

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: P908292

Luminaire Tested: DFN2DIP-HX4F0-120D070US840-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P908292
REPORT IS A COMBINATION OF REPORTS P899369 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-120D070US840-FLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

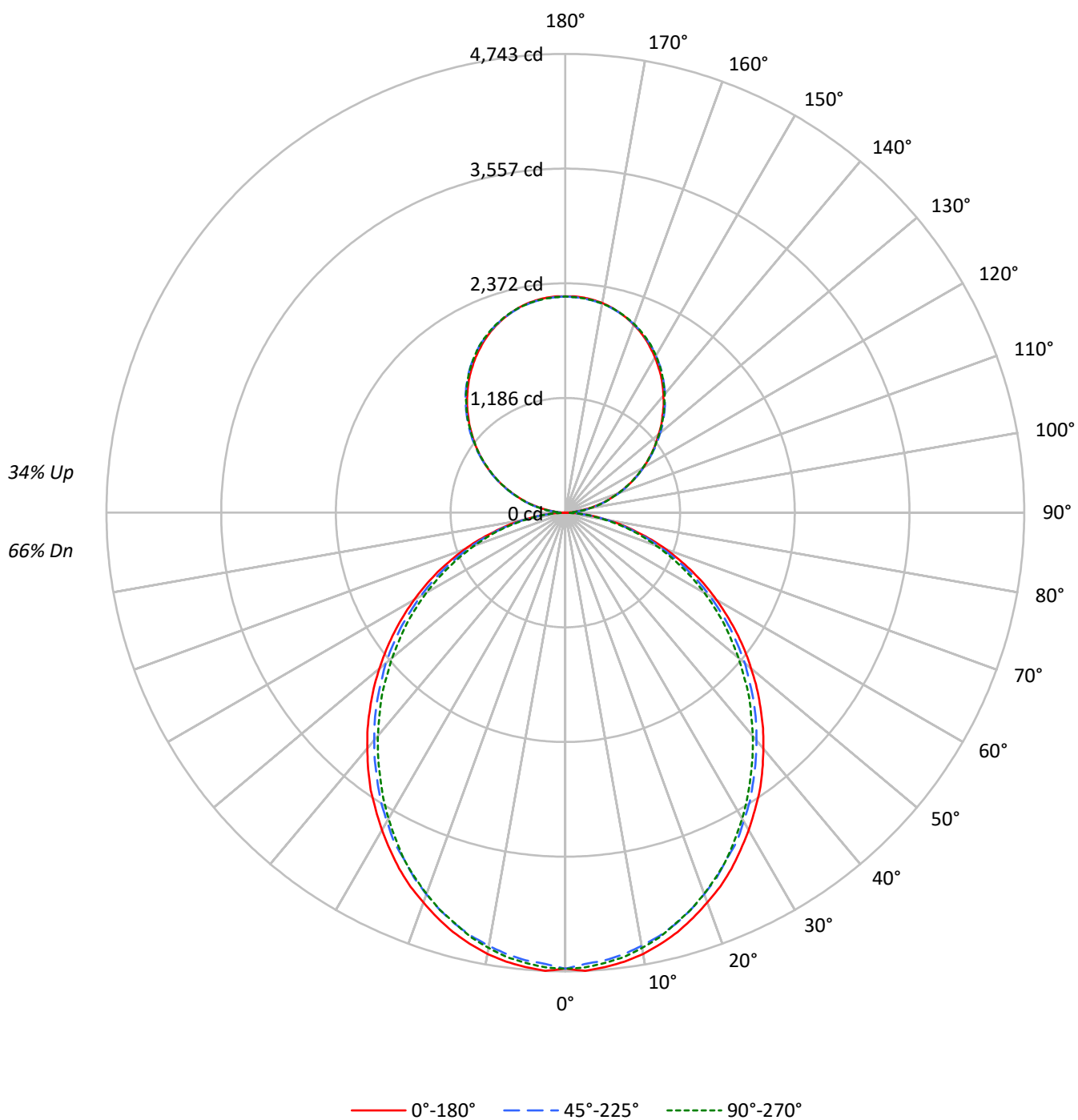
Lumens per Lamp: N/A
Luminaire Lumens: 18253.3 lumens
Efficiency: N/A
Efficacy: 110.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 165.7
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	111	111	111	111	104	104	104	104	92	92	92	81	81	81	71	71	71
1	101	97	93	89	95	91	88	85	81	78	76	71	69	67	62	61	60
2	92	85	78	73	87	80	74	70	71	67	63	63	59	56	55	52	50
3	84	74	67	61	79	70	64	58	63	57	53	55	51	48	49	46	43
4	77	66	58	52	72	62	55	49	56	50	45	49	45	41	44	40	37
5	71	59	51	44	66	56	48	43	50	44	39	44	39	36	39	35	32
6	65	53	45	39	61	50	43	37	45	39	34	40	35	31	36	32	28
7	61	48	40	34	57	45	38	33	41	35	30	37	32	28	33	28	25
8	56	44	36	30	53	41	34	29	37	31	27	34	28	25	30	26	23
9	52	40	32	27	49	38	31	26	34	28	24	31	26	22	28	24	21
10	49	37	29	24	46	35	28	24	32	26	22	29	24	20	26	22	19

