

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: P928468

Luminaire Tested: DFN2DIP-HX4F0-120D070US927-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P928468
REPORT IS A COMBINATION OF REPORTS P900889 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-120D070US927-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

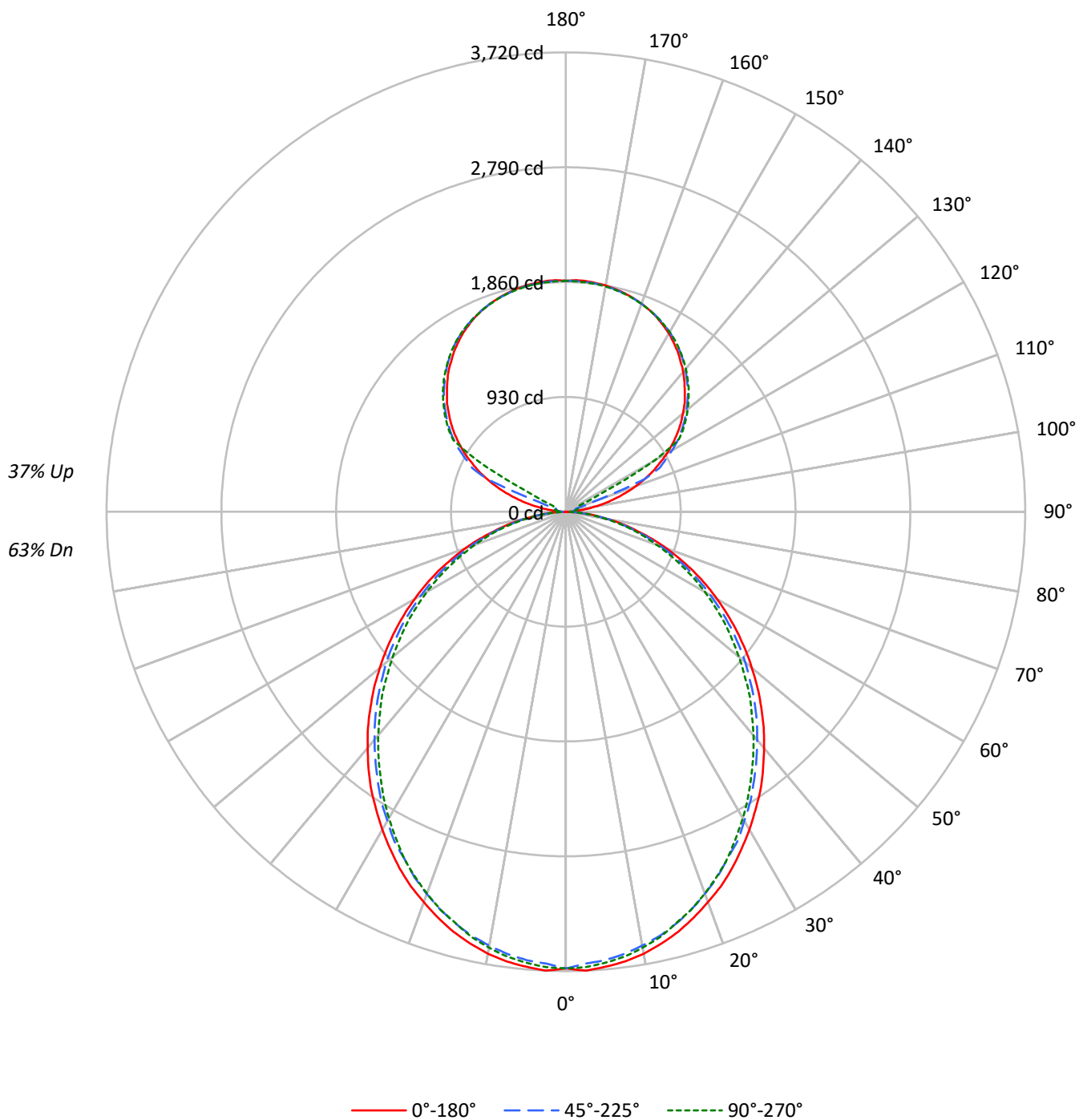
Lumens per Lamp: N/A
Luminaire Lumens: 14897.5 lumens
Efficiency: N/A
Efficacy: 83.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 178.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9954
Total Harmonic Distortion (THDi): 0.076
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	110	110	110	110	103	103	103	103	91	91	91	79	79	79	68	68	68
1	101	96	92	89	94	91	87	84	80	77	75	70	68	66	60	59	58
2	92	84	78	73	86	79	74	69	70	66	62	61	58	55	53	51	49
3	84	74	67	61	78	70	63	58	62	56	52	54	50	47	47	44	41
4	77	66	57	51	72	62	55	49	55	49	44	48	44	40	42	39	36
5	70	59	50	44	66	55	48	42	49	43	38	43	39	35	38	34	31
6	65	53	44	38	61	50	42	37	44	38	34	39	34	30	34	31	27
7	60	48	39	34	56	45	38	32	40	34	30	36	31	27	31	27	24
8	56	43	35	30	52	41	34	29	37	31	26	33	28	24	29	25	22
9	52	40	32	27	49	38	31	26	34	28	24	30	25	22	27	23	20
10	49	36	29	24	46	35	28	23	31	25	21	28	23	20	25	21	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2750	2750	2750
5°	2754	2712	2730
10°	2732	2675	2693
15°	2692	2632	2635
20°	2638	2571	2576
25°	2585	2498	2508
30°	2517	2430	2421
35°	2453	2350	2330
40°	2375	2269	2242
45°	2296	2188	2153
50°	2210	2103	2049
55°	2120	2005	1954
60°	2019	1888	1845
65°	1909	1767	1717
70°	1768	1620	1579
75°	1572	1443	1451
80°	1338	1219	1207
85°	971	830	803

