

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: P910939

Luminaire Tested: DFN2DIP-HX4F0-070D110US850-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910939
REPORT IS A COMBINATION OF REPORTS P899432 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-070D110US850-RLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

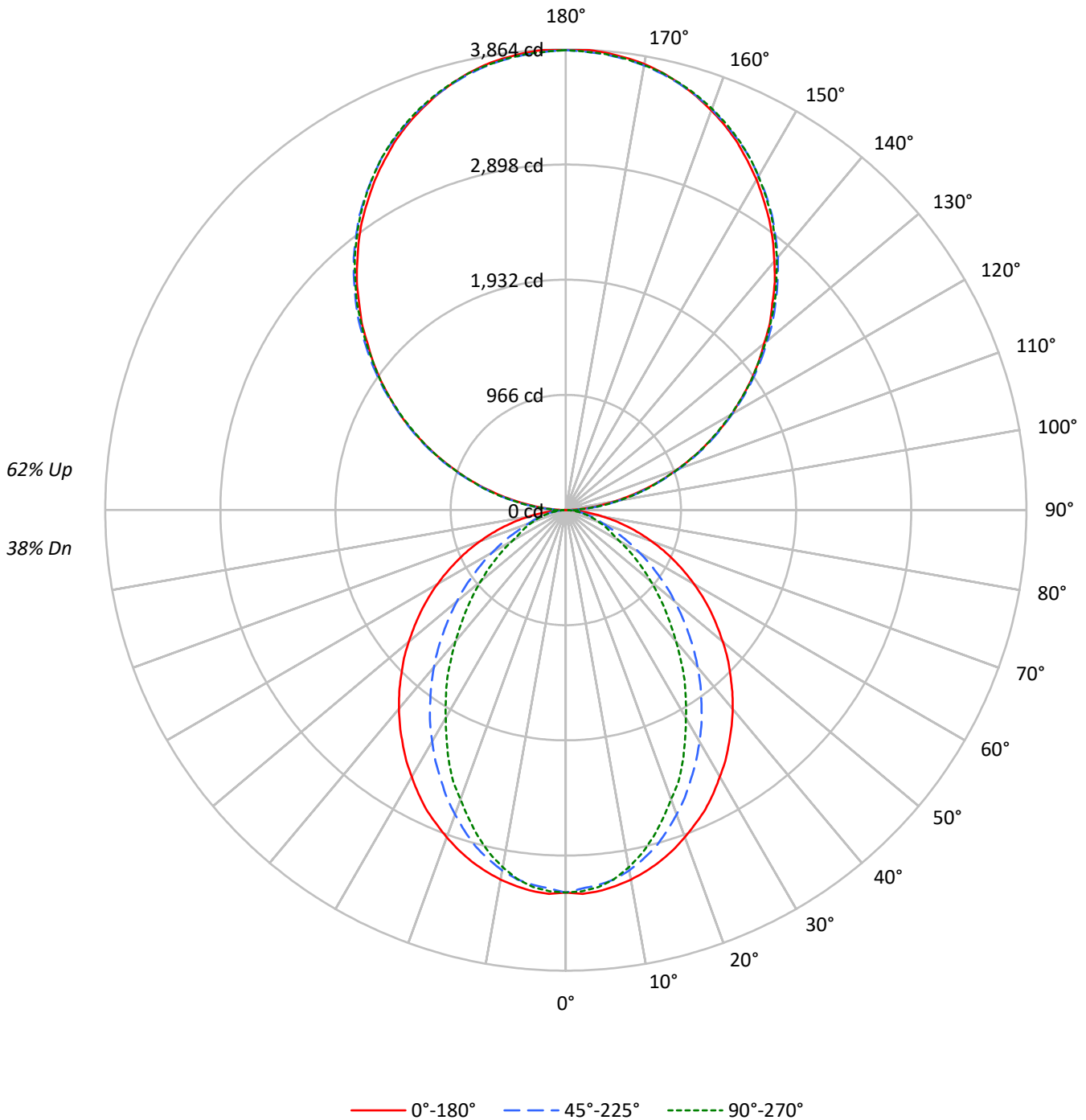
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 17394.6 lumens
Efficiency: N/A
Efficacy: 132.3 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: Semi-Indirect

