

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: P906157

Luminaire Tested: DFN2DIP-PN4F0-110D120US835-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P906157
REPORT IS A COMBINATION OF REPORTS P901287 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-110D120US835-FLLONL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

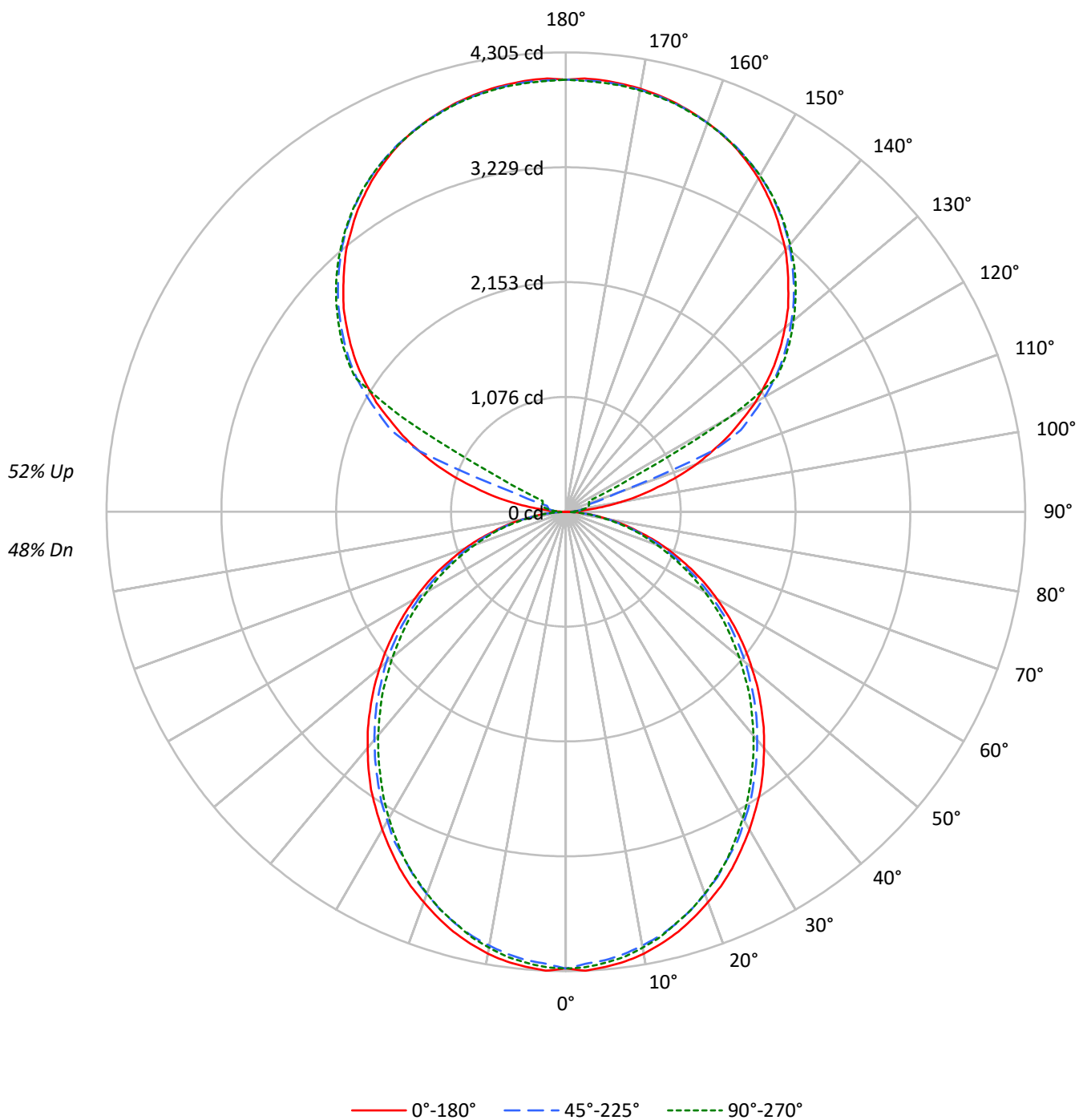
Lumens per Lamp: N/A
Luminaire Lumens: 22770.0 lumens
Efficiency: N/A
Efficacy: 104.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 217.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.996
Total Harmonic Distortion (THDi): 0.064
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P906157

