

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: P912983

Luminaire Tested: DFN2DIP-TR4F0-110D050US850-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P912983
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-TR4F0-110D050US850-FLLONL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

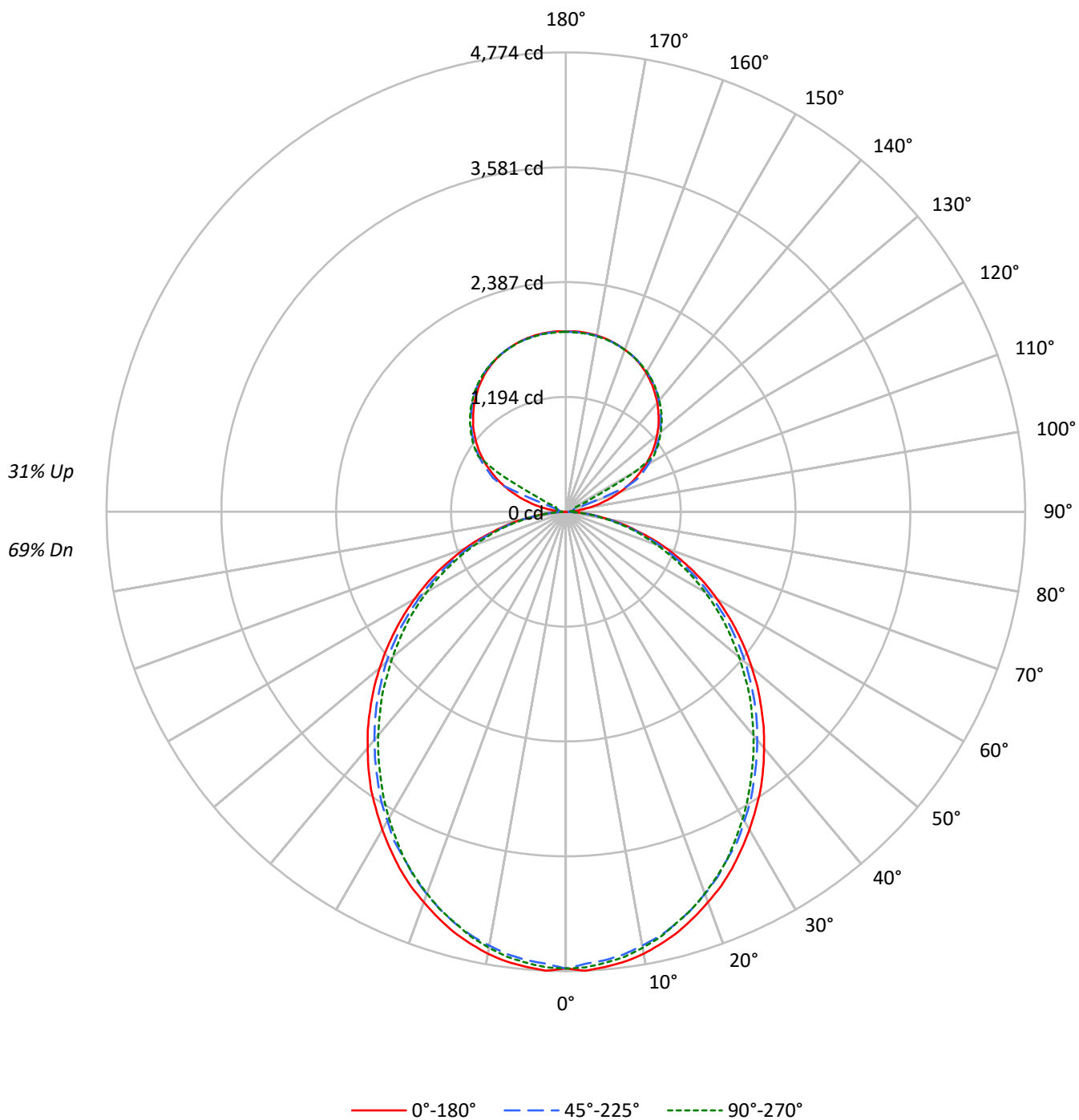
Lumens per Lamp: N/A
Luminaire Lumens: 17566.6 lumens
Efficiency: N/A
Efficacy: 116.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Direct

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°	3771	3771	3771
5°	3777	3718	3743
10°	3746	3668	3692
15°	3691	3608	3613
20°	3617	3524	3532
25°	3543	3424	3438
30°	3450	3330	3319
35°	3362	3220	3193
40°	3254	3109	3073
45°	3146	2997	2950
50°	3028	2880	2807
55°	2905	2745	2677
60°	2765	2584	2527
65°	2613	2417	2350
70°	2419	2214	2160
75°	2150	1971	1984
80°	1827	1662	1648
85°	1322	1128	1092

