.3	6.4	8.5	11.7	14.9	17.0	19.1	22.3	26.5	29.7	32.9
152.5°	5.3	6.4	8.5	11.7	14.9	15.9	17.0	21.2	24.4	27.6	29.7
155°	5.3	6.4	8.5	10.6	13.8	14.9	15.9	19.1	22.3	24.4	27.6
157.5°	5.3	6.4	8.5	10.6	12.7	13.8	14.9	17.0	20.2	22.3	24.4
160°	5.3	6.4	8.5	9.6	11.7	12.7	13.8	15.9	18.1	20.2	21.2
162.5°	6.4	6.4	7.4	9.6	10.6	11.7	12.7	13.8	15.9	17.0	19.1
165°	6.4	6.4	7.4	8.5	9.6	10.6	10.6	12.7	13.8	14.9	15.9
167.5°	6.4	6.4	7.4	8.5	8.5	9.6	9.6	10.6	11.7	12.7	13.8
170°	6.4	6.4	6.4	7.4	8.5	8.5	8.5	9.6	10.6	10.6	11.7
172.5°	6.4	6.4	6.4	6.4	7.4	7.4	7.4	8.5	8.5	9.6	9.6
175°	6.4	6.4	6.4	6.4	6.4	6.4	7.4	7.4	7.4	7.4	7.4
177.5°	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
180°	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3



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CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°
0°	1116.0	1116.0	1116.0	1116.0	1116.0	1116.0	1116.0	1116.0	1116.0	1116.0
2.5°	1118.2	1120.3	1119.2	1117.1	1117.1	1117.1	1116.0	1113.9	1112.8	1111.8
5°	1116.0	1118.2	1116.0	1115.0	1115.0	1115.0	1115.0	1113.9	1112.8	1112.8
7.5°	1110.7	1112.8	1111.8	1110.7	1110.7	1110.7	1110.7	1109.7	1109.7	1109.7
10°	1103.3	1106.5	1105.4	1104.3	1103.3	1104.3	1103.3	1103.3	1102.2	1102.2
12.5°	1091.6	1094.8	1094.8	1093.7	1093.7	1093.7	1093.7	1093.7	1092.7	1093.7
15°	1078.9	1082.0	1082.0	1082.0	1082.0	1082.0	1082.0	1082.0	1081.0	1082.0
17.5°	1062.9	1066.1	1067.2	1066.1	1067.2	1067.2	1067.2	1066.1	1066.1	1066.1
20°	1043.8	1047.0	1048.1	1047.0	1047.0	1047.0	1048.1	1048.1	1048.1	1048.1
22.5°	1022.6	1025.8	1025.8	1025.8	1026.8	1026.8	1026.8	1027.9	1027.9	1027.9
25°	998.2	1001.3	1001.3	1002.4	1003.5	1003.5	1004.5	1004.5	1004.5	1004.5
27.5°	974.8	976.9	976.9	978.0	979.0	979.0	979.0	979.0	981.2	980.1
30°	947.2	949.3	950.4	952.5	952.5	953.6	953.6	954.6	955.7	955.7
32.5°	918.5	920.6	921.7	923.8	924.9	926.0	926.0	928.1	929.1	928.1
35°	887.7	889.8	893.0	894.1	896.2	896.2	898.3	898.3	900.5	899.4
37.5°	856.9	859.1	861.2	863.3	865.4	866.5	867.6	869.7	871.8	869.7
40°	824.0	827.2	830.4	832.5	833.6	835.7	835.7	838.9	841.0	838.9
42.5°	791.1	794.3	797.5	801.7	801.7	802.8	804.9	808.1	808.1	807.0
45°	757.1	759.2	764.5	767.7	768.8	769.9	772.0	773.0	775.2	775.2
47.5°	721.0	725.3	730.6	733.8	734.8	735.9	738.0	740.1	743.3	743.3
50°	684.9	690.2	692.3	697.7	699.8	700.8	704.0	706.1	708.3	707.2
52.5°	647.7	652.0	658.4	662.6	664.7	665.8	669.0	672.2	673.2	674.3
55°	610.6	615.9	622.3	626.5	628.6	630.8	632.9	635.0	638.2	639.2
57.5°	573.4	578.7	586.2	590.4	592.5	593.6	597.8	601.0	602.1	603.1
60°	535.2	541.6	549.0	553.2	555.4	558.5	559.6	564.9	566.0	567.0
62.5°	498.0	504.4	511.8	517.1	519.3	521.4	525.6	528.8	530.9	529.9
65°	460.9	467.2	474.7	480.0	482.1	485.3	488.5	491.6	493.8	493.8
67.5°	422.6	430.1	438.6	443.9	446.0	449.2	452.4	454.5	457.7	459.8
70°	385.5	394.0	401.4	406.7	408.8	412.0	415.2	420.5	420.5	422.6
72.5°	348.3	356.8	364.2	371.7	373.8	375.9	380.2	383.3	384.4	386.5
75°	312.2	320.7	328.1	333.4	337.7	339.8	344.0	346.2	348.3	350.4
77.5°	274.0	284.6	292.0	298.4	301.6	303.7	307.9	311.1	313.3	314.3
80°	237.9	246.4	253.8	260.2	263.3	266.5	270.8	272.9	276.1	277.1
82.5°	202.8	211.3	218.7	224.1	228.3	230.4	234.7	238.9	238.9	241.0
85°	167.8	176.3	183.7	190.1	193.3	196.4	199.6	203.9	204.9	207.1
87.5°	133.8	143.4	149.7	157.2	159.3	162.5	167.8	171.0	173.1	173.1
90°	103.0	111.5	118.9	126.4	129.5	131.7	137.0	140.2	142.3	142.3
92.5°	99.8	108.3	115.7	123.2	125.3	128.5	132.7	135.9	138.0	138.0
95°	98.8	107.2	114.7	121.1	124.2	126.4	131.7	133.8	135.9	137.0
97.5°	97.7	106.2	113.6	120.0	122.1	125.3	129.5	132.7	134.9	134.9
100°	95.6	104.1	111.5	117.9	121.1	123.2	127.4	130.6	131.7	132.7
102.5°	94.5	101.9	109.4	115.7	118.9	121.1	125.3	128.5	129.5	130.6
105°	92.4	100.9	107.2	113.6	115.7	118.9	122.1	125.3	127.4	127.4
107.5°	90.3	98.8	105.1	111.5	113.6	115.7	120.0	123.2	124.2	125.3
110°	88.1	96.6	103.0	108.3	111.5	113.6	116.8	120.0	121.1	122.1



