

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: P903311

Luminaire Tested: DFN2DIP-PN4F0-080D090US830-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P903311
REPORT IS A COMBINATION OF REPORTS P901228 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-080D090US830-RLLONL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

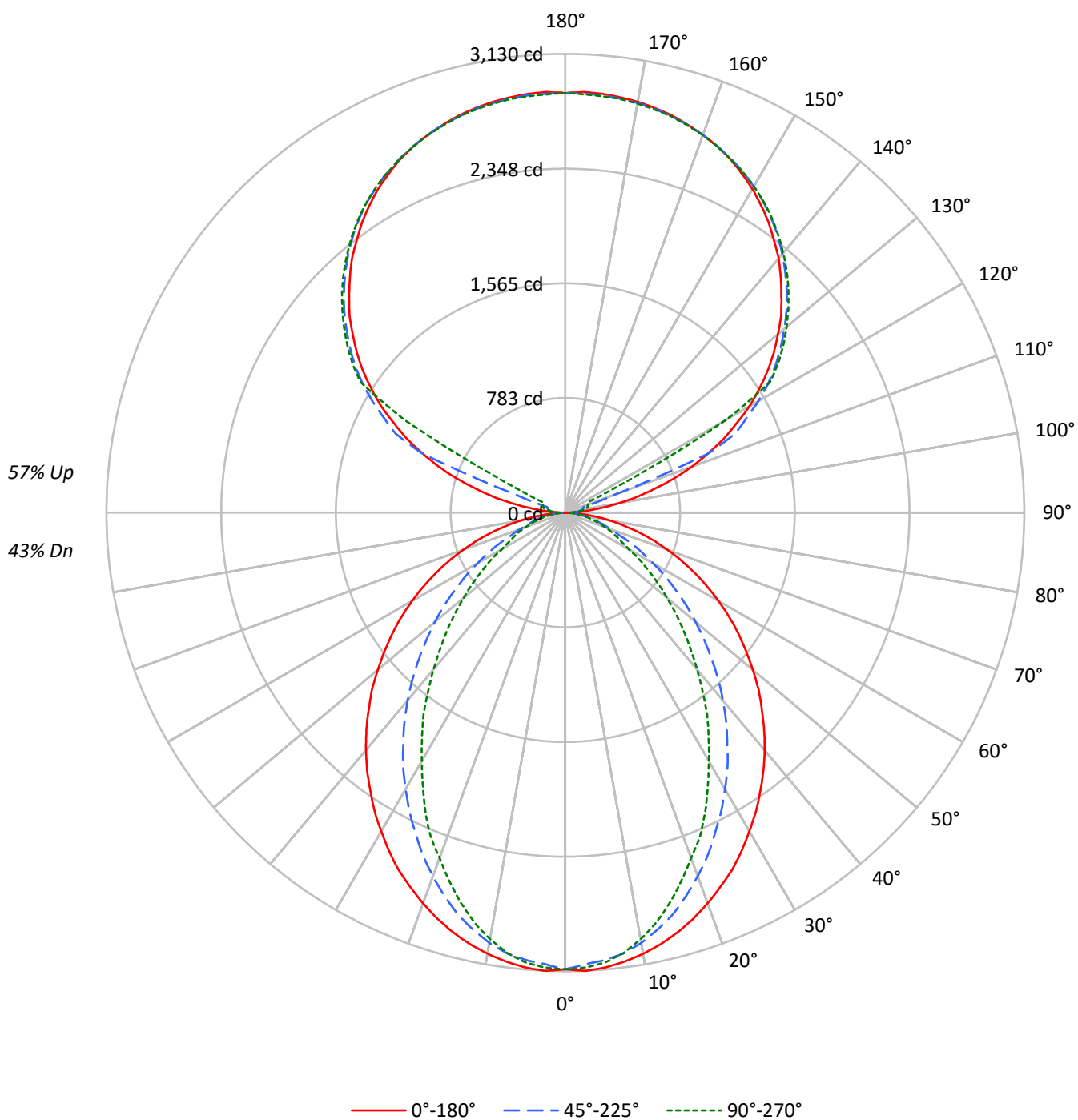
Lumens per Lamp: N/A
Luminaire Lumens: 14807.4 lumens
Efficiency: N/A
Efficacy: 103.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 143.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9971
Total Harmonic Distortion (THDi): 0.049
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	64	64	64	50	50	50
1	97	93	89	86	88	85	82	79	70	68	66	57	56	54	45	44	43
2	88	81	75	71	81	75	70	65	62	59	55	51	48	46	40	38	37
3	81	72	65	59	74	66	60	55	55	51	47	45	42	39	36	34	32
4	74	64	56	50	68	59	52	47	49	44	40	40	37	34	32	30	28
5	68	57	49	43	62	53	46	41	44	39	35	36	33	30	29	27	24
6	63	51	43	38	57	47	40	35	40	35	31	33	29	26	27	24	22
7	58	46	39	33	53	43	36	31	36	31	27	30	26	23	24	22	19
8	54	42	35	30	49	39	32	28	33	28	24	28	24	21	23	20	18
9	50	39	31	26	46	36	29	25	31	25	22	26	22	19	21	18	16
10	47	35	28	24	43	33	27	22	28	23	20	24	20	17	19	17	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2275	2275	2275
5°	2278	2239	2253
10°	2256	2195	2181
15°	2225	2123	2068
20°	2184	2023	1929
25°	2142	1912	1795
30°	2085	1797	1625
35°	2030	1673	1475
40°	1974	1546	1304
45°	1908	1404	1148
50°	1840	1261	996
55°	1770	1108	851
60°	1688	948	701
65°	1594	785	631
70°	1480	634	572
75°	1337	559	521
80°	1129	470	453
85°	787	315	343

