

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: P911538

Luminaire Tested: DFN2DIP-PN4F0-090D110US850-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P911538
REPORT IS A COMBINATION OF REPORTS P899746 AND P896497
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-090D110US850-RLLFLL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

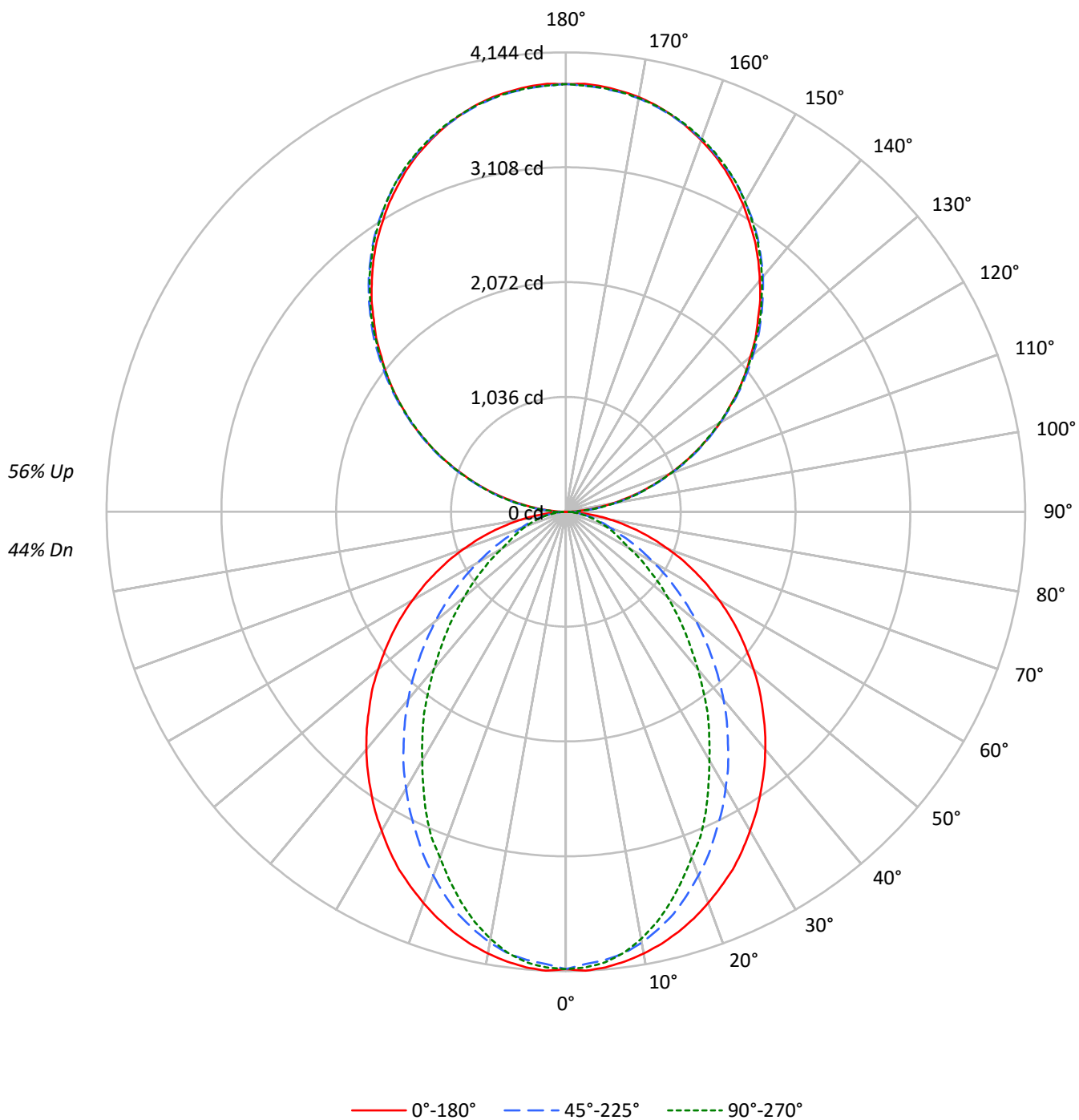
Lumens per Lamp: N/A
Luminaire Lumens: 19280.0 lumens
Efficiency: N/A
Efficacy: 107.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 180
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9963
Total Harmonic Distortion (THDi): 0.065
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	106	106	106	106	97	97	97	97	80	80	80	65	65	65	51	51	51
1	97	93	89	86	89	85	82	79	71	69	67	58	56	55	45	44	44
2	89	81	76	71	81	75	70	66	62	59	56	51	49	46	40	39	37
3	81	72	65	59	74	66	60	55	55	51	47	45	42	40	36	34	32
4	74	64	56	51	68	59	52	47	50	45	41	41	37	34	33	30	28
5	68	57	49	44	62	53	46	41	45	39	35	37	33	30	30	27	25
6	63	51	44	38	58	48	41	36	40	35	31	33	29	26	27	24	22
7	58	46	39	33	53	43	36	31	37	31	27	30	27	24	25	22	20
8	54	42	35	30	50	39	33	28	33	28	24	28	24	21	23	20	18
9	51	39	31	26	46	36	29	25	31	26	22	26	22	19	21	18	16
10	47	35	28	24	43	33	27	22	28	23	20	24	20	17	20	17	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3011	3011	3011
5°	3016	2964	2983
10°	2986	2906	2886
15°	2945	2810	2737
20°	2891	2678	2553
25°	2835	2530	2376
30°	2760	2378	2151
35°	2687	2215	1953
40°	2612	2046	1726
45°	2526	1859	1520
50°	2436	1669	1319
55°	2343	1467	1126
60°	2234	1255	927
65°	2110	1040	835
70°	1959	839	757
75°	1769	741	690
80°	1495	622	600
85°	1041	418	455

