

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: P927652

Luminaire Tested: DFN2DIP-HX4F0-070D100US840-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927652
REPORT IS A COMBINATION OF REPORTS P900933 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-070D100US840-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

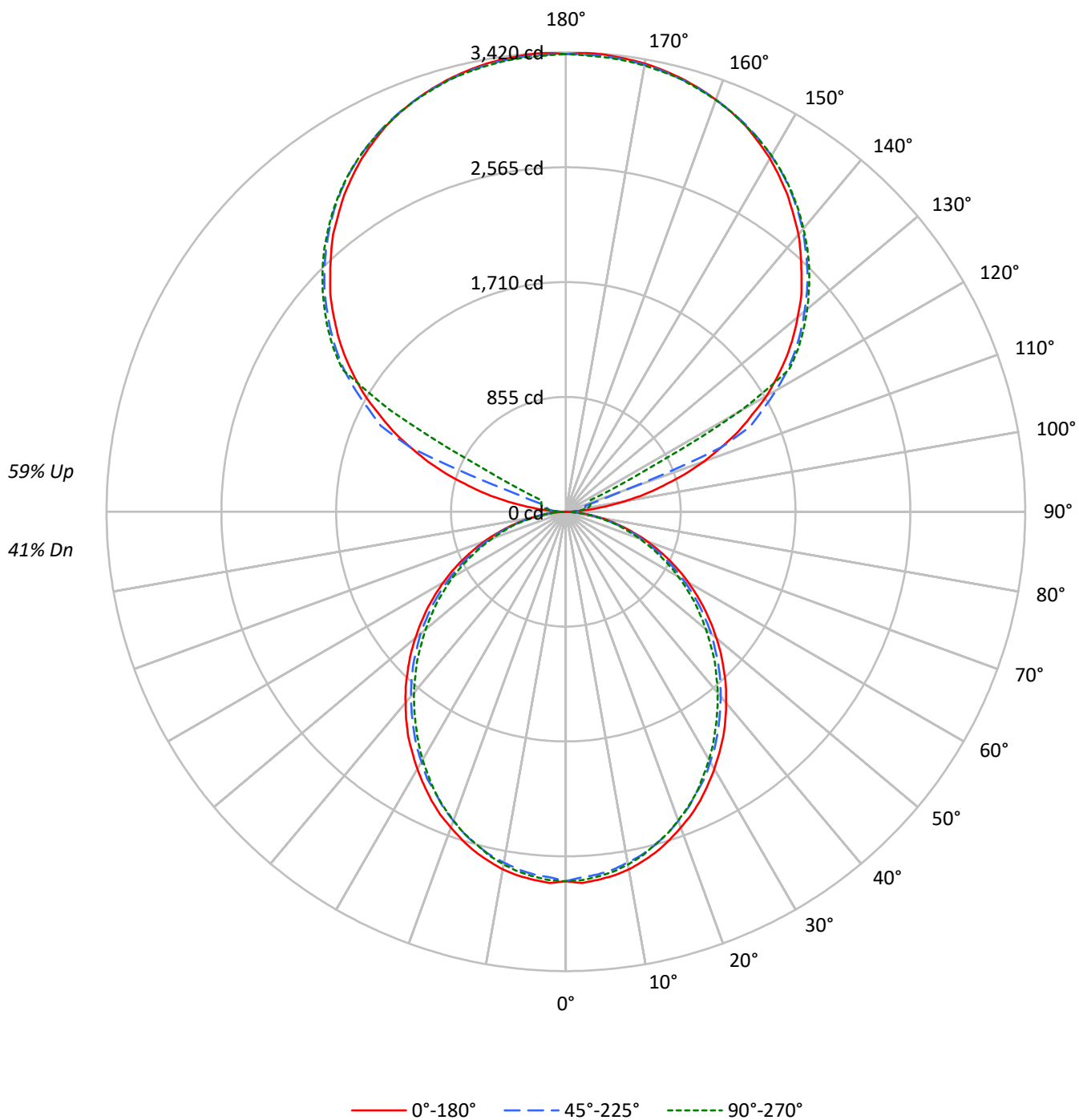
Lumens per Lamp: N/A
Luminaire Lumens: 16995.0 lumens
Efficiency: N/A
Efficacy: 119.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 142.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9972
Total Harmonic Distortion (THDi): 0.128
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P927652