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1908 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	292.1	2.0
10°-20°	801.8	5.4
20°-30°	1125.7	7.6
30°-40°	1227.1	8.3
40°-50°	1127.8	7.6
50°-60°	885.7	6.0
60°-70°	576.5	3.9
70°-80°	296.8	2.0
80°-90°	80.8	0.5
90°-100°	94.4	0.6
100°-110°	351.9	2.4
110°-120°	933.3	6.3
120°-130°	1548.0	10.5
130°-140°	1644.3	11.1
140°-150°	1528.2	10.3
150°-160°	1228.6	8.3
160°-170°	791.7	5.3
170°-180°	272.5	1.8
0°-30°	2219.6	15.0
0°-40°	3446.7	23.3
0°-60°	5460.2	36.9
0°-90°	6414.4	43.3
90°-120°	1379.6	9.3
90°-150°	6100.2	41.2
90°-180°	8393.0	56.7
0°-180°	14807.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3116	3116	3116	3116	3116	
5°	3116	3102	3066	3091	3083	296
15°	2964	2933	2837	2784	2756	835
25°	2691	2600	2414	2299	2256	1237
35°	2318	2174	1926	1749	1686	1451
45°	1895	1706	1410	1210	1142	1464
55°	1441	1221	916	747	694	1288
65°	973	744	491	395	386	965
75°	519	321	226	206	203	549
85°	121	62	54	54	54	139
90°	2	25	41	52	56	14
95°	135	66	81	91	89	159
105°	630	692	126	149	157	673
115°	1191	1226	1278	319	170	1173
125°	1684	1711	1750	1765	1771	1502
135°	2084	2117	2136	2157	2152	1610
145°	2418	2415	2451	2465	2455	1512
155°	2662	2644	2668	2681	2664	1227
165°	2805	2792	2799	2813	2799	792
175°	2869	2854	2859	2873	2852	273
180°	2863	2863	2863	2863	2863	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3116.4	3116.4	3116.4	3116.4	3116.4
2.5°	3130.5	3116.4	3085.3	3113.7	3108.0
5°	3116.4	3102.4	3065.5	3091.0	3082.6
7.5°	3091.0	3074.2	3034.7	3045.8	3031.7
10°	3057.1	3037.4	2981.2	2972.5	2955.7
12.5°	3015.0	2989.6	2913.2	2896.4	2865.3
15°	2964.1	2933.0	2837.2	2783.7	2755.5
17.5°	2904.8	2859.7	2741.2	2679.3	2634.0
20°	2837.2	2780.7	2639.8	2569.5	2507.2
22.5°	2763.9	2699.0	2535.3	2439.6	2397.4
25°	2690.6	2600.3	2414.1	2298.7	2256.2
27.5°	2603.2	2507.2	2301.3	2168.8	2103.8
30°	2510.2	2402.7	2177.2	2033.5	1957.2
32.5°	2419.8	2290.0	2059.0	1889.6	1819.0
35°	2318.4	2174.4	1926.4	1748.7	1686.4
37.5°	2219.6	2064.4	1802.2	1607.4	1537.1
40°	2115.3	1946.2	1672.4	1472.2	1398.8
42.5°	2008.1	1827.7	1542.8	1334.0	1263.6
45°	1895.3	1706.2	1410.2	1209.8	1142.2
47.5°	1788.2	1588.0	1283.4	1082.9	1021.0
50°	1669.6	1469.5	1159.2	964.4	905.4
52.5°	1553.9	1342.3	1040.7	854.6	801.1
55°	1441.1	1221.2	916.5	747.4	693.9
57.5°	1325.6	1099.9	806.7	648.8	603.5
60°	1207.0	981.5	690.9	547.2	502.1
62.5°	1091.6	865.9	592.2	456.9	434.5
65°	973.1	744.4	490.7	395.0	386.3
67.5°	860.3	631.7	395.0	346.8	338.5
70°	741.8	521.9	327.1	298.9	287.6
72.5°	629.0	420.1	273.5	251.1	245.3
75°	518.9	321.4	225.6	205.9	203.2
77.5°	409.1	228.3	177.8	166.4	160.7
80°	307.3	163.7	135.3	124.1	124.1
82.5°	214.2	110.1	93.0	87.4	87.4
85°	121.2	61.9	53.5	53.5	53.5
87.5°	45.1	22.4	22.4	19.8	19.8
90°	2.0	24.9	41.3	51.9	55.8
92.5°	51.9	43.5	49.7	53.9	55.8
95°	134.6	66.2	80.7	91.2	89.1
97.5°	242.3	72.6	105.6	111.9	113.9
100°	366.7	82.9	118.1	134.6	138.7
102.5°	503.3	499.4	122.2	144.9	151.3
105°	629.7	692.0	126.4	149.1	157.4
107.5°	776.8	828.5	130.6	153.3	161.6
110°	917.8	961.1	362.6	155.4	163.6



