

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: P908915

Luminaire Tested: DFN2DIP-PN4F0-120D100US840-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P908915
REPORT IS A COMBINATION OF REPORTS P901254 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-120D100US840-RLONL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

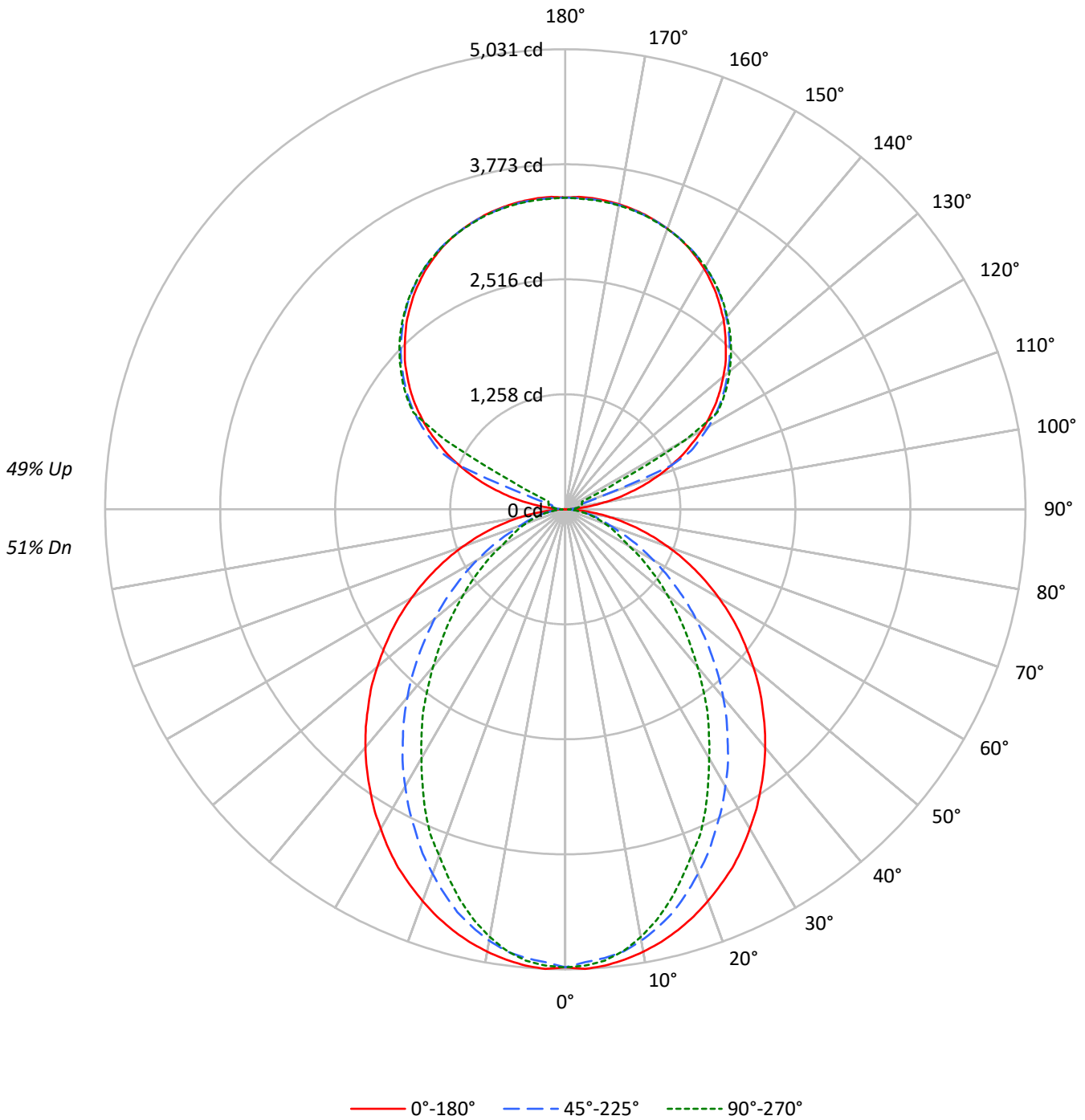
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 20298.3 lumens
Efficiency: N/A
Efficacy: 100.9 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): 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

