

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: P926968

Luminaire Tested: DFN2DIP-HX4F0-060D100US830-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P926968
REPORT IS A COMBINATION OF REPORTS P900931 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-060D100US830-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

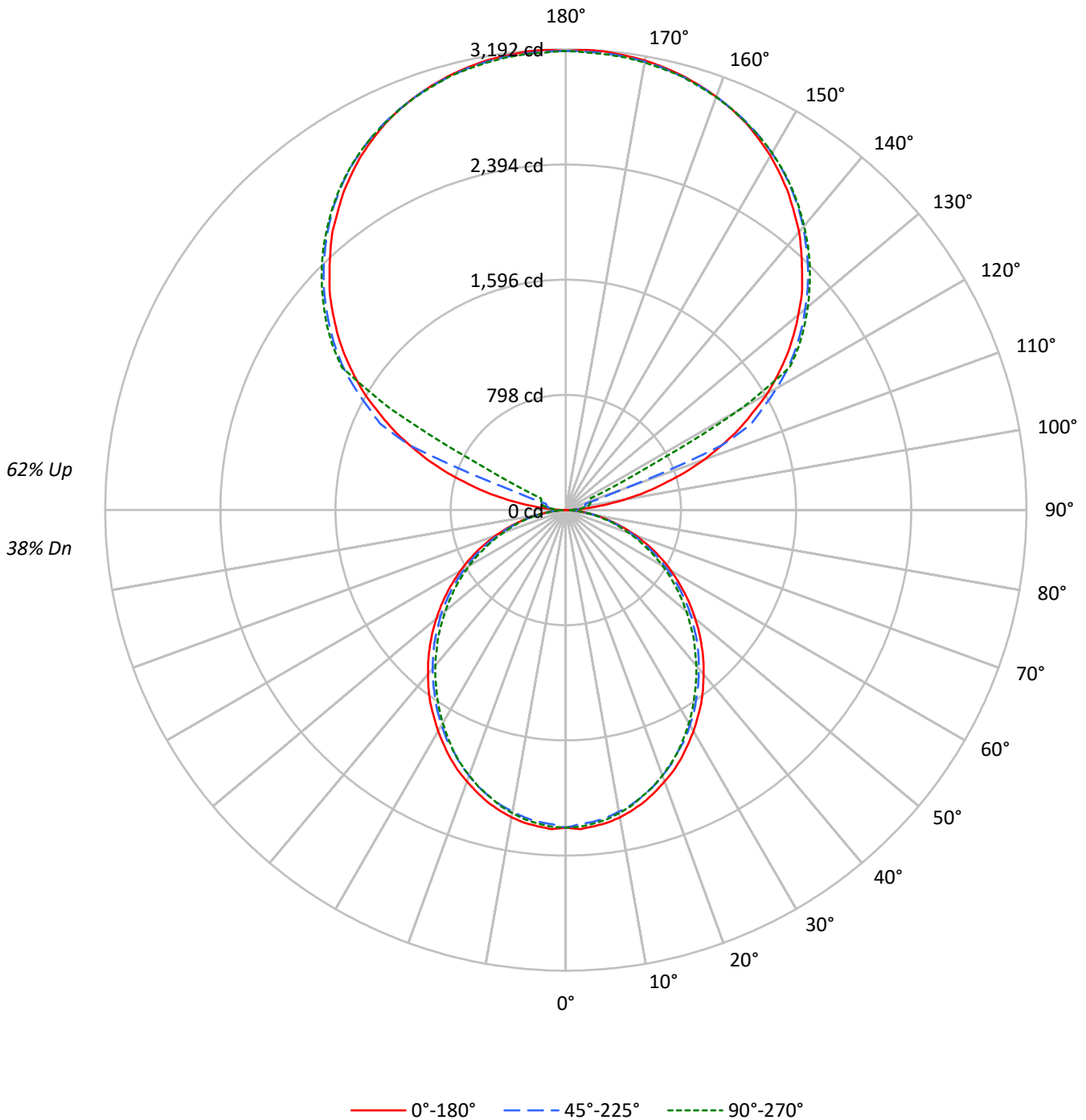
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 14929.2 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: Semi-Indirect

