

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: NEO-RAY

Report Number: P926623

Luminaire Tested: DFN2DIP-TR4F0-110D050US950-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P926623
REPORT IS A COMBINATION OF REPORTS P901921 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-110D050US950-FLLONL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

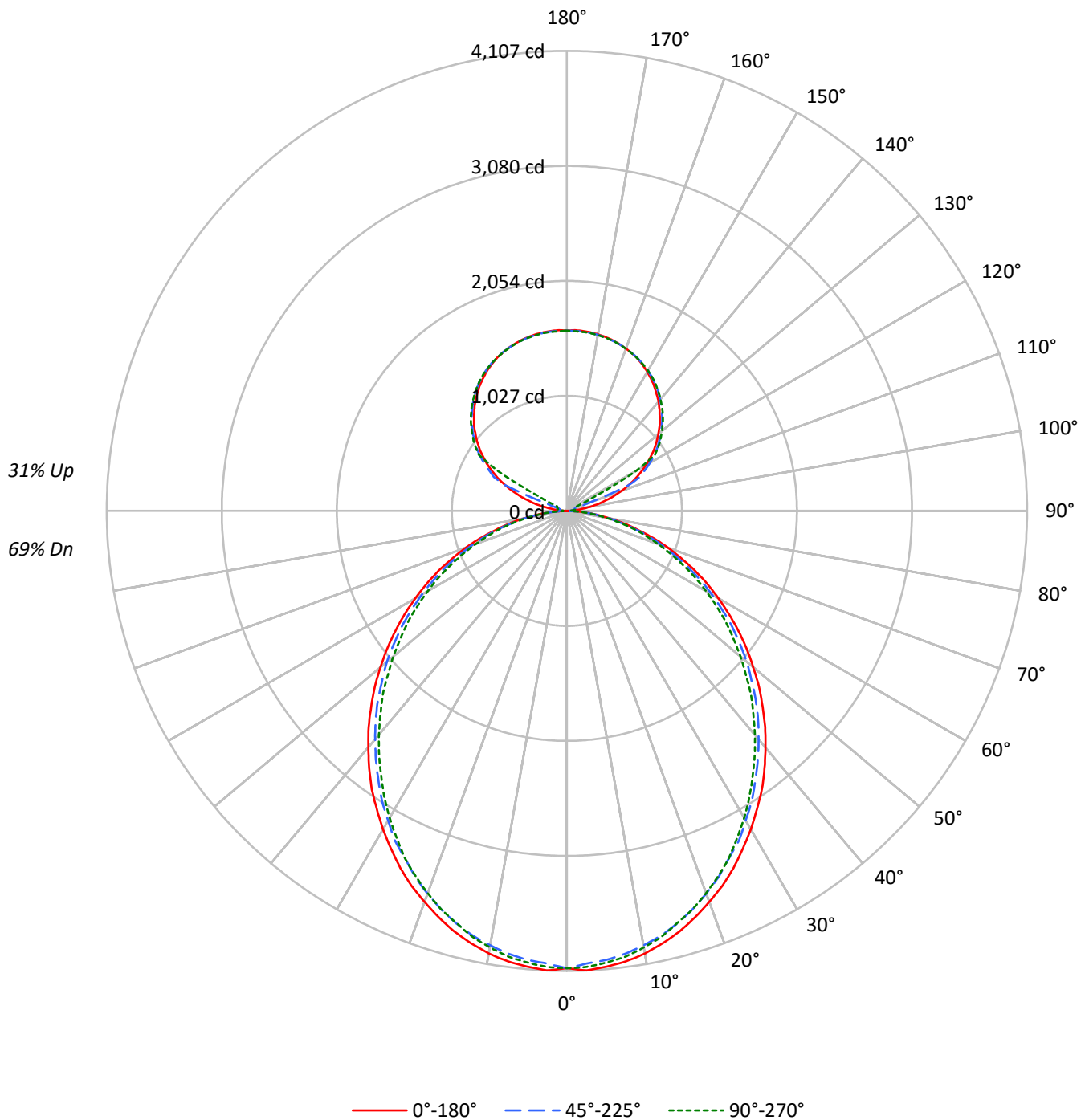
Lumens per Lamp: N/A
Luminaire Lumens: 15111.4 lumens
Efficiency: N/A
Efficacy: 100.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 150.5
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9613
Total Harmonic Distortion (THDi): 0.083
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 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
RC	80				70				50				30				10
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	112	112	112	112	105	105	105	105	94	94	94	83	83	83	73	73	73
1	102	98	94	90	96	92	89	86	82	80	77	73	71	69	65	63	62
2	93	85	79	74	87	81	75	70	72	68	64	64	61	58	57	55	52
3	85	75	67	61	80	71	64	59	64	58	54	57	53	49	51	47	45
4	78	66	58	52	73	63	56	50	57	51	46	51	46	42	45	42	38
5	71	59	51	45	67	56	49	43	51	45	40	46	41	37	41	37	33
6	66	53	45	39	62	51	43	38	46	40	35	41	36	32	37	33	30
7	61	48	40	34	57	46	38	33	42	35	31	38	32	29	34	30	26
8	57	44	36	30	53	42	35	29	38	32	27	35	29	26	31	27	24
9	53	40	33	27	50	38	31	26	35	29	25	32	27	23	29	24	21
10	50	37	30	25	47	35	29	24	32	26	22	29	24	21	27	22	19

