

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: P916482

Luminaire Tested: DFN2DIP-HX4F0-120D100US930-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P916482
REPORT IS A COMBINATION OF REPORTS P899423 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-120D100US930-FLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

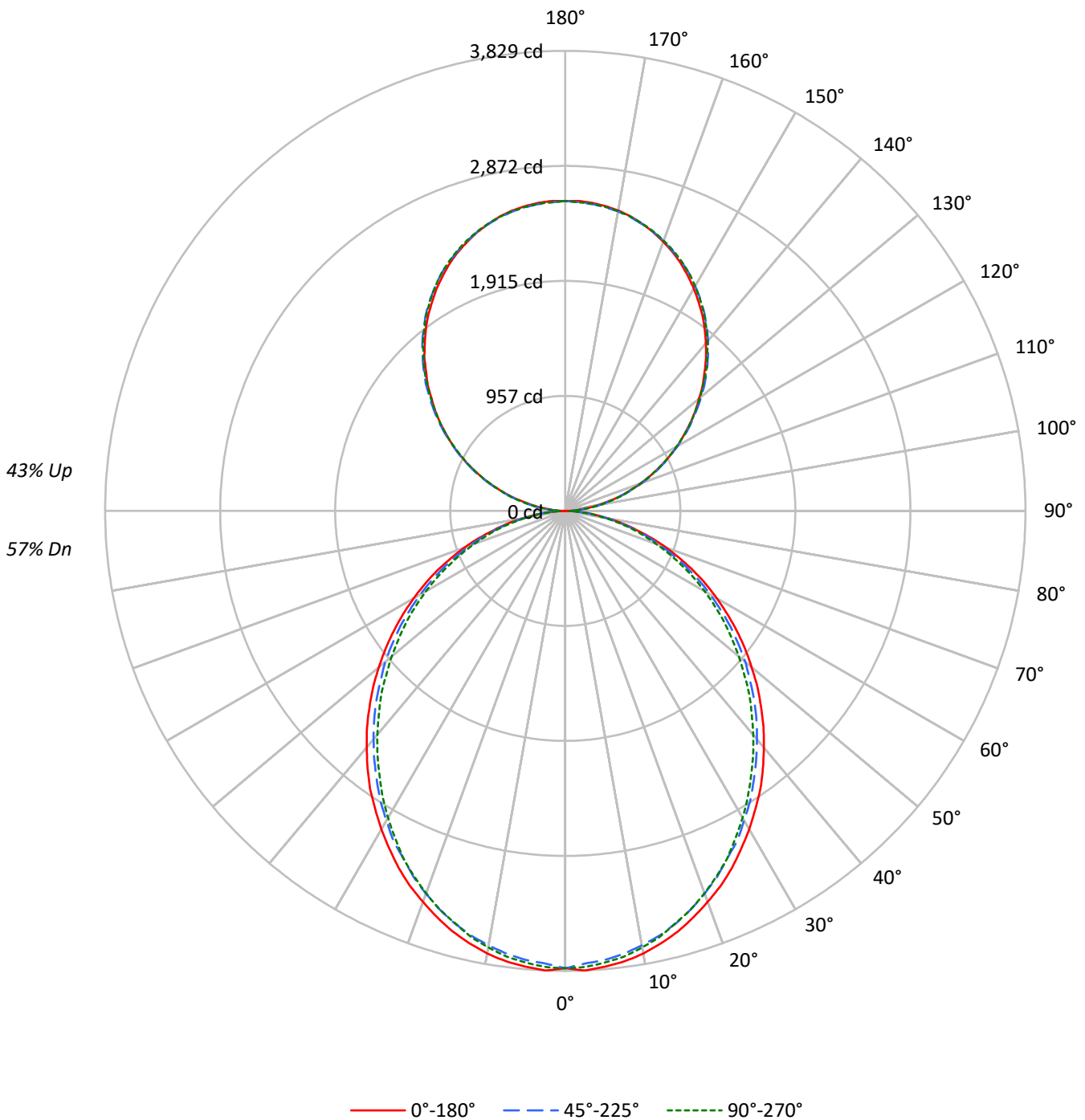
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 16901.1 lumens
Efficiency: N/A
Efficacy: 91.9 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): 183.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9954
Total Harmonic Distortion (THDi): 0.076
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	109	109	109	109	101	101	101	101	87	87	87	75	75	75	63	63	63	57	57	57	57
1	99	95	91	88	92	89	85	82	77	74	72	66	64	62	56	54	53	48	48	48	48
2	91	83	77	72	84	78	72	67	67	63	60	58	55	52	49	47	45	40	40	40	40
3	83	73	66	60	77	68	62	56	59	54	50	51	47	44	43	41	38	34	34	34	34
4	76	65	57	51	70	61	53	48	53	47	43	46	41	38	39	36	33	29	29	29	29
5	69	58	49	43	64	54	47	41	47	41	37	41	36	33	35	31	29	26	26	26	26
6	64	52	44	38	59	49	41	36	43	37	32	37	32	29	32	28	25	22	22	22	22
7	59	47	39	33	55	44	37	32	39	33	28	34	29	25	29	25	22	20	20	20	20
8	55	43	35	29	51	40	33	28	35	29	25	31	26	23	27	23	20	18	18	18	18
9	51	39	31	26	48	37	30	25	32	27	23	28	24	20	25	21	18	16	16	16	16
10	48	36	28	24	45	34	27	23	30	24	21	26	22	19	23	19	17	15	15	15	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2831	2831	2831
5°	2835	2791	2810
10°	2813	2754	2772
15°	2771	2709	2713
20°	2716	2646	2652
25°	2661	2571	2582
30°	2591	2501	2493
35°	2525	2419	2398
40°	2444	2336	2308
45°	2364	2253	2216
50°	2275	2165	2110
55°	2183	2064	2012
60°	2078	1943	1900
65°	1965	1819	1767
70°	1820	1667	1625
75°	1619	1486	1494
80°	1377	1255	1243
85°	999	855	827