Input Watts (W): 130.3
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: P926968
CATALOG NUMBER: DFN2DIP-HX4F0-060D100US830-FLLONL

Luminous Intensity Polar Plot





TEST NUMBER: P926968
 CATALOG NUMBER: DFN2DIP-HX4F0-060D100US830-FLLONL

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
RCR																				
0	104	104	104	104	94	94	94	94	76	76	76	60	60	60	45	45	45	38		38
1	95	91	87	83	86	82	79	76	67	65	63	53	51	50	39	39	38	32		32
2	86	79	73	68	78	72	67	63	59	55	52	46	44	42	35	33	32	26		26
3	79	70	62	57	71	63	57	52	52	47	44	41	38	35	31	29	27	22		22
4	72	62	54	48	65	56	49	44	46	41	37	36	33	30	27	25	23	19		19
5	66	55	47	41	60	50	43	38	41	36	32	33	29	26	25	22	20	17		17
6	61	49	41	35	55	45	38	33	37	32	28	29	26	23	22	20	18	15		15
7	56	44	36	31	51	40	34	29	33	28	24	27	23	20	20	18	16	13		13
8	52	40	32	27	47	37	30	25	30	25	22	24	21	18	19	16	14	12		12
9	48	36	29	24	44	33	27	23	28	23	19	22	19	16	17	15	13	11		11
10	45	33	26	22	41	31	24	20	26	21	17	21	17	14	16	13	12	10		10

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: 1632 cd/sqm



TEST NUMBER: P926968

CATALOG NUMBER: DFN2DIP-HX4F0-060D100US830-FLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	207.1	1.4
10°-20°	582.7	3.9
20°-30°	856.3	5.7
30°-40°	994.6	6.7
40°-50°	993.4	6.7
50°-60°	866.2	5.8
60°-70°	640.3	4.3
70°-80°	362.3	2.4
80°-90°	101.2	0.7
90°-100°	104.9	0.7
100°-110°	391.0	2.6
110°-120°	1037.0	6.9
120°-130°	1719.9	11.5
130°-140°	1827.0	12.2
140°-150°	1697.9	11.4
150°-160°	1365.1	9.1
160°-170°	879.6	5.9
170°-180°	302.8	2.0
0°-30°	1646.2	11.0
0°-40°	2640.7	17.7
0°-60°	4500.3	30.1
0°-90°	5604.0	37.5
90°-120°	1532.9	10.3
90°-150°	6777.7	45.4
90°-180°	9325.0	62.5
0°-180°	14929.2	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	28	46	58	62	14
95°	150	74	90	101	99	177
105°	700	769	140	166	175	748
115°	1323	1362	1420	354	189	1303
125°	1871	1901	1945	1961	1968	1669
135°	2316	2352	2373	2396	2392	1789
145°	2686	2684	2723	2739	2727	1680
155°	2958	2937	2965	2978	2960	1363
165°	3116	3103	3110	3126	3110	880
175°	3188	3172	3176	3192	3169	303
180°	3181	3181	3181	3181	3181	



TEST NUMBER: P926968

CATALOG NUMBER: DFN2DIP-HX4F0-060D100US830-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°	2.2	27.6	45.9	57.7	62.0
92.5°	57.7	48.4	55.2	59.8	62.0
95°	149.5	73.5	89.6	101.4	99.0
97.5°	269.2	80.6	117.2	124.3	126.6
100°	407.5	92.1	131.2	149.5	154.2
102.5°	559.2	554.8	135.8	161.0	168.0
105°	699.7	768.8	140.5	165.6	174.9
107.5°	863.1	920.5	145.1	170.3	179.5
110°	1019.7	1067.9	402.8	172.8	181.7



