

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: P981633

Luminaire Tested: **2WNLED-LD4-28SL-F-UNV-L840-CD1-U**

Issue Date: 04/17/2025



**Test Information**

Test Method: LM-79-08  
Report Number: P981633  
Test Lab: INNOVATION CENTER(P3)  
Issue Date: 04/17/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: METALUX  
Catalog Number: 2WNLED-LD4-28SL-F-UNV-L840-CD1-U  
Description: METALUX 2FT WNLED WRAPAROUND 2800LM PACKAGE 80CRI 4000K TROFFER  
Light Source: 4000K CCT, 80+ CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

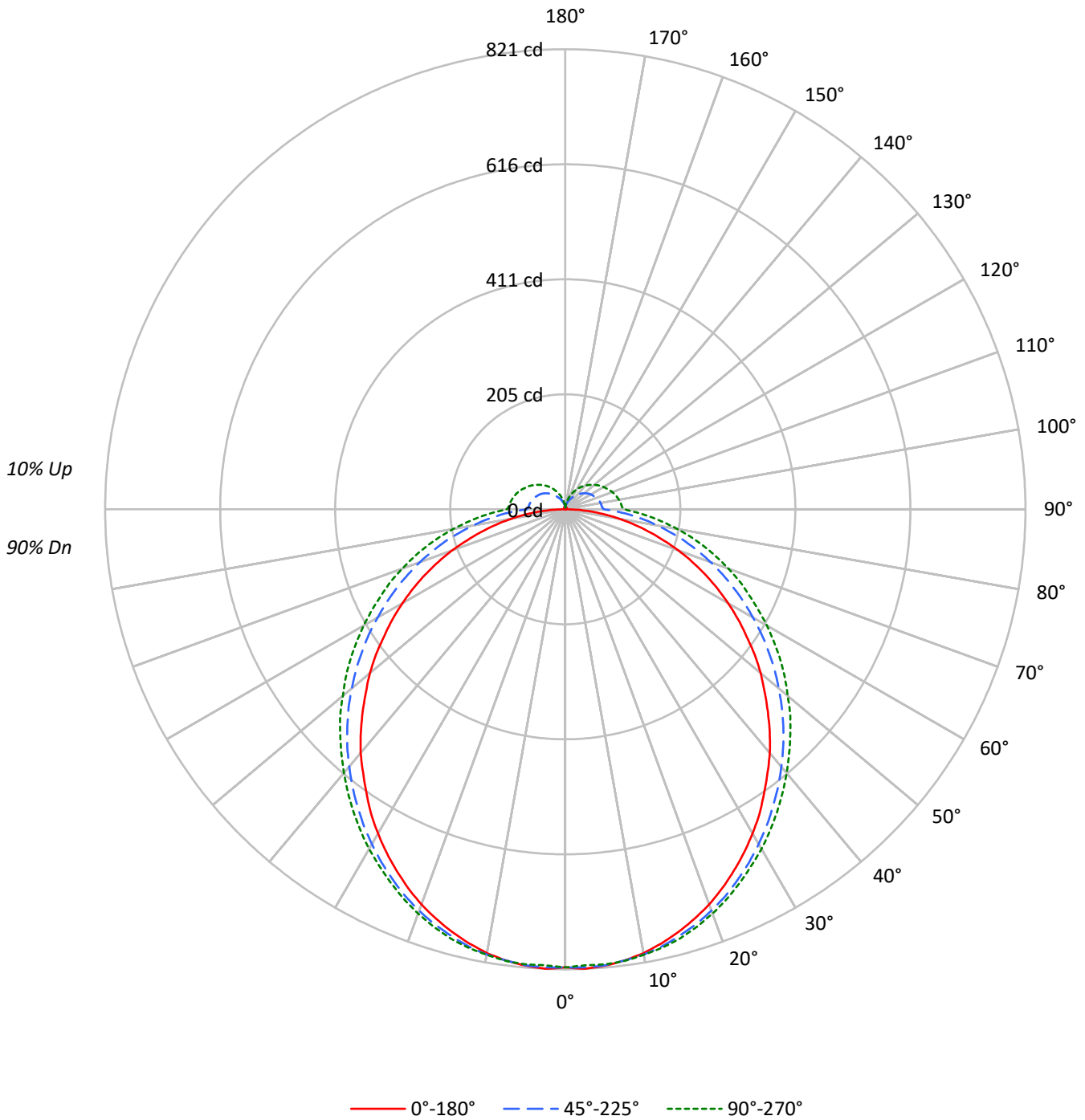
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2790.9 lumens  
Efficiency: N/A  
Efficacy: 120.8 lumens/watt  
Spacing Criteria (0/90/45): 1.22 / 1.27 / 1.38  
Luminous Opening: Rectangular w/ Sides (W: 0.75' x L: 2' x H: 0.17')  
CIE Type: Direct

Input Watts (W): 23.1  
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: P981633  
CATALOG NUMBER: 2WNLED-LD4-28SL-F-UNV-L840-CD1-U

### Luminous Intensity Polar Plot





TEST NUMBER: P981633

CATALOG NUMBER: 2WNLED-LD4-28SL-F-UNV-L840-CD1-U

**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°	5866	5866	5866
5°	5846	5775	5760
10°	5776	5662	5661
15°	5675	5534	5558
20°	5563	5397	5424
25°	5425	5243	5280
30°	5283	5083	5141
35°	5119	4918	4995
40°	4971	4755	4852
45°	4788	4590	4714
50°	4622	4413	4573
55°	4409	4231	4447
60°	4205	4037	4305
65°	3967	3845	4159
70°	3665	3635	4033
75°	3274	3403	3890
80°	2772	3105	3711
85°	1969	2769	3528



TEST NUMBER: P981633

CATALOG NUMBER: 2WNLED-LD4-28SL-F-UNV-L840-CD1-U

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	77.5	2.8
10°-20°	221.9	8.0
20°-30°	334.5	12.0
30°-40°	402.0	14.4
40°-50°	420.5	15.1
50°-60°	391.4	14.0
60°-70°	322.8	11.6
70°-80°	226.8	8.1
80°-90°	119.8	4.3
90°-100°	64.8	2.3
100°-110°	58.9	2.1
110°-120°	50.4	1.8
120°-130°	39.9	1.4
130°-140°	28.4	1.0
140°-150°	17.8	0.6
150°-160°	9.3	0.3
160°-170°	3.4	0.1
170°-180°	0.6	0.0
0°-30°	634.0	22.7
0°-40°	1036.0	37.1
0°-60°	1848.0	66.2
0°-90°	2517.4	90.2
90°-120°	174.1	6.2
90°-150°	260.2	9.3
90°-180°	274.0	9.8
0°-180°	2790.9	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	818	818	818	818	818	
5°	818	813	817	817	815	78
15°	781	779	788	793	793	220
25°	712	716	729	735	736	328
35°	618	628	646	656	659	387
45°	511	527	550	563	568	395
55°	394	415	443	460	468	354
65°	275	300	331	353	362	272
75°	155	184	222	247	257	164
85°	47	79	117	142	152	49
90°	2	32	68	95	104	4
95°	0	30	65	91	100	0
105°	1	28	62	85	93	1
115°	2	26	56	77	85	2
125°	2	23	49	68	74	2
135°	3	18	40	57	62	2
145°	3	14	29	43	48	2
155°	4	11	20	29	33	2
165°	5	8	12	16	19	1
175°	5	5	5	5	6	0
180°	4	4	4	4	4	



