

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: P926928

Luminaire Tested: DFN2DIP-HX4F0-050D090US830-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P926928
REPORT IS A COMBINATION OF REPORTS P900911 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-050D090US830-FLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

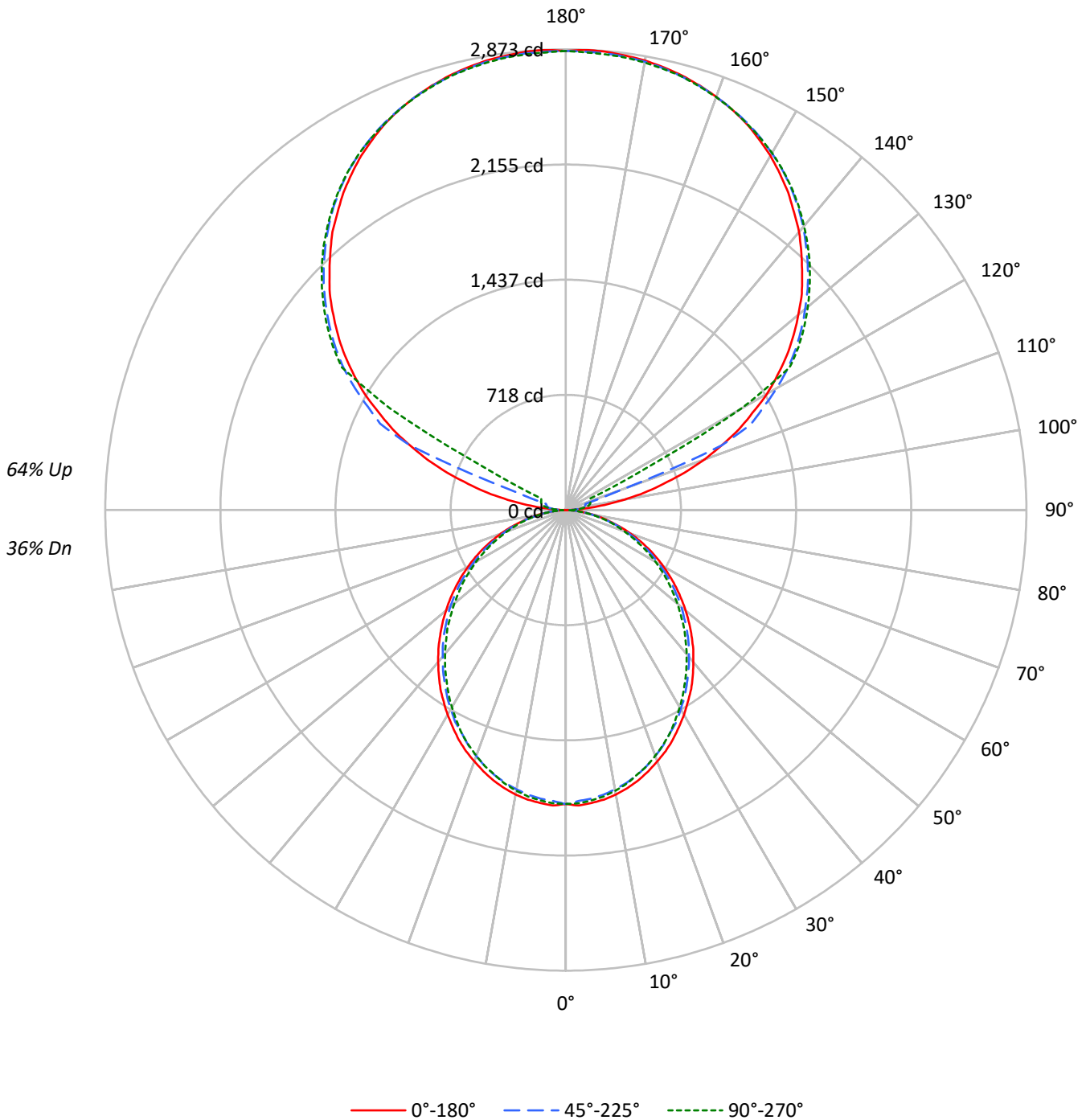
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 13063.1 lumens
Efficiency: N/A
Efficacy: 117.1 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): 111.6
Input Voltage (V):
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: 0.9957
Total Harmonic Distortion (THDi): 0.049
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	94	94	94	94	75	75	75	59	59	59	43	43	43	36				36
1	95	90	87	83	85	82	79	76	66	64	62	51	50	49	38	37	36	30				30
2	86	79	73	68	78	72	66	62	58	54	51	45	43	41	33	32	31	25				25
3	79	69	62	56	71	63	57	52	51	47	43	40	37	34	30	28	26	21				21
4	72	61	54	48	65	56	49	44	45	40	37	36	32	29	26	24	22	18				18
5	66	54	47	41	59	50	43	38	40	35	31	32	28	25	24	21	19	16				16
6	61	49	41	35	55	44	38	33	36	31	27	29	25	22	22	19	17	14				14
7	56	44	36	31	50	40	33	28	33	28	24	26	22	20	20	17	15	12				12
8	52	40	32	27	47	36	30	25	30	25	21	24	20	17	18	16	14	11				11
9	48	36	29	24	44	33	27	22	27	22	19	22	18	16	17	14	12	10				10
10	45	33	26	21	41	30	24	20	25	20	17	20	17	14	15	13	11	9				9