TEST NUMBER: P981627

CATALOG NUMBER: 4WNLED-LD4-40SL-F-UNV-L830-CD1-U

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°
112.5°	86.0	93.4	99.8	106.2	108.3	110.4	113.6	116.8	117.9	118.9
115°	83.9	91.3	97.7	103.0	105.1	107.2	110.4	113.6	114.7	115.7
117.5°	81.8	89.2	94.5	99.8	101.9	104.1	107.2	110.4	111.5	111.5
120°	79.6	86.0	92.4	96.6	98.8	100.9	104.1	106.2	108.3	108.3
122.5°	76.5	82.8	89.2	93.4	95.6	97.7	100.9	103.0	104.1	105.1
125°	74.3	80.7	86.0	90.3	92.4	94.5	96.6	98.8	99.8	100.9
127.5°	71.1	76.5	82.8	87.1	89.2	91.3	93.4	95.6	96.6	96.6
130°	66.9	73.3	78.6	83.9	86.0	87.1	90.3	91.3	92.4	92.4
132.5°	63.7	69.0	74.3	79.6	81.8	83.9	86.0	87.1	88.1	88.1
135°	59.5	64.8	70.1	75.4	77.5	79.6	81.8	82.8	83.9	83.9
137.5°	56.3	61.6	65.8	71.1	73.3	75.4	77.5	78.6	79.6	79.6
140°	52.0	56.3	61.6	66.9	69.0	70.1	73.3	74.3	75.4	75.4
142.5°	47.8	53.1	57.3	61.6	63.7	65.8	69.0	70.1	71.1	71.1
145°	44.6	48.8	52.0	56.3	58.4	60.5	63.7	65.8	65.8	65.8
147.5°	40.4	44.6	47.8	52.0	54.2	55.2	59.5	60.5	61.6	61.6
150°	37.2	40.4	43.5	46.7	48.8	51.0	54.2	56.3	56.3	56.3
152.5°	34.0	36.1	39.3	42.5	43.5	45.7	48.8	51.0	51.0	51.0
155°	29.7	32.9	35.0	37.2	39.3	40.4	43.5	45.7	45.7	45.7
157.5°	26.5	28.7	30.8	32.9	34.0	35.0	38.2	40.4	41.4	41.4
160°	23.4	25.5	26.5	28.7	29.7	30.8	31.9	35.0	36.1	36.1
162.5°	20.2	21.2	23.4	24.4	25.5	25.5	27.6	28.7	30.8	30.8
165°	17.0	18.1	19.1	20.2	21.2	21.2	22.3	24.4	25.5	25.5
167.5°	14.9	14.9	15.9	17.0	17.0	17.0	18.1	19.1	21.2	21.2
170°	11.7	12.7	12.7	12.7	13.8	13.8	13.8	14.9	15.9	17.0
172.5°	9.6	9.6	10.6	10.6	10.6	10.6	10.6	10.6	11.7	12.7
175°	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	8.5
177.5°	6.4	6.4	6.4	5.3	5.3	5.3	5.3	5.3	5.3	4.2
180°	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3

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

Report Prepared for

Cooper Lighting Solutions

Metalux

Report Number: SP3-2508-516-9

Test Date: 09/05/2025

Luminaire Tested: 4WNLED-LD4-50SL-F-UNVL930-CD1-U

Data in this report applies to families of products including 4WNLED-LD4-50SL-F-UNVL930-CD1-U

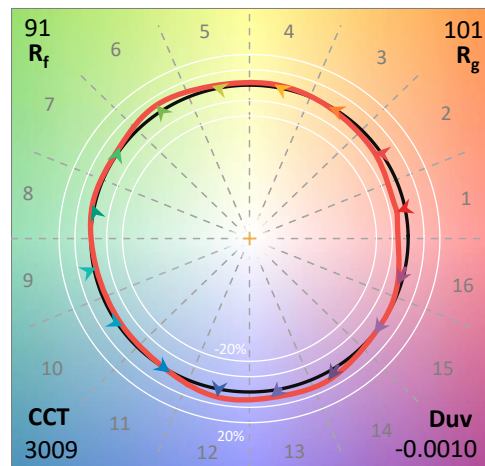
Test Information

Test Method: LM-79-2019
 Report Number: SP3-2508-516-9
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP3 - 3M SPHERE
 Measurement Geometry: 4π
 Issue Date: 09/05/2025
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: Metalux
 Catalog Number: **4WNLED-LD4-50SL-F-UNVL930-CD1-U**
 Description: 4FT WNLED 5000LM 930

Spectral Parameters

CCT (K): 3009
 CIE u': 0.2506
 CIE v': 0.5199
 Duv: -0.0010
 CIE x: 0.4349
 CIE y: 0.4010
 CIE z: 0.1641
 Peak Wavelength (nm): 630
 Dominant Wavelength (nm): 583
 Purity: 50.88854
 Rf: 91
 Rg: 101.1

CRI (Ra):	93.2		
R1:	94.6	R9:	57.2
R2:	96.2	R10:	89.7
R3:	96.5	R11:	95.8
R4:	94.7	R12:	84.5
R5:	94.3	R13:	94.9
R6:	96.0	R14:	96.9
R7:	91.6	R15:	89.9
R8:	81.9		