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3244	3244	3244
5°	3249	3199	3220
10°	3223	3156	3176
15°	3175	3104	3108
20°	3111	3031	3038
25°	3048	2945	2958
30°	2968	2865	2855
35°	2892	2770	2746
40°	2799	2674	2643
45°	2706	2578	2538
50°	2605	2477	2415
55°	2499	2361	2303
60°	2379	2223	2174
65°	2248	2080	2021
70°	2081	1905	1858
75°	1849	1696	1707
80°	1572	1429	1418
85°	1137	970	940

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2706 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	384.3	2.5
10°-20°	1081.3	7.2
20°-30°	1589.1	10.5
30°-40°	1845.7	12.2
40°-50°	1843.4	12.2
50°-60°	1607.4	10.6
60°-70°	1188.2	7.9
70°-80°	672.3	4.4
80°-90°	180.3	1.2
90°-100°	53.1	0.4
100°-110°	197.9	1.3
110°-120°	524.8	3.5
120°-130°	870.4	5.8
130°-140°	924.6	6.1
140°-150°	859.3	5.7
150°-160°	690.9	4.6
160°-170°	445.2	2.9
170°-180°	153.2	1.0
0°-30°	3054.8	20.2
0°-40°	4900.4	32.4
0°-60°	8351.2	55.3
0°-90°	10391.9	68.8
90°-120°	775.8	5.1
90°-150°	3430.2	22.7
90°-180°	4719.0	31.2
0°-180°	15111.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4083	4083	4083	4083	4083	
5°	4083	4068	4024	4056	4048	388
15°	3887	3864	3812	3828	3809	1095
25°	3518	3487	3420	3428	3420	1619
35°	3035	2996	2933	2909	2890	1895
45°	2470	2442	2383	2340	2324	1906
55°	1869	1845	1798	1751	1732	1671
65°	1260	1237	1198	1162	1143	1246
75°	659	652	632	609	617	704
85°	161	157	153	141	138	179
90°	1	14	23	29	31	14
95°	76	37	45	51	50	90
105°	354	389	71	84	88	378
115°	670	690	719	179	96	659
125°	947	962	984	992	996	845
135°	1172	1191	1201	1213	1210	905
145°	1359	1358	1378	1386	1380	850
155°	1497	1486	1500	1507	1498	690
165°	1577	1570	1574	1582	1574	446
175°	1613	1605	1608	1616	1604	154
180°	1610	1610	1610	1610	1610	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4083.3	4083.3	4083.3	4083.3	4083.3
2.5°	4107.0	4087.4	4044.1	4083.3	4075.8
5°	4083.3	4067.9	4024.5	4055.7	4048.3
7.5°	4055.7	4032.5	3989.2	4020.8	4012.9
10°	4012.9	3985.3	3938.3	3969.5	3957.9
12.5°	3953.8	3930.4	3883.4	3902.9	3895.0
15°	3887.1	3863.7	3812.5	3828.3	3808.7
17.5°	3804.6	3781.3	3730.0	3749.6	3730.0
20°	3714.2	3690.8	3635.9	3647.5	3632.2
22.5°	3624.2	3588.8	3537.5	3537.5	3529.6
25°	3518.0	3486.8	3420.1	3427.6	3420.1
27.5°	3400.1	3372.6	3321.7	3310.1	3290.5
30°	3282.6	3250.9	3192.2	3180.5	3164.7
32.5°	3156.8	3133.5	3070.5	3046.8	3031.0
35°	3035.2	2996.0	2933.1	2909.3	2889.8
37.5°	2897.7	2862.3	2799.4	2771.8	2752.3
40°	2756.5	2724.8	2661.9	2626.9	2611.1
42.5°	2619.0	2587.3	2524.9	2485.3	2462.0
45°	2469.9	2442.3	2383.2	2340.4	2324.5
47.5°	2324.5	2297.0	2234.1	2190.8	2167.4
50°	2171.2	2151.7	2096.6	2041.7	2022.1
52.5°	2022.1	1994.5	1943.8	1900.4	1872.9
55°	1869.2	1845.4	1798.4	1751.3	1731.7
57.5°	1715.9	1696.3	1645.1	1597.9	1582.1
60°	1562.6	1547.2	1492.2	1448.8	1437.2
62.5°	1413.4	1386.0	1346.8	1307.6	1291.8
65°	1260.5	1236.8	1197.7	1162.3	1142.7
67.5°	1103.5	1083.6	1048.5	1021.1	1005.2
70°	958.1	942.3	906.9	879.4	863.9
72.5°	809.0	793.2	773.6	746.1	734.4
75°	659.4	652.0	631.9	608.7	616.6
77.5°	526.1	510.3	502.4	490.7	479.1
80°	392.9	388.7	380.7	369.1	361.2
82.5°	267.0	267.0	263.3	247.5	247.5
85°	160.8	157.0	153.3	141.2	137.5
87.5°	70.8	62.9	55.0	43.3	39.1
90°	1.1	13.9	23.3	29.2	31.4
92.5°	29.2	24.5	28.0	30.3	31.4
95°	75.7	37.2	45.4	51.3	50.1
97.5°	136.2	40.8	59.3	63.0	64.0
100°	206.3	46.7	66.4	75.7	78.0
102.5°	283.1	280.8	68.8	81.5	85.1
105°	354.1	389.1	71.1	83.9	88.5
107.5°	436.8	465.8	73.5	86.1	90.9
110°	516.1	540.4	203.9	87.4	92.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	590.6	611.5	591.8	89.7	93.2
115°	669.8	689.6	718.7	179.4	95.6
117.5°	738.5	761.8	781.7	614.9	309.9
120°	815.4	832.8	853.8	867.9	710.5
122.5°	880.5	899.2	922.6	929.6	930.8
125°	946.9	962.2	984.3	992.4	996.0
127.5°	1007.5	1023.8	1041.5	1053.0	1054.2
130°	1064.7	1083.4	1096.1	1108.9	1107.9
132.5°	1123.0	1138.1	1150.8	1161.4	1160.3
135°	1171.9	1190.6	1200.9	1212.7	1210.3
137.5°	1223.0	1237.1	1248.8	1260.4	1257.0
140°	1273.1	1282.6	1295.2	1305.7	1300.0
142.5°	1315.2	1323.4	1338.5	1347.7	1341.9
145°	1359.4	1358.2	1378.0	1386.2	1380.3
147.5°	1397.8	1394.3	1414.1	1419.9	1415.4
150°	1435.1	1427.0	1445.6	1452.6	1446.7
152.5°	1466.5	1457.2	1474.7	1481.8	1473.5
155°	1496.8	1486.4	1500.4	1507.3	1498.1
157.5°	1521.2	1512.0	1522.5	1530.7	1521.2
160°	1542.3	1535.3	1542.3	1549.2	1541.1
162.5°	1560.8	1554.0	1559.7	1567.9	1557.4
165°	1577.2	1570.3	1573.7	1581.8	1573.7
167.5°	1590.0	1583.0	1586.6	1594.7	1584.2
170°	1600.5	1593.5	1595.9	1604.0	1593.5
172.5°	1607.5	1600.5	1602.9	1611.0	1600.5
175°	1613.3	1605.1	1607.5	1615.6	1604.0
177.5°	1615.6	1607.5	1608.7	1616.8	1606.3
180°	1609.8	1609.8	1609.8	1609.8	1609.8

