

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: P908913

Luminaire Tested: DFN2DIP-PN4F0-120D100US840-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P908913
REPORT IS A COMBINATION OF REPORTS P901253 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-120D100US840-FLLONL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

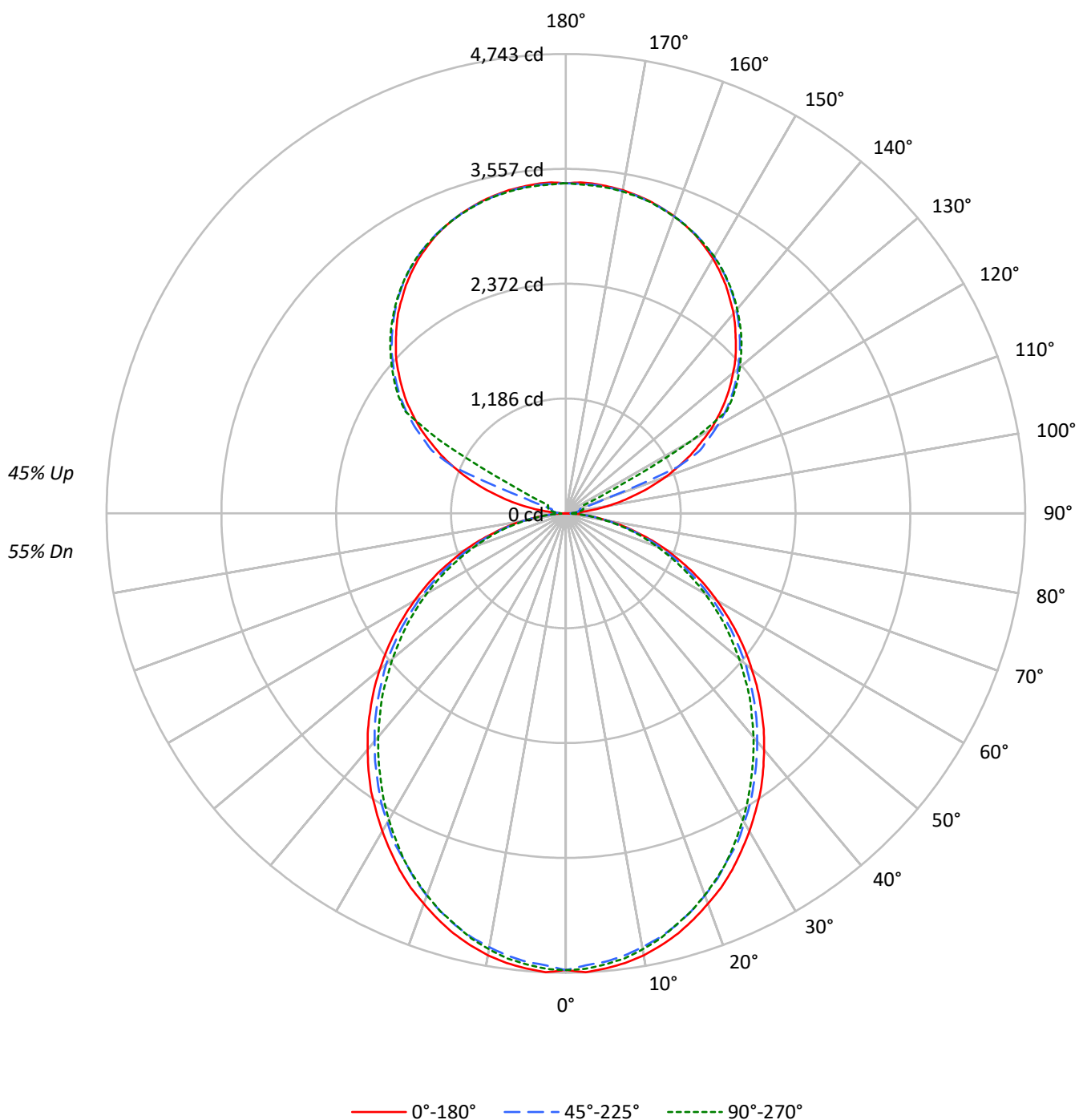
Lumens per Lamp: N/A
Luminaire Lumens: 21994.8 lumens
Efficiency: N/A
Efficacy: 109.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 201.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9781
Total Harmonic Distortion (THDi): 0.075
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	108	108	108	108	100	100	100	100	86	86	86	73	73	73	60	60	60
1	99	94	91	87	92	88	84	81	75	73	71	64	62	60	53	52	51
2	90	82	76	71	83	77	71	67	66	62	58	56	53	51	47	45	43
3	82	73	65	59	76	68	61	56	58	53	49	50	46	43	42	39	37
4	75	64	56	50	69	60	53	47	52	46	42	44	40	37	37	34	32
5	69	57	49	43	64	53	46	41	46	41	36	40	35	32	34	30	27
6	64	51	43	37	59	48	41	35	42	36	32	36	31	28	30	27	24
7	59	46	38	33	54	43	36	31	38	32	28	33	28	25	28	24	22
8	55	42	34	29	51	40	33	28	35	29	25	30	25	22	26	22	19
9	51	39	31	26	47	36	29	25	32	26	22	28	23	20	24	20	17
10	48	35	28	23	44	33	27	22	29	24	20	25	21	18	22	18	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3442	3442	3442
5°	3448	3394	3418
10°	3420	3349	3372
15°	3369	3295	3300
20°	3301	3218	3227
25°	3234	3127	3142
30°	3149	3042	3034
35°	3069	2942	2919
40°	2970	2841	2810
45°	2871	2740	2699
50°	2764	2634	2570
55°	2651	2511	2451
60°	2523	2365	2316
65°	2384	2214	2156
70°	2207	2030	1984
75°	1962	1809	1826
80°	1667	1529	1523
85°	1205	1043	1019

