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: P981638

Luminaire Tested: **4WNLED-LD4-32SL-F-UNV-L850-CD1-U**

Issue Date: 04/17/2025

Report Generated By 670245763 / DESKTOP-DVLU35A

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Scaled Data Report

Test Information

Test Method:	LM-79-08
Report Number:	P981638
Test Lab:	INNOVATION CENTER(P3)
Issue Date:	04/17/2025
Manufacturer:	COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line:	METALUX
Catalog Number:	4WNLED-LD4-32SL-F-UNV-L850-CD1-U
Description:	METALUX 4FT WNLED WRAPAROUND 3200LM PACKAGE 80CRI 5000K TROFFER
Light Source:	5000K CCT, 80+ CRI LEDS
Ballast/Driver:	ELECTRONIC DRIVER

Summary

Lumens per Lamp:	N/A
Luminaire Lumens:	3601.8 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):	27.8
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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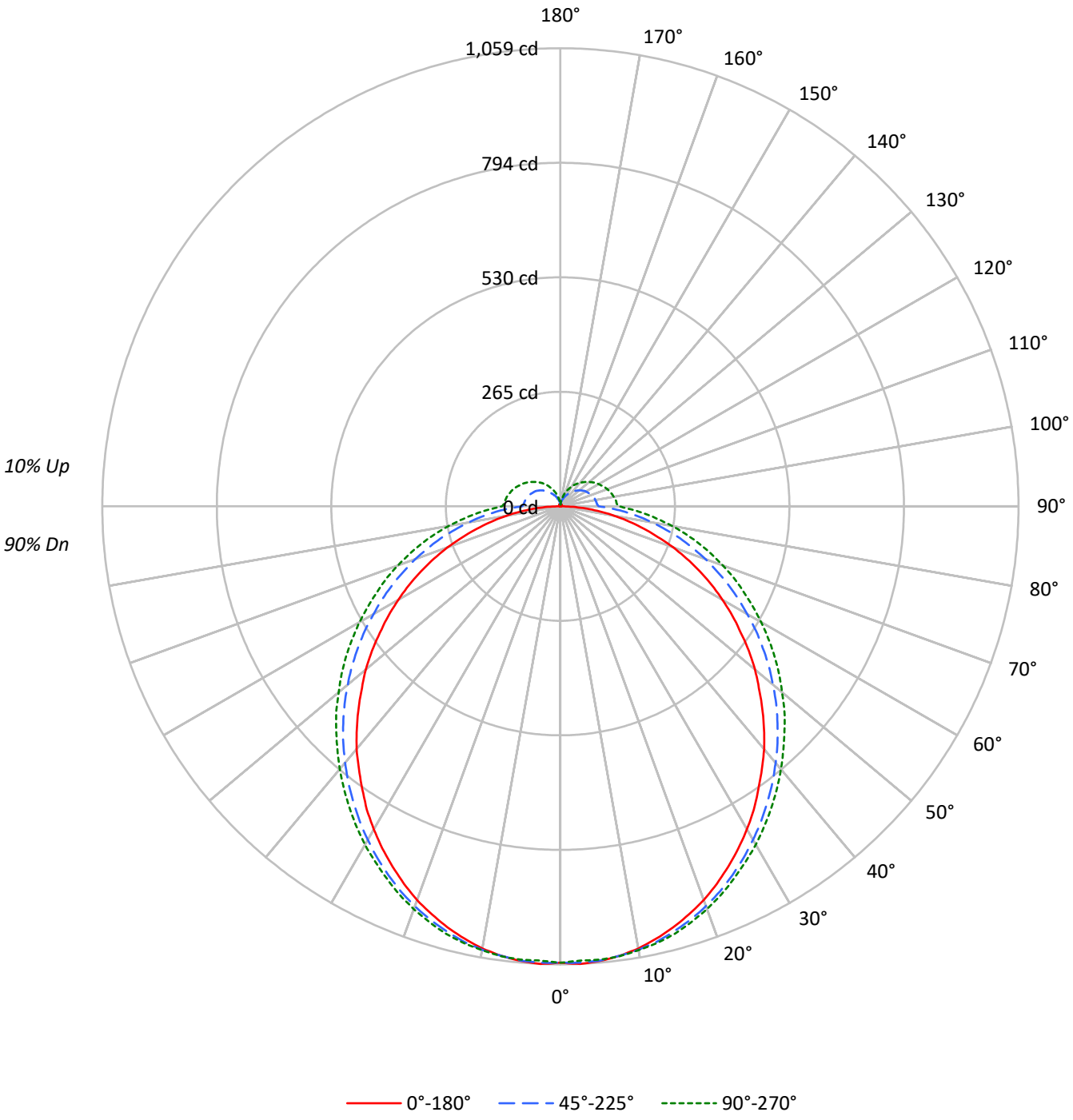
Luminous Intensity Polar Plot



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

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3786	3786	3786
5°	3786	3736	3717
10°	3754	3672	3654
15°	3703	3598	3586
20°	3644	3517	3500
25°	3567	3426	3407
30°	3489	3330	3318
35°	3397	3232	3223
40°	3316	3134	3131
45°	3213	3035	3042
50°	3123	2929	2951
55°	3005	2821	2869
60°	2896	2705	2778
65°	2770	2593	2684
70°	2608	2471	2603
75°	2397	2338	2510
80°	2131	2166	2395
85°	1679	1979	2277

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	100.1	2.8
10°-20°	286.4	8.0
20°-30°	431.7	12.0
30°-40°	518.9	14.4
40°-50°	542.7	15.1
50°-60°	505.1	14.0
60°-70°	416.6	11.6
70°-80°	292.7	8.1
80°-90°	154.6	4.3
90°-100°	83.7	2.3
100°-110°	76.0	2.1
110°-120°	65.0	1.8
120°-130°	51.5	1.4
130°-140°	36.7	1.0
140°-150°	23.0	0.6
150°-160°	12.0	0.3
160°-170°	4.4	0.1
170°-180°	0.8	0.0
0°-30°	818.2	22.7
0°-40°	1337.1	37.1
0°-60°	2384.9	66.2
0°-90°	3248.9	90.2
90°-120°	224.6	6.2
90°-150°	335.8	9.3
90°-180°	353.0	9.8
0°-180°	3601.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1055	1055	1055	1055	1055	
5°	1055	1049	1054	1054	1052	100
15°	1008	1006	1017	1023	1023	284
25°	919	924	941	949	950	423
35°	798	810	834	847	850	500
45°	660	681	710	727	733	509
55°	509	536	571	594	604	456
65°	355	386	428	456	467	352
75°	200	238	286	319	331	211
85°	60	101	151	183	196	63
90°	2	41	88	122	134	5
95°	0	38	84	118	130	0
105°	1	36	79	109	120	1
115°	2	34	72	99	109	2
125°	3	29	63	87	95	3
135°	4	23	51	73	79	3
145°	4	18	37	55	62	3
155°	5	14	26	37	43	2
165°	6	10	15	20	24	2
175°	6	6	7	7	8	1
180°	5	5	5	5	5	

