

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: P981635

Luminaire Tested: **4WNLED-LD4-40SL-F-UNV-L840-CD1-U**

Issue Date: 04/17/2025

Test Information

Test Method: LM-79-08
Report Number: P981635
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-L840-CD1-U
Description: METALUX 4FT WNLED WRAPAROUND 4000LM PACKAGE 80CRI 4000K TROFFER
Light Source: 4000K CCT, 80+ CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

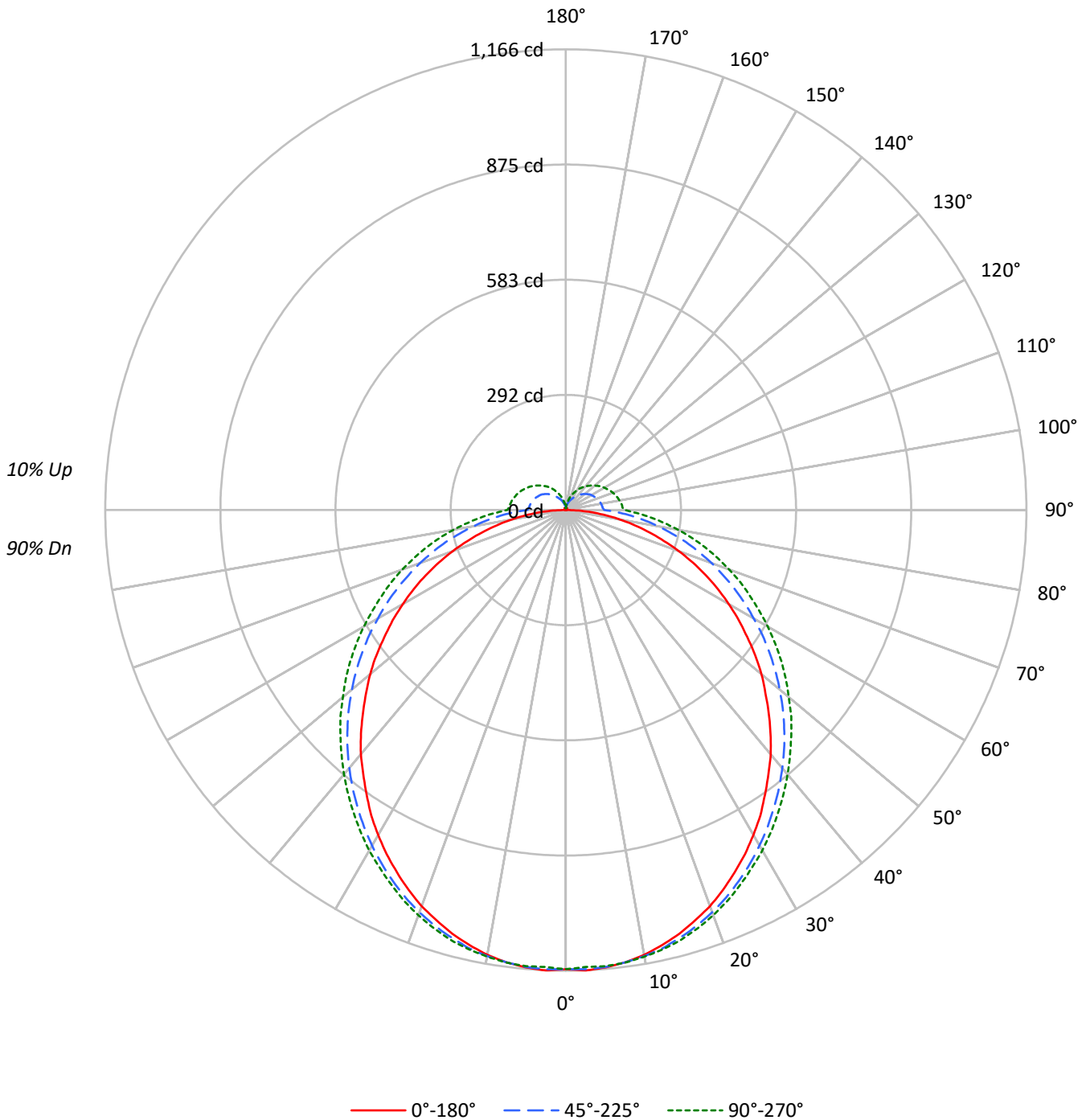
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3966.8 lumens
Efficiency: N/A
Efficacy: 129.6 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

TEST NUMBER: P981635
CATALOG NUMBER: 4WNLED-LD4-40SL-F-UNV-L840-CD1-U

Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	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°	4169	4169	4169
5°	4170	4114	4094
10°	4135	4044	4023
15°	4078	3962	3950
20°	4013	3874	3855
25°	3929	3773	3752
30°	3842	3668	3654
35°	3741	3559	3550
40°	3653	3452	3448
45°	3538	3343	3351
50°	3440	3226	3249
55°	3310	3107	3160
60°	3189	2980	3059
65°	3050	2856	2956
70°	2873	2722	2866
75°	2639	2575	2765
80°	2346	2386	2638
85°	1849	2178	2507



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	110.2	2.8
10°-20°	315.5	8.0
20°-30°	475.5	12.0
30°-40°	571.4	14.4
40°-50°	597.7	15.1
50°-60°	556.3	14.0
60°-70°	458.9	11.6
70°-80°	322.4	8.1
80°-90°	170.2	4.3
90°-100°	92.2	2.3
100°-110°	83.6	2.1
110°-120°	71.6	1.8
120°-130°	56.7	1.4
130°-140°	40.4	1.0
140°-150°	25.3	0.6
150°-160°	13.2	0.3
160°-170°	4.9	0.1
170°-180°	0.8	0.0
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0°-30°	901.1	22.7
0°-40°	1472.6	37.1
0°-60°	2626.6	66.2
0°-90°	3578.1	90.2
90°-120°	247.4	6.2
90°-150°	369.9	9.3
90°-180°	389.0	9.8
0°-180°	3966.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1162	1162	1162	1162	1162	
5°	1162	1155	1161	1161	1159	110
15°	1110	1108	1120	1127	1127	313
25°	1012	1017	1036	1045	1046	466
35°	879	892	919	933	936	550
45°	726	750	782	800	807	561
55°	561	590	629	654	666	502
65°	391	426	471	502	514	387
75°	220	262	315	352	365	233
85°	66	112	166	201	216	69
90°	2	45	97	135	148	5
95°	0	42	93	129	143	0
105°	1	40	87	120	133	1
115°	2	38	80	110	120	2
125°	3	32	70	96	105	3
135°	4	25	56	81	87	3
145°	4	20	41	61	68	3
155°	6	16	29	41	48	3
165°	7	11	17	22	26	2
175°	7	7	8	8	9	1
180°	6	6	6	6	6	



