

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



Scaled data based on original data using
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for
Cooper Lighting Solutions

Brand: METALUX

Report Number: P981636

Luminaire Tested: 4WNLED-LD4-50SL-F-UNV-L840-CD1-U

Issue Date: 04/17/2025

Test Information

Test Method: LM-79-2019
Report Number: P981636
Test Lab: INNOVATION CENTER(P3)
Issue Date: 04/17/2025
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: METALUX
Catalog Number: 4WNLED-LD4-50SL-F-UNV-L840-CD1-U
Description: METALUX 4FT WNLED WRAPAROUND 5000LM PACKAGE 80CRI 4000K TROFFER
Light Source: 4000K CCT, 80+ CRI LEDS
Ballast/Driver: -

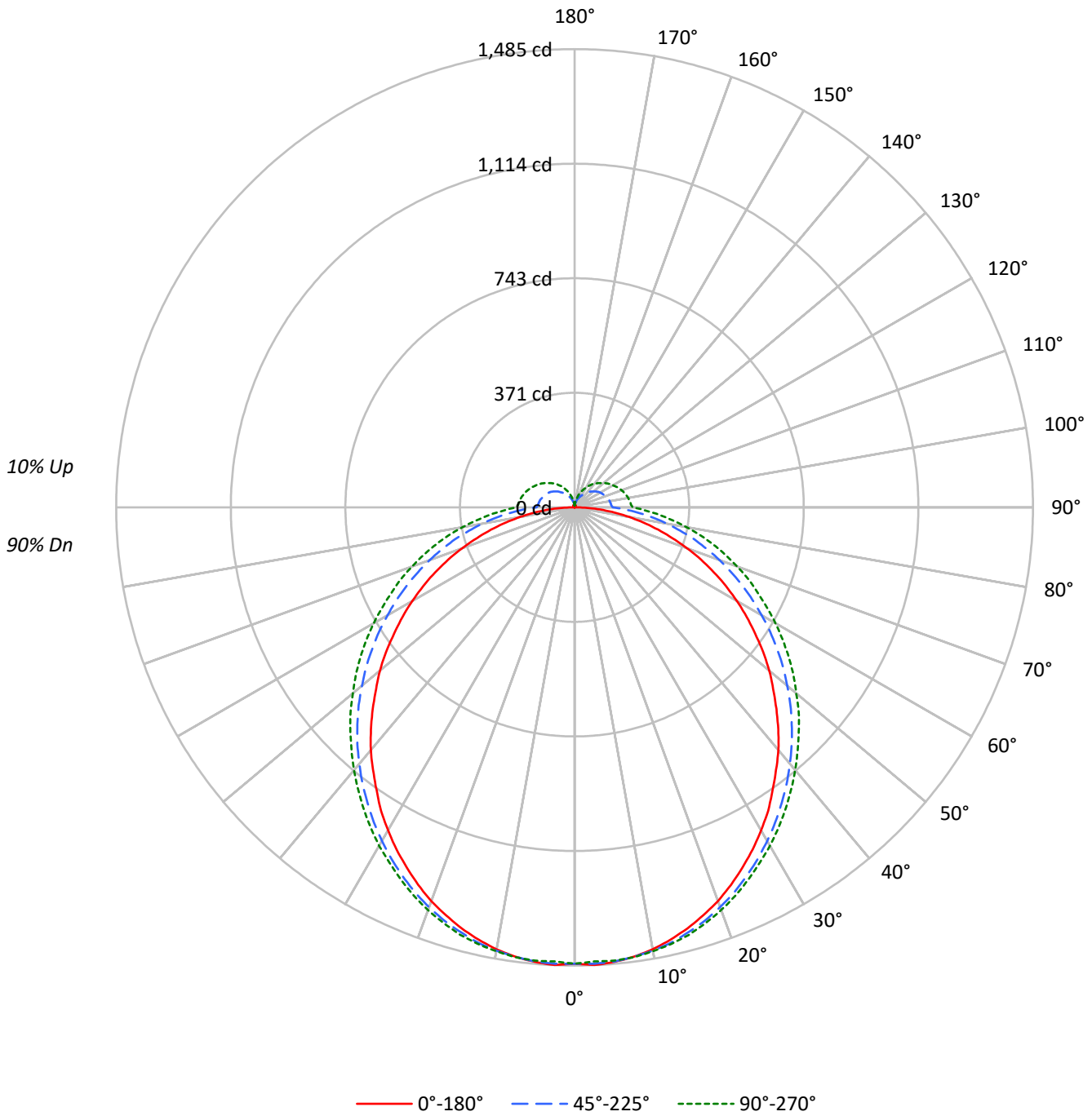
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5048.8 lumens
Efficiency: N/A
Efficacy: 133.9 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): 37.7
Input Voltage (V): 120
Input Current (A_{in}): 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: P981636
CATALOG NUMBER: 4WNLED-LD4-50SL-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	80	78	75	73
2	95	86	79	73	91	84	77	71	78	73	68	74	69	65	69	66	62	69	66	62	59
3	86	75	67	60	83	73	65	59	69	62	57	65	59	54	61	56	52	61	56	52	50
4	79	67	57	51	76	65	56	50	61	54	48	57	51	46	54	49	45	54	49	45	42
5	72	59	50	43	70	58	49	43	54	47	41	51	45	40	48	43	39	48	43	39	36
6	67	53	44	38	64	52	43	37	49	42	36	46	40	35	44	38	34	44	38	34	32
7	62	48	39	33	60	47	39	33	44	37	32	42	36	31	40	34	30	40	34	30	28
8	58	44	35	29	55	43	35	29	41	33	28	39	32	28	37	31	27	37	31	27	25
9	54	40	32	26	52	39	31	26	37	30	25	36	29	25	34	28	24	34	28	24	22
10	50	37	29	24	49	36	29	24	35	28	23	33	27	22	32	26	22	32	26	22	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	5307	5307	5307
5°	5308	5236	5210
10°	5262	5147	5121
15°	5190	5043	5027
20°	5107	4930	4906
25°	5000	4802	4775
30°	4890	4668	4650
35°	4761	4530	4518
40°	4649	4393	4388
45°	4503	4254	4264
50°	4378	4106	4136
55°	4212	3955	4022
60°	4059	3793	3893
65°	3882	3635	3762
70°	3656	3465	3648
75°	3359	3277	3519
80°	2986	3036	3357
85°	2353	2774	3191

