

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: P927686

Luminaire Tested: DFN2DIP-HX4F0-080D090US840-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927686
REPORT IS A COMBINATION OF REPORTS P900918 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-080D090US840-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

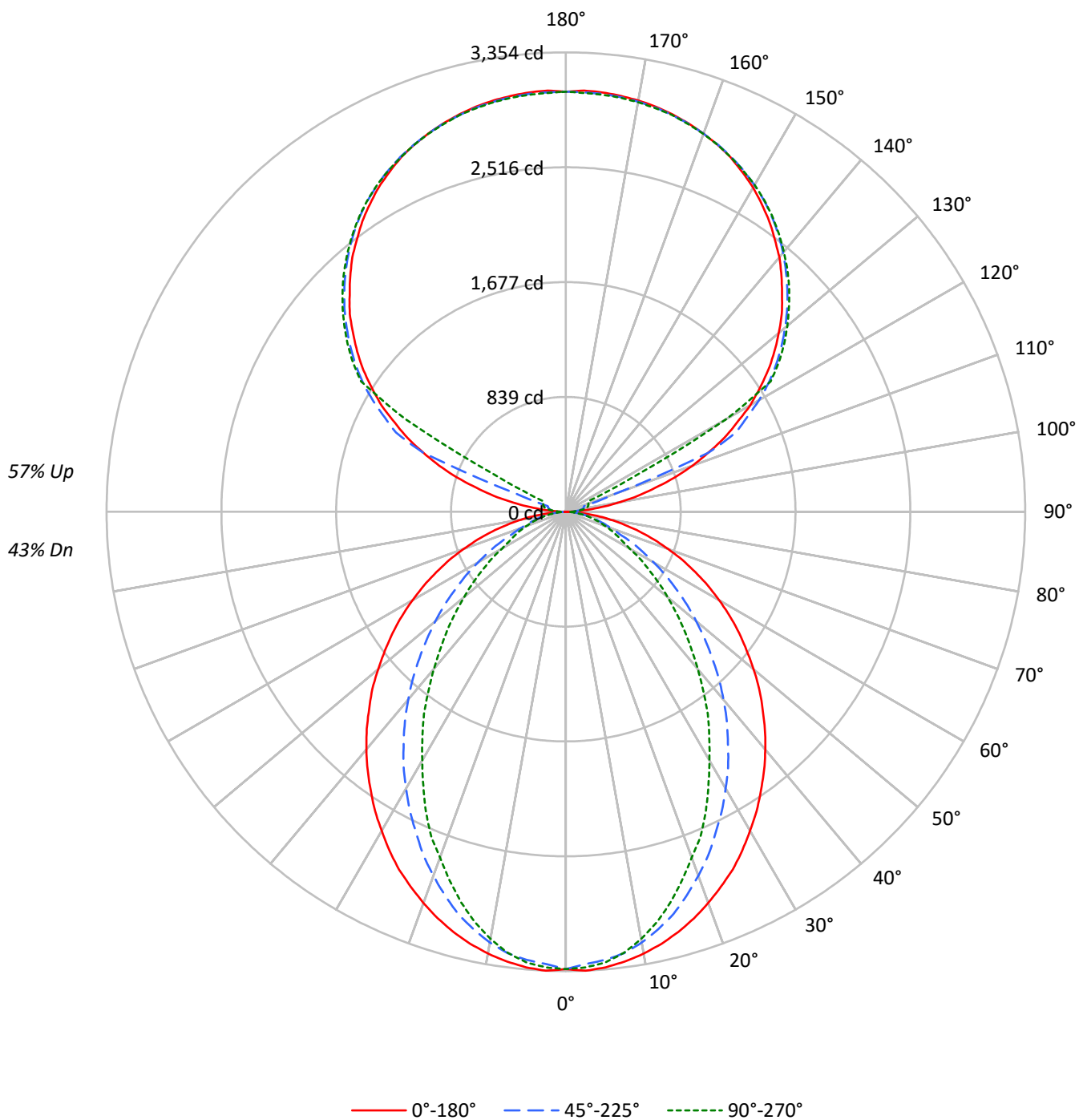
Lumens per Lamp: N/A
Luminaire Lumens: 15863.9 lumens
Efficiency: N/A
Efficacy: 109.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 144.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9613
Total Harmonic Distortion (THDi): 0.083
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					0
RW	70	50	30	10	70	50	30	10	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	43		
1	97	93	89	86	88	85	82	79	70	68	66	57	56	54	45	44	43	37		
2	88	81	75	71	81	75	70	65	62	59	55	51	48	46	40	38	37	32		
3	81	72	65	59	74	66	60	55	55	51	47	45	42	39	36	34	32	28		
4	74	64	56	50	68	59	52	47	49	44	40	40	37	34	32	30	28	24		
5	68	57	49	43	62	53	46	41	44	39	35	36	33	30	29	27	24	21		
6	63	51	43	38	57	47	40	35	40	35	31	33	29	26	27	24	22	19		
7	58	46	39	33	53	43	36	31	36	31	27	30	26	23	24	22	19	17		
8	54	42	35	30	49	39	32	28	33	28	24	28	24	21	23	20	18	15		
9	50	39	31	26	46	36	29	25	31	25	22	26	22	19	21	18	16	14		
10	47	35	28	24	43	33	27	22	28	23	20	24	20	17	19	17	15	13		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2483	2483	2483
5°	2487	2443	2459
10°	2462	2396	2379
15°	2429	2317	2256
20°	2384	2208	2104
25°	2338	2086	1957
30°	2277	1960	1771
35°	2217	1826	1608
40°	2155	1686	1421
45°	2084	1532	1251
50°	2011	1376	1086
55°	1934	1209	926
60°	1845	1034	763
65°	1743	856	686
70°	1619	691	622
75°	1463	610	566
80°	1238	512	491
85°	866	343	370