TEST NUMBER: P981635

CATALOG NUMBER: 4WNLED-LD4-40SL-F-UNV-L840-CD1-U

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	1162.0	1162.0	1162.0	1162.0	1162.0	1162.0	1162.0	1162.0	1162.0	1162.0	1162.0
2.5°	1166.4	1165.3	1163.1	1160.9	1159.8	1159.8	1158.7	1158.7	1158.7	1162.0	1163.1
5°	1162.0	1160.9	1158.7	1157.6	1156.5	1155.4	1155.4	1155.4	1156.5	1159.8	1160.9
7.5°	1154.3	1153.2	1151.0	1149.9	1148.7	1148.7	1148.7	1148.7	1149.9	1153.2	1154.3
10°	1143.2	1142.1	1139.9	1138.8	1138.8	1138.8	1138.8	1138.8	1141.0	1144.3	1146.5
12.5°	1127.7	1126.6	1125.5	1125.5	1124.4	1124.4	1125.5	1125.5	1127.7	1132.2	1135.5
15°	1110.1	1108.9	1107.8	1107.8	1107.8	1107.8	1108.9	1110.1	1113.4	1117.8	1120.0
17.5°	1089.0	1089.0	1087.9	1089.0	1089.0	1089.0	1090.2	1092.4	1094.6	1100.1	1103.4
20°	1066.9	1065.8	1064.7	1066.9	1066.9	1066.9	1068.0	1071.4	1074.7	1080.2	1083.5
22.5°	1040.4	1040.4	1040.4	1041.5	1042.6	1043.7	1044.8	1048.1	1052.6	1057.0	1061.4
25°	1011.7	1011.7	1011.7	1013.9	1016.1	1017.2	1018.3	1021.6	1027.1	1031.6	1036.0
27.5°	981.8	981.8	981.8	982.9	986.2	987.3	989.5	994.0	999.5	1003.9	1009.4
30°	949.7	949.7	950.8	953.1	956.4	957.5	959.7	964.1	970.7	975.2	980.7
32.5°	916.6	915.5	916.6	919.9	923.2	926.5	927.6	933.2	939.8	945.3	950.8
35°	879.0	880.1	882.3	885.6	888.9	892.2	894.5	900.0	907.7	913.3	918.8
37.5°	842.5	843.6	845.8	850.2	854.7	858.0	861.3	865.7	874.6	880.1	886.7
40°	807.1	804.9	809.3	813.7	819.3	822.6	825.9	831.4	840.3	845.8	852.4
42.5°	767.3	767.3	770.6	777.3	782.8	786.1	789.4	796.1	804.9	811.5	818.2
45°	726.4	727.5	731.9	738.6	745.2	749.6	751.8	759.6	768.4	775.0	781.7
47.5°	685.5	687.7	692.1	699.9	706.5	710.9	713.1	722.0	730.8	738.6	745.2
50°	646.8	646.8	652.3	659.0	666.7	671.1	674.4	683.3	692.1	699.9	706.5
52.5°	604.8	604.8	610.3	619.2	625.8	631.3	634.6	644.6	653.4	661.2	668.9
55°	560.6	562.8	568.3	578.2	586.0	590.4	594.8	604.8	613.6	622.5	629.1
57.5°	519.6	520.8	527.4	536.2	545.1	549.5	555.0	563.9	573.8	583.8	590.4
60°	476.5	478.7	484.3	495.3	504.2	508.6	513.0	524.1	534.0	542.9	549.5
62.5°	434.5	435.6	443.4	453.3	462.2	467.7	473.2	483.2	493.1	502.0	510.8
65°	391.4	393.6	400.2	411.3	420.1	425.7	430.1	443.4	452.2	462.2	471.0
67.5°	348.3	350.5	358.2	369.3	379.2	384.8	389.2	401.3	412.4	422.4	431.2
70°	305.2	307.4	316.2	327.3	337.2	342.7	349.4	360.4	372.6	382.5	392.5
72.5°	260.9	264.2	272.0	284.1	297.4	302.9	308.5	321.7	332.8	343.9	352.7
75°	220.0	223.3	232.2	243.2	254.3	262.0	266.5	279.7	294.1	305.2	315.1
77.5°	179.1	182.4	191.3	203.4	215.6	222.2	228.9	241.0	253.2	264.2	275.3
80°	140.4	143.7	153.7	164.7	176.9	184.6	191.3	204.5	216.7	227.8	237.7
82.5°	102.8	106.1	116.1	128.3	141.5	148.2	154.8	167.0	180.2	191.3	202.3
85°	66.3	71.9	80.7	91.8	105.0	111.7	118.3	131.6	143.7	154.8	165.8
87.5°	32.1	36.5	46.4	58.6	70.8	78.5	84.0	96.2	109.5	119.4	130.5
90°	2.2	6.6	15.5	26.5	38.7	45.3	52.0	64.1	76.3	87.3	97.3
92.5°	0.0	4.4	13.3	24.3	36.5	43.1	48.6	60.8	73.0	84.0	94.0
95°	0.0	4.4	13.3	24.3	36.5	42.0	48.6	60.8	71.9	82.9	92.9
97.5°	1.1	4.4	13.3	24.3	35.4	42.0	47.5	59.7	70.8	81.8	91.8
100°	1.1	4.4	13.3	23.2	35.4	40.9	47.5	58.6	69.7	80.7	90.7
102.5°	1.1	4.4	13.3	23.2	35.4	40.9	46.4	57.5	68.5	79.6	89.6
105°	1.1	5.5	13.3	23.2	34.3	39.8	45.3	57.5	67.4	77.4	87.3
107.5°	1.1	5.5	13.3	23.2	34.3	39.8	45.3	56.4	66.3	76.3	85.1
110°	2.2	5.5	13.3	23.2	33.2	38.7	44.2	55.3	65.2	75.2	84.0



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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
112.5°	2.2	5.5	13.3	22.1	33.2	37.6	43.1	54.2	64.1	73.0	81.8
115°	2.2	5.5	13.3	22.1	32.1	37.6	42.0	53.1	61.9	71.9	79.6
117.5°	2.2	6.6	13.3	21.0	31.0	36.5	40.9	50.9	60.8	69.7	77.4
120°	3.3	6.6	12.2	21.0	29.9	35.4	39.8	49.8	58.6	67.4	75.2
122.5°	3.3	6.6	12.2	19.9	28.7	33.2	38.7	47.5	56.4	65.2	73.0
125°	3.3	6.6	12.2	18.8	27.6	32.1	36.5	45.3	54.2	61.9	69.7
127.5°	3.3	6.6	12.2	18.8	26.5	29.9	34.3	43.1	50.9	58.6	66.3
130°	3.3	6.6	11.1	17.7	24.3	28.7	32.1	40.9	47.5	55.3	63.0
132.5°	3.3	6.6	11.1	16.6	23.2	27.6	31.0	38.7	45.3	52.0	59.7
135°	4.4	6.6	11.1	16.6	22.1	25.4	28.7	35.4	42.0	48.6	56.4
137.5°	4.4	6.6	10.0	15.5	21.0	24.3	27.6	33.2	39.8	46.4	52.0
140°	4.4	6.6	10.0	14.4	19.9	23.2	25.4	31.0	37.6	43.1	48.6
142.5°	4.4	6.6	10.0	14.4	18.8	21.0	24.3	28.7	34.3	39.8	45.3
145°	4.4	6.6	10.0	13.3	17.7	19.9	22.1	27.6	32.1	36.5	40.9
147.5°	5.5	6.6	10.0	13.3	16.6	18.8	21.0	25.4	29.9	33.2	37.6
150°	5.5	6.6	8.8	12.2	15.5	17.7	19.9	23.2	27.6	31.0	34.3
152.5°	5.5	6.6	8.8	12.2	15.5	16.6	17.7	22.1	25.4	28.7	31.0
155°	5.5	6.6	8.8	11.1	14.4	15.5	16.6	19.9	23.2	25.4	28.7
157.5°	5.5	6.6	8.8	11.1	13.3	14.4	15.5	17.7	21.0	23.2	25.4
160°	5.5	6.6	8.8	10.0	12.2	13.3	14.4	16.6	18.8	21.0	22.1
162.5°	6.6	6.6	7.7	10.0	11.1	12.2	13.3	14.4	16.6	17.7	19.9
165°	6.6	6.6	7.7	8.8	10.0	11.1	11.1	13.3	14.4	15.5	16.6
167.5°	6.6	6.6	7.7	8.8	8.8	10.0	10.0	11.1	12.2	13.3	14.4
170°	6.6	6.6	6.6	7.7	8.8	8.8	8.8	10.0	11.1	11.1	12.2
172.5°	6.6	6.6	6.6	6.6	7.7	7.7	7.7	8.8	8.8	10.0	10.0
175°	6.6	6.6	6.6	6.6	6.6	6.6	7.7	7.7	7.7	7.7	7.7
177.5°	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
180°	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5



