

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: P912990

Luminaire Tested: DFN2DIP-TR4F0-110D070US850-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P912990
REPORT IS A COMBINATION OF REPORTS P900437 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-110D070US850-FLLFLL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

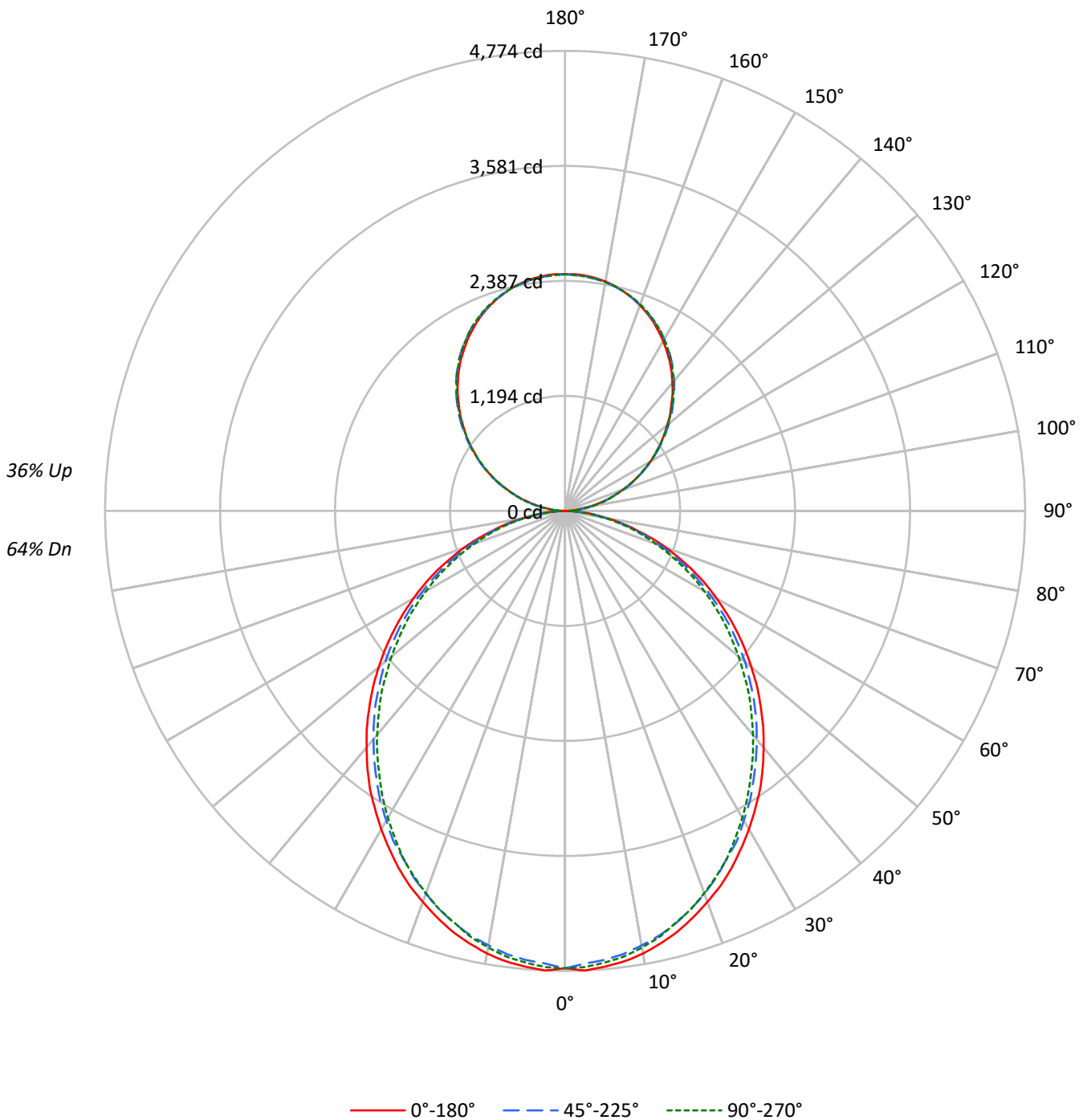
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 18947.3 lumens
Efficiency: N/A
Efficacy: 115.0 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): 164.8
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			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	110	110	110	110	104	104	104	104	91	91	91	79	79	79	69	69	69	69	69	69	64
1	101	96	92	89	95	91	87	84	80	77	75	70	68	66	61	59	58	61	59	58	54
2	92	84	78	73	86	79	74	69	70	66	62	61	58	55	54	51	49	54	51	49	45
3	84	74	67	61	78	70	63	58	62	57	52	54	50	47	47	44	42	47	44	42	38
4	77	66	58	51	72	62	55	49	55	49	45	48	44	40	42	39	36	42	39	36	33
5	71	59	50	44	66	55	48	42	49	43	39	44	39	35	38	34	31	38	34	31	28
6	65	53	44	38	61	50	42	37	44	38	34	39	34	31	35	31	28	35	31	28	25
7	60	48	39	34	56	45	38	32	40	34	30	36	31	27	32	28	25	32	28	25	22
8	56	43	35	30	52	41	34	29	37	31	27	33	28	24	29	25	22	29	25	22	20
9	52	40	32	27	49	38	31	26	34	28	24	30	25	22	27	23	20	27	23	20	18
10	49	36	29	24	46	35	28	23	31	26	22	28	23	20	25	21	18	25	21	18	16