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2084 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	312.9	2.0
10°-20°	859.0	5.4
20°-30°	1206.0	7.6
30°-40°	1314.6	8.3
40°-50°	1208.3	7.6
50°-60°	948.9	6.0
60°-70°	617.7	3.9
70°-80°	318.0	2.0
80°-90°	86.6	0.5
90°-100°	101.1	0.6
100°-110°	377.0	2.4
110°-120°	999.9	6.3
120°-130°	1658.4	10.5
130°-140°	1761.7	11.1
140°-150°	1637.3	10.3
150°-160°	1316.3	8.3
160°-170°	848.2	5.3
170°-180°	291.9	1.8
0°-30°	2378.0	15.0
0°-40°	3692.6	23.3
0°-60°	5849.9	36.9
0°-90°	6872.0	43.3
90°-120°	1478.1	9.3
90°-150°	6535.5	41.2
90°-180°	8992.0	56.7
0°-180°	15863.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3339	3339	3339	3339	3339	
5°	3339	3324	3284	3312	3303	317
15°	3176	3142	3040	2982	2952	895
25°	2883	2786	2586	2463	2417	1326
35°	2484	2330	2064	1874	1807	1555
45°	2030	1828	1511	1296	1224	1568
55°	1544	1308	982	801	743	1380
65°	1042	798	526	423	414	1033
75°	556	344	242	220	218	588
85°	130	66	57	57	57	149
90°	2	27	44	56	60	15
95°	144	71	86	98	95	171
105°	675	741	135	160	169	721
115°	1276	1314	1369	342	182	1256
125°	1804	1833	1875	1891	1898	1609
135°	2233	2268	2288	2310	2306	1725
145°	2590	2588	2626	2641	2630	1620
155°	2852	2832	2859	2872	2854	1314
165°	3005	2992	2998	3014	2998	849
175°	3074	3058	3063	3078	3056	293
180°	3067	3067	3067	3067	3067	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3338.8	3338.8	3338.8	3338.8	3338.8
2.5°	3353.8	3338.8	3305.5	3335.9	3329.8
5°	3338.8	3323.8	3284.3	3311.5	3302.6
7.5°	3311.5	3293.6	3251.3	3263.2	3248.0
10°	3275.3	3254.2	3193.9	3184.6	3166.6
12.5°	3230.1	3202.9	3121.1	3103.1	3069.8
15°	3175.6	3142.3	3039.7	2982.3	2952.2
17.5°	3112.1	3063.7	2936.8	2870.5	2822.0
20°	3039.7	2979.1	2828.1	2752.8	2686.1
22.5°	2961.1	2891.6	2716.3	2613.7	2568.4
25°	2882.6	2785.8	2586.4	2462.7	2417.2
27.5°	2789.0	2686.1	2465.5	2323.5	2254.0
30°	2689.3	2574.2	2332.5	2178.6	2096.8
32.5°	2592.5	2453.4	2205.9	2024.4	1948.8
35°	2483.8	2329.6	2063.8	1873.5	1806.7
37.5°	2378.0	2211.7	1930.8	1722.1	1646.8
40°	2266.2	2085.0	1791.7	1577.2	1498.6
42.5°	2151.4	1958.1	1652.8	1429.2	1353.7
45°	2030.5	1827.9	1510.9	1296.1	1223.7
47.5°	1915.8	1701.3	1374.9	1160.2	1093.8
50°	1788.8	1574.4	1242.0	1033.2	970.0
52.5°	1664.8	1438.1	1114.9	915.6	858.2
55°	1543.9	1308.3	981.9	800.8	743.4
57.5°	1420.2	1178.4	864.3	695.0	646.6
60°	1293.1	1051.5	740.2	586.3	537.9
62.5°	1169.4	927.7	634.5	489.6	465.5
65°	1042.5	797.5	525.7	423.2	413.8
67.5°	921.6	676.8	423.2	371.5	362.6
70°	794.7	559.1	350.4	320.2	308.1
72.5°	673.8	450.1	293.0	269.0	262.9
75°	555.9	344.3	241.7	220.5	217.7
77.5°	438.3	244.6	190.4	178.2	172.2
80°	329.2	175.4	144.9	133.0	133.0
82.5°	229.5	117.9	99.7	93.6	93.6
85°	129.9	66.3	57.4	57.4	57.4
87.5°	48.4	24.0	24.0	21.2	21.2
90°	2.1	26.7	44.2	55.6	59.8
92.5°	55.6	46.7	53.2	57.8	59.8
95°	144.2	70.9	86.4	97.7	95.4
97.5°	259.6	77.8	113.1	119.9	122.0
100°	392.9	88.9	126.5	144.2	148.6
102.5°	539.2	535.0	131.0	155.2	162.1
105°	674.6	741.4	135.4	159.8	168.6
107.5°	832.3	887.6	140.0	164.2	173.2
110°	983.2	1029.7	388.5	166.5	175.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1125.3	1165.1	1127.4	170.8	177.6
115°	1276.1	1313.7	1369.4	341.8	182.1
117.5°	1407.1	1451.4	1489.3	1171.8	590.3
120°	1553.6	1586.8	1626.9	1653.4	1353.8
122.5°	1677.8	1713.3	1757.9	1771.0	1773.4
125°	1804.2	1833.2	1875.4	1891.0	1897.5
127.5°	1919.6	1950.7	1984.3	2006.4	2008.5
130°	2028.5	2064.1	2088.4	2112.8	2110.8
132.5°	2139.5	2168.4	2192.7	2212.8	2210.7
135°	2232.8	2268.3	2288.1	2310.5	2306.1
137.5°	2330.3	2356.9	2379.3	2401.4	2394.8
140°	2425.6	2443.6	2467.9	2487.8	2476.8
142.5°	2505.8	2521.4	2550.0	2567.7	2556.7
145°	2590.1	2587.7	2625.5	2641.0	2629.9
147.5°	2663.1	2656.6	2694.2	2705.4	2696.6
150°	2734.3	2718.8	2754.3	2767.5	2756.5
152.5°	2794.1	2776.4	2809.7	2823.1	2807.5
155°	2851.9	2832.1	2858.6	2871.9	2854.2
157.5°	2898.5	2880.9	2900.9	2916.4	2898.5
160°	2938.5	2925.1	2938.5	2951.7	2936.2
162.5°	2973.9	2960.6	2971.7	2987.3	2967.3
165°	3005.0	2991.7	2998.4	3014.0	2998.4
167.5°	3029.5	3016.1	3022.8	3038.4	3018.4
170°	3049.5	3036.1	3040.5	3056.1	3036.1
172.5°	3062.7	3049.5	3053.9	3069.5	3049.5
175°	3073.7	3058.2	3062.7	3078.2	3056.1
177.5°	3078.2	3062.7	3065.0	3080.6	3060.6
180°	3067.2	3067.2	3067.2	3067.2	3067.2