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CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°
0°	1162.0	1162.0	1162.0	1162.0	1162.0	1162.0	1162.0	1162.0	1162.0	1162.0
2.5°	1164.2	1166.4	1165.3	1163.1	1163.1	1163.1	1162.0	1159.8	1158.7	1157.6
5°	1162.0	1164.2	1162.0	1160.9	1160.9	1160.9	1160.9	1159.8	1158.7	1158.7
7.5°	1156.5	1158.7	1157.6	1156.5	1156.5	1156.5	1156.5	1155.4	1155.4	1155.4
10°	1148.7	1152.1	1151.0	1149.9	1148.7	1149.9	1148.7	1148.7	1147.6	1147.6
12.5°	1136.6	1139.9	1139.9	1138.8	1138.8	1138.8	1138.8	1138.8	1137.7	1138.8
15°	1123.3	1126.6	1126.6	1126.6	1126.6	1126.6	1126.6	1126.6	1125.5	1126.6
17.5°	1106.7	1110.1	1111.2	1110.1	1111.2	1111.2	1111.2	1110.1	1110.1	1110.1
20°	1086.8	1090.2	1091.3	1090.2	1090.2	1090.2	1091.3	1091.3	1091.3	1091.3
22.5°	1064.7	1068.0	1068.0	1068.0	1069.1	1069.1	1069.1	1070.2	1070.2	1070.2
25°	1039.3	1042.6	1042.6	1043.7	1044.8	1044.8	1045.9	1045.9	1045.9	1045.9
27.5°	1015.0	1017.2	1017.2	1018.3	1019.4	1019.4	1019.4	1019.4	1021.6	1020.5
30°	986.2	988.4	989.5	991.8	991.8	992.9	992.9	994.0	995.1	995.1
32.5°	956.4	958.6	959.7	961.9	963.0	964.1	964.1	966.3	967.4	966.3
35°	924.3	926.5	929.8	930.9	933.2	933.2	935.4	935.4	937.6	936.5
37.5°	892.2	894.5	896.7	898.9	901.1	902.2	903.3	905.5	907.7	905.5
40°	858.0	861.3	864.6	866.8	867.9	870.1	870.1	873.4	875.7	873.4
42.5°	823.7	827.0	830.3	834.8	834.8	835.9	838.1	841.4	841.4	840.3
45°	788.3	790.5	796.1	799.4	800.5	801.6	803.8	804.9	807.1	807.1
47.5°	750.7	755.1	760.7	764.0	765.1	766.2	768.4	770.6	773.9	773.9
50°	713.1	718.7	720.9	726.4	728.6	729.7	733.0	735.2	737.5	736.3
52.5°	674.4	678.9	685.5	689.9	692.1	693.2	696.5	699.9	701.0	702.1
55°	635.7	641.3	647.9	652.3	654.5	656.7	659.0	661.2	664.5	665.6
57.5°	597.0	602.6	610.3	614.7	616.9	618.0	622.5	625.8	626.9	628.0
60°	557.2	563.9	571.6	576.0	578.2	581.6	582.7	588.2	589.3	590.4
62.5°	518.5	525.2	532.9	538.4	540.7	542.9	547.3	550.6	552.8	551.7
65°	479.8	486.5	494.2	499.7	502.0	505.3	508.6	511.9	514.1	514.1
67.5°	440.0	447.8	456.6	462.2	464.4	467.7	471.0	473.2	476.5	478.7
70°	401.3	410.2	417.9	423.5	425.7	429.0	432.3	437.8	437.8	440.0
72.5°	362.6	371.5	379.2	387.0	389.2	391.4	395.8	399.1	400.2	402.4
75°	325.1	333.9	341.6	347.2	351.6	353.8	358.2	360.4	362.6	364.9
77.5°	285.3	296.3	304.0	310.7	314.0	316.2	320.6	323.9	326.2	327.3
80°	247.7	256.5	264.2	270.9	274.2	277.5	281.9	284.1	287.5	288.6
82.5°	211.2	220.0	227.8	233.3	237.7	239.9	244.3	248.8	248.8	251.0
85°	174.7	183.5	191.3	197.9	201.2	204.5	207.9	212.3	213.4	215.6
87.5°	139.3	149.3	155.9	163.6	165.8	169.2	174.7	178.0	180.2	180.2
90°	107.2	116.1	123.8	131.6	134.9	137.1	142.6	145.9	148.2	148.2
92.5°	103.9	112.8	120.5	128.3	130.5	133.8	138.2	141.5	143.7	143.7
95°	102.8	111.7	119.4	126.0	129.4	131.6	137.1	139.3	141.5	142.6
97.5°	101.7	110.6	118.3	124.9	127.1	130.5	134.9	138.2	140.4	140.4
100°	99.5	108.4	116.1	122.7	126.0	128.3	132.7	136.0	137.1	138.2
102.5°	98.4	106.1	113.9	120.5	123.8	126.0	130.5	133.8	134.9	136.0
105°	96.2	105.0	111.7	118.3	120.5	123.8	127.1	130.5	132.7	132.7
107.5°	94.0	102.8	109.5	116.1	118.3	120.5	124.9	128.3	129.4	130.5
110°	91.8	100.6	107.2	112.8	116.1	118.3	121.6	124.9	126.0	127.1



TEST NUMBER: P981635

CATALOG NUMBER: 4WNLED-LD4-40SL-F-UNV-L840-CD1-U

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°
112.5°	89.6	97.3	103.9	110.6	112.8	115.0	118.3	121.6	122.7	123.8
115°	87.3	95.1	101.7	107.2	109.5	111.7	115.0	118.3	119.4	120.5
117.5°	85.1	92.9	98.4	103.9	106.1	108.4	111.7	115.0	116.1	116.1
120°	82.9	89.6	96.2	100.6	102.8	105.0	108.4	110.6	112.8	112.8
122.5°	79.6	86.2	92.9	97.3	99.5	101.7	105.0	107.2	108.4	109.5
125°	77.4	84.0	89.6	94.0	96.2	98.4	100.6	102.8	103.9	105.0
127.5°	74.1	79.6	86.2	90.7	92.9	95.1	97.3	99.5	100.6	100.6
130°	69.7	76.3	81.8	87.3	89.6	90.7	94.0	95.1	96.2	96.2
132.5°	66.3	71.9	77.4	82.9	85.1	87.3	89.6	90.7	91.8	91.8
135°	61.9	67.4	73.0	78.5	80.7	82.9	85.1	86.2	87.3	87.3
137.5°	58.6	64.1	68.5	74.1	76.3	78.5	80.7	81.8	82.9	82.9
140°	54.2	58.6	64.1	69.7	71.9	73.0	76.3	77.4	78.5	78.5
142.5°	49.8	55.3	59.7	64.1	66.3	68.5	71.9	73.0	74.1	74.1
145°	46.4	50.9	54.2	58.6	60.8	63.0	66.3	68.5	68.5	68.5
147.5°	42.0	46.4	49.8	54.2	56.4	57.5	61.9	63.0	64.1	64.1
150°	38.7	42.0	45.3	48.6	50.9	53.1	56.4	58.6	58.6	58.6
152.5°	35.4	37.6	40.9	44.2	45.3	47.5	50.9	53.1	53.1	53.1
155°	31.0	34.3	36.5	38.7	40.9	42.0	45.3	47.5	47.5	47.5
157.5°	27.6	29.9	32.1	34.3	35.4	36.5	39.8	42.0	43.1	43.1
160°	24.3	26.5	27.6	29.9	31.0	32.1	33.2	36.5	37.6	37.6
162.5°	21.0	22.1	24.3	25.4	26.5	26.5	28.7	29.9	32.1	32.1
165°	17.7	18.8	19.9	21.0	22.1	22.1	23.2	25.4	26.5	26.5
167.5°	15.5	15.5	16.6	17.7	17.7	17.7	18.8	19.9	22.1	22.1
170°	12.2	13.3	13.3	13.3	14.4	14.4	14.4	15.5	16.6	17.7
172.5°	10.0	10.0	11.1	11.1	11.1	11.1	11.1	11.1	12.2	13.3
175°	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	8.8
177.5°	6.6	6.6	6.6	5.5	5.5	5.5	5.5	5.5	5.5	4.4
180°	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5