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 4503 cd/sqm



TEST NUMBER: P981636

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	140.3	2.8
10°-20°	401.5	8.0
20°-30°	605.1	12.0
30°-40°	727.3	14.4
40°-50°	760.7	15.1
50°-60°	708.1	14.0
60°-70°	584.0	11.6
70°-80°	410.3	8.1
80°-90°	216.6	4.3
90°-100°	117.3	2.3
100°-110°	106.5	2.1
110°-120°	91.1	1.8
120°-130°	72.2	1.4
130°-140°	51.4	1.0
140°-150°	32.2	0.6
150°-160°	16.8	0.3
160°-170°	6.2	0.1
170°-180°	1.1	0.0
0°-30°	1146.9	22.7
0°-40°	1874.2	37.1
0°-60°	3343.0	66.2
0°-90°	4554.0	90.2
90°-120°	314.9	6.2
90°-150°	470.8	9.3
90°-180°	495.0	9.8
0°-180°	5048.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1479	1479	1479	1479	1479	
5°	1479	1470	1478	1478	1475	140
15°	1413	1410	1426	1434	1434	398
25°	1288	1295	1318	1330	1331	593
35°	1119	1136	1169	1188	1192	701
45°	924	954	995	1019	1027	714
55°	713	751	801	833	847	639
65°	498	542	600	639	654	493
75°	280	334	401	448	464	296
85°	84	142	211	256	274	88
90°	3	58	124	172	189	6
95°	0	54	118	165	182	1
105°	1	51	111	153	169	2
115°	3	48	101	139	153	3
125°	4	41	89	122	134	4
135°	6	32	72	103	111	4
145°	6	25	52	77	87	4
155°	7	20	37	52	60	3
165°	8	14	21	28	34	2
175°	8	8	10	10	11	1
180°	7	7	7	7	7	



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CATALOG NUMBER: 4WNLED-LD4-50SL-F-UNV-L840-CD1-U

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	1479.0	1479.0	1479.0	1479.0	1479.0	1479.0	1479.0	1479.0	1479.0	1479.0	1479.0
2.5°	1484.6	1483.2	1480.4	1477.6	1476.1	1476.1	1474.7	1474.7	1474.7	1479.0	1480.4
5°	1479.0	1477.6	1474.7	1473.3	1471.9	1470.5	1470.5	1470.5	1471.9	1476.1	1477.6
7.5°	1469.1	1467.7	1464.9	1463.5	1462.1	1462.1	1462.1	1462.1	1463.5	1467.7	1469.1
10°	1455.0	1453.6	1450.8	1449.4	1449.4	1449.4	1449.4	1449.4	1452.2	1456.4	1459.3
12.5°	1435.3	1433.9	1432.5	1432.5	1431.1	1431.1	1432.5	1432.5	1435.3	1441.0	1445.2
15°	1412.8	1411.4	1410.0	1410.0	1410.0	1410.0	1411.4	1412.8	1417.0	1422.7	1425.5
17.5°	1386.1	1386.1	1384.7	1386.1	1386.1	1386.1	1387.5	1390.3	1393.1	1400.2	1404.4
20°	1357.9	1356.5	1355.1	1357.9	1357.9	1357.9	1359.3	1363.6	1367.8	1374.8	1379.0
22.5°	1324.2	1324.2	1324.2	1325.6	1327.0	1328.4	1329.8	1334.0	1339.6	1345.3	1350.9
25°	1287.6	1287.6	1287.6	1290.4	1293.2	1294.6	1296.0	1300.2	1307.3	1312.9	1318.5
27.5°	1249.6	1249.6	1249.6	1251.0	1255.2	1256.6	1259.4	1265.1	1272.1	1277.7	1284.8
30°	1208.8	1208.8	1210.2	1213.0	1217.2	1218.6	1221.4	1227.1	1235.5	1241.1	1248.2
32.5°	1166.6	1165.2	1166.6	1170.8	1175.0	1179.2	1180.6	1187.7	1196.1	1203.1	1210.2
35°	1118.7	1120.1	1122.9	1127.2	1131.4	1135.6	1138.4	1145.5	1155.3	1162.3	1169.4
37.5°	1072.3	1073.7	1076.5	1082.1	1087.8	1092.0	1096.2	1101.8	1113.1	1120.1	1128.6
40°	1027.2	1024.4	1030.1	1035.7	1042.7	1046.9	1051.2	1058.2	1069.5	1076.5	1084.9
42.5°	976.6	976.6	980.8	989.3	996.3	1000.5	1004.7	1013.2	1024.4	1032.9	1041.3
45°	924.5	925.9	931.6	940.0	948.4	954.1	956.9	966.7	978.0	986.4	994.9
47.5°	872.5	875.3	880.9	890.8	899.2	904.8	907.6	918.9	930.2	940.0	948.4
50°	823.2	823.2	830.2	838.7	848.5	854.2	858.4	869.6	880.9	890.8	899.2
52.5°	769.7	769.7	776.8	788.0	796.5	803.5	807.7	820.4	831.6	841.5	851.4
55°	713.4	716.3	723.3	736.0	745.8	751.4	757.1	769.7	781.0	792.2	800.7
57.5°	661.4	662.8	671.2	682.5	693.7	699.4	706.4	717.7	730.3	743.0	751.4
60°	606.5	609.3	616.3	630.4	641.7	647.3	652.9	667.0	679.7	690.9	699.4
62.5°	553.0	554.4	564.3	576.9	588.2	595.2	602.3	614.9	627.6	638.9	650.1
65°	498.1	501.0	509.4	523.5	534.7	541.8	547.4	564.3	575.5	588.2	599.5
67.5°	443.3	446.1	455.9	470.0	482.7	489.7	495.3	510.8	524.9	537.5	548.8
70°	388.4	391.2	402.5	416.5	429.2	436.2	444.7	458.7	474.2	486.9	499.6
72.5°	332.1	336.3	346.2	361.6	378.5	385.6	392.6	409.5	423.6	437.6	448.9
75°	280.0	284.3	295.5	309.6	323.7	333.5	339.1	356.0	374.3	388.4	401.0
77.5°	228.0	232.2	243.4	258.9	274.4	282.8	291.3	306.8	322.2	336.3	350.4
80°	178.7	182.9	195.6	209.7	225.2	235.0	243.4	260.3	275.8	289.9	302.5
82.5°	130.9	135.1	147.8	163.2	180.1	188.6	197.0	212.5	229.4	243.4	257.5
85°	84.4	91.5	102.7	116.8	133.7	142.1	150.6	167.5	182.9	197.0	211.1
87.5°	40.8	46.4	59.1	74.6	90.1	99.9	106.9	122.4	139.3	152.0	166.0
90°	2.8	8.4	19.7	33.8	49.3	57.7	66.1	81.6	97.1	111.2	123.8
92.5°	0.0	5.6	16.9	31.0	46.4	54.9	61.9	77.4	92.9	106.9	119.6
95°	0.0	5.6	16.9	31.0	46.4	53.5	61.9	77.4	91.5	105.5	118.2
97.5°	1.4	5.6	16.9	31.0	45.0	53.5	60.5	76.0	90.1	104.1	116.8
100°	1.4	5.6	16.9	29.6	45.0	52.1	60.5	74.6	88.7	102.7	115.4
102.5°	1.4	5.6	16.9	29.6	45.0	52.1	59.1	73.2	87.2	101.3	114.0
105°	1.4	7.0	16.9	29.6	43.6	50.7	57.7	73.2	85.8	98.5	111.2
107.5°	1.4	7.0	16.9	29.6	43.6	50.7	57.7	71.8	84.4	97.1	108.4
110°	2.8	7.0	16.9	29.6	42.2	49.3	56.3	70.4	83.0	95.7	106.9