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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	1055.1	1055.1	1055.1	1055.1	1055.1	1055.1	1055.1	1055.1	1055.1	1055.1	1055.1
2.5°	1059.1	1058.1	1056.1	1054.1	1053.1	1053.1	1052.1	1052.1	1052.1	1055.1	1056.1
5°	1055.1	1054.1	1052.1	1051.1	1050.1	1049.1	1049.1	1049.1	1050.1	1053.1	1054.1
7.5°	1048.1	1047.1	1045.1	1044.1	1043.1	1043.1	1043.1	1043.1	1044.1	1047.1	1048.1
10°	1038.0	1037.0	1035.0	1034.0	1034.0	1034.0	1034.0	1034.0	1036.0	1039.0	1041.0
12.5°	1024.0	1023.0	1022.0	1022.0	1021.0	1021.0	1022.0	1022.0	1024.0	1028.0	1031.0
15°	1007.9	1006.9	1005.9	1005.9	1005.9	1005.9	1006.9	1007.9	1010.9	1014.9	1017.0
17.5°	988.8	988.8	987.8	988.8	988.8	988.8	989.8	991.9	993.9	998.9	1001.9
20°	968.8	967.8	966.8	968.8	968.8	968.8	969.8	972.8	975.8	980.8	983.8
22.5°	944.7	944.7	944.7	945.7	946.7	947.7	948.7	951.7	955.7	959.7	963.7
25°	918.6	918.6	918.6	920.6	922.6	923.6	924.6	927.6	932.6	936.6	940.7
27.5°	891.5	891.5	891.5	892.5	895.5	896.5	898.5	902.5	907.5	911.5	916.6
30°	862.4	862.4	863.4	865.4	868.4	869.4	871.4	875.4	881.4	885.4	890.5
32.5°	832.2	831.2	832.2	835.2	838.3	841.3	842.3	847.3	853.3	858.3	863.4
35°	798.1	799.1	801.1	804.1	807.1	810.1	812.2	817.2	824.2	829.2	834.2
37.5°	765.0	766.0	768.0	772.0	776.0	779.0	782.0	786.1	794.1	799.1	805.1
40°	732.8	730.8	734.9	738.9	743.9	746.9	749.9	754.9	763.0	768.0	774.0
42.5°	696.7	696.7	699.7	705.7	710.8	713.8	716.8	722.8	730.8	736.9	742.9
45°	659.6	660.6	664.6	670.6	676.6	680.6	682.7	689.7	697.7	703.7	709.8
47.5°	622.4	624.4	628.4	635.5	641.5	645.5	647.5	655.5	663.6	670.6	676.6
50°	587.3	587.3	592.3	598.3	605.4	609.4	612.4	620.4	628.4	635.5	641.5
52.5°	549.1	549.1	554.2	562.2	568.2	573.2	576.2	585.3	593.3	600.3	607.4
55°	509.0	511.0	516.0	525.0	532.1	536.1	540.1	549.1	557.2	565.2	571.2
57.5°	471.8	472.8	478.9	486.9	494.9	498.9	504.0	512.0	521.0	530.1	536.1
60°	432.7	434.7	439.7	449.7	457.8	461.8	465.8	475.8	484.9	492.9	498.9
62.5°	394.5	395.5	402.6	411.6	419.6	424.7	429.7	438.7	447.7	455.8	463.8
65°	355.4	357.4	363.4	373.5	381.5	386.5	390.5	402.6	410.6	419.6	427.7
67.5°	316.2	318.2	325.3	335.3	344.3	349.4	353.4	364.4	374.5	383.5	391.5
70°	277.1	279.1	287.1	297.2	306.2	311.2	317.2	327.3	338.3	347.4	356.4
72.5°	236.9	239.9	247.0	258.0	270.0	275.1	280.1	292.1	302.2	312.2	320.2
75°	199.8	202.8	210.8	220.9	230.9	237.9	241.9	254.0	267.0	277.1	286.1
77.5°	162.6	165.6	173.7	184.7	195.8	201.8	207.8	218.9	229.9	239.9	250.0
80°	127.5	130.5	139.5	149.6	160.6	167.7	173.7	185.7	196.8	206.8	215.8
82.5°	93.4	96.4	105.4	116.5	128.5	134.5	140.5	151.6	163.6	173.7	183.7
85°	60.2	65.3	73.3	83.3	95.4	101.4	107.4	119.5	130.5	140.5	150.6
87.5°	29.1	33.1	42.2	53.2	64.2	71.3	76.3	87.3	99.4	108.4	118.5
90°	2.0	6.0	14.1	24.1	35.1	41.2	47.2	58.2	69.3	79.3	88.3
92.5°	0.0	4.0	12.0	22.1	33.1	39.2	44.2	55.2	66.3	76.3	85.3
95°	0.0	4.0	12.0	22.1	33.1	38.1	44.2	55.2	65.3	75.3	84.3
97.5°	1.0	4.0	12.0	22.1	32.1	38.1	43.2	54.2	64.2	74.3	83.3
100°	1.0	4.0	12.0	21.1	32.1	37.1	43.2	53.2	63.2	73.3	82.3
102.5°	1.0	4.0	12.0	21.1	32.1	37.1	42.2	52.2	62.2	72.3	81.3
105°	1.0	5.0	12.0	21.1	31.1	36.1	41.2	52.2	61.2	70.3	79.3
107.5°	1.0	5.0	12.0	21.1	31.1	36.1	41.2	51.2	60.2	69.3	77.3
110°	2.0	5.0	12.0	21.1	30.1	35.1	40.2	50.2	59.2	68.3	76.3

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TEST NUMBER: P981638
CATALOG NUMBER: 4WNLED-LD4-32SL-F-UNV-L850-CD1-U

CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
112.5°	2.0	5.0	12.0	20.1	30.1	34.1	39.2	49.2	58.2	66.3	74.3
115°	2.0	5.0	12.0	20.1	29.1	34.1	38.1	48.2	56.2	65.3	72.3
117.5°	2.0	6.0	12.0	19.1	28.1	33.1	37.1	46.2	55.2	63.2	70.3
120°	3.0	6.0	11.0	19.1	27.1	32.1	36.1	45.2	53.2	61.2	68.3
122.5°	3.0	6.0	11.0	18.1	26.1	30.1	35.1	43.2	51.2	59.2	66.3
125°	3.0	6.0	11.0	17.1	25.1	29.1	33.1	41.2	49.2	56.2	63.2
127.5°	3.0	6.0	11.0	17.1	24.1	27.1	31.1	39.2	46.2	53.2	60.2
130°	3.0	6.0	10.0	16.1	22.1	26.1	29.1	37.1	43.2	50.2	57.2
132.5°	3.0	6.0	10.0	15.1	21.1	25.1	28.1	35.1	41.2	47.2	54.2
135°	4.0	6.0	10.0	15.1	20.1	23.1	26.1	32.1	38.1	44.2	51.2
137.5°	4.0	6.0	9.0	14.1	19.1	22.1	25.1	30.1	36.1	42.2	47.2
140°	4.0	6.0	9.0	13.1	18.1	21.1	23.1	28.1	34.1	39.2	44.2
142.5°	4.0	6.0	9.0	13.1	17.1	19.1	22.1	26.1	31.1	36.1	41.2
145°	4.0	6.0	9.0	12.0	16.1	18.1	20.1	25.1	29.1	33.1	37.1
147.5°	5.0	6.0	9.0	12.0	15.1	17.1	19.1	23.1	27.1	30.1	34.1
150°	5.0	6.0	8.0	11.0	14.1	16.1	18.1	21.1	25.1	28.1	31.1
152.5°	5.0	6.0	8.0	11.0	14.1	15.1	16.1	20.1	23.1	26.1	28.1
155°	5.0	6.0	8.0	10.0	13.1	14.1	15.1	18.1	21.1	23.1	26.1
157.5°	5.0	6.0	8.0	10.0	12.0	13.1	14.1	16.1	19.1	21.1	23.1
160°	5.0	6.0	8.0	9.0	11.0	12.0	13.1	15.1	17.1	19.1	20.1
162.5°	6.0	6.0	7.0	9.0	10.0	11.0	12.0	13.1	15.1	16.1	18.1
165°	6.0	6.0	7.0	8.0	9.0	10.0	10.0	12.0	13.1	14.1	15.1
167.5°	6.0	6.0	7.0	8.0	8.0	9.0	9.0	10.0	11.0	12.0	13.1
170°	6.0	6.0	6.0	7.0	8.0	8.0	8.0	9.0	10.0	10.0	11.0
172.5°	6.0	6.0	6.0	6.0	7.0	7.0	7.0	8.0	8.0	9.0	9.0
175°	6.0	6.0	6.0	6.0	6.0	6.0	7.0	7.0	7.0	7.0	7.0
177.5°	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
180°	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0

