

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: P926988

Luminaire Tested: DFN2DIP-HX4F0-070D060US830-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P926988
REPORT IS A COMBINATION OF REPORTS P900861 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-070D060US830-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

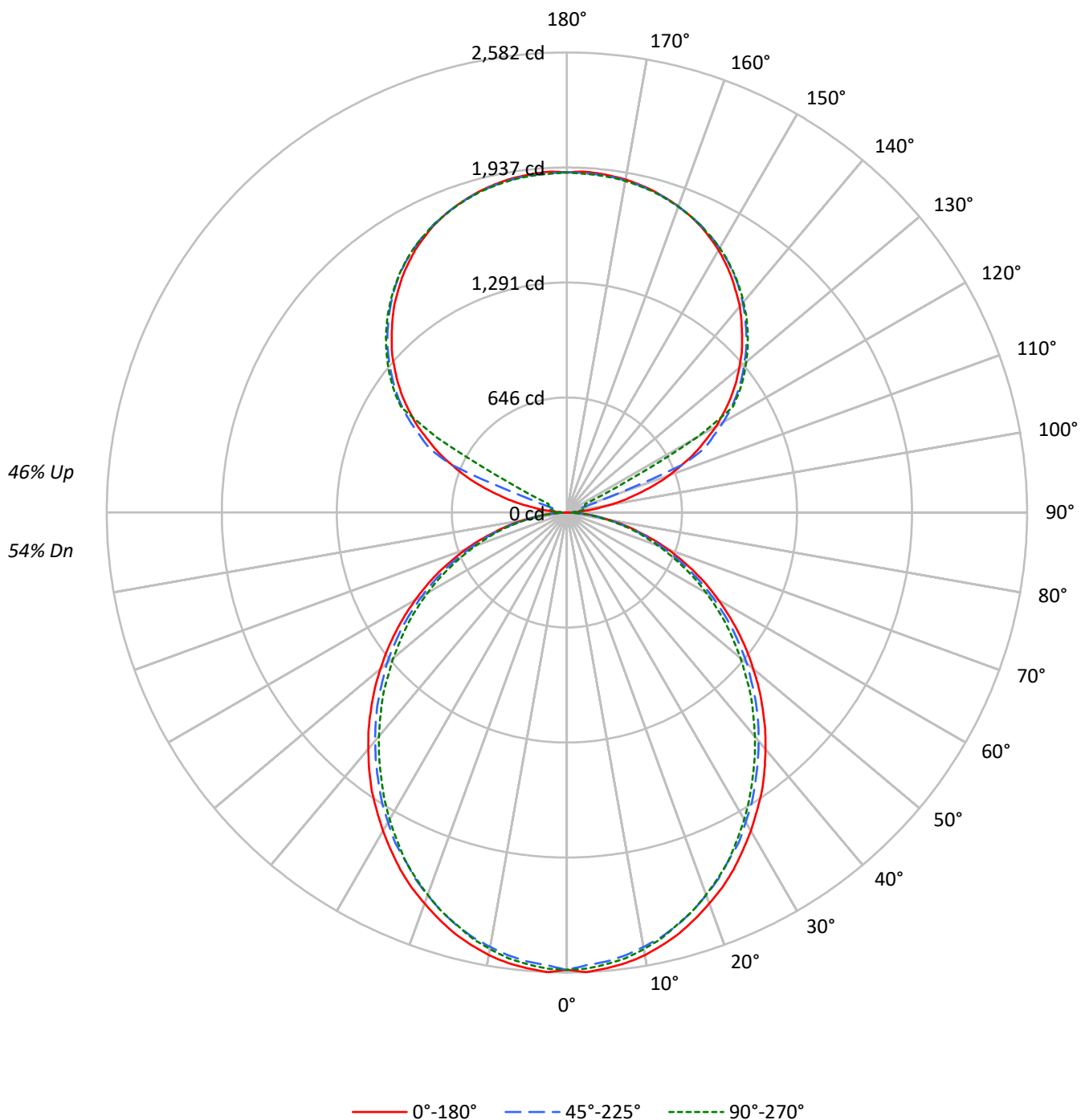
Lumens per Lamp: N/A
Luminaire Lumens: 12130.0 lumens
Efficiency: N/A
Efficacy: 110.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 110.3
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	108	108	108	108	100	100	100	100	85	85	85	72	72	72	60	60	60
1	99	94	90	87	91	88	84	81	75	73	70	63	62	60	53	52	50
2	90	82	76	71	83	77	71	67	66	62	58	56	53	50	46	44	42
3	82	72	65	59	76	67	61	56	58	53	49	49	46	42	41	38	36
4	75	64	56	50	69	60	53	47	52	46	42	44	40	36	37	34	31
5	69	57	49	43	64	53	46	41	46	40	36	39	35	32	33	30	27
6	63	51	43	37	59	48	41	35	42	36	31	36	31	28	30	27	24
7	59	46	38	33	54	43	36	31	38	32	28	32	28	24	27	24	21
8	54	42	34	29	50	39	32	28	34	29	25	30	25	22	25	22	19
9	51	38	31	26	47	36	29	25	32	26	22	27	23	20	23	20	17
10	47	35	28	23	44	33	27	22	29	24	20	25	21	18	22	18	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1909	1909	1909
5°	1912	1882	1895
10°	1897	1857	1869
15°	1869	1827	1829
20°	1831	1785	1789
25°	1794	1734	1741
30°	1747	1687	1681
35°	1703	1631	1617
40°	1648	1575	1557
45°	1594	1519	1494
50°	1534	1460	1423
55°	1472	1392	1357
60°	1402	1311	1281
65°	1325	1227	1192
70°	1227	1124	1096
75°	1091	1002	1008
80°	928	846	838
85°	674	577	557