CATALOG NUMBER: DFN2DIP-HX4F0-070D100US840-FLLONL

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
RCR																				
0	105	105	105	105	96	96	96	96		78	78	78		63	63	63		48	48	48
1	96	92	88	84	87	84	80	77		69	66	64		55	54	52		42	41	41
2	87	80	74	69	79	73	68	63		60	56	53		48	46	43		37	36	34
3	80	70	63	57	72	64	58	53		53	49	45		43	39	37		33	31	29
4	73	62	54	48	66	57	50	45		47	42	38		38	34	31		30	27	25
5	67	55	47	41	61	51	44	38		42	37	33		34	30	27		27	24	22
6	61	50	42	36	56	46	38	33		38	33	29		31	27	24		24	21	19
7	57	45	37	31	52	41	34	29		34	29	25		28	24	21		22	19	17
8	53	40	33	28	48	37	31	26		31	26	22		26	22	19		20	17	15
9	49	37	30	25	45	34	27	23		29	23	20		24	20	17		19	16	14
10	46	34	27	22	42	31	25	21		26	21	18		22	18	15		17	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2045	2045	2045
5°	2049	2017	2030
10°	2032	1990	2003
15°	2002	1957	1960
20°	1962	1912	1916
25°	1922	1858	1866
30°	1872	1807	1801
35°	1825	1748	1733
40°	1766	1688	1668
45°	1708	1627	1601
50°	1644	1564	1524
55°	1577	1491	1453
60°	1502	1404	1373
65°	1419	1314	1277
70°	1315	1205	1174
75°	1169	1073	1079
80°	995	907	898
85°	723	618	597

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1748 cd/sqm

TEST NUMBER: P927652

CATALOG NUMBER: DFN2DIP-HX4F0-070D100US840-FLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	258.9	1.5
10°-20°	728.4	4.3
20°-30°	1070.4	6.3
30°-40°	1243.2	7.3
40°-50°	1241.7	7.3
50°-60°	1082.7	6.4
60°-70°	800.4	4.7
70°-80°	452.8	2.7
80°-90°	125.5	0.7
90°-100°	112.4	0.7
100°-110°	418.9	2.5
110°-120°	1111.0	6.5
120°-130°	1842.7	10.8
130°-140°	1957.4	11.5
140°-150°	1819.2	10.7
150°-160°	1462.6	8.6
160°-170°	942.4	5.5
170°-180°	324.4	1.9
0°-30°	2057.6	12.1
0°-40°	3300.9	19.4
0°-60°	5625.2	33.1
0°-90°	7003.9	41.2
90°-120°	1642.3	9.7
90°-150°	7261.7	42.7
90°-180°	9991.0	58.8
0°-180°	16995.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2750	2750	2750	2750	2750	
5°	2750	2740	2711	2732	2727	261
15°	2618	2603	2568	2579	2566	737
25°	2370	2349	2304	2309	2304	1090
35°	2044	2018	1976	1960	1946	1277
45°	1664	1645	1605	1576	1566	1284
55°	1259	1243	1211	1180	1166	1126
65°	849	833	807	783	770	839
75°	444	439	426	410	415	474
85°	108	106	103	95	93	121
90°	2	30	49	62	66	16
95°	160	79	96	109	106	190
105°	750	824	151	177	187	801
115°	1418	1460	1522	380	202	1396
125°	2005	2037	2084	2101	2108	1788
135°	2481	2520	2542	2567	2562	1916
145°	2878	2875	2917	2934	2922	1800
155°	3169	3147	3176	3191	3171	1460
165°	3339	3324	3332	3349	3332	943
175°	3415	3398	3403	3420	3396	325
180°	3408	3408	3408	3408	3408	

TEST NUMBER: P927652

CATALOG NUMBER: DFN2DIP-HX4F0-070D100US840-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2750.4	2750.4	2750.4	2750.4	2750.4
2.5°	2766.4	2753.2	2724.0	2750.4	2745.3
5°	2750.4	2740.1	2710.9	2731.9	2726.9
7.5°	2731.9	2716.2	2687.0	2708.4	2703.0
10°	2703.0	2684.5	2652.7	2673.8	2666.0
12.5°	2663.1	2647.5	2615.8	2628.9	2623.6
15°	2618.3	2602.6	2568.0	2578.7	2565.5
17.5°	2562.7	2547.0	2512.5	2525.7	2512.5
20°	2501.8	2486.1	2449.1	2456.9	2446.5
22.5°	2441.2	2417.4	2382.8	2382.8	2377.5
25°	2369.7	2348.6	2303.8	2308.8	2303.8
27.5°	2290.2	2271.7	2237.5	2229.6	2216.4
30°	2211.2	2189.8	2150.3	2142.4	2131.7
32.5°	2126.3	2110.7	2068.3	2052.3	2041.6
35°	2044.4	2018.1	1975.7	1959.7	1946.5
37.5°	1951.8	1928.0	1885.6	1867.1	1853.9
40°	1856.7	1835.4	1793.0	1769.5	1758.8
42.5°	1764.1	1742.8	1700.7	1674.0	1658.3
45°	1663.6	1645.2	1605.3	1576.4	1565.7
47.5°	1565.7	1547.2	1504.8	1475.6	1460.0
50°	1462.5	1449.3	1412.2	1375.2	1362.0
52.5°	1362.0	1343.5	1309.3	1280.1	1261.5
55°	1259.0	1243.1	1211.4	1179.6	1166.4
57.5°	1155.8	1142.6	1108.1	1076.3	1065.7
60°	1052.5	1042.1	1005.2	976.0	968.1
62.5°	952.0	933.6	907.2	880.8	870.1
65°	849.1	833.1	806.7	782.9	769.7
67.5°	743.3	729.9	706.3	687.8	677.1
70°	645.4	634.8	610.8	592.3	581.9
72.5°	544.9	534.3	521.1	502.6	494.7
75°	444.2	439.2	425.6	410.0	415.3
77.5°	354.4	343.7	338.4	330.5	322.7
80°	264.6	261.8	256.5	248.6	243.3
82.5°	179.8	179.8	177.3	166.7	166.7
85°	108.4	105.8	103.3	95.1	92.6
87.5°	47.7	42.4	37.1	29.2	26.4
90°	2.3	29.6	49.2	61.8	66.4
92.5°	61.8	51.8	59.2	64.1	66.4
95°	160.2	78.8	96.0	108.7	106.0
97.5°	288.4	86.3	125.6	133.2	135.6
100°	436.6	98.7	140.6	160.2	165.2
102.5°	599.1	594.5	145.5	172.5	180.0
105°	749.7	823.7	150.6	177.4	187.4
107.5°	924.8	986.3	155.5	182.5	192.4
110°	1092.5	1144.1	431.6	185.1	194.7