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2871 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	443.8	2.0
10°-20°	1248.7	5.7
20°-30°	1835.1	8.3
30°-40°	2131.4	9.7
40°-50°	2128.7	9.7
50°-60°	1856.2	8.4
60°-70°	1372.1	6.2
70°-80°	776.3	3.5
80°-90°	210.9	1.0
90°-100°	112.4	0.5
100°-110°	418.9	1.9
110°-120°	1111.1	5.1
120°-130°	1842.9	8.4
130°-140°	1957.5	8.9
140°-150°	1819.3	8.3
150°-160°	1462.7	6.7
160°-170°	942.5	4.3
170°-180°	324.4	1.5
0°-30°	3527.6	16.0
0°-40°	5659.0	25.7
0°-60°	9643.8	43.8
0°-90°	12003.2	54.6
90°-120°	1642.4	7.5
90°-150°	7262.1	33.0
90°-180°	9992.0	45.4
0°-180°	21994.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4715	4715	4715	4715	4715	
5°	4715	4698	4648	4684	4675	448
15°	4489	4462	4403	4421	4398	1264
25°	4062	4026	3950	3958	3950	1869
35°	3505	3460	3387	3360	3337	2189
45°	2852	2820	2752	2703	2684	2201
55°	2158	2131	2077	2022	2000	1930
65°	1456	1428	1383	1342	1320	1439
75°	762	753	730	703	712	813
85°	186	181	177	163	159	207
90°	2	30	49	62	66	20
95°	160	79	96	109	106	190
105°	750	824	151	177	187	801
115°	1418	1460	1522	380	202	1396
125°	2005	2037	2084	2101	2108	1788
135°	2481	2520	2542	2567	2562	1916
145°	2878	2876	2917	2935	2922	1800
155°	3169	3147	3176	3191	3172	1460
165°	3339	3324	3332	3349	3332	943
175°	3416	3398	3403	3420	3396	325
180°	3408	3408	3408	3408	3408	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4715.4	4715.4	4715.4	4715.4	4715.4
2.5°	4742.7	4720.1	4670.1	4715.4	4706.7
5°	4715.4	4697.5	4647.5	4683.6	4674.9
7.5°	4683.6	4656.6	4606.6	4643.2	4634.1
10°	4634.1	4602.3	4547.9	4584.0	4570.6
12.5°	4565.7	4538.7	4484.4	4507.0	4497.8
15°	4488.8	4461.8	4402.6	4420.9	4398.3
17.5°	4393.5	4366.6	4307.4	4330.0	4307.4
20°	4289.1	4262.1	4198.7	4212.1	4194.4
22.5°	4185.2	4144.3	4085.1	4085.1	4076.0
25°	4062.5	4026.4	3949.5	3958.2	3949.5
27.5°	3926.4	3894.6	3836.0	3822.4	3799.9
30°	3790.7	3754.2	3686.3	3672.9	3654.6
32.5°	3645.4	3618.6	3545.8	3518.5	3500.2
35°	3504.9	3459.8	3387.1	3359.7	3337.1
37.5°	3346.2	3305.4	3232.7	3201.0	3178.3
40°	3183.2	3146.6	3073.9	3033.5	3015.3
42.5°	3024.4	2987.9	2915.7	2870.0	2843.1
45°	2852.2	2820.5	2752.1	2702.6	2684.3
47.5°	2684.3	2652.5	2579.9	2529.9	2503.0
50°	2507.3	2484.7	2421.2	2357.6	2335.0
52.5°	2335.0	2303.3	2244.6	2194.5	2162.8
55°	2158.5	2131.1	2076.7	2022.4	1999.7
57.5°	1981.5	1958.8	1899.7	1845.3	1827.0
60°	1804.4	1786.7	1723.1	1673.1	1659.6
62.5°	1632.2	1600.4	1555.3	1510.1	1491.8
65°	1455.7	1428.3	1383.0	1342.1	1319.6
67.5°	1274.3	1251.2	1210.8	1179.1	1160.8
70°	1106.4	1088.1	1047.2	1015.5	997.7
72.5°	934.2	915.9	893.3	861.6	848.1
75°	761.5	752.9	729.7	702.9	712.0
77.5°	607.5	589.3	580.2	566.6	553.2
80°	453.6	448.8	439.7	426.3	417.1
82.5°	308.3	308.3	304.1	285.8	285.8
85°	185.7	181.4	177.0	163.1	158.8
87.5°	81.8	72.6	63.5	50.0	45.2
90°	2.3	29.6	49.2	61.8	66.4
92.5°	61.8	51.8	59.2	64.1	66.4
95°	160.2	78.8	96.0	108.7	106.0
97.5°	288.4	86.3	125.6	133.2	135.6
100°	436.7	98.7	140.6	160.2	165.2
102.5°	599.2	594.5	145.5	172.5	180.1
105°	749.7	823.7	150.6	177.4	187.4
107.5°	924.8	986.3	155.5	182.5	192.4
110°	1092.6	1144.2	431.6	185.1	194.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1250.4	1294.6	1252.8	189.8	197.4
115°	1418.0	1459.9	1521.7	379.8	202.4
117.5°	1563.5	1612.8	1654.9	1302.0	656.0
120°	1726.4	1763.2	1807.8	1837.3	1504.4
122.5°	1864.3	1903.8	1953.3	1967.9	1970.6
125°	2004.9	2037.1	2084.0	2101.2	2108.5
127.5°	2133.1	2167.7	2204.8	2229.5	2231.8
130°	2254.0	2293.6	2320.6	2347.7	2345.4
132.5°	2377.3	2409.5	2436.5	2458.7	2456.4
135°	2481.0	2520.5	2542.5	2567.4	2562.4
137.5°	2589.4	2619.0	2643.8	2668.5	2661.1
140°	2695.3	2715.3	2742.2	2764.5	2752.2
142.5°	2784.4	2801.7	2833.6	2853.2	2841.0
145°	2878.1	2875.5	2917.4	2934.7	2922.3
147.5°	2959.2	2951.9	2993.7	3006.1	2996.5
150°	3038.3	3021.0	3060.6	3075.2	3062.9
152.5°	3104.7	3085.1	3122.1	3136.9	3119.7
155°	3169.0	3146.9	3176.5	3191.2	3171.6
157.5°	3220.8	3201.2	3223.4	3240.7	3220.8
160°	3265.3	3250.4	3265.3	3279.9	3262.7
162.5°	3304.5	3289.8	3302.2	3319.4	3297.2
165°	3339.0	3324.4	3331.7	3349.0	3331.7
167.5°	3366.3	3351.3	3359.0	3376.3	3354.0
170°	3388.5	3373.7	3378.6	3395.9	3373.7
172.5°	3403.1	3388.5	3393.6	3410.8	3388.5
175°	3415.5	3398.2	3403.1	3420.5	3395.9
177.5°	3420.5	3403.1	3405.9	3423.1	3400.8
180°	3408.2	3408.2	3408.2	3408.2	3408.2

