

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: P927722

Luminaire Tested: DFN2DIP-HX4F0-090D090US840-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927722
REPORT IS A COMBINATION OF REPORTS P900920 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-090D090US840-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

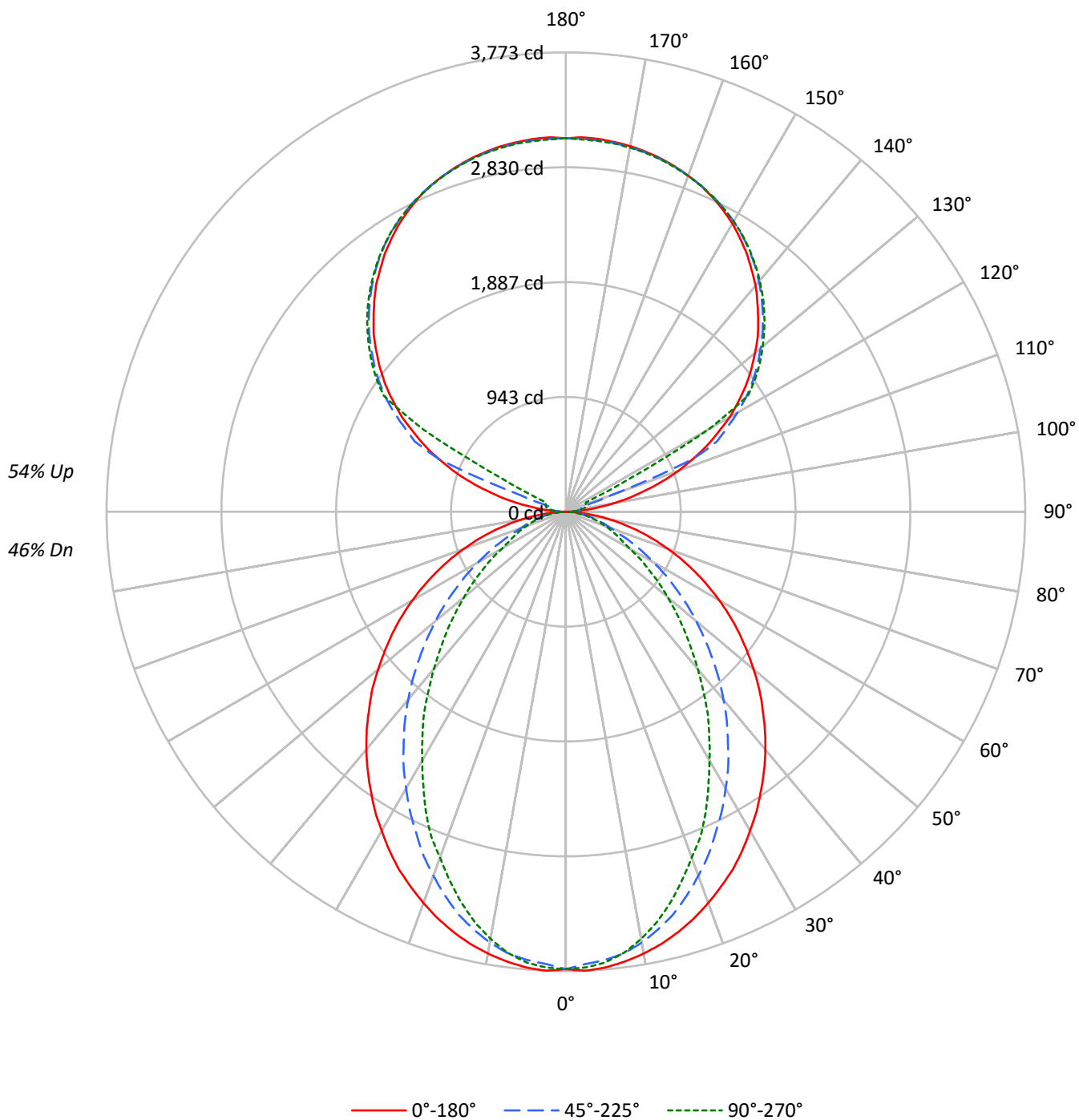
Lumens per Lamp: N/A
Luminaire Lumens: 16722.3 lumens
Efficiency: N/A
Efficacy: 106.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 156.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9821
Total Harmonic Distortion (THDi): 0.08
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P927722

