

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: P928624

Luminaire Tested: DFN2DIP-HX4F0-070D100US930-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P928624
REPORT IS A COMBINATION OF REPORTS P900933 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-070D100US930-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

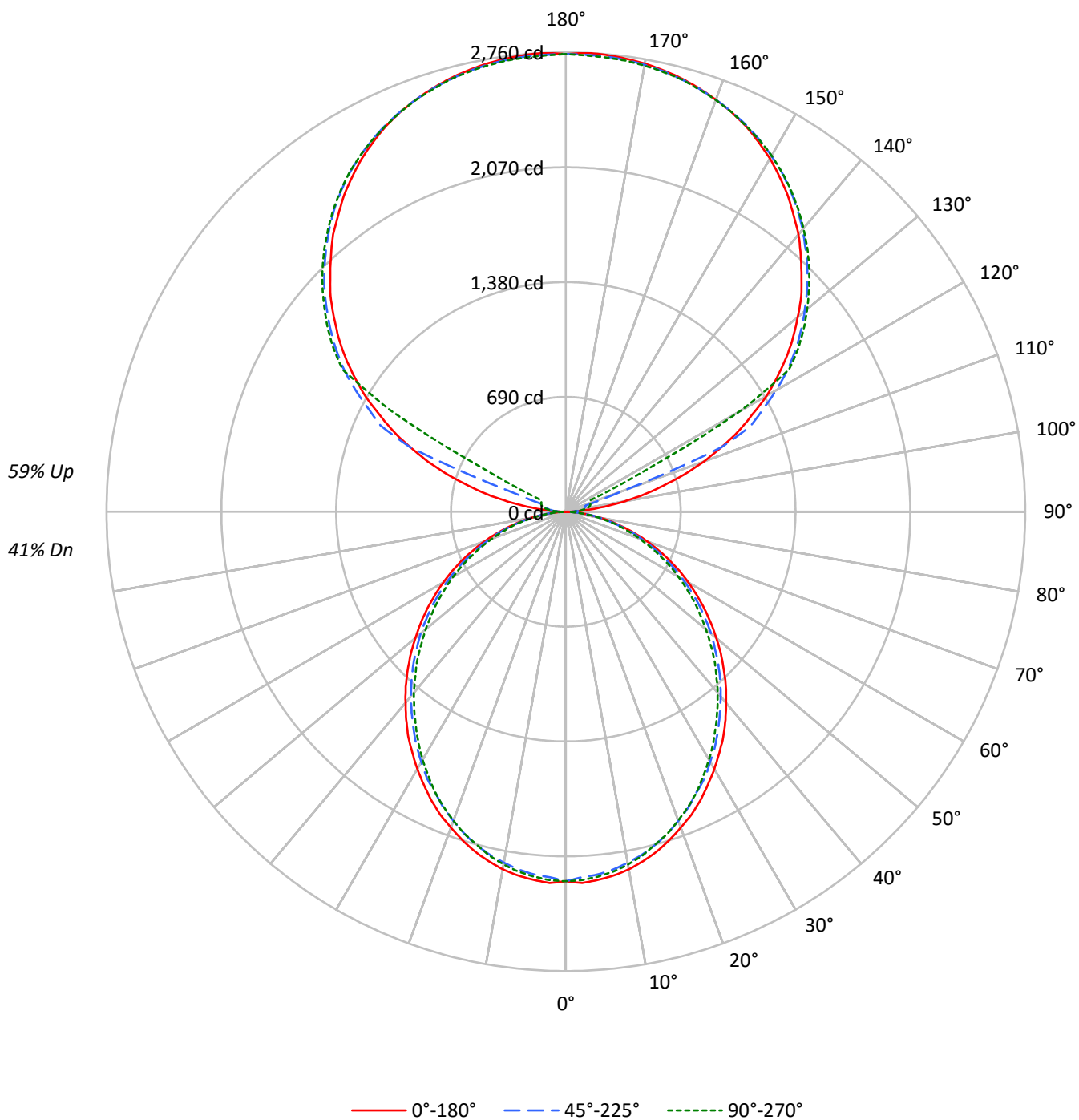
Lumens per Lamp: N/A
Luminaire Lumens: 13716.5 lumens
Efficiency: N/A
Efficacy: 96.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 142.4
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
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	105	105	105	105	96	96	96	96	78	78	78	63	63	63	48	48	48
1	96	92	88	84	87	84	80	77	69	66	64	55	54	52	42	41	41
2	87	80	74	69	79	73	68	63	60	56	53	48	46	43	37	36	34
3	80	70	63	57	72	64	58	53	53	49	45	43	39	37	33	31	29
4	73	62	54	48	66	57	50	45	47	42	38	38	34	31	30	27	25
5	67	55	47	41	61	51	44	38	42	37	33	34	30	27	27	24	22
6	61	50	42	36	56	46	38	33	38	33	29	31	27	24	24	21	19
7	57	45	37	31	52	41	34	29	34	29	25	28	24	21	22	19	17
8	53	40	33	28	48	37	31	26	31	26	22	26	22	19	20	17	15
9	49	37	30	25	45	34	27	23	29	23	20	24	20	17	19	16	14
10	46	34	27	22	42	31	25	21	26	21	18	22	18	15	17	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1651	1651	1651
5°	1653	1628	1639
10°	1640	1606	1617
15°	1616	1580	1582
20°	1584	1543	1547
25°	1551	1499	1506
30°	1511	1459	1454
35°	1473	1411	1398
40°	1425	1362	1346
45°	1378	1313	1292
50°	1327	1262	1230
55°	1273	1203	1173
60°	1212	1133	1108
65°	1146	1061	1031
70°	1061	972	948
75°	944	866	871
80°	803	732	725
85°	583	499	482

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1411 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	208.9	1.5
10°-20°	587.9	4.3
20°-30°	863.9	6.3
