

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: P907411

Luminaire Tested: DFN2DIP-TR4F0-070D120US835-FLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P907411
REPORT IS A COMBINATION OF REPORTS P902039 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-070D120US835-FLLONL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

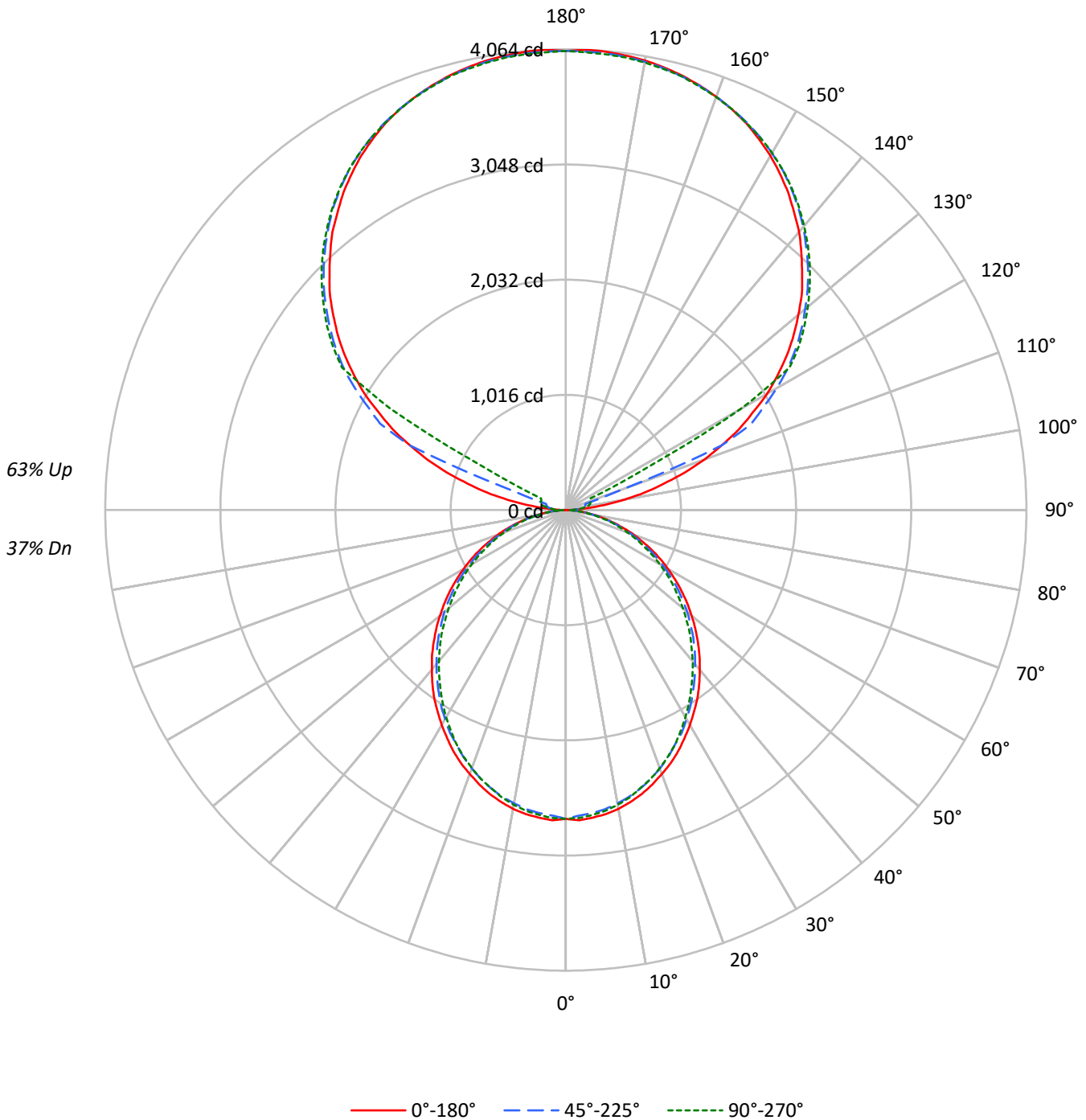
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 18810.0 lumens
Efficiency: N/A
Efficacy: 119.9 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-Indirect

Input Watts (W): 156.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9977
Total Harmonic Distortion (THDi): 0.049
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				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	104	104	104	104	94	94	94	94	76	76	76	59	59	59	44	44	44	37				37
1	95	91	87	83	86	82	79	76	67	64	62	52	51	49	39	38	37	31				31
2	86	79	73	68	78	72	67	62	58	55	52	46	43	41	34	33	31	26				26
3	79	69	62	57	71	63	57	52	51	47	43	40	37	35	30	28	27	22				22
4	72	61	54	48	65	56	49	44	46	41	37	36	33	30	27	25	23	19				19
5	66	55	47	41	60	50	43	38	41	36	32	32	29	26	24	22	20	16				16
6	61	49	41	35	55	45	38	33	37	31	28	29	25	23	22	20	18	14				14
7	56	44	36	31	51	40	33	29	33	28	24	26	23	20	20	18	16	13				13
8	52	40	32	27	47	37	30	25	30	25	21	24	20	18	19	16	14	11				11
9	48	36	29	24	44	33	27	22	28	23	19	22	19	16	17	15	13	10				10
10	45	33	26	22	41	31	24	20	25	21	17	20	17	14	16	13	11	9				9

