

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: P926964

Luminaire Tested: DFN2DIP-HX4F0-060D090US830-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P926964
REPORT IS A COMBINATION OF REPORTS P900913 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-060D090US830-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

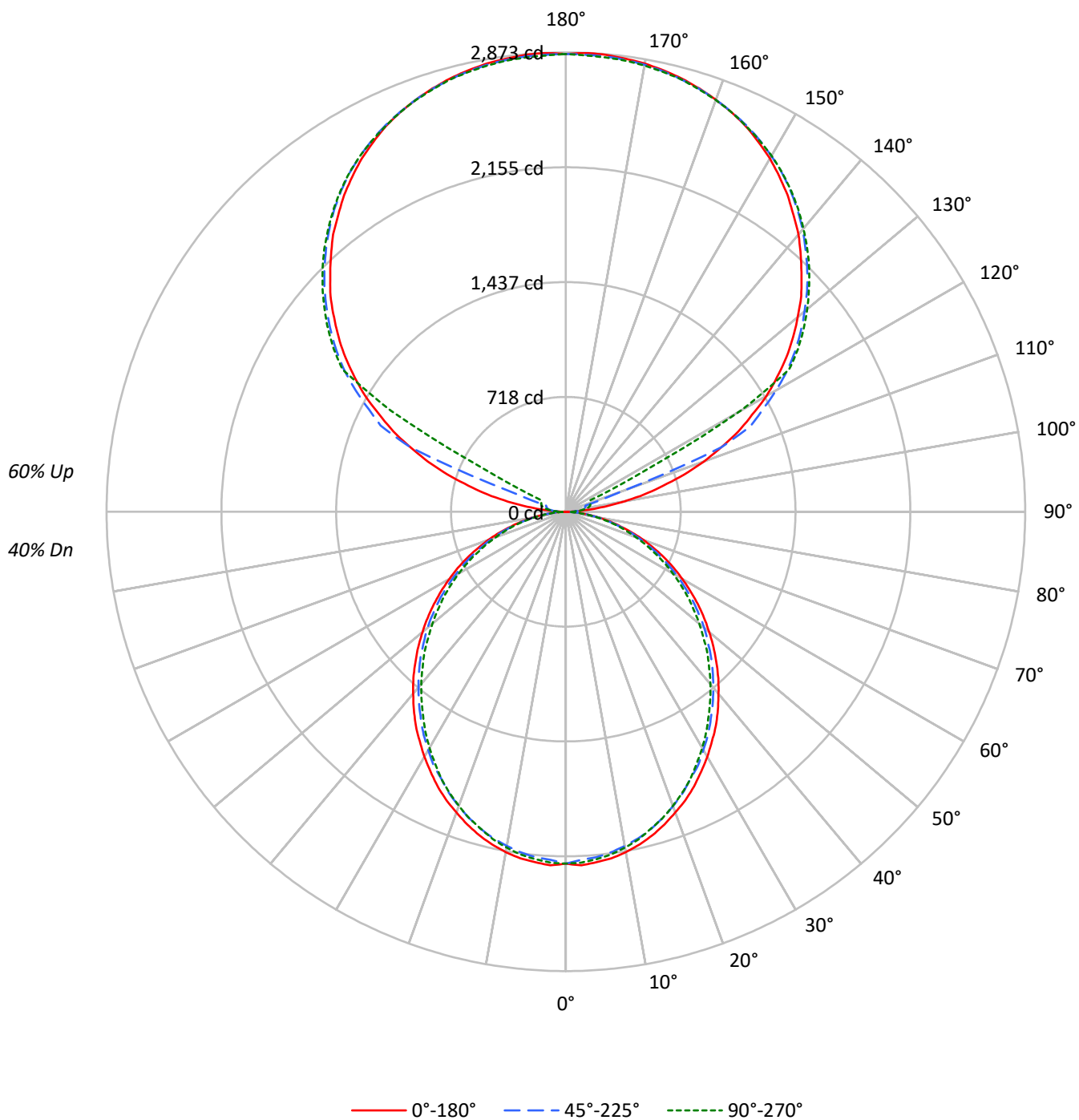
Lumens per Lamp: N/A
Luminaire Lumens: 13996.1 lumens
Efficiency: N/A
Efficacy: 114.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 122.1
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.099
Total Harmonic Distortion (THDi): 0.979
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P926964

