

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: P906011

Luminaire Tested: DFN2DIP-PN4F0-070D110US835-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P906011
REPORT IS A COMBINATION OF REPORTS P901262 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-070D110US835-RLONL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

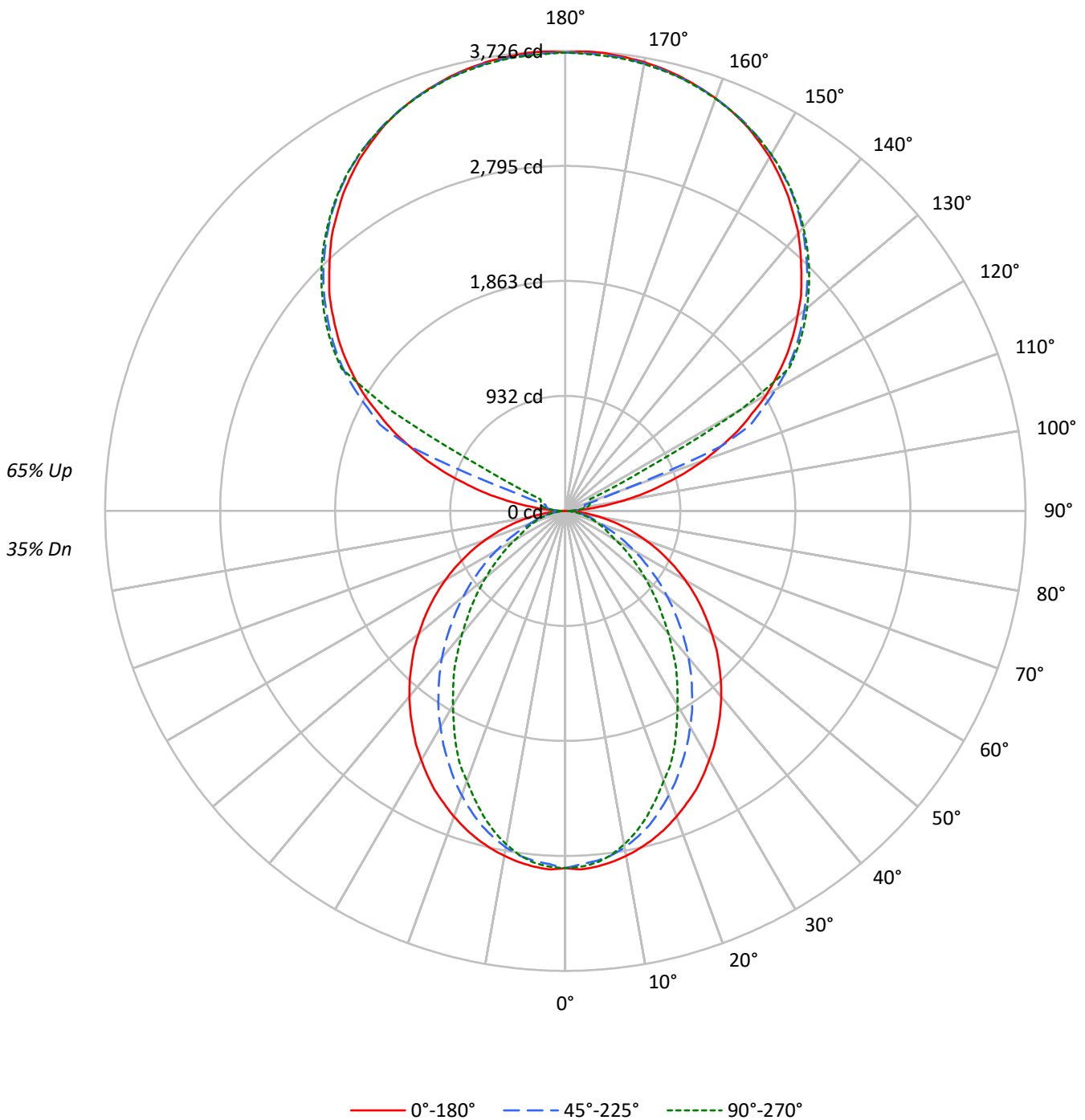
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 16839.9 lumens
Efficiency: N/A
Efficacy: 106.4 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): 158.3
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

