

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: P910865

Luminaire Tested: DFN2DIP-HX3F0-090D070US850-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910865
REPORT IS A COMBINATION OF REPORTS P900790 AND P897645
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX3F0-090D070US850-RLLONL
Description: 3 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

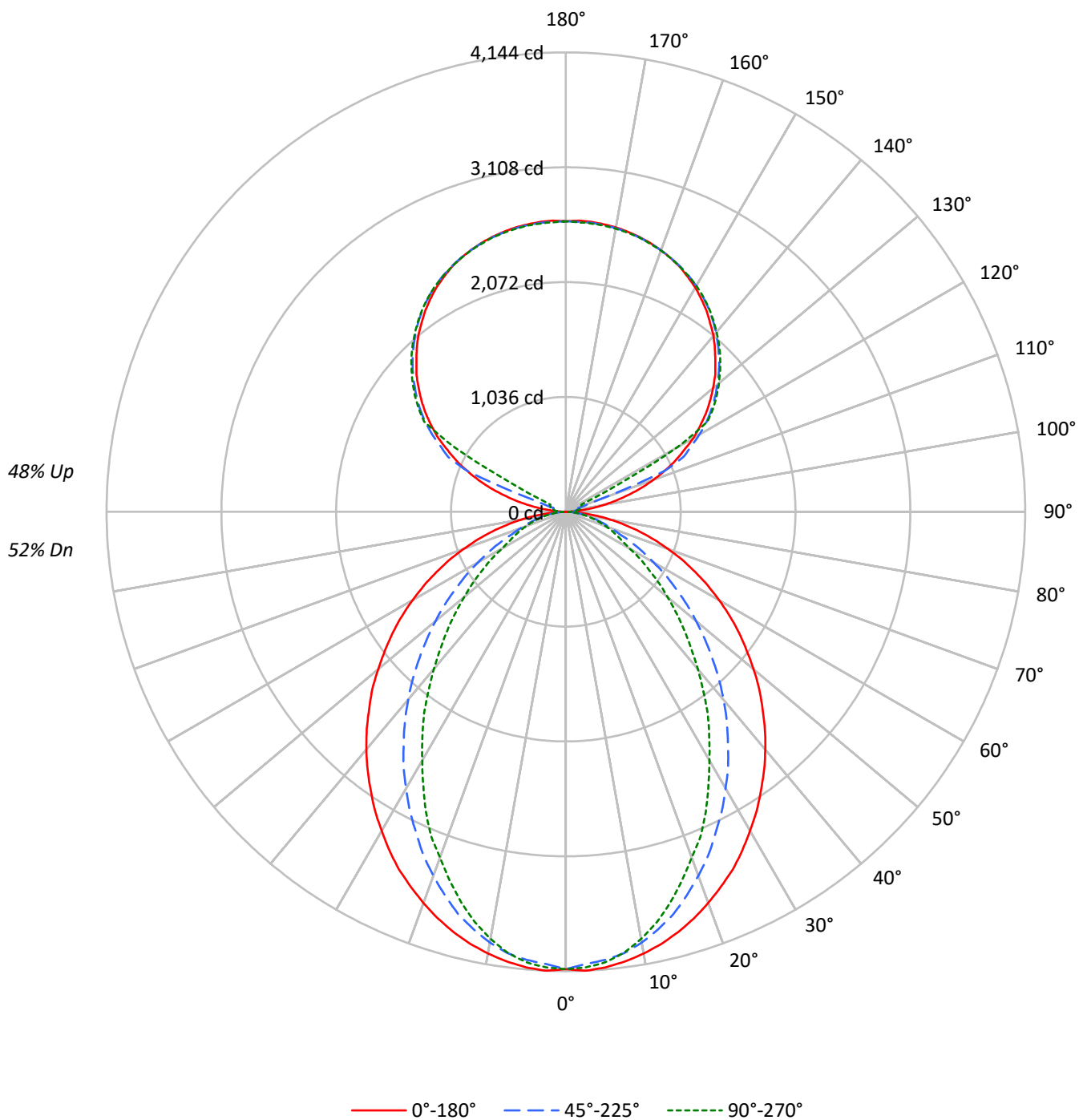
Lumens per Lamp: N/A
Luminaire Lumens: 16169.3 lumens
Efficiency: N/A
Efficacy: 110.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 2.84' x L: 3.28' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 146.1
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9968
Total Harmonic Distortion (THDi): 0.064
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P910865