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2164	2164	2164
5°	2167	2134	2148
10°	2150	2105	2119
15°	2118	2070	2073
20°	2075	2022	2027
25°	2033	1964	1973
30°	1980	1911	1904
35°	1929	1848	1832
40°	1867	1784	1763
45°	1805	1720	1693
50°	1738	1653	1611
55°	1667	1575	1536
60°	1587	1483	1450
65°	1499	1387	1348
70°	1388	1271	1239
75°	1234	1131	1138
80°	1048	954	946
85°	759	647	627

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 2150 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	256.4	1.4
10°-20°	721.3	3.8
20°-30°	1060.0	5.6
30°-40°	1231.1	6.5
40°-50°	1229.6	6.5
50°-60°	1072.2	5.7
60°-70°	792.6	4.2
70°-80°	448.4	2.4
80°-90°	125.5	0.7
90°-100°	133.5	0.7
100°-110°	497.8	2.6
110°-120°	1320.3	7.0
120°-130°	2189.8	11.6
130°-140°	2326.1	12.4
140°-150°	2161.8	11.5
150°-160°	1738.1	9.2
160°-170°	1119.9	6.0
170°-180°	385.5	2.0
0°-30°	2037.7	10.8
0°-40°	3268.8	17.4
0°-60°	5570.6	29.6
0°-90°	6937.2	36.9
90°-120°	1951.7	10.4
90°-150°	8629.4	45.9
90°-180°	11873.0	63.1
0°-180°	18810.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2724	2724	2724	2724	2724	
5°	2724	2714	2685	2705	2700	259
15°	2593	2577	2543	2554	2541	730
25°	2347	2326	2281	2286	2281	1080
35°	2025	1998	1956	1941	1928	1264
45°	1648	1629	1590	1561	1550	1271
55°	1247	1231	1200	1168	1155	1115
65°	841	825	799	775	762	831
75°	440	435	422	406	411	470
85°	107	105	102	94	92	120
90°	3	35	58	73	79	17
95°	190	94	114	129	126	225
105°	891	979	179	211	223	952
115°	1685	1735	1808	451	240	1659
125°	2382	2421	2476	2497	2506	2125
135°	2948	2995	3021	3051	3045	2277
145°	3420	3417	3467	3487	3472	2139
155°	3766	3739	3775	3792	3769	1735
165°	3968	3950	3959	3980	3959	1121
175°	4058	4038	4044	4064	4035	386
180°	4050	4050	4050	4050	4050	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2723.7	2723.7	2723.7	2723.7	2723.7
2.5°	2739.6	2726.5	2697.6	2723.7	2718.7
5°	2723.7	2713.5	2684.6	2705.4	2700.4
7.5°	2705.4	2689.8	2660.9	2682.1	2676.8
10°	2676.8	2658.4	2627.0	2647.9	2640.1
12.5°	2637.3	2621.8	2590.4	2603.4	2598.1
15°	2592.9	2577.3	2543.1	2553.7	2540.6
17.5°	2537.8	2522.3	2488.1	2501.2	2488.1
20°	2477.5	2462.0	2425.3	2433.1	2422.8
22.5°	2417.5	2393.9	2359.7	2359.7	2354.4
25°	2346.7	2325.8	2281.4	2286.4	2281.4
27.5°	2268.0	2249.7	2215.8	2208.0	2194.9
30°	2189.7	2168.5	2129.4	2121.6	2111.0
32.5°	2105.7	2090.2	2048.2	2032.4	2021.8
35°	2024.6	1998.5	1956.5	1940.7	1927.6
37.5°	1932.9	1909.3	1867.3	1849.0	1835.9
40°	1838.7	1817.6	1775.6	1752.3	1741.7
42.5°	1747.0	1725.9	1684.2	1657.8	1642.2
45°	1647.5	1629.2	1589.7	1561.1	1550.5
47.5°	1550.5	1532.2	1490.2	1461.3	1445.8
50°	1448.3	1435.2	1398.5	1361.9	1348.8
52.5°	1348.8	1330.5	1296.6	1267.7	1249.3
55°	1246.8	1231.0	1199.6	1168.2	1155.1
57.5°	1144.6	1131.5	1097.3	1065.9	1055.4
60°	1042.3	1032.0	995.4	966.5	958.7
62.5°	942.8	924.5	898.4	872.3	861.7
65°	840.9	825.0	798.9	775.3	762.2
67.5°	736.1	722.8	699.4	681.1	670.5
70°	639.1	628.6	604.9	586.6	576.3
72.5°	539.6	529.1	516.0	497.7	489.9
75°	439.9	434.9	421.5	406.0	411.3
77.5°	351.0	340.4	335.1	327.3	319.6
80°	262.0	259.3	254.0	246.2	240.9
82.5°	178.1	178.1	175.6	165.1	165.1
85°	107.3	104.8	102.3	94.2	91.7
87.5°	47.2	42.0	36.7	28.9	26.1
90°	2.8	35.1	58.5	73.4	79.0
92.5°	73.4	61.6	70.3	76.2	79.0
95°	190.3	93.6	114.1	129.1	126.0
97.5°	342.8	102.7	149.3	158.3	161.1
100°	518.8	117.3	167.0	190.3	196.3
102.5°	712.0	706.4	172.9	205.0	214.0
105°	890.8	978.9	178.9	210.9	222.7
107.5°	1098.9	1172.0	184.8	216.8	228.6
110°	1298.3	1359.6	512.9	219.9	231.4