Test Conditions

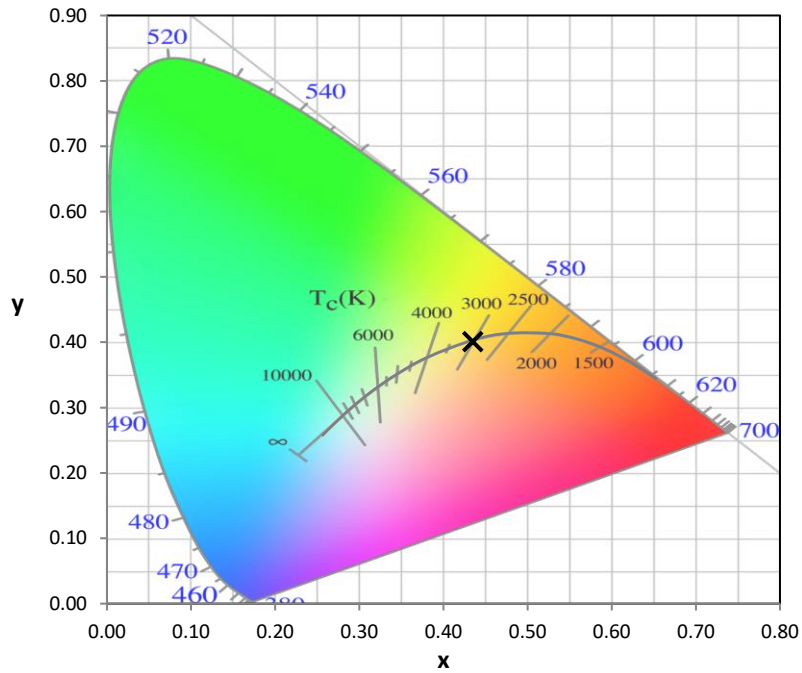
Stabilization Time: 23M
 Operation Time: 1H 23M
 Sphere Temperature (°C): 25.0

REPORT NUMBER: SP3-2508-516-9

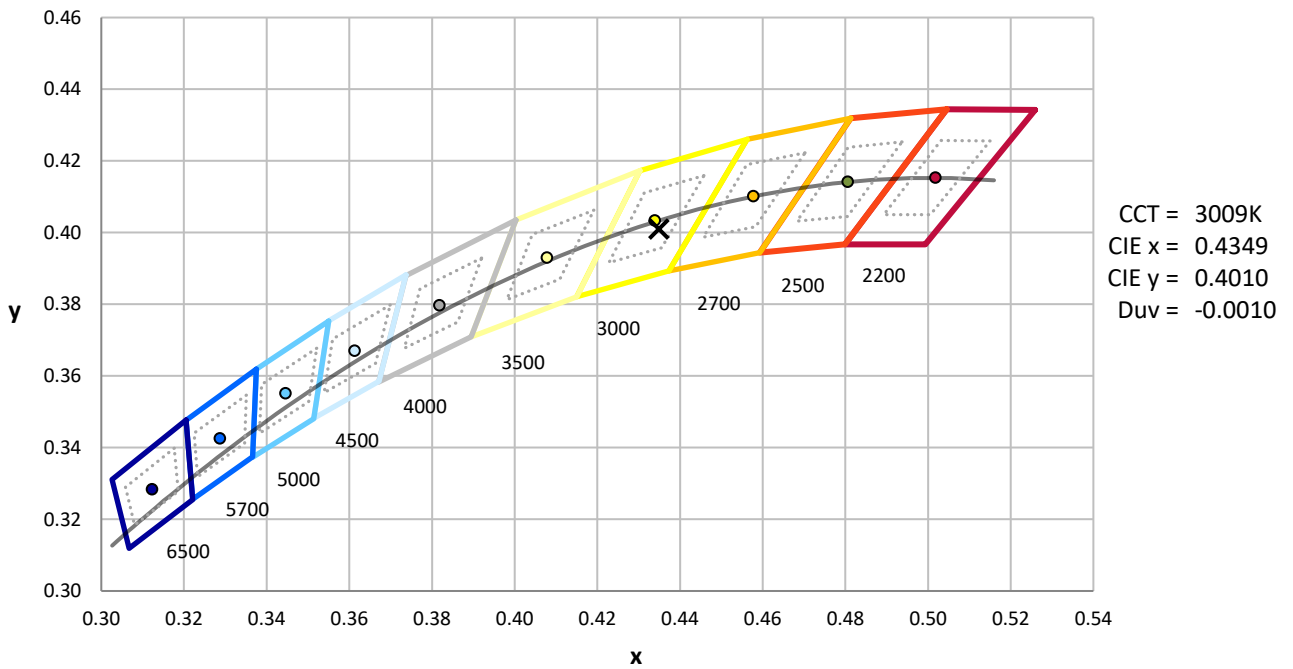
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	3M SPHERE IN02505	7/1/2025	1/1/2026
Power Meter	XITRON INXT2011006	1/20/2025	1/20/2026
AC Power Source	CHROMA 61604 IN6064A	10/22/2024	10/22/2025
DC Power Source	EYSIGHT N5770A IN0534	10/22/2024	10/22/2025
Sphere Thermometer	TANDD IN4036E	10/22/2024	10/22/2025