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

Report Prepared for

Cooper Lighting Solutions

Metalux

Report Number: SP3-2508-516-11

Test Date: 09/05/2025

Luminaire Tested: 4WNLED-LD4-50SL-F-UNVL940-CD1-U

Data in this report applies to families of products including 4WNLED-LD4-50SL-F-UNVL940-CD1-U

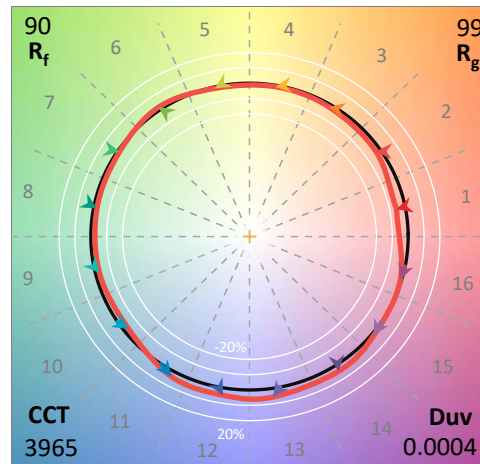
Test Information

Test Method: LM-79-2019
 Report Number: SP3-2508-516-11
 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-UNVL940-CD1-U**
 Description: 4FT WNLED 5000LM 940

Spectral Parameters

CCT (K): 3965
 CIE u': 0.2255
 CIE v': 0.5028
 Duv: 0.0004
 CIE x: 0.3823
 CIE y: 0.3788
 CIE z: 0.2389
 Peak Wavelength (nm): 630
 Dominant Wavelength (nm): 578
 Purity: 28.40976
 Rf: 90.2
 Rg: 99.3

CRI (Ra):	92.3		
R1:	93.3	R9:	59.9
R2:	94.5	R10:	85.4
R3:	94.2	R11:	93.6
R4:	93.6	R12:	71.2
R5:	92.2	R13:	93.5
R6:	92.1	R14:	96.1
R7:	93.9	R15:	90.0
R8:	85.0		



Test Conditions

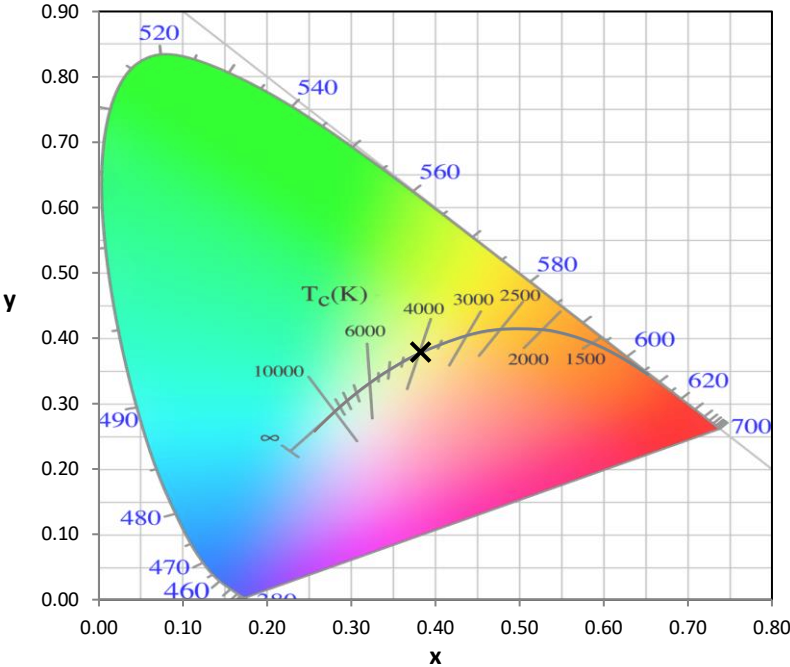
Stabilization Time: 21M
 Operation Time: 1H 21M
 Sphere Temperature (°C): 25.0

REPORT NUMBER: SP3-2508-516-11

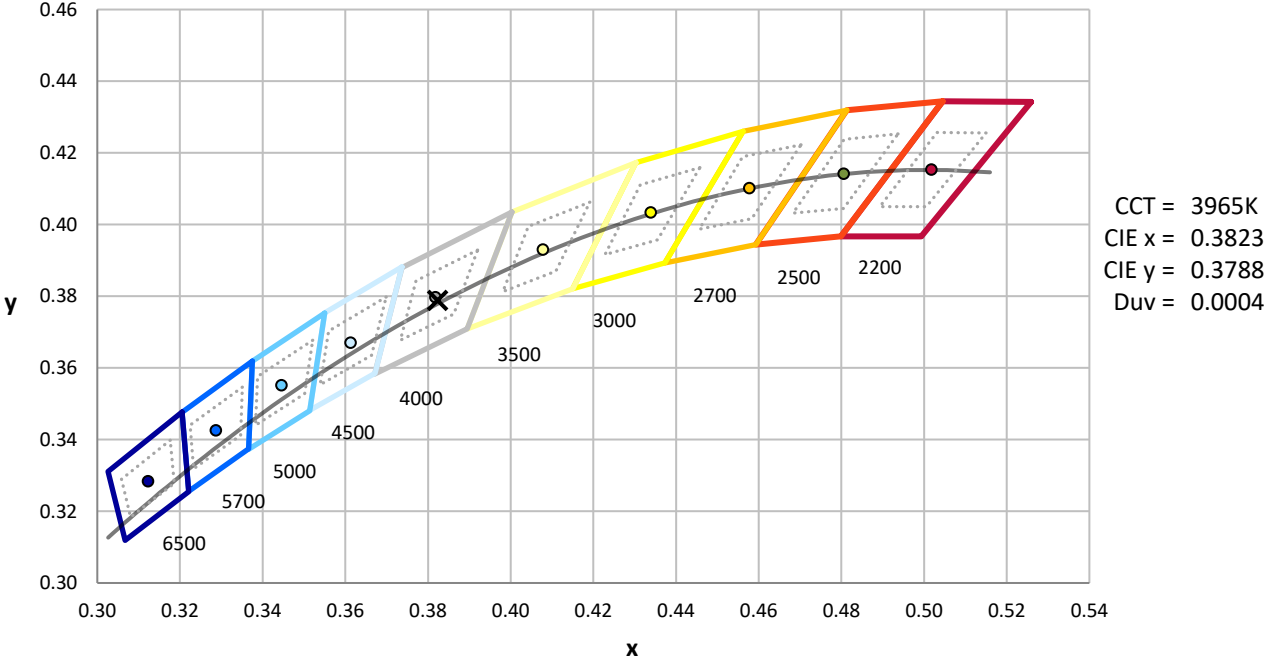
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	3M SPHERE IN02505	7/1/2025	1/1/2026
Power Meter	XITRON INXT2011006	1/20/2025	1/20/2026
AC Power Source	CHROMA 61604 IN6064A	10/22/2024	10/22/2025
DC Power Source	EYSIGHT N5770A IN0534	10/22/2024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