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1050.4	1087.5	1052.3	159.4	165.8
115°	1191.1	1226.2	1278.2	319.1	169.9
117.5°	1313.3	1354.7	1390.1	1093.7	551.0
120°	1450.1	1481.1	1518.5	1543.3	1263.7
122.5°	1566.0	1599.2	1640.8	1653.0	1655.3
125°	1684.0	1711.1	1750.5	1765.0	1771.1
127.5°	1791.8	1820.8	1852.1	1872.7	1874.7
130°	1893.4	1926.7	1949.3	1972.1	1970.2
132.5°	1997.0	2024.0	2046.6	2065.4	2063.4
135°	2084.1	2117.2	2135.7	2156.6	2152.5
137.5°	2175.1	2199.9	2220.8	2241.5	2235.3
140°	2264.1	2280.9	2303.5	2322.1	2311.9
142.5°	2338.9	2353.4	2380.2	2396.7	2386.4
145°	2417.6	2415.4	2450.6	2465.1	2454.8
147.5°	2485.8	2479.6	2514.8	2525.2	2517.0
150°	2552.2	2537.7	2570.9	2583.1	2572.9
152.5°	2608.0	2591.5	2622.5	2635.1	2620.6
155°	2661.9	2643.5	2668.2	2680.6	2664.1
157.5°	2705.5	2689.0	2707.6	2722.2	2705.5
160°	2742.8	2730.3	2742.8	2755.1	2740.6
162.5°	2775.8	2763.4	2773.8	2788.3	2769.7
165°	2804.8	2792.5	2798.7	2813.2	2798.7
167.5°	2827.7	2815.2	2821.5	2836.0	2817.4
170°	2846.4	2833.8	2838.0	2852.5	2833.8
172.5°	2858.7	2846.4	2850.5	2865.0	2846.4
175°	2869.0	2854.5	2858.7	2873.2	2852.5
177.5°	2873.2	2858.7	2860.9	2875.4	2856.8
180°	2862.9	2862.9	2862.9	2862.9	2862.9

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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	9.35	10.13	10.37	11.15	12.52	5.32	6.10	6.34	7.12	8.49
	3H	11.03	11.72	12.06	12.76	14.14	6.50	7.20	7.53	8.23	9.62
	4H	11.64	12.30	12.68	13.33	14.72	6.95	7.61	7.99	8.65	10.04
	6H	12.06	12.66	13.11	13.70	15.11	7.27	7.88	8.32	8.92	10.32
	8H	12.18	12.76	13.24	13.82	15.22	7.36	7.94	8.42	8.99	10.39
	12H	12.25	12.79	13.31	13.84	15.27	7.40	7.95	8.46	9.00	10.42
4H	2H	9.36	10.02	10.41	11.06	12.45	5.91	6.57	6.96	7.60	9.00
	3H	11.19	11.74	12.25	12.80	14.21	7.25	7.80	8.31	8.87	10.27
	4H	11.88	12.39	12.95	13.44	14.87	7.80	8.30	8.86	9.36	10.79
	6H	12.40	12.83	13.47	13.91	15.33	8.22	8.65	9.29	9.73	11.15
	8H	12.58	12.98	13.65	14.05	15.49	8.35	8.75	9.42	9.82	11.26
	12H	12.67	13.03	13.76	14.12	15.56	8.41	8.77	9.50	9.86	11.30
8H	4H	11.85	12.25	12.92	13.32	14.76	8.08	8.48	9.15	9.55	10.99
	6H	12.42	12.75	13.51	13.86	15.29	8.60	8.93	9.69	10.04	11.48
	8H	12.63	12.92	13.74	14.02	15.48	8.79	9.08	9.89	10.17	11.63
	12H	12.77	13.03	13.88	14.12	15.61	8.91	9.16	10.01	10.25	11.75
12H	4H	11.80	12.16	12.89	13.24	14.69	8.08	8.45	9.17	9.53	10.97
	6H	12.39	12.68	13.49	13.78	15.23	8.65	8.94	9.75	10.03	11.49
	8H	12.61	12.87	13.72	13.96	15.45	8.86	9.11	9.96	10.20	11.70

END OF REPORT