

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: P927758

Luminaire Tested: DFN2DIP-HX4F0-100D090US840-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927758
REPORT IS A COMBINATION OF REPORTS P900922 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-100D090US840-RLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

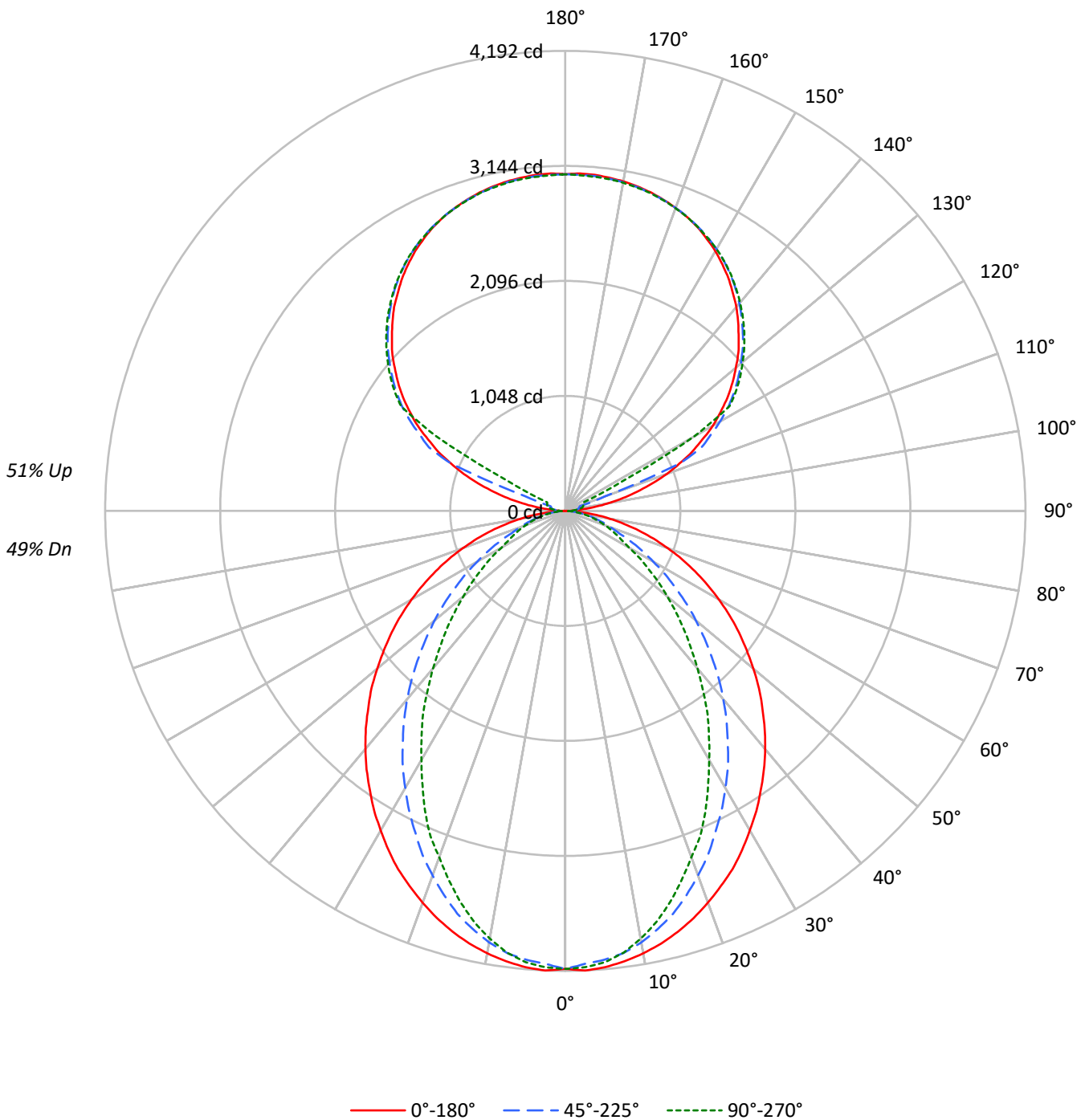
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 17580.6 lumens
Efficiency: N/A
Efficacy: 105.1 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): 167.3
Input Voltage (V):
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: 0.946
Total Harmonic Distortion (THDi): 0.132
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				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	98	98	98	98	83	83	83	68	68	68	55	55	55	49				49
1	98	94	90	87	90	87	83	81	73	71	69	61	59	58	49	48	47	42				42
2	90	83	77	72	82	76	71	67	65	61	58	54	51	49	44	42	41	36				36
3	82	73	66	60	75	68	61	56	57	53	49	48	45	42	39	37	35	31				31
4	75	65	57	51	69	60	53	48	51	46	42	43	39	36	36	33	31	27				27
5	69	58	50	44	64	54	47	42	46	41	37	39	35	32	32	29	27	24				24
6	64	52	44	39	59	49	42	37	42	36	32	35	31	28	29	26	24	21				21
7	59	47	40	34	55	44	37	32	38	33	29	32	28	25	27	24	22	19				19
8	55	43	35	30	51	40	33	29	35	29	26	30	26	22	25	22	19	17				17
9	51	39	32	27	47	37	30	26	32	27	23	27	23	20	23	20	18	16				16
10	48	36	29	24	44	34	28	23	30	24	21	25	21	18	21	18	16	14				14