REPORT NUMBER: SP3-2508-516-9

CIE 1931 Chromaticity Diagram



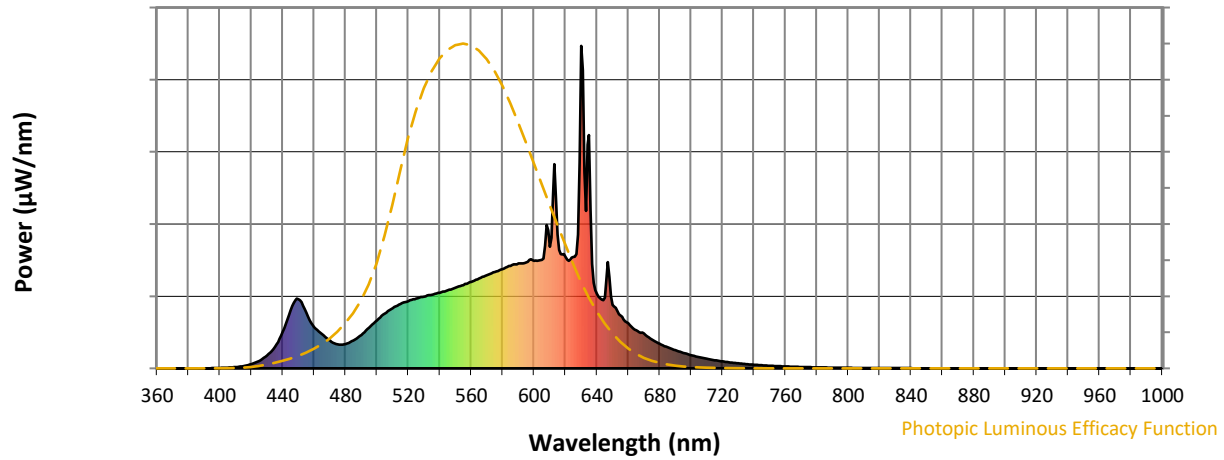
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 3000K 4-step quadrangle

REPORT NUMBER: SP3-2508-516-9

Photopic Flux vs. Wavelength

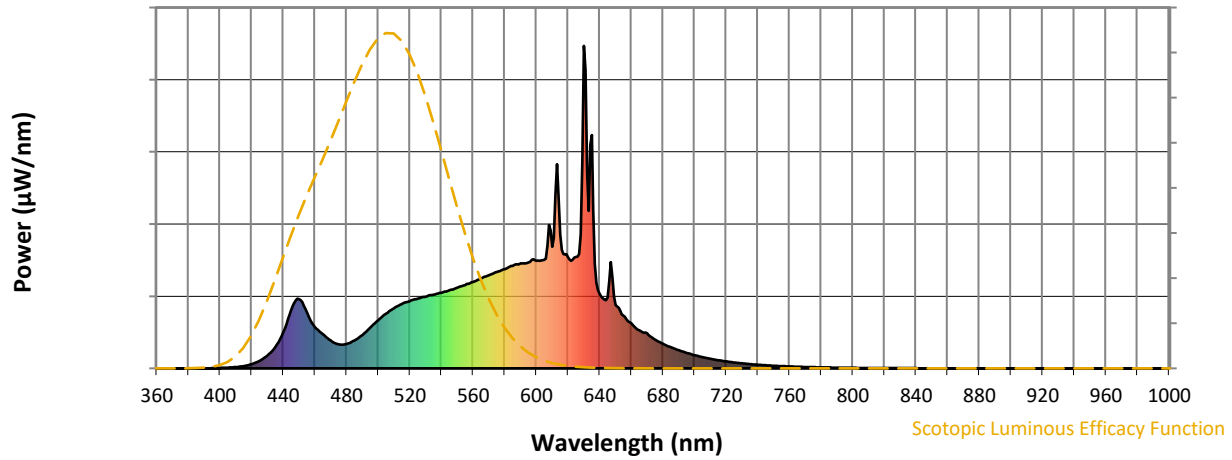


Photopic Lumens: NR

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	104	NR	620	345	NR	750	8	NR	880	0	NR
365	0	NR	495	126	NR	625	345	NR	755	7	NR	885	0	NR
370	0	NR	500	149	NR	630	1000	NR	760	6	NR	890	0	NR
375	0	NR	505	170	NR	635	724	NR	765	5	NR	895	0	NR
380	0	NR	510	186	NR	640	231	NR	770	4	NR	900	0	NR
385	0	NR	515	200	NR	645	219	NR	775	4	NR	905	0	NR
390	0	NR	520	208	NR	650	197	NR	780	3	NR	910	0	NR
395	1	NR	525	216	NR	655	163	NR	785	3	NR	915	0	NR
400	1	NR	530	223	NR	660	140	NR	790	2	NR	920	0	NR
405	2	NR	535	228	NR	665	118	NR	795	2	NR	925	0	NR
410	4	NR	540	235	NR	670	108	NR	800	2	NR	930	0	NR
415	7	NR	545	242	NR	675	89	NR	805	1	NR	935	0	NR
420	13	NR	550	250	NR	680	76	NR	810	1	NR	940	0	NR
425	23	NR	555	258	NR	685	66	NR	815	1	NR	945	0	NR
430	40	NR	560	268	NR	690	56	NR	820	1	NR	950	0	NR
435	66	NR	565	279	NR	695	48	NR	825	1	NR	955	0	NR
440	113	NR	570	288	NR	700	41	NR	830	1	NR	960	0	NR
445	181	NR	575	299	NR	705	35	NR	835	1	NR	965	0	NR
450	215	NR	580	308	NR	710	30	NR	840	1	NR	970	0	NR
455	173	NR	585	318	NR	715	25	NR	845	0	NR	975	0	NR
460	128	NR	590	325	NR	720	22	NR	850	0	NR	980	0	NR
465	106	NR	595	328	NR	725	18	NR	855	0	NR	985	0	NR
470	86	NR	600	333	NR	730	16	NR	860	0	NR	990	0	NR
475	74	NR	605	336	NR	735	13	NR	865	0	NR	995	0	NR
480	76	NR	610	377	NR	740	11	NR	870	0	NR	1000	0	NR
485	86	NR	615	415	NR	745	10	NR	875	0	NR			