TEST NUMBER: P906011
CATALOG NUMBER: DFN2DIP-PN4F0-070D110US835-RLLONL

Luminous Intensity Polar Plot





TEST NUMBER: P906011
 CATALOG NUMBER: DFN2DIP-PN4F0-070D110US835-RLLONL

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	75	75	75	58	58	58	43	43	43	35				35
1	95	91	87	84	86	82	79	76	66	64	62	52	50	49	38	37	37	30				30
2	87	80	74	69	78	72	67	63	58	55	52	46	44	41	34	33	31	26				26
3	79	70	63	58	71	64	58	53	52	48	44	41	38	35	30	29	27	22				22
4	73	62	55	49	65	57	50	45	46	42	38	36	33	31	27	25	24	20				20
5	67	56	48	42	60	51	44	39	41	37	33	33	29	27	25	23	21	17				17
6	61	50	42	37	55	46	39	34	37	32	29	30	26	24	23	20	18	15				15
7	57	45	37	32	51	41	35	30	34	29	25	27	24	21	21	18	16	14				14
8	53	41	33	28	48	37	31	26	31	26	23	25	21	19	19	17	15	12				12
9	49	37	30	25	44	34	28	24	28	24	20	23	19	17	18	15	13	11				11
10	46	34	27	23	42	31	25	21	26	21	18	21	18	15	16	14	12	10				10

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: 1979 cd/sqm



TEST NUMBER: P906011

CATALOG NUMBER: DFN2DIP-PN4F0-070D110US835-RLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	271.1	1.6
10°-20°	744.3	4.4
20°-30°	1045.0	6.2
30°-40°	1139.2	6.8
40°-50°	1047.0	6.2
50°-60°	822.3	4.9
60°-70°	535.2	3.2
70°-80°	275.5	1.6
80°-90°	76.9	0.5
90°-100°	122.4	0.7
100°-110°	456.3	2.7
110°-120°	1210.3	7.2
120°-130°	2007.3	11.9
130°-140°	2132.2	12.7
140°-150°	1981.7	11.8
150°-160°	1593.2	9.5
160°-170°	1026.6	6.1
170°-180°	353.3	2.1
0°-30°	2060.5	12.2
0°-40°	3199.7	19.0
0°-60°	5068.9	30.1
0°-90°	5956.5	35.4
90°-120°	1789.0	10.6
90°-150°	7910.3	47.0
90°-180°	10883.0	64.6
0°-180°	16839.9	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	32	54	67	72	16
95°	174	86	105	118	116	207
105°	817	897	164	193	204	873
115°	1544	1590	1658	414	220	1521
125°	2184	2219	2270	2289	2297	1948
135°	2702	2746	2769	2797	2791	2088
145°	3135	3132	3178	3197	3183	1961
155°	3452	3428	3460	3476	3455	1591
165°	3637	3621	3629	3648	3629	1028
175°	3720	3702	3707	3726	3699	354
180°	3712	3712	3712	3712	3712	



TEST NUMBER: P906011

CATALOG NUMBER: DFN2DIP-PN4F0-070D110US835-RLLONL

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°	2.6	32.2	53.6	67.3	72.4
92.5°	67.3	56.5	64.4	69.9	72.4
95°	174.5	85.8	104.6	118.3	115.5
97.5°	314.2	94.1	136.8	145.1	147.7
100°	475.6	107.5	153.1	174.5	179.9
102.5°	652.6	647.5	158.5	187.9	196.2
105°	816.6	897.3	164.0	193.3	204.2
107.5°	1007.4	1074.3	169.4	198.7	209.6
110°	1190.1	1246.3	470.2	201.6	212.1