30°-40°	1003.4	7.3
40°-50°	1002.1	7.3
50°-60°	873.8	6.4
60°-70°	646.0	4.7
70°-80°	365.5	2.7
80°-90°	101.3	0.7
90°-100°	90.7	0.7
100°-110°	338.1	2.5
110°-120°	896.7	6.5
120°-130°	1487.3	10.8
130°-140°	1579.8	11.5
140°-150°	1468.3	10.7
150°-160°	1180.4	8.6
160°-170°	760.6	5.5
170°-180°	261.8	1.9
0°-30°	1660.7	12.1
0°-40°	2664.1	19.4
0°-60°	4540.1	33.1
0°-90°	5652.8	41.2
90°-120°	1325.5	9.7
90°-150°	5860.8	42.7
90°-180°	8064.0	58.8
0°-180°	13716.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2220	2220	2220	2220	2220	
5°	2220	2212	2188	2205	2201	211
15°	2113	2100	2073	2081	2071	595
25°	1913	1896	1859	1863	1859	880
35°	1650	1629	1594	1582	1571	1030
45°	1343	1328	1296	1272	1264	1036
55°	1016	1003	978	952	941	908
65°	685	672	651	632	621	678
75°	358	354	344	331	335	383
85°	87	85	83	77	75	98
90°	2	24	40	50	54	13
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°	2219.8	2219.8	2219.8	2219.8	2219.8
2.5°	2232.8	2222.1	2198.5	2219.8	2215.7
5°	2219.8	2211.5	2187.9	2204.9	2200.8
7.5°	2204.9	2192.2	2168.6	2185.9	2181.6
10°	2181.6	2166.6	2141.0	2158.0	2151.7
12.5°	2149.4	2136.8	2111.2	2121.8	2117.5
15°	2113.2	2100.5	2072.6	2081.3	2070.6
17.5°	2068.3	2055.7	2027.8	2038.5	2027.8
20°	2019.2	2006.5	1976.6	1983.0	1974.6
22.5°	1970.3	1951.0	1923.2	1923.2	1918.8
25°	1912.6	1895.5	1859.3	1863.4	1859.3
27.5°	1848.4	1833.5	1805.9	1799.5	1788.8
30°	1784.6	1767.3	1735.5	1729.1	1720.5
32.5°	1716.1	1703.5	1669.3	1656.4	1647.8
35°	1650.0	1628.8	1594.5	1581.7	1571.0
37.5°	1575.3	1556.1	1521.8	1506.9	1496.3
40°	1498.5	1481.3	1447.1	1428.1	1419.5
42.5°	1423.8	1406.6	1372.6	1351.1	1338.4
45°	1342.7	1327.8	1295.6	1272.3	1263.7
47.5°	1263.7	1248.7	1214.5	1191.0	1178.3
50°	1180.4	1169.7	1139.8	1109.9	1099.3
52.5°	1099.3	1084.4	1056.7	1033.2	1018.2