TEST NUMBER: P981636

CATALOG NUMBER: 4WNLED-LD4-50SL-F-UNV-L840-CD1-U

CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
112.5°	2.8	7.0	16.9	28.1	42.2	47.8	54.9	69.0	81.6	92.9	104.1
115°	2.8	7.0	16.9	28.1	40.8	47.8	53.5	67.5	78.8	91.5	101.3
117.5°	2.8	8.4	16.9	26.7	39.4	46.4	52.1	64.7	77.4	88.7	98.5
120°	4.2	8.4	15.5	26.7	38.0	45.0	50.7	63.3	74.6	85.8	95.7
122.5°	4.2	8.4	15.5	25.3	36.6	42.2	49.3	60.5	71.8	83.0	92.9
125°	4.2	8.4	15.5	23.9	35.2	40.8	46.4	57.7	69.0	78.8	88.7
127.5°	4.2	8.4	15.5	23.9	33.8	38.0	43.6	54.9	64.7	74.6	84.4
130°	4.2	8.4	14.1	22.5	31.0	36.6	40.8	52.1	60.5	70.4	80.2
132.5°	4.2	8.4	14.1	21.1	29.6	35.2	39.4	49.3	57.7	66.1	76.0
135°	5.6	8.4	14.1	21.1	28.1	32.4	36.6	45.0	53.5	61.9	71.8
137.5°	5.6	8.4	12.7	19.7	26.7	31.0	35.2	42.2	50.7	59.1	66.1
140°	5.6	8.4	12.7	18.3	25.3	29.6	32.4	39.4	47.8	54.9	61.9
142.5°	5.6	8.4	12.7	18.3	23.9	26.7	31.0	36.6	43.6	50.7	57.7
145°	5.6	8.4	12.7	16.9	22.5	25.3	28.1	35.2	40.8	46.4	52.1
147.5°	7.0	8.4	12.7	16.9	21.1	23.9	26.7	32.4	38.0	42.2	47.8
150°	7.0	8.4	11.3	15.5	19.7	22.5	25.3	29.6	35.2	39.4	43.6
152.5°	7.0	8.4	11.3	15.5	19.7	21.1	22.5	28.1	32.4	36.6	39.4
155°	7.0	8.4	11.3	14.1	18.3	19.7	21.1	25.3	29.6	32.4	36.6
157.5°	7.0	8.4	11.3	14.1	16.9	18.3	19.7	22.5	26.7	29.6	32.4
160°	7.0	8.4	11.3	12.7	15.5	16.9	18.3	21.1	23.9	26.7	28.1
162.5°	8.4	8.4	9.9	12.7	14.1	15.5	16.9	18.3	21.1	22.5	25.3
165°	8.4	8.4	9.9	11.3	12.7	14.1	14.1	16.9	18.3	19.7	21.1
167.5°	8.4	8.4	9.9	11.3	11.3	12.7	12.7	14.1	15.5	16.9	18.3
170°	8.4	8.4	8.4	9.9	11.3	11.3	11.3	12.7	14.1	14.1	15.5
172.5°	8.4	8.4	8.4	8.4	9.9	9.9	9.9	11.3	11.3	12.7	12.7
175°	8.4	8.4	8.4	8.4	8.4	8.4	9.9	9.9	9.9	9.9	9.9
177.5°	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4	8.4
180°	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0



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CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°
0°	1479.0	1479.0	1479.0	1479.0	1479.0	1479.0	1479.0	1479.0	1479.0	1479.0
2.5°	1481.8	1484.6	1483.2	1480.4	1480.4	1480.4	1479.0	1476.1	1474.7	1473.3
5°	1479.0	1481.8	1479.0	1477.6	1477.6	1477.6	1477.6	1476.1	1474.7	1474.7
7.5°	1471.9	1474.7	1473.3	1471.9	1471.9	1471.9	1471.9	1470.5	1470.5	1470.5
10°	1462.1	1466.3	1464.9	1463.5	1462.1	1463.5	1462.1	1462.1	1460.7	1460.7
12.5°	1446.6	1450.8	1450.8	1449.4	1449.4	1449.4	1449.4	1449.4	1448.0	1449.4
15°	1429.7	1433.9	1433.9	1433.9	1433.9	1433.9	1433.9	1433.9	1432.5	1433.9
17.5°	1408.6	1412.8	1414.2	1412.8	1414.2	1414.2	1414.2	1412.8	1412.8	1412.8
20°	1383.3	1387.5	1388.9	1387.5	1387.5	1387.5	1388.9	1388.9	1388.9	1388.9
22.5°	1355.1	1359.3	1359.3	1359.3	1360.8	1360.8	1360.8	1362.2	1362.2	1362.2
25°	1322.8	1327.0	1327.0	1328.4	1329.8	1329.8	1331.2	1331.2	1331.2	1331.2
27.5°	1291.8	1294.6	1294.6	1296.0	1297.4	1297.4	1297.4	1297.4	1300.2	1298.8
30°	1255.2	1258.0	1259.4	1262.2	1262.2	1263.7	1263.7	1265.1	1266.5	1266.5
32.5°	1217.2	1220.0	1221.4	1224.3	1225.7	1227.1	1227.1	1229.9	1231.3	1229.9
35°	1176.4	1179.2	1183.4	1184.9	1187.7	1187.7	1190.5	1190.5	1193.3	1191.9
37.5°	1135.6	1138.4	1141.2	1144.0	1146.9	1148.3	1149.7	1152.5	1155.3	1152.5
40°	1092.0	1096.2	1100.4	1103.2	1104.6	1107.5	1107.5	1111.7	1114.5	1111.7
42.5°	1048.4	1052.6	1056.8	1062.4	1062.4	1063.8	1066.7	1070.9	1070.9	1069.5
45°	1003.3	1006.1	1013.2	1017.4	1018.8	1020.2	1023.0	1024.4	1027.2	1027.2
47.5°	955.5	961.1	968.1	972.4	973.8	975.2	978.0	980.8	985.0	985.0
50°	907.6	914.7	917.5	924.5	927.3	928.7	933.0	935.8	938.6	937.2
52.5°	858.4	864.0	872.5	878.1	880.9	882.3	886.5	890.8	892.2	893.6
55°	809.1	816.2	824.6	830.2	833.1	835.9	838.7	841.5	845.7	847.1
57.5°	759.9	766.9	776.8	782.4	785.2	786.6	792.2	796.5	797.9	799.3
60°	709.2	717.7	727.5	733.1	736.0	740.2	741.6	748.6	750.0	751.4
62.5°	660.0	668.4	678.3	685.3	688.1	690.9	696.6	700.8	703.6	702.2
65°	610.7	619.2	629.0	636.1	638.9	643.1	647.3	651.5	654.3	654.3
67.5°	560.1	569.9	581.2	588.2	591.0	595.2	599.5	602.3	606.5	609.3
70°	510.8	522.1	531.9	539.0	541.8	546.0	550.2	557.2	557.2	560.1
72.5°	461.6	472.8	482.7	492.5	495.3	498.1	503.8	508.0	509.4	512.2
75°	413.7	425.0	434.8	441.9	447.5	450.3	455.9	458.7	461.6	464.4
77.5°	363.1	377.1	387.0	395.4	399.6	402.5	408.1	412.3	415.1	416.5
80°	315.2	326.5	336.3	344.8	349.0	353.2	358.8	361.6	365.9	367.3
82.5°	268.8	280.0	289.9	296.9	302.5	305.4	311.0	316.6	316.6	319.4
85°	222.3	233.6	243.4	251.9	256.1	260.3	264.6	270.2	271.6	274.4
87.5°	177.3	190.0	198.4	208.3	211.1	215.3	222.3	226.6	229.4	229.4
90°	136.5	147.8	157.6	167.5	171.7	174.5	181.5	185.7	188.6	188.6
92.5°	132.3	143.5	153.4	163.2	166.0	170.3	175.9	180.1	182.9	182.9
95°	130.9	142.1	152.0	160.4	164.6	167.5	174.5	177.3	180.1	181.5
97.5°	129.5	140.7	150.6	159.0	161.8	166.0	171.7	175.9	178.7	178.7
100°	126.6	137.9	147.8	156.2	160.4	163.2	168.9	173.1	174.5	175.9
102.5°	125.2	135.1	144.9	153.4	157.6	160.4	166.0	170.3	171.7	173.1
105°	122.4	133.7	142.1	150.6	153.4	157.6	161.8	166.0	168.9	168.9
107.5°	119.6	130.9	139.3	147.8	150.6	153.4	159.0	163.2	164.6	166.0
110°	116.8	128.1	136.5	143.5	147.8	150.6	154.8	159.0	160.4	161.8