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3103	3103	3103
5°	3108	3054	3074
10°	3078	2995	2974
15°	3036	2896	2819
20°	2980	2760	2630
25°	2923	2607	2447
30°	2846	2451	2214
35°	2771	2282	2010
40°	2694	2108	1776
45°	2605	1915	1564
50°	2513	1719	1357
55°	2417	1511	1158
60°	2306	1293	953
65°	2178	1071	858
70°	2023	864	777
75°	1829	762	707
80°	1547	641	614
85°	1082	429	462

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2605 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	391.1	2.2
10°-20°	1073.8	6.1
20°-30°	1507.5	8.6
30°-40°	1643.3	9.3
40°-50°	1510.4	8.6
50°-60°	1186.2	6.7
60°-70°	772.1	4.4
70°-80°	397.4	2.3
80°-90°	106.9	0.6
90°-100°	101.1	0.6
100°-110°	377.0	2.1
110°-120°	999.9	5.7
120°-130°	1658.4	9.4
130°-140°	1761.7	10.0
140°-150°	1637.3	9.3
150°-160°	1316.3	7.5
160°-170°	848.2	4.8
170°-180°	291.9	1.7
0°-30°	2972.4	16.9
0°-40°	4615.8	26.3
0°-60°	7312.3	41.6
0°-90°	8588.7	48.9
90°-120°	1478.1	8.4
90°-150°	6535.5	37.2
90°-180°	8992.0	51.1
0°-180°	17580.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4174	4174	4174	4174	4174	
5°	4174	4155	4105	4140	4128	396
15°	3970	3928	3800	3728	3690	1119
25°	3603	3482	3233	3078	3021	1657
35°	3105	2912	2580	2342	2258	1943
45°	2538	2285	1889	1620	1530	1960
55°	1930	1635	1227	1001	929	1724
65°	1303	997	657	529	517	1292
75°	695	430	302	276	272	735
85°	162	83	72	72	72	186
90°	2	27	44	56	60	16
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°	4173.5	4173.5	4173.5	4173.5	4173.5
2.5°	4192.3	4173.5	4131.8	4169.9	4162.3
5°	4173.5	4154.6	4105.3	4139.5	4128.2
7.5°	4139.5	4117.0	4064.0	4078.9	4060.1
10°	4094.1	4067.7	3992.3	3980.7	3958.3
12.5°	4037.7	4003.6	3901.4	3878.9	3837.2
15°	3969.5	3927.8	3799.6	3727.9	3690.2
17.5°	3890.2	3829.7	3671.0	3588.0	3527.5
20°	3799.6	3723.8	3535.1	3441.0	3357.6
22.5°	3701.4	3614.5	3395.3	3267.1	3210.6
25°	3603.3	3482.3	3233.0	3078.3	3021.4
27.5°	3486.2	3357.6	3081.9	2904.4	2817.4
30°	3361.6	3217.7	2915.6	2723.3	2621.1
32.5°	3240.7	3066.7	2757.4	2530.6	2435.9
35°	3104.7	2912.1	2579.8	2341.8	2258.4