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CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°
0°	1055.1	1055.1	1055.1	1055.1	1055.1	1055.1	1055.1	1055.1	1055.1	1055.1
2.5°	*1057.1*	*1059.1*	*1058.1*	*1056.1*	*1056.1*	*1056.1*	*1055.1*	*1053.1*	*1052.1*	*1051.1*
5°	1055.1	1057.1	1055.1	1054.1	1054.1	1054.1	1054.1	1053.1	1052.1	1052.1
7.5°	1050.1	1052.1	1051.1	1050.1	1050.1	1050.1	1050.1	1049.1	1049.1	1049.1
10°	1043.1	1046.1	1045.1	1044.1	1043.1	1044.1	1043.1	1043.1	1042.1	1042.1
12.5°	1032.0	1035.0	1035.0	1034.0	1034.0	1034.0	1034.0	1034.0	1033.0	1034.0
15°	1020.0	1023.0	1023.0	1023.0	1023.0	1023.0	1023.0	1023.0	1022.0	1023.0
17.5°	1004.9	1007.9	1008.9	1007.9	1008.9	1008.9	1008.9	1007.9	1007.9	1007.9
20°	986.8	989.8	990.9	989.8	989.8	989.8	990.9	990.9	990.9	990.9
22.5°	966.8	969.8	969.8	969.8	970.8	970.8	970.8	971.8	971.8	971.8
25°	943.7	946.7	946.7	947.7	948.7	948.7	949.7	949.7	949.7	949.7
27.5°	921.6	923.6	923.6	924.6	925.6	925.6	925.6	925.6	927.6	926.6
30°	895.5	897.5	898.5	900.5	900.5	901.5	901.5	902.5	903.5	903.5
32.5°	868.4	870.4	871.4	873.4	874.4	875.4	875.4	877.4	878.4	877.4
35°	839.3	841.3	844.3	845.3	847.3	847.3	849.3	849.3	851.3	850.3
37.5°	810.1	812.2	814.2	816.2	818.2	819.2	820.2	822.2	824.2	822.2
40°	779.0	782.0	785.1	787.1	788.1	790.1	790.1	793.1	795.1	793.1
42.5°	747.9	750.9	753.9	757.9	757.9	758.9	761.0	764.0	764.0	763.0
45°	715.8	717.8	722.8	725.8	726.8	727.8	729.8	730.8	732.8	732.8
47.5°	681.6	685.7	690.7	693.7	694.7	695.7	697.7	699.7	702.7	702.7
50°	647.5	652.5	654.5	659.6	661.6	662.6	665.6	667.6	669.6	668.6
52.5°	612.4	616.4	622.4	626.4	628.4	629.4	632.5	635.5	636.5	637.5
55°	577.2	582.3	588.3	592.3	594.3	596.3	598.3	600.3	603.3	604.3
57.5°	542.1	547.1	554.2	558.2	560.2	561.2	565.2	568.2	569.2	570.2
60°	506.0	512.0	519.0	523.0	525.0	528.1	529.1	534.1	535.1	536.1
62.5°	470.8	476.9	483.9	488.9	490.9	492.9	496.9	499.9	502.0	500.9
65°	435.7	441.7	448.7	453.8	455.8	458.8	461.8	464.8	466.8	466.8
67.5°	399.6	406.6	414.6	419.6	421.6	424.7	427.7	429.7	432.7	434.7
70°	364.4	372.4	379.5	384.5	386.5	389.5	392.5	397.5	397.5	399.6
72.5°	329.3	337.3	344.3	351.4	353.4	355.4	359.4	362.4	363.4	365.4
75°	295.1	303.2	310.2	315.2	319.2	321.2	325.3	327.3	329.3	331.3
77.5°	259.0	269.0	276.1	282.1	285.1	287.1	291.1	294.1	296.2	297.2
80°	224.9	232.9	239.9	246.0	249.0	252.0	256.0	258.0	261.0	262.0
82.5°	191.7	199.8	206.8	211.8	215.8	217.8	221.9	225.9	225.9	227.9
85°	158.6	166.6	173.7	179.7	182.7	185.7	188.7	192.7	193.8	195.8
87.5°	126.5	135.5	141.6	148.6	150.6	153.6	158.6	161.6	163.6	163.6
90°	97.4	105.4	112.4	119.5	122.5	124.5	129.5	132.5	134.5	134.5
92.5°	94.4	102.4	109.4	116.5	118.5	121.5	125.5	128.5	130.5	130.5
95°	93.4	101.4	108.4	114.4	117.5	119.5	124.5	126.5	128.5	129.5
97.5°	92.4	100.4	107.4	113.4	115.4	118.5	122.5	125.5	127.5	127.5
100°	90.4	98.4	105.4	111.4	114.4	116.5	120.5	123.5	124.5	125.5
102.5°	89.3	96.4	103.4	109.4	112.4	114.4	118.5	121.5	122.5	123.5
105°	87.3	95.4	101.4	107.4	109.4	112.4	115.4	118.5	120.5	120.5
107.5°	85.3	93.4	99.4	105.4	107.4	109.4	113.4	116.5	117.5	118.5
110°	83.3	91.4	97.4	102.4	105.4	107.4	110.4	113.4	114.4	115.4

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

Scaled Data Report

TEST NUMBER: P981638
CATALOG NUMBER: 4WNLED-LD4-32SL-F-UNV-L850-CD1-U

CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°
112.5°	81.3	88.3	94.4	100.4	102.4	104.4	107.4	110.4	111.4	112.4
115°	79.3	86.3	92.4	97.4	99.4	101.4	104.4	107.4	108.4	109.4
117.5°	77.3	84.3	89.3	94.4	96.4	98.4	101.4	104.4	105.4	105.4
120°	75.3	81.3	87.3	91.4	93.4	95.4	98.4	100.4	102.4	102.4
122.5°	72.3	78.3	84.3	88.3	90.4	92.4	95.4	97.4	98.4	99.4
125°	70.3	76.3	81.3	85.3	87.3	89.3	91.4	93.4	94.4	95.4
127.5°	67.3	72.3	78.3	82.3	84.3	86.3	88.3	90.4	91.4	91.4
130°	63.2	69.3	74.3	79.3	81.3	82.3	85.3	86.3	87.3	87.3
132.5°	60.2	65.3	70.3	75.3	77.3	79.3	81.3	82.3	83.3	83.3
135°	56.2	61.2	66.3	71.3	73.3	75.3	77.3	78.3	79.3	79.3
137.5°	53.2	58.2	62.2	67.3	69.3	71.3	73.3	74.3	75.3	75.3
140°	49.2	53.2	58.2	63.2	65.3	66.3	69.3	70.3	71.3	71.3
142.5°	45.2	50.2	54.2	58.2	60.2	62.2	65.3	66.3	67.3	67.3
145°	42.2	46.2	49.2	53.2	55.2	57.2	60.2	62.2	62.2	62.2
147.5°	38.1	42.2	45.2	49.2	51.2	52.2	56.2	57.2	58.2	58.2
150°	35.1	38.1	41.2	44.2	46.2	48.2	51.2	53.2	53.2	53.2
152.5°	32.1	34.1	37.1	40.2	41.2	43.2	46.2	48.2	48.2	48.2
155°	28.1	31.1	33.1	35.1	37.1	38.1	41.2	43.2	43.2	43.2
157.5°	25.1	27.1	29.1	31.1	32.1	33.1	36.1	38.1	39.2	39.2
160°	22.1	24.1	25.1	27.1	28.1	29.1	30.1	33.1	34.1	34.1
162.5°	19.1	20.1	22.1	23.1	24.1	24.1	26.1	27.1	29.1	29.1
165°	16.1	17.1	18.1	19.1	20.1	20.1	21.1	23.1	24.1	24.1
167.5°	14.1	14.1	15.1	16.1	16.1	16.1	17.1	18.1	20.1	20.1
170°	11.0	12.0	12.0	12.0	13.1	13.1	13.1	14.1	15.1	16.1
172.5°	9.0	9.0	10.0	10.0	10.0	10.0	10.0	10.0	11.0	12.0
175°	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	8.0
177.5°	6.0	6.0	6.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0
180°	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0