TEST NUMBER: P981636

CATALOG NUMBER: 4WNLED-LD4-50SL-F-UNV-L840-CD1-U

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°
112.5°	114.0	123.8	132.3	140.7	143.5	146.3	150.6	154.8	156.2	157.6
115°	111.2	121.0	129.5	136.5	139.3	142.1	146.3	150.6	152.0	153.4
117.5°	108.4	118.2	125.2	132.3	135.1	137.9	142.1	146.3	147.8	147.8
120°	105.5	114.0	122.4	128.1	130.9	133.7	137.9	140.7	143.5	143.5
122.5°	101.3	109.8	118.2	123.8	126.6	129.5	133.7	136.5	137.9	139.3
125°	98.5	106.9	114.0	119.6	122.4	125.2	128.1	130.9	132.3	133.7
127.5°	94.3	101.3	109.8	115.4	118.2	121.0	123.8	126.6	128.1	128.1
130°	88.7	97.1	104.1	111.2	114.0	115.4	119.6	121.0	122.4	122.4
132.5°	84.4	91.5	98.5	105.5	108.4	111.2	114.0	115.4	116.8	116.8
135°	78.8	85.8	92.9	99.9	102.7	105.5	108.4	109.8	111.2	111.2
137.5°	74.6	81.6	87.2	94.3	97.1	99.9	102.7	104.1	105.5	105.5
140°	69.0	74.6	81.6	88.7	91.5	92.9	97.1	98.5	99.9	99.9
142.5°	63.3	70.4	76.0	81.6	84.4	87.2	91.5	92.9	94.3	94.3
145°	59.1	64.7	69.0	74.6	77.4	80.2	84.4	87.2	87.2	87.2
147.5°	53.5	59.1	63.3	69.0	71.8	73.2	78.8	80.2	81.6	81.6
150°	49.3	53.5	57.7	61.9	64.7	67.5	71.8	74.6	74.6	74.6
152.5°	45.0	47.8	52.1	56.3	57.7	60.5	64.7	67.5	67.5	67.5
155°	39.4	43.6	46.4	49.3	52.1	53.5	57.7	60.5	60.5	60.5
157.5°	35.2	38.0	40.8	43.6	45.0	46.4	50.7	53.5	54.9	54.9
160°	31.0	33.8	35.2	38.0	39.4	40.8	42.2	46.4	47.8	47.8
162.5°	26.7	28.1	31.0	32.4	33.8	33.8	36.6	38.0	40.8	40.8
165°	22.5	23.9	25.3	26.7	28.1	28.1	29.6	32.4	33.8	33.8
167.5°	19.7	19.7	21.1	22.5	22.5	22.5	23.9	25.3	28.1	28.1
170°	15.5	16.9	16.9	16.9	18.3	18.3	18.3	19.7	21.1	22.5
172.5°	12.7	12.7	14.1	14.1	14.1	14.1	14.1	14.1	15.5	16.9
175°	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	9.9	11.3
177.5°	8.4	8.4	8.4	7.0	7.0	7.0	7.0	7.0	7.0	5.6
180°	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0

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

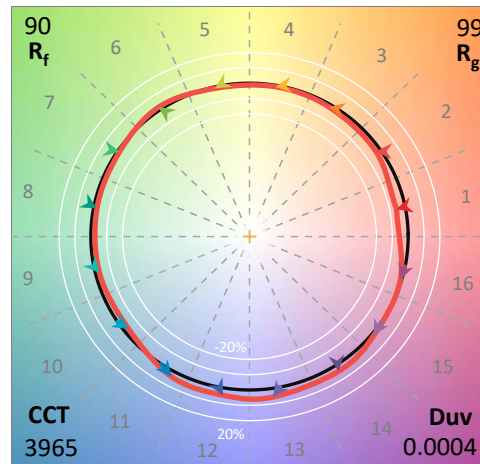
Test Information

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
 R_f: 90.2
 R_g: 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

