

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: P906014

Luminaire Tested: DFN2DIP-PN4F0-070D120US835-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P906014
REPORT IS A COMBINATION OF REPORTS P899760 AND P896497
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-070D120US835-RLLFLL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

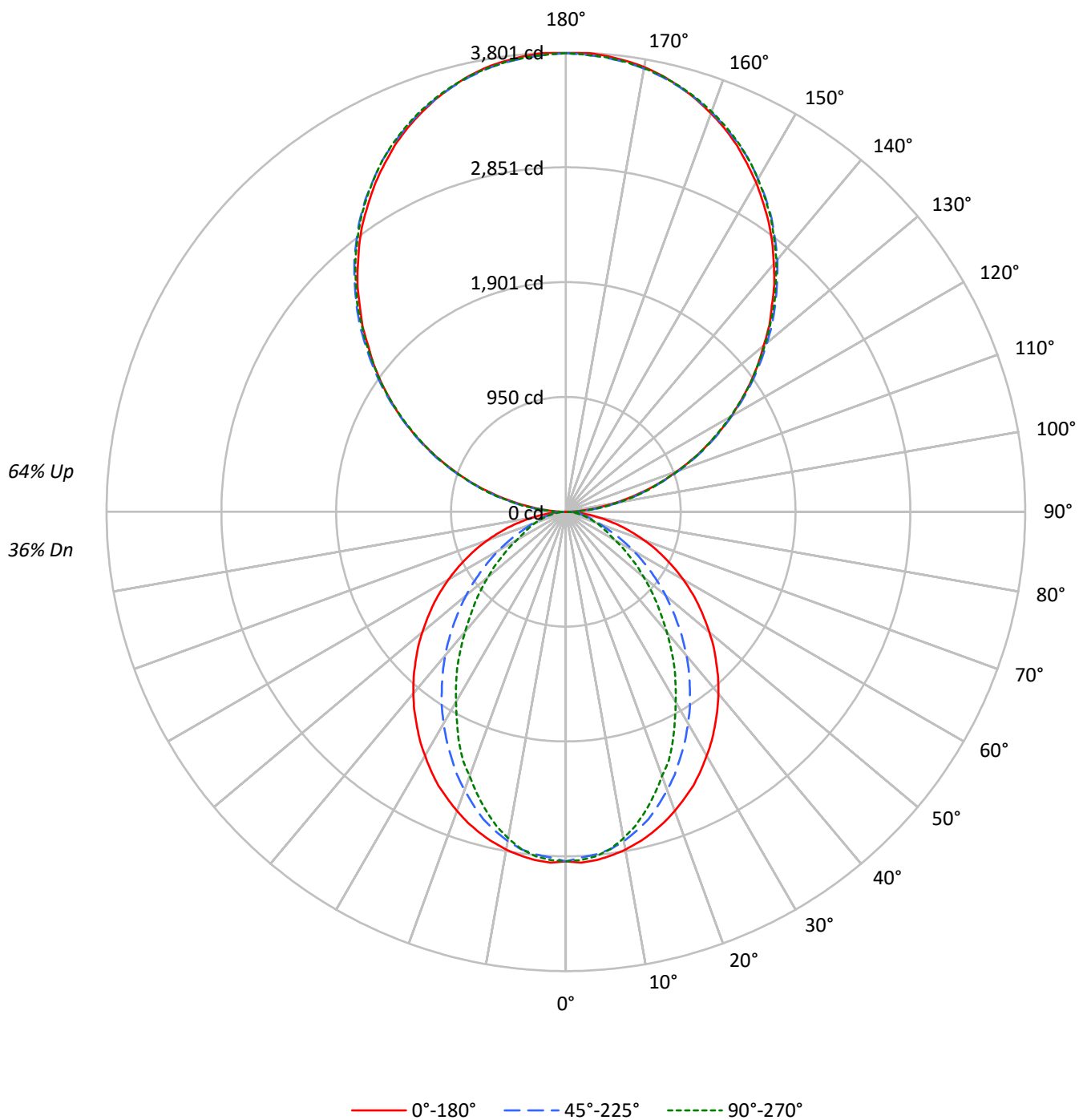
Lumens per Lamp: N/A
Luminaire Lumens: 16570.0 lumens
Efficiency: N/A
Efficacy: 97.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 170.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9789
Total Harmonic Distortion (THDi): 0.074
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	104	104	104	104	94	94	94	94	76	76	76	59	59	59	43	43	43
1	95	91	87	84	86	82	79	77	67	64	63	52	51	49	39	38	37
2	87	80	74	69	78	72	68	63	59	55	52	46	44	42	34	33	32
3	79	70	63	58	72	64	58	53	52	48	44	41	38	36	31	29	27
4	73	62	55	49	66	57	50	45	46	42	38	37	34	31	28	26	24
5	67	56	48	42	60	51	44	39	42	37	33	33	30	27	25	23	21
6	62	50	42	37	56	46	39	34	38	33	29	30	26	24	23	21	19
7	57	45	38	32	51	41	35	30	34	29	25	27	24	21	21	19	17
8	53	41	34	28	48	38	31	26	31	26	23	25	21	19	19	17	15
9	49	37	30	25	45	34	28	24	29	24	20	23	20	17	18	15	14
10	46	34	27	23	42	32	25	21	26	22	18	21	18	15	17	14	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2112	2112	2112
5°	2115	2079	2092
10°	2094	2038	2024
15°	2065	1971	1919
20°	2027	1878	1791
25°	1988	1775	1666
30°	1936	1668	1508
35°	1884	1554	1370
40°	1832	1435	1210
45°	1771	1303	1066
50°	1708	1171	925
55°	1643	1029	790
60°	1567	880	650
65°	1480	729	586
70°	1374	588	531
75°	1241	519	484
80°	1048	437	421
85°	730	293	319