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2364 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	358.3	2.1
10°-20°	1008.1	6.0
20°-30°	1481.5	8.8
30°-40°	1720.7	10.2
40°-50°	1718.6	10.2
50°-60°	1498.5	8.9
60°-70°	1107.8	6.6
70°-80°	626.7	3.7
80°-90°	172.7	1.0
90°-100°	159.6	0.9
100°-110°	507.0	3.0
110°-120°	867.6	5.1
120°-130°	1141.0	6.8
130°-140°	1280.7	7.6
140°-150°	1255.9	7.4
150°-160°	1053.5	6.2
160°-170°	698.7	4.1
170°-180°	244.2	1.4
0°-30°	2848.0	16.9
0°-40°	4568.7	27.0
0°-60°	7785.8	46.1
0°-90°	9693.1	57.4
90°-120°	1534.1	9.1
90°-150°	5211.7	30.8
90°-180°	7208.0	42.6
0°-180°	16901.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3807	3807	3807	3807	3807	
5°	3807	3792	3752	3781	3774	361
15°	3624	3602	3554	3569	3551	1021
25°	3280	3251	3188	3196	3188	1509
35°	2830	2793	2734	2712	2694	1767
45°	2303	2277	2222	2182	2167	1777
55°	1743	1720	1677	1633	1614	1558
65°	1175	1153	1117	1084	1065	1162
75°	615	608	589	567	575	656
85°	150	146	143	132	128	167
90°	2	28	76	72	74	16
95°	114	135	139	139	135	126
105°	468	474	479	483	483	494
115°	871	883	879	877	871	861
125°	1266	1286	1280	1272	1270	1132
135°	1638	1662	1667	1664	1658	1266
145°	1988	2004	2016	2019	2010	1242
155°	2274	2280	2287	2298	2291	1047
165°	2474	2471	2471	2487	2476	698
175°	2574	2568	2563	2578	2565	245
180°	2578	2578	2578	2578	2578	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3806.9	3806.9	3806.9	3806.9	3806.9
2.5°	3829.0	3810.7	3770.3	3806.9	3799.9
5°	3806.9	3792.4	3752.1	3781.2	3774.2
7.5°	3781.2	3759.4	3719.1	3748.6	3741.2
10°	3741.2	3715.6	3671.7	3700.8	3690.0
12.5°	3686.0	3664.3	3620.4	3638.7	3631.3
15°	3623.9	3602.2	3554.4	3569.1	3550.9
17.5°	3547.0	3525.3	3477.5	3495.8	3477.5
20°	3462.7	3441.0	3389.8	3400.6	3386.3
22.5°	3378.8	3345.8	3298.0	3298.0	3290.7
25°	3279.8	3250.7	3188.5	3195.6	3188.5
27.5°	3169.9	3144.3	3096.9	3086.0	3067.8
30°	3060.4	3030.9	2976.1	2965.2	2950.5
32.5°	2943.1	2921.4	2862.7	2840.6	2825.8
35°	2829.7	2793.2	2734.5	2712.4	2694.2
37.5°	2701.5	2668.6	2609.9	2584.3	2566.0
40°	2569.9	2540.4	2481.7	2449.1	2434.3
42.5°	2441.7	2412.2	2353.9	2317.1	2295.3
45°	2302.6	2277.0	2221.9	2181.9	2167.1
47.5°	2167.1	2141.5	2082.8	2042.5	2020.7
50°	2024.2	2006.0	1954.7	1903.4	1885.1
52.5°	1885.1	1859.5	1812.2	1771.7	1746.1
55°	1742.6	1720.5	1676.6	1632.7	1614.5
57.5°	1599.7	1581.4	1533.7	1489.8	1475.0
60°	1456.8	1442.4	1391.1	1350.8	1339.9
62.5°	1317.8	1292.1	1255.6	1219.1	1204.4
65°	1175.3	1153.1	1116.6	1083.5	1065.4
67.5°	1028.8	1010.2	977.5	951.9	937.2
70°	893.2	878.5	845.5	819.9	805.5
72.5°	754.2	739.5	721.2	695.6	684.7
75°	614.8	607.8	589.1	567.4	574.8
77.5°	490.5	475.7	468.4	457.5	446.6
80°	366.2	362.3	355.0	344.1	336.7
82.5°	248.9	248.9	245.5	230.7	230.7
85°	149.9	146.4	142.9	131.7	128.2
87.5°	66.0	58.6	51.3	40.4	36.5
90°	2.4	28.0	76.1	71.5	73.9
92.5°	48.2	65.3	67.7	70.0	70.0
95°	113.5	135.3	139.2	139.2	135.3
97.5°	188.9	209.1	217.7	217.7	217.7
100°	276.0	293.8	300.0	300.0	297.7
102.5°	367.7	380.9	389.5	391.8	389.5
105°	468.0	474.2	478.8	482.7	482.7
107.5°	567.4	576.8	576.8	578.4	567.4
110°	663.9	676.3	676.3	676.3	670.1



