

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: P927704

Luminaire Tested: DFN2DIP-HX4F0-090D050US840-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927704
REPORT IS A COMBINATION OF REPORTS P900847 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-090D050US840-FLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

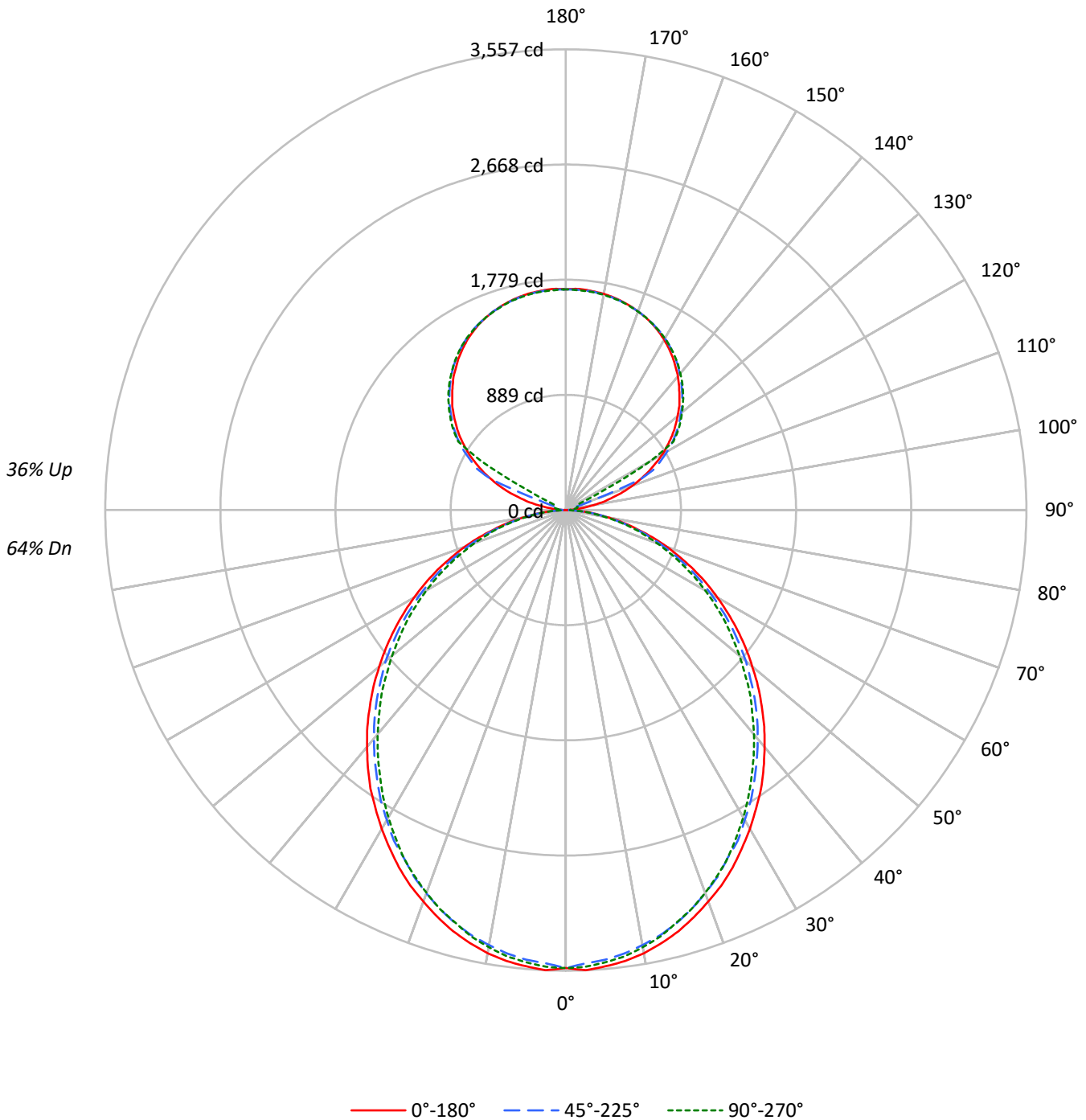
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 13995.8 lumens
Efficiency: N/A
Efficacy: 110.8 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-Direct