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3146 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	446.8	2.5
10°-20°	1257.0	7.2
20°-30°	1847.3	10.5
30°-40°	2145.5	12.2
40°-50°	2142.9	12.2
50°-60°	1868.5	10.6
60°-70°	1381.3	7.9
70°-80°	781.5	4.4
80°-90°	209.6	1.2
90°-100°	61.7	0.4
100°-110°	230.0	1.3
110°-120°	610.1	3.5
120°-130°	1011.9	5.8
130°-140°	1074.8	6.1
140°-150°	999.0	5.7
150°-160°	803.1	4.6
160°-170°	517.5	2.9
170°-180°	178.1	1.0
0°-30°	3551.1	20.2
0°-40°	5696.6	32.4
0°-60°	9708.0	55.3
0°-90°	12080.3	68.8
90°-120°	901.9	5.1
90°-150°	3987.5	22.7
90°-180°	5486.0	31.2
0°-180°	17566.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4747	4747	4747	4747	4747	
5°	4747	4729	4678	4715	4706	451
15°	4519	4491	4432	4450	4428	1273
25°	4090	4053	3976	3984	3976	1882
35°	3528	3483	3410	3382	3359	2203
45°	2871	2839	2770	2721	2702	2216
55°	2173	2145	2091	2036	2013	1943
65°	1465	1438	1392	1351	1328	1449
75°	766	758	735	708	717	818
85°	187	182	178	164	160	209
90°	1	16	27	34	36	16
95°	88	43	53	60	58	104
105°	412	452	83	98	103	440
115°	779	802	836	209	111	767
125°	1101	1118	1144	1154	1158	982
135°	1362	1384	1396	1410	1407	1052
145°	1580	1579	1602	1611	1605	988
155°	1740	1728	1744	1752	1742	802
165°	1833	1825	1829	1839	1829	518
175°	1875	1866	1869	1878	1865	178
180°	1871	1871	1871	1871	1871	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4746.7	4746.7	4746.7	4746.7	4746.7
2.5°	4774.2	4751.5	4701.2	4746.7	4738.0
5°	4746.7	4728.8	4678.4	4714.7	4706.0
7.5°	4714.7	4687.6	4637.3	4674.1	4664.9
10°	4664.9	4632.8	4578.2	4614.4	4600.9
12.5°	4596.1	4569.0	4514.3	4537.0	4527.8
15°	4518.6	4491.4	4431.9	4450.3	4427.6
17.5°	4422.7	4395.6	4336.1	4358.8	4336.1
20°	4317.7	4290.5	4226.6	4240.2	4222.3
22.5°	4213.1	4171.8	4112.3	4112.3	4103.1
25°	4089.5	4053.3	3975.8	3984.5	3975.8
27.5°	3952.5	3920.5	3861.4	3847.9	3825.2
30°	3816.0	3779.1	3710.8	3697.3	3678.9
32.5°	3669.7	3642.6	3569.4	3541.8	3523.4
35°	3528.3	3482.8	3409.6	3382.0	3359.3
37.5°	3368.5	3327.3	3254.2	3222.2	3199.5
40°	3204.3	3167.5	3094.4	3053.7	3035.3
42.5°	3044.5	3007.7	2935.1	2889.1	2862.0
45°	2871.2	2839.2	2770.4	2720.6	2702.2
47.5°	2702.2	2670.3	2597.1	2546.7	2519.5
50°	2524.0	2501.2	2437.2	2373.4	2350.6
52.5°	2350.6	2318.6	2259.6	2209.1	2177.2
55°	2172.9	2145.2	2090.6	2035.8	2013.1
57.5°	1994.6	1971.9	1912.4	1857.6	1839.2
60°	1816.4	1798.6	1734.6	1684.2	1670.7
62.5°	1643.1	1611.2	1565.6	1520.1	1501.7
65°	1465.3	1437.7	1392.2	1351.1	1328.4
67.5°	1282.8	1259.6	1218.9	1187.0	1168.6
70°	1113.8	1095.4	1054.2	1022.3	1004.3
72.5°	940.4	922.0	899.3	867.3	853.7
75°	766.5	757.9	734.6	707.5	716.7
77.5°	611.6	593.2	584.0	570.5	556.9
80°	456.7	451.8	442.6	429.1	419.9
82.5°	310.4	310.4	306.1	287.7	287.7
85°	187.0	182.5	178.2	164.1	159.8
87.5°	82.3	73.1	63.9	50.3	45.5
90°	1.3	16.2	27.1	33.9	36.5
92.5°	33.9	28.5	32.5	35.3	36.5
95°	87.9	43.3	52.8	59.7	58.2
97.5°	158.4	47.5	69.0	73.2	74.4
100°	239.8	54.2	77.2	87.9	90.7
102.5°	329.0	326.4	80.0	94.7	98.9
105°	411.7	452.4	82.6	97.5	102.9
107.5°	507.8	541.5	85.4	100.1	105.7
110°	600.0	628.2	237.0	101.6	106.9