CATALOG NUMBER: DFN2DIP-HX4F0-090D090US840-RLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P927722

CATALOG NUMBER: DFN2DIP-HX4F0-090D090US840-RLLONL

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	50	30	10
RCR																				
0	106	106	106	106	98	98	98	98	81	81	81	66	66	66	53	53	53			46
1	97	93	90	86	89	86	83	80	72	70	68	59	58	56	47	46	45			40
2	89	82	76	71	82	76	70	66	63	60	57	52	50	48	42	40	39			34
3	81	72	65	60	75	67	61	56	56	52	48	47	43	41	38	35	34			29
4	75	64	57	51	68	60	53	48	50	45	41	42	38	35	34	31	29			26
5	69	58	50	44	63	53	46	41	45	40	36	38	34	31	31	28	26			23
6	63	52	44	38	58	48	41	36	41	36	32	34	30	27	28	25	23			20
7	59	47	39	34	54	44	37	32	37	32	28	31	27	24	26	23	21			18
8	55	43	35	30	50	40	33	28	34	29	25	29	25	22	24	21	19			16
9	51	39	32	27	47	36	30	25	31	26	22	27	23	20	22	19	17			15
10	48	36	29	24	44	33	27	23	29	24	20	25	21	18	20	18	15			13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2793	2793	2793
5°	2798	2749	2766
10°	2770	2695	2676
15°	2732	2606	2537
20°	2682	2484	2367
25°	2631	2346	2202
30°	2562	2206	1993
35°	2494	2054	1809
40°	2425	1897	1599
45°	2345	1723	1408
50°	2262	1548	1221
55°	2176	1360	1042
60°	2076	1163	858
65°	1961	964	772
70°	1821	777	699
75°	1646	686	636
80°	1393	576	553
85°	973	386	416

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2345 cd/sqm

TEST NUMBER: P927722

CATALOG NUMBER: DFN2DIP-HX4F0-090D090US840-RLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	352.0	2.1
10°-20°	966.4	5.8
20°-30°	1356.8	8.1
30°-40°	1479.0	8.8
40°-50°	1359.4	8.1
50°-60°	1067.6	6.4
60°-70°	694.9	4.2
70°-80°	357.7	2.1
80°-90°	96.7	0.6
90°-100°	101.1	0.6
100°-110°	377.0	2.3
110°-120°	999.9	6.0
120°-130°	1658.4	9.9
130°-140°	1761.7	10.5
140°-150°	1637.3	9.8
150°-160°	1316.3	7.9
160°-170°	848.2	5.1
170°-180°	291.9	1.7
0°-30°	2675.2	16.0
0°-40°	4154.2	24.8
0°-60°	6581.1	39.4
0°-90°	7730.4	46.2
90°-120°	1478.1	8.8
90°-150°	6535.5	39.1
90°-180°	8992.0	53.8
0°-180°	16722.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3756	3756	3756	3756	3756	
5°	3756	3739	3695	3726	3715	356
15°	3573	3535	3420	3355	3321	1007
25°	3243	3134	2910	2770	2719	1491
35°	2794	2621	2322	2108	2033	1749
45°	2284	2056	1700	1458	1377	1764
55°	1737	1472	1105	901	836	1552
65°	1173	897	591	476	466	1163
75°	625	387	272	248	245	661
85°	146	75	64	64	64	168
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	