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

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

Report Prepared for

Cooper Lighting Solutions

Metalux

Report Number: SP3-2508-516-12

Test Date: 09/05/2025

Luminaire Tested: 4WNLED-LD4-50SL-F-UNVL950-CD1-U

Data in this report applies to families of products including 4WNLED-LD4-50SL-F-UNVL950-CD1-U

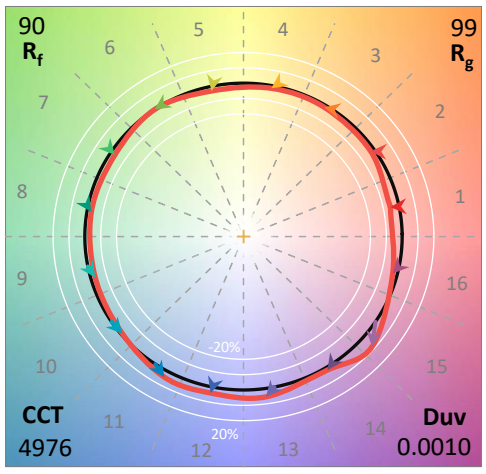
Report Generated By FNC07603 / LDUCLS01DT01661
Version: v7.05

Test Information

Test Method:	LM-79-2019
Report Number:	SP3-2508-516-12
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-UNVL950-CD1-U**
Description:	4FT WNLED 5000LM 950

Spectral Parameters

CCT (K):	4976	CRI (Ra):	93.2		
CIE u':	0.2110	R1:	94.3	R9:	68.0
CIE v':	0.4861	R2:	96.8	R10:	89.7
Duv:	0.0010	R3:	96.1	R11:	92.7
CIE x:	0.3460	R4:	92.1	R12:	64.5
CIE y:	0.3544	R5:	92.0	R13:	95.4
CIE z:	0.2997	R6:	92.6	R14:	97.5
Peak Wavelength (nm):	630	R7:	94.0	R15:	91.5
Dominant Wavelength (nm):	572	R8:	87.6		
Purity:	10.13443				
Rf:	89.8				
Rg:	98.7				



Test Conditions

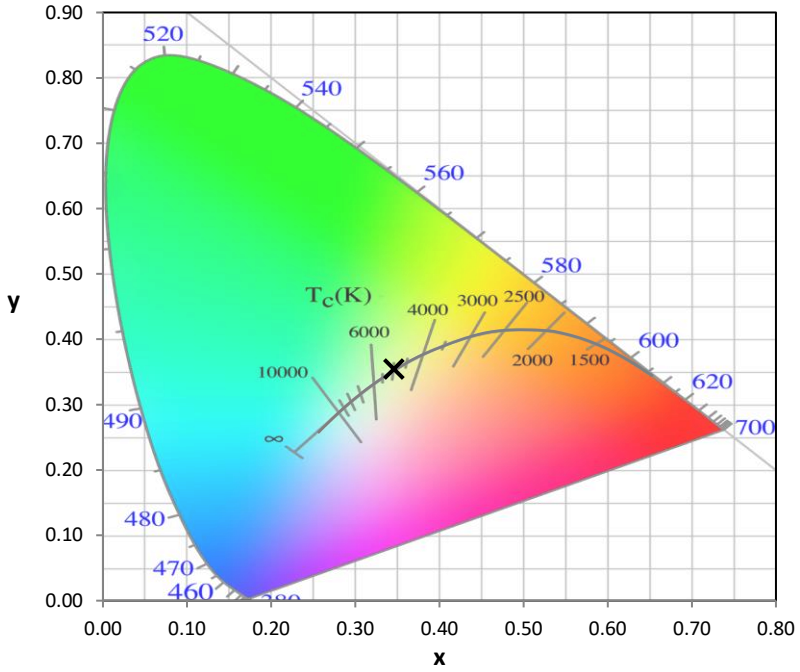
Stabilization Time:	20M
Operation Time:	1H 20M
Sphere Temperature (°C):	25.0

REPORT NUMBER: SP3-2508-516-12

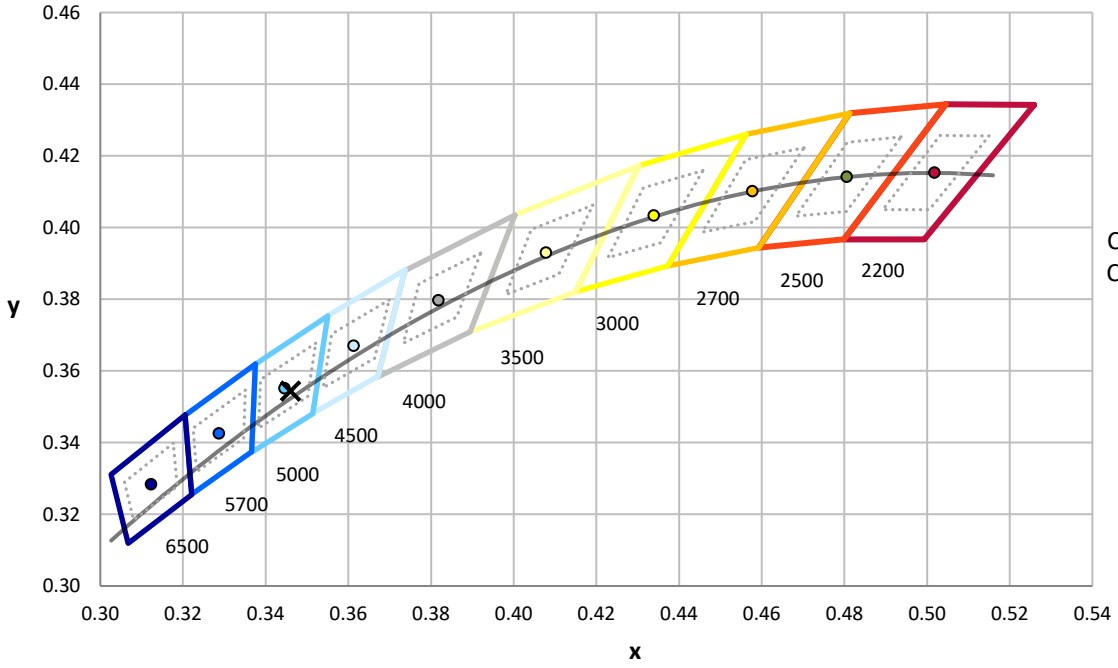
Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	3M SPHERE IN02505	7/1/2025	1/1/2026
Power Meter	XITRON INXT2011006	1/20/2025	1/20/2026
AC Power Source	CHROMA 61604 IN6064A	10/22/2024	10/22/2025
DC Power Source	EYSIGHT N5770A IN0534	10/22/2024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

