

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: P928626

Luminaire Tested: DFN2DIP-HX4F0-070D100US930-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P928626
REPORT IS A COMBINATION OF REPORTS P900934 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-070D100US930-RLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

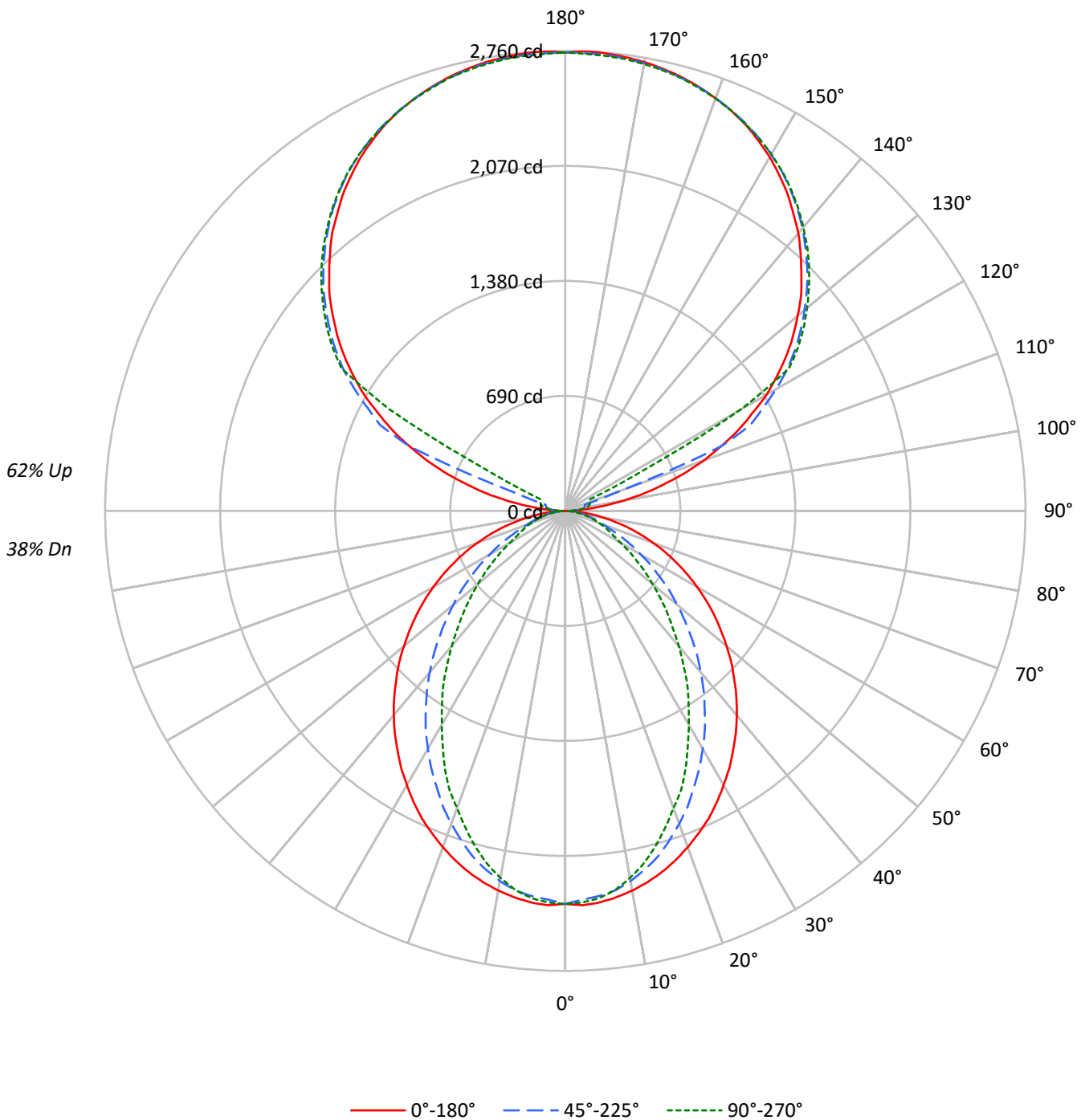
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 12917.7 lumens
Efficiency: N/A
Efficacy: 90.7 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): 142.4
Input Voltage (V):
Input Current (A_{in}): 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	76	76	76	60	60	60	45	45	45	38				38
1	95	91	88	84	86	83	80	77	67	65	63	53	52	51	40	39	38	32				32
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	64	58	54	53	48	45	42	39	37	32	30	28	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	42	61	51	44	39	42	37	33	34	30	28	26	24	22	18				18
6	62	50	43	37	56	46	39	34	38	33	29	31	27	24	24	21	19	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	21	27	22	19	22	18	16	17	15	13	11				11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1753	1753	1753
5°	1756	1726	1737
10°	1739	1692	1680
15°	1715	1636	1593
20°	1684	1559	1486
25°	1651	1473	1382
30°	1608	1384	1251
35°	1565	1289	1136
40°	1522	1191	1004
45°	1472	1082	884
50°	1420	971	767
55°	1366	853	654
60°	1303	730	539
65°	1231	605	485
70°	1143	488	439
75°	1034	431	399
80°	874	362	347
85°	611	242	261