TEST NUMBER: P927722

CATALOG NUMBER: DFN2DIP-HX4F0-090D090US840-RLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3756.2	3756.2	3756.2	3756.2	3756.2
2.5°	3773.1	3756.2	3718.6	3752.9	3746.1
5°	3756.2	3739.2	3694.9	3725.5	3715.4
7.5°	3725.5	3705.3	3657.7	3671.0	3654.1
10°	3684.8	3660.9	3593.2	3582.7	3562.5
12.5°	3633.9	3603.3	3511.3	3491.1	3453.5
15°	3572.6	3535.1	3419.7	3355.1	3321.2
17.5°	3501.2	3446.8	3303.9	3229.2	3174.8
20°	3419.7	3351.5	3181.6	3096.9	3021.8
22.5°	3331.3	3253.1	3055.8	2940.3	2889.5
25°	3243.0	3134.0	2909.7	2770.5	2719.3
27.5°	3137.7	3021.8	2773.7	2614.0	2535.7
30°	3025.5	2896.0	2624.1	2451.0	2359.0
32.5°	2916.5	2760.0	2481.6	2277.5	2192.4
35°	2794.3	2620.8	2321.8	2107.7	2032.6
37.5°	2675.3	2488.1	2172.2	1937.4	1852.7
40°	2549.4	2345.7	2015.7	1774.4	1686.1
42.5°	2420.3	2202.9	1859.4	1607.8	1523.0
45°	2284.4	2056.5	1699.7	1458.1	1376.6
47.5°	2155.2	1914.0	1546.8	1305.2	1230.5
50°	2012.4	1771.1	1397.2	1162.4	1091.3
52.5°	1872.9	1617.9	1254.4	1030.0	965.5
55°	1736.9	1471.8	1104.6	900.9	836.3
57.5°	1597.7	1325.8	972.3	781.9	727.5
60°	1454.8	1182.9	832.8	659.6	605.2
62.5°	1315.7	1043.7	713.7	550.7	523.7
65°	1172.8	897.3	591.4	476.0	465.6
67.5°	1036.9	761.3	476.0	418.0	407.9
70°	894.1	629.0	394.2	360.3	346.6
72.5°	758.1	506.3	329.6	302.5	295.8
75°	625.4	387.4	271.9	248.1	244.9
77.5°	493.0	275.2	214.2	200.5	193.7
80°	370.4	197.3	163.0	149.7	149.7
82.5°	258.2	132.7	112.2	105.3	105.3
85°	146.0	74.6	64.5	64.5	64.5
87.5°	54.4	27.1	27.1	23.8	23.8
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



TEST NUMBER: P927722

CATALOG NUMBER: DFN2DIP-HX4F0-090D090US840-RLLONL

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

TEST NUMBER: P927722

CATALOG NUMBER: DFN2DIP-HX4F0-090D090US840-RLONL

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	10.35	11.15	11.35	12.16	13.48	6.33	7.13	7.32	8.13	9.46
	3H	12.03	12.75	13.04	13.76	15.10	7.51	8.23	8.52	9.24	10.59
	4H	12.64	13.31	13.66	14.33	15.68	7.96	8.64	8.98	9.66	11.01
	6H	13.06	13.68	14.09	14.70	16.07	8.29	8.91	9.32	9.93	11.30
	8H	13.18	13.78	14.22	14.81	16.18	8.38	8.97	9.41	10.00	11.37
	12H	13.25	13.81	14.28	14.84	16.22	8.42	8.98	9.46	10.01	11.40
4H	2H	10.37	11.05	11.39	12.06	13.42	6.92	7.60	7.94	8.61	9.97
	3H	12.20	12.76	13.23	13.80	15.17	8.27	8.83	9.30	9.87	11.24
	4H	12.89	13.40	13.93	14.44	15.83	8.82	9.33	9.86	10.37	11.76
	6H	13.40	13.84	14.45	14.90	16.29	9.24	9.68	10.29	10.74	12.12
	8H	13.58	13.99	14.63	15.04	16.44	9.37	9.78	10.42	10.83	12.23
	12H	13.67	14.04	14.74	15.11	16.52	9.43	9.80	10.50	10.87	12.28
8H	4H	12.85	13.27	13.90	14.32	15.72	9.09	9.51	10.15	10.56	11.96
	6H	13.42	13.76	14.49	14.85	16.25	9.61	9.95	10.69	11.05	12.45
	8H	13.64	13.94	14.72	15.01	16.43	9.81	10.11	10.89	11.18	12.60
	12H	13.78	14.04	14.86	15.11	16.57	9.93	10.19	11.01	11.26	12.72
12H	4H	12.80	13.18	13.87	14.24	15.65	9.10	9.47	10.17	10.54	11.94
	6H	13.40	13.69	14.48	14.77	16.19	9.66	9.96	10.75	11.04	12.46
	8H	13.62	13.88	14.70	14.95	16.41	9.88	10.14	10.96	11.21	12.67