TEST NUMBER: P906011

CATALOG NUMBER: DFN2DIP-PN4F0-070D110US835-RLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1362.1	1410.2	1364.6	206.7	215.0
115°	1544.5	1590.1	1657.5	413.7	220.4
117.5°	1703.1	1756.7	1802.6	1418.2	714.5
120°	1880.4	1920.6	1969.1	2001.3	1638.6
122.5°	2030.7	2073.7	2127.6	2143.6	2146.5
125°	2183.8	2218.9	2269.9	2288.7	2296.7
127.5°	2323.5	2361.1	2401.6	2428.4	2431.0
130°	2455.2	2498.3	2527.6	2557.3	2554.8
132.5°	2589.5	2624.6	2654.0	2678.2	2675.7
135°	2702.5	2745.5	2769.4	2796.6	2791.1
137.5°	2820.5	2852.7	2879.8	2906.6	2898.6
140°	2936.0	2957.6	2987.0	3011.2	2997.8
142.5°	3032.9	3051.7	3086.5	3107.9	3094.5
145°	3135.0	3132.1	3177.7	3196.6	3183.2
147.5°	3223.4	3215.4	3261.0	3274.4	3263.9
150°	3309.5	3290.7	3333.7	3349.7	3336.3
152.5°	3381.9	3360.5	3400.7	3417.0	3398.2
155°	3451.8	3427.8	3460.0	3476.0	3454.6
157.5°	3508.2	3486.8	3511.1	3529.9	3508.2
160°	3556.7	3540.4	3556.7	3572.6	3553.8
162.5°	3599.4	3583.5	3596.9	3615.7	3591.5
165°	3637.1	3621.1	3629.1	3647.9	3629.1
167.5°	3666.7	3650.5	3658.8	3677.6	3653.4
170°	3691.0	3674.7	3680.1	3699.0	3674.7
172.5°	3706.9	3691.0	3696.4	3715.2	3691.0
175°	3720.3	3701.5	3706.9	3725.8	3699.0
177.5°	3725.8	3706.9	3709.8	3728.6	3704.4
180°	3712.4	3712.4	3712.4	3712.4	3712.4



TEST NUMBER: P906011
 CATALOG NUMBER: DFN2DIP-PN4F0-070D110US835-RLONL

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	8.21	8.93	9.29	10.01	11.48	4.17	4.90	5.25	5.97	7.44
	3H	9.88	10.53	10.97	11.61	13.10	5.36	6.00	6.44	7.09	8.57
	4H	10.49	11.10	11.59	12.19	13.68	5.80	6.41	6.90	7.50	8.99
	6H	10.91	11.47	12.01	12.56	14.06	6.12	6.68	7.22	7.77	9.27
	8H	11.03	11.57	12.14	12.67	14.17	6.21	6.74	7.32	7.85	9.34
	12H	11.09	11.60	12.20	12.70	14.22	6.25	6.75	7.36	7.85	9.37
4H	2H	8.21	8.83	9.32	9.91	11.40	4.76	5.37	5.86	6.46	7.95
	3H	10.04	10.55	11.15	11.66	13.16	6.10	6.61	7.21	7.72	9.23
	4H	10.73	11.19	11.84	12.30	13.82	6.64	7.11	7.76	8.21	9.74
	6H	11.24	11.64	12.36	12.77	14.28	7.06	7.46	8.18	8.58	10.10
	8H	11.41	11.79	12.54	12.90	14.44	7.19	7.56	8.31	8.68	10.21
	12H	11.51	11.84	12.64	12.97	14.51	7.25	7.58	8.39	8.71	10.25
8H	4H	10.69	11.06	11.81	12.18	13.71	6.92	7.29	8.04	8.41	9.94
	6H	11.25	11.56	12.40	12.72	14.25	7.43	7.74	8.58	8.90	10.43
	8H	11.47	11.74	12.62	12.88	14.43	7.63	7.89	8.78	9.03	10.58
	12H	11.61	11.84	12.76	12.98	14.57	7.74	7.98	8.89	9.11	10.70
12H	4H	10.63	10.97	11.77	12.10	13.64	6.92	7.26	8.06	8.39	9.92
	6H	11.23	11.50	12.38	12.64	14.19	7.48	7.75	8.63	8.89	10.44
	8H	11.45	11.68	12.60	12.82	14.40	7.69	7.93	8.84	9.06	10.65