TEST NUMBER: P908915
CATALOG NUMBER: DFN2DIP-PN4F0-120D100US840-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			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	107	107	107	107	99	99	99	99	84	84	84	70	70	70	57	57	57	57	57	57	51
1	98	94	91	87	91	87	84	81	74	72	70	62	61	59	51	50	49	51	50	49	44
2	90	83	77	72	83	77	72	67	66	62	59	55	52	50	45	44	42	45	44	42	37
3	82	73	66	61	76	68	62	57	58	54	50	49	46	43	41	38	36	41	38	36	32
4	76	65	58	52	70	61	54	49	52	47	43	44	40	37	37	34	32	37	34	32	28
5	70	58	50	45	64	54	47	42	47	41	37	40	36	33	33	30	28	33	30	28	25
6	64	53	45	39	59	49	42	37	42	37	33	36	32	29	30	27	25	30	27	25	22
7	60	48	40	34	55	45	38	33	39	33	29	33	29	26	28	25	22	28	25	22	20
8	55	43	36	31	51	41	34	29	35	30	26	30	26	23	26	23	20	26	23	20	18
9	52	40	32	27	48	37	31	26	32	27	23	28	24	21	24	21	18	24	21	18	16
10	48	36	29	25	45	34	28	24	30	25	21	26	22	19	22	19	17	22	19	17	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3656	3656	3656
5°	3662	3598	3622
10°	3626	3528	3505
15°	3576	3412	3323
20°	3510	3252	3100
25°	3442	3072	2884
30°	3351	2888	2611
35°	3262	2689	2371
40°	3172	2484	2095
45°	3067	2257	1846
50°	2958	2027	1602
55°	2844	1781	1367
60°	2713	1524	1126
65°	2562	1263	1014
70°	2378	1019	919
75°	2148	899	837
80°	1815	756	728
85°	1264	507	552

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 3067 cd/sqm



TEST NUMBER: P908915

CATALOG NUMBER: DFN2DIP-PN4F0-120D100US840-RLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	469.4	2.3
10°-20°	1288.6	6.3
20°-30°	1809.2	8.9
30°-40°	1972.1	9.7
40°-50°	1812.6	8.9
50°-60°	1423.5	7.0
60°-70°	926.6	4.6
70°-80°	476.9	2.3
80°-90°	127.7	0.6
90°-100°	112.4	0.6
100°-110°	418.9	2.1
110°-120°	1111.1	5.5
120°-130°	1842.9	9.1
130°-140°	1957.5	9.6
140°-150°	1819.3	9.0
150°-160°	1462.7	7.2
160°-170°	942.5	4.6
170°-180°	324.4	1.6
0°-30°	3567.2	17.6
0°-40°	5539.3	27.3
0°-60°	8775.3	43.2
0°-90°	10306.6	50.8
90°-120°	1642.4	8.1
90°-150°	7262.1	35.8
90°-180°	9992.0	49.2
0°-180°	20298.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	5008	5008	5008	5008	5008	
5°	5008	4986	4927	4968	4954	475
15°	4764	4714	4560	4474	4429	1342
25°	4324	4179	3880	3694	3626	1989
35°	3726	3495	3096	2810	2710	2332
45°	3046	2742	2266	1944	1836	2352
55°	2316	1963	1473	1201	1115	2070
65°	1564	1196	789	635	621	1550
75°	834	516	363	331	326	882
85°	195	100	86	86	86	224
90°	2	30	49	62	66	19
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	



