

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: P911431

Luminaire Tested: DFN2DIP-PN4F0-060D110US850-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P911431
REPORT IS A COMBINATION OF REPORTS P901260 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-060D110US850-RLLONL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

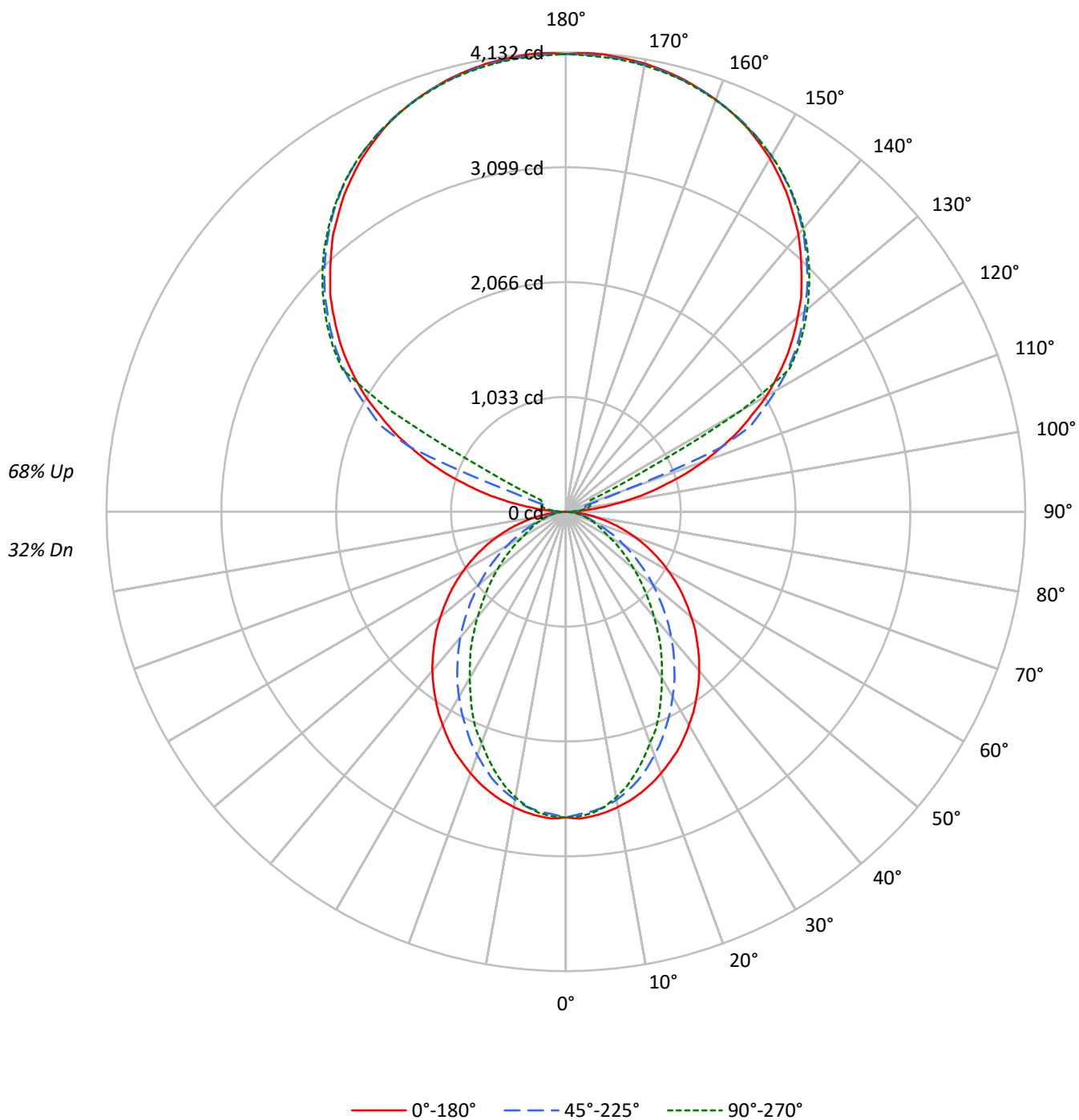
Lumens per Lamp: N/A
Luminaire Lumens: 17732.9 lumens
Efficiency: N/A
Efficacy: 121.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 146.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9933
Total Harmonic Distortion (THDi): 0.066
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	103	103	103	103	93	93	93	93	73	73	73	56	56	56	40	40	40
1	94	90	86	83	85	81	78	75	65	63	61	49	48	47	35	35	34
2	86	79	73	68	77	71	66	62	57	54	51	44	42	40	31	30	29
3	78	70	63	57	70	63	57	52	50	46	43	39	36	34	28	26	25
4	72	62	54	48	64	56	49	44	45	40	37	35	32	29	25	23	22
5	66	55	47	42	59	50	43	38	40	35	32	31	28	25	23	21	19
6	61	49	42	36	55	45	38	33	36	31	28	28	25	22	21	19	17
7	56	44	37	32	51	41	34	29	33	28	24	26	22	20	19	17	15
8	52	40	33	28	47	37	30	26	30	25	22	24	20	18	18	15	14
9	48	37	30	25	44	34	27	23	27	23	19	22	18	16	16	14	12
10	45	34	27	22	41	31	25	21	25	21	17	20	17	14	15	13	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2007	2007	2007
5°	2011	1976	1989
10°	1991	1937	1924
15°	1963	1874	1825
20°	1927	1786	1702
25°	1890	1687	1584
30°	1840	1586	1434
35°	1791	1477	1302
40°	1742	1364	1150
45°	1684	1239	1013
50°	1624	1113	879
55°	1562	978	751
60°	1490	837	618
65°	1407	693	557
70°	1306	559	504
75°	1180	494	460
80°	997	415	400
85°	694	278	303