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1363	1363	1363
5°	1366	1345	1354
10°	1355	1327	1335
15°	1335	1305	1307
20°	1308	1275	1278
25°	1282	1238	1244
30°	1248	1205	1201
35°	1216	1165	1155
40°	1177	1125	1112
45°	1138	1085	1067
50°	1096	1043	1016
55°	1051	994	969
60°	1001	936	915
65°	946	876	851
70°	877	803	783
75°	780	716	720
80°	663	604	599
85°	481	412	398

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 1469 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	172.6	1.3
10°-20°	485.6	3.7
20°-30°	713.6	5.5
30°-40°	828.8	6.3
40°-50°	827.8	6.3
50°-60°	721.8	5.5
60°-70°	533.6	4.1
70°-80°	301.9	2.3
80°-90°	84.7	0.6
90°-100°	94.4	0.7
100°-110°	351.9	2.7
110°-120°	933.3	7.1
120°-130°	1547.9	11.8
130°-140°	1644.2	12.6
140°-150°	1528.2	11.7
150°-160°	1228.6	9.4
160°-170°	791.7	6.1
170°-180°	272.5	2.1
0°-30°	1371.8	10.5
0°-40°	2200.6	16.8
0°-60°	3750.2	28.7
0°-90°	4670.4	35.8
90°-120°	1379.6	10.6
90°-150°	6099.9	46.7
90°-180°	8393.0	64.2
0°-180°	13063.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1834	1834	1834	1834	1834	
5°	1834	1827	1807	1821	1818	174
15°	1746	1735	1712	1719	1710	492
25°	1580	1566	1536	1539	1536	727
35°	1363	1345	1317	1306	1298	851
45°	1109	1097	1070	1051	1044	856
55°	839	829	808	786	778	750
65°	566	555	538	522	513	560
75°	296	293	284	273	277	316
85°	72	70	69	63	62	81
90°	2	25	41	52	56	12
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	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1833.6	1833.6	1833.6	1833.6	1833.6
2.5°	1844.3	1835.5	1816.1	1833.6	1830.3
5°	1833.6	1826.8	1807.2	1821.3	1818.0
7.5°	1821.3	1810.8	1791.4	1805.6	1802.1
10°	1802.1	1789.7	1768.6	1782.6	1777.4
12.5°	1775.5	1765.0	1743.9	1752.7	1749.1
15°	1745.5	1735.0	1712.1	1719.2	1710.4
17.5°	1708.5	1698.0	1675.0	1683.8	1675.0
20°	1667.9	1657.5	1632.8	1638.0	1631.1
22.5°	1627.5	1611.6	1588.6	1588.6	1585.0
25°	1579.8	1565.8	1535.8	1539.2	1535.8
27.5°	1526.8	1514.5	1491.7	1486.4	1477.7
30°	1474.1	1459.9	1433.5	1428.3	1421.2
32.5°	1417.6	1407.2	1378.9	1368.2	1361.2
35°	1362.9	1345.4	1317.1	1306.5	1297.7
37.5°	1301.2	1285.4	1257.1	1244.8	1236.0
40°	1237.9	1223.6	1195.4	1179.6	1172.6
42.5°	1176.1	1161.9	1133.8	1116.0	1105.6
45°	1109.1	1096.8	1070.2	1051.0	1043.8
47.5°	1043.8	1031.5	1003.3	983.8	973.3
50°	975.0	966.3	941.6	916.9	908.0
52.5°	908.0	895.7	872.8	853.4	841.1
55°	839.4	828.7	807.5	786.4	777.7
57.5°	770.5	761.7	738.7	717.6	710.5
60°	701.7	694.8	670.1	650.6	645.4
62.5°	634.8	622.4	604.8	587.2	580.1
65°	566.1	555.4	537.8	522.0	513.1
67.5°	495.6	486.6	470.9	458.5	451.4
70°	430.3	423.2	407.3	394.9	388.0
72.5°	363.3	356.2	347.4	335.1	329.8
75°	296.1	292.7	283.8	273.3	276.9
77.5°	236.3	229.1	225.6	220.4	215.2
80°	176.4	174.6	171.0	165.8	162.2
82.5°	119.9	119.9	118.2	111.1	111.1
85°	72.2	70.5	68.8	63.4	61.7
87.5°	31.8	28.3	24.7	19.4	17.6
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