CATALOG NUMBER: DFN2DIP-HX4F0-060D090US830-FLLONL

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	95	95	95	95	78	78	78	62	62	62	47	47	47
1	96	91	87	84	87	83	80	77	68	66	64	54	53	51	41	41	40
2	87	80	74	69	79	73	68	63	60	56	53	48	45	43	37	35	33
3	79	70	63	57	72	64	58	53	53	48	44	42	39	36	32	30	28
4	73	62	54	48	66	57	50	45	47	42	38	37	34	31	29	26	24
5	67	55	47	41	60	50	44	38	42	37	33	34	30	27	26	23	21
6	61	49	41	36	56	45	38	33	38	32	28	30	26	23	24	21	19
7	57	45	37	31	51	41	34	29	34	29	25	28	24	21	22	19	17
8	52	40	33	27	48	37	30	26	31	26	22	25	21	18	20	17	15
9	49	37	29	24	44	34	27	23	28	23	20	23	19	17	18	15	13
10	46	34	27	22	41	31	25	20	26	21	18	21	18	15	17	14	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1636	1636	1636
5°	1639	1613	1624
10°	1626	1592	1602
15°	1602	1566	1568
20°	1570	1530	1533
25°	1538	1486	1492
30°	1498	1446	1441
35°	1460	1398	1386
40°	1413	1350	1334
45°	1366	1302	1281
50°	1315	1251	1219
55°	1262	1193	1163
60°	1201	1123	1098
65°	1136	1051	1021
70°	1052	964	939
75°	935	859	863
80°	796	725	718
85°	577	494	478

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1469 cd/sqm

TEST NUMBER: P926964

CATALOG NUMBER: DFN2DIP-HX4F0-060D090US830-FLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	207.1	1.5
10°-20°	582.7	4.2
20°-30°	856.3	6.1
30°-40°	994.6	7.1
40°-50°	993.4	7.1
50°-60°	866.2	6.2
60°-70°	640.3	4.6
70°-80°	362.3	2.6
80°-90°	100.7	0.7
90°-100°	94.4	0.7
100°-110°	351.9	2.5
110°-120°	933.3	6.7
120°-130°	1547.9	11.1
130°-140°	1644.2	11.7
140°-150°	1528.2	10.9
150°-160°	1228.6	8.8
160°-170°	791.7	5.7
170°-180°	272.5	1.9
0°-30°	1646.2	11.8
0°-40°	2640.7	18.9
0°-60°	4500.3	32.2
0°-90°	5603.5	40.0
90°-120°	1379.6	9.9
90°-150°	6099.9	43.6
90°-180°	8393.0	60.0
0°-180°	13996.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2200	2200	2200	2200	2200	
5°	2200	2192	2169	2186	2182	209
15°	2095	2082	2054	2063	2052	590
25°	1896	1879	1843	1847	1843	872
35°	1636	1614	1581	1568	1557	1021
45°	1331	1316	1284	1261	1253	1027
55°	1007	994	969	944	933	901
65°	679	666	645	626	616	672
75°	355	351	340	328	332	379
85°	87	85	83	76	74	97
90°	2	25	41	52	56	13
95°	135	66	81	91	89	159
105°	630	692	126	149	157	673
115°	1191	1226	1278	319	170	1173
125°	1684	1711	1750	1765	1771	1502
135°	2084	2117	2136	2156	2152	1610
145°	2418	2415	2450	2465	2455	1512
155°	2662	2643	2668	2680	2664	1227
165°	2805	2792	2799	2813	2799	792
175°	2869	2854	2859	2873	2852	273
180°	2863	2863	2863	2863	2863	

TEST NUMBER: P926964

CATALOG NUMBER: DFN2DIP-HX4F0-060D090US830-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2200.4	2200.4	2200.4	2200.4	2200.4
2.5°	2213.2	2202.6	2179.2	2200.4	2196.3
5°	2200.4	2192.1	2168.7	2185.6	2181.5
7.5°	2185.6	2173.0	2149.7	2166.7	2162.5
10°	2162.5	2147.7	2122.2	2139.1	2132.8
12.5°	2130.6	2118.0	2092.6	2103.2	2098.9
15°	2094.6	2082.1	2054.5	2063.0	2052.5
17.5°	2050.2	2037.7	2010.1	2020.5	2010.1
20°	2001.5	1989.0	1959.3	1965.6	1957.3
22.5°	1953.0	1933.9	1906.3	1906.3	1902.1
25°	1895.7	1879.0	1843.0	1847.0	1843.0
27.5°	1832.2	1817.4	1790.0	1783.8	1773.2
30°	1769.0	1751.8	1720.3	1713.9	1705.4
32.5°	1701.1	1688.6	1654.7	1641.8	1633.4
35°	1635.6	1614.5	1580.6	1567.8	1557.2
37.5°	1561.5	1542.4	1508.6	1493.7	1483.1
40°	1485.4	1468.3	1434.5	1415.6	1407.1
42.5°	1411.3	1394.2	1360.6	1339.3	1326.7
45°	1331.0	1316.1	1284.3	1261.2	1252.6
47.5°	1252.6	1237.8	1203.9	1180.6	1167.9
50°	1170.0	1159.5	1129.9	1100.2	1089.6
52.5°	1089.6	1074.8	1047.4	1024.1	1009.3
55°	1007.2	994.4	969.1	943.7	933.2
57.5°	924.7	914.1	886.5	861.2	852.6
60°	842.0	833.7	804.1	780.8	774.5
62.5°	761.6	746.8	725.7	704.6	696.1
65°	679.3	666.5	645.4	626.3	615.7
67.5°	594.6	583.9	565.0	550.2	541.7
70°	516.3	507.8	488.7	473.9	465.6
72.5°	435.9	427.4	416.9	402.1	395.8
75°	355.3	351.4	340.5	328.0	332.2
77.5°	283.5	275.0	270.7	264.5	258.2
80°	211.7	209.4	205.2	198.9	194.6
82.5°	143.9	143.9	141.8	133.4	133.4
85°	86.6	84.6	82.6	76.1	74.1
87.5°	38.2	33.9	29.6	23.4	21.1
90°	2.0	24.9	41.3	51.9	55.8
92.5°	51.9	43.5	49.7	53.9	55.8
95°	134.6	66.2	80.7	91.2	89.1
97.5°	242.3	72.6	105.6	111.9	113.9
100°	366.7	82.9	118.1	134.6	138.7
102.5°	503.3	499.3	122.2	144.9	151.3
105°	629.7	692.0	126.4	149.1	157.4
107.5°	776.8	828.5	130.6	153.3	161.6
110°	917.7	961.1	362.6	155.4	163.6