37.5°	2972.5	2764.5	2413.5	2152.7	2058.5
40°	2832.7	2606.3	2239.6	1971.5	1873.4
42.5°	2689.2	2447.6	2066.2	1786.4	1692.2
45°	2538.1	2284.9	1888.6	1620.1	1529.5
47.5°	2394.7	2126.6	1718.7	1450.2	1367.3
50°	2236.0	1967.9	1552.4	1291.5	1212.6
52.5°	2080.9	1797.6	1393.7	1144.4	1072.7
55°	1929.8	1635.4	1227.4	1001.0	929.2
57.5°	1775.2	1473.0	1080.4	868.7	808.2
60°	1616.5	1314.4	925.3	732.9	672.4
62.5°	1461.8	1159.7	793.0	611.9	581.8
65°	1303.1	997.0	657.2	528.9	517.3
67.5°	1152.1	845.9	528.9	464.4	453.2
70°	993.3	698.9	438.0	400.3	385.1
72.5°	842.3	562.6	366.3	336.2	328.6
75°	694.8	430.4	302.1	275.7	272.0
77.5°	547.8	305.8	238.0	222.8	215.2
80°	411.5	219.2	181.2	166.3	166.3
82.5°	286.9	147.4	124.6	117.0	117.0
85°	162.3	82.9	71.7	71.7	71.7
87.5°	60.5	30.1	30.1	26.5	26.5
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	10.97	11.80	11.95	12.78	14.07	6.95	7.77	7.92	8.75	10.04
	3H	12.65	13.39	13.64	14.38	15.69	8.14	8.87	9.12	9.86	11.17
	4H	13.26	13.95	14.26	14.95	16.27	8.59	9.28	9.59	10.28	11.60
	6H	13.68	14.32	14.69	15.32	16.65	8.91	9.55	9.92	10.55	11.88
	8H	13.81	14.42	14.82	15.43	16.76	9.00	9.61	10.02	10.63	11.95
	12H	13.87	14.45	14.89	15.46	16.81	9.05	9.62	10.06	10.63	11.99
4H	2H	10.99	11.69	12.00	12.68	14.00	7.54	8.24	8.55	9.23	10.55
	3H	12.82	13.40	13.83	14.42	15.76	8.89	9.47	9.91	10.49	11.83
	4H	13.51	14.04	14.53	15.06	16.42	9.44	9.97	10.46	10.99	12.34
	6H	14.03	14.48	15.06	15.52	16.88	9.86	10.32	10.89	11.36	12.71
	8H	14.21	14.63	15.24	15.66	17.03	9.99	10.42	11.02	11.45	12.82
	12H	14.30	14.68	15.35	15.73	17.10	10.06	10.44	11.11	11.49	12.86
8H	4H	13.48	13.90	14.51	14.94	16.31	9.72	10.15	10.75	11.18	12.55
	6H	14.05	14.40	15.10	15.47	16.84	10.24	10.59	11.30	11.67	13.03
	8H	14.27	14.57	15.33	15.63	17.02	10.44	10.74	11.50	11.80	13.19
	12H	14.40	14.67	15.47	15.73	17.16	10.56	10.83	11.62	11.88	13.31
12H	4H	13.43	13.81	14.48	14.86	16.24	9.73	10.11	10.78	11.16	12.53
	6H	14.02	14.33	15.09	15.39	16.78	10.29	10.60	11.36	11.66	13.04
	8H	14.24	14.51	15.31	15.57	17.00	10.50	10.77	11.57	11.83	13.26