REPORT NUMBER: SP3-2508-516-12

CIE 1931 Chromaticity Diagram



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

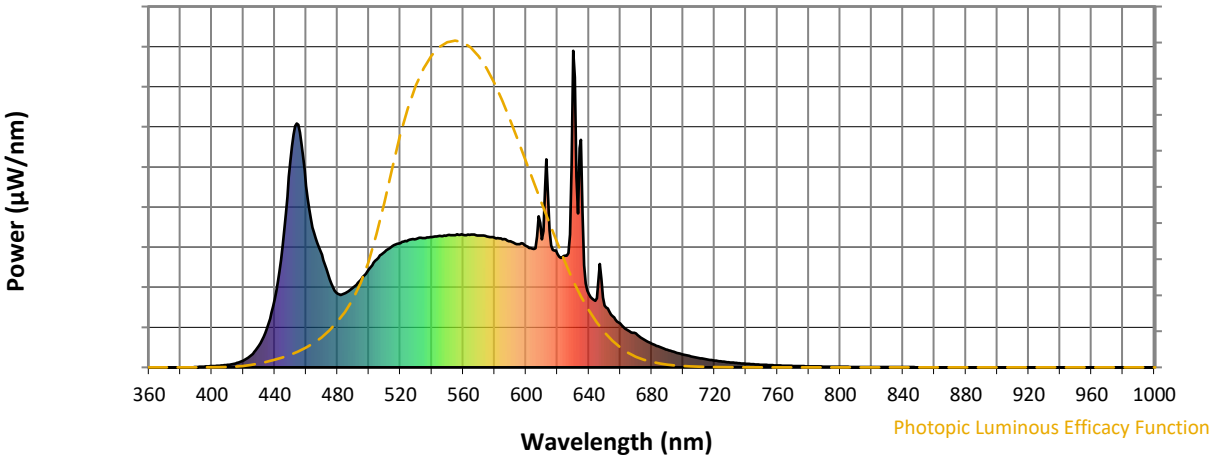


CCT = 4976K
CIE x = 0.3460
CIE y = 0.3544
Duv = 0.0010

Point lies inside the ANSI 5000K 4-step quadrangle

REPORT NUMBER: SP3-2508-516-12

Photopic Flux vs. Wavelength

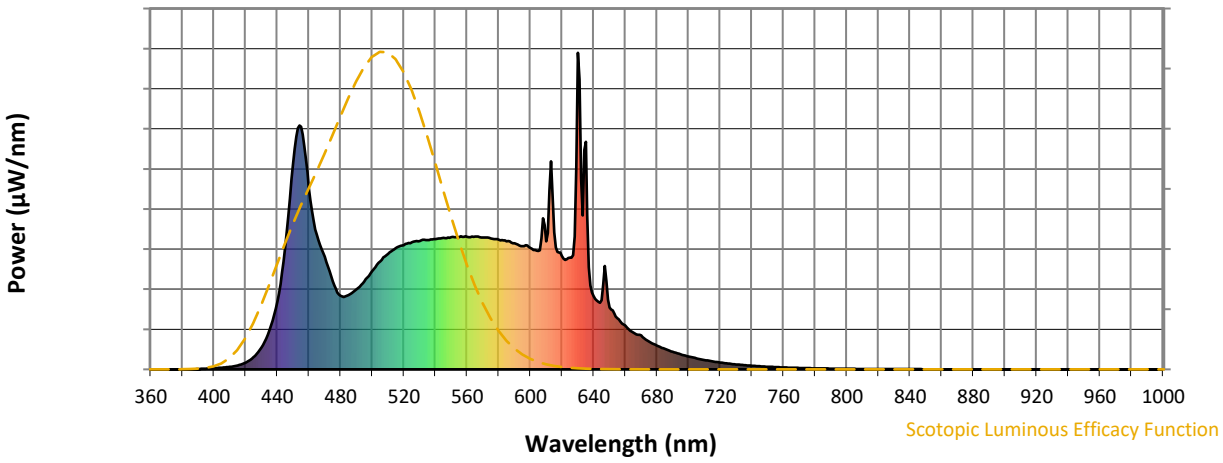


Photopic Lumens: NR

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	252	NR	620	358	NR	750	8	NR	880	0	NR
365	0	NR	495	277	NR	625	353	NR	755	7	NR	885	0	NR
370	0	NR	500	310	NR	630	1000	NR	760	6	NR	890	0	NR
375	0	NR	505	341	NR	635	719	NR	765	5	NR	895	0	NR
380	0	NR	510	365	NR	640	231	NR	770	4	NR	900	0	NR
385	0	NR	515	383	NR	645	218	NR	775	4	NR	905	0	NR
390	1	NR	520	393	NR	650	195	NR	780	3	NR	910	0	NR
395	2	NR	525	401	NR	655	162	NR	785	3	NR	915	0	NR
400	4	NR	530	406	NR	660	138	NR	790	2	NR	920	0	NR
405	5	NR	535	409	NR	665	116	NR	795	2	NR	925	0	NR
410	8	NR	540	411	NR	670	107	NR	800	2	NR	930	0	NR
415	12	NR	545	415	NR	675	88	NR	805	2	NR	935	0	NR
420	22	NR	550	417	NR	680	75	NR	810	1	NR	940	0	NR
425	38	NR	555	418	NR	685	65	NR	815	1	NR	945	0	NR
430	68	NR	560	419	NR	690	56	NR	820	1	NR	950	0	NR
435	123	NR	565	420	NR	695	48	NR	825	1	NR	955	0	NR
440	215	NR	570	416	NR	700	41	NR	830	1	NR	960	0	NR
445	384	NR	575	414	NR	705	35	NR	835	1	NR	965	0	NR
450	651	NR	580	409	NR	710	30	NR	840	1	NR	970	0	NR
455	767	NR	585	405	NR	715	25	NR	845	1	NR	975	0	NR
460	573	NR	590	398	NR	720	22	NR	850	0	NR	980	0	NR
465	426	NR	595	389	NR	725	18	NR	855	0	NR	985	0	NR
470	355	NR	600	383	NR	730	16	NR	860	0	NR	990	0	NR
475	278	NR	605	374	NR	735	13	NR	865	0	NR	995	0	NR
480	232	NR	610	404	NR	740	11	NR	870	0	NR	1000	0	NR
485	234	NR	615	433	NR	745	10	NR	875	0	NR			