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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	6.87	7.61	7.94	8.68	10.15	6.43	7.18	7.51	8.25	9.71
	3H	8.52	9.19	9.60	10.27	11.75	8.05	8.71	9.13	9.80	11.27
	4H	9.10	9.74	10.19	10.82	12.30	8.63	9.26	9.72	10.35	11.83
	6H	9.50	10.08	10.60	11.17	12.66	9.02	9.61	10.12	10.69	12.19
	8H	9.60	10.15	10.70	11.26	12.75	9.12	9.68	10.23	10.78	12.27
	12H	9.64	10.17	10.75	11.27	12.78	9.16	9.69	10.27	10.79	12.30
4H	2H	7.31	7.95	8.41	9.03	10.52	6.97	7.60	8.07	8.69	10.17
	3H	9.17	9.70	10.28	10.81	12.31	8.78	9.31	9.88	10.42	11.92
	4H	9.88	10.37	10.99	11.47	12.99	9.48	9.96	10.59	11.06	12.58
	6H	10.39	10.81	11.51	11.93	13.44	9.98	10.40	11.10	11.52	13.03
	8H	10.54	10.93	11.66	12.04	13.57	10.13	10.52	11.24	11.63	13.16
	12H	10.61	10.96	11.74	12.09	13.62	10.18	10.54	11.32	11.66	13.20
8H	4H	10.07	10.46	11.19	11.57	13.10	9.71	10.10	10.83	11.21	12.74
	6H	10.70	11.02	11.84	12.18	13.70	10.33	10.66	11.47	11.81	13.34
	8H	10.92	11.20	12.06	12.34	13.88	10.55	10.83	11.69	11.97	13.51
	12H	11.04	11.29	12.19	12.43	14.01	10.66	10.91	11.81	12.04	13.62
12H	4H	10.05	10.40	11.18	11.53	13.06	9.70	10.05	10.83	11.18	12.71
	6H	10.73	11.01	11.87	12.15	13.69	10.38	10.66	11.52	11.79	13.34
	8H	10.96	11.21	12.11	12.34	13.93	10.61	10.85	11.75	11.99	13.57