REPORT NUMBER: SP3-2508-516-9

Scotopic Flux vs. Wavelength



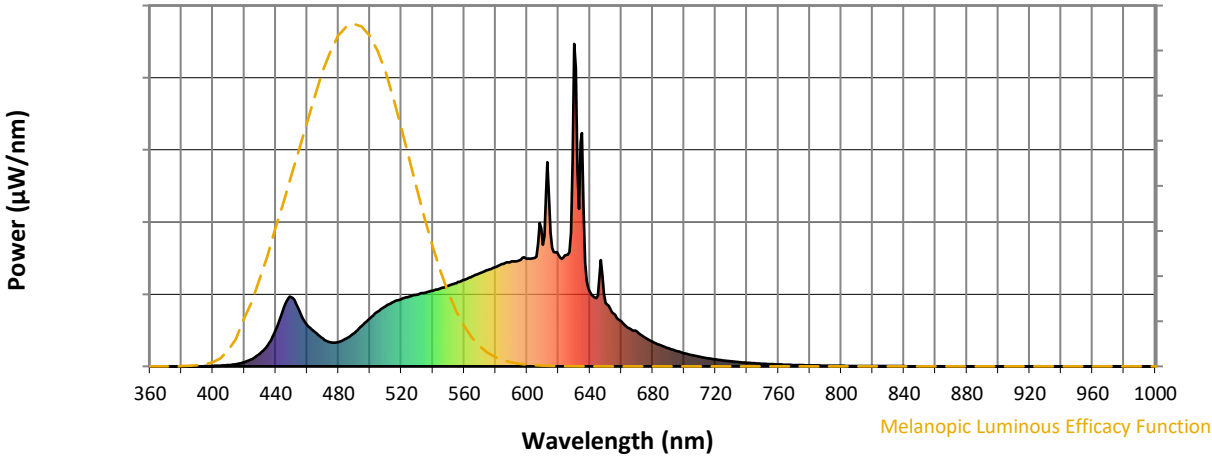
Scotopic Lumens: NR

S/P: 1.42

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	104	NR	620	345	NR	750	8	NR	880	0	NR
365	0	NR	495	126	NR	625	345	NR	755	7	NR	885	0	NR
370	0	NR	500	149	NR	630	1000	NR	760	6	NR	890	0	NR
375	0	NR	505	170	NR	635	724	NR	765	5	NR	895	0	NR
380	0	NR	510	186	NR	640	231	NR	770	4	NR	900	0	NR
385	0	NR	515	200	NR	645	219	NR	775	4	NR	905	0	NR
390	0	NR	520	208	NR	650	197	NR	780	3	NR	910	0	NR
395	1	NR	525	216	NR	655	163	NR	785	3	NR	915	0	NR
400	1	NR	530	223	NR	660	140	NR	790	2	NR	920	0	NR
405	2	NR	535	228	NR	665	118	NR	795	2	NR	925	0	NR
410	4	NR	540	235	NR	670	108	NR	800	2	NR	930	0	NR
415	7	NR	545	242	NR	675	89	NR	805	1	NR	935	0	NR
420	13	NR	550	250	NR	680	76	NR	810	1	NR	940	0	NR
425	23	NR	555	258	NR	685	66	NR	815	1	NR	945	0	NR
430	40	NR	560	268	NR	690	56	NR	820	1	NR	950	0	NR
435	66	NR	565	279	NR	695	48	NR	825	1	NR	955	0	NR
440	113	NR	570	288	NR	700	41	NR	830	1	NR	960	0	NR
445	181	NR	575	299	NR	705	35	NR	835	1	NR	965	0	NR
450	215	NR	580	308	NR	710	30	NR	840	1	NR	970	0	NR
455	173	NR	585	318	NR	715	25	NR	845	0	NR	975	0	NR
460	128	NR	590	325	NR	720	22	NR	850	0	NR	980	0	NR
465	106	NR	595	328	NR	725	18	NR	855	0	NR	985	0	NR
470	86	NR	600	333	NR	730	16	NR	860	0	NR	990	0	NR
475	74	NR	605	336	NR	735	13	NR	865	0	NR	995	0	NR
480	76	NR	610	377	NR	740	11	NR	870	0	NR	1000	0	NR
485	86	NR	615	415	NR	745	10	NR	875	0	NR			