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3506	3506	3506
5°	3512	3458	3481
10°	3484	3411	3434
15°	3433	3356	3360
20°	3364	3278	3285
25°	3295	3185	3198
30°	3209	3098	3087
35°	3128	2996	2970
40°	3028	2893	2859
45°	2928	2790	2745
50°	2818	2682	2613
55°	2704	2556	2492
60°	2574	2407	2353
65°	2434	2253	2189
70°	2254	2065	2013
75°	2005	1840	1850
80°	1706	1554	1539
85°	1238	1059	1024

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2928 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	443.8	2.4
10°-20°	1248.7	6.8
20°-30°	1835.1	10.1
30°-40°	2131.4	11.7
40°-50°	2128.7	11.7
50°-60°	1856.2	10.2
60°-70°	1372.1	7.5
70°-80°	776.3	4.3
80°-90°	211.3	1.2
90°-100°	138.3	0.8
100°-110°	439.6	2.4
110°-120°	752.2	4.1
120°-130°	989.3	5.4
130°-140°	1110.5	6.1
140°-150°	1088.9	6.0
150°-160°	913.5	5.0
160°-170°	605.8	3.3
170°-180°	211.7	1.2
0°-30°	3527.6	19.3
0°-40°	5659.0	31.0
0°-60°	9643.8	52.8
0°-90°	12003.5	65.8
90°-120°	1330.1	7.3
90°-150°	4518.8	24.8
90°-180°	6250.0	34.2
0°-180°	18253.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4715	4715	4715	4715	4715	
5°	4715	4698	4648	4684	4675	448
15°	4489	4462	4403	4421	4398	1264
25°	4062	4026	3950	3958	3950	1869
35°	3505	3460	3387	3360	3337	2189
45°	2852	2820	2752	2703	2684	2201
55°	2158	2131	2077	2022	2000	1930
65°	1456	1428	1383	1342	1320	1439
75°	762	753	730	703	712	813
85°	186	181	177	163	159	207
90°	2	24	66	62	64	17
95°	98	117	121	121	117	109
105°	406	411	415	419	419	428
115°	755	766	762	760	755	747
125°	1098	1115	1109	1103	1101	981
135°	1420	1441	1445	1443	1438	1098
145°	1724	1738	1748	1750	1743	1077
155°	1972	1977	1983	1992	1986	907
165°	2145	2143	2143	2156	2147	605
175°	2232	2226	2222	2236	2224	212
180°	2236	2236	2236	2236	2236	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4715.4	4715.4	4715.4	4715.4	4715.4
2.5°	4742.7	4720.1	4670.1	4715.4	4706.7
5°	4715.4	4697.5	4647.5	4683.6	4674.9
7.5°	4683.6	4656.6	4606.6	4643.2	4634.1
10°	4634.1	4602.3	4547.9	4584.0	4570.6
12.5°	4565.7	4538.7	4484.4	4507.0	4497.8
15°	4488.8	4461.8	4402.6	4420.9	4398.3
17.5°	4393.5	4366.6	4307.4	4330.0	4307.4
20°	4289.1	4262.1	4198.7	4212.1	4194.4
22.5°	4185.2	4144.3	4085.1	4085.1	4076.0
25°	4062.5	4026.4	3949.5	3958.2	3949.5
27.5°	3926.4	3894.6	3836.0	3822.4	3799.9
30°	3790.7	3754.2	3686.3	3672.9	3654.6
32.5°	3645.4	3618.6	3545.8	3518.5	3500.2
35°	3504.9	3459.8	3387.1	3359.7	3337.1
37.5°	3346.2	3305.4	3232.7	3201.0	3178.3
40°	3183.2	3146.6	3073.9	3033.5	3015.3
42.5°	3024.4	2987.9	2915.7	2870.0	2843.1
45°	2852.2	2820.5	2752.1	2702.6	2684.3
47.5°	2684.3	2652.5	2579.9	2529.9	2503.0
50°	2507.3	2484.7	2421.2	2357.6	2335.0
52.5°	2335.0	2303.3	2244.6	2194.5	2162.8
55°	2158.5	2131.1	2076.7	2022.4	1999.7
57.5°	1981.5	1958.8	1899.7	1845.3	1827.0
60°	1804.4	1786.7	1723.1	1673.1	1659.6
62.5°	1632.2	1600.4	1555.3	1510.1	1491.8
65°	1455.7	1428.3	1383.0	1342.1	1319.6
67.5°	1274.3	1251.2	1210.8	1179.1	1160.8
70°	1106.4	1088.1	1047.2	1015.5	997.7
72.5°	934.2	915.9	893.3	861.6	848.1
75°	761.5	752.9	729.7	702.9	712.0
77.5°	607.5	589.3	580.2	566.6	553.2
80°	453.6	448.8	439.7	426.3	417.1
82.5°	308.3	308.3	304.1	285.8	285.8
85°	185.7	181.4	177.0	163.1	158.8
87.5°	81.8	72.6	63.5	50.0	45.2
90°	2.0	24.2	66.0	62.0	64.0
92.5°	41.8	56.7	58.7	60.7	60.7
95°	98.4	117.2	120.7	120.7	117.2
97.5°	163.8	181.3	188.7	188.7	188.7
100°	239.2	254.8	260.1	260.1	258.1
102.5°	318.8	330.2	337.7	339.7	337.7
105°	405.8	411.1	415.2	418.6	418.6
107.5°	492.0	500.1	500.1	501.5	492.0
110°	575.6	586.4	586.4	586.4	581.0