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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	9.65	10.43	10.67	11.45	12.82	5.62	6.40	6.64	7.42	8.79
	3H	11.32	12.02	12.35	13.05	14.44	6.81	7.51	7.84	8.54	9.92
	4H	11.93	12.59	12.97	13.62	15.02	7.26	7.92	8.30	8.95	10.35
	6H	12.35	12.96	13.40	14.00	15.40	7.58	8.18	8.63	9.22	10.63
	8H	12.48	13.05	13.53	14.11	15.51	7.67	8.24	8.72	9.30	10.70
	12H	12.54	13.08	13.60	14.13	15.56	7.71	8.26	8.77	9.31	10.73
4H	2H	9.66	10.32	10.71	11.36	12.75	6.21	6.87	7.26	7.91	9.30
	3H	11.49	12.04	12.54	13.10	14.50	7.56	8.11	8.62	9.17	10.58
	4H	12.18	12.68	13.24	13.73	15.16	8.11	8.61	9.17	9.66	11.09
	6H	12.69	13.12	13.76	14.20	15.62	8.53	8.96	9.60	10.03	11.46
	8H	12.87	13.27	13.94	14.34	15.78	8.65	9.06	9.73	10.13	11.56
	12H	12.96	13.32	14.05	14.41	15.85	8.72	9.08	9.81	10.16	11.61
8H	4H	12.14	12.54	13.21	13.61	15.05	8.38	8.79	9.46	9.86	11.29
	6H	12.71	13.04	13.80	14.15	15.59	8.90	9.23	10.00	10.35	11.78
	8H	12.93	13.22	14.03	14.31	15.77	9.10	9.39	10.20	10.48	11.94
	12H	13.06	13.32	14.17	14.41	15.90	9.21	9.47	10.32	10.56	12.05
12H	4H	12.09	12.46	13.18	13.54	14.98	8.39	8.75	9.48	9.83	11.28
	6H	12.68	12.97	13.78	14.07	15.52	8.95	9.24	10.05	10.34	11.79
	8H	12.90	13.16	14.01	14.25	15.74	9.16	9.42	10.27	10.51	12.00