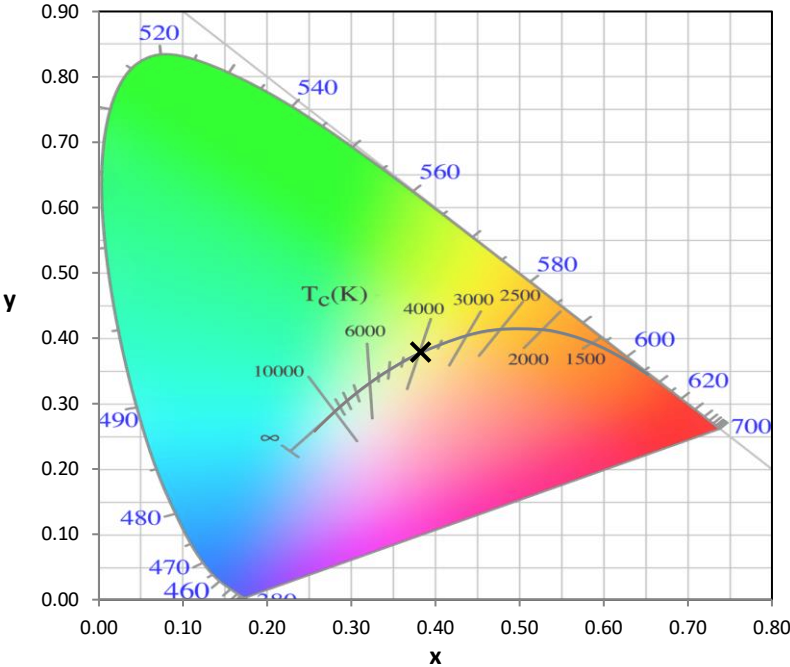
Stabilization Time: 21M
 Operation Time: 1H 21M
 Sphere Temperature (°C): 25.0

REPORT NUMBER: SP3-2508-516-11

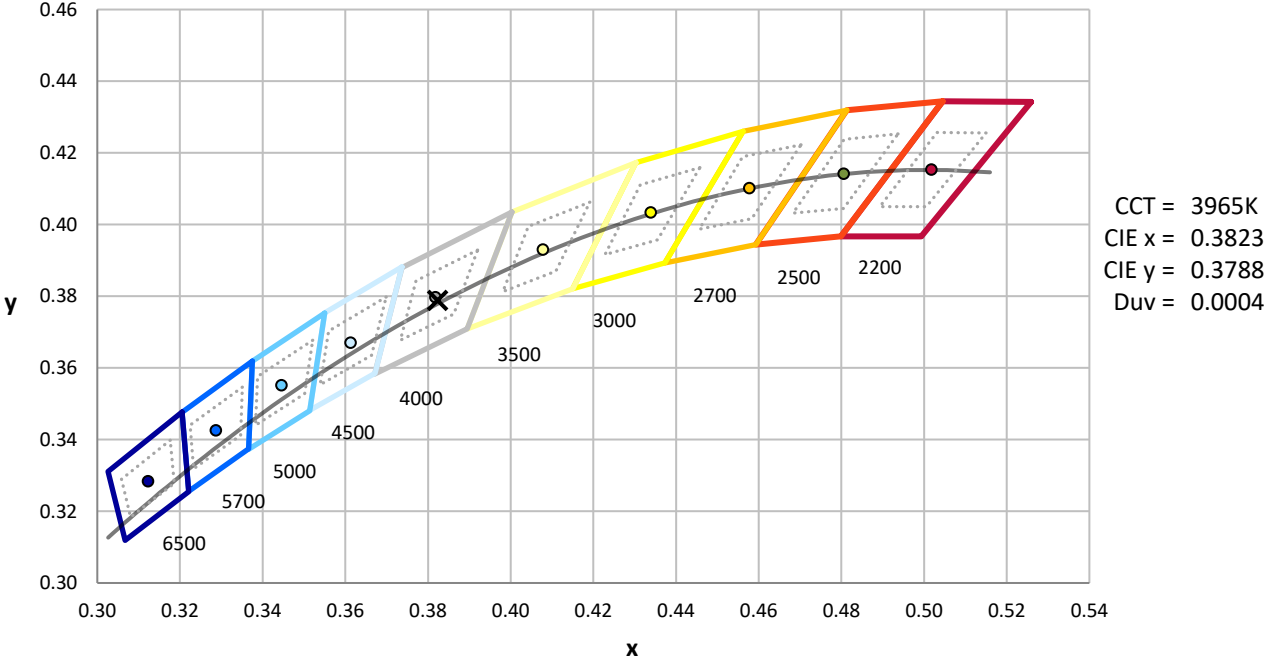
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	3M SPHERE IN02505	7/1/2025	1/1/2026
Power Meter	XITRON INXT2011006	1/20/2025	1/20/2026
AC Power Source	CHROMA 61604 IN6064A	10/22/2024	10/22/2025
DC Power Source	EYSIGHT N5770A IN0534	10/22/2024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

REPORT NUMBER: SP3-2508-516-11

CIE 1931 Chromaticity Diagram



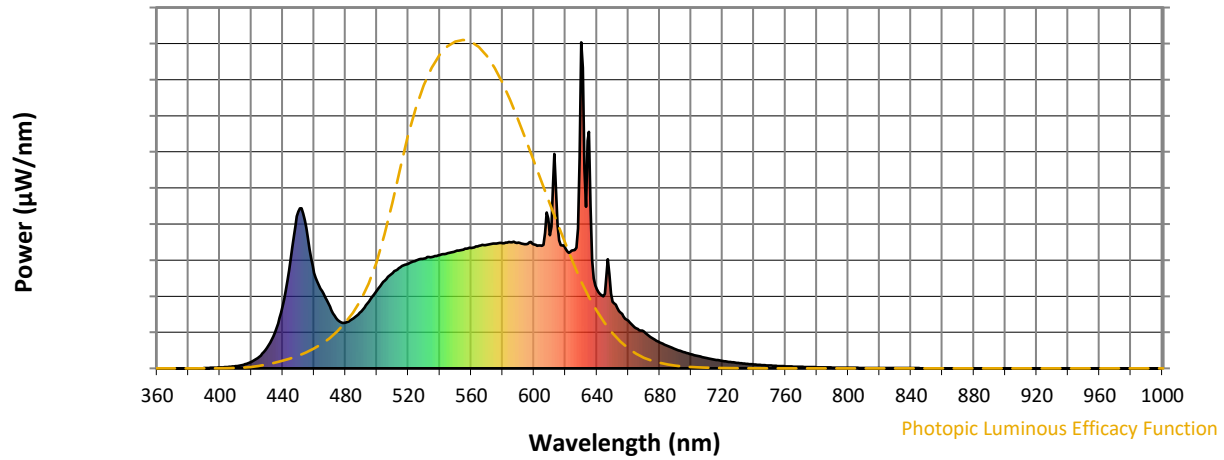
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 4000K 4-step quadrangle