REPORT NUMBER: SP3-2508-516-11

CIE 1931 Chromaticity Diagram



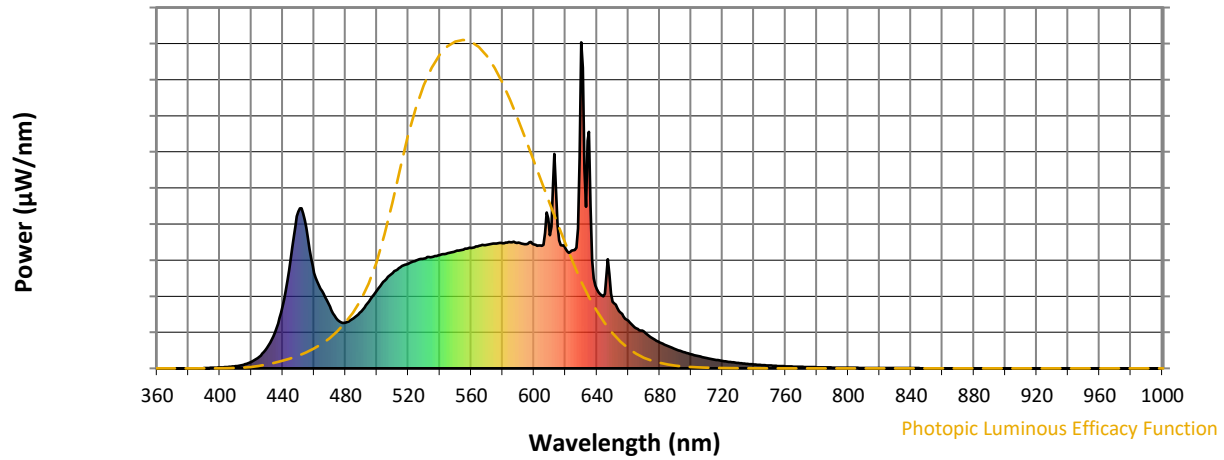
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 4000K 4-step quadrangle

REPORT NUMBER: SP3-2508-516-11

Photopic Flux vs. Wavelength

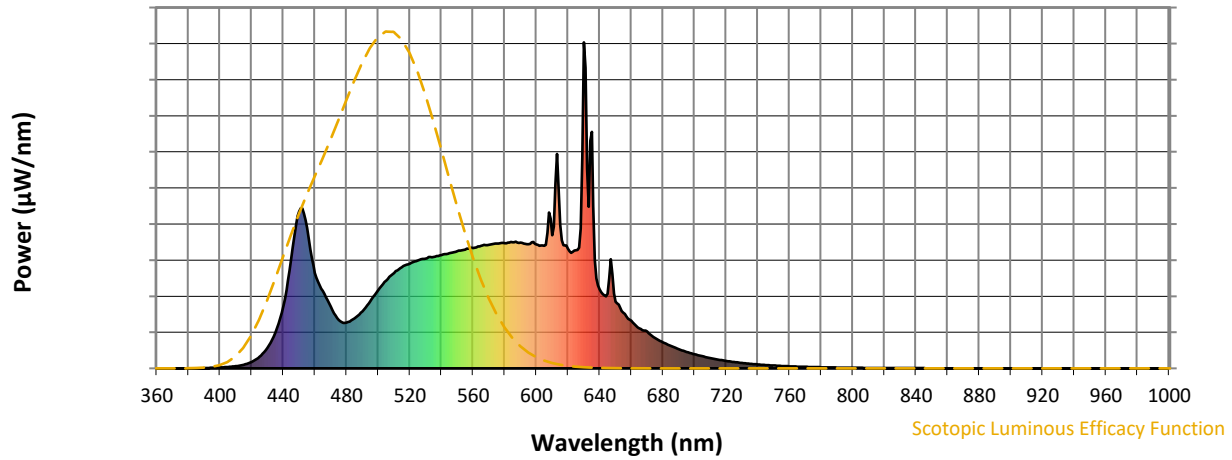


Photopic Lumens: NR

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	175	NR	620	367	NR	750	9	NR	880	0	NR
365	0	NR	495	206	NR	625	362	NR	755	7	NR	885	0	NR
370	0	NR	500	240	NR	630	1000	NR	760	6	NR	890	0	NR
375	0	NR	505	269	NR	635	725	NR	765	5	NR	895	0	NR
380	0	NR	510	292	NR	640	243	NR	770	5	NR	900	0	NR
385	0	NR	515	311	NR	645	228	NR	775	4	NR	905	0	NR
390	1	NR	520	321	NR	650	204	NR	780	3	NR	910	0	NR
395	2	NR	525	331	NR	655	171	NR	785	3	NR	915	0	NR
400	3	NR	530	337	NR	660	146	NR	790	2	NR	920	0	NR
405	4	NR	535	342	NR	665	123	NR	795	2	NR	925	0	NR
410	7	NR	540	347	NR	670	113	NR	800	2	NR	930	0	NR
415	11	NR	545	353	NR	675	93	NR	805	2	NR	935	0	NR
420	20	NR	550	359	NR	680	80	NR	810	1	NR	940	0	NR
425	35	NR	555	364	NR	685	69	NR	815	1	NR	945	0	NR
430	63	NR	560	369	NR	690	59	NR	820	1	NR	950	0	NR
435	110	NR	565	376	NR	695	51	NR	825	1	NR	955	0	NR
440	191	NR	570	379	NR	700	43	NR	830	1	NR	960	0	NR
445	335	NR	575	382	NR	705	37	NR	835	1	NR	965	0	NR
450	481	NR	580	384	NR	710	31	NR	840	1	NR	970	0	NR
455	431	NR	585	387	NR	715	27	NR	845	1	NR	975	0	NR
460	293	NR	590	386	NR	720	23	NR	850	0	NR	980	0	NR
465	237	NR	595	381	NR	725	19	NR	855	0	NR	985	0	NR
470	190	NR	600	380	NR	730	16	NR	860	0	NR	990	0	NR
475	148	NR	605	376	NR	735	14	NR	865	0	NR	995	0	NR
480	140	NR	610	408	NR	740	12	NR	870	0	NR	1000	0	NR
485	153	NR	615	439	NR	745	10	NR	875	0	NR			

