

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: P927830

Luminaire Tested: DFN2DIP-HX4F0-120D090US840-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927830
REPORT IS A COMBINATION OF REPORTS P900926 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-120D090US840-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

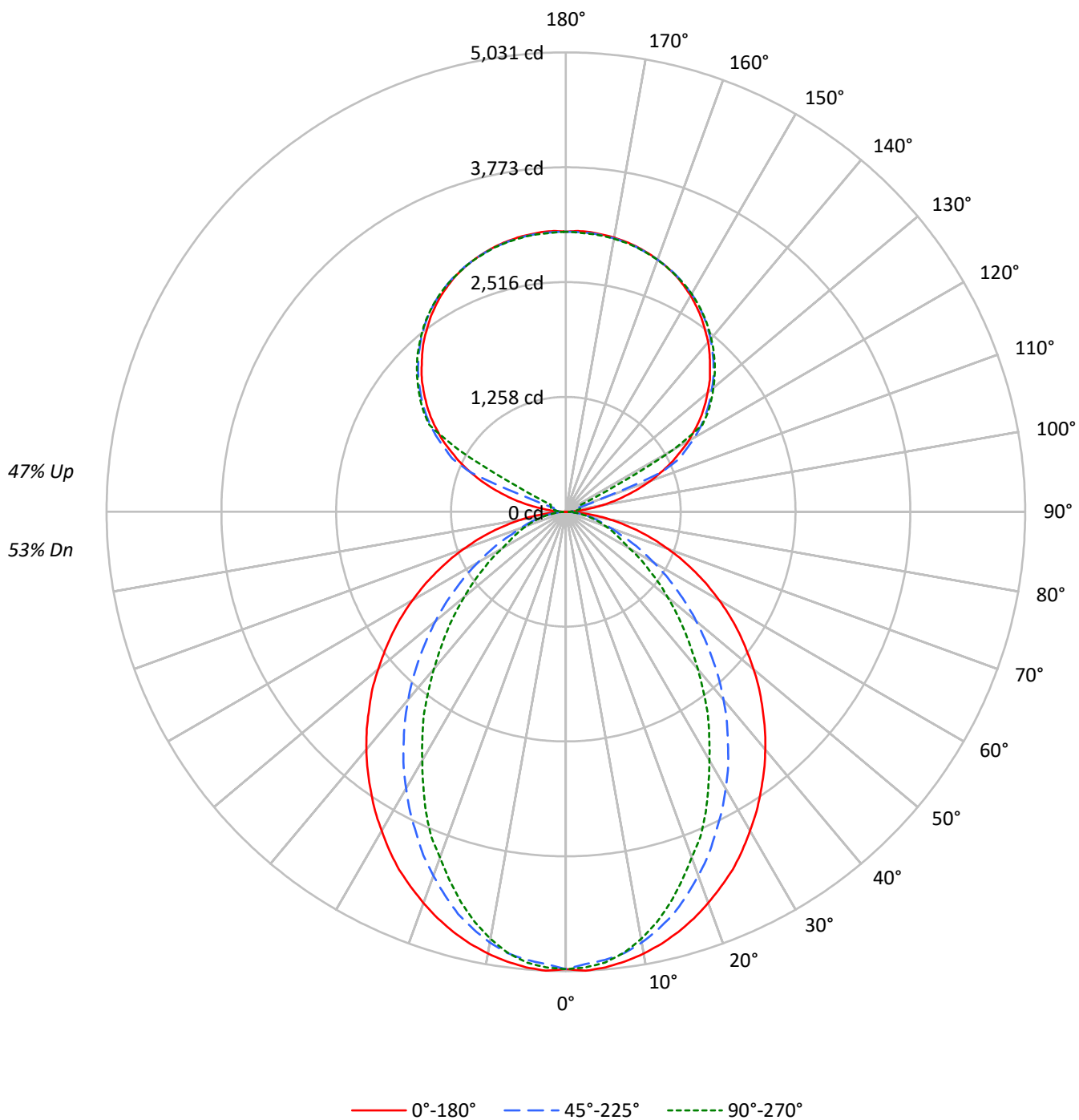
Lumens per Lamp: N/A
Luminaire Lumens: 19297.3 lumens
Efficiency: N/A
Efficacy: 99.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 194.1
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9954
Total Harmonic Distortion (THDi): 0.076
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	108	108	108	108	100	100	100	100	85	85	85	72	72	72	59	59	59
1	99	95	91	88	92	88	85	82	76	73	71	64	62	61	53	52	51
2	91	83	78	73	84	78	73	68	67	63	60	57	54	52	47	45	44
3	83	74	67	61	77	69	63	58	59	55	51	51	47	44	42	40	38
4	76	66	58	52	70	61	55	49	53	48	44	45	42	38	38	35	33
5	70	59	51	45	65	55	48	43	48	42	38	41	37	34	35	32	29
6	65	53	45	39	60	50	43	37	43	38	34	37	33	30	32	28	26
7	60	48	40	35	56	45	38	33	39	34	30	34	30	26	29	26	23
8	56	44	36	31	52	41	34	29	36	31	27	31	27	24	27	24	21
9	52	40	33	28	48	38	31	26	33	28	24	29	25	22	25	22	19
10	49	37	30	25	45	35	28	24	31	25	22	27	23	20	23	20	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3724	3724	3724
5°	3730	3665	3688
10°	3694	3594	3569
15°	3643	3475	3383
20°	3576	3312	3156
25°	3508	3129	2936
30°	3415	2941	2657
35°	3325	2739	2412
40°	3233	2530	2132
45°	3126	2298	1877
50°	3016	2063	1628
55°	2901	1813	1390
60°	2767	1551	1144
65°	2614	1285	1030
70°	2428	1037	932
75°	2195	915	849
80°	1857	768	736
85°	1299	515	555

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3126 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	469.4	2.4
10°-20°	1288.5	6.7