TEST NUMBER: P908915

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	5008.5	5008.5	5008.5	5008.5	5008.5
2.5°	5031.2	5008.5	4958.5	5004.2	4995.0
5°	5008.5	4985.9	4926.7	4967.6	4954.2
7.5°	4967.6	4940.7	4877.2	4895.0	4872.4
10°	4913.3	4881.6	4791.1	4777.2	4750.3
12.5°	4845.4	4804.6	4681.9	4655.1	4605.1
15°	4763.7	4713.7	4559.8	4473.7	4428.6
17.5°	4668.5	4595.9	4405.4	4306.0	4233.4
20°	4559.8	4469.0	4242.4	4129.4	4029.4
22.5°	4442.0	4337.7	4074.6	3920.7	3852.9
25°	4324.2	4178.9	3879.8	3694.2	3625.9
27.5°	4183.8	4029.4	3698.5	3485.6	3381.1
30°	4034.2	3861.6	3499.0	3268.1	3145.5
32.5°	3889.0	3680.3	3309.0	3036.9	2923.4
35°	3726.0	3494.6	3095.9	2810.4	2710.3
37.5°	3567.2	3317.7	2896.4	2583.3	2470.3
40°	3399.4	3127.8	2687.8	2366.0	2248.2
42.5°	3227.2	2937.3	2479.5	2143.8	2030.8
45°	3046.0	2742.1	2266.4	1944.3	1835.5
47.5°	2873.8	2552.1	2062.5	1740.4	1640.8
50°	2683.4	2361.7	1863.0	1549.9	1455.2
52.5°	2497.3	2157.3	1672.5	1373.4	1287.4
55°	2316.0	1962.6	1473.0	1201.2	1115.2
57.5°	2130.3	1767.8	1296.5	1042.6	970.0
60°	1940.0	1577.3	1110.3	879.6	807.0
62.5°	1754.3	1391.7	951.7	734.4	698.2
65°	1563.9	1196.5	788.7	634.8	620.9
67.5°	1382.6	1015.1	634.8	557.3	543.9
70°	1192.1	838.7	525.6	480.4	462.1
72.5°	1010.9	675.2	439.5	403.4	394.4
75°	833.8	516.4	362.6	330.8	326.5
77.5°	657.4	366.9	285.7	267.4	258.2
80°	493.9	263.1	217.3	199.5	199.5
82.5°	344.4	176.9	149.6	140.4	140.4
85°	194.8	99.6	86.0	86.0	86.0
87.5°	72.6	36.1	36.1	31.7	31.7
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



TEST NUMBER: P908915

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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	11.73	12.57	12.69	13.54	14.80	7.70	8.53	8.65	9.50	10.76
	3H	13.41	14.16	14.38	15.14	16.42	8.89	9.63	9.85	10.61	11.90
	4H	14.02	14.73	15.00	15.71	17.00	9.34	10.04	10.32	11.02	12.32
	6H	14.45	15.10	15.44	16.08	17.39	9.66	10.31	10.65	11.30	12.60
	8H	14.57	15.19	15.57	16.20	17.50	9.75	10.37	10.75	11.37	12.67
	12H	14.64	15.23	15.64	16.22	17.55	9.79	10.38	10.80	11.38	12.71
4H	2H	11.75	12.46	12.74	13.44	14.73	8.29	9.00	9.28	9.98	11.28
	3H	13.58	14.17	14.58	15.18	16.49	9.65	10.23	10.64	11.24	12.55
	4H	14.28	14.81	15.28	15.82	17.15	10.19	10.73	11.20	11.73	13.07
	6H	14.80	15.26	15.81	16.28	17.61	10.61	11.08	11.63	12.10	13.43
	8H	14.97	15.40	15.99	16.42	17.77	10.74	11.17	11.76	12.19	13.54
	12H	15.07	15.46	16.11	16.49	17.84	10.81	11.20	11.85	12.23	13.58
8H	4H	14.25	14.68	15.26	15.70	17.04	10.48	10.91	11.49	11.93	13.27
	6H	14.82	15.17	15.86	16.23	17.57	11.00	11.35	12.04	12.41	13.75
	8H	15.03	15.35	16.08	16.39	17.75	11.19	11.50	12.24	12.55	13.91
	12H	15.18	15.45	16.23	16.49	17.90	11.31	11.58	12.36	12.62	14.03
12H	4H	14.20	14.59	15.23	15.62	16.97	10.48	10.87	11.52	11.91	13.25
	6H	14.79	15.10	15.84	16.15	17.51	11.05	11.36	12.10	12.41	13.77
	8H	15.01	15.29	16.07	16.33	17.73	11.26	11.53	12.31	12.57	13.98