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CIE UGR TABLE:

Reflectances:											
Ceiling		0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
Wall		0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
Reference plane		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Room dimensions		Viewed crosswise					Viewed endwise				
X=2H	Y=2H	12.93	13.99	13.71	14.79	15.76	12.50	13.56	13.28	14.36	15.33
	3H	14.60	15.56	15.40	16.37	17.37	14.13	15.08	14.92	15.89	16.90
	4H	15.20	16.10	16.01	16.92	17.93	14.73	15.63	15.54	16.44	17.46
	6H	15.61	16.44	16.43	17.27	18.30	15.14	15.97	15.96	16.79	17.82
	8H	15.72	16.51	16.55	17.36	18.39	15.25	16.04	16.08	16.88	17.91
	12H	15.78	16.53	16.61	17.37	18.43	15.30	16.05	16.13	16.89	17.94
4H	2H	13.42	14.31	14.23	15.13	16.15	13.07	13.97	13.88	14.79	15.80
	3H	15.30	16.05	16.12	16.90	17.93	14.91	15.66	15.73	16.51	17.54
	4H	16.02	16.70	16.86	17.55	18.61	15.62	16.30	16.45	17.15	18.21
	6H	16.55	17.14	17.40	18.01	19.08	16.14	16.73	16.99	17.60	18.67
	8H	16.70	17.25	17.56	18.12	19.20	16.29	16.84	17.15	17.71	18.79
	12H	16.78	17.28	17.66	18.17	19.25	16.36	16.86	17.24	17.75	18.83
8H	4H	16.23	16.79	17.09	17.66	18.73	15.87	16.43	16.73	17.30	18.37
	6H	16.87	17.33	17.76	18.24	19.32	16.51	16.97	17.40	17.88	18.96
	8H	17.10	17.50	17.99	18.41	19.50	16.73	17.13	17.62	18.04	19.13
	12H	17.24	17.59	18.14	18.49	19.64	16.85	17.21	17.75	18.11	19.25
12H	4H	16.23	16.73	17.11	17.62	18.70	15.88	16.37	16.75	17.26	18.35
	6H	16.90	17.31	17.80	18.22	19.31	16.55	16.96	17.45	17.87	18.96
	8H	17.16	17.51	18.06	18.41	19.56	16.80	17.16	17.70	18.05	19.20