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2972 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	271.1	1.6
10°-20°	744.3	4.5
20°-30°	1045.0	6.3
30°-40°	1139.2	6.9
40°-50°	1047.0	6.3
50°-60°	822.3	5.0
60°-70°	535.2	3.2
70°-80°	275.5	1.7
80°-90°	81.1	0.5
90°-100°	234.8	1.4
100°-110°	746.2	4.5
110°-120°	1276.9	7.7
120°-130°	1679.4	10.1
130°-140°	1885.0	11.4
140°-150°	1848.5	11.2
150°-160°	1550.6	9.4
160°-170°	1028.3	6.2
170°-180°	359.4	2.2
0°-30°	2060.5	12.4
0°-40°	3199.7	19.3
0°-60°	5068.9	30.6
0°-90°	5960.7	36.0
90°-120°	2257.9	13.6
90°-150°	7670.8	46.3
90°-180°	10609.0	64.0
0°-180°	16570.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2893	2893	2893	2893	2893	
5°	2893	2880	2846	2870	2862	274
15°	2752	2723	2634	2584	2558	775
25°	2498	2414	2241	2134	2094	1149
35°	2152	2019	1788	1623	1566	1347
45°	1760	1584	1309	1123	1060	1359
55°	1338	1134	851	694	644	1195
65°	903	691	456	367	359	896
75°	482	298	209	191	189	509
85°	112	58	50	50	50	129
90°	3	41	112	105	109	16
95°	167	199	205	205	199	186
105°	689	698	705	710	710	727
115°	1281	1300	1294	1291	1281	1267
125°	1864	1892	1883	1873	1870	1666
135°	2411	2446	2453	2450	2440	1863
145°	2927	2950	2968	2971	2959	1829
155°	3347	3356	3366	3382	3372	1540
165°	3641	3637	3637	3660	3644	1027
175°	3788	3779	3772	3795	3776	360
180°	3795	3795	3795	3795	3795	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2893.1	2893.1	2893.1	2893.1	2893.1
2.5°	2906.1	2893.1	2864.2	2890.6	2885.3
5°	2893.1	2880.0	2845.9	2869.5	2861.7
7.5°	2869.5	2853.9	2817.3	2827.5	2814.5
10°	2838.1	2819.8	2767.5	2759.5	2743.9
12.5°	2798.9	2775.3	2704.5	2688.9	2660.0
15°	2751.7	2722.8	2633.9	2584.2	2558.1
17.5°	2696.7	2654.8	2544.8	2487.2	2445.3
20°	2633.9	2581.4	2450.6	2385.3	2327.5
22.5°	2565.9	2505.6	2353.6	2264.7	2225.6
25°	2497.8	2413.9	2241.1	2133.9	2094.5
27.5°	2416.7	2327.5	2136.4	2013.4	1953.1
30°	2330.3	2230.6	2021.1	1887.8	1817.0
32.5°	2246.4	2125.9	1911.4	1754.2	1688.6
35°	2152.2	2018.6	1788.4	1623.4	1565.6
37.5°	2060.6	1916.4	1673.1	1492.2	1427.0
40°	1963.6	1806.7	1552.5	1366.7	1298.6
42.5°	1864.2	1696.7	1432.2	1238.3	1173.1
45°	1759.5	1583.9	1309.2	1123.1	1060.3
47.5°	1660.0	1474.2	1191.4	1005.3	947.8
50°	1550.0	1364.2	1076.1	895.3	840.6
52.5°	1442.5	1246.1	966.1	793.3	743.6
55°	1337.8	1133.6	850.8	693.9	644.2
57.5°	1230.6	1021.1	748.9	602.2	560.3
60°	1120.6	911.1	641.4	508.1	466.1
62.5°	1013.3	803.9	549.7	424.2	403.3
65°	903.3	691.1	455.6	366.7	358.6
67.5°	798.6	586.4	366.7	321.9	314.2
70°	688.6	484.4	303.6	277.5	266.9
72.5°	583.9	390.0	253.9	233.1	227.8
75°	481.7	298.3	209.4	191.1	188.6
77.5°	379.7	211.9	165.0	154.4	149.2
80°	285.3	151.9	125.6	115.3	115.3
82.5°	198.9	102.2	86.4	81.1	81.1
85°	112.5	57.5	49.7	49.7	49.7
87.5°	41.9	20.8	20.8	18.3	18.3
90°	3.4	41.2	112.1	105.3	108.7
92.5°	70.9	96.1	99.5	103.0	103.0
95°	167.0	199.1	204.8	204.8	199.1
97.5°	278.0	307.8	320.4	320.4	320.4
100°	406.2	432.5	441.6	441.6	438.2
102.5°	541.2	560.6	573.2	576.7	573.2
105°	688.8	697.9	704.8	710.5	710.5
107.5°	835.2	849.0	849.0	851.2	835.2
110°	977.1	995.4	995.4	995.4	986.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1130.4	1149.9	1146.4	1137.3	1130.4
115°	1281.4	1299.8	1294.0	1290.6	1281.4
117.5°	1431.3	1456.5	1440.5	1431.3	1422.2
120°	1582.4	1607.5	1582.4	1582.4	1572.1
122.5°	1719.7	1751.7	1735.7	1726.5	1719.7
125°	1863.8	1892.4	1883.3	1873.0	1869.5
127.5°	2004.6	2040.0	2027.4	2013.7	2004.6
130°	2136.1	2177.3	2171.6	2164.7	2152.1
132.5°	2283.7	2315.8	2318.0	2302.0	2292.9
135°	2410.7	2446.2	2453.1	2449.6	2440.5
137.5°	2552.6	2581.2	2586.9	2584.6	2570.9
140°	2677.3	2705.9	2721.9	2721.9	2709.3
142.5°	2805.5	2834.1	2843.2	2846.6	2834.1
145°	2926.7	2949.6	2967.9	2971.4	2958.8
147.5°	3035.4	3064.0	3077.8	3083.5	3070.9
150°	3147.6	3167.0	3179.6	3189.9	3179.6
152.5°	3247.1	3266.5	3282.6	3295.2	3282.6
155°	3346.6	3355.8	3366.1	3382.1	3371.8
157.5°	3432.5	3439.3	3445.0	3467.9	3451.9
160°	3509.1	3516.0	3519.4	3538.9	3525.1
162.5°	3580.0	3580.0	3583.5	3605.2	3589.2
165°	3640.7	3637.3	3637.3	3660.1	3644.1
167.5°	3695.6	3685.3	3685.3	3708.2	3692.2
170°	3736.8	3727.6	3724.2	3747.1	3727.6
172.5°	3765.4	3756.2	3752.8	3775.7	3756.2
175°	3788.3	3779.1	3772.3	3795.1	3775.7
177.5°	3800.9	3791.7	3784.8	3804.3	3784.8
180°	3795.1	3795.1	3795.1	3795.1	3795.1