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2195 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	257.7	1.5
10°-20°	707.6	4.0
20°-30°	993.4	5.6
30°-40°	1082.8	6.1
40°-50°	995.2	5.6
50°-60°	781.6	4.4
60°-70°	508.8	2.9
70°-80°	261.9	1.5
80°-90°	74.1	0.4
90°-100°	135.7	0.8
100°-110°	506.1	2.9
110°-120°	1342.2	7.6
120°-130°	2226.1	12.6
130°-140°	2364.7	13.3
140°-150°	2197.7	12.4
150°-160°	1766.9	10.0
160°-170°	1138.5	6.4
170°-180°	391.9	2.2
0°-30°	1958.7	11.0
0°-40°	3041.5	17.2
0°-60°	4818.4	27.2
0°-90°	5663.2	31.9
90°-120°	1984.0	11.2
90°-150°	8772.5	49.5
90°-180°	12070.0	68.1
0°-180°	17732.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2750	2750	2750	2750	2750	
5°	2750	2738	2705	2728	2720	261
15°	2616	2588	2504	2456	2432	737
25°	2374	2295	2130	2028	1991	1092
35°	2046	1919	1700	1543	1488	1281
45°	1672	1506	1244	1068	1008	1292
55°	1272	1078	809	660	612	1136
65°	859	657	433	349	341	851
75°	458	284	199	182	179	484
85°	107	55	47	47	47	123
90°	3	36	59	75	80	16
95°	194	95	116	131	128	229
105°	906	995	182	214	226	968
115°	1713	1763	1838	459	244	1686
125°	2422	2461	2517	2538	2547	2160
135°	2997	3045	3071	3101	3095	2315
145°	3477	3474	3524	3545	3530	2174
155°	3828	3801	3837	3855	3831	1764
165°	4034	4016	4025	4046	4025	1140
175°	4126	4105	4111	4132	4102	393
180°	4117	4117	4117	4117	4117	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2750.1	2750.1	2750.1	2750.1	2750.1
2.5°	2762.5	2750.1	2722.6	2747.7	2742.7
5°	2750.1	2737.7	2705.2	2727.7	2720.3
7.5°	2727.7	2712.8	2678.0	2687.8	2675.4
10°	2697.8	2680.3	2630.8	2623.1	2608.3
12.5°	2660.6	2638.1	2570.8	2556.0	2528.5
15°	2615.7	2588.2	2503.7	2456.4	2431.6
17.5°	2563.5	2523.5	2419.0	2364.3	2324.5
20°	2503.7	2453.8	2329.5	2267.4	2212.5
22.5°	2439.0	2381.7	2237.3	2152.8	2115.5
25°	2374.4	2294.6	2130.4	2028.5	1991.0
27.5°	2297.3	2212.5	2030.8	1913.8	1856.6
30°	2215.1	2120.3	1921.2	1794.5	1727.2
32.5°	2135.4	2020.8	1817.0	1667.5	1605.2
35°	2045.9	1918.9	1700.0	1543.1	1488.2
37.5°	1958.7	1821.6	1590.4	1418.5	1356.4
40°	1866.6	1717.4	1475.7	1299.1	1234.4
42.5°	1772.1	1612.8	1361.4	1177.1	1115.1
45°	1672.5	1505.6	1244.5	1067.5	1007.9
47.5°	1578.0	1401.3	1132.5	955.6	901.0
50°	1473.4	1296.8	1022.9	851.0	799.0
52.5°	1371.2	1184.5	918.4	754.1	706.9
55°	1271.7	1077.6	808.8	659.6	612.3
57.5°	1169.8	970.6	711.9	572.5	532.5
60°	1065.2	866.1	609.7	483.0	443.0
62.5°	963.3	764.2	522.6	403.2	383.4
65°	858.7	657.0	433.1	348.6	340.9
67.5°	759.1	557.4	348.6	306.1	298.7
70°	654.5	460.5	288.6	263.8	253.7
72.5°	555.1	370.7	241.3	221.6	216.5
75°	457.9	283.6	199.1	181.7	179.3
77.5°	361.0	201.5	156.8	146.8	141.8
80°	271.2	144.4	119.3	109.6	109.6
82.5°	189.1	97.1	82.1	77.1	77.1
85°	106.9	54.7	47.2	47.2	47.2
87.5°	39.9	19.9	19.9	17.4	17.4
90°	2.9	35.7	59.4	74.6	80.3
92.5°	74.6	62.7	71.4	77.5	80.3
95°	193.5	95.2	116.0	131.2	128.1
97.5°	348.4	104.4	151.7	160.9	163.8
100°	527.4	119.2	169.8	193.5	199.5
102.5°	723.7	718.1	175.8	208.4	217.6
105°	905.6	995.1	181.9	214.4	226.5
107.5°	1117.2	1191.4	187.9	220.4	232.4
110°	1319.8	1382.1	521.5	223.6	235.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1510.6	1563.9	1513.3	229.2	238.4
115°	1712.9	1763.4	1838.2	458.8	244.4
117.5°	1888.7	1948.2	1999.1	1572.8	792.4
120°	2085.4	2129.9	2183.7	2219.4	1817.2
122.5°	2252.0	2299.7	2359.5	2377.3	2380.5
125°	2421.8	2460.8	2517.3	2538.2	2547.0
127.5°	2576.8	2618.5	2663.4	2693.1	2696.0
130°	2722.8	2770.6	2803.1	2836.0	2833.3
132.5°	2871.8	2910.7	2943.3	2970.1	2967.4
135°	2997.1	3044.8	3071.3	3101.4	3095.3
137.5°	3127.9	3163.6	3193.7	3223.4	3214.5
140°	3256.0	3280.0	3312.6	3339.4	3324.6
142.5°	3363.5	3384.3	3422.9	3446.7	3431.8
145°	3476.7	3473.5	3524.1	3545.0	3530.2
147.5°	3574.8	3565.9	3616.4	3631.3	3619.7
150°	3670.2	3649.4	3697.1	3714.8	3700.0
152.5°	3750.5	3726.8	3771.4	3789.5	3768.6
155°	3828.0	3801.4	3837.1	3854.9	3831.2
157.5°	3890.6	3866.9	3893.8	3914.7	3890.6
160°	3944.4	3926.3	3944.4	3962.0	3941.2
162.5°	3991.7	3974.1	3989.0	4009.8	3983.0
165°	4033.5	4015.8	4024.7	4045.5	4024.7
167.5°	4066.4	4048.4	4057.6	4078.5	4051.6
170°	4093.3	4075.2	4081.2	4102.2	4075.2
172.5°	4111.0	4093.3	4099.3	4120.2	4093.3
175°	4125.8	4105.0	4111.0	4131.9	4102.2
177.5°	4131.9	4111.0	4114.2	4135.0	4108.2
180°	4117.1	4117.1	4117.1	4117.1	4117.1