REPORT NUMBER: SP3-2508-516-12

Scotopic Flux vs. Wavelength

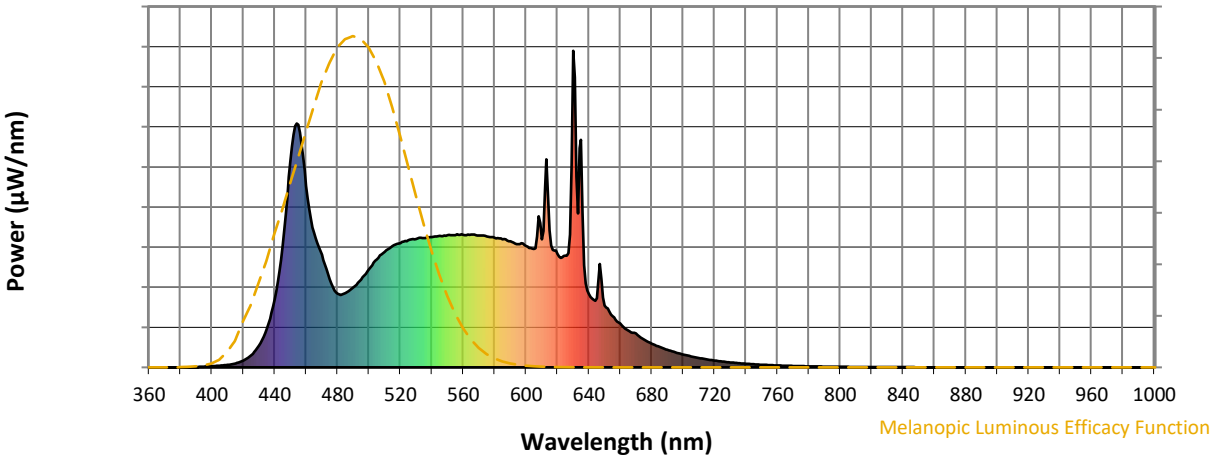


Scotopic Lumens: NR **S/P: 2.07**

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	252	NR	620	358	NR	750	8	NR	880	0	NR
365	0	NR	495	277	NR	625	353	NR	755	7	NR	885	0	NR
370	0	NR	500	310	NR	630	1000	NR	760	6	NR	890	0	NR
375	0	NR	505	341	NR	635	719	NR	765	5	NR	895	0	NR
380	0	NR	510	365	NR	640	231	NR	770	4	NR	900	0	NR
385	0	NR	515	383	NR	645	218	NR	775	4	NR	905	0	NR
390	1	NR	520	393	NR	650	195	NR	780	3	NR	910	0	NR
395	2	NR	525	401	NR	655	162	NR	785	3	NR	915	0	NR
400	4	NR	530	406	NR	660	138	NR	790	2	NR	920	0	NR
405	5	NR	535	409	NR	665	116	NR	795	2	NR	925	0	NR
410	8	NR	540	411	NR	670	107	NR	800	2	NR	930	0	NR
415	12	NR	545	415	NR	675	88	NR	805	2	NR	935	0	NR
420	22	NR	550	417	NR	680	75	NR	810	1	NR	940	0	NR
425	38	NR	555	418	NR	685	65	NR	815	1	NR	945	0	NR
430	68	NR	560	419	NR	690	56	NR	820	1	NR	950	0	NR
435	123	NR	565	420	NR	695	48	NR	825	1	NR	955	0	NR
440	215	NR	570	416	NR	700	41	NR	830	1	NR	960	0	NR
445	384	NR	575	414	NR	705	35	NR	835	1	NR	965	0	NR
450	651	NR	580	409	NR	710	30	NR	840	1	NR	970	0	NR
455	767	NR	585	405	NR	715	25	NR	845	1	NR	975	0	NR
460	573	NR	590	398	NR	720	22	NR	850	0	NR	980	0	NR
465	426	NR	595	389	NR	725	18	NR	855	0	NR	985	0	NR
470	355	NR	600	383	NR	730	16	NR	860	0	NR	990	0	NR
475	278	NR	605	374	NR	735	13	NR	865	0	NR	995	0	NR
480	232	NR	610	404	NR	740	11	NR	870	0	NR	1000	0	NR
485	234	NR	615	433	NR	745	10	NR	875	0	NR			

REPORT NUMBER: SP3-2508-516-12

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR **M/P: 4.5**

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	252	NR	620	358	NR	750	8	NR	880	0	NR
365	0	NR	495	277	NR	625	353	NR	755	7	NR	885	0	NR
370	0	NR	500	310	NR	630	1000	NR	760	6	NR	890	0	NR
375	0	NR	505	341	NR	635	719	NR	765	5	NR	895	0	NR
380	0	NR	510	365	NR	640	231	NR	770	4	NR	900	0	NR
385	0	NR	515	383	NR	645	218	NR	775	4	NR	905	0	NR
390	1	NR	520	393	NR	650	195	NR	780	3	NR	910	0	NR
395	2	NR	525	401	NR	655	162	NR	785	3	NR	915	0	NR
400	4	NR	530	406	NR	660	138	NR	790	2	NR	920	0	NR
405	5	NR	535	409	NR	665	116	NR	795	2	NR	925	0	NR
410	8	NR	540	411	NR	670	107	NR	800	2	NR	930	0	NR
415	12	NR	545	415	NR	675	88	NR	805	2	NR	935	0	NR
420	22	NR	550	417	NR	680	75	NR	810	1	NR	940	0	NR
425	38	NR	555	418	NR	685	65	NR	815	1	NR	945	0	NR
430	68	NR	560	419	NR	690	56	NR	820	1	NR	950	0	NR
435	123	NR	565	420	NR	695	48	NR	825	1	NR	955	0	NR
440	215	NR	570	416	NR	700	41	NR	830	1	NR	960	0	NR
445	384	NR	575	414	NR	705	35	NR	835	1	NR	965	0	NR
450	651	NR	580	409	NR	710	30	NR	840	1	NR	970	0	NR
455	767	NR	585	405	NR	715	25	NR	845	1	NR	975	0	NR
460	573	NR	590	398	NR	720	22	NR	850	0	NR	980	0	NR
465	426	NR	595	389	NR	725	18	NR	855	0	NR	985	0	NR
470	355	NR	600	383	NR	730	16	NR	860	0	NR	990	0	NR
475	278	NR	605	374	NR	735	13	NR	865	0	NR	995	0	NR
480	232	NR	610	404	NR	740	11	NR	870	0	NR	1000	0	NR
485	234	NR	615	433	NR	745	10	NR	875	0	NR			

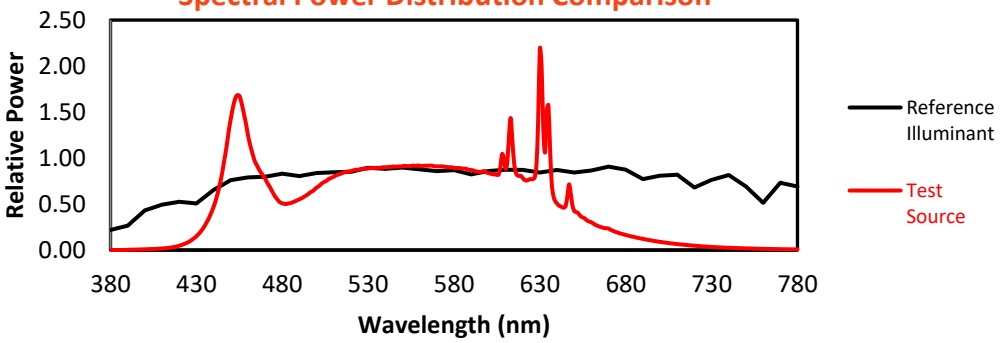
REPORT NUMBER: SP3-2508-516-12

TM-30-18

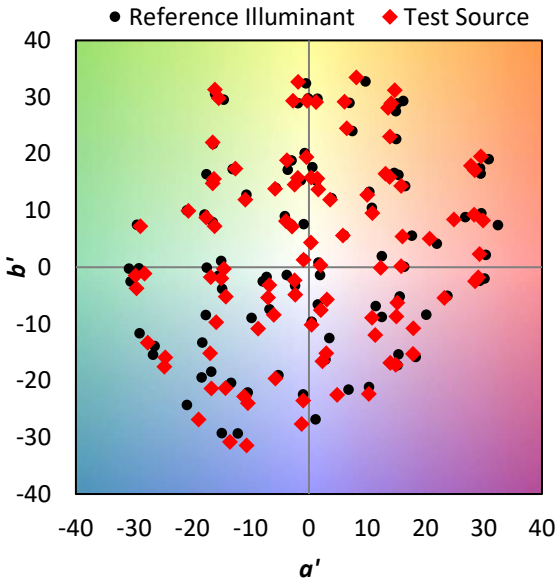
Summary

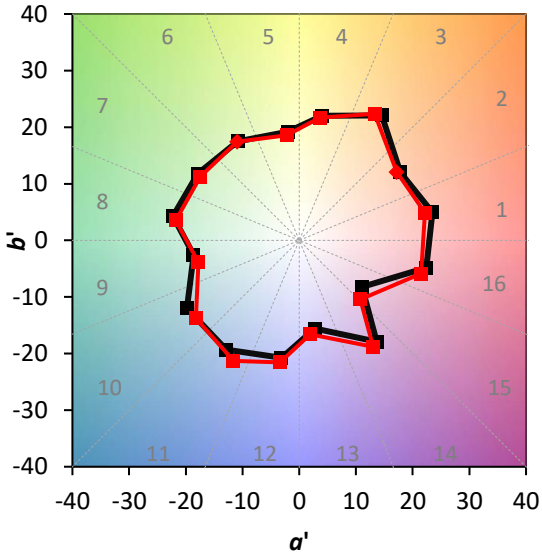
R_f = 89.8
R_g = 98.7
CIE R_a = 93.2
R_9 = 68.0