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 1594 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	241.6	2.0
10°-20°	679.8	5.6
20°-30°	999.1	8.2
30°-40°	1160.4	9.6
40°-50°	1158.9	9.6
50°-60°	1010.5	8.3
60°-70°	747.0	6.2
70°-80°	422.7	3.5
80°-90°	114.9	0.9
90°-100°	62.9	0.5
100°-110°	234.6	1.9
110°-120°	622.2	5.1
120°-130°	1031.9	8.5
130°-140°	1096.2	9.0
140°-150°	1018.8	8.4
150°-160°	819.1	6.8
160°-170°	527.8	4.4
170°-180°	181.7	1.5
0°-30°	1920.5	15.8
0°-40°	3080.9	25.4
0°-60°	5250.3	43.3
0°-90°	6534.9	53.9
90°-120°	919.7	7.6
90°-150°	4066.6	33.5
90°-180°	5595.0	46.1
0°-180°	12130.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2567	2567	2567	2567	2567	
5°	2567	2558	2530	2550	2545	244
15°	2444	2429	2397	2407	2394	688
25°	2212	2192	2150	2155	2150	1018
35°	1908	1884	1844	1829	1817	1192
45°	1553	1536	1498	1471	1461	1198
55°	1175	1160	1131	1101	1089	1051
65°	792	778	753	731	718	784
75°	415	410	397	383	388	443
85°	101	99	96	89	86	113
90°	1	17	28	35	37	11
95°	90	44	54	61	59	106
105°	420	461	84	99	105	449
115°	794	818	852	213	113	782
125°	1123	1141	1167	1177	1181	1001
135°	1389	1412	1424	1438	1435	1073
145°	1612	1610	1634	1643	1636	1008
155°	1774	1762	1779	1787	1776	818
165°	1870	1862	1866	1875	1866	528
175°	1913	1903	1906	1915	1902	182
180°	1908	1908	1908	1908	1908	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2567.1	2567.1	2567.1	2567.1	2567.1
2.5°	2582.1	2569.7	2542.5	2567.1	2562.4
5°	2567.1	2557.5	2530.2	2549.8	2545.1
7.5°	2549.8	2535.1	2507.9	2527.9	2522.9
10°	2522.9	2505.5	2475.9	2495.6	2488.3
12.5°	2485.7	2471.0	2441.5	2453.7	2448.7
15°	2443.8	2429.1	2396.9	2406.9	2394.5
17.5°	2391.9	2377.3	2345.0	2357.4	2345.0
20°	2335.0	2320.4	2285.8	2293.2	2283.5
22.5°	2278.5	2256.3	2224.0	2224.0	2219.0
25°	2211.8	2192.1	2150.2	2154.9	2150.2
27.5°	2137.6	2120.3	2088.4	2081.0	2068.7
30°	2063.8	2043.8	2007.0	1999.6	1989.6
32.5°	1984.6	1970.0	1930.4	1915.5	1905.5
35°	1908.2	1883.6	1844.0	1829.1	1816.8
37.5°	1821.8	1799.5	1759.9	1742.7	1730.3
40°	1733.0	1713.1	1673.5	1651.5	1641.6
42.5°	1646.5	1626.7	1587.4	1562.5	1547.8
45°	1552.8	1535.5	1498.3	1471.3	1461.3
47.5°	1461.3	1444.1	1404.5	1377.3	1362.7
50°	1365.0	1352.7	1318.1	1283.6	1271.2
52.5°	1271.2	1254.0	1222.0	1194.8	1177.5
55°	1175.1	1160.2	1130.6	1101.0	1088.7
57.5°	1078.8	1066.4	1034.2	1004.6	994.7
60°	982.4	972.7	938.2	910.9	903.6
62.5°	888.6	871.3	846.7	822.1	812.2
65°	792.5	777.6	753.0	730.7	718.4
67.5°	693.8	681.2	659.2	641.9	631.9
70°	602.4	592.5	570.1	552.9	543.2
72.5°	508.6	498.7	486.3	469.1	461.7
75°	414.6	409.9	397.3	382.7	387.7
77.5°	330.8	320.8	315.8	308.5	301.2
80°	246.9	244.4	239.4	232.0	227.0
82.5°	167.9	167.9	165.5	155.6	155.6
85°	101.1	98.8	96.4	88.8	86.4
87.5°	44.5	39.6	34.6	27.2	24.6
90°	1.3	16.6	27.5	34.6	37.2
92.5°	34.6	29.0	33.1	35.9	37.2
95°	89.7	44.1	53.8	60.9	59.4
97.5°	161.5	48.4	70.3	74.6	76.0
100°	244.5	55.2	78.7	89.7	92.5
102.5°	335.5	332.9	81.5	96.6	100.8
105°	419.8	461.3	84.3	99.3	105.0
107.5°	517.9	552.3	87.1	102.2	107.7
110°	611.9	640.7	241.8	103.7	109.0