20°-30°	1809.0	9.4
30°-40°	1972.0	10.2
40°-50°	1812.5	9.4
50°-60°	1423.4	7.4
60°-70°	926.5	4.8
70°-80°	476.9	2.5
80°-90°	127.1	0.7
90°-100°	101.1	0.5
100°-110°	377.0	2.0
110°-120°	999.9	5.2
120°-130°	1658.4	8.6
130°-140°	1761.7	9.1
140°-150°	1637.3	8.5
150°-160°	1316.3	6.8
160°-170°	848.2	4.4
170°-180°	291.9	1.5
0°-30°	3566.9	18.5
0°-40°	5538.9	28.7
0°-60°	8774.8	45.5
0°-90°	10305.4	53.4
90°-120°	1478.1	7.7
90°-150°	6535.5	33.9
90°-180°	8992.0	46.6
0°-180°	19297.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	5008	5008	5008	5008	5008	
5°	5008	4986	4926	4967	4954	475
15°	4763	4713	4560	4473	4428	1342
25°	4324	4179	3880	3694	3626	1989
35°	3726	3494	3096	2810	2710	2332
45°	3046	2742	2266	1944	1835	2352
55°	2316	1962	1473	1201	1115	2069
65°	1564	1196	789	635	621	1550
75°	834	516	363	331	326	882
85°	195	100	86	86	86	224
90°	2	27	44	56	60	18
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°	5008.2	5008.2	5008.2	5008.2	5008.2
2.5°	5030.8	5008.2	4958.2	5003.9	4994.7
5°	5008.2	4985.6	4926.4	4967.3	4953.9
7.5°	4967.3	4940.3	4876.9	4894.7	4872.1
10°	4913.0	4881.3	4790.8	4776.9	4750.0
12.5°	4845.1	4804.3	4681.6	4654.8	4604.8
15°	4763.4	4713.4	4559.5	4473.4	4428.3
17.5°	4668.2	4595.6	4405.2	4305.7	4233.1
20°	4559.5	4468.7	4242.2	4129.2	4029.1
22.5°	4441.7	4337.4	4074.3	3920.4	3852.7
25°	4324.0	4178.7	3879.6	3693.9	3625.7
27.5°	4183.5	4029.1	3698.3	3485.3	3380.9
30°	4033.9	3861.4	3498.8	3267.9	3145.3
32.5°	3888.7	3680.0	3308.8	3036.7	2923.2
35°	3725.8	3494.4	3095.7	2810.2	2710.1
37.5°	3567.0	3317.5	2896.2	2583.2	2470.2
40°	3399.2	3127.6	2687.6	2365.9	2248.0
42.5°	3227.0	2937.1	2479.4	2143.7	2030.7
45°	3045.8	2741.9	2266.3	1944.2	1835.4
47.5°	2873.6	2552.0	2062.4	1740.3	1640.7
50°	2683.2	2361.5	1862.9	1549.8	1455.1
52.5°	2497.1	2157.1	1672.4	1373.3	1287.3