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2296 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	348.1	2.3
10°-20°	979.3	6.6
20°-30°	1439.2	9.7
30°-40°	1671.6	11.2
40°-50°	1669.5	11.2
50°-60°	1455.7	9.8
60°-70°	1076.1	7.2
70°-80°	608.8	4.1
80°-90°	164.0	1.1
90°-100°	61.7	0.4
100°-110°	230.0	1.5
110°-120°	610.0	4.1
120°-130°	1011.7	6.8
130°-140°	1074.6	7.2
140°-150°	998.8	6.7
150°-160°	803.0	5.4
160°-170°	517.4	3.5
170°-180°	178.1	1.2
0°-30°	2766.6	18.6
0°-40°	4438.1	29.8
0°-60°	7563.3	50.8
0°-90°	9412.2	63.2
90°-120°	901.6	6.1
90°-150°	3986.8	26.8
90°-180°	5485.0	36.8
0°-180°	14897.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3698	3698	3698	3698	3698	
5°	3698	3684	3645	3673	3666	351
15°	3520	3499	3453	3467	3449	991
25°	3186	3158	3097	3104	3097	1466
35°	2749	2713	2656	2635	2617	1717
45°	2237	2212	2158	2120	2105	1726
55°	1693	1671	1629	1586	1568	1513
65°	1142	1120	1085	1053	1035	1129
75°	597	590	572	551	558	638
85°	146	142	139	128	124	162
90°	1	16	27	34	36	14
95°	88	43	53	60	58	104
105°	412	452	83	97	103	440
115°	778	801	835	208	111	766
125°	1101	1118	1144	1154	1158	982
135°	1362	1384	1396	1409	1407	1052
145°	1580	1579	1602	1611	1604	988
155°	1740	1728	1744	1752	1741	802
165°	1833	1825	1829	1838	1829	518
175°	1875	1866	1868	1878	1864	178
180°	1871	1871	1871	1871	1871	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3698.1	3698.1	3698.1	3698.1	3698.1
2.5°	3719.5	3701.8	3662.6	3698.1	3691.3
5°	3698.1	3684.1	3644.9	3673.1	3666.3
7.5°	3673.1	3652.0	3612.8	3641.5	3634.3
10°	3634.3	3609.4	3566.8	3595.0	3584.5
12.5°	3580.7	3559.6	3517.0	3534.7	3527.5
15°	3520.4	3499.2	3452.8	3467.1	3449.4
17.5°	3445.7	3424.5	3378.1	3395.9	3378.1
20°	3363.8	3342.6	3292.9	3303.4	3289.5
22.5°	3282.3	3250.2	3203.8	3203.8	3196.7
25°	3186.1	3157.8	3097.4	3104.2	3097.4
27.5°	3079.3	3054.4	3008.4	2997.8	2980.1
30°	2972.9	2944.3	2891.0	2880.5	2866.2
32.5°	2859.0	2837.9	2780.9	2759.4	2745.1
35°	2748.8	2713.4	2656.4	2634.9	2617.2
37.5°	2624.3	2592.3	2535.3	2510.4	2492.7
40°	2496.5	2467.8	2410.8	2379.1	2364.8
42.5°	2372.0	2343.3	2286.7	2250.9	2229.7
45°	2236.8	2212.0	2158.4	2119.6	2105.2
47.5°	2105.2	2080.3	2023.3	1984.1	1963.0
50°	1966.4	1948.6	1898.8	1849.0	1831.3
52.5°	1831.3	1806.4	1760.4	1721.1	1696.2
55°	1692.8	1671.4	1628.7	1586.1	1568.3
57.5°	1554.0	1536.2	1489.8	1447.2	1432.9
60°	1415.1	1401.2	1351.4	1312.2	1301.6
62.5°	1280.1	1255.2	1219.8	1184.3	1169.9
65°	1141.7	1120.1	1084.6	1052.6	1034.9
67.5°	999.4	981.3	949.6	924.7	910.4
70°	867.7	853.4	821.3	796.4	782.5
72.5°	732.7	718.3	700.6	675.7	665.1
75°	597.2	590.4	572.3	551.2	558.4
77.5°	476.5	462.1	455.0	444.4	433.9
80°	355.8	352.0	344.8	334.3	327.1
82.5°	241.8	241.8	238.5	224.1	224.1
85°	145.6	142.2	138.8	127.9	124.5
87.5°	64.2	56.9	49.8	39.2	35.5
90°	1.3	16.2	27.0	33.9	36.5
92.5°	33.9	28.4	32.5	35.2	36.5
95°	87.9	43.2	52.7	59.6	58.2
97.5°	158.3	47.4	69.0	73.2	74.4
100°	239.7	54.2	77.1	87.9	90.7
102.5°	328.9	326.4	79.9	94.7	98.8
105°	411.6	452.2	82.6	97.4	102.9
107.5°	507.7	541.5	85.4	100.2	105.7
110°	599.9	628.1	237.0	101.6	106.9