TEST NUMBER: P927652

CATALOG NUMBER: DFN2DIP-HX4F0-070D100US840-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1250.3	1294.6	1252.8	189.7	197.4
115°	1417.9	1459.8	1521.6	379.8	202.4
117.5°	1563.4	1612.7	1654.8	1301.9	656.0
120°	1726.3	1763.1	1807.6	1837.2	1504.3
122.5°	1864.2	1903.7	1953.2	1967.8	1970.4
125°	2004.8	2037.0	2083.8	2101.1	2108.4
127.5°	2133.0	2167.5	2204.7	2229.3	2231.7
130°	2253.9	2293.5	2320.4	2347.6	2345.3
132.5°	2377.2	2409.4	2436.3	2458.6	2456.2
135°	2480.9	2520.4	2542.4	2567.2	2562.3
137.5°	2589.2	2618.8	2643.7	2668.3	2660.9
140°	2695.2	2715.2	2742.0	2764.3	2752.0
142.5°	2784.2	2801.5	2833.4	2853.0	2840.8
145°	2877.9	2875.3	2917.2	2934.5	2922.2
147.5°	2959.0	2951.7	2993.6	3005.9	2996.3
150°	3038.1	3020.8	3060.4	3075.0	3062.7
152.5°	3104.5	3084.9	3121.9	3136.7	3119.5
155°	3168.8	3146.7	3176.3	3191.0	3171.4
157.5°	3220.6	3201.0	3223.2	3240.4	3220.6
160°	3265.1	3250.1	3265.1	3279.7	3262.5
162.5°	3304.3	3289.6	3301.9	3319.2	3297.0
165°	3338.8	3324.2	3331.5	3348.8	3331.5
167.5°	3366.1	3351.1	3358.8	3376.1	3353.7
170°	3388.3	3373.4	3378.4	3395.7	3373.4
172.5°	3402.9	3388.3	3393.3	3410.6	3388.3
175°	3415.2	3398.0	3402.9	3420.3	3395.7
177.5°	3420.3	3402.9	3405.7	3422.9	3400.6
180°	3408.0	3408.0	3408.0	3408.0	3408.0

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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	8.89	9.68	9.92	10.71	12.10	8.46	9.24	9.48	10.28	11.67
	3H	10.54	11.25	11.58	12.29	13.71	10.07	10.78	11.11	11.82	13.23
	4H	11.13	11.80	12.18	12.85	14.26	10.65	11.32	11.71	12.37	13.79
	6H	11.53	12.14	12.59	13.19	14.62	11.05	11.67	12.11	12.72	14.15
	8H	11.63	12.21	12.69	13.28	14.71	11.15	11.74	12.22	12.81	14.23
	12H	11.67	12.23	12.74	13.29	14.74	11.19	11.75	12.26	12.81	14.26
4H	2H	9.34	10.01	10.40	11.06	12.48	9.00	9.66	10.05	10.71	12.13
	3H	11.20	11.76	12.27	12.84	14.27	10.81	11.37	11.87	12.44	13.87
	4H	11.91	12.43	12.99	13.49	14.94	11.51	12.02	12.58	13.09	14.54
	6H	12.43	12.87	13.51	13.95	15.40	12.02	12.46	13.10	13.54	14.99
	8H	12.57	12.98	13.65	14.07	15.53	12.16	12.57	13.24	13.65	15.12
	12H	12.64	13.02	13.74	14.11	15.58	12.22	12.59	13.32	13.69	15.16
8H	4H	12.10	12.52	13.19	13.60	15.06	11.74	12.15	12.82	13.24	14.70
	6H	12.73	13.07	13.84	14.20	15.66	12.37	12.71	13.47	13.83	15.29
	8H	12.96	13.25	14.07	14.36	15.84	12.59	12.88	13.70	13.99	15.47
	12H	13.08	13.35	14.20	14.45	15.97	12.70	12.96	13.81	14.06	15.58
12H	4H	12.09	12.46	13.19	13.55	15.02	11.73	12.11	12.83	13.20	14.67
	6H	12.76	13.06	13.87	14.17	15.65	12.41	12.71	13.52	13.82	15.30
	8H	13.00	13.27	14.12	14.37	15.89	12.65	12.91	13.76	14.01	15.53