REPORT NUMBER: SP3-2508-516-11

Photopic Flux vs. Wavelength

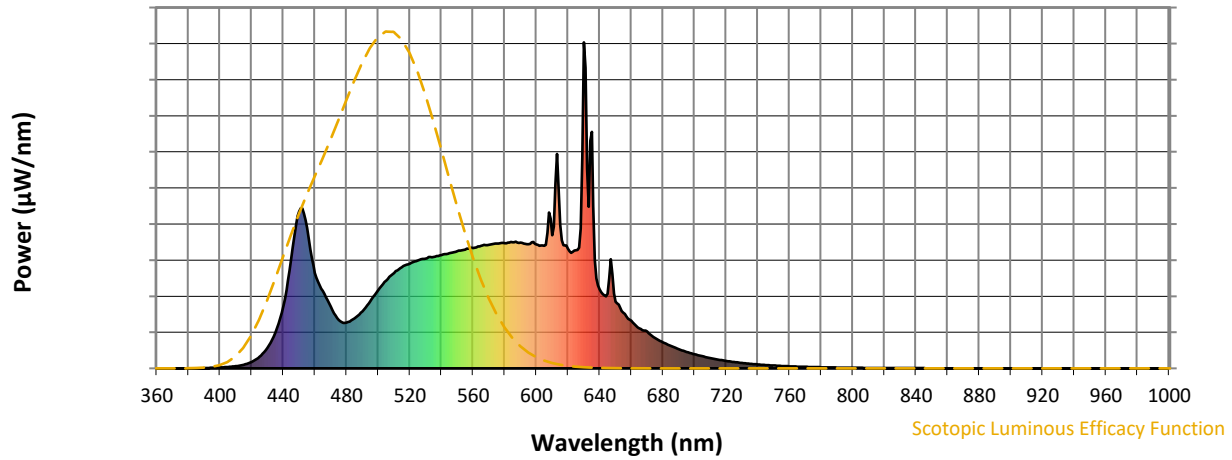


Photopic Lumens: NR

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



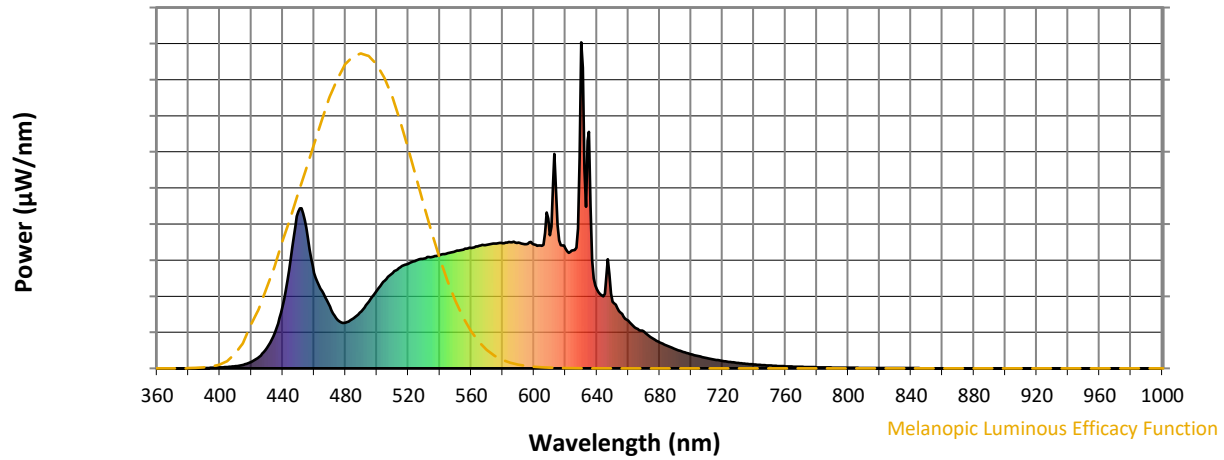
Scotopic Lumens: NR

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



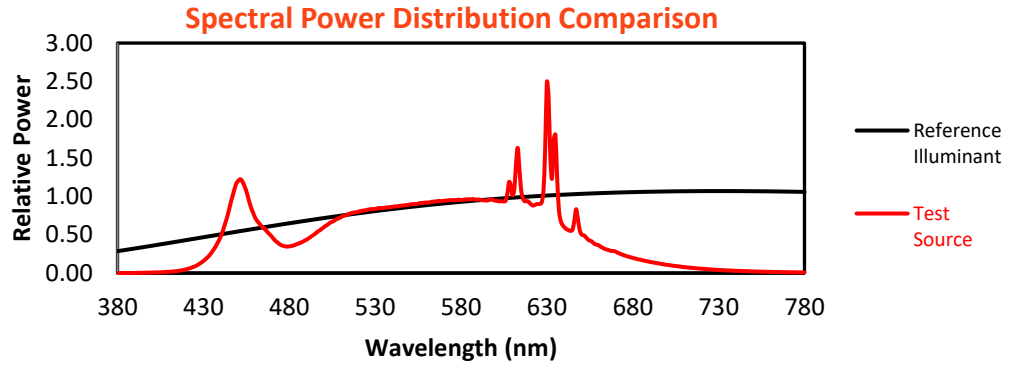
Melanopic Lumens: NR

M/P: 3.62

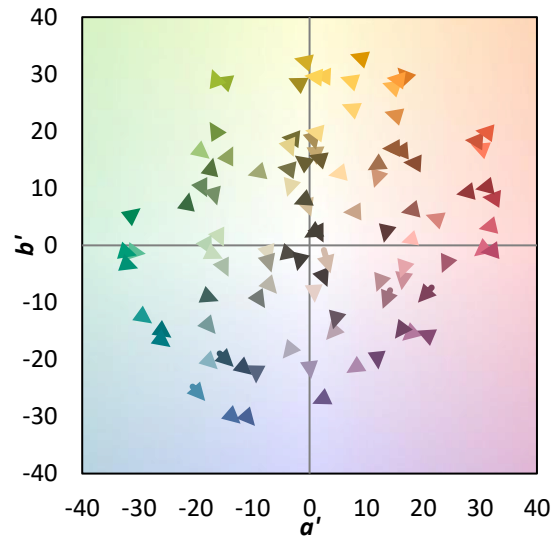
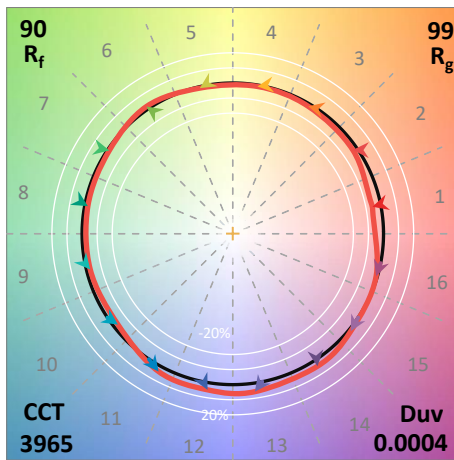
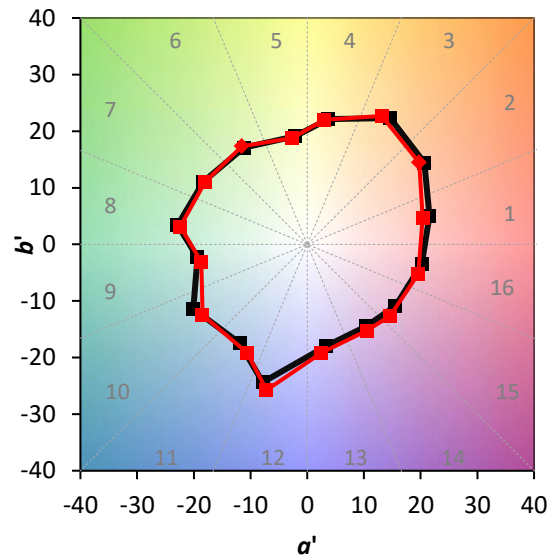
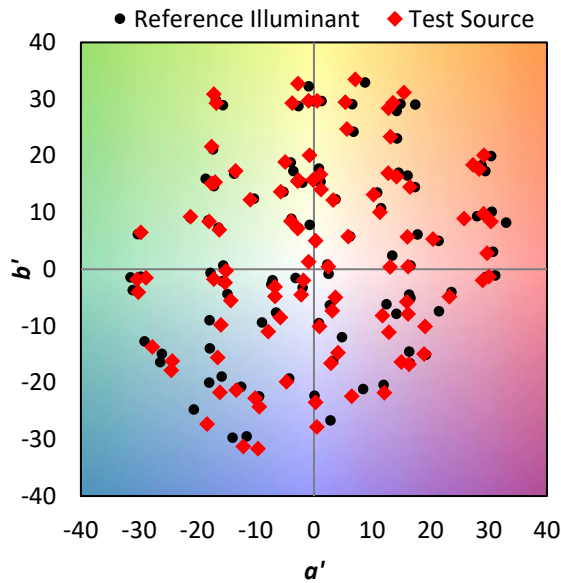
λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)	λ (nm)	Power W [^] /nm	Lumens (φ/nm)
360	0	NR	490	175	NR	620	367	NR	750	9	NR	880	0	NR
365	0	NR	495	206	NR	625	362	NR	755	7	NR	885	0	NR
370	0	NR	500	240	NR	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