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1485.9	1538.4	1488.7	225.5	234.5
115°	1684.9	1734.7	1808.1	451.3	240.5
117.5°	1857.9	1916.4	1966.5	1547.1	779.5
120°	2051.4	2095.2	2148.1	2183.3	1787.6
122.5°	2215.3	2262.3	2321.1	2338.5	2341.6
125°	2382.3	2420.6	2476.3	2496.8	2505.5
127.5°	2534.7	2575.8	2620.0	2649.2	2652.0
130°	2678.4	2725.4	2757.4	2789.8	2787.0
132.5°	2824.9	2863.2	2895.2	2921.7	2918.9
135°	2948.1	2995.1	3021.2	3050.8	3044.9
137.5°	3076.9	3112.0	3141.6	3170.8	3162.1
140°	3202.9	3226.5	3258.5	3285.0	3270.4
142.5°	3308.6	3329.2	3367.1	3390.4	3375.8
145°	3420.0	3416.9	3466.6	3487.2	3472.5
147.5°	3516.4	3507.7	3557.5	3572.1	3560.6
150°	3610.3	3589.8	3636.8	3654.2	3639.6
152.5°	3689.3	3666.0	3709.9	3727.6	3707.1
155°	3765.5	3739.4	3774.6	3792.0	3768.7
157.5°	3827.1	3803.8	3830.3	3850.8	3827.1
160°	3880.0	3862.3	3880.0	3897.4	3876.9
162.5°	3926.7	3909.3	3923.9	3944.4	3918.0
165°	3967.7	3950.3	3959.0	3979.6	3959.0
167.5°	4000.1	3982.3	3991.4	4011.9	3985.5
170°	4026.5	4008.8	4014.7	4035.2	4008.8
172.5°	4043.9	4026.5	4032.5	4053.0	4026.5
175°	4058.5	4038.0	4043.9	4064.5	4035.2
177.5°	4064.5	4043.9	4047.1	4067.6	4041.2
180°	4049.9	4049.9	4049.9	4049.9	4049.9



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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	8.60	9.35	9.66	10.42	11.86	8.17	8.92	9.23	9.99	11.43
	3H	10.25	10.93	11.32	12.00	13.46	9.78	10.45	10.85	11.53	12.99
	4H	10.83	11.47	11.91	12.55	14.02	10.36	11.00	11.44	12.08	13.55
	6H	11.23	11.82	12.32	12.90	14.38	10.75	11.34	11.84	12.42	13.90
	8H	11.33	11.89	12.42	12.98	14.46	10.85	11.41	11.95	12.51	13.99
	12H	11.37	11.91	12.47	12.99	14.50	10.89	11.43	11.99	12.51	14.02
4H	2H	9.05	9.69	10.14	10.76	12.23	8.70	9.34	9.79	10.42	11.89
	3H	10.90	11.44	12.00	12.54	14.02	10.51	11.04	11.61	12.15	13.63
	4H	11.61	12.10	12.71	13.20	14.70	11.21	11.70	12.31	12.79	14.30
	6H	12.12	12.54	13.23	13.66	15.16	11.71	12.13	12.82	13.25	14.75
	8H	12.27	12.66	13.38	13.77	15.28	11.86	12.25	12.97	13.36	14.87
	12H	12.34	12.69	13.46	13.81	15.33	11.91	12.27	13.04	13.39	14.91
8H	4H	11.80	12.19	12.91	13.30	14.82	11.44	11.83	12.55	12.94	14.46
	6H	12.43	12.75	13.56	13.90	15.41	12.06	12.39	13.20	13.54	15.05
	8H	12.65	12.93	13.78	14.06	15.59	12.28	12.56	13.41	13.69	15.22
	12H	12.77	13.02	13.91	14.15	15.72	12.39	12.64	13.53	13.77	15.33
12H	4H	11.78	12.14	12.91	13.26	14.78	11.43	11.79	12.56	12.91	14.42
	6H	12.46	12.74	13.59	13.87	15.40	12.10	12.39	13.24	13.52	15.05
	8H	12.69	12.94	13.83	14.07	15.64	12.34	12.59	13.48	13.71	15.28