REPORT NUMBER: SP3-2508-516-11

Scotopic Flux vs. Wavelength



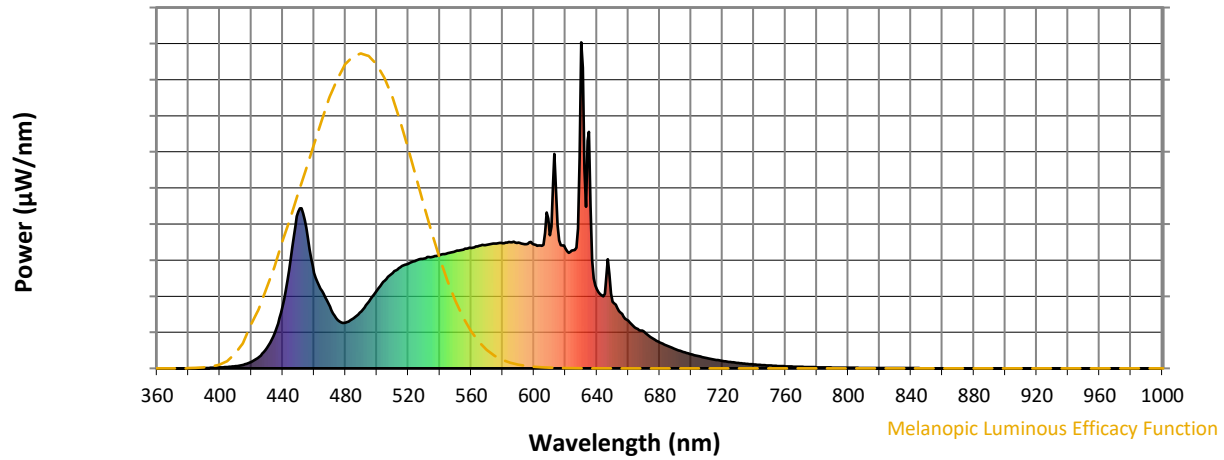
Scotopic Lumens: NR

S/P: 1.75

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	175	NR	620	367	NR	750	9	NR	880	0	NR
365	0	NR	495	206	NR	625	362	NR	755	7	NR	885	0	NR
370	0	NR	500	240	NR	630	1000	NR	760	6	NR	890	0	NR
375	0	NR	505	269	NR	635	725	NR	765	5	NR	895	0	NR
380	0	NR	510	292	NR	640	243	NR	770	5	NR	900	0	NR
385	0	NR	515	311	NR	645	228	NR	775	4	NR	905	0	NR
390	1	NR	520	321	NR	650	204	NR	780	3	NR	910	0	NR
395	2	NR	525	331	NR	655	171	NR	785	3	NR	915	0	NR
400	3	NR	530	337	NR	660	146	NR	790	2	NR	920	0	NR
405	4	NR	535	342	NR	665	123	NR	795	2	NR	925	0	NR
410	7	NR	540	347	NR	670	113	NR	800	2	NR	930	0	NR
415	11	NR	545	353	NR	675	93	NR	805	2	NR	935	0	NR
420	20	NR	550	359	NR	680	80	NR	810	1	NR	940	0	NR
425	35	NR	555	364	NR	685	69	NR	815	1	NR	945	0	NR
430	63	NR	560	369	NR	690	59	NR	820	1	NR	950	0	NR
435	110	NR	565	376	NR	695	51	NR	825	1	NR	955	0	NR
440	191	NR	570	379	NR	700	43	NR	830	1	NR	960	0	NR
445	335	NR	575	382	NR	705	37	NR	835	1	NR	965	0	NR
450	481	NR	580	384	NR	710	31	NR	840	1	NR	970	0	NR
455	431	NR	585	387	NR	715	27	NR	845	1	NR	975	0	NR
460	293	NR	590	386	NR	720	23	NR	850	0	NR	980	0	NR
465	237	NR	595	381	NR	725	19	NR	855	0	NR	985	0	NR
470	190	NR	600	380	NR	730	16	NR	860	0	NR	990	0	NR
475	148	NR	605	376	NR	735	14	NR	865	0	NR	995	0	NR
480	140	NR	610	408	NR	740	12	NR	870	0	NR	1000	0	NR
485	153	NR	615	439	NR	745	10	NR	875	0	NR			

REPORT NUMBER: SP3-2508-516-11

Melanopic Flux vs. Wavelength



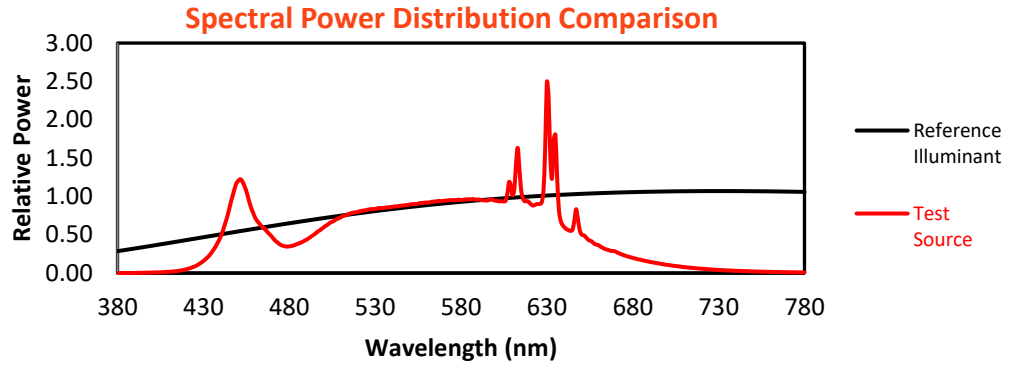
Melanopic Lumens: NR

M/P: 3.62

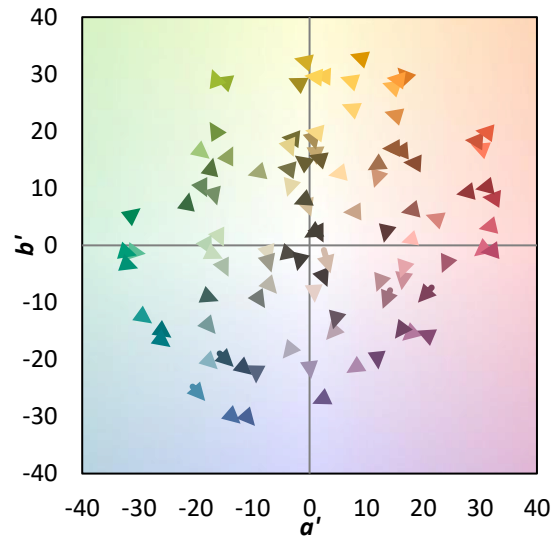
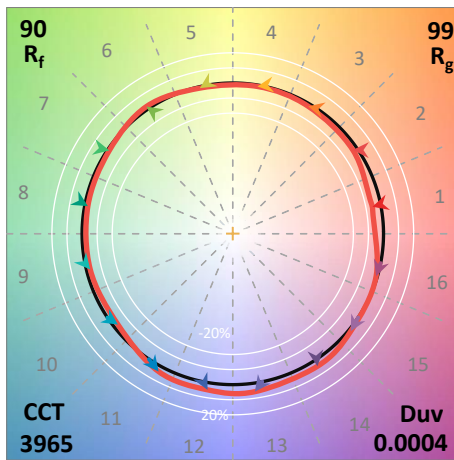
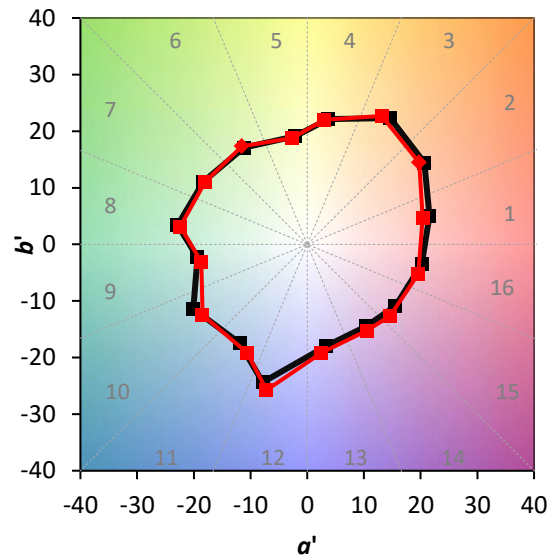
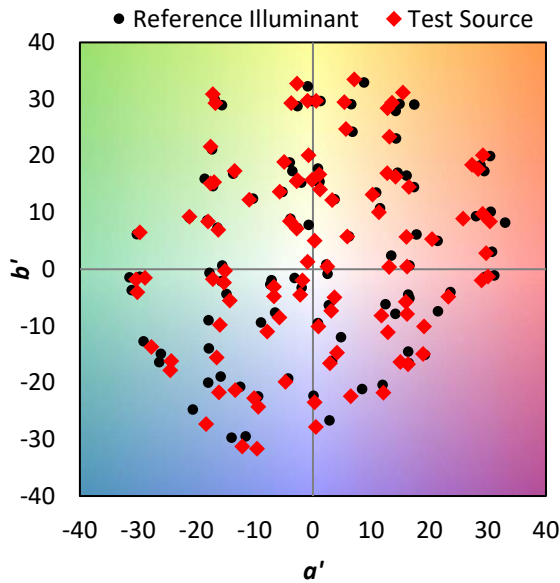
λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)
360	0	NR	490	175	NR	620	367	NR	750	9	NR	880	0	NR
365	0	NR	495	206	NR	625	362	NR	755	7	NR	885	0	NR
370	0	NR	500	240	NR	630	1000	NR	760	6	NR	890	0	NR
375	0	NR	505	269	NR	635	725	NR	765	5	NR	895	0	NR
380	0	NR	510	292	NR	640	243	NR	770	5	NR	900	0	NR
385	0	NR	515	311	NR	645	228	NR	775	4	NR	905	0	NR
390	1	NR	520	321	NR	650	204	NR	780	3	NR	910	0	NR
395	2	NR	525	331	NR	655	171	NR	785	3	NR	915	0	NR
400	3	NR	530	337	NR	660	146	NR	790	2	NR	920	0	NR
405	4	NR	535	342	NR	665	123	NR	795	2	NR	925	0	NR
410	7	NR	540	347	NR	670	113	NR	800	2	NR	930	0	NR
415	11	NR	545	353	NR	675	93	NR	805	2	NR	935	0	NR
420	20	NR	550	359	NR	680	80	NR	810	1	NR	940	0	NR
425	35	NR	555	364	NR	685	69	NR	815	1	NR	945	0	NR
430	63	NR	560	369	NR	690	59	NR	820	1	NR	950	0	NR
435	110	NR	565	376	NR	695	51	NR	825	1	NR	955	0	NR
440	191	NR	570	379	NR	700	43	NR	830	1	NR	960	0	NR
445	335	NR	575	382	NR	705	37	NR	835	1	NR	965	0	NR
450	481	NR	580	384	NR	710	31	NR	840	1	NR	970	0	NR
455	431	NR	585	387	NR	715	27	NR	845	1	NR	975	0	NR
460	293	NR	590	386	NR	720	23	NR	850	0	NR	980	0	NR
465	237	NR	595	381	NR	725	19	NR	855	0	NR	985	0	NR
470	190	NR	600	380	NR	730	16	NR	860	0	NR	990	0	NR
475	148	NR	605	376	NR	735	14	NR	865	0	NR	995	0	NR
480	140	NR	610	408	NR	740	12	NR	870	0	NR	1000	0	NR
485	153	NR	615	439	NR	745	10	NR	875	0	NR			