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 3021 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	386.6	2.0
10°-20°	1061.3	5.5
20°-30°	1490.1	7.7
30°-40°	1624.3	8.4
40°-50°	1492.9	7.7
50°-60°	1172.4	6.1
60°-70°	763.1	4.0
70°-80°	392.8	2.0
80°-90°	111.3	0.6
90°-100°	238.7	1.2
100°-110°	758.6	3.9
110°-120°	1298.1	6.7
120°-130°	1707.2	8.9
130°-140°	1916.3	9.9
140°-150°	1879.1	9.7
150°-160°	1576.3	8.2
160°-170°	1045.4	5.4
170°-180°	365.4	1.9
0°-30°	2938.0	15.2
0°-40°	4562.3	23.7
0°-60°	7227.6	37.5
0°-90°	8494.8	44.1
90°-120°	2295.4	11.9
90°-150°	7798.0	40.4
90°-180°	10785.0	55.9
0°-180°	19280.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4125	4125	4125	4125	4125	
5°	4125	4106	4058	4091	4080	391
15°	3924	3882	3756	3685	3648	1106
25°	3562	3442	3196	3043	2986	1638
35°	3069	2878	2550	2315	2232	1921
45°	2509	2258	1867	1601	1512	1937
55°	1908	1616	1213	989	918	1705
65°	1288	986	650	523	511	1277
75°	687	425	299	272	269	726
85°	160	82	71	71	71	184
90°	3	42	114	107	110	19
95°	170	202	208	208	202	189
105°	700	710	716	722	722	739
115°	1303	1321	1316	1312	1303	1288
125°	1895	1924	1914	1904	1900	1693
135°	2451	2487	2494	2490	2481	1894
145°	2975	2998	3017	3021	3008	1859
155°	3402	3411	3422	3438	3428	1566
165°	3701	3698	3698	3721	3704	1044
175°	3851	3842	3835	3858	3838	366
180°	3858	3858	3858	3858	3858	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4125.1	4125.1	4125.1	4125.1	4125.1
2.5°	4143.8	4125.1	4083.9	4121.6	4114.1
5°	4125.1	4106.5	4057.8	4091.4	4080.3
7.5°	4091.4	4069.3	4017.0	4031.7	4013.0
10°	4046.7	4020.6	3946.2	3934.6	3912.4
12.5°	3990.8	3957.2	3856.2	3834.0	3792.8
15°	3923.5	3882.4	3755.6	3684.7	3647.5
17.5°	3845.1	3785.3	3628.4	3546.5	3486.7
20°	3755.6	3680.8	3494.1	3401.1	3318.7
22.5°	3658.6	3572.6	3355.9	3229.2	3173.4
25°	3561.6	3441.9	3195.6	3042.7	2986.4
27.5°	3445.9	3318.7	3046.2	2870.8	2784.8
30°	3322.7	3180.5	2881.8	2691.8	2590.7
32.5°	3203.0	3031.1	2725.4	2501.2	2407.7
35°	3068.8	2878.3	2549.9	2314.7	2232.3
37.5°	2938.1	2732.6	2385.6	2127.7	2034.7
40°	2799.9	2576.1	2213.7	1948.7	1851.7
42.5°	2658.1	2419.3	2042.1	1765.7	1672.6
45°	2508.8	2258.5	1866.7	1601.3	1511.8
47.5°	2366.9	2102.0	1698.8	1433.4	1351.4
50°	2210.1	1945.1	1534.4	1276.6	1198.5
52.5°	2056.9	1776.8	1377.6	1131.2	1060.3
55°	1907.5	1616.4	1213.1	989.4	918.5
57.5°	1754.7	1456.0	1067.9	858.7	798.9
60°	1597.7	1299.1	914.6	724.4	664.6
62.5°	1444.9	1146.3	783.8	604.8	575.1
65°	1288.0	985.5	649.5	522.8	511.4
67.5°	1138.7	836.1	522.8	459.0	447.9
70°	981.9	690.8	433.0	395.7	380.6
72.5°	832.5	556.1	362.0	332.3	324.8
75°	686.8	425.4	298.7	272.5	268.9
77.5°	541.4	302.2	235.2	220.2	212.7
80°	406.8	216.7	179.0	164.4	164.4
82.5°	283.6	145.7	123.2	115.7	115.7
85°	160.4	82.0	70.9	70.9	70.9
87.5°	59.8	29.7	29.7	26.2	26.2
90°	3.4	41.9	114.0	107.0	110.5
92.5°	72.1	97.7	101.1	104.7	104.7
95°	169.8	202.4	208.2	208.2	202.4
97.5°	282.7	312.8	325.7	325.7	325.7
100°	412.9	439.6	448.9	448.9	445.5
102.5°	550.2	569.9	582.8	586.2	582.8
105°	700.2	709.5	716.5	722.3	722.3
107.5°	849.1	863.0	863.0	865.4	849.1
110°	993.3	1012.0	1012.0	1012.0	1002.6

