

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: P927332

Luminaire Tested: DFN2DIP-HX4F0-070D110US835-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927332
REPORT IS A COMBINATION OF REPORTS P900951 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-070D110US835-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

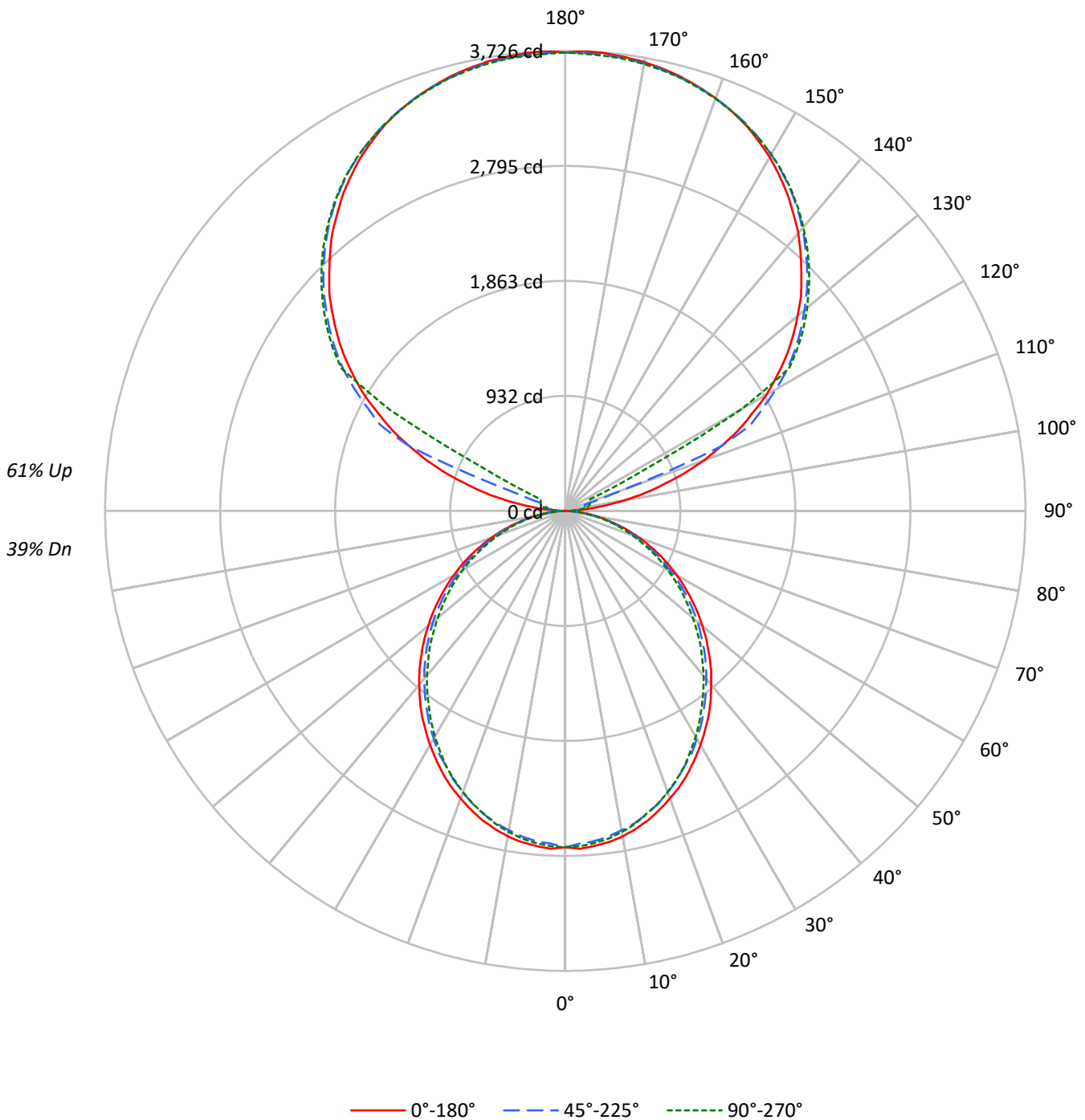
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 17820.0 lumens
Efficiency: N/A
Efficacy: 116.1 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: Semi-Indirect

Input Watts (W): 153.5
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				
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	105	105	105	105	95	95	95	95	77	77	77	61	61	61	46	46	46	39			39
1	95	91	87	84	86	83	80	77	68	65	63	54	52	51	41	40	39	33			33
2	87	79	73	68	79	72	67	63	59	56	52	47	44	42	36	34	33	27			27
3	79	70	63	57	72	64	58	53	52	48	44	42	38	36	32	30	28	23			23
4	72	62	54	48	65	56	50	44	46	41	37	37	33	31	28	26	24	20			20
5	66	55	47	41	60	50	43	38	41	36	32	33	29	26	25	23	21	17			17
6	61	49	41	36	55	45	38	33	37	32	28	30	26	23	23	20	18	15			15
7	56	44	37	31	51	41	34	29	34	28	25	27	23	20	21	18	16	14			14
8	52	40	33	27	47	37	30	26	31	26	22	25	21	18	19	17	15	12			12
9	49	37	29	24	44	34	27	23	28	23	19	23	19	16	18	15	13	11			11
10	45	34	26	22	41	31	25	20	26	21	17	21	17	15	17	14	12	10			10