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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	7.60	8.30	8.71	9.40	10.91	3.57	4.27	4.67	5.37	6.88
	3H	9.27	9.90	10.38	11.00	12.53	4.75	5.37	5.86	6.48	8.01
	4H	9.88	10.47	11.00	11.58	13.11	5.19	5.79	6.31	6.89	8.43
	6H	10.29	10.84	11.43	11.95	13.49	5.51	6.05	6.64	7.16	8.71
	8H	10.42	10.94	11.55	12.06	13.60	5.59	6.12	6.73	7.24	8.78
	12H	10.48	10.97	11.62	12.09	13.65	5.63	6.13	6.77	7.25	8.81
4H	2H	7.60	8.20	8.73	9.31	10.84	4.15	4.74	5.28	5.85	7.38
	3H	9.43	9.92	10.56	11.05	12.60	5.49	5.98	6.62	7.12	8.66
	4H	10.11	10.57	11.25	11.69	13.26	6.03	6.49	7.17	7.61	9.17
	6H	10.63	11.01	11.77	12.16	13.72	6.45	6.83	7.59	7.98	9.53
	8H	10.80	11.16	11.94	12.30	13.87	6.57	6.94	7.72	8.07	9.64
	12H	10.89	11.22	12.05	12.37	13.94	6.63	6.96	7.79	8.11	9.69
8H	4H	10.07	10.44	11.22	11.57	13.14	6.30	6.67	7.45	7.80	9.38
	6H	10.64	10.94	11.80	12.12	13.68	6.82	7.12	7.98	8.30	9.87
	8H	10.86	11.12	12.03	12.27	13.86	7.01	7.27	8.18	8.43	10.02
	12H	10.99	11.22	12.16	12.37	14.00	7.12	7.35	8.30	8.51	10.13
12H	4H	10.02	10.35	11.18	11.50	13.07	6.30	6.63	7.46	7.78	9.36
	6H	10.61	10.87	11.78	12.03	13.62	6.87	7.13	8.04	8.29	9.88
	8H	10.83	11.06	12.00	12.21	13.84	7.07	7.30	8.25	8.46	10.08

END OF REPORT