TEST NUMBER: P926964

CATALOG NUMBER: DFN2DIP-HX4F0-060D090US830-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1050.3	1087.5	1052.3	159.4	165.8
115°	1191.0	1226.2	1278.1	319.0	169.9
117.5°	1313.3	1354.7	1390.0	1093.7	551.0
120°	1450.0	1481.0	1518.5	1543.2	1263.6
122.5°	1566.0	1599.1	1640.7	1653.0	1655.2
125°	1684.0	1711.0	1750.4	1764.9	1771.1
127.5°	1791.7	1820.7	1852.0	1872.7	1874.6
130°	1893.3	1926.6	1949.2	1972.0	1970.1
132.5°	1996.9	2023.9	2046.5	2065.3	2063.3
135°	2084.0	2117.1	2135.6	2156.5	2152.4
137.5°	2175.0	2199.8	2220.7	2241.4	2235.2
140°	2264.0	2280.8	2303.4	2322.0	2311.8
142.5°	2338.8	2353.3	2380.1	2396.6	2386.3
145°	2417.5	2415.3	2450.5	2465.0	2454.6
147.5°	2485.7	2479.5	2514.7	2525.1	2516.9
150°	2552.1	2537.6	2570.8	2583.0	2572.7
152.5°	2607.9	2591.4	2622.4	2634.9	2620.4
155°	2661.8	2643.3	2668.1	2680.5	2664.0
157.5°	2705.4	2688.9	2707.5	2722.0	2705.4
160°	2742.7	2730.1	2742.7	2755.0	2740.5
162.5°	2775.7	2763.3	2773.7	2788.2	2769.5
165°	2804.7	2792.3	2798.6	2813.1	2798.6
167.5°	2827.6	2815.1	2821.4	2835.9	2817.2
170°	2846.3	2833.7	2837.9	2852.4	2833.7
172.5°	2858.6	2846.3	2850.4	2864.9	2846.3
175°	2868.9	2854.4	2858.6	2873.0	2852.4
177.5°	2873.0	2858.6	2860.8	2875.3	2856.6
180°	2862.7	2862.7	2862.7	2862.7	2862.7

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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	7.99	8.76	9.02	9.81	11.22	7.55	8.33	8.59	9.38	10.78
	3H	9.64	10.34	10.69	11.39	12.82	9.17	9.87	10.22	10.92	12.35
	4H	10.23	10.89	11.29	11.94	13.37	9.75	10.41	10.81	11.47	12.90
	6H	10.62	11.23	11.69	12.29	13.73	10.15	10.76	11.22	11.81	13.26
	8H	10.72	11.30	11.80	12.38	13.82	10.25	10.83	11.32	11.90	13.34
	12H	10.77	11.32	11.85	12.39	13.85	10.29	10.84	11.37	11.91	13.37
4H	2H	8.44	9.10	9.50	10.16	11.59	8.09	8.76	9.16	9.81	11.24
	3H	10.30	10.85	11.37	11.93	13.38	9.91	10.46	10.98	11.54	12.99
	4H	11.01	11.52	12.09	12.59	14.06	10.60	11.11	11.68	12.18	13.65
	6H	11.52	11.96	12.61	13.05	14.51	11.11	11.55	12.20	12.64	14.10
	8H	11.67	12.08	12.76	13.16	14.64	11.26	11.66	12.35	12.75	14.23
	12H	11.74	12.11	12.84	13.21	14.69	11.32	11.68	12.42	12.79	14.27
8H	4H	11.20	11.61	12.29	12.70	14.17	10.84	11.25	11.93	12.33	13.81
	6H	11.83	12.16	12.94	13.30	14.77	11.47	11.80	12.58	12.93	14.41
	8H	12.05	12.34	13.17	13.46	14.95	11.68	11.97	12.80	13.09	14.58
	12H	12.18	12.44	13.30	13.55	15.08	11.79	12.05	12.92	13.16	14.69
12H	4H	11.18	11.55	12.29	12.65	14.13	10.83	11.20	11.94	12.30	13.78
	6H	11.86	12.15	12.98	13.27	14.76	11.51	11.80	12.62	12.91	14.41
	8H	12.10	12.36	13.22	13.47	15.00	11.74	12.00	12.86	13.11	14.64