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	768.0	781.2	778.9	772.7	768.0
115°	870.7	883.0	879.2	876.9	870.7
117.5°	972.5	989.6	978.7	972.5	966.2
120°	1075.1	1092.2	1075.1	1075.1	1068.1
122.5°	1168.3	1190.1	1179.2	1173.1	1168.3
125°	1266.3	1285.7	1279.5	1272.5	1270.2
127.5°	1362.0	1386.0	1377.4	1368.2	1362.0
130°	1451.3	1479.3	1475.4	1470.7	1462.2
132.5°	1551.6	1573.4	1574.9	1564.1	1557.8
135°	1637.9	1662.0	1666.6	1664.3	1658.1
137.5°	1734.3	1753.7	1757.6	1756.1	1746.7
140°	1819.0	1838.4	1849.3	1849.3	1840.8
142.5°	1906.1	1925.5	1931.7	1934.1	1925.5
145°	1988.4	2004.0	2016.5	2018.8	2010.2
147.5°	2062.3	2081.8	2091.1	2095.0	2086.4
150°	2138.5	2151.7	2160.3	2167.2	2160.3
152.5°	2206.1	2219.3	2230.2	2238.8	2230.2
155°	2273.8	2280.0	2287.0	2297.8	2290.8
157.5°	2332.1	2336.7	2340.6	2356.1	2345.3
160°	2384.2	2388.8	2391.1	2404.3	2395.0
162.5°	2432.4	2432.4	2434.6	2449.4	2438.6
165°	2473.5	2471.2	2471.2	2486.7	2475.9
167.5°	2510.9	2503.9	2503.9	2519.4	2508.5
170°	2538.8	2532.6	2530.3	2545.9	2532.6
172.5°	2558.2	2552.0	2549.7	2565.3	2552.0
175°	2573.8	2567.6	2563.0	2578.5	2565.3
177.5°	2582.4	2576.2	2571.5	2584.7	2571.5
180°	2578.5	2578.5	2578.5	2578.5	2578.5



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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	11.54	12.47	12.43	13.38	14.54	11.11	12.04	12.00	12.95	14.11
	3H	13.21	14.04	14.11	14.96	16.15	12.73	13.57	13.64	14.49	15.68
	4H	13.80	14.59	14.72	15.51	16.71	13.32	14.11	14.24	15.04	16.24
	6H	14.20	14.93	15.13	15.86	17.07	13.73	14.45	14.66	15.39	16.60
	8H	14.31	15.00	15.25	15.95	17.16	13.83	14.53	14.77	15.48	16.69
	12H	14.36	15.02	15.30	15.96	17.20	13.88	14.54	14.82	15.48	16.72
4H	2H	12.01	12.80	12.93	13.73	14.92	11.67	12.46	12.59	13.38	14.58
	3H	13.88	14.54	14.82	15.50	16.71	13.49	14.15	14.42	15.11	16.32
	4H	14.60	15.20	15.55	16.16	17.39	14.20	14.80	15.14	15.75	16.99
	6H	15.12	15.64	16.08	16.62	17.85	14.71	15.23	15.67	16.21	17.44
	8H	15.27	15.76	16.23	16.73	17.98	14.86	15.35	15.82	16.32	17.57
	12H	15.35	15.79	16.33	16.77	18.03	14.93	15.37	15.91	16.35	17.61
8H	4H	14.80	15.29	15.76	16.26	17.51	14.44	14.93	15.40	15.90	17.15
	6H	15.44	15.84	16.43	16.85	18.10	15.08	15.48	16.06	16.49	17.74
	8H	15.66	16.02	16.66	17.02	18.28	15.29	15.65	16.29	16.65	17.91
	12H	15.80	16.11	16.80	17.10	18.42	15.41	15.73	16.41	16.72	18.03
12H	4H	14.79	15.23	15.77	16.22	17.47	14.44	14.88	15.42	15.87	17.12
	6H	15.47	15.83	16.46	16.83	18.09	15.12	15.47	16.11	16.47	17.74
	8H	15.72	16.03	16.72	17.02	18.34	15.36	15.67	16.36	16.67	17.98