TEST NUMBER: P981633

CATALOG NUMBER: 2WNLED-LD4-28SL-F-UNV-L840-CD1-U

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	817.5	817.5	817.5	817.5	817.5	817.5	817.5	817.5	817.5	817.5	817.5
2.5°	820.7	819.9	818.3	816.8	816.0	816.0	815.2	815.2	815.2	817.5	818.3
5°	817.5	816.8	815.2	814.4	813.7	812.9	812.9	812.9	813.7	816.0	816.8
7.5°	812.1	811.3	809.8	809.0	808.2	808.2	808.2	808.2	809.0	811.3	812.1
10°	804.3	803.5	802.0	801.2	801.2	801.2	801.2	801.2	802.8	805.1	806.7
12.5°	793.4	792.7	791.9	791.9	791.1	791.1	791.9	791.9	793.4	796.5	798.9
15°	781.0	780.2	779.4	779.4	779.4	779.4	780.2	781.0	783.3	786.4	788.0
17.5°	766.2	766.2	765.4	766.2	766.2	766.2	767.0	768.5	770.1	774.0	776.3
20°	750.6	749.9	749.1	750.6	750.6	750.6	751.4	753.8	756.1	760.0	762.3
22.5°	732.0	732.0	732.0	732.8	733.5	734.3	735.1	737.4	740.5	743.6	746.8
25°	711.8	711.8	711.8	713.3	714.9	715.6	716.4	718.8	722.6	725.8	728.9
27.5°	690.7	690.7	690.7	691.5	693.9	694.6	696.2	699.3	703.2	706.3	710.2
30°	668.2	668.2	669.0	670.5	672.9	673.6	675.2	678.3	683.0	686.1	690.0
32.5°	644.9	644.1	644.9	647.2	649.5	651.9	652.6	656.5	661.2	665.1	669.0
35°	618.4	619.2	620.7	623.1	625.4	627.7	629.3	633.2	638.6	642.5	646.4
37.5°	592.7	593.5	595.1	598.2	601.3	603.6	606.0	609.1	615.3	619.2	623.9
40°	567.8	566.3	569.4	572.5	576.4	578.7	581.1	585.0	591.2	595.1	599.7
42.5°	539.8	539.8	542.2	546.8	550.7	553.1	555.4	560.1	566.3	571.0	575.6
45°	511.1	511.8	515.0	519.6	524.3	527.4	529.0	534.4	540.6	545.3	550.0
47.5°	482.3	483.8	486.9	492.4	497.1	500.2	501.7	507.9	514.2	519.6	524.3
50°	455.1	455.1	458.9	463.6	469.1	472.2	474.5	480.7	486.9	492.4	497.1
52.5°	425.5	425.5	429.4	435.6	440.3	444.2	446.5	453.5	459.7	465.2	470.6
55°	394.4	395.9	399.8	406.8	412.3	415.4	418.5	425.5	431.7	437.9	442.6
57.5°	365.6	366.4	371.0	377.3	383.5	386.6	390.5	396.7	403.7	410.7	415.4
60°	335.3	336.8	340.7	348.5	354.7	357.8	360.9	368.7	375.7	381.9	386.6
62.5°	305.7	306.5	311.9	318.9	325.1	329.0	332.9	339.9	346.9	353.2	359.4
65°	275.4	276.9	281.6	289.4	295.6	299.5	302.6	311.9	318.1	325.1	331.4
67.5°	245.0	246.6	252.0	259.8	266.8	270.7	273.8	282.4	290.1	297.1	303.4
70°	214.7	216.2	222.5	230.2	237.3	241.1	245.8	253.6	262.1	269.1	276.1
72.5°	183.6	185.9	191.4	199.9	209.2	213.1	217.0	226.4	234.1	241.9	248.1
75°	154.8	157.1	163.4	171.1	178.9	184.4	187.5	196.8	206.9	214.7	221.7
77.5°	126.0	128.3	134.6	143.1	151.7	156.4	161.0	169.6	178.1	185.9	193.7
80°	98.8	101.1	108.1	115.9	124.5	129.9	134.6	143.9	152.5	160.2	167.2
82.5°	72.3	74.7	81.7	90.2	99.6	104.2	108.9	117.5	126.8	134.6	142.4
85°	46.7	50.6	56.8	64.6	73.9	78.6	83.2	92.6	101.1	108.9	116.7
87.5°	22.6	25.7	32.7	41.2	49.8	55.2	59.1	67.7	77.0	84.0	91.8
90°	1.6	4.7	10.9	18.7	27.2	31.9	36.6	45.1	53.7	61.5	68.5
92.5°	0.0	3.1	9.3	17.1	25.7	30.3	34.2	42.8	51.3	59.1	66.1
95°	0.0	3.1	9.3	17.1	25.7	29.6	34.2	42.8	50.6	58.3	65.3
97.5°	0.8	3.1	9.3	17.1	24.9	29.6	33.4	42.0	49.8	57.6	64.6
100°	0.8	3.1	9.3	16.3	24.9	28.8	33.4	41.2	49.0	56.8	63.8
102.5°	0.8	3.1	9.3	16.3	24.9	28.8	32.7	40.4	48.2	56.0	63.0
105°	0.8	3.9	9.3	16.3	24.1	28.0	31.9	40.4	47.5	54.5	61.5
107.5°	0.8	3.9	9.3	16.3	24.1	28.0	31.9	39.7	46.7	53.7	59.9
110°	1.6	3.9	9.3	16.3	23.3	27.2	31.1	38.9	45.9	52.9	59.1