Input Watts (W): 131.5
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

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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	104	104	104	104	95	95	95	95	77	77	77	60	60	60	45	45	45	38				38
1	95	91	88	84	87	83	80	77	68	66	64	53	52	51	40	40	39	33				33
2	87	80	74	69	79	73	68	64	60	56	53	47	45	43	36	34	33	28				28
3	80	71	64	58	72	65	59	54	53	49	45	42	39	37	32	30	29	24				24
4	73	63	55	49	66	57	51	46	47	42	39	38	34	32	29	27	25	21				21
5	67	56	48	43	61	51	45	40	42	37	34	34	30	28	26	24	22	19				19
6	62	50	43	37	56	46	39	34	38	33	29	31	27	24	24	21	20	16				16
7	57	45	38	32	52	42	35	30	35	30	26	28	24	22	22	19	17	15				15
8	53	41	34	29	48	38	31	27	32	27	23	26	22	19	20	18	16	13				13
9	49	38	30	26	45	35	28	24	29	24	21	24	20	17	19	16	14	12				12
10	46	35	28	23	42	32	26	22	27	22	19	22	18	16	17	15	13	11				11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2386	2386	2386
5°	2390	2348	2363
10°	2366	2302	2286
15°	2334	2226	2167
20°	2291	2122	2022
25°	2247	2004	1881
30°	2188	1884	1702
35°	2130	1755	1546
40°	2071	1621	1365
45°	2003	1472	1203
50°	1932	1322	1043
55°	1858	1161	890
60°	1773	994	733
65°	1675	823	660
70°	1556	664	597
75°	1406	586	544
80°	1190	492	472
85°	832	330	355

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 2909 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	300.7	1.7
10°-20°	825.5	4.7
20°-30°	1158.9	6.7
30°-40°	1263.3	7.3
40°-50°	1161.1	6.7
50°-60°	911.9	5.2
60°-70°	593.5	3.4
70°-80°	305.5	1.8
80°-90°	88.9	0.5
90°-100°	238.7	1.4
100°-110°	758.6	4.4
110°-120°	1298.1	7.5
120°-130°	1707.2	9.8
130°-140°	1916.3	11.0
140°-150°	1879.1	10.8
150°-160°	1576.3	9.1
160°-170°	1045.4	6.0
170°-180°	365.4	2.1
0°-30°	2285.1	13.1
0°-40°	3548.4	20.4
0°-60°	5621.4	32.3
0°-90°	6609.5	38.0
90°-120°	2295.4	13.2
90°-150°	7798.0	44.8
90°-180°	10785.0	62.0
0°-180°	17394.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3208	3208	3208	3208	3208	
5°	3208	3194	3156	3182	3174	304
15°	3052	3020	2921	2866	2837	860
25°	2770	2677	2485	2366	2323	1274
35°	2387	2239	1983	1800	1736	1494
45°	1951	1756	1452	1246	1176	1507
55°	1484	1257	944	770	714	1326
65°	1002	766	505	407	398	993
75°	534	331	232	212	209	565
85°	125	64	55	55	55	143
90°	3	42	114	107	110	17
95°	170	202	208	208	202	189
105°	700	710	716	722	722	739
115°	1303	1321	1316	1312	1303	1288
125°	1895	1924	1914	1904	1900	1693
135°	2451	2487	2494	2490	2481	1894
145°	2975	2998	3017	3021	3008	1859
155°	3402	3411	3422	3438	3428	1566
165°	3701	3698	3698	3721	3704	1044
175°	3851	3842	3835	3858	3838	366
180°	3858	3858	3858	3858	3858	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3208.4	3208.4	3208.4	3208.4	3208.4
2.5°	3222.9	3208.4	3176.4	3205.7	3199.8
5°	3208.4	3193.9	3156.1	3182.3	3173.6
7.5°	3182.3	3165.0	3124.4	3135.7	3121.3
10°	3147.5	3127.2	3069.2	3060.3	3043.0
12.5°	3104.0	3077.8	2999.3	2982.0	2949.9
15°	3051.6	3019.6	2921.0	2865.9	2836.9
17.5°	2990.6	2944.2	2822.2	2758.3	2711.8
20°	2921.0	2862.8	2717.7	2645.3	2581.2
22.5°	2845.6	2778.7	2610.1	2511.6	2468.2
25°	2770.1	2677.0	2485.4	2366.5	2322.8
27.5°	2680.1	2581.2	2369.3	2232.9	2166.0
30°	2584.3	2473.7	2241.4	2093.6	2015.1
32.5°	2491.3	2357.6	2119.7	1945.4	1872.7
35°	2386.8	2238.6	1983.3	1800.4	1736.3
37.5°	2285.2	2125.3	1855.5	1654.8	1582.5
40°	2177.6	2003.6	1721.7	1515.7	1440.1
42.5°	2067.4	1881.6	1588.3	1373.3	1301.0
45°	1951.3	1756.5	1451.9	1245.5	1175.9
47.5°	1840.9	1634.9	1321.3	1114.9	1051.1
50°	1719.0	1512.9	1193.4	992.9	932.2
52.5°	1599.7	1381.9	1071.4	879.8	824.7
55°	1483.6	1257.2	943.5	769.5	714.4
57.5°	1364.7	1132.4	830.5	667.8	621.4
60°	1242.7	1010.4	711.3	563.5	516.9
62.5°	1123.7	891.5	609.6	470.4	447.3
65°	1001.8	766.4	505.3	406.7	397.7
67.5°	885.6	650.3	406.7	357.0	348.4
70°	763.7	537.2	336.7	307.7	296.0
72.5°	647.5	432.5	281.6	258.5	252.6
75°	534.2	330.8	232.2	211.9	209.2
77.5°	421.1	235.0	183.0	171.2	165.5
80°	316.4	168.5	139.3	127.9	127.9
82.5°	220.6	113.3	95.8	89.9	89.9
85°	124.8	63.8	55.1	55.1	55.1
87.5°	46.5	23.1	23.1	20.3	20.3
90°	3.4	41.9	114.0	107.0	110.5
92.5°	72.1	97.7	101.1	104.7	104.7
95°	169.8	202.4	208.2	208.2	202.4
97.5°	282.7	312.8	325.7	325.7	325.7
100°	412.9	439.6	448.9	448.9	445.5
102.5°	550.2	569.9	582.8	586.2	582.8
105°	700.2	709.5	716.5	722.3	722.3
107.5°	849.1	863.0	863.0	865.4	849.1
110°	993.3	1012.0	1012.0	1012.0	1002.6