CATALOG NUMBER: DFN2DIP-HX3F0-090D070US850-RLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P910865

CATALOG NUMBER: DFN2DIP-HX3F0-090D070US850-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
RCR																	
0	108	108	108	108	100	100	100	100	85	85	85	71	71	71	58	58	58
1	99	95	91	88	91	88	85	82	75	73	71	63	62	60	52	51	50
2	90	83	77	72	84	77	72	68	66	63	59	56	53	51	47	45	43
3	83	74	67	61	76	69	62	57	59	54	50	50	47	44	42	39	37
4	76	66	58	52	70	61	54	49	53	48	43	45	41	38	38	35	33
5	70	59	51	45	65	55	48	43	47	42	38	41	36	33	34	31	29
6	65	53	45	39	60	49	42	37	43	37	33	37	33	29	31	28	26
7	60	48	40	35	55	45	38	33	39	34	30	34	29	26	29	25	23
8	56	44	36	31	52	41	34	29	36	30	26	31	27	24	26	23	21
9	52	40	33	28	48	38	31	26	33	28	24	29	24	21	25	21	19
10	49	37	30	25	45	35	28	24	30	25	22	27	22	19	23	20	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4778	4778	4778
5°	4784	4699	4730
10°	4734	4604	4573
15°	4667	4448	4333
20°	4579	4235	4039
25°	4488	3998	3755
30°	4367	3754	3396
35°	4249	3492	3081
40°	4128	3222	2720
45°	3988	2922	2392
50°	3843	2620	2073
55°	3691	2297	1766
60°	3516	1961	1451
65°	3313	1619	1303
70°	3068	1300	1175
75°	2759	1139	1064
80°	2313	945	914
85°	1580	615	672

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3988 cd/sqm

TEST NUMBER: P910865

CATALOG NUMBER: DFN2DIP-HX3F0-090D070US850-RLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	386.6	2.4
10°-20°	1061.3	6.6
20°-30°	1490.1	9.2
30°-40°	1624.3	10.0
40°-50°	1492.9	9.2
50°-60°	1172.4	7.3
60°-70°	763.1	4.7
70°-80°	392.8	2.4
80°-90°	104.9	0.6
90°-100°	86.4	0.5
100°-110°	322.1	2.0
110°-120°	854.1	5.3
120°-130°	1416.6	8.8
130°-140°	1504.8	9.3
140°-150°	1398.5	8.6
150°-160°	1124.4	7.0
160°-170°	724.5	4.5
170°-180°	249.4	1.5
0°-30°	2938.0	18.2
0°-40°	4562.3	28.2
0°-60°	7227.6	44.7
0°-90°	8488.5	52.5
90°-120°	1262.6	7.8
90°-150°	5582.5	34.5
90°-180°	7681.0	47.5
0°-180°	16169.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4125	4125	4125	4125	4125	
5°	4125	4106	4058	4091	4080	391
15°	3924	3882	3756	3685	3648	1106
25°	3562	3442	3196	3043	2986	1638
35°	3069	2878	2550	2315	2232	1921
45°	2509	2258	1867	1601	1512	1937
55°	1908	1616	1213	989	918	1705
65°	1288	986	650	523	511	1277
75°	687	425	299	272	269	726
85°	160	82	71	71	71	184
90°	2	23	38	48	51	15
95°	123	61	74	84	82	146
105°	576	633	116	136	144	616
115°	1090	1122	1170	292	156	1073
125°	1541	1566	1602	1615	1621	1375
135°	1907	1938	1954	1974	1970	1473
145°	2212	2210	2243	2256	2246	1384
155°	2436	2419	2442	2453	2438	1123
165°	2567	2556	2561	2574	2561	725
175°	2626	2612	2616	2629	2610	250
180°	2620	2620	2620	2620	2620	

