

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: P908731

Luminaire Tested: DFN2DIP-PN4F0-070D090US840-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P908731
REPORT IS A COMBINATION OF REPORTS P901226 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-070D090US840-RLLONL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

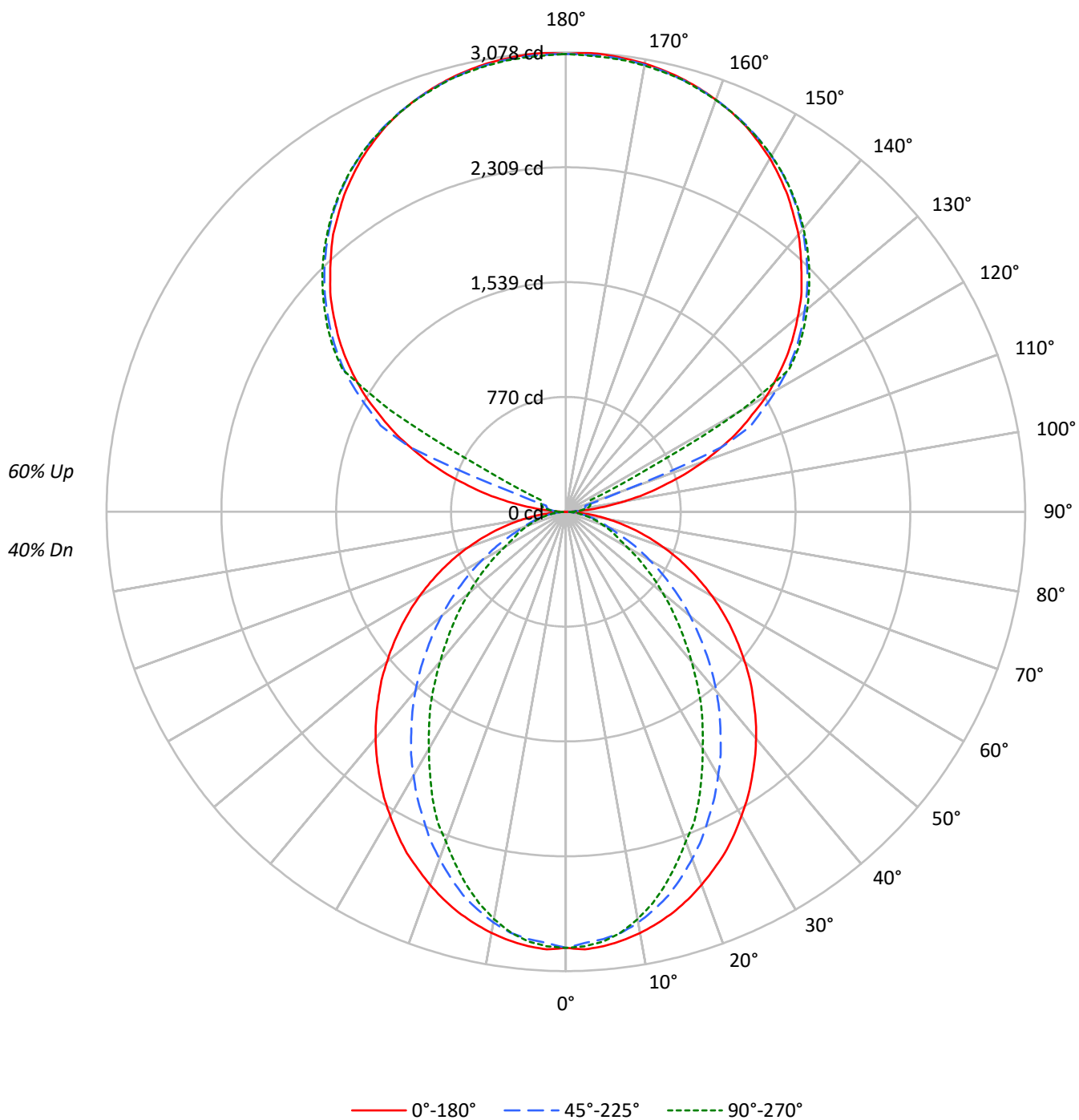
Lumens per Lamp: N/A
Luminaire Lumens: 15006.5 lumens
Efficiency: N/A
Efficacy: 112.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 133.3
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: P908731

CATALOG NUMBER: DFN2DIP-PN4F0-070D090US840-RLLONL

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	105	105	105	105	95	95	95	95	78	78	78	62	62	62	47	47	47
1	96	92	88	85	87	84	81	78	69	67	65	55	53	52	42	41	40
2	88	81	75	70	80	74	69	64	61	57	54	49	46	44	38	36	35
3	80	71	64	59	73	65	59	54	54	49	46	43	40	38	34	32	30
4	74	63	56	50	67	58	51	46	48	43	39	39	35	33	30	28	26
5	68	56	49	43	61	52	45	40	43	38	34	35	31	28	27	25	23
6	62	51	43	37	57	47	40	35	39	34	30	32	28	25	25	22	20
7	58	46	38	33	52	42	35	31	35	30	26	29	25	22	23	20	18
8	54	42	34	29	49	38	32	27	32	27	24	27	23	20	21	18	16
9	50	38	31	26	45	35	29	24	30	25	21	24	21	18	20	17	15
10	47	35	28	23	43	32	26	22	27	22	19	23	19	16	18	16	14