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 1472 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	221.0	1.7
10°-20°	606.6	4.7
20°-30°	851.7	6.6
30°-40°	928.4	7.2
40°-50°	853.3	6.6
50°-60°	670.1	5.2
60°-70°	436.2	3.4
70°-80°	224.5	1.7
80°-90°	62.2	0.5
90°-100°	90.7	0.7
100°-110°	338.1	2.6
110°-120°	896.7	6.9
120°-130°	1487.3	11.5
130°-140°	1579.8	12.2
140°-150°	1468.3	11.4
150°-160°	1180.4	9.1
160°-170°	760.6	5.9
170°-180°	261.8	2.0
0°-30°	1679.3	13.0
0°-40°	2607.7	20.2
0°-60°	4131.2	32.0
0°-90°	4854.1	37.6
90°-120°	1325.5	10.3
90°-150°	5860.8	45.4
90°-180°	8064.0	62.4
0°-180°	12917.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2358	2358	2358	2358	2358	
5°	2358	2347	2319	2339	2332	224
15°	2243	2219	2147	2106	2085	632
25°	2036	1967	1826	1739	1707	936
35°	1754	1645	1458	1323	1276	1098
45°	1434	1291	1067	915	864	1107
55°	1090	924	693	566	525	974
65°	736	563	371	299	292	730
75°	393	243	171	156	154	415
85°	92	47	40	40	40	105
90°	2	24	40	50	54	12
95°	129	64	78	88	86	153
105°	605	665	122	143	151	646
115°	1144	1178	1228	306	163	1127
125°	1618	1644	1682	1696	1702	1443
135°	2002	2034	2052	2072	2068	1547
145°	2323	2321	2354	2368	2358	1453
155°	2558	2540	2564	2575	2560	1178
165°	2695	2683	2689	2703	2689	761
175°	2756	2742	2746	2760	2741	262
180°	2750	2750	2750	2750	2750	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2357.9	2357.9	2357.9	2357.9	2357.9
2.5°	2368.5	2357.9	2334.3	2355.8	2351.5
5°	2357.9	2347.2	2319.4	2338.6	2332.3
7.5°	2338.6	2325.9	2296.1	2304.4	2293.8
10°	2313.1	2298.1	2255.5	2249.0	2236.3
12.5°	2281.1	2261.9	2204.2	2191.5	2167.9
15°	2242.6	2219.1	2146.6	2106.1	2084.9
17.5°	2197.8	2163.7	2074.0	2027.1	1992.9
20°	2146.6	2103.8	1997.2	1944.0	1896.9
22.5°	2091.2	2042.1	1918.2	1845.7	1813.9
25°	2035.7	1967.3	1826.5	1739.1	1707.0
27.5°	1969.6	1896.9	1741.2	1640.9	1591.8
30°	1899.2	1817.9	1647.2	1538.6	1480.9
32.5°	1830.8	1732.6	1557.8	1429.7	1376.2
35°	1754.0	1645.2	1457.5	1323.1	1276.0
37.5°	1679.4	1561.9	1363.6	1216.1	1163.0
40°	1600.3	1472.5	1265.3	1113.9	1058.4
42.5°	1519.3	1382.8	1167.2	1009.2	956.1
45°	1434.0	1290.9	1067.0	915.3	864.1
47.5°	1352.9	1201.5	971.0	819.3	772.5
50°	1263.2	1111.8	877.0	729.7	685.1
52.5°	1175.6	1015.6	787.4	646.5	606.0
55°	1090.3	923.9	693.4	565.5	525.0
57.5°	1002.9	832.2	610.4	490.8	456.6
60°	913.3	742.5	522.7	414.1	379.9
62.5°	825.8	655.2	448.0	345.7	328.7
65°	736.2	563.2	371.3	298.9	292.3
67.5°	650.9	477.9	298.9	262.3	256.1
70°	561.2	394.8	247.4	226.2	217.5
72.5°	475.9	317.8	206.9	190.0	185.7
75°	392.6	243.1	170.7	155.7	153.7
77.5°	309.5	172.7	134.5	125.8	121.6
80°	232.5	123.8	102.4	94.0	94.0
82.5°	162.1	83.3	70.4	66.1	66.1
85°	91.7	46.9	40.5	40.5	40.5
87.5°	34.1	17.0	17.0	14.9	14.9
90°	1.9	23.9	39.7	49.9	53.6
92.5°	49.9	41.8	47.8	51.8	53.6
95°	129.3	63.6	77.5	87.7	85.6
97.5°	232.8	69.7	101.4	107.5	109.5
100°	352.4	79.6	113.4	129.3	133.3
102.5°	483.5	479.8	117.4	139.2	145.3
105°	605.1	664.8	121.5	143.2	151.3
107.5°	746.4	796.0	125.5	147.3	155.3
110°	881.7	923.4	348.3	149.4	157.1