TEST NUMBER: P910865

CATALOG NUMBER: DFN2DIP-HX3F0-090D070US850-RLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4125.1	4125.1	4125.1	4125.1	4125.1
2.5°	4143.8	4125.1	4083.9	4121.6	4114.1
5°	4125.1	4106.5	4057.8	4091.4	4080.3
7.5°	4091.4	4069.3	4017.0	4031.7	4013.0
10°	4046.7	4020.6	3946.2	3934.6	3912.4
12.5°	3990.8	3957.2	3856.2	3834.0	3792.8
15°	3923.5	3882.4	3755.6	3684.7	3647.5
17.5°	3845.1	3785.3	3628.4	3546.5	3486.7
20°	3755.6	3680.8	3494.1	3401.1	3318.7
22.5°	3658.6	3572.6	3355.9	3229.2	3173.4
25°	3561.6	3441.9	3195.6	3042.7	2986.4
27.5°	3445.9	3318.7	3046.2	2870.8	2784.8
30°	3322.7	3180.5	2881.8	2691.8	2590.7
32.5°	3203.0	3031.1	2725.4	2501.2	2407.7
35°	3068.8	2878.3	2549.9	2314.7	2232.3
37.5°	2938.1	2732.6	2385.6	2127.7	2034.7
40°	2799.9	2576.1	2213.7	1948.7	1851.7
42.5°	2658.1	2419.3	2042.1	1765.7	1672.6
45°	2508.8	2258.5	1866.7	1601.3	1511.8
47.5°	2366.9	2102.0	1698.8	1433.4	1351.4
50°	2210.1	1945.1	1534.4	1276.6	1198.5
52.5°	2056.9	1776.8	1377.6	1131.2	1060.3
55°	1907.5	1616.4	1213.1	989.4	918.5
57.5°	1754.7	1456.0	1067.9	858.7	798.9
60°	1597.7	1299.1	914.6	724.4	664.6
62.5°	1444.9	1146.3	783.8	604.8	575.1
65°	1288.0	985.5	649.5	522.8	511.4
67.5°	1138.7	836.1	522.8	459.0	447.9
70°	981.9	690.8	433.0	395.7	380.6
72.5°	832.5	556.1	362.0	332.3	324.8
75°	686.8	425.4	298.7	272.5	268.9
77.5°	541.4	302.2	235.2	220.2	212.7
80°	406.8	216.7	179.0	164.4	164.4
82.5°	283.6	145.7	123.2	115.7	115.7
85°	160.4	82.0	70.9	70.9	70.9
87.5°	59.8	29.7	29.7	26.2	26.2
90°	1.8	22.7	37.8	47.5	51.1
92.5°	47.5	39.8	45.5	49.4	51.1
95°	123.1	60.6	73.9	83.5	81.5
97.5°	221.7	66.4	96.6	102.5	104.2
100°	335.7	75.9	108.0	123.1	127.0
102.5°	460.6	457.0	111.9	132.6	138.4
105°	576.3	633.2	115.7	136.4	144.1
107.5°	710.9	758.2	119.6	140.3	147.9
110°	840.0	879.5	331.8	142.3	149.7