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2133	2133	2133
5°	2136	2099	2113
10°	2115	2058	2044
15°	2086	1990	1938
20°	2047	1897	1808
25°	2008	1792	1683
30°	1955	1684	1523
35°	1903	1569	1383
40°	1850	1449	1222
45°	1789	1316	1077
50°	1725	1182	934
55°	1659	1039	798
60°	1583	889	657
65°	1494	737	592
70°	1387	594	536
75°	1253	524	489
80°	1059	441	425
85°	737	296	322

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1789 cd/sqm

TEST NUMBER: P908731

CATALOG NUMBER: DFN2DIP-PN4F0-070D090US840-RLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	273.8	1.8
10°-20°	751.7	5.0
20°-30°	1055.3	7.0
30°-40°	1150.4	7.7
40°-50°	1057.3	7.0
50°-60°	830.4	5.5
60°-70°	540.5	3.6
70°-80°	278.2	1.9
80°-90°	76.4	0.5
90°-100°	101.2	0.7
100°-110°	377.0	2.5
110°-120°	1000.0	6.7
120°-130°	1658.6	11.1
130°-140°	1761.8	11.7
140°-150°	1637.4	10.9
150°-160°	1316.4	8.8
160°-170°	848.2	5.7
170°-180°	292.0	1.9
0°-30°	2080.9	13.9
0°-40°	3231.2	21.5
0°-60°	5118.9	34.1
0°-90°	6014.0	40.1
90°-120°	1478.2	9.9
90°-150°	6535.9	43.6
90°-180°	8992.0	59.9
0°-180°	15006.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2922	2922	2922	2922	2922	
5°	2922	2908	2874	2898	2890	277
15°	2779	2750	2660	2610	2583	783
25°	2522	2438	2263	2155	2115	1160
35°	2173	2038	1806	1639	1581	1360
45°	1777	1600	1322	1134	1071	1372
55°	1351	1145	859	701	651	1207
65°	912	698	460	370	362	904
75°	486	301	212	193	190	515
85°	114	58	50	50	50	130
90°	2	27	44	56	60	14
95°	144	71	86	98	95	171
105°	675	741	135	160	169	721
115°	1276	1314	1370	342	182	1256
125°	1804	1833	1876	1891	1898	1609
135°	2233	2268	2288	2311	2306	1725
145°	2590	2588	2626	2641	2630	1620
155°	2852	2832	2859	2872	2854	1314
165°	3005	2992	2999	3014	2999	849
175°	3074	3058	3063	3078	3056	293
180°	3067	3067	3067	3067	3067	

TEST NUMBER: P908731

CATALOG NUMBER: DFN2DIP-PN4F0-070D090US840-RLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2921.6	2921.6	2921.6	2921.6	2921.6
2.5°	2934.8	2921.6	2892.5	2919.1	2913.8
5°	2921.6	2908.4	2874.0	2897.8	2889.9
7.5°	2897.8	2882.1	2845.1	2855.4	2842.3
10°	2866.1	2847.6	2794.8	2786.7	2771.0
12.5°	2826.5	2802.7	2731.2	2715.4	2686.2
15°	2778.8	2749.7	2659.9	2609.7	2583.3
17.5°	2723.3	2681.0	2569.9	2511.7	2469.4
20°	2659.9	2606.9	2474.8	2408.8	2350.5
22.5°	2591.2	2530.3	2376.8	2287.0	2247.6
25°	2522.4	2437.7	2263.2	2155.0	2115.2
27.5°	2440.5	2350.5	2157.5	2033.3	1972.4
30°	2353.3	2252.6	2041.0	1906.4	1834.9
32.5°	2268.6	2146.9	1930.3	1771.5	1705.3
35°	2173.4	2038.5	1806.0	1639.4	1581.0
37.5°	2080.9	1935.3	1689.6	1506.9	1441.1
40°	1983.0	1824.5	1567.8	1380.2	1311.4
42.5°	1882.6	1713.4	1446.3	1250.5	1184.7
45°	1776.9	1599.5	1322.1	1134.2	1070.8
47.5°	1676.4	1488.7	1203.2	1015.2	957.2
50°	1565.3	1377.7	1086.7	904.1	848.9
52.5°	1456.7	1258.4	975.6	801.1	750.9
55°	1351.0	1144.8	859.2	700.7	650.6
57.5°	1242.7	1031.2	756.3	608.1	565.8
60°	1131.7	920.1	647.7	513.1	470.7
62.5°	1023.3	811.8	555.1	428.4	407.3
65°	912.2	697.9	460.1	370.3	362.1
67.5°	806.5	592.2	370.3	325.1	317.3
70°	695.4	489.2	306.6	280.2	269.5
72.5°	589.7	393.8	256.4	235.4	230.0
75°	486.5	301.2	211.5	193.0	190.5
77.5°	383.4	214.0	166.6	155.9	150.7
80°	288.1	153.4	126.8	116.4	116.4
82.5°	200.9	103.2	87.3	81.9	81.9
85°	113.6	58.1	50.2	50.2	50.2
87.5°	42.3	21.0	21.0	18.5	18.5
90°	2.1	26.7	44.2	55.6	59.8
92.5°	55.6	46.7	53.2	57.8	59.8
95°	144.2	70.9	86.4	97.8	95.4
97.5°	259.6	77.8	113.1	119.9	122.0
100°	392.9	88.9	126.5	144.2	148.7
102.5°	539.3	535.0	131.0	155.2	162.1
105°	674.7	741.4	135.4	159.8	168.6
107.5°	832.3	887.7	140.0	164.2	173.2
110°	983.3	1029.8	388.5	166.5	175.3