REPORT NUMBER: SP3-2508-516-9

Melanopic Flux vs. Wavelength



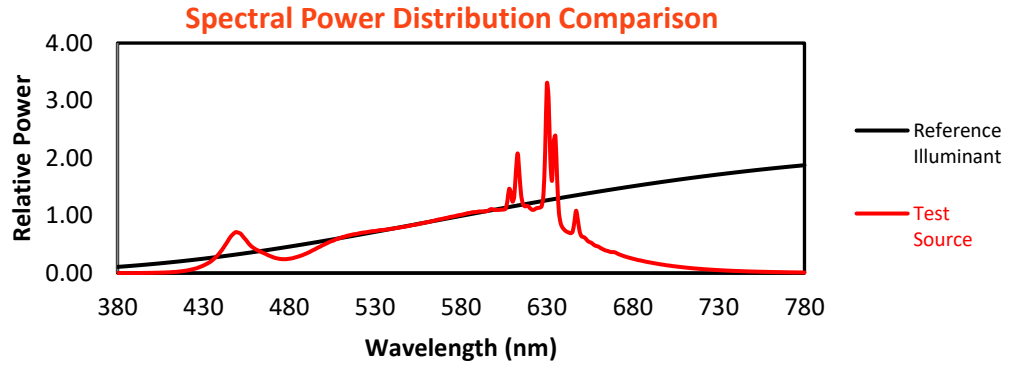
Melanopic Lumens: NR

M/P: 2.75

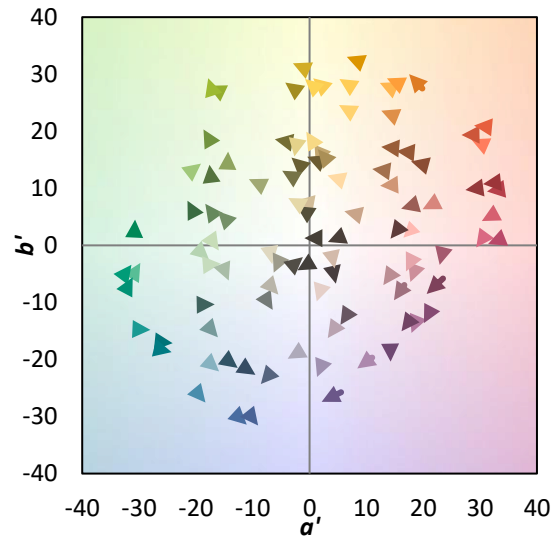
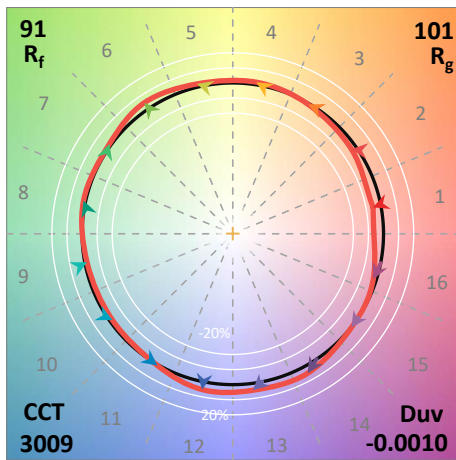
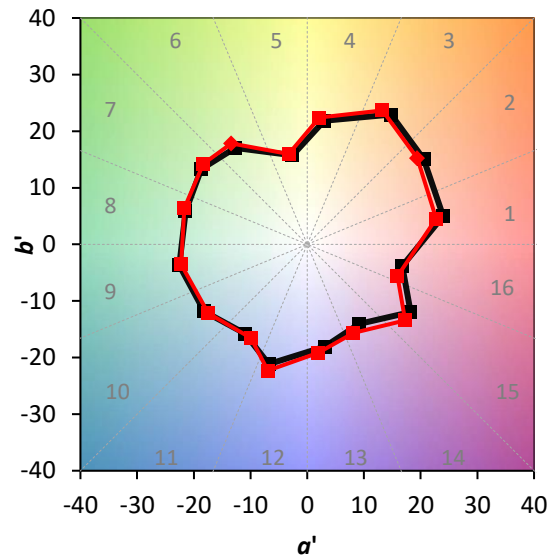
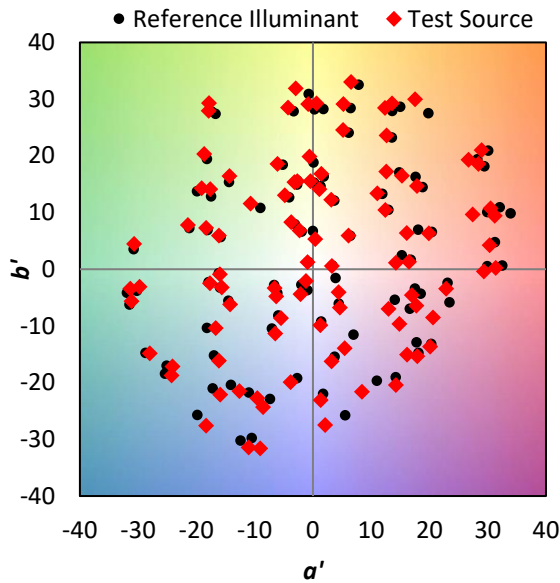
λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)
360	0	NR	490	104	NR	620	345	NR	750	8	NR	880	0	NR
365	0	NR	495	126	NR	625	345	NR	755	7	NR	885	0	NR
370	0	NR	500	149	NR	630	1000	NR	760	6	NR	890	0	NR
375	0	NR	505	170	NR	635	724	NR	765	5	NR	895	0	NR
380	0	NR	510	186	NR	640	231	NR	770	4	NR	900	0	NR
385	0	NR	515	200	NR	645	219	NR	775	4	NR	905	0	NR
390	0	NR	520	208	NR	650	197	NR	780	3	NR	910	0	NR
395	1	NR	525	216	NR	655	163	NR	785	3	NR	915	0	NR
400	1	NR	530	223	NR	660	140	NR	790	2	NR	920	0	NR
405	2	NR	535	228	NR	665	118	NR	795	2	NR	925	0	NR
410	4	NR	540	235	NR	670	108	NR	800	2	NR	930	0	NR
415	7	NR	545	242	NR	675	89	NR	805	1	NR	935	0	NR
420	13	NR	550	250	NR	680	76	NR	810	1	NR	940	0	NR
425	23	NR	555	258	NR	685	66	NR	815	1	NR	945	0	NR
430	40	NR	560	268	NR	690	56	NR	820	1	NR	950	0	NR
435	66	NR	565	279	NR	695	48	NR	825	1	NR	955	0	NR
440	113	NR	570	288	NR	700	41	NR	830	1	NR	960	0	NR
445	181	NR	575	299	NR	705	35	NR	835	1	NR	965	0	NR
450	215	NR	580	308	NR	710	30	NR	840	1	NR	970	0	NR
455	173	NR	585	318	NR	715	25	NR	845	0	NR	975	0	NR
460	128	NR	590	325	NR	720	22	NR	850	0	NR	980	0	NR
465	106	NR	595	328	NR	725	18	NR	855	0	NR	985	0	NR
470	86	NR	600	333	NR	730	16	NR	860	0	NR	990	0	NR
475	74	NR	605	336	NR	735	13	NR	865	0	NR	995	0	NR
480	76	NR	610	377	NR	740	11	NR	870	0	NR	1000	0	NR
485	86	NR	615	415	NR	745	10	NR	875	0	NR			