Input Watts (W): 126.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9821
Total Harmonic Distortion (THDi): 0.08
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			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	111	111	111	111	104	104	104	104	91	91	91	80	80	80	69	69	69	69	69	69	64
1	101	97	93	89	95	91	87	84	80	78	75	70	68	67	61	60	59	61	60	59	54
2	92	84	78	73	86	79	74	69	70	66	62	62	59	56	54	51	49	54	51	49	45
3	84	74	67	61	79	70	63	58	62	57	52	55	51	47	48	45	42	48	45	42	38
4	77	66	58	51	72	62	55	49	55	49	45	49	44	40	43	39	36	43	39	36	33
5	71	59	50	44	66	55	48	42	49	43	39	44	39	35	39	35	32	39	35	32	29
6	65	53	44	38	61	50	42	37	45	38	34	40	35	31	35	31	28	35	31	28	25
7	60	48	40	34	57	45	38	33	41	34	30	36	31	27	32	28	25	32	28	25	22
8	56	43	35	30	53	41	34	29	37	31	27	33	28	24	29	25	22	29	25	22	20
9	52	40	32	27	49	38	31	26	34	28	24	30	26	22	27	23	20	27	23	20	18
10	49	37	29	24	46	35	28	23	31	26	22	28	23	20	25	21	18	25	21	18	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2629	2629	2629
5°	2634	2593	2610
10°	2613	2558	2575
15°	2575	2517	2520
20°	2523	2458	2464
25°	2471	2389	2398
30°	2407	2324	2315
35°	2346	2247	2228
40°	2271	2170	2144
45°	2196	2092	2059
50°	2113	2011	1960
55°	2028	1917	1869
60°	1931	1805	1765
65°	1825	1690	1642
70°	1690	1549	1510
75°	1503	1380	1388
80°	1279	1165	1155
85°	929	795	768

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2196 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	332.8	2.4
10°-20°	936.5	6.7
20°-30°	1376.2	9.8
30°-40°	1598.4	11.4
40°-50°	1596.4	11.4
50°-60°	1392.0	9.9
60°-70°	1029.0	7.4
70°-80°	582.2	4.2
80°-90°	156.7	1.1
90°-100°	56.2	0.4
100°-110°	209.5	1.5
110°-120°	555.5	4.0
120°-130°	921.4	6.6
130°-140°	978.7	7.0
140°-150°	909.6	6.5
150°-160°	731.3	5.2
160°-170°	471.2	3.4
170°-180°	162.2	1.2
0°-30°	2645.5	18.9
0°-40°	4244.0	30.3
0°-60°	7232.4	51.7
0°-90°	9000.3	64.3
90°-120°	821.2	5.9
90°-150°	3630.8	25.9
90°-180°	4996.0	35.7
0°-180°	13995.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3536	3536	3536	3536	3536	
5°	3536	3523	3485	3512	3506	336
15°	3366	3346	3302	3316	3298	948
25°	3047	3020	2962	2968	2962	1402
35°	2629	2595	2540	2520	2503	1641
45°	2139	2115	2064	2027	2013	1651
55°	1619	1598	1557	1517	1500	1447
65°	1092	1071	1037	1007	990	1079
75°	571	565	547	527	534	610
85°	139	136	133	122	119	155
90°	1	15	25	31	33	13
95°	80	39	48	54	53	95
105°	375	412	75	89	94	401
115°	709	730	761	190	101	698
125°	1002	1018	1042	1050	1054	894
135°	1240	1260	1271	1284	1281	958
145°	1439	1438	1459	1467	1461	900
155°	1584	1573	1588	1596	1586	730
165°	1669	1662	1666	1674	1666	472
175°	1708	1699	1702	1710	1698	163
180°	1704	1704	1704	1704	1704	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3536.2	3536.2	3536.2	3536.2	3536.2
2.5°	3556.8	3539.9	3502.4	3536.2	3529.8
5°	3536.2	3522.9	3485.4	3512.5	3505.9
7.5°	3512.5	3492.3	3454.7	3482.2	3475.3
10°	3475.3	3451.5	3410.7	3437.8	3427.7
12.5°	3424.0	3403.8	3363.1	3380.0	3373.2
15°	3366.4	3346.2	3301.7	3315.5	3298.5
17.5°	3294.9	3274.7	3230.4	3247.3	3230.4
20°	3216.6	3196.4	3148.8	3158.9	3145.5
22.5°	3138.7	3108.1	3063.6	3063.6	3056.8
25°	3046.7	3019.6	2961.9	2968.4	2961.9
27.5°	2944.6	2920.7	2876.8	2866.7	2849.8
30°	2842.9	2815.4	2764.5	2754.4	2740.8
32.5°	2733.9	2713.7	2659.2	2638.7	2625.0
35°	2628.6	2594.7	2540.2	2519.7	2502.7
37.5°	2509.6	2478.9	2424.3	2400.6	2383.6
40°	2387.2	2359.8	2305.3	2275.0	2261.3
42.5°	2268.1	2240.7	2186.6	2152.4	2132.2
45°	2139.0	2115.2	2063.9	2026.8	2013.1
47.5°	2013.1	1989.3	1934.8	1897.3	1877.1
50°	1880.3	1863.4	1815.7	1768.2	1751.2
52.5°	1751.2	1727.4	1683.3	1645.9	1622.0
55°	1618.8	1598.2	1557.4	1516.7	1499.8
57.5°	1486.0	1469.1	1424.7	1383.9	1370.2
60°	1353.2	1339.9	1292.2	1254.8	1244.7
62.5°	1224.1	1200.2	1166.3	1132.5	1118.8
65°	1091.7	1071.1	1037.2	1006.6	989.6
67.5°	955.7	938.4	908.0	884.3	870.5
70°	829.8	816.0	785.4	761.6	748.3
72.5°	700.6	686.9	669.9	646.2	636.1
75°	571.1	564.6	547.3	527.1	534.0
77.5°	455.6	442.0	435.1	425.0	414.9
80°	340.2	336.6	329.7	319.6	312.8
82.5°	231.2	231.2	228.0	214.3	214.3
85°	139.3	136.0	132.8	122.3	119.1
87.5°	61.3	54.4	47.7	37.6	33.9
90°	1.2	14.7	24.6	30.9	33.2
92.5°	30.9	26.0	29.6	32.1	33.2
95°	80.1	39.4	48.1	54.3	53.0
97.5°	144.2	43.2	62.8	66.6	67.8
100°	218.3	49.4	70.3	80.1	82.6
102.5°	299.6	297.2	72.8	86.2	90.1
105°	374.8	411.9	75.2	88.8	93.7
107.5°	462.4	493.1	77.8	91.2	96.2
110°	546.3	572.1	215.8	92.5	97.3