55°	1016.1	1003.3	977.7	952.1	941.4
57.5°	932.8	922.2	894.3	868.7	860.2
60°	849.5	841.1	811.3	787.7	781.3
62.5°	768.4	753.5	732.2	710.9	702.3
65°	685.3	672.4	651.1	631.9	621.2
67.5°	599.9	589.1	570.0	555.1	546.5
70°	520.9	512.3	493.0	478.1	469.7
72.5°	439.8	431.2	420.5	405.6	399.3
75°	358.5	354.4	343.5	330.9	335.2
77.5°	286.1	277.4	273.1	266.7	260.5
80°	213.5	211.3	207.0	200.7	196.3
82.5°	145.2	145.2	143.1	134.6	134.6
85°	87.4	85.4	83.4	76.8	74.7
87.5°	38.5	34.2	29.9	23.6	21.3
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	8.14	8.93	9.17	9.97	11.36	7.71	8.50	8.74	9.54	10.93
	3H	9.80	10.50	10.84	11.55	12.96	9.33	10.03	10.36	11.08	12.49
	4H	10.38	11.05	11.43	12.10	13.52	9.91	10.58	10.96	11.63	13.04
	6H	10.78	11.40	11.84	12.45	13.88	10.30	10.92	11.37	11.97	13.40
	8H	10.88	11.47	11.95	12.54	13.96	10.41	10.99	11.47	12.06	13.49
	12H	10.93	11.49	12.00	12.55	14.00	10.45	11.01	11.52	12.07	13.52
4H	2H	8.60	9.27	9.65	10.31	11.73	8.25	8.92	9.31	9.97	11.39
	3H	10.46	11.02	11.52	12.09	13.52	10.06	10.62	11.13	11.70	13.13
	4H	11.17	11.68	12.24	12.75	14.20	10.76	11.27	11.83	12.34	13.79
	6H	11.68	12.12	12.76	13.21	14.66	11.27	11.71	12.35	12.80	14.25
	8H	11.83	12.24	12.91	13.32	14.78	11.42	11.83	12.50	12.91	14.37
	12H	11.90	12.27	13.00	13.37	14.83	11.48	11.85	12.58	12.94	14.41
8H	4H	11.36	11.77	12.44	12.85	14.32	11.00	11.41	12.08	12.49	13.95
	6H	11.99	12.33	13.09	13.45	14.91	11.63	11.97	12.73	13.09	14.55
	8H	12.21	12.51	13.32	13.61	15.09	11.84	12.14	12.95	13.24	14.72
	12H	12.34	12.60	13.45	13.70	15.22	11.95	12.22	13.07	13.32	14.84
12H	4H	11.34	11.71	12.44	12.81	14.28	10.99	11.36	12.09	12.46	13.93
	6H	12.02	12.32	13.13	13.42	14.90	11.67	11.97	12.78	13.07	14.55
	8H	12.26	12.52	13.37	13.62	15.14	11.90	12.16	13.02	13.26	14.78