

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: P906046

Luminaire Tested: DFN2DIP-PN4F0-080D110US835-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P906046
REPORT IS A COMBINATION OF REPORTS P899744 AND P896497
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-080D110US835-RLLFLL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

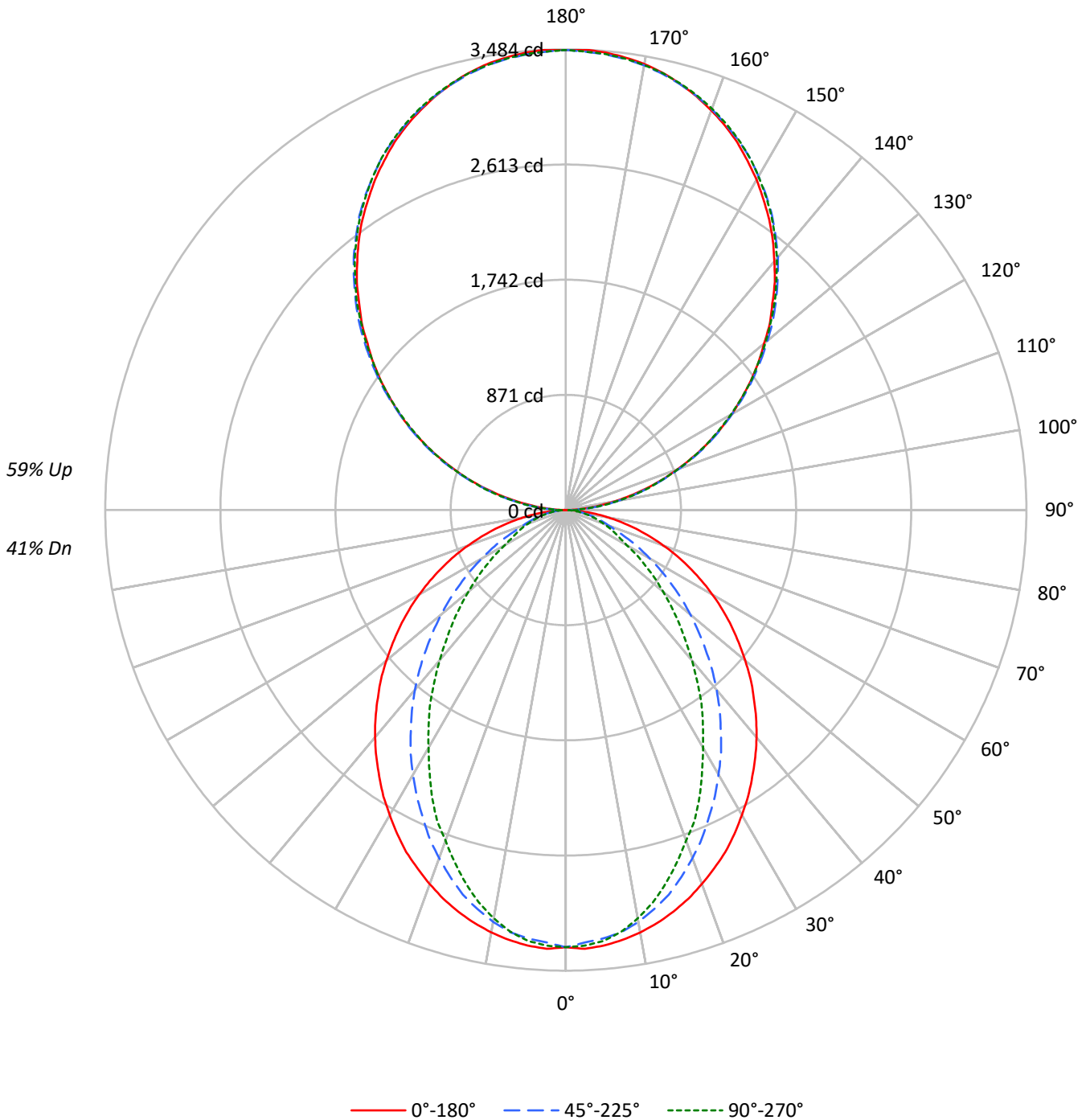
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 16535.0 lumens
Efficiency: N/A
Efficacy: 98.0 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): 168.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9971
Total Harmonic Distortion (THDi): 0.049
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P906046
CATALOG NUMBER: DFN2DIP-PN4F0-080D110US835-RLFL