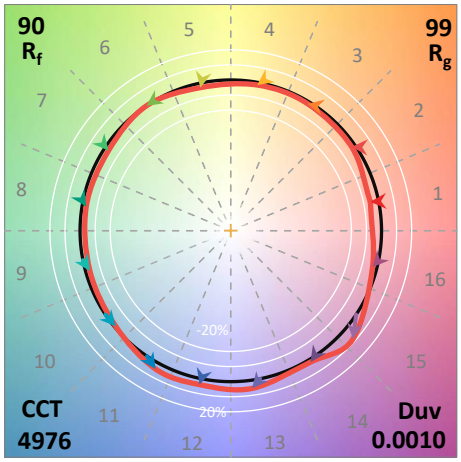
Spectral Power Distribution Comparison

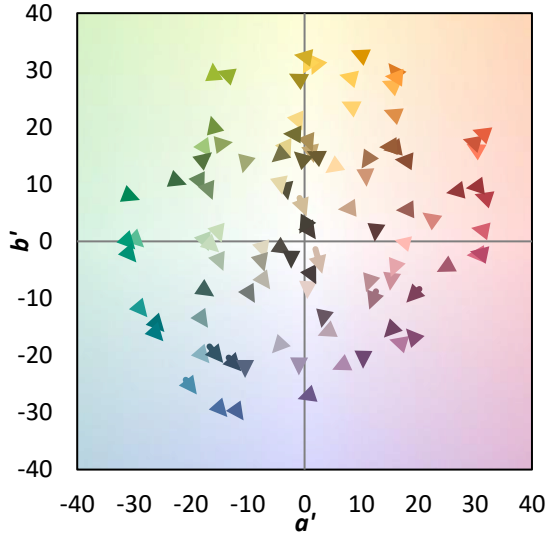


Color Vector Graphics







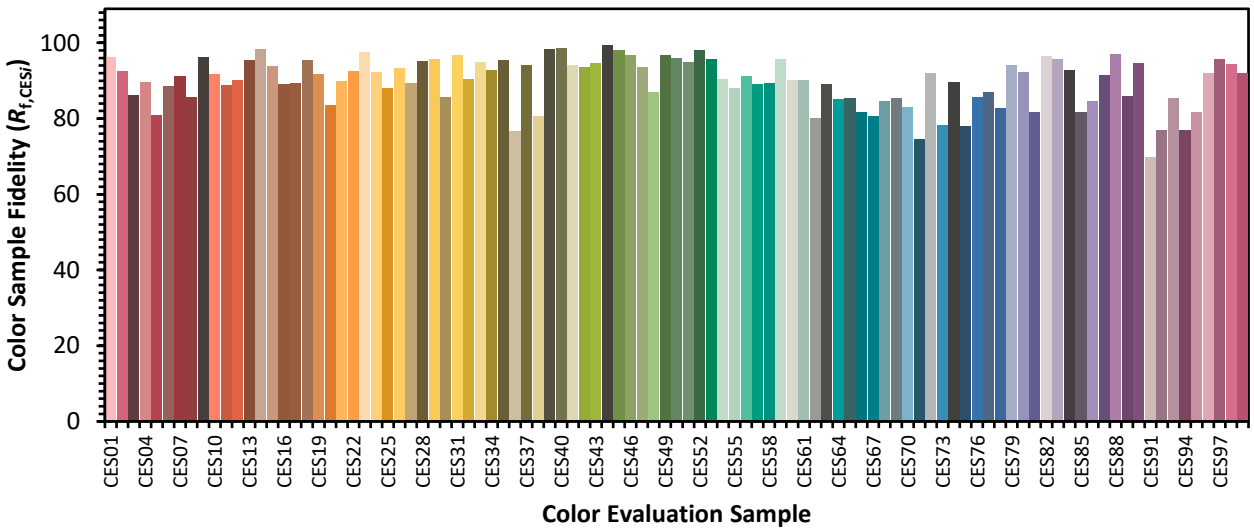


REPORT NUMBER: SP3-2508-516-12

TM-30-18

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

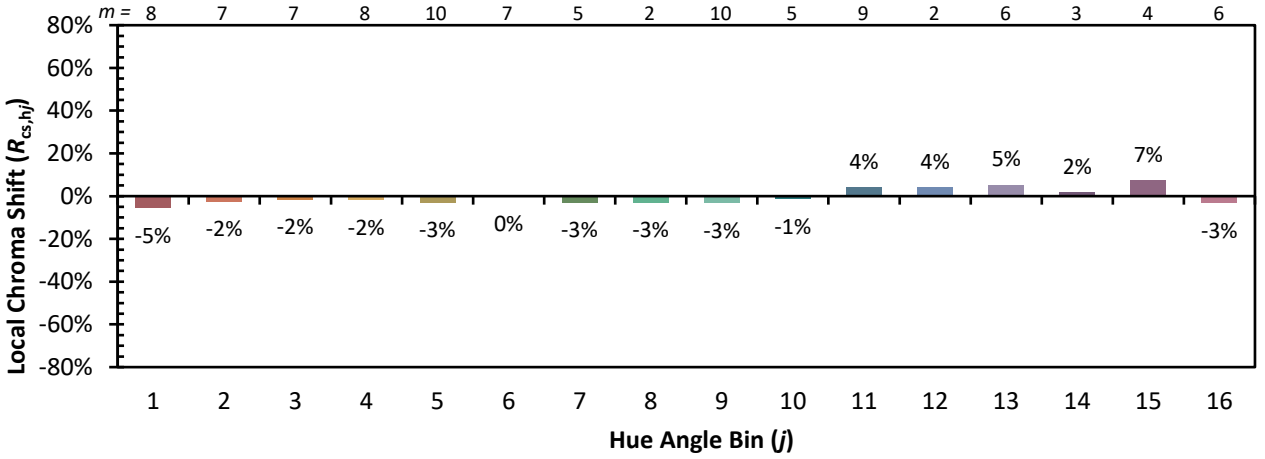
CES01 = 85	CES26 = 93	CES51 = 95	CES76 = 86
CES02 = 61	CES27 = 89	CES52 = 98	CES77 = 87
CES03 = 31	CES28 = 95	CES53 = 96	CES78 = 83
CES04 = 69	CES29 = 96	CES54 = 90	CES79 = 94
CES05 = 48	CES30 = 86	CES55 = 88	CES80 = 92
CES06 = 50	CES31 = 97	CES56 = 91	CES81 = 82
CES07 = 41	CES32 = 90	CES57 = 89	CES82 = 96
CES08 = 40	CES33 = 95	CES58 = 89	CES83 = 96
CES09 = 29	CES34 = 93	CES59 = 96	CES84 = 93
CES10 = 73	CES35 = 95	CES60 = 90	CES85 = 82
CES11 = 56	CES36 = 77	CES61 = 90	CES86 = 85
CES12 = 62	CES37 = 94	CES62 = 80	CES87 = 92
CES13 = 42	CES38 = 81	CES63 = 89	CES88 = 97
CES14 = 74	CES39 = 98	CES64 = 85	CES89 = 86
CES15 = 71	CES40 = 99	CES65 = 85	CES90 = 95
CES16 = 46	CES41 = 94	CES66 = 82	CES91 = 70
CES17 = 48	CES42 = 94	CES67 = 81	CES92 = 77
CES18 = 56	CES43 = 95	CES68 = 85	CES93 = 85
CES19 = 70	CES44 = 99	CES69 = 85	CES94 = 77
CES20 = 65	CES45 = 98	CES70 = 83	CES95 = 82
CES21 = 85	CES46 = 97	CES71 = 75	CES96 = 92
CES22 = 77	CES47 = 94	CES72 = 92	CES97 = 96
CES23 = 91	CES48 = 87	CES73 = 78	CES98 = 94
CES24 = 90	CES49 = 97	CES74 = 90	CES99 = 92
CES25 = 70	CES50 = 96	CES75 = 78	