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	700.2	725.0	701.5	106.2	110.6
115°	794.1	817.5	852.1	212.7	113.3
117.5°	875.5	903.1	926.7	729.1	367.3
120°	966.7	987.4	1012.3	1028.8	842.4
122.5°	1043.9	1066.1	1093.8	1102.0	1103.5
125°	1122.7	1140.7	1166.9	1176.6	1180.7
127.5°	1194.5	1213.8	1234.7	1248.4	1249.8
130°	1262.2	1284.3	1299.4	1314.7	1313.4
132.5°	1331.3	1349.3	1364.4	1376.8	1375.5
135°	1389.3	1411.5	1423.7	1437.7	1434.9
137.5°	1449.9	1466.5	1480.5	1494.2	1490.2
140°	1509.3	1520.5	1535.6	1548.1	1541.2
142.5°	1559.2	1568.9	1586.8	1597.7	1590.8
145°	1611.7	1610.2	1633.6	1643.3	1636.5
147.5°	1657.1	1653.0	1676.4	1683.3	1677.9
150°	1701.4	1691.7	1713.8	1722.0	1715.2
152.5°	1738.6	1727.6	1748.2	1756.6	1746.9
155°	1774.5	1762.2	1778.8	1787.0	1776.0
157.5°	1803.6	1792.5	1805.0	1814.7	1803.6
160°	1828.4	1820.1	1828.4	1836.6	1827.0
162.5°	1850.4	1842.2	1849.1	1858.8	1846.4
165°	1869.8	1861.6	1865.7	1875.4	1865.7
167.5°	1885.0	1876.7	1880.9	1890.7	1878.1
170°	1897.5	1889.1	1892.0	1901.6	1889.1
172.5°	1905.7	1897.5	1900.3	1910.0	1897.5
175°	1912.6	1902.9	1905.7	1915.3	1901.6
177.5°	1915.3	1905.7	1907.1	1916.9	1904.4
180°	1908.5	1908.5	1908.5	1908.5	1908.5

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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	9.87	10.77	10.79	11.71	12.92	9.44	10.33	10.36	11.28	12.49
	3H	11.53	12.34	12.47	13.29	14.53	11.06	11.87	12.00	12.82	14.05
	4H	12.12	12.89	13.07	13.84	15.09	11.65	12.41	12.60	13.37	14.61
	6H	12.53	13.23	13.49	14.19	15.45	12.05	12.75	13.01	13.71	14.97
	8H	12.63	13.30	13.60	14.28	15.54	12.16	12.83	13.12	13.80	15.06
	12H	12.68	13.32	13.66	14.29	15.57	12.20	12.84	13.17	13.81	15.09
4H	2H	10.34	11.10	11.29	12.05	13.30	9.99	10.75	10.95	11.71	12.96
	3H	12.21	12.84	13.17	13.83	15.09	11.81	12.45	12.78	13.43	14.70
	4H	12.92	13.50	13.90	14.48	15.77	12.52	13.10	13.49	14.08	15.36
	6H	13.44	13.94	14.43	14.95	16.23	13.03	13.53	14.02	14.54	15.82
	8H	13.59	14.06	14.58	15.06	16.36	13.18	13.65	14.17	14.64	15.94
	12H	13.67	14.09	14.68	15.10	16.41	13.25	13.67	14.25	14.68	15.98
8H	4H	13.12	13.59	14.11	14.59	15.89	12.76	13.23	13.75	14.23	15.53
	6H	13.76	14.15	14.77	15.18	16.48	13.39	13.78	14.41	14.82	16.12
	8H	13.98	14.32	15.00	15.35	16.66	13.61	13.95	14.63	14.98	16.29
	12H	14.11	14.41	15.14	15.43	16.79	13.73	14.03	14.75	15.05	16.41
12H	4H	13.11	13.53	14.12	14.55	15.85	12.76	13.18	13.77	14.19	15.50
	6H	13.79	14.13	14.81	15.15	16.47	13.44	13.78	14.46	14.80	16.12
	8H	14.03	14.33	15.06	15.35	16.71	13.68	13.98	14.70	14.99	16.36