Luminous Intensity Polar Plot





TEST NUMBER: P906046

CATALOG NUMBER: DFN2DIP-PN4F0-080D110US835-RLFL

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	105	105	105	105	96	96	96	96	78	78	78	63	63	63	48	48	48	48	48	48	41
1	96	92	88	85	88	84	81	78	69	67	65	56	54	53	43	42	41	41	41	41	35
2	88	81	75	70	80	74	69	65	61	58	55	49	47	45	38	37	35	35	35	35	30
3	80	71	64	59	73	65	59	55	54	50	46	44	41	38	34	32	31	31	31	31	26
4	74	63	56	50	67	58	52	47	48	44	40	39	36	33	31	29	27	27	27	27	23
5	68	57	49	43	62	52	45	40	43	38	34	36	32	29	28	26	23	23	23	23	20
6	63	51	43	37	57	47	40	35	39	34	30	32	28	25	26	23	21	21	21	21	18
7	58	46	38	33	53	42	36	31	36	31	27	29	26	23	23	21	19	19	19	19	16
8	54	42	34	29	49	39	32	27	33	27	24	27	23	20	22	19	17	17	17	17	14
9	50	38	31	26	46	35	29	24	30	25	21	25	21	18	20	17	15	15	15	15	13
10	47	35	28	23	43	32	26	22	28	23	19	23	19	17	19	16	14	14	14	14	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2414	2414	2414
5°	2417	2376	2391
10°	2393	2329	2313
15°	2360	2253	2194
20°	2317	2147	2046
25°	2272	2028	1904
30°	2212	1906	1724
35°	2154	1775	1565
40°	2094	1640	1383
45°	2024	1490	1218
50°	1953	1338	1057
55°	1878	1176	903
60°	1791	1006	743
65°	1691	833	669
70°	1570	673	607
75°	1418	594	553
80°	1198	499	481
85°	835	335	364

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 2723 cd/sqm



TEST NUMBER: P906046

CATALOG NUMBER: DFN2DIP-PN4F0-080D110US835-RLFL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	309.9	1.9
10°-20°	850.7	5.1
20°-30°	1194.3	7.2
30°-40°	1301.9	7.9
40°-50°	1196.6	7.2
50°-60°	939.7	5.7
60°-70°	611.7	3.7
70°-80°	314.9	1.9
80°-90°	90.3	0.5
90°-100°	215.3	1.3
100°-110°	684.0	4.1
110°-120°	1170.5	7.1
120°-130°	1539.4	9.3
130°-140°	1727.9	10.5
140°-150°	1694.4	10.2
150°-160°	1421.4	8.6
160°-170°	942.6	5.7
170°-180°	329.5	2.0
0°-30°	2354.9	14.2
0°-40°	3656.8	22.1
0°-60°	5793.1	35.0
0°-90°	6809.9	41.2
90°-120°	2069.8	12.5
90°-150°	7031.6	42.5
90°-180°	9725.0	58.8
0°-180°	16535.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3306	3306	3306	3306	3306	
5°	3306	3292	3252	3279	3270	314
15°	3145	3112	3010	2953	2924	886
25°	2855	2759	2561	2439	2394	1313
35°	2460	2307	2044	1855	1789	1540
45°	2011	1810	1496	1284	1212	1553
55°	1529	1296	972	793	736	1366
65°	1032	790	521	419	410	1024
75°	550	341	239	218	216	582
85°	129	66	57	57	57	148
90°	3	38	103	96	100	16
95°	153	182	188	188	182	170
105°	631	640	646	651	651	666
115°	1175	1191	1186	1183	1175	1162
125°	1708	1735	1726	1717	1714	1527
135°	2210	2242	2249	2246	2237	1708
145°	2683	2704	2721	2724	2712	1676
155°	3068	3076	3086	3100	3091	1412
165°	3337	3334	3334	3355	3340	941
175°	3473	3464	3458	3479	3461	330
180°	3479	3479	3479	3479	3479	