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	625.2	647.3	626.4	94.9	98.7
115°	709.0	729.9	760.8	189.9	101.2
117.5°	781.7	806.3	827.4	650.9	328.0
120°	863.1	881.6	903.8	918.6	752.1
122.5°	932.0	951.8	976.6	983.9	985.3
125°	1002.3	1018.5	1041.9	1050.5	1054.2
127.5°	1066.4	1083.7	1102.4	1114.6	1115.8
130°	1126.9	1146.7	1160.2	1173.8	1172.7
132.5°	1188.6	1204.7	1218.1	1229.3	1228.1
135°	1240.4	1260.2	1271.1	1283.7	1281.1
137.5°	1294.6	1309.4	1321.8	1334.1	1330.5
140°	1347.6	1357.6	1371.0	1382.1	1376.1
142.5°	1392.1	1400.8	1416.7	1426.5	1420.4
145°	1439.0	1437.7	1458.6	1467.2	1461.1
147.5°	1479.6	1475.8	1496.8	1503.0	1498.1
150°	1519.0	1510.5	1530.1	1537.5	1531.4
152.5°	1552.3	1542.5	1560.9	1568.4	1559.7
155°	1584.4	1573.4	1588.1	1595.5	1585.7
157.5°	1610.2	1600.4	1611.5	1620.2	1610.2
160°	1632.5	1625.1	1632.5	1639.8	1631.2
162.5°	1652.1	1644.9	1650.9	1659.6	1648.5
165°	1669.4	1662.1	1665.8	1674.3	1665.8
167.5°	1683.0	1675.6	1679.4	1688.0	1676.9
170°	1694.1	1686.7	1689.2	1697.8	1686.7
172.5°	1701.5	1694.1	1696.7	1705.2	1694.1
175°	1707.7	1699.0	1701.5	1710.1	1697.8
177.5°	1710.1	1701.5	1702.8	1711.4	1700.3
180°	1703.9	1703.9	1703.9	1703.9	1703.9



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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	11.86	12.86	12.68	13.71	14.76	11.42	12.43	12.25	13.28	14.33
	3H	13.53	14.43	14.37	15.29	16.37	13.06	13.96	13.89	14.82	15.89
	4H	14.12	14.98	14.98	15.84	16.93	13.65	14.50	14.50	15.37	16.46
	6H	14.53	15.32	15.40	16.19	17.29	14.06	14.84	14.92	15.71	16.82
	8H	14.64	15.39	15.51	16.28	17.38	14.17	14.92	15.04	15.80	16.91
	12H	14.69	15.41	15.57	16.29	17.42	14.21	14.93	15.09	15.81	16.94
4H	2H	12.34	13.19	13.19	14.05	15.14	11.99	12.85	12.85	13.71	14.80
	3H	14.22	14.93	15.09	15.82	16.93	13.82	14.54	14.69	15.43	16.54
	4H	14.94	15.59	15.82	16.48	17.61	14.53	15.18	15.41	16.07	17.20
	6H	15.46	16.02	16.36	16.94	18.07	15.05	15.61	15.95	16.53	17.66
	8H	15.62	16.14	16.51	17.05	18.20	15.20	15.73	16.10	16.64	17.79
	12H	15.70	16.17	16.62	17.10	18.25	15.27	15.75	16.19	16.68	17.83
8H	4H	15.15	15.67	16.05	16.58	17.73	14.79	15.31	15.69	16.22	17.37
	6H	15.79	16.22	16.71	17.17	18.32	15.42	15.86	16.35	16.81	17.96
	8H	16.01	16.39	16.94	17.34	18.50	15.64	16.02	16.58	16.97	18.13
	12H	16.15	16.49	17.09	17.42	18.64	15.76	16.10	16.70	17.04	18.25
12H	4H	15.14	15.61	16.06	16.54	17.69	14.79	15.26	15.71	16.19	17.34
	6H	15.82	16.20	16.75	17.15	18.31	15.46	15.85	16.40	16.79	17.96
	8H	16.07	16.41	17.01	17.34	18.56	15.71	16.05	16.65	16.98	18.20