TEST NUMBER: P981633

CATALOG NUMBER: 2WNLED-LD4-28SL-F-UNV-L840-CD1-U

**CANDELA DISTRIBUTION (continued):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
112.5°	1.6	3.9	9.3	15.6	23.3	26.4	30.3	38.1	45.1	51.3	57.6
115°	1.6	3.9	9.3	15.6	22.6	26.4	29.6	37.3	43.6	50.6	56.0
117.5°	1.6	4.7	9.3	14.8	21.8	25.7	28.8	35.8	42.8	49.0	54.5
120°	2.3	4.7	8.6	14.8	21.0	24.9	28.0	35.0	41.2	47.5	52.9
122.5°	2.3	4.7	8.6	14.0	20.2	23.3	27.2	33.4	39.7	45.9	51.3
125°	2.3	4.7	8.6	13.2	19.4	22.6	25.7	31.9	38.1	43.6	49.0
127.5°	2.3	4.7	8.6	13.2	18.7	21.0	24.1	30.3	35.8	41.2	46.7
130°	2.3	4.7	7.8	12.4	17.1	20.2	22.6	28.8	33.4	38.9	44.3
132.5°	2.3	4.7	7.8	11.7	16.3	19.4	21.8	27.2	31.9	36.6	42.0
135°	3.1	4.7	7.8	11.7	15.6	17.9	20.2	24.9	29.6	34.2	39.7
137.5°	3.1	4.7	7.0	10.9	14.8	17.1	19.4	23.3	28.0	32.7	36.6
140°	3.1	4.7	7.0	10.1	14.0	16.3	17.9	21.8	26.4	30.3	34.2
142.5°	3.1	4.7	7.0	10.1	13.2	14.8	17.1	20.2	24.1	28.0	31.9
145°	3.1	4.7	7.0	9.3	12.4	14.0	15.6	19.4	22.6	25.7	28.8
147.5°	3.9	4.7	7.0	9.3	11.7	13.2	14.8	17.9	21.0	23.3	26.4
150°	3.9	4.7	6.2	8.6	10.9	12.4	14.0	16.3	19.4	21.8	24.1
152.5°	3.9	4.7	6.2	8.6	10.9	11.7	12.4	15.6	17.9	20.2	21.8
155°	3.9	4.7	6.2	7.8	10.1	10.9	11.7	14.0	16.3	17.9	20.2
157.5°	3.9	4.7	6.2	7.8	9.3	10.1	10.9	12.4	14.8	16.3	17.9
160°	3.9	4.7	6.2	7.0	8.6	9.3	10.1	11.7	13.2	14.8	15.6
162.5°	4.7	4.7	5.4	7.0	7.8	8.6	9.3	10.1	11.7	12.4	14.0
165°	4.7	4.7	5.4	6.2	7.0	7.8	7.8	9.3	10.1	10.9	11.7
167.5°	4.7	4.7	5.4	6.2	6.2	7.0	7.0	7.8	8.6	9.3	10.1
170°	4.7	4.7	4.7	5.4	6.2	6.2	6.2	7.0	7.8	7.8	8.6
172.5°	4.7	4.7	4.7	4.7	5.4	5.4	5.4	6.2	6.2	7.0	7.0
175°	4.7	4.7	4.7	4.7	4.7	4.7	5.4	5.4	5.4	5.4	5.4
177.5°	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7
180°	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9



TEST NUMBER: P981633

CATALOG NUMBER: 2WNLED-LD4-28SL-F-UNV-L840-CD1-U

**CANDELA DISTRIBUTION (continued):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°
0°	817.5	817.5	817.5	817.5	817.5	817.5	817.5	817.5	817.5	817.5
2.5°	819.1	820.7	819.9	818.3	818.3	818.3	817.5	816.0	815.2	814.4
5°	817.5	819.1	817.5	816.8	816.8	816.8	816.8	816.0	815.2	815.2
7.5°	813.7	815.2	814.4	813.7	813.7	813.7	813.7	812.9	812.9	812.9
10°	808.2	810.5	809.8	809.0	808.2	809.0	808.2	808.2	807.4	807.4
12.5°	799.7	802.0	802.0	801.2	801.2	801.2	801.2	801.2	800.4	801.2
15°	790.3	792.7	792.7	792.7	792.7	792.7	792.7	792.7	791.9	792.7
17.5°	778.6	781.0	781.8	781.0	781.8	781.8	781.8	781.0	781.0	781.0
20°	764.6	767.0	767.8	767.0	767.0	767.0	767.8	767.8	767.8	767.8
22.5°	749.1	751.4	751.4	751.4	752.2	752.2	752.2	753.0	753.0	753.0
25°	731.2	733.5	733.5	734.3	735.1	735.1	735.9	735.9	735.9	735.9
27.5°	714.1	715.6	715.6	716.4	717.2	717.2	717.2	717.2	718.8	718.0
30°	693.9	695.4	696.2	697.8	697.8	698.5	698.5	699.3	700.1	700.1
32.5°	672.9	674.4	675.2	676.7	677.5	678.3	678.3	679.9	680.6	679.9
35°	650.3	651.9	654.2	655.0	656.5	656.5	658.1	658.1	659.6	658.9
37.5°	627.7	629.3	630.9	632.4	634.0	634.7	635.5	637.1	638.6	637.1
40°	603.6	606.0	608.3	609.9	610.6	612.2	612.2	614.5	616.1	614.5
42.5°	579.5	581.8	584.2	587.3	587.3	588.1	589.6	592.0	592.0	591.2
45°	554.6	556.2	560.1	562.4	563.2	564.0	565.5	566.3	567.8	567.8
47.5°	528.2	531.3	535.2	537.5	538.3	539.1	540.6	542.2	544.5	544.5
50°	501.7	505.6	507.2	511.1	512.6	513.4	515.7	517.3	518.8	518.1
52.5°	474.5	477.6	482.3	485.4	486.9	487.7	490.1	492.4	493.2	493.9
55°	447.3	451.2	455.8	458.9	460.5	462.1	463.6	465.2	467.5	468.3
57.5°	420.1	423.9	429.4	432.5	434.1	434.8	437.9	440.3	441.1	441.8
60°	392.0	396.7	402.2	405.3	406.8	409.2	409.9	413.8	414.6	415.4
62.5°	364.8	369.5	374.9	378.8	380.4	381.9	385.0	387.4	388.9	388.2
65°	337.6	342.3	347.7	351.6	353.2	355.5	357.8	360.2	361.7	361.7
67.5°	309.6	315.0	321.3	325.1	326.7	329.0	331.4	332.9	335.3	336.8
70°	282.4	288.6	294.0	297.9	299.5	301.8	304.1	308.0	308.0	309.6
72.5°	255.1	261.4	266.8	272.3	273.8	275.4	278.5	280.8	281.6	283.1
75°	228.7	234.9	240.4	244.3	247.4	248.9	252.0	253.6	255.1	256.7
77.5°	200.7	208.5	213.9	218.6	220.9	222.5	225.6	227.9	229.5	230.2
80°	174.2	180.5	185.9	190.6	192.9	195.2	198.4	199.9	202.2	203.0
82.5°	148.6	154.8	160.2	164.1	167.2	168.8	171.9	175.0	175.0	176.6
85°	122.9	129.1	134.6	139.2	141.6	143.9	146.2	149.4	150.1	151.7
87.5°	98.0	105.0	109.7	115.1	116.7	119.0	122.9	125.2	126.8	126.8
90°	75.5	81.7	87.1	92.6	94.9	96.5	100.3	102.7	104.2	104.2
92.5°	73.1	79.3	84.8	90.2	91.8	94.1	97.2	99.6	101.1	101.1
95°	72.3	78.6	84.0	88.7	91.0	92.6	96.5	98.0	99.6	100.3
97.5°	71.6	77.8	83.2	87.9	89.5	91.8	94.9	97.2	98.8	98.8
100°	70.0	76.2	81.7	86.3	88.7	90.2	93.3	95.7	96.5	97.2
102.5°	69.2	74.7	80.1	84.8	87.1	88.7	91.8	94.1	94.9	95.7
105°	67.7	73.9	78.6	83.2	84.8	87.1	89.5	91.8	93.3	93.3
107.5°	66.1	72.3	77.0	81.7	83.2	84.8	87.9	90.2	91.0	91.8
110°	64.6	70.8	75.5	79.3	81.7	83.2	85.6	87.9	88.7	89.5