TEST NUMBER: P906046

CATALOG NUMBER: DFN2DIP-PN4F0-080D110US835-RLFL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3306.4	3306.4	3306.4	3306.4	3306.4
2.5°	3321.3	3306.4	3273.4	3303.5	3297.5
5°	3306.4	3291.5	3252.4	3279.4	3270.5
7.5°	3279.4	3261.6	3219.7	3231.5	3216.5
10°	3243.5	3222.6	3162.9	3153.7	3135.9
12.5°	3198.8	3171.8	3090.8	3073.0	3040.0
15°	3144.8	3111.8	3010.2	2953.4	2923.5
17.5°	3081.9	3034.0	2908.3	2842.6	2794.6
20°	3010.2	2950.2	2800.7	2726.1	2660.0
22.5°	2932.4	2863.5	2689.9	2588.3	2543.5
25°	2854.6	2758.8	2561.3	2438.8	2393.7
27.5°	2761.9	2660.0	2441.6	2301.0	2232.1
30°	2663.2	2549.2	2309.9	2157.5	2076.5
32.5°	2567.3	2429.6	2184.5	2004.8	1929.9
35°	2459.7	2307.0	2043.8	1855.3	1789.2
37.5°	2354.9	2190.2	1912.1	1705.4	1630.8
40°	2244.2	2064.8	1774.3	1561.9	1484.1
42.5°	2130.5	1939.1	1636.8	1415.3	1340.6
45°	2010.8	1810.2	1496.2	1283.5	1211.8
47.5°	1897.2	1684.8	1361.6	1148.9	1083.2
50°	1771.4	1559.1	1229.9	1023.2	960.6
52.5°	1648.6	1424.1	1104.1	906.7	849.9
55°	1528.9	1295.6	972.4	793.0	736.2
57.5°	1406.4	1167.0	855.9	688.3	640.3
60°	1280.6	1041.3	733.0	580.6	532.7
62.5°	1158.1	918.7	628.3	484.8	461.0
65°	1032.4	789.8	520.6	419.1	409.8
67.5°	912.7	670.2	419.1	367.9	359.1
70°	787.0	553.7	347.0	317.1	305.1
72.5°	667.3	445.7	290.2	266.4	260.3
75°	550.5	341.0	239.4	218.4	215.6
77.5°	434.0	242.2	188.6	176.5	170.5
80°	326.0	173.7	143.5	131.7	131.7
82.5°	227.3	116.8	98.7	92.7	92.7
85°	128.6	65.7	56.8	56.8	56.8
87.5°	47.9	23.8	23.8	21.0	21.0
90°	3.1	37.8	102.8	96.5	99.6
92.5°	65.0	88.1	91.2	94.4	94.4
95°	153.1	182.5	187.7	187.7	182.5
97.5°	254.9	282.1	293.7	293.7	293.7
100°	372.3	396.4	404.8	404.8	401.7
102.5°	496.1	513.9	525.5	528.6	525.5
105°	631.4	639.8	646.1	651.3	651.3
107.5°	765.6	778.2	778.2	780.3	765.6
110°	895.7	912.5	912.5	912.5	904.1