CATALOG NUMBER: DFN2DIP-PN4F0-110D120US835-FLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P906157

CATALOG NUMBER: DFN2DIP-PN4F0-110D120US835-FLLONL

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	107	107	107	107	98	98	98	98	82	82	82	68	68	68	54	54	54
1	97	93	89	86	89	86	82	79	72	70	67	59	58	56	48	47	46
2	89	81	75	70	81	75	70	65	63	59	56	52	49	47	42	40	39
3	81	71	64	58	74	66	60	54	56	51	47	46	43	40	37	35	33
4	74	63	55	49	68	58	51	46	49	44	40	41	37	34	33	31	28
5	68	56	48	42	62	52	45	40	44	39	34	37	33	30	30	27	25
6	62	50	42	37	57	47	40	34	40	34	30	33	29	26	27	24	22
7	58	46	38	32	53	42	35	30	36	31	26	30	26	23	25	22	19
8	54	41	34	28	49	38	32	27	33	27	24	28	23	20	23	20	17
9	50	38	30	25	46	35	28	24	30	25	21	26	21	18	21	18	16
10	47	35	27	23	43	32	26	21	28	23	19	24	19	17	20	16	14

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3124	3124	3124
5°	3129	3081	3102
10°	3104	3040	3061
15°	3058	2991	2996
20°	2997	2921	2929
25°	2935	2839	2852
30°	2858	2762	2754
35°	2786	2671	2650
40°	2696	2579	2551
45°	2606	2487	2450
50°	2509	2391	2333
55°	2406	2279	2225
60°	2290	2146	2102
65°	2164	2010	1957
70°	2004	1842	1801
75°	1781	1642	1658
80°	1513	1388	1382
85°	1094	947	925

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2606 cd/sqm

TEST NUMBER: P906157

CATALOG NUMBER: DFN2DIP-PN4F0-110D120US835-FLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	402.8	1.8
10°-20°	1133.5	5.0
20°-30°	1665.7	7.3
30°-40°	1934.7	8.5
40°-50°	1932.3	8.5
50°-60°	1684.9	7.4
60°-70°	1245.5	5.5
70°-80°	704.7	3.1
80°-90°	193.1	0.8
90°-100°	133.5	0.6
100°-110°	497.8	2.2
110°-120°	1320.3	5.8
120°-130°	2189.8	9.6
130°-140°	2326.1	10.2
140°-150°	2161.8	9.5
150°-160°	1738.1	7.6
160°-170°	1119.9	4.9
170°-180°	385.5	1.7
0°-30°	3202.1	14.1
0°-40°	5136.7	22.6
0°-60°	8753.8	38.4
0°-90°	10897.1	47.9
90°-120°	1951.7	8.6
90°-150°	8629.4	37.9
90°-180°	11873.0	52.1
0°-180°	22770.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4280	4280	4280	4280	4280	
5°	4280	4264	4219	4251	4244	406
15°	4074	4050	3996	4013	3992	1148
25°	3688	3655	3585	3593	3585	1697
35°	3182	3140	3074	3050	3029	1987
45°	2589	2560	2498	2453	2437	1998
55°	1959	1934	1885	1836	1815	1752
65°	1321	1296	1255	1218	1198	1306
75°	691	683	662	638	646	738
85°	169	165	161	148	144	188
90°	3	35	58	73	79	21
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	