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	686.6	710.9	687.9	104.2	108.3
115°	778.6	801.6	835.5	208.6	111.1
117.5°	858.5	885.5	908.7	714.9	360.2
120°	947.9	968.2	992.6	1008.9	826.0
122.5°	1023.6	1045.3	1072.5	1080.6	1082.1
125°	1100.8	1118.5	1144.3	1153.7	1157.8
127.5°	1171.2	1190.2	1210.7	1224.1	1225.4
130°	1237.6	1259.4	1274.1	1289.1	1287.9
132.5°	1305.4	1323.0	1337.8	1350.1	1348.8
135°	1362.3	1384.0	1396.0	1409.8	1407.0
137.5°	1421.7	1438.0	1451.7	1465.2	1461.2
140°	1480.0	1490.9	1505.7	1517.9	1511.2
142.5°	1528.9	1538.4	1555.9	1566.7	1559.9
145°	1580.3	1578.9	1601.8	1611.4	1604.6
147.5°	1624.9	1620.8	1643.9	1650.6	1645.3
150°	1668.3	1658.8	1680.5	1688.6	1681.8
152.5°	1704.8	1694.0	1714.3	1722.5	1713.0
155°	1740.0	1727.9	1744.1	1752.2	1741.5
157.5°	1768.4	1757.7	1769.9	1779.4	1768.4
160°	1792.9	1784.7	1792.9	1800.9	1791.5
162.5°	1814.4	1806.5	1813.1	1822.6	1810.4
165°	1833.4	1825.4	1829.4	1838.8	1829.4
167.5°	1848.4	1840.2	1844.4	1853.8	1841.6
170°	1860.6	1852.4	1855.1	1864.6	1852.4
172.5°	1868.7	1860.6	1863.3	1872.8	1860.6
175°	1875.4	1865.9	1868.7	1878.1	1864.6
177.5°	1878.1	1868.7	1870.1	1879.5	1867.3
180°	1871.3	1871.3	1871.3	1871.3	1871.3

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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	13.45	14.51	14.23	15.31	16.29	13.02	14.08	13.80	14.88	15.86
	3H	15.13	16.08	15.92	16.89	17.89	14.66	15.61	15.45	16.42	17.42
	4H	15.72	16.62	16.53	17.44	18.46	15.25	16.15	16.06	16.97	17.98
	6H	16.13	16.96	16.95	17.79	18.82	15.66	16.49	16.48	17.31	18.34
	8H	16.24	17.03	17.07	17.88	18.91	15.77	16.56	16.60	17.40	18.44
	12H	16.30	17.05	17.13	17.89	18.95	15.82	16.57	16.65	17.41	18.47
4H	2H	13.94	14.84	14.75	15.66	16.67	13.59	14.49	14.41	15.31	16.33
	3H	15.82	16.57	16.65	17.42	18.46	15.43	16.18	16.25	17.03	18.06
	4H	16.54	17.23	17.38	18.08	19.14	16.14	16.82	16.98	17.67	18.73
	6H	17.07	17.66	17.92	18.54	19.60	16.66	17.25	17.52	18.13	19.19
	8H	17.22	17.78	18.08	18.65	19.72	16.81	17.37	17.67	18.23	19.31
	12H	17.31	17.80	18.18	18.69	19.78	16.89	17.38	17.76	18.27	19.36
8H	4H	16.76	17.31	17.61	18.18	19.26	16.40	16.95	17.25	17.82	18.90
	6H	17.40	17.85	18.28	18.77	19.84	17.03	17.49	17.92	18.40	19.48
	8H	17.62	18.03	18.51	18.93	20.02	17.25	17.66	18.15	18.56	19.66
	12H	17.76	18.12	18.66	19.01	20.16	17.38	17.73	18.27	18.63	19.78
12H	4H	16.75	17.25	17.63	18.14	19.22	16.40	16.90	17.28	17.79	18.87
	6H	17.43	17.83	18.32	18.74	19.83	17.08	17.48	17.97	18.39	19.48
	8H	17.68	18.04	18.58	18.93	20.08	17.32	17.68	18.22	18.58	19.72

END OF REPORT