TEST NUMBER: P981633

CATALOG NUMBER: 2WNLED-LD4-28SL-F-UNV-L840-CD1-U

**CANDELA DISTRIBUTION (continued):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°
112.5°	63.0	68.5	73.1	77.8	79.3	80.9	83.2	85.6	86.3	87.1
115°	61.5	66.9	71.6	75.5	77.0	78.6	80.9	83.2	84.0	84.8
117.5°	59.9	65.3	69.2	73.1	74.7	76.2	78.6	80.9	81.7	81.7
120°	58.3	63.0	67.7	70.8	72.3	73.9	76.2	77.8	79.3	79.3
122.5°	56.0	60.7	65.3	68.5	70.0	71.6	73.9	75.5	76.2	77.0
125°	54.5	59.1	63.0	66.1	67.7	69.2	70.8	72.3	73.1	73.9
127.5°	52.1	56.0	60.7	63.8	65.3	66.9	68.5	70.0	70.8	70.8
130°	49.0	53.7	57.6	61.5	63.0	63.8	66.1	66.9	67.7	67.7
132.5°	46.7	50.6	54.5	58.3	59.9	61.5	63.0	63.8	64.6	64.6
135°	43.6	47.5	51.3	55.2	56.8	58.3	59.9	60.7	61.5	61.5
137.5°	41.2	45.1	48.2	52.1	53.7	55.2	56.8	57.6	58.3	58.3
140°	38.1	41.2	45.1	49.0	50.6	51.3	53.7	54.5	55.2	55.2
142.5°	35.0	38.9	42.0	45.1	46.7	48.2	50.6	51.3	52.1	52.1
145°	32.7	35.8	38.1	41.2	42.8	44.3	46.7	48.2	48.2	48.2
147.5°	29.6	32.7	35.0	38.1	39.7	40.4	43.6	44.3	45.1	45.1
150°	27.2	29.6	31.9	34.2	35.8	37.3	39.7	41.2	41.2	41.2
152.5°	24.9	26.4	28.8	31.1	31.9	33.4	35.8	37.3	37.3	37.3
155°	21.8	24.1	25.7	27.2	28.8	29.6	31.9	33.4	33.4	33.4
157.5°	19.4	21.0	22.6	24.1	24.9	25.7	28.0	29.6	30.3	30.3
160°	17.1	18.7	19.4	21.0	21.8	22.6	23.3	25.7	26.4	26.4
162.5°	14.8	15.6	17.1	17.9	18.7	18.7	20.2	21.0	22.6	22.6
165°	12.4	13.2	14.0	14.8	15.6	15.6	16.3	17.9	18.7	18.7
167.5°	10.9	10.9	11.7	12.4	12.4	12.4	13.2	14.0	15.6	15.6
170°	8.6	9.3	9.3	9.3	10.1	10.1	10.1	10.9	11.7	12.4
172.5°	7.0	7.0	7.8	7.8	7.8	7.8	7.8	7.8	8.6	9.3
175°	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	6.2
177.5°	4.7	4.7	4.7	3.9	3.9	3.9	3.9	3.9	3.9	3.1
180°	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9

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

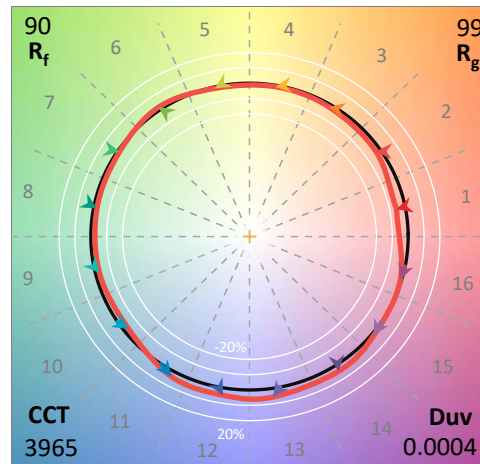
**Test Information**

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**

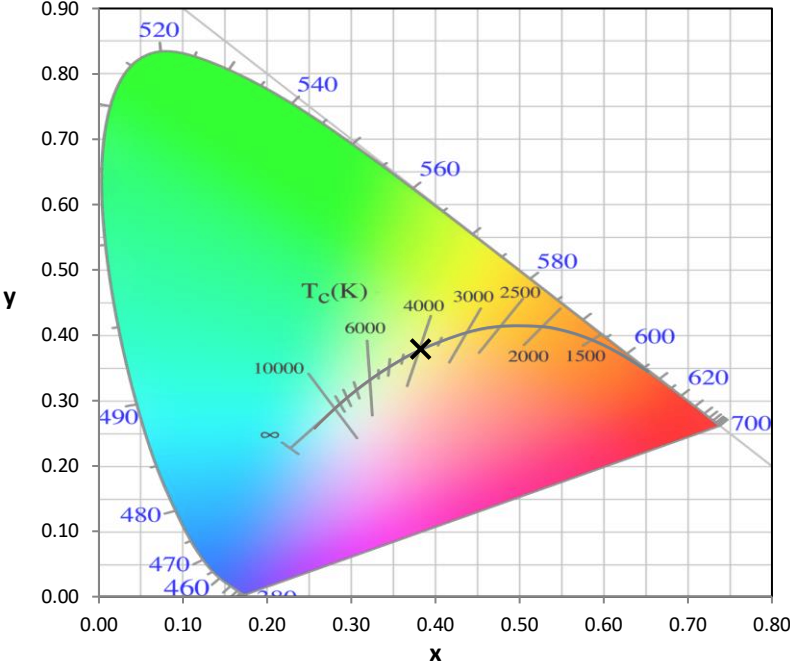
Stabilization Time: 21M  
 Operation Time: 1H 21M  
 Sphere Temperature (°C): 25.0