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	2.4
10°-20°	1257.0	6.6
20°-30°	1847.3	9.7
30°-40°	2145.5	11.3
40°-50°	2142.9	11.3
50°-60°	1868.5	9.9
60°-70°	1381.3	7.3
70°-80°	781.5	4.1
80°-90°	213.2	1.1
90°-100°	151.9	0.8
100°-110°	482.7	2.5
110°-120°	826.1	4.4
120°-130°	1086.4	5.7
130°-140°	1219.5	6.4
140°-150°	1195.8	6.3
150°-160°	1003.1	5.3
160°-170°	665.3	3.5
170°-180°	232.5	1.2
0°-30°	3551.1	18.7
0°-40°	5696.6	30.1
0°-60°	9708.0	51.2
0°-90°	12084.0	63.8
90°-120°	1460.7	7.7
90°-150°	4962.4	26.2
90°-180°	6863.0	36.2
0°-180°	18947.3	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°	2	27	72	68	70	18
95°	108	129	132	132	129	120
105°	446	452	456	460	460	470
115°	829	841	837	835	829	820
125°	1206	1224	1218	1212	1210	1077
135°	1560	1582	1587	1585	1579	1205
145°	1893	1908	1920	1922	1914	1183
155°	2165	2171	2178	2188	2181	997
165°	2355	2353	2353	2368	2357	664
175°	2451	2445	2440	2455	2443	233
180°	2455	2455	2455	2455	2455	



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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°	2.2	26.6	72.5	68.1	70.3
92.5°	45.9	62.2	64.4	66.7	66.7
95°	108.0	128.8	132.5	132.5	128.8
97.5°	179.9	199.1	207.3	207.3	207.3
100°	262.7	279.8	285.7	285.7	283.5
102.5°	350.1	362.6	370.8	373.1	370.8
105°	445.6	451.5	455.9	459.7	459.7
107.5°	540.3	549.2	549.2	550.7	540.3
110°	632.1	644.0	644.0	644.0	638.0



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	731.3	743.9	741.7	735.7	731.3
115°	829.0	840.8	837.2	835.0	829.0
117.5°	925.9	942.2	931.9	925.9	920.0
120°	1023.6	1039.9	1023.6	1023.6	1017.0
122.5°	1112.4	1133.2	1122.9	1116.9	1112.4
125°	1205.7	1224.2	1218.3	1211.7	1209.5
127.5°	1296.8	1319.7	1311.6	1302.7	1296.8
130°	1381.9	1408.5	1404.9	1400.4	1392.2
132.5°	1477.4	1498.1	1499.6	1489.3	1483.3
135°	1559.6	1582.4	1587.0	1584.7	1578.8
137.5°	1651.3	1669.8	1673.5	1672.0	1663.2
140°	1732.0	1750.6	1760.9	1760.9	1752.8
142.5°	1814.9	1833.4	1839.3	1841.5	1833.4
145°	1893.4	1908.1	1920.0	1922.2	1914.1
147.5°	1963.7	1982.2	1991.1	1994.8	1986.7
150°	2036.2	2048.8	2057.0	2063.6	2057.0
152.5°	2100.6	2113.2	2123.5	2131.7	2123.5
155°	2165.0	2170.9	2177.6	2187.9	2181.3
157.5°	2220.6	2225.0	2228.6	2243.5	2233.1
160°	2270.1	2274.6	2276.8	2289.3	2280.4
162.5°	2316.0	2316.0	2318.3	2332.2	2321.9
165°	2355.2	2353.0	2353.0	2367.8	2357.4
167.5°	2390.8	2384.1	2384.1	2398.9	2388.6
170°	2417.4	2411.5	2409.3	2424.1	2411.5
172.5°	2435.9	2429.9	2427.7	2442.6	2429.9
175°	2450.7	2444.8	2440.4	2455.1	2442.6
177.5°	2458.9	2452.9	2448.5	2461.1	2448.5
180°	2455.1	2455.1	2455.1	2455.1	2455.1



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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	13.06	14.06	13.89	14.91	15.97	12.63	13.63	13.46	14.48	15.54
	3H	14.73	15.63	15.57	16.49	17.58	14.26	15.16	15.10	16.02	17.10
	4H	15.32	16.17	16.18	17.04	18.14	14.85	15.70	15.71	16.57	17.67
	6H	15.73	16.51	16.60	17.39	18.50	15.26	16.04	16.13	16.91	18.03
	8H	15.84	16.59	16.72	17.48	18.59	15.36	16.11	16.24	17.00	18.12
	12H	15.89	16.60	16.78	17.49	18.63	15.41	16.12	16.30	17.01	18.15
4H	2H	13.54	14.39	14.40	15.26	16.35	13.19	14.04	14.06	14.91	16.01
	3H	15.42	16.13	16.29	17.03	18.14	15.02	15.73	15.90	16.63	17.75
	4H	16.14	16.78	17.02	17.68	18.82	15.73	16.38	16.62	17.27	18.41
	6H	16.66	17.22	17.56	18.14	19.28	16.25	16.81	17.15	17.73	18.87
	8H	16.81	17.33	17.72	18.25	19.40	16.40	16.92	17.30	17.84	18.99
	12H	16.89	17.36	17.82	18.30	19.46	16.47	16.94	17.39	17.87	19.04
8H	4H	16.34	16.87	17.25	17.78	18.94	15.98	16.51	16.89	17.42	18.58
	6H	16.98	17.41	17.91	18.37	19.53	16.62	17.05	17.55	18.01	19.16
	8H	17.20	17.59	18.14	18.53	19.71	16.83	17.22	17.78	18.17	19.34
	12H	17.34	17.68	18.29	18.62	19.84	16.96	17.29	17.90	18.24	19.46
12H	4H	16.34	16.81	17.26	17.74	18.90	15.98	16.46	16.91	17.39	18.55
	6H	17.01	17.40	17.95	18.34	19.52	16.66	17.04	17.60	17.99	19.16
	8H	17.26	17.60	18.21	18.54	19.76	16.90	17.24	17.85	18.18	19.40