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1149.1	1168.9	1165.4	1156.1	1149.1
115°	1302.7	1321.3	1315.5	1312.1	1302.7
117.5°	1455.1	1480.6	1464.3	1455.1	1445.8
120°	1608.6	1634.2	1608.6	1608.6	1598.2
122.5°	1748.2	1780.7	1764.4	1755.1	1748.2
125°	1894.7	1923.8	1914.5	1904.0	1900.5
127.5°	2037.8	2073.8	2061.1	2047.1	2037.8
130°	2171.5	2213.5	2207.6	2200.6	2187.8
132.5°	2321.6	2354.2	2356.5	2340.2	2330.9
135°	2450.7	2486.7	2493.7	2490.3	2480.9
137.5°	2594.9	2624.0	2629.8	2627.4	2613.6
140°	2721.7	2750.8	2767.1	2767.1	2754.3
142.5°	2852.0	2881.1	2890.4	2893.8	2881.1
145°	2975.2	2998.5	3017.1	3020.6	3007.8
147.5°	3085.8	3114.8	3128.8	3134.6	3121.8
150°	3199.8	3219.5	3232.3	3242.8	3232.3
152.5°	3300.9	3320.7	3337.0	3349.8	3337.0
155°	3402.2	3411.4	3421.9	3438.2	3427.7
157.5°	3489.4	3496.3	3502.1	3525.4	3509.1
160°	3567.3	3574.3	3577.7	3597.6	3583.6
162.5°	3639.4	3639.4	3643.0	3665.0	3648.7
165°	3701.1	3697.5	3697.5	3720.8	3704.5
167.5°	3756.8	3746.4	3746.4	3769.7	3753.4
170°	3798.8	3789.5	3786.0	3809.2	3789.5
172.5°	3827.8	3818.5	3815.1	3838.4	3818.5
175°	3851.1	3841.8	3834.8	3858.1	3838.4
177.5°	3863.9	3854.6	3847.6	3867.4	3847.6
180°	3858.1	3858.1	3858.1	3858.1	3858.1

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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	10.40	11.19	11.41	12.20	13.56	6.37	7.15	7.38	8.17	9.52
	3H	12.08	12.78	13.10	13.81	15.18	7.55	8.25	8.57	9.28	10.66
	4H	12.69	13.35	13.72	14.38	15.76	8.00	8.66	9.04	9.69	11.08
	6H	13.11	13.72	14.15	14.75	16.15	8.32	8.93	9.37	9.96	11.36
	8H	13.23	13.81	14.28	14.86	16.26	8.41	8.99	9.46	10.04	11.43
	12H	13.30	13.85	14.35	14.89	16.31	8.45	9.00	9.51	10.05	11.46
4H	2H	10.41	11.08	11.46	12.11	13.49	6.96	7.62	8.00	8.65	10.03
	3H	12.24	12.79	13.29	13.85	15.25	8.30	8.86	9.35	9.91	11.31
	4H	12.93	13.44	13.99	14.49	15.91	8.85	9.36	9.91	10.41	11.82
	6H	13.45	13.88	14.52	14.96	16.37	9.27	9.70	10.33	10.77	12.19
	8H	13.63	14.03	14.69	15.10	16.52	9.40	9.80	10.46	10.87	12.30
	12H	13.72	14.09	14.80	15.16	16.60	9.46	9.83	10.54	10.91	12.34
8H	4H	12.90	13.30	13.96	14.37	15.80	9.13	9.53	10.20	10.60	12.03
	6H	13.47	13.80	14.55	14.91	16.33	9.65	9.98	10.74	11.09	12.51
	8H	13.68	13.98	14.78	15.07	16.51	9.84	10.13	10.94	11.22	12.67
	12H	13.82	14.08	14.92	15.17	16.65	9.96	10.21	11.06	11.30	12.79
12H	4H	12.85	13.21	13.93	14.29	15.73	9.13	9.50	10.22	10.58	12.01
	6H	13.44	13.73	14.54	14.82	16.27	9.70	9.99	10.79	11.08	12.53
	8H	13.66	13.92	14.76	15.01	16.49	9.91	10.16	11.01	11.25	12.74

END OF REPORT