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2025	2025	2025
5°	2029	1997	2011
10°	2012	1971	1983
15°	1983	1938	1941
20°	1943	1893	1898
25°	1904	1840	1847
30°	1854	1790	1783
35°	1807	1731	1716
40°	1749	1671	1651
45°	1691	1612	1586
50°	1628	1549	1509
55°	1562	1477	1439
60°	1487	1391	1359
65°	1406	1302	1264
70°	1302	1193	1163
75°	1158	1063	1069
80°	985	898	889
85°	715	612	591

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 1906 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	256.4	1.4
10°-20°	721.3	4.0
20°-30°	1060.0	5.9
30°-40°	1231.1	6.9
40°-50°	1229.6	6.9
50°-60°	1072.2	6.0
60°-70°	792.6	4.4
70°-80°	448.4	2.5
80°-90°	124.9	0.7
90°-100°	122.4	0.7
100°-110°	456.3	2.6
110°-120°	1210.3	6.8
120°-130°	2007.3	11.3
130°-140°	2132.2	12.0
140°-150°	1981.7	11.1
150°-160°	1593.2	8.9
160°-170°	1026.6	5.8
170°-180°	353.3	2.0
0°-30°	2037.7	11.4
0°-40°	3268.8	18.3
0°-60°	5570.6	31.3
0°-90°	6936.6	38.9
90°-120°	1789.0	10.0
90°-150°	7910.3	44.4
90°-180°	10883.0	61.1
0°-180°	17820.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2724	2724	2724	2724	2724	
5°	2724	2714	2685	2705	2700	259
15°	2593	2577	2543	2554	2541	730
25°	2347	2326	2281	2286	2281	1080
35°	2025	1998	1956	1941	1928	1264
45°	1648	1629	1590	1561	1550	1271
55°	1247	1231	1200	1168	1155	1115
65°	841	825	799	775	762	831
75°	440	435	422	406	411	470
85°	107	105	102	94	92	120
90°	3	32	54	67	72	16
95°	174	86	105	118	116	207
105°	817	897	164	193	204	873
115°	1544	1590	1658	414	220	1521
125°	2184	2219	2270	2289	2297	1948
135°	2702	2746	2769	2797	2791	2088
145°	3135	3132	3178	3197	3183	1961
155°	3452	3428	3460	3476	3455	1591
165°	3637	3621	3629	3648	3629	1028
175°	3720	3702	3707	3726	3699	354
180°	3712	3712	3712	3712	3712	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2723.7	2723.7	2723.7	2723.7	2723.7
2.5°	2739.6	2726.5	2697.6	2723.7	2718.7
5°	2723.7	2713.5	2684.6	2705.4	2700.4
7.5°	2705.4	2689.8	2660.9	2682.1	2676.8
10°	2676.8	2658.4	2627.0	2647.9	2640.1
12.5°	2637.3	2621.8	2590.4	2603.4	2598.1
15°	2592.9	2577.3	2543.1	2553.7	2540.6
17.5°	2537.8	2522.3	2488.1	2501.2	2488.1
20°	2477.5	2462.0	2425.3	2433.1	2422.8
22.5°	2417.5	2393.9	2359.7	2359.7	2354.4
25°	2346.7	2325.8	2281.4	2286.4	2281.4
27.5°	2268.0	2249.7	2215.8	2208.0	2194.9
30°	2189.7	2168.5	2129.4	2121.6	2111.0
32.5°	2105.7	2090.2	2048.2	2032.4	2021.8
35°	2024.6	1998.5	1956.5	1940.7	1927.6
37.5°	1932.9	1909.3	1867.3	1849.0	1835.9
40°	1838.7	1817.6	1775.6	1752.3	1741.7
42.5°	1747.0	1725.9	1684.2	1657.8	1642.2
45°	1647.5	1629.2	1589.7	1561.1	1550.5
47.5°	1550.5	1532.2	1490.2	1461.3	1445.8
50°	1448.3	1435.2	1398.5	1361.9	1348.8
52.5°	1348.8	1330.5	1296.6	1267.7	1249.3
55°	1246.8	1231.0	1199.6	1168.2	1155.1
57.5°	1144.6	1131.5	1097.3	1065.9	1055.4
60°	1042.3	1032.0	995.4	966.5	958.7
62.5°	942.8	924.5	898.4	872.3	861.7
65°	840.9	825.0	798.9	775.3	762.2
67.5°	736.1	722.8	699.4	681.1	670.5
70°	639.1	628.6	604.9	586.6	576.3
72.5°	539.6	529.1	516.0	497.7	489.9
75°	439.9	434.9	421.5	406.0	411.3
77.5°	351.0	340.4	335.1	327.3	319.6
80°	262.0	259.3	254.0	246.2	240.9
82.5°	178.1	178.1	175.6	165.1	165.1
85°	107.3	104.8	102.3	94.2	91.7
87.5°	47.2	42.0	36.7	28.9	26.1
90°	2.6	32.2	53.6	67.3	72.4
92.5°	67.3	56.5	64.4	69.9	72.4
95°	174.5	85.8	104.6	118.3	115.5
97.5°	314.2	94.1	136.8	145.1	147.7
100°	475.6	107.5	153.1	174.5	179.9
102.5°	652.6	647.5	158.5	187.9	196.2
105°	816.6	897.3	164.0	193.3	204.2
107.5°	1007.4	1074.3	169.4	198.7	209.6
110°	1190.1	1246.3	470.2	201.6	212.1