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	665.9	677.4	675.4	669.9	665.9
115°	754.9	765.7	762.3	760.3	754.9
117.5°	843.1	858.0	848.6	843.1	837.8
120°	932.1	947.0	932.1	932.1	926.0
122.5°	1013.0	1031.9	1022.5	1017.0	1013.0
125°	1097.9	1114.8	1109.4	1103.4	1101.4
127.5°	1180.8	1201.7	1194.4	1186.3	1180.8
130°	1258.4	1282.6	1279.3	1275.3	1267.8
132.5°	1345.3	1364.2	1365.5	1356.1	1350.7
135°	1420.2	1441.0	1445.1	1443.0	1437.6
137.5°	1503.7	1520.6	1523.9	1522.6	1514.5
140°	1577.2	1594.1	1603.5	1603.5	1596.1
142.5°	1652.6	1669.5	1674.9	1676.9	1669.5
145°	1724.1	1737.6	1748.4	1750.4	1743.0
147.5°	1788.2	1805.0	1813.1	1816.4	1809.1
150°	1854.2	1865.6	1873.1	1879.2	1873.1
152.5°	1912.8	1924.3	1933.7	1941.2	1933.7
155°	1971.5	1976.8	1983.0	1992.4	1986.3
157.5°	2022.1	2026.1	2029.4	2043.0	2033.5
160°	2067.2	2071.2	2073.3	2084.7	2076.6
162.5°	2109.0	2109.0	2111.0	2123.7	2114.4
165°	2144.7	2142.6	2142.6	2156.2	2146.7
167.5°	2177.1	2171.0	2171.0	2184.4	2175.0
170°	2201.3	2196.0	2193.9	2207.4	2196.0
172.5°	2218.2	2212.7	2210.7	2224.2	2212.7
175°	2231.6	2226.2	2222.2	2235.6	2224.2
177.5°	2239.1	2233.6	2229.6	2241.1	2229.6
180°	2235.6	2235.6	2235.6	2235.6	2235.6

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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	12.97	13.99	13.78	14.83	15.85	12.54	13.56	13.35	14.39	15.42
	3H	14.64	15.56	15.47	16.40	17.46	14.17	15.09	14.99	15.93	16.99
	4H	15.24	16.11	16.08	16.96	18.02	14.77	15.63	15.60	16.48	17.55
	6H	15.65	16.45	16.50	17.31	18.38	15.17	15.97	16.02	16.83	17.91
	8H	15.76	16.52	16.62	17.40	18.48	15.28	16.05	16.14	16.92	18.00
	12H	15.81	16.54	16.68	17.41	18.51	15.33	16.06	16.20	16.93	18.03
4H	2H	13.45	14.32	14.30	15.17	16.23	13.11	13.98	13.95	14.82	15.89
	3H	15.33	16.06	16.19	16.94	18.02	14.94	15.67	15.80	16.55	17.63
	4H	16.06	16.72	16.92	17.59	18.70	15.65	16.31	16.52	17.19	18.30
	6H	16.58	17.15	17.46	18.05	19.17	16.17	16.74	17.05	17.65	18.76
	8H	16.73	17.27	17.62	18.17	19.29	16.32	16.86	17.21	17.75	18.88
	12H	16.82	17.30	17.72	18.21	19.34	16.39	16.88	17.30	17.79	18.92
8H	4H	16.27	16.80	17.15	17.70	18.82	15.91	16.44	16.79	17.34	18.46
	6H	16.91	17.35	17.82	18.29	19.41	16.54	16.98	17.46	17.92	19.05
	8H	17.13	17.52	18.05	18.45	19.59	16.76	17.15	17.68	18.08	19.22
	12H	17.27	17.61	18.19	18.54	19.73	16.88	17.23	17.81	18.15	19.35
12H	4H	16.26	16.74	17.17	17.66	18.79	15.91	16.39	16.81	17.31	18.44
	6H	16.94	17.33	17.86	18.26	19.40	16.58	16.98	17.51	17.91	19.05
	8H	17.19	17.53	18.11	18.46	19.65	16.83	17.18	17.76	18.10	19.29