Summary

$R_f = 91$
 $R_g = 101.1$
 $CIE R_a = 93.2$
 $R_9 = 57.2$

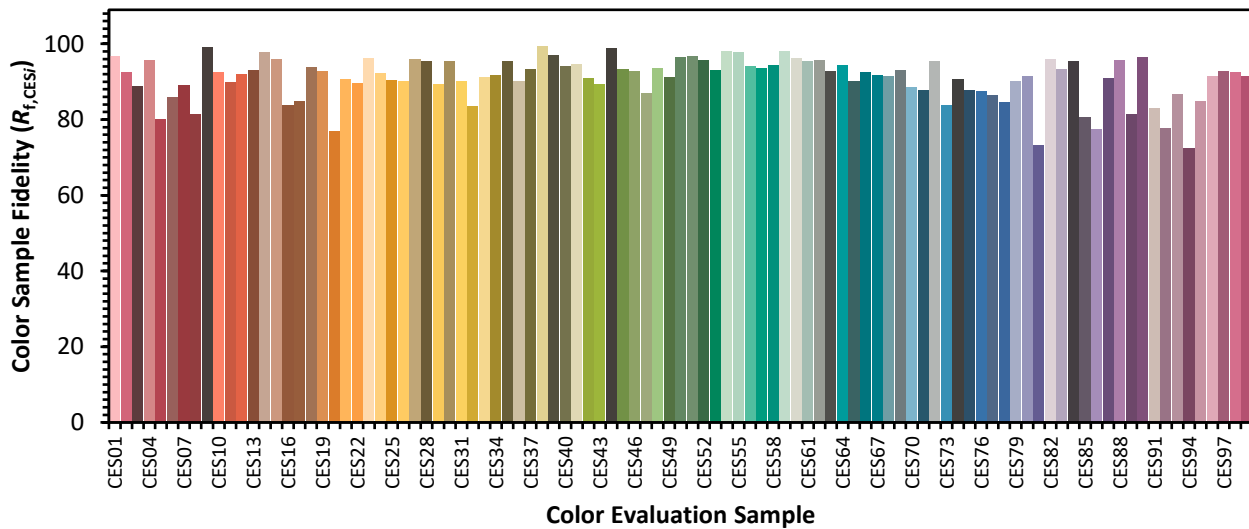


Color Vector Graphics

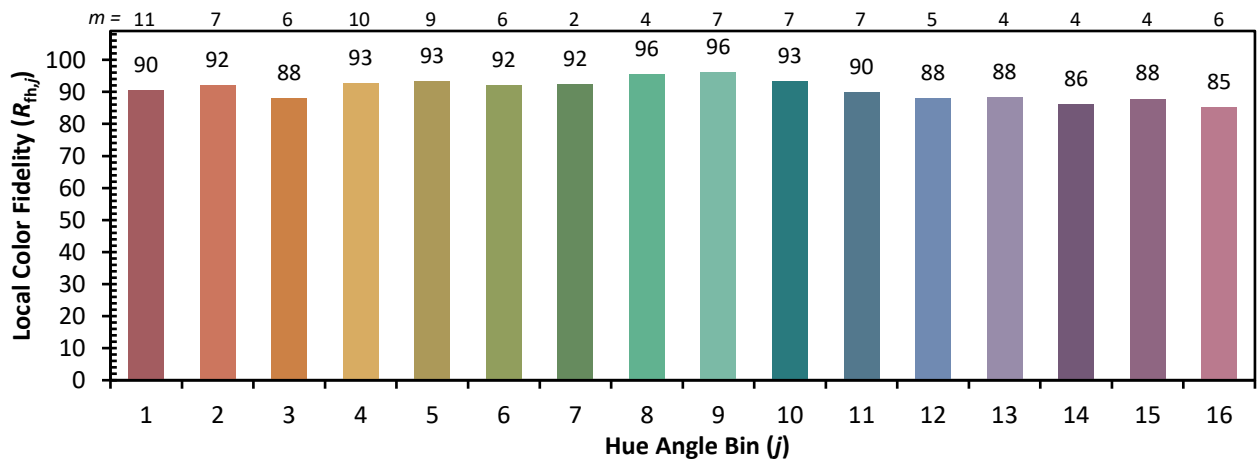
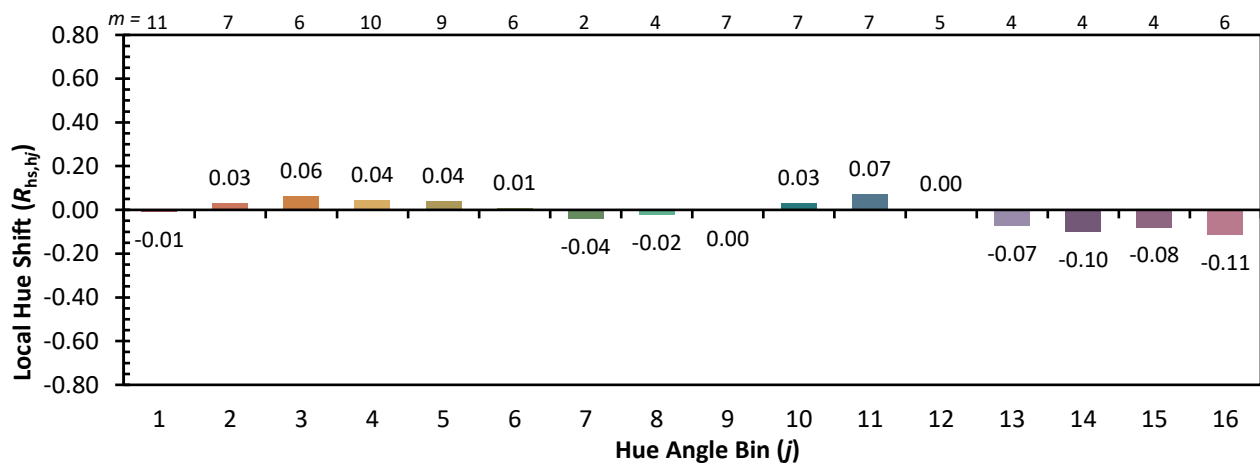
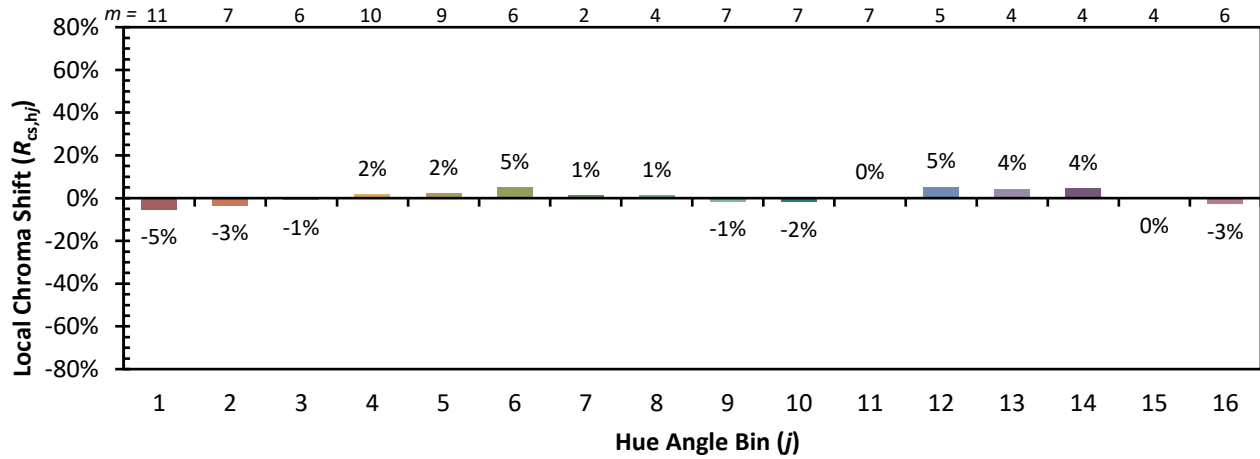