TEST NUMBER: P926968

CATALOG NUMBER: DFN2DIP-HX4F0-060D100US830-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1167.0	1208.3	1169.3	177.1	184.3
115°	1323.4	1362.5	1420.2	354.5	188.9
117.5°	1459.2	1505.2	1544.5	1215.2	612.2
120°	1611.2	1645.6	1687.2	1714.8	1404.0
122.5°	1739.9	1776.8	1823.0	1836.6	1839.1
125°	1871.1	1901.2	1944.9	1961.1	1967.8
127.5°	1990.8	2023.1	2057.8	2080.8	2082.9
130°	2103.7	2140.6	2165.8	2191.1	2189.0
132.5°	2218.7	2248.8	2274.0	2294.7	2292.5
135°	2315.5	2352.4	2372.9	2396.1	2391.5
137.5°	2416.7	2444.3	2467.5	2490.5	2483.6
140°	2515.5	2534.2	2559.3	2580.1	2568.6
142.5°	2598.7	2614.8	2644.6	2662.8	2651.4
145°	2686.1	2683.7	2722.8	2738.9	2727.4
147.5°	2761.8	2755.0	2794.0	2805.5	2796.6
150°	2835.6	2819.5	2856.4	2870.1	2858.6
152.5°	2897.6	2879.3	2913.8	2927.7	2911.6
155°	2957.6	2937.0	2964.6	2978.3	2960.0
157.5°	3005.9	2987.6	3008.4	3024.5	3005.9
160°	3047.5	3033.5	3047.5	3061.1	3045.0
162.5°	3084.0	3070.4	3081.9	3098.0	3077.3
165°	3116.3	3102.6	3109.5	3125.6	3109.5
167.5°	3141.7	3127.8	3134.9	3151.1	3130.2
170°	3162.5	3148.6	3153.2	3169.3	3148.6
172.5°	3176.1	3162.5	3167.2	3183.3	3162.5
175°	3187.6	3171.5	3176.1	3192.3	3169.3
177.5°	3192.3	3176.1	3178.7	3194.8	3174.0
180°	3180.8	3180.8	3180.8	3180.8	3180.8



TEST NUMBER: P926968
 CATALOG NUMBER: DFN2DIP-HX4F0-060D100US830-FLLONL

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	7.71	8.47	8.77	9.53	10.97	7.28	8.04	8.33	9.10	10.54
	3H	9.36	10.04	10.43	11.11	12.57	8.89	9.57	9.96	10.64	12.10
	4H	9.94	10.59	11.02	11.66	13.13	9.47	10.12	10.55	11.19	12.65
	6H	10.34	10.93	11.43	12.01	13.48	9.86	10.46	10.95	11.53	13.01
	8H	10.44	11.01	11.53	12.10	13.57	9.97	10.53	11.06	11.62	13.09
	12H	10.49	11.02	11.58	12.11	13.60	10.01	10.54	11.10	11.63	13.12
4H	2H	8.16	8.80	9.24	9.87	11.34	7.81	8.46	8.90	9.53	10.99
	3H	10.02	10.55	11.11	11.65	13.13	9.62	10.16	10.71	11.26	12.74
	4H	10.73	11.22	11.82	12.31	13.81	10.32	10.82	11.42	11.90	13.40
	6H	11.24	11.66	12.34	12.77	14.26	10.83	11.25	11.93	12.36	13.85
	8H	11.38	11.78	12.49	12.88	14.39	10.97	11.37	12.08	12.47	13.98
	12H	11.45	11.81	12.58	12.93	14.44	11.03	11.39	12.15	12.51	14.02
8H	4H	10.92	11.31	12.02	12.42	13.92	10.56	10.95	11.66	12.06	13.56
	6H	11.54	11.87	12.67	13.02	14.52	11.18	11.51	12.31	12.65	14.16
	8H	11.76	12.05	12.90	13.18	14.70	11.40	11.68	12.53	12.81	14.33
	12H	11.89	12.14	13.03	13.27	14.83	11.51	11.76	12.64	12.88	14.44
12H	4H	10.90	11.26	12.02	12.37	13.88	10.54	10.90	11.67	12.02	13.53
	6H	11.57	11.86	12.71	12.99	14.51	11.22	11.51	12.35	12.64	14.16
	8H	11.81	12.06	12.95	13.19	14.75	11.45	11.71	12.59	12.83	14.39