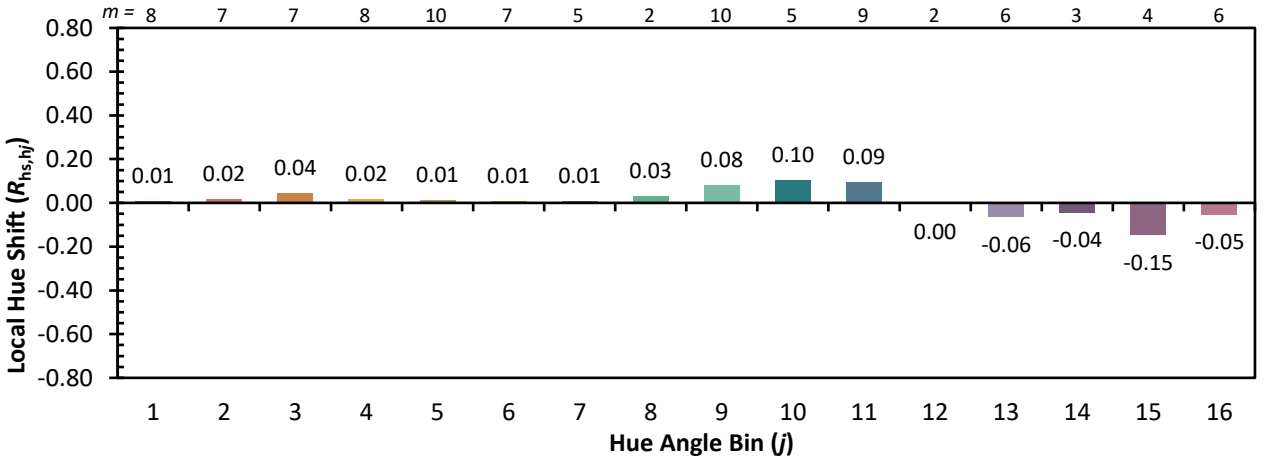


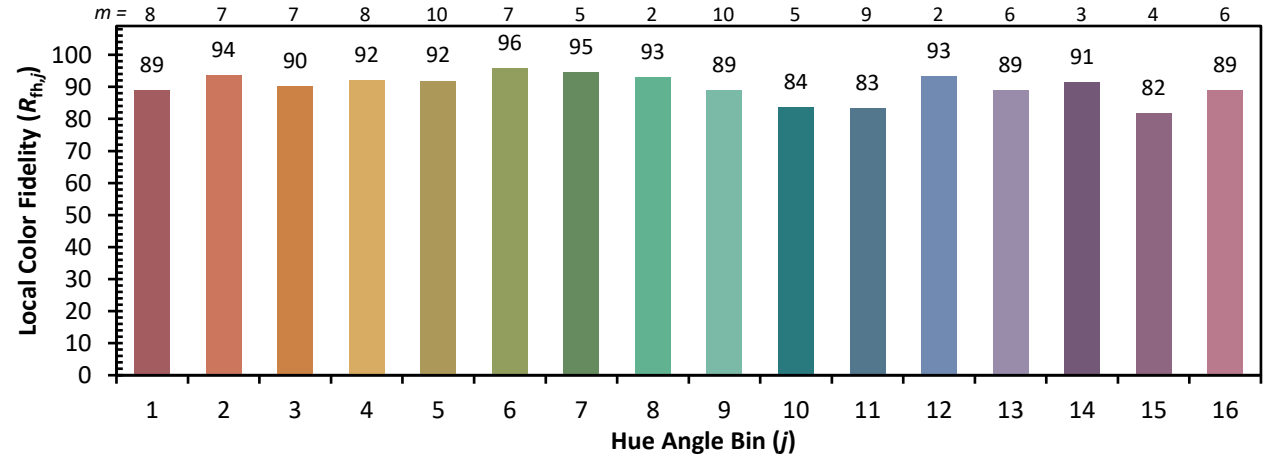
REPORT NUMBER: SP3-2508-516-12

TM-30-18

Color Rendition by Hue-Angle Bin







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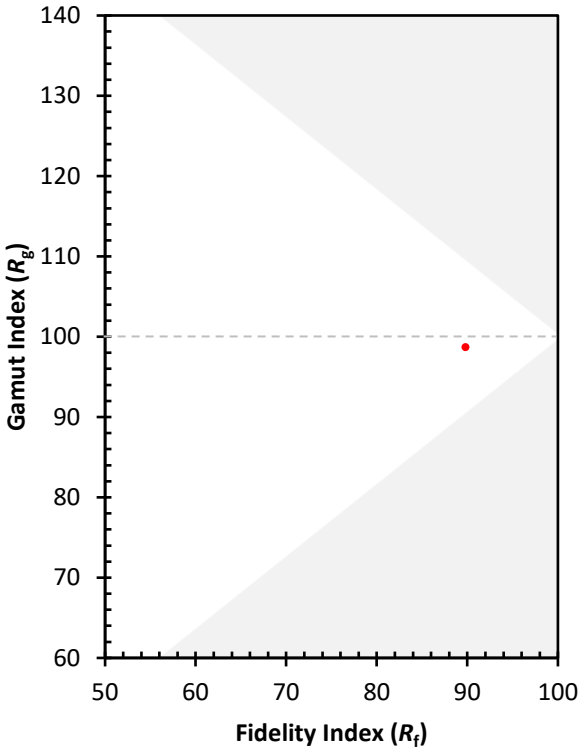
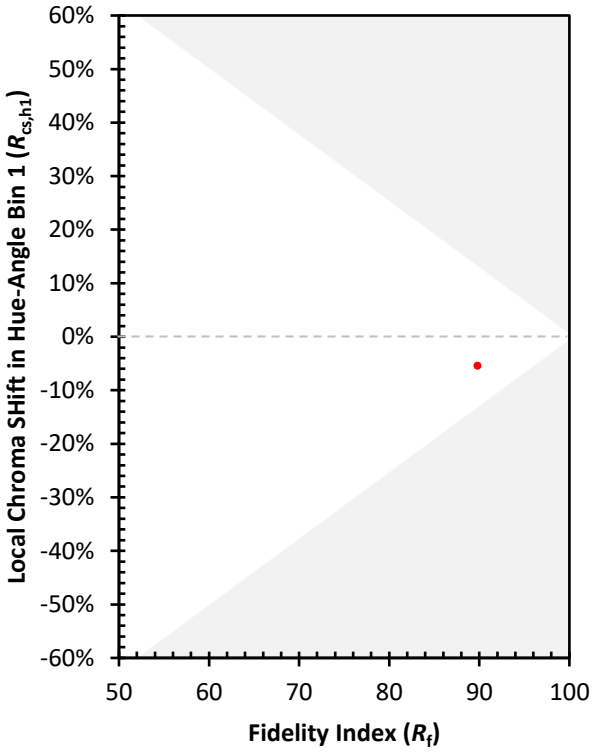
Measure Comparisons





(END OF REPORT)