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1009.1	1044.8	1011.1	153.1	159.3
115°	1144.3	1178.2	1228.0	306.5	163.3
117.5°	1261.8	1301.6	1335.5	1050.8	529.4
120°	1393.2	1423.0	1458.9	1482.8	1214.1
122.5°	1504.6	1536.4	1576.4	1588.2	1590.3
125°	1618.0	1644.0	1681.8	1695.8	1701.6
127.5°	1721.5	1749.4	1779.4	1799.3	1801.2
130°	1819.1	1851.0	1872.8	1894.7	1892.8
132.5°	1918.6	1944.6	1966.4	1984.3	1982.4
135°	2002.3	2034.2	2051.9	2072.0	2068.0
137.5°	2089.7	2113.6	2133.7	2153.6	2147.6
140°	2175.2	2191.4	2213.1	2231.1	2221.1
142.5°	2247.1	2261.1	2286.8	2302.6	2292.8
145°	2322.8	2320.6	2354.5	2368.4	2358.4
147.5°	2388.2	2382.3	2416.1	2426.0	2418.3
150°	2452.0	2438.1	2470.0	2481.8	2471.9
152.5°	2505.6	2489.8	2519.7	2531.6	2517.7
155°	2557.5	2539.7	2563.6	2575.4	2559.6
157.5°	2599.3	2583.5	2601.4	2615.3	2599.3
160°	2635.2	2623.2	2635.2	2647.0	2633.1
162.5°	2666.8	2655.0	2665.0	2678.9	2661.0
165°	2694.7	2682.9	2688.8	2702.8	2688.8
167.5°	2716.7	2704.7	2710.9	2724.8	2706.8
170°	2734.7	2722.7	2726.7	2740.6	2722.7
172.5°	2746.5	2734.7	2738.7	2752.7	2734.7
175°	2756.4	2742.5	2746.5	2760.5	2740.6
177.5°	2760.5	2746.5	2748.7	2762.6	2744.6
180°	2750.5	2750.5	2750.5	2750.5	2750.5



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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	7.82	8.55	8.88	9.62	11.06	3.79	4.53	4.85	5.59	7.03
	3H	9.49	10.15	10.56	11.22	12.68	4.97	5.63	6.04	6.70	8.16
	4H	10.09	10.72	11.18	11.79	13.25	5.42	6.04	6.50	7.12	8.58
	6H	10.51	11.08	11.60	12.16	13.64	5.74	6.31	6.83	7.39	8.87
	8H	10.63	11.18	11.73	12.27	13.74	5.83	6.37	6.92	7.46	8.94
	12H	10.69	11.21	11.79	12.30	13.79	5.87	6.39	6.97	7.47	8.97
4H	2H	7.82	8.45	8.91	9.52	10.99	4.37	5.00	5.46	6.07	7.54
	3H	9.64	10.16	10.74	11.26	12.74	5.72	6.24	6.81	7.34	8.81
	4H	10.33	10.81	11.44	11.90	13.40	6.26	6.74	7.36	7.83	9.33
	6H	10.85	11.25	11.95	12.37	13.86	6.68	7.09	7.79	8.20	9.69
	8H	11.02	11.40	12.13	12.51	14.01	6.81	7.19	7.92	8.29	9.80
	12H	11.11	11.46	12.24	12.57	14.09	6.87	7.21	8.00	8.33	9.84
8H	4H	10.30	10.68	11.40	11.78	13.29	6.54	6.92	7.65	8.02	9.53
	6H	10.86	11.17	11.99	12.32	13.83	7.05	7.37	8.18	8.52	10.02
	8H	11.08	11.35	12.21	12.48	14.00	7.25	7.52	8.38	8.65	10.17
	12H	11.21	11.45	12.35	12.58	14.14	7.36	7.60	8.50	8.73	10.29
12H	4H	10.24	10.59	11.37	11.71	13.22	6.54	6.88	7.66	8.00	9.51
	6H	10.83	11.11	11.97	12.24	13.76	7.10	7.38	8.24	8.51	10.03
	8H	11.05	11.29	12.19	12.42	13.98	7.31	7.55	8.45	8.68	10.24