REPORT NUMBER: SP3-2508-516-11

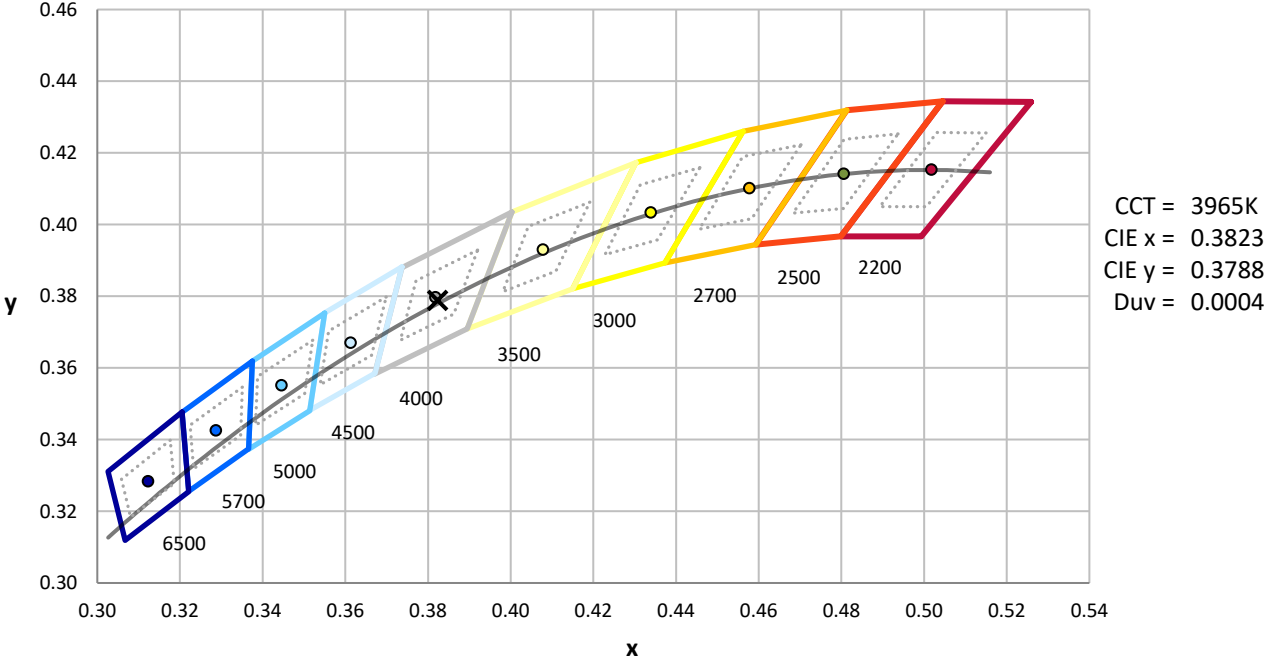
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	3M SPHERE IN02505	7/1/2025	1/1/2026
Power Meter	XITRON INXT2011006	1/20/2025	1/20/2026
AC Power Source	CHROMA 61604 IN6064A	10/22/2024	10/22/2025
DC Power Source	EYSIGHT N5770A IN0534	10/22/2024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

REPORT NUMBER: SP3-2508-516-11

CIE 1931 Chromaticity Diagram



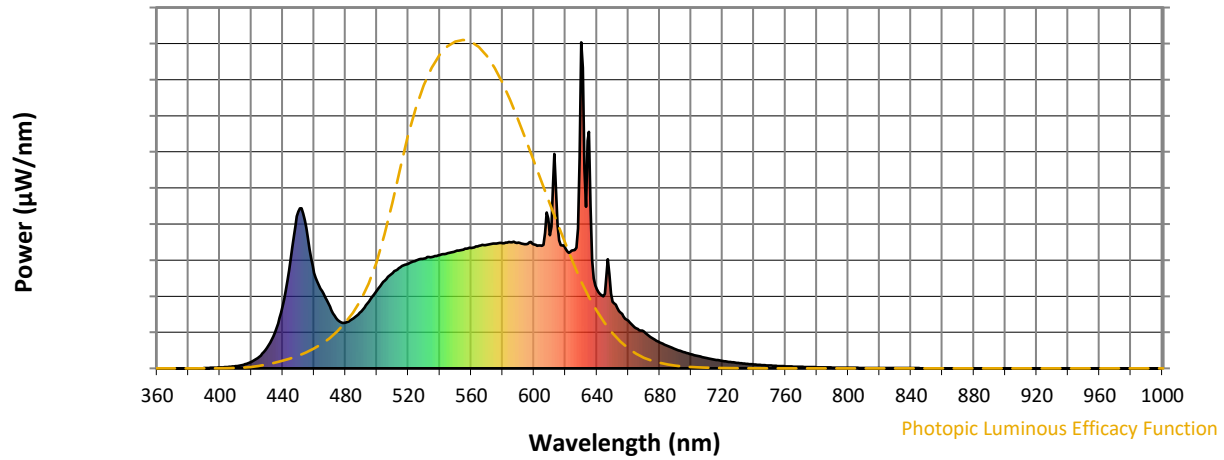
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 4000K 4-step quadrangle

REPORT NUMBER: SP3-2508-516-11

**Photopic Flux vs. Wavelength**

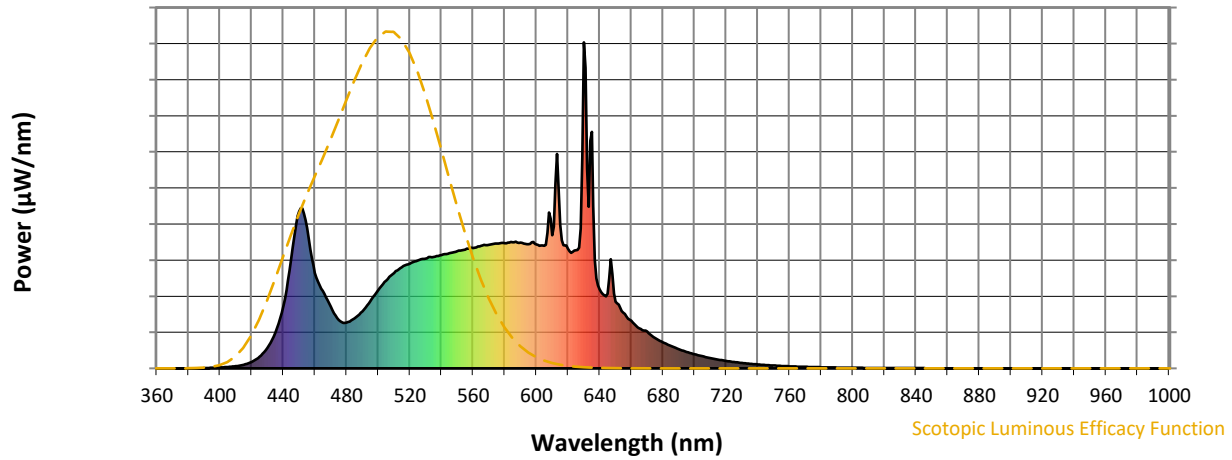


**Photopic Lumens: NR**

$\lambda$ (nm)	Power W <sup>^</sup> /nm	Lumens ( $\phi$ /nm)	$\lambda$ (nm)	Power W <sup>^</sup> /nm	Lumens ( $\phi$ /nm)	$\lambda$ (nm)	Power W <sup>^</sup> /nm	Lumens ( $\phi$ /nm)	$\lambda$ (nm)	Power W <sup>^</sup> /nm	Lumens ( $\phi$ /nm)	$\lambda$ (nm)	Power W <sup>^</sup> /nm	Lumens ( $\phi$ /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**