Summary

$R_f = 90.2$
 $R_g = 99.3$
 $CIE R_a = 92.3$
 $R_9 = 59.9$

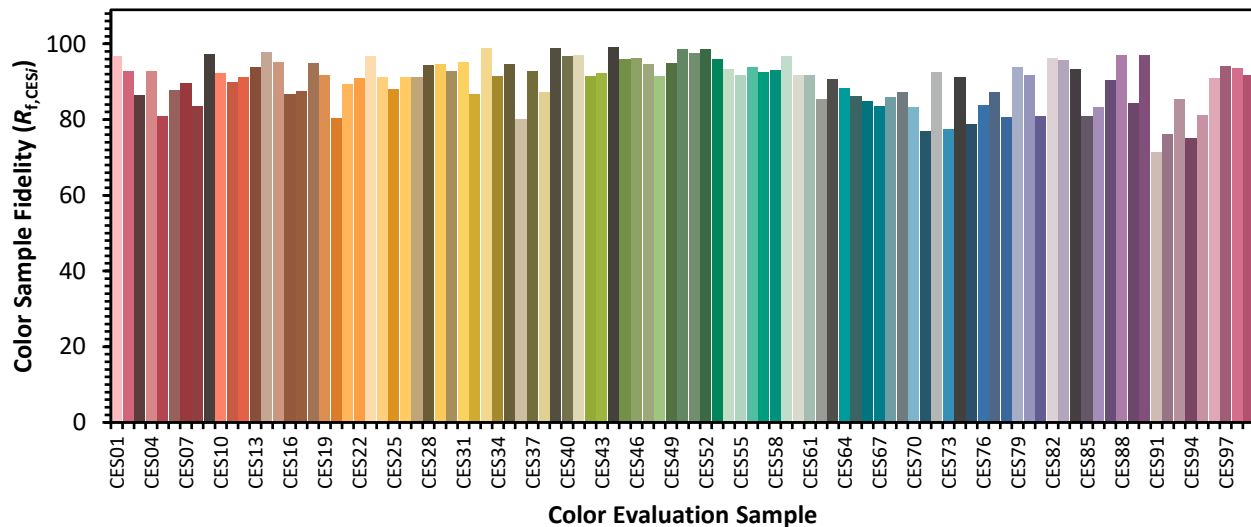


Color Vector Graphics

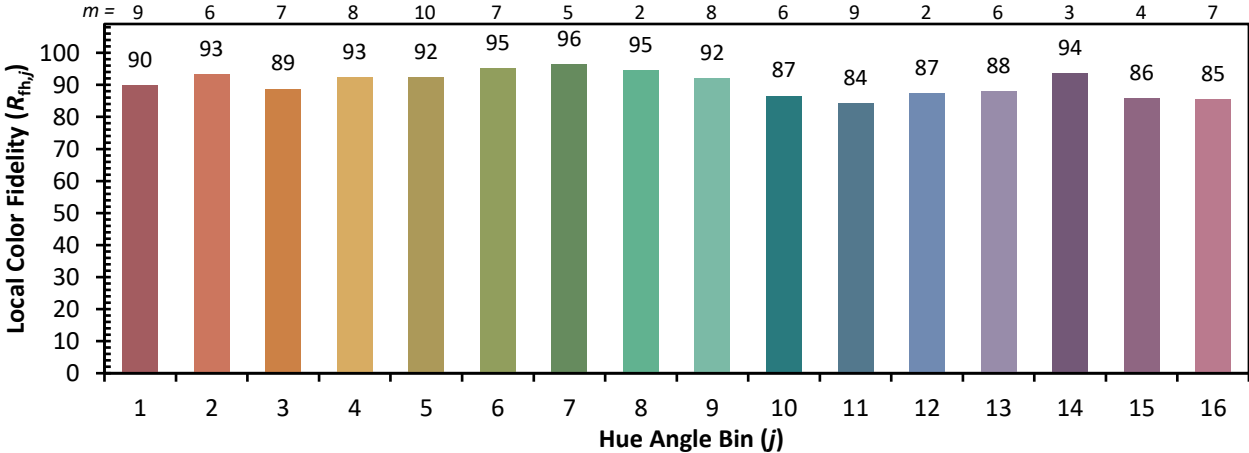
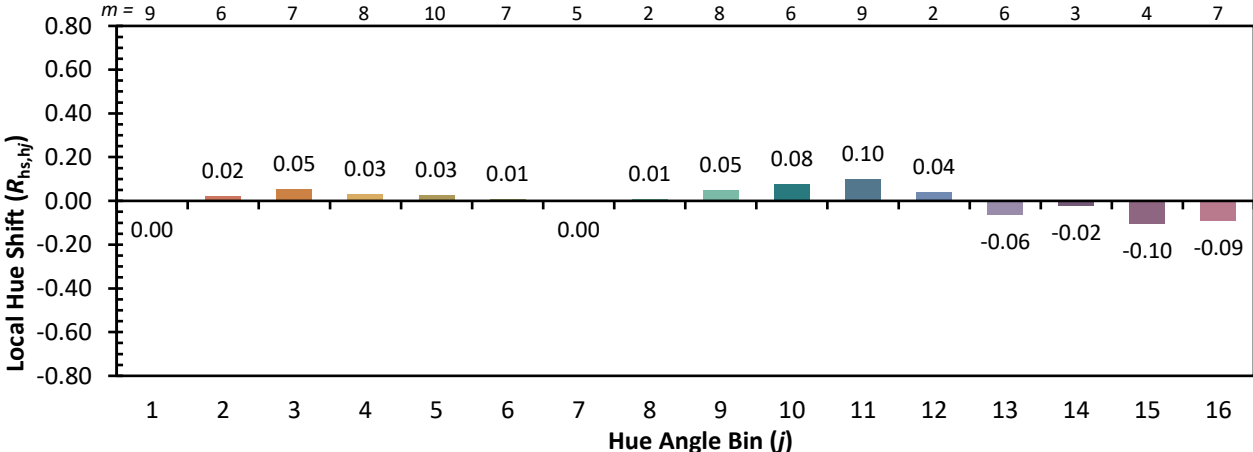
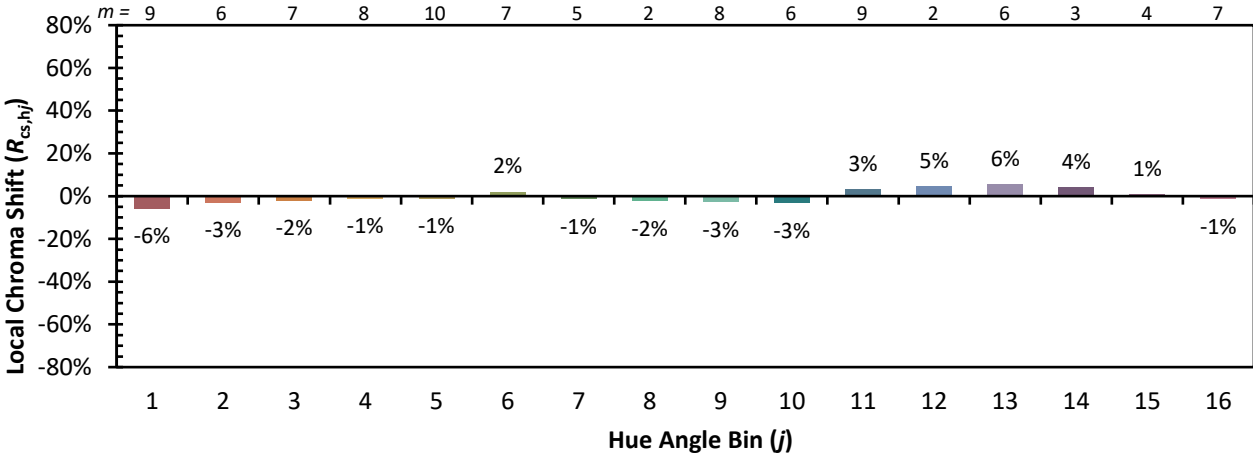