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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	11.99	12.89	12.90	13.83	15.03	11.55	12.45	12.46	13.39	14.59
	3H	13.65	14.46	14.58	15.41	16.64	13.17	13.98	14.10	14.92	16.15
	4H	14.24	15.01	15.19	15.96	17.20	13.76	14.52	14.70	15.47	16.71
	6H	14.65	15.36	15.60	16.31	17.56	14.16	14.86	15.11	15.82	17.07
	8H	14.76	15.43	15.72	16.40	17.65	14.26	14.94	15.22	15.91	17.16
	12H	14.81	15.45	15.77	16.41	17.69	14.31	14.95	15.27	15.91	17.19
4H	2H	12.45	13.22	13.40	14.17	15.41	12.10	12.87	13.05	13.82	15.06
	3H	14.33	14.97	15.28	15.95	17.20	13.92	14.56	14.88	15.54	16.79
	4H	15.04	15.63	16.01	16.60	17.88	14.63	15.21	15.59	16.18	17.46
	6H	15.56	16.07	16.55	17.07	18.34	15.14	15.64	16.12	16.64	17.92
	8H	15.72	16.19	16.70	17.18	18.47	15.29	15.76	16.27	16.75	18.04
	12H	15.79	16.22	16.79	17.23	18.52	15.35	15.78	16.35	16.79	18.08
8H	4H	15.24	15.72	16.23	16.71	18.00	14.87	15.34	15.86	16.34	17.62
	6H	15.88	16.27	16.89	17.30	18.59	15.50	15.89	16.51	16.93	18.21
	8H	16.10	16.45	17.12	17.47	18.77	15.72	16.06	16.74	17.08	18.39
	12H	16.24	16.54	17.26	17.56	18.91	15.84	16.14	16.86	17.15	18.51
12H	4H	15.23	15.66	16.23	16.66	17.96	14.87	15.29	15.87	16.30	17.60
	6H	15.91	16.26	16.93	17.28	18.58	15.55	15.89	16.56	16.91	18.22
	8H	16.16	16.46	17.18	17.47	18.82	15.79	16.09	16.81	17.10	18.45

END OF REPORT