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

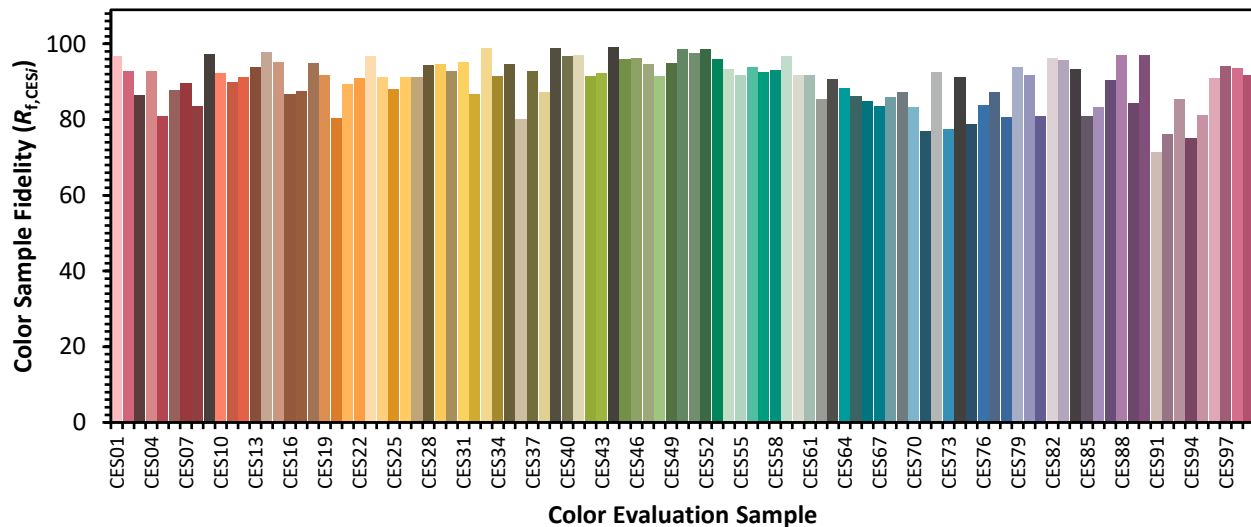


Color Vector Graphics

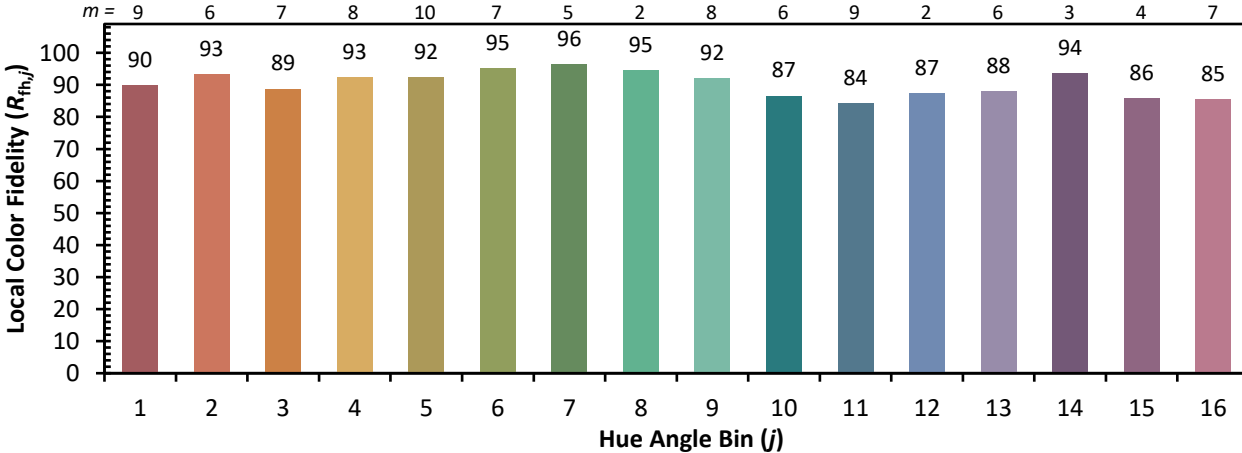
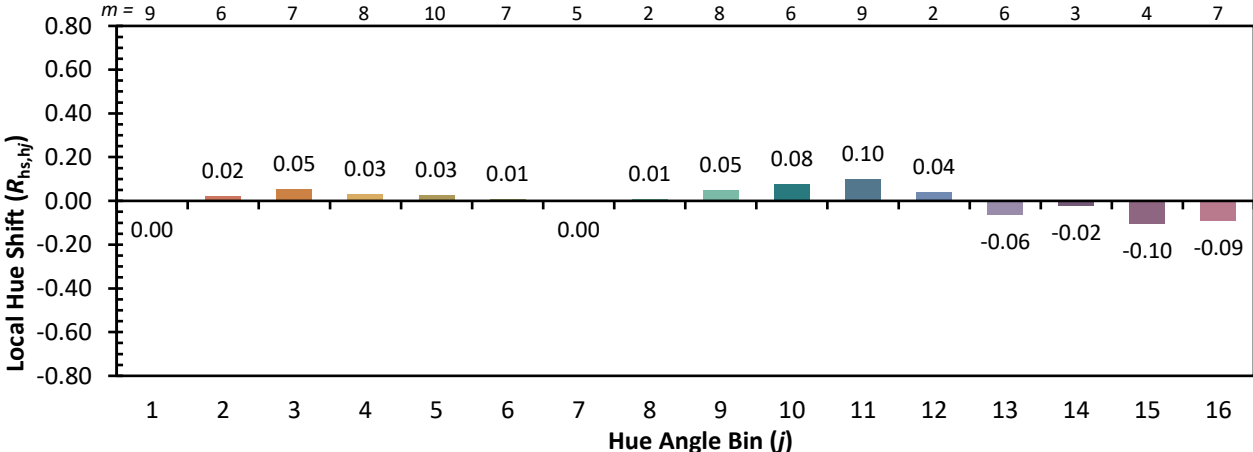
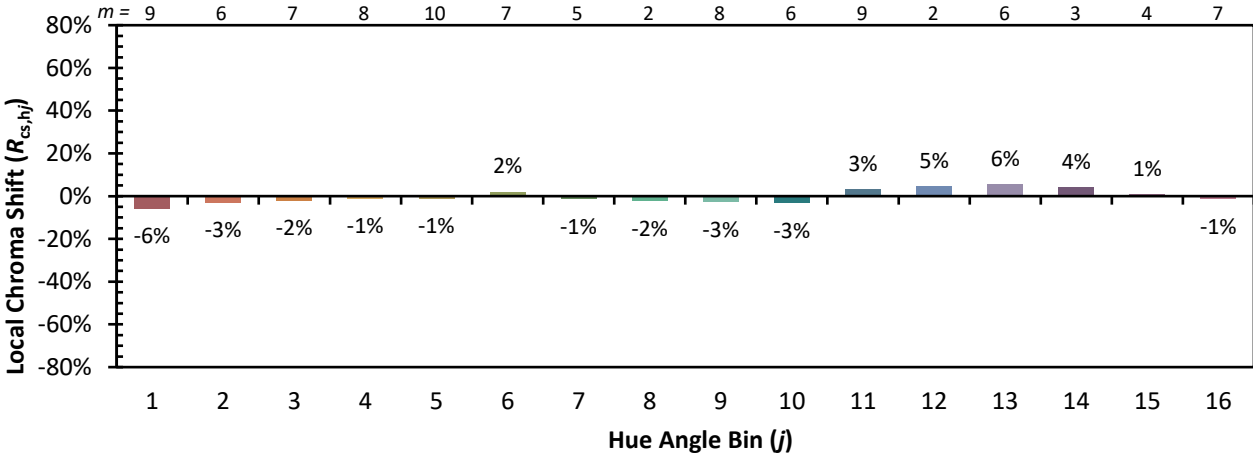


Individual Sample Fidelity Index ($R_{f,i}$)

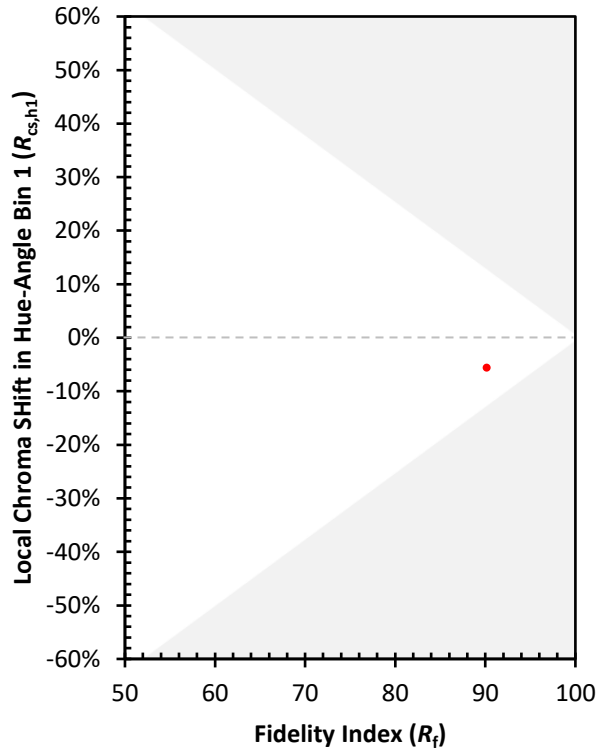
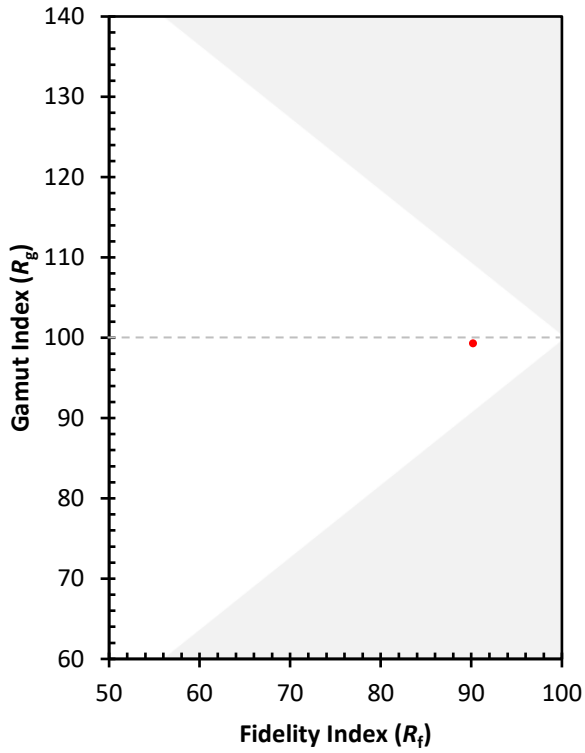
CES01 = 86	CES26 = 91	CES51 = 98	CES76 = 84
CES02 = 62	CES27 = 91	CES52 = 99	CES77 = 87
CES03 = 31	CES28 = 94	CES53 = 96	CES78 = 81
CES04 = 69	CES29 = 95	CES54 = 93	CES79 = 94
CES05 = 49	CES30 = 93	CES55 = 92	CES80 = 92
CES06 = 50	CES31 = 95	CES56 = 94	CES81 = 81
CES07 = 42	CES32 = 87	CES57 = 93	CES82 = 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)