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1362.1	1410.2	1364.6	206.7	215.0
115°	1544.5	1590.1	1657.5	413.7	220.4
117.5°	1703.1	1756.7	1802.6	1418.2	714.5
120°	1880.4	1920.6	1969.1	2001.3	1638.6
122.5°	2030.7	2073.7	2127.6	2143.6	2146.5
125°	2183.8	2218.9	2269.9	2288.7	2296.7
127.5°	2323.5	2361.1	2401.6	2428.4	2431.0
130°	2455.2	2498.3	2527.6	2557.3	2554.8
132.5°	2589.5	2624.6	2654.0	2678.2	2675.7
135°	2702.5	2745.5	2769.4	2796.6	2791.1
137.5°	2820.5	2852.7	2879.8	2906.6	2898.6
140°	2936.0	2957.6	2987.0	3011.2	2997.8
142.5°	3032.9	3051.7	3086.5	3107.9	3094.5
145°	3135.0	3132.1	3177.7	3196.6	3183.2
147.5°	3223.4	3215.4	3261.0	3274.4	3263.9
150°	3309.5	3290.7	3333.7	3349.7	3336.3
152.5°	3381.9	3360.5	3400.7	3417.0	3398.2
155°	3451.8	3427.8	3460.0	3476.0	3454.6
157.5°	3508.2	3486.8	3511.1	3529.9	3508.2
160°	3556.7	3540.4	3556.7	3572.6	3553.8
162.5°	3599.4	3583.5	3596.9	3615.7	3591.5
165°	3637.1	3621.1	3629.1	3647.9	3629.1
167.5°	3666.7	3650.5	3658.8	3677.6	3653.4
170°	3691.0	3674.7	3680.1	3699.0	3674.7
172.5°	3706.9	3691.0	3696.4	3715.2	3691.0
175°	3720.3	3701.5	3706.9	3725.8	3699.0
177.5°	3725.8	3706.9	3709.8	3728.6	3704.4
180°	3712.4	3712.4	3712.4	3712.4	3712.4



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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	8.61	9.38	9.65	10.43	11.85	8.17	8.94	9.22	10.00	11.42
	3H	10.26	10.95	11.32	12.01	13.45	9.79	10.48	10.84	11.54	12.98
	4H	10.84	11.50	11.91	12.56	14.01	10.37	11.02	11.44	12.09	13.53
	6H	11.24	11.84	12.32	12.91	14.37	10.76	11.37	11.84	12.43	13.89
	8H	11.34	11.92	12.42	13.00	14.45	10.87	11.44	11.95	12.52	13.98
	12H	11.39	11.93	12.47	13.01	14.49	10.91	11.45	11.99	12.53	14.00
4H	2H	9.06	9.71	10.13	10.77	12.22	8.71	9.37	9.79	10.43	11.88
	3H	10.92	11.46	12.00	12.55	14.01	10.52	11.07	11.60	12.16	13.62
	4H	11.63	12.13	12.71	13.21	14.69	11.22	11.72	12.31	12.80	14.28
	6H	12.14	12.57	13.23	13.67	15.15	11.73	12.16	12.82	13.26	14.74
	8H	12.29	12.69	13.38	13.78	15.27	11.87	12.27	12.97	13.37	14.86
	12H	12.35	12.72	13.47	13.83	15.32	11.93	12.30	13.05	13.40	14.90
8H	4H	11.82	12.22	12.91	13.31	14.80	11.46	11.86	12.55	12.95	14.44
	6H	12.45	12.78	13.56	13.91	15.40	12.08	12.41	13.20	13.55	15.04
	8H	12.67	12.96	13.79	14.08	15.58	12.30	12.59	13.42	13.71	15.21
	12H	12.79	13.05	13.92	14.16	15.71	12.41	12.66	13.54	13.78	15.32
12H	4H	11.80	12.16	12.91	13.27	14.77	11.45	11.81	12.56	12.92	14.41
	6H	12.47	12.77	13.60	13.88	15.39	12.12	12.41	13.25	13.53	15.04
	8H	12.71	12.97	13.84	14.08	15.63	12.36	12.61	13.48	13.73	15.27