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	686.5	710.7	687.8	104.1	108.3
115°	778.5	801.4	835.3	208.5	111.1
117.5°	858.4	885.4	908.5	714.8	360.1
120°	947.7	968.0	992.5	1008.7	825.9
122.5°	1023.4	1045.1	1072.4	1080.4	1081.8
125°	1100.6	1118.3	1144.0	1153.5	1157.5
127.5°	1171.1	1190.0	1210.4	1224.0	1225.2
130°	1237.4	1259.1	1273.9	1288.9	1287.6
132.5°	1305.1	1322.8	1337.6	1349.8	1348.5
135°	1362.0	1383.7	1395.8	1409.4	1406.8
137.5°	1421.5	1437.8	1451.4	1465.0	1460.9
140°	1479.7	1490.6	1505.4	1517.6	1510.9
142.5°	1528.6	1538.1	1555.6	1566.3	1559.6
145°	1580.0	1578.6	1601.6	1611.1	1604.4
147.5°	1624.6	1620.6	1643.6	1650.3	1645.0
150°	1668.0	1658.5	1680.2	1688.2	1681.5
152.5°	1704.5	1693.7	1714.0	1722.1	1712.7
155°	1739.7	1727.6	1743.8	1751.9	1741.1
157.5°	1768.1	1757.4	1769.6	1779.1	1768.1
160°	1792.6	1784.4	1792.6	1800.6	1791.1
162.5°	1814.2	1806.1	1812.8	1822.3	1810.1
165°	1833.1	1825.1	1829.0	1838.5	1829.0
167.5°	1848.1	1839.8	1844.0	1853.5	1841.3
170°	1860.2	1852.1	1854.8	1864.3	1852.1
172.5°	1868.3	1860.2	1863.0	1872.4	1860.2
175°	1875.1	1865.6	1868.3	1877.8	1864.3
177.5°	1877.8	1868.3	1869.8	1879.3	1867.0
180°	1871.0	1871.0	1871.0	1871.0	1871.0

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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	11.92	12.91	12.76	13.77	14.84	11.49	12.48	12.32	13.34	14.41
	3H	13.59	14.48	14.44	15.35	16.45	13.12	14.01	13.97	14.88	15.98
	4H	14.19	15.03	15.05	15.90	17.01	13.71	14.56	14.58	15.43	16.54
	6H	14.59	15.37	15.47	16.25	17.37	14.12	14.90	14.99	15.78	16.90
	8H	14.70	15.44	15.59	16.34	17.46	14.23	14.97	15.11	15.87	16.99
	12H	14.76	15.46	15.65	16.35	17.50	14.28	14.98	15.17	15.87	17.02
4H	2H	12.40	13.24	13.27	14.12	15.22	12.05	12.90	12.92	13.77	14.88
	3H	14.28	14.98	15.16	15.89	17.01	13.89	14.59	14.77	15.50	16.62
	4H	15.00	15.64	15.89	16.54	17.69	14.59	15.24	15.49	16.14	17.29
	6H	15.52	16.08	16.43	17.00	18.15	15.11	15.67	16.02	16.59	17.74
	8H	15.68	16.19	16.59	17.11	18.28	15.26	15.78	16.17	16.70	17.87
	12H	15.76	16.22	16.69	17.16	18.33	15.33	15.80	16.26	16.74	17.91
8H	4H	15.21	15.73	16.12	16.65	17.81	14.85	15.36	15.76	16.29	17.45
	6H	15.85	16.27	16.78	17.24	18.40	15.48	15.91	16.42	16.87	18.04
	8H	16.07	16.45	17.01	17.40	18.58	15.70	16.08	16.65	17.03	18.21
	12H	16.21	16.54	17.16	17.49	18.72	15.82	16.16	16.77	17.10	18.33
12H	4H	15.20	15.67	16.13	16.61	17.78	14.85	15.31	15.78	16.25	17.42
	6H	15.88	16.26	16.82	17.21	18.39	15.52	15.91	16.47	16.86	18.04
	8H	16.13	16.46	17.08	17.41	18.64	15.77	16.10	16.72	17.05	18.28