TEST NUMBER: P906157

CATALOG NUMBER: DFN2DIP-PN4F0-110D120US835-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4280.2	4280.2	4280.2	4280.2	4280.2
2.5°	4305.0	4284.5	4239.1	4280.2	4272.3
5°	4280.2	4264.0	4218.6	4251.3	4243.5
7.5°	4251.3	4226.9	4181.5	4214.7	4206.4
10°	4206.4	4177.5	4128.2	4160.9	4148.7
12.5°	4144.4	4119.9	4070.6	4091.1	4082.8
15°	4074.5	4050.0	3996.3	4012.9	3992.4
17.5°	3988.0	3963.6	3909.9	3930.4	3909.9
20°	3893.3	3868.8	3811.2	3823.4	3807.3
22.5°	3799.0	3761.8	3708.1	3708.1	3699.8
25°	3687.6	3654.9	3585.0	3592.9	3585.0
27.5°	3564.0	3535.2	3481.9	3469.7	3449.2
30°	3440.9	3407.7	3346.1	3333.9	3317.3
32.5°	3309.0	3284.6	3218.6	3193.7	3177.1
35°	3181.5	3140.5	3074.5	3049.6	3029.1
37.5°	3037.4	3000.3	2934.4	2905.5	2885.0
40°	2889.4	2856.2	2790.3	2753.6	2737.0
42.5°	2745.3	2712.1	2646.6	2605.1	2580.7
45°	2589.0	2560.1	2498.1	2453.2	2436.6
47.5°	2436.6	2407.8	2341.8	2296.4	2271.9
50°	2275.9	2255.4	2197.7	2140.1	2119.6
52.5°	2119.6	2090.7	2037.5	1992.0	1963.2
55°	1959.3	1934.4	1885.1	1835.7	1815.2
57.5°	1798.6	1778.1	1724.4	1675.0	1658.4
60°	1637.9	1621.8	1564.1	1518.7	1506.5
62.5°	1481.6	1452.8	1411.7	1370.7	1354.1
65°	1321.3	1296.4	1255.4	1218.3	1197.8
67.5°	1156.7	1135.8	1099.1	1070.3	1053.7
70°	1004.3	987.7	950.6	921.8	905.6
72.5°	848.0	831.4	810.9	782.1	769.8
75°	691.2	683.4	662.4	638.0	646.3
77.5°	551.5	534.9	526.6	514.4	502.2
80°	411.8	407.4	399.1	386.9	378.6
82.5°	279.9	279.9	276.0	259.4	259.4
85°	168.6	164.6	160.7	148.0	144.1
87.5°	74.2	65.9	57.6	45.4	41.0
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

TEST NUMBER: P906157

CATALOG NUMBER: DFN2DIP-PN4F0-110D120US835-FLLONL

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

TEST NUMBER: P906157

CATALOG NUMBER: DFN2DIP-PN4F0-110D120US835-FLONL

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	11.04	11.88	12.01	12.87	14.17	10.60	11.44	11.57	12.43	13.73
	3H	12.70	13.45	13.68	14.45	15.77	12.21	12.97	13.20	13.97	15.29
	4H	13.29	14.00	14.29	15.00	16.33	12.80	13.51	13.80	14.52	15.85
	6H	13.69	14.35	14.70	15.35	16.70	13.20	13.85	14.21	14.86	16.20
	8H	13.79	14.42	14.81	15.44	16.78	13.30	13.93	14.32	14.95	16.29
	12H	13.84	14.44	14.86	15.45	16.82	13.34	13.94	14.36	14.95	16.32
4H	2H	11.49	12.21	12.50	13.21	14.54	11.14	11.86	12.15	12.86	14.19
	3H	13.36	13.96	14.38	14.99	16.33	12.96	13.56	13.97	14.59	15.93
	4H	14.08	14.62	15.10	15.65	17.01	13.66	14.21	14.68	15.23	16.60
	6H	14.59	15.06	15.63	16.11	17.48	14.17	14.64	15.20	15.69	17.05
	8H	14.75	15.18	15.78	16.22	17.60	14.32	14.76	15.35	15.79	17.17
	12H	14.82	15.22	15.87	16.27	17.65	14.38	14.78	15.43	15.83	17.21
8H	4H	14.27	14.71	15.31	15.75	17.13	13.90	14.34	14.94	15.38	16.76
	6H	14.91	15.27	15.97	16.35	17.73	14.53	14.89	15.59	15.97	17.35
	8H	15.13	15.45	16.20	16.51	17.91	14.75	15.06	15.81	16.13	17.53
	12H	15.26	15.54	16.33	16.60	18.04	14.86	15.14	15.93	16.20	17.64
12H	4H	14.26	14.65	15.31	15.71	17.09	13.90	14.29	14.95	15.35	16.73
	6H	14.94	15.26	16.00	16.32	17.72	14.57	14.89	15.64	15.96	17.35
	8H	15.18	15.46	16.25	16.52	17.96	14.81	15.09	15.88	16.15	17.59