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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	8.28	9.01	9.35	10.08	11.54	4.24	4.97	5.32	6.04	7.50
	3H	9.95	10.60	11.03	11.68	13.16	5.42	6.07	6.51	7.16	8.63
	4H	10.56	11.17	11.65	12.25	13.74	5.87	6.49	6.97	7.57	9.05
	6H	10.98	11.54	12.08	12.63	14.12	6.19	6.75	7.29	7.84	9.34
	8H	11.10	11.64	12.21	12.74	14.23	6.28	6.81	7.38	7.92	9.41
	12H	11.16	11.67	12.27	12.77	14.28	6.32	6.83	7.43	7.92	9.44
4H	2H	8.28	8.90	9.39	9.98	11.47	4.83	5.44	5.93	6.53	8.01
	3H	10.11	10.62	11.21	11.73	13.23	6.17	6.68	7.28	7.79	9.29
	4H	10.80	11.27	11.91	12.37	13.88	6.71	7.18	7.83	8.28	9.80
	6H	11.31	11.71	12.43	12.83	14.35	7.13	7.53	8.25	8.65	10.16
	8H	11.48	11.86	12.60	12.97	14.50	7.26	7.63	8.38	8.75	10.27
	12H	11.58	11.92	12.71	13.04	14.57	7.32	7.66	8.45	8.78	10.31
8H	4H	10.76	11.13	11.88	12.25	13.77	6.99	7.36	8.11	8.48	10.00
	6H	11.32	11.63	12.46	12.79	14.31	7.50	7.81	8.64	8.97	10.49
	8H	11.54	11.81	12.69	12.95	14.49	7.70	7.97	8.84	9.10	10.65
	12H	11.68	11.92	12.83	13.05	14.63	7.81	8.05	8.96	9.18	10.76
12H	4H	10.70	11.05	11.84	12.17	13.70	6.99	7.33	8.12	8.46	9.99
	6H	11.30	11.57	12.44	12.71	14.25	7.55	7.83	8.70	8.96	10.51
	8H	11.52	11.75	12.67	12.89	14.47	7.76	8.00	8.91	9.13	10.71