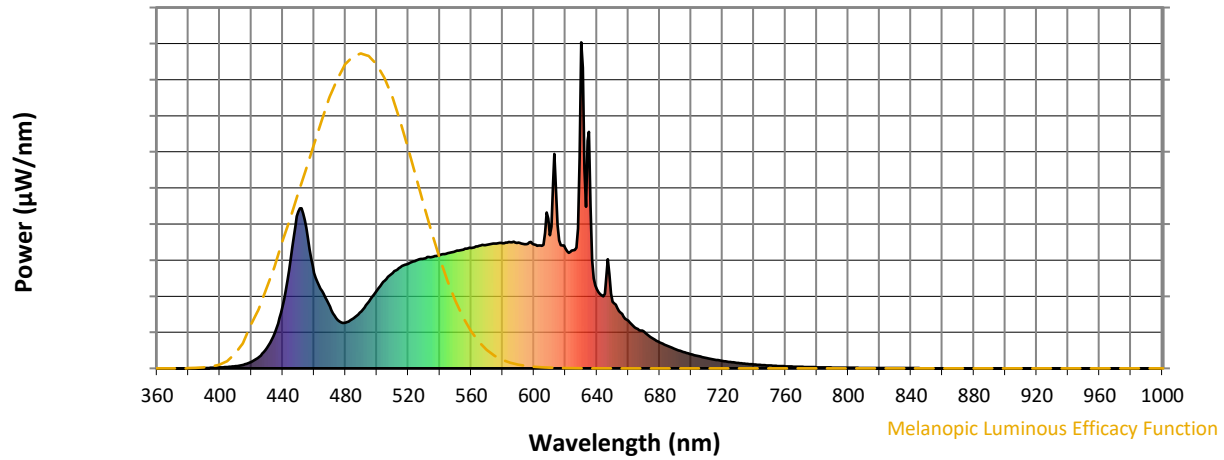
**Scotopic Lumens: NR**

**S/P: 1.75**

$\lambda$ (nm)	Power W <sup>^</sup> /nm	Lumens ( $\phi$ /nm)	$\lambda$ (nm)	Power W <sup>^</sup> /nm	Lumens ( $\phi$ /nm)	$\lambda$ (nm)	Power W <sup>^</sup> /nm	Lumens ( $\phi$ /nm)	$\lambda$ (nm)	Power W <sup>^</sup> /nm	Lumens ( $\phi$ /nm)	$\lambda$ (nm)	Power W <sup>^</sup> /nm	Lumens ( $\phi$ /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**