TEST NUMBER: P910865

CATALOG NUMBER: DFN2DIP-HX3F0-090D070US850-RLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	961.3	995.2	963.1	145.8	151.7
115°	1090.0	1122.2	1169.7	292.0	155.6
117.5°	1201.9	1239.8	1272.1	1000.9	504.3
120°	1327.0	1355.4	1389.7	1412.4	1156.5
122.5°	1433.0	1463.4	1501.6	1512.8	1514.8
125°	1541.2	1565.9	1602.0	1615.3	1620.8
127.5°	1639.8	1666.3	1694.9	1713.8	1715.6
130°	1732.7	1763.1	1783.8	1804.8	1803.0
132.5°	1827.5	1852.3	1873.0	1890.1	1888.3
135°	1907.1	1937.5	1954.5	1973.6	1969.8
137.5°	1990.4	2013.3	2032.4	2051.3	2045.7
140°	2071.9	2087.2	2108.0	2125.1	2115.6
142.5°	2140.4	2153.7	2178.2	2193.3	2183.8
145°	2212.5	2210.5	2242.6	2255.9	2246.5
147.5°	2274.8	2269.2	2301.4	2310.8	2303.4
150°	2335.6	2322.4	2352.7	2363.9	2354.5
152.5°	2386.7	2371.6	2400.0	2411.4	2398.2
155°	2436.0	2419.1	2441.8	2453.1	2438.0
157.5°	2475.8	2460.8	2477.8	2491.1	2475.8
160°	2510.1	2498.6	2510.1	2521.3	2508.0
162.5°	2540.3	2529.0	2538.4	2551.7	2534.6
165°	2566.8	2555.6	2561.1	2574.4	2561.1
167.5°	2587.7	2576.2	2582.1	2595.4	2578.3
170°	2604.8	2593.4	2597.2	2610.5	2593.4
172.5°	2616.1	2604.8	2608.7	2621.9	2604.8
175°	2625.6	2612.2	2616.1	2629.3	2610.5
177.5°	2629.3	2616.1	2618.1	2631.4	2614.2
180°	2619.9	2619.9	2619.9	2619.9	2619.9

TEST NUMBER: P910865

CATALOG NUMBER: DFN2DIP-HX3F0-090D070US850-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	12.77	13.62	13.71	14.57	15.81	8.74	9.60	9.69	10.55	11.79
	3H	14.44	15.20	15.39	16.16	17.43	9.93	10.69	10.88	11.65	12.92
	4H	15.04	15.76	16.01	16.73	18.00	10.38	11.10	11.35	12.07	13.34
	6H	15.46	16.12	16.44	17.10	18.38	10.70	11.36	11.68	12.33	13.61
	8H	15.58	16.21	16.57	17.20	18.48	10.79	11.42	11.77	12.41	13.68
	12H	15.64	16.24	16.63	17.23	18.53	10.83	11.43	11.82	12.41	13.71
4H	2H	12.79	13.51	13.76	14.47	15.75	9.34	10.06	10.31	11.03	12.30
	3H	14.61	15.21	15.59	16.21	17.49	10.69	11.28	11.67	12.28	13.56
	4H	15.30	15.84	16.29	16.83	18.14	11.23	11.78	12.22	12.77	14.07
	6H	15.81	16.28	16.81	17.29	18.60	11.65	12.11	12.65	13.13	14.43
	8H	15.98	16.42	16.98	17.42	18.74	11.77	12.21	12.78	13.22	14.54
	12H	16.07	16.46	17.09	17.49	18.81	11.84	12.23	12.86	13.25	14.58
8H	4H	15.27	15.70	16.27	16.71	18.03	11.51	11.94	12.51	12.95	14.27
	6H	15.82	16.19	16.85	17.24	18.55	12.02	12.38	13.05	13.43	14.75
	8H	16.04	16.35	17.07	17.39	18.73	12.21	12.53	13.24	13.56	14.90
	12H	16.17	16.45	17.21	17.48	18.86	12.32	12.60	13.36	13.63	15.01
12H	4H	15.22	15.61	16.24	16.64	17.96	11.51	11.91	12.53	12.93	14.25
	6H	15.80	16.12	16.84	17.15	18.49	12.07	12.39	13.10	13.42	14.76
	8H	16.02	16.30	17.06	17.33	18.71	12.27	12.55	13.31	13.58	14.97