Individual Sample Fidelity Index ($R_{f,i}$)

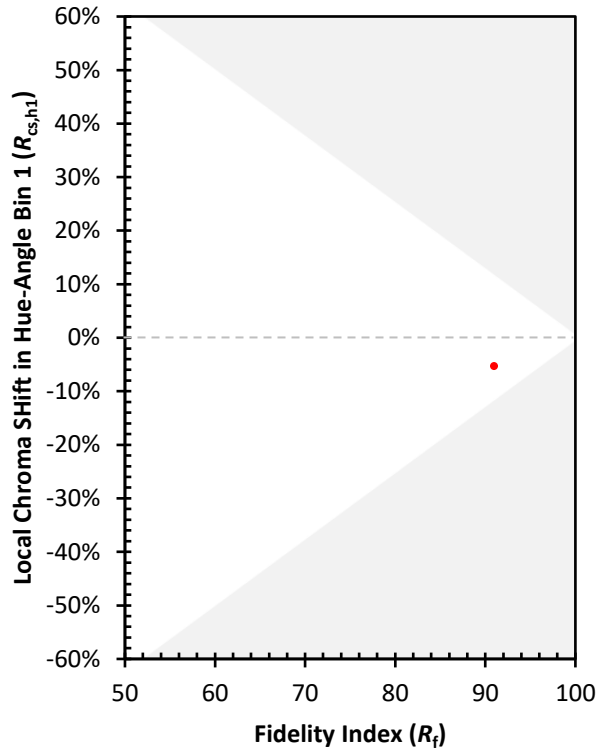
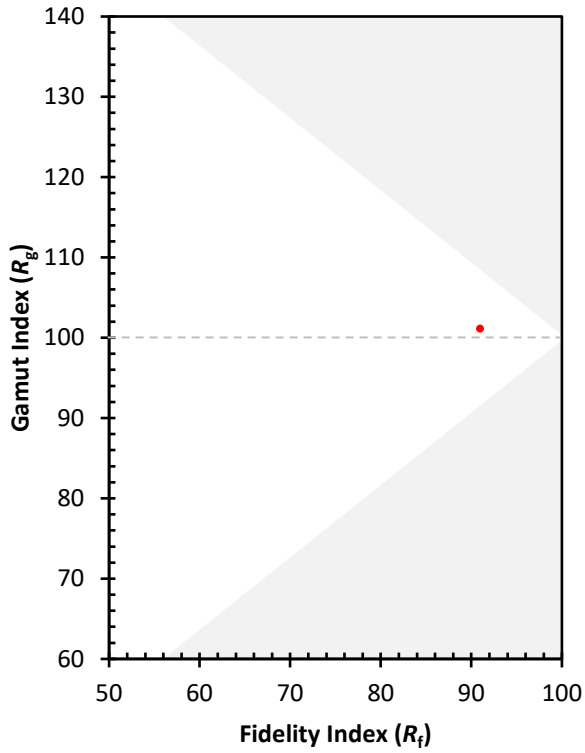
CES01 = 86	CES26 = 90	CES51 = 97	CES76 = 87
CES02 = 63	CES27 = 96	CES52 = 96	CES77 = 86
CES03 = 32	CES28 = 95	CES53 = 93	CES78 = 85
CES04 = 70	CES29 = 89	CES54 = 98	CES79 = 90
CES05 = 50	CES30 = 95	CES55 = 98	CES80 = 91
CES06 = 51	CES31 = 90	CES56 = 94	CES81 = 73
CES07 = 43	CES32 = 84	CES57 = 94	CES82 = 96
CES08 = 42	CES33 = 91	CES58 = 95	CES83 = 93
CES09 = 29	CES34 = 92	CES59 = 98	CES84 = 95
CES10 = 76	CES35 = 95	CES60 = 96	CES85 = 81
CES11 = 59	CES36 = 90	CES61 = 96	CES86 = 78
CES12 = 65	CES37 = 93	CES62 = 96	CES87 = 91
CES13 = 44	CES38 = 99	CES63 = 93	CES88 = 96
CES14 = 74	CES39 = 97	CES64 = 94	CES89 = 82
CES15 = 72	CES40 = 94	CES65 = 90	CES90 = 96
CES16 = 48	CES41 = 95	CES66 = 92	CES91 = 83
CES17 = 50	CES42 = 91	CES67 = 92	CES92 = 78
CES18 = 57	CES43 = 89	CES68 = 92	CES93 = 87
CES19 = 72	CES44 = 99	CES69 = 93	CES94 = 72
CES20 = 67	CES45 = 93	CES70 = 89	CES95 = 85
CES21 = 86	CES46 = 93	CES71 = 88	CES96 = 91
CES22 = 79	CES47 = 87	CES72 = 95	CES97 = 93
CES23 = 92	CES48 = 94	CES73 = 84	CES98 = 93
CES24 = 91	CES49 = 91	CES74 = 91	CES99 = 92
CES25 = 72	CES50 = 97	CES75 = 88	



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)