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1149.1	1168.9	1165.4	1156.1	1149.1
115°	1302.7	1321.3	1315.5	1312.1	1302.7
117.5°	1455.1	1480.6	1464.3	1455.1	1445.8
120°	1608.6	1634.2	1608.6	1608.6	1598.2
122.5°	1748.2	1780.7	1764.4	1755.1	1748.2
125°	1894.7	1923.8	1914.5	1904.0	1900.5
127.5°	2037.8	2073.8	2061.1	2047.1	2037.8
130°	2171.5	2213.5	2207.6	2200.6	2187.8
132.5°	2321.6	2354.2	2356.5	2340.2	2330.9
135°	2450.7	2486.7	2493.7	2490.3	2480.9
137.5°	2594.9	2624.0	2629.8	2627.4	2613.6
140°	2721.7	2750.8	2767.1	2767.1	2754.3
142.5°	2852.0	2881.1	2890.4	2893.8	2881.1
145°	2975.2	2998.5	3017.1	3020.6	3007.8
147.5°	3085.8	3114.8	3128.8	3134.6	3121.8
150°	3199.8	3219.5	3232.3	3242.8	3232.3
152.5°	3300.9	3320.7	3337.0	3349.8	3337.0
155°	3402.2	3411.4	3421.9	3438.2	3427.7
157.5°	3489.4	3496.3	3502.1	3525.4	3509.1
160°	3567.3	3574.3	3577.7	3597.6	3583.6
162.5°	3639.4	3639.4	3643.0	3665.0	3648.7
165°	3701.1	3697.5	3697.5	3720.8	3704.5
167.5°	3756.8	3746.4	3746.4	3769.7	3753.4
170°	3798.8	3789.5	3786.0	3809.2	3789.5
172.5°	3827.8	3818.5	3815.1	3838.4	3818.5
175°	3851.1	3841.8	3834.8	3858.1	3838.4
177.5°	3863.9	3854.6	3847.6	3867.4	3847.6
180°	3858.1	3858.1	3858.1	3858.1	3858.1



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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	8.93	9.67	9.99	10.73	12.17	4.90	5.65	5.96	6.70	8.14
	3H	10.60	11.27	11.67	12.33	13.79	6.09	6.75	7.16	7.82	9.27
	4H	11.21	11.84	12.29	12.91	14.37	6.54	7.16	7.62	8.23	9.69
	6H	11.63	12.20	12.72	13.28	14.75	6.85	7.43	7.94	8.50	9.98
	8H	11.75	12.30	12.84	13.39	14.85	6.94	7.49	8.04	8.58	10.05
	12H	11.81	12.33	12.91	13.41	14.90	6.98	7.51	8.08	8.59	10.08
4H	2H	8.94	9.57	10.03	10.64	12.10	5.49	6.12	6.58	7.19	8.65
	3H	10.76	11.28	11.85	12.38	13.85	6.83	7.36	7.93	8.45	9.92
	4H	11.45	11.93	12.55	13.02	14.51	7.38	7.86	8.48	8.94	10.44
	6H	11.96	12.37	13.07	13.48	14.97	7.80	8.21	8.90	9.32	10.80
	8H	12.14	12.52	13.24	13.62	15.12	7.92	8.31	9.03	9.41	10.91
	12H	12.23	12.57	13.35	13.69	15.20	7.99	8.33	9.11	9.45	10.95
8H	4H	11.41	11.80	12.52	12.90	14.40	7.65	8.04	8.76	9.14	10.64
	6H	11.98	12.29	13.10	13.44	14.94	8.17	8.49	9.30	9.63	11.13
	8H	12.19	12.47	13.33	13.59	15.11	8.36	8.64	9.50	9.76	11.28
	12H	12.33	12.57	13.47	13.69	15.25	8.48	8.72	9.62	9.84	11.40
12H	4H	11.36	11.71	12.48	12.82	14.33	7.65	8.00	8.78	9.12	10.62
	6H	11.95	12.23	13.09	13.35	14.87	8.22	8.50	9.35	9.62	11.14
	8H	12.17	12.41	13.31	13.53	15.09	8.43	8.67	9.57	9.79	11.35