TEST NUMBER: P906046

CATALOG NUMBER: DFN2DIP-PN4F0-080D110US835-RLFL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1036.2	1054.0	1050.9	1042.5	1036.2
115°	1174.7	1191.4	1186.2	1183.1	1174.7
117.5°	1312.1	1335.1	1320.4	1312.1	1303.7
120°	1450.5	1473.6	1450.5	1450.5	1441.1
122.5°	1576.4	1605.7	1591.0	1582.6	1576.4
125°	1708.5	1734.7	1726.3	1716.9	1713.7
127.5°	1837.5	1870.0	1858.5	1845.9	1837.5
130°	1958.1	1995.9	1990.6	1984.3	1972.8
132.5°	2093.4	2122.8	2124.9	2110.2	2101.8
135°	2209.8	2242.3	2248.6	2245.5	2237.1
137.5°	2339.9	2366.1	2371.3	2369.2	2356.7
140°	2454.2	2480.4	2495.1	2495.1	2483.6
142.5°	2571.7	2597.9	2606.3	2609.4	2597.9
145°	2682.8	2703.8	2720.6	2723.7	2712.2
147.5°	2782.5	2808.7	2821.3	2826.5	2815.0
150°	2885.3	2903.1	2914.6	2924.1	2914.6
152.5°	2976.5	2994.3	3009.0	3020.6	3009.0
155°	3067.8	3076.1	3085.6	3100.3	3090.8
157.5°	3146.4	3152.7	3157.9	3178.9	3164.2
160°	3216.7	3223.0	3226.1	3244.0	3231.4
162.5°	3281.7	3281.7	3284.9	3304.8	3290.1
165°	3337.3	3334.1	3334.1	3355.1	3340.4
167.5°	3387.6	3378.2	3378.2	3399.2	3384.5
170°	3425.4	3417.0	3413.9	3434.8	3417.0
172.5°	3451.6	3443.2	3440.1	3461.1	3443.2
175°	3472.6	3464.2	3457.9	3478.9	3461.1
177.5°	3484.1	3475.7	3469.4	3487.3	3469.4
180°	3478.9	3478.9	3478.9	3478.9	3478.9



TEST NUMBER: P906046
 CATALOG NUMBER: DFN2DIP-PN4F0-080D110US835-RLLFLL

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	9.33	10.09	10.37	11.13	12.53	5.30	6.06	6.33	7.10	8.49
	3H	11.01	11.69	12.05	12.74	14.15	6.48	7.16	7.53	8.21	9.62
	4H	11.61	12.26	12.67	13.31	14.73	6.93	7.57	7.99	8.62	10.04
	6H	12.03	12.63	13.10	13.68	15.11	7.25	7.84	8.31	8.89	10.33
	8H	12.16	12.73	13.23	13.79	15.22	7.34	7.90	8.41	8.97	10.40
	12H	12.22	12.76	13.30	13.82	15.27	7.38	7.91	8.45	8.98	10.43
4H	2H	9.34	9.99	10.40	11.04	12.46	5.88	6.53	6.95	7.58	9.00
	3H	11.17	11.70	12.24	12.78	14.21	7.23	7.77	8.30	8.84	10.28
	4H	11.86	12.35	12.94	13.42	14.87	7.78	8.27	8.85	9.34	10.79
	6H	12.37	12.80	13.46	13.89	15.34	8.19	8.61	9.28	9.70	11.15
	8H	12.55	12.94	13.63	14.03	15.49	8.32	8.71	9.41	9.80	11.26
	12H	12.64	13.00	13.74	14.09	15.56	8.38	8.74	9.49	9.84	11.31
8H	4H	11.82	12.22	12.91	13.30	14.76	8.05	8.45	9.14	9.53	10.99
	6H	12.39	12.71	13.50	13.84	15.30	8.57	8.89	9.68	10.02	11.48
	8H	12.61	12.89	13.72	14.00	15.48	8.76	9.05	9.88	10.15	11.64
	12H	12.74	13.00	13.86	14.10	15.62	8.88	9.13	10.00	10.23	11.75
12H	4H	11.77	12.13	12.87	13.22	14.69	8.05	8.41	9.16	9.51	10.98
	6H	12.36	12.65	13.48	13.76	15.24	8.62	8.90	9.73	10.01	11.49
	8H	12.58	12.83	13.70	13.94	15.46	8.83	9.08	9.95	10.18	11.70