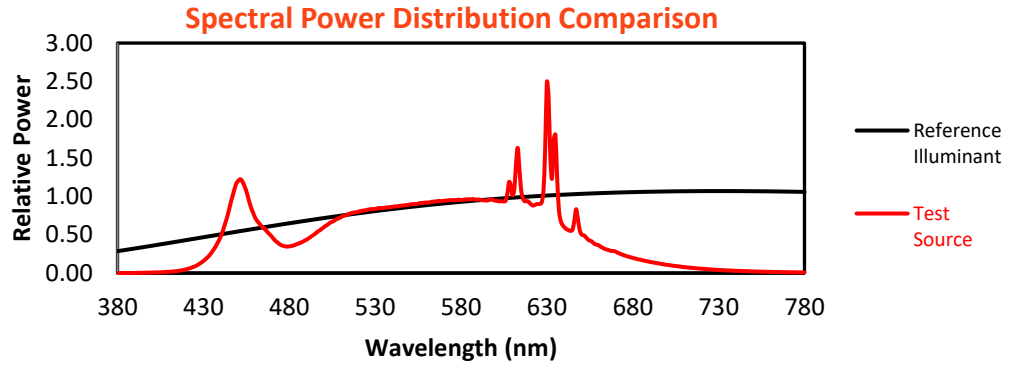
**Melanopic Lumens: NR**

**M/P: 3.62**

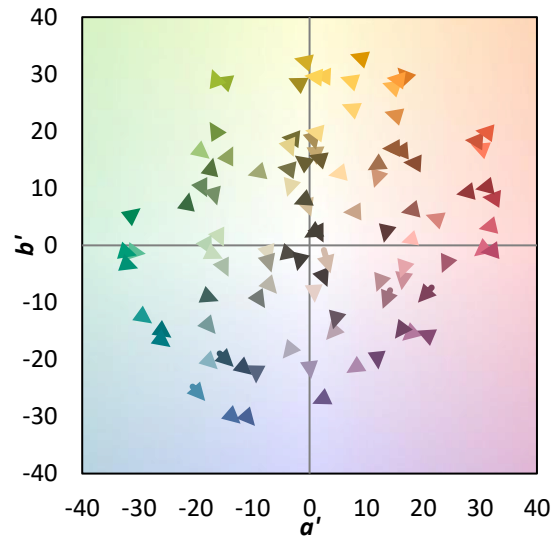
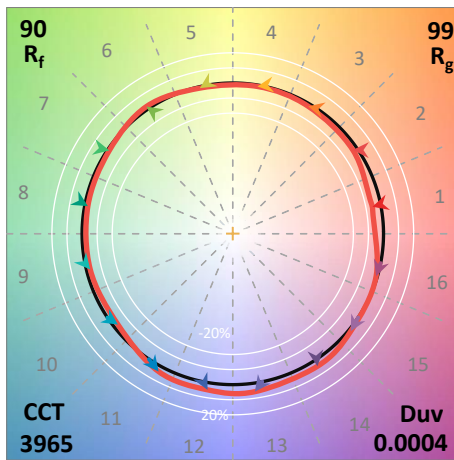
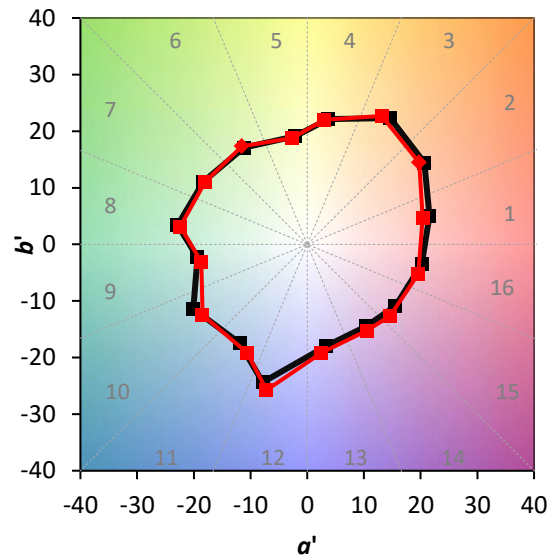
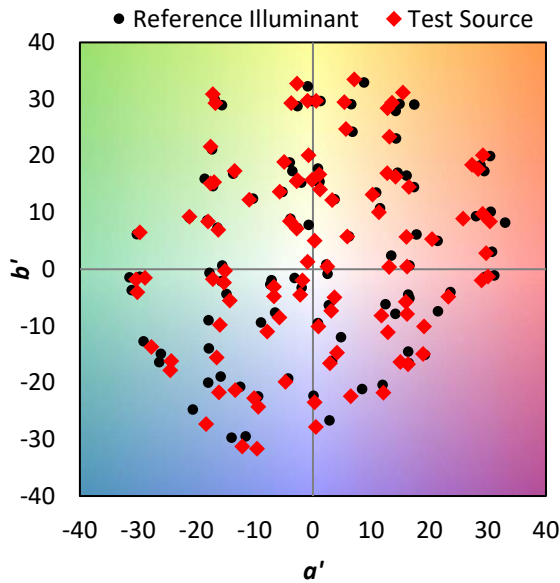
λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)	λ (nm)	Power W <sup>^</sup> /nm	Lumens (φ/nm)
360	0	NR	490	175	NR	620	367	NR	750	9	NR	880	0	NR
365	0	NR	495	206	NR	625	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**