TEST NUMBER: P908731

CATALOG NUMBER: DFN2DIP-PN4F0-070D090US840-RLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1125.4	1165.2	1127.5	170.8	177.6
115°	1276.2	1313.8	1369.5	341.8	182.1
117.5°	1407.1	1451.5	1489.3	1171.8	590.4
120°	1553.7	1586.9	1627.0	1653.6	1353.9
122.5°	1677.9	1713.4	1758.0	1771.1	1773.5
125°	1804.3	1833.3	1875.5	1891.1	1897.6
127.5°	1919.8	1950.9	1984.4	2006.5	2008.6
130°	2028.6	2064.3	2088.5	2112.9	2110.9
132.5°	2139.6	2168.6	2192.8	2212.9	2210.8
135°	2232.9	2268.5	2288.3	2310.7	2306.2
137.5°	2330.5	2357.0	2379.4	2401.6	2395.0
140°	2425.8	2443.8	2468.0	2488.0	2477.0
142.5°	2506.0	2521.5	2550.2	2567.9	2556.9
145°	2590.3	2587.9	2625.7	2641.2	2630.1
147.5°	2663.3	2656.8	2694.4	2705.5	2696.7
150°	2734.5	2719.0	2754.5	2767.6	2756.6
152.5°	2794.3	2776.6	2809.8	2823.3	2807.7
155°	2852.1	2832.3	2858.8	2872.1	2854.4
157.5°	2898.7	2881.0	2901.0	2916.6	2898.7
160°	2938.7	2925.3	2938.7	2951.9	2936.4
162.5°	2974.1	2960.8	2971.9	2987.5	2967.5
165°	3005.2	2991.9	2998.6	3014.1	2998.6
167.5°	3029.7	3016.3	3023.0	3038.6	3018.6
170°	3049.7	3036.3	3040.7	3056.3	3036.3
172.5°	3062.9	3049.7	3054.1	3069.7	3049.7
175°	3073.9	3058.4	3062.9	3078.4	3056.3
177.5°	3078.4	3062.9	3065.2	3080.8	3060.8
180°	3067.4	3067.4	3067.4	3067.4	3067.4

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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	8.78	9.54	9.83	10.58	11.99	4.75	5.50	5.79	6.55	7.96
	3H	10.46	11.13	11.51	12.19	13.61	5.93	6.61	6.98	7.66	9.09
	4H	11.06	11.70	12.13	12.76	14.20	6.38	7.02	7.44	8.07	9.51
	6H	11.48	12.07	12.56	13.13	14.58	6.70	7.28	7.77	8.34	9.79
	8H	11.61	12.17	12.69	13.25	14.69	6.79	7.34	7.86	8.42	9.86
	12H	11.67	12.20	12.75	13.27	14.74	6.83	7.36	7.91	8.43	9.89
4H	2H	8.79	9.43	9.86	10.49	11.92	5.34	5.97	6.41	7.03	8.47
	3H	10.62	11.15	11.70	12.23	13.68	6.68	7.21	7.76	8.30	9.74
	4H	11.31	11.80	12.39	12.87	14.34	7.23	7.71	8.31	8.79	10.26
	6H	11.82	12.24	12.92	13.34	14.80	7.64	8.06	8.73	9.16	10.62
	8H	12.00	12.39	13.09	13.48	14.96	7.77	8.16	8.86	9.25	10.73
	12H	12.09	12.44	13.20	13.55	15.03	7.83	8.18	8.94	9.29	10.77
8H	4H	11.27	11.66	12.36	12.75	14.23	7.50	7.89	8.59	8.98	10.46
	6H	11.84	12.16	12.95	13.29	14.77	8.02	8.34	9.13	9.47	10.95
	8H	12.06	12.34	13.18	13.45	14.95	8.21	8.49	9.33	9.61	11.10
	12H	12.19	12.44	13.32	13.55	15.08	8.33	8.57	9.45	9.68	11.22
12H	4H	11.22	11.57	12.33	12.68	14.16	7.50	7.86	8.61	8.96	10.44
	6H	11.81	12.09	12.93	13.21	14.70	8.07	8.35	9.19	9.46	10.96
	8H	12.03	12.28	13.16	13.39	14.92	8.28	8.52	9.40	9.63	11.17