Individual Sample Fidelity Index ($R_{f,i}$)

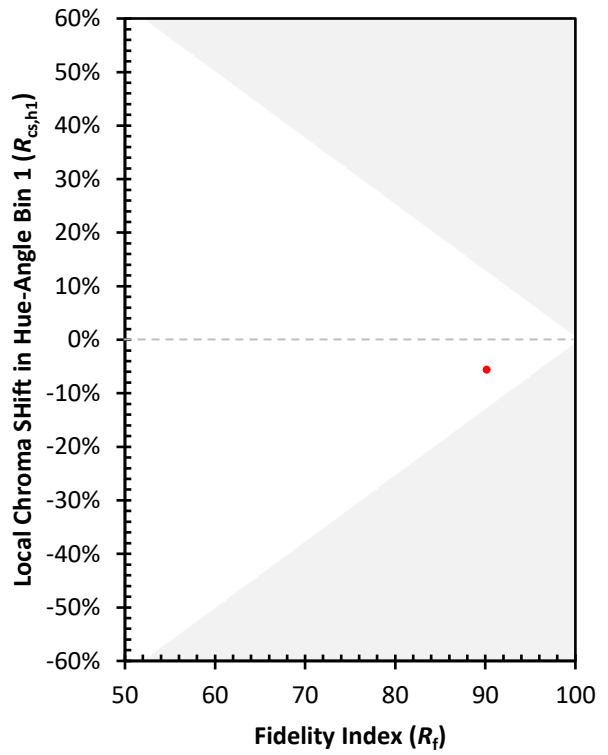
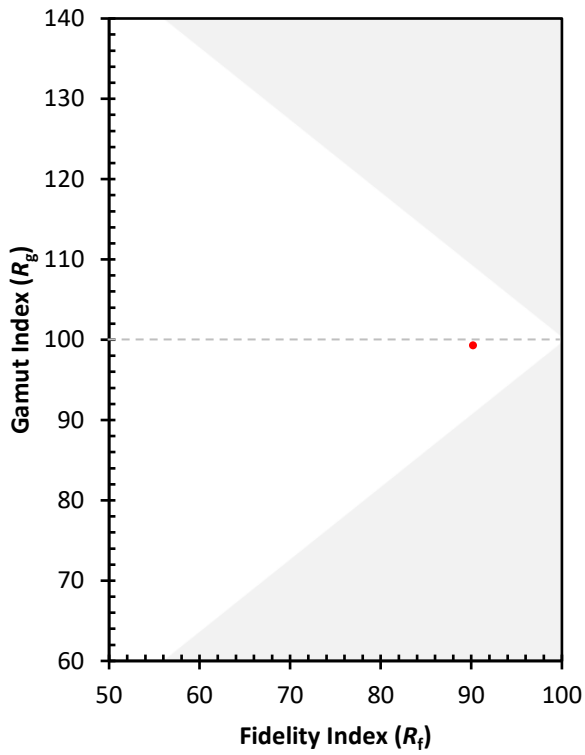
CES01 = 86	CES26 = 91	CES51 = 98	CES76 = 84
CES02 = 62	CES27 = 91	CES52 = 99	CES77 = 87
CES03 = 31	CES28 = 94	CES53 = 96	CES78 = 81
CES04 = 69	CES29 = 95	CES54 = 93	CES79 = 94
CES05 = 49	CES30 = 93	CES55 = 92	CES80 = 92
CES06 = 50	CES31 = 95	CES56 = 94	CES81 = 81
CES07 = 42	CES32 = 87	CES57 = 93	CES82 = 96
CES08 = 41	CES33 = 99	CES58 = 93	CES83 = 96
CES09 = 29	CES34 = 91	CES59 = 97	CES84 = 93
CES10 = 74	CES35 = 95	CES60 = 92	CES85 = 81
CES11 = 57	CES36 = 80	CES61 = 92	CES86 = 83
CES12 = 63	CES37 = 93	CES62 = 85	CES87 = 90
CES13 = 43	CES38 = 87	CES63 = 91	CES88 = 97
CES14 = 74	CES39 = 99	CES64 = 88	CES89 = 84
CES15 = 71	CES40 = 97	CES65 = 86	CES90 = 97
CES16 = 47	CES41 = 97	CES66 = 85	CES91 = 71
CES17 = 49	CES42 = 92	CES67 = 83	CES92 = 76
CES18 = 56	CES43 = 92	CES68 = 86	CES93 = 85
CES19 = 71	CES44 = 99	CES69 = 87	CES94 = 75
CES20 = 66	CES45 = 96	CES70 = 83	CES95 = 81
CES21 = 85	CES46 = 96	CES71 = 77	CES96 = 91
CES22 = 78	CES47 = 95	CES72 = 93	CES97 = 94
CES23 = 91	CES48 = 92	CES73 = 77	CES98 = 94
CES24 = 90	CES49 = 95	CES74 = 91	CES99 = 92
CES25 = 71	CES50 = 99	CES75 = 79	



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)