55°	2315.9	1962.4	1472.9	1201.2	1115.1
57.5°	2130.2	1767.7	1296.4	1042.5	969.9
60°	1939.8	1577.2	1110.3	879.5	806.9
62.5°	1754.2	1391.6	951.6	734.3	698.2
65°	1563.8	1196.4	788.7	634.8	620.8
67.5°	1382.5	1015.1	634.8	557.3	543.9
70°	1192.1	838.6	525.6	480.4	462.1
72.5°	1010.8	675.2	439.5	403.4	394.3
75°	833.8	516.4	362.6	330.8	326.5
77.5°	657.4	366.9	285.7	267.4	258.2
80°	493.9	263.1	217.3	199.5	199.5
82.5°	344.3	176.9	149.6	140.4	140.4
85°	194.8	99.6	86.0	86.0	86.0
87.5°	72.6	36.0	36.0	31.7	31.7
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	12.03	12.89	12.96	13.83	15.06	8.00	8.86	8.94	9.81	11.03
	3H	13.71	14.48	14.66	15.43	16.68	9.19	9.96	10.14	10.92	12.17
	4H	14.32	15.05	15.28	16.01	17.26	9.65	10.37	10.61	11.33	12.59
	6H	14.74	15.41	15.72	16.38	17.65	9.97	10.64	10.94	11.61	12.87
	8H	14.87	15.51	15.85	16.49	17.76	10.06	10.70	11.04	11.68	12.95
	12H	14.93	15.54	15.92	16.51	17.81	10.11	10.71	11.09	11.69	12.98
4H	2H	12.05	12.78	13.02	13.74	14.99	8.60	9.33	9.57	10.29	11.54
	3H	13.88	14.49	14.86	15.48	16.75	9.96	10.56	10.93	11.55	12.82
	4H	14.58	15.13	15.56	16.11	17.41	10.51	11.06	11.49	12.04	13.34
	6H	15.10	15.57	16.09	16.58	17.87	10.93	11.40	11.93	12.41	13.70
	8H	15.27	15.71	16.27	16.71	18.02	11.06	11.50	12.06	12.50	13.81
	12H	15.37	15.77	16.38	16.78	18.10	11.13	11.53	12.14	12.54	13.85
8H	4H	14.55	14.99	15.55	15.99	17.30	10.79	11.23	11.79	12.23	13.54
	6H	15.12	15.48	16.14	16.52	17.83	11.31	11.68	12.33	12.72	14.02
	8H	15.33	15.66	16.36	16.68	18.01	11.50	11.82	12.53	12.85	14.18
	12H	15.47	15.76	16.51	16.78	18.15	11.63	11.91	12.66	12.93	14.30
12H	4H	14.50	14.90	15.52	15.92	17.23	10.80	11.19	11.81	12.21	13.52
	6H	15.09	15.41	16.12	16.44	17.77	11.36	11.68	12.39	12.71	14.04
	8H	15.32	15.60	16.35	16.62	17.99	11.57	11.86	12.61	12.88	14.25