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

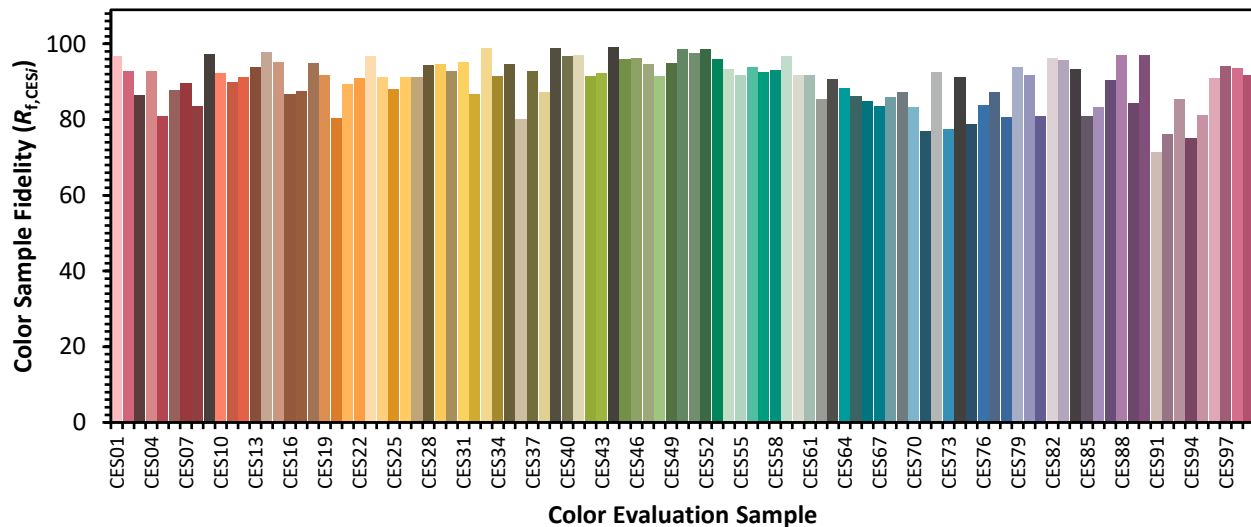


**Color Vector Graphics**

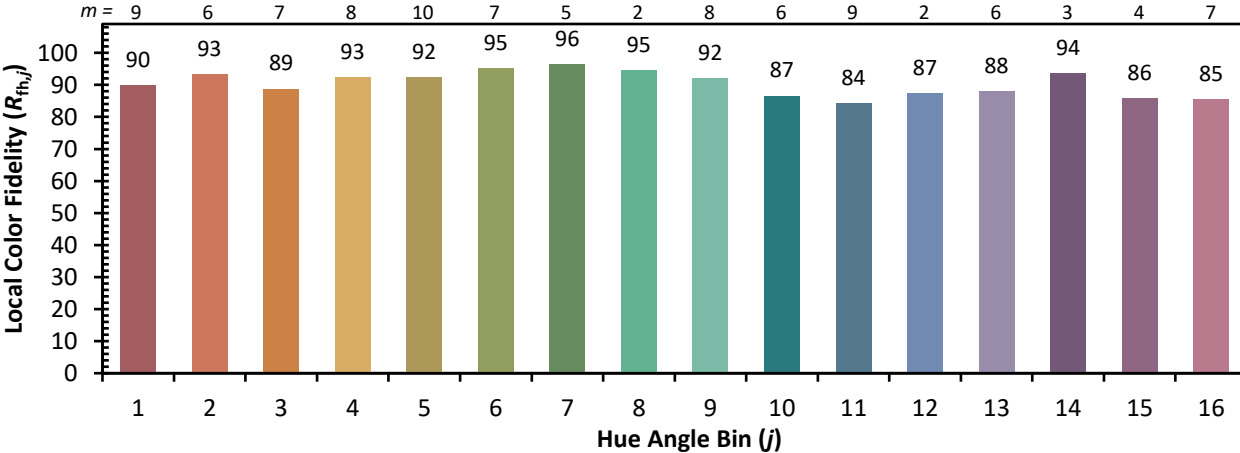
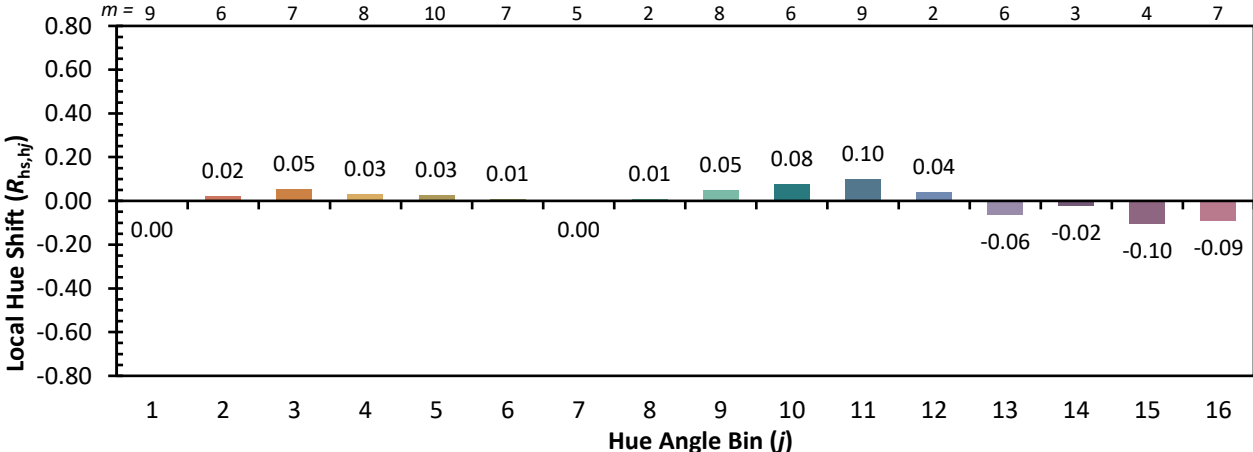
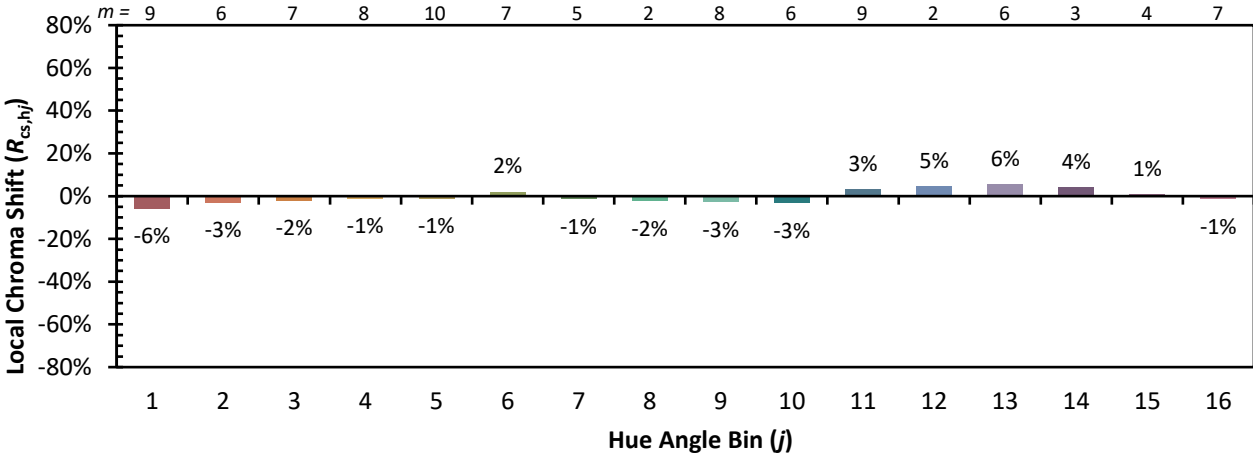


**Individual Sample Fidelity Index ( $R_{f,i}$ )**

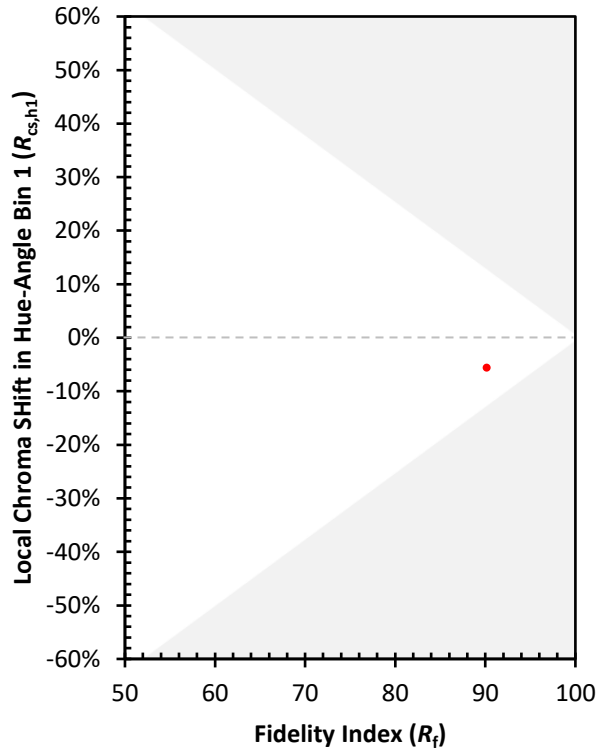
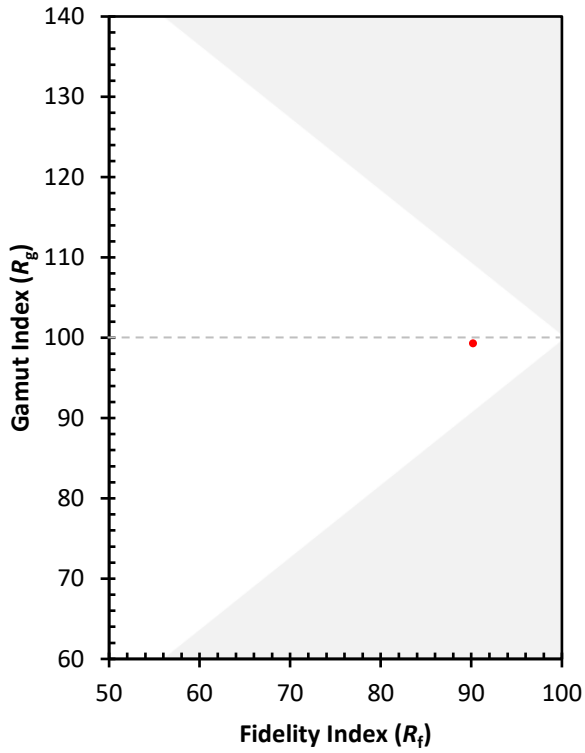
CES01 = 86	CES26 = 91	CES51 = 98	CES76 = 84
CES02 = 62	CES27 = 91	CES52 = 99	CES77 = 87
CES03 = 31	CES28 = 94	CES53 = 96	CES78 = 81
CES04 = 69	CES29 = 95	CES54 = 93	CES79 = 94
CES05 = 49	CES30 = 93	CES55 = 92	CES80 = 92
CES06 = 50	CES31 = 95	CES56 = 94	CES81 = 81
CES07 = 42	CES32 = 87	CES57 = 93	CES82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