

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: P908275

Luminaire Tested: DFN2DIP-HX4F0-110D070US840-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P908275
REPORT IS A COMBINATION OF REPORTS P899368 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-110D070US840-RLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

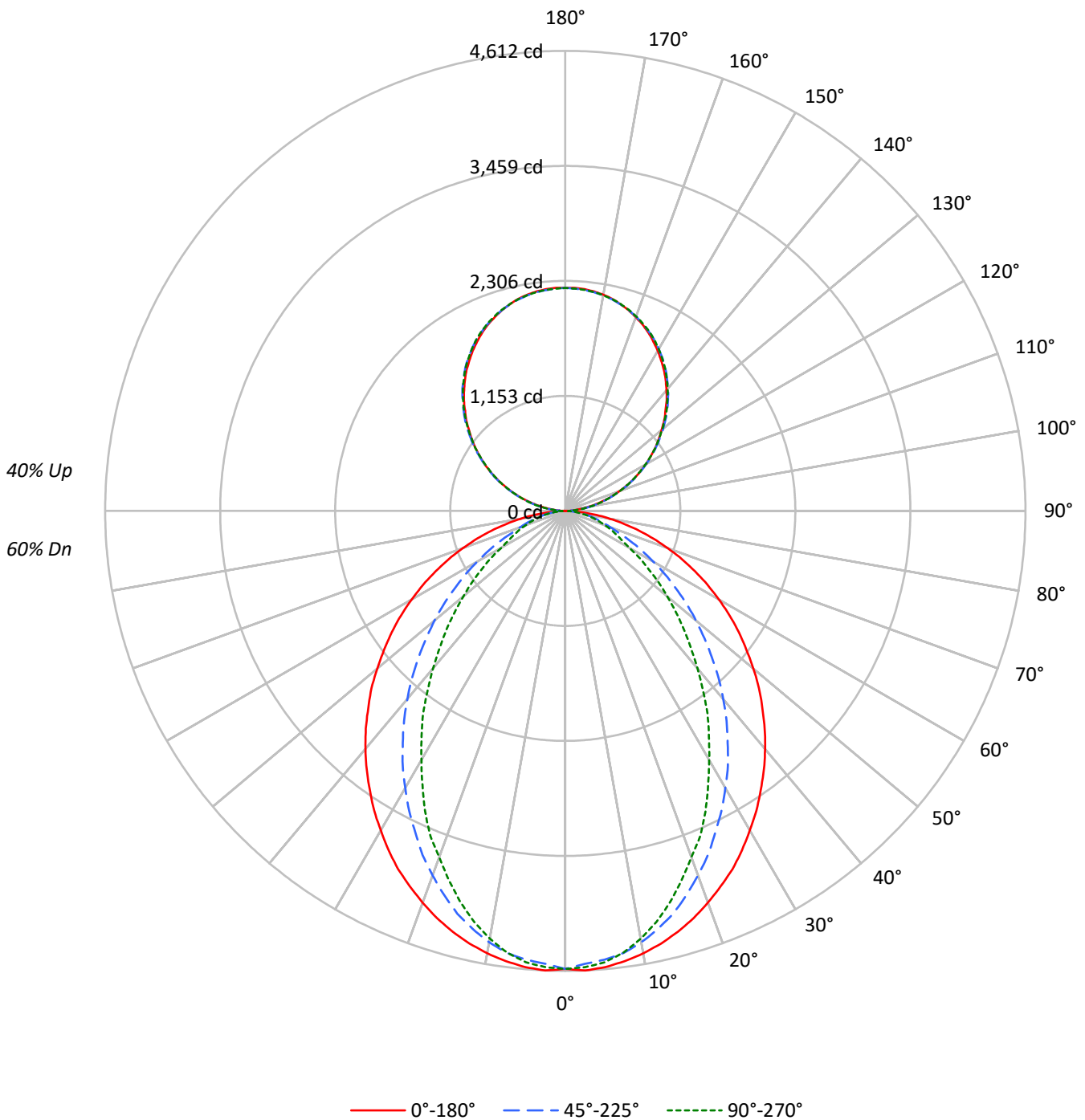
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 15698.4 lumens
Efficiency: N/A
Efficacy: 103.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 151.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9967
Total Harmonic Distortion (THDi): 0.063
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P908275
CATALOG NUMBER: DFN2DIP-HX4F0-110D070US840-RLLFLL

Luminous Intensity Polar Plot





TEST NUMBER: P908275

CATALOG NUMBER: DFN2DIP-HX4F0-110D070US840-RLLFLL

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	110	110	110	110	102	102	102	102	89	89	89	77	77	77	65	65	65	60			60
1	101	96	93	89	94	90	87	84	79	77	74	68	67	65	59	58	56	52			52
2	92	85	79	74	86	80	74	70	70	66	63	61	58	55	52	50	48	44			44
3	84	75	68	62	79	71	64	59	62	57	53	54	51	47	47	44	42	38			38
4	78	67	59	53	72	63	56	51	56	50	46	49	45	41	42	39	37	33			33
5	71	60	52	46	67	57	49	44	50	44	40	44	40	36	38	35	32	29			29
6	66	54	46	40	62	51	44	39	45	40	35	40	36	32	35	32	29	26			26
7	61	49	41	36	57	46	39	34	41	36	31	37	32	29	32	29	26	23			23
8	57	45	37	32	53	42	36	31	38	32	28	34	29	26	30	26	23	21			21
9	53	41	34	29	50	39	32	28	35	29	25	31	27	23	28	24	21	19			19
10	50	38	31	26	47	36	29	25	32	27	23	29	24	21	26	22	19	18			18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3414	3414	3414
5°	3420	3360	3381
10°	3386	3294	3271
15°	3340	3186	3102
20°	3278	3036	2893
25°	3215	2868	2692
30°	3131	2696	2436
35°	3048	2511	2212
40°	2964	2319	1954
45°	2866	2106	1721
50°	2765	1892	1493
55°	2659	1662	1274
60°	2537	1422	1049
65°	2396	1178	944
70°	2226	950	855
75°	2012	838	778
80°	1702	704	675
85°	1190	472	509

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2866 cd/sqm



TEST NUMBER: P908275

CATALOG NUMBER: DFN2DIP-HX4F0-110D070US840-RLFL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	430.3	2.7
10°-20°	1181.2	7.5
20°-30°	1658.4	10.6
30°-40°	1807.8	11.5
40°-50°	1661.5	10.6
50°-60°	1304.9	8.3
60°-70°	849.4	5.4
70°-80°	437.2	2.8
80°-90°	118.0	0.8
90°-100°	138.3	0.9
100°-110°	439.6	2.8
110°-120°	752.2	4.8
120°-130°	989.3	6.3
130°-140°	1110.5	7.1
140°-150°	1088.9	6.9
150°-160°	913.5	5.8
160°-170°	605.8	3.9
170°-180°	211.7	1.3
0°-30°	3269.9	20.8
0°-40°	5077.7	32.3
0°-60°	8044.1	51.2
0°-90°	9448.6	60.2
90°-120°	1330.1	8.5
90°-150°	4518.8	28.8
90°-180°	6250.0	39.8
0°-180°	15698.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4591	4591	4591	4591	4591	
5°	4591	4570	4516	4554	4541	435
15°	4367	4321	4180	4101	4060	1231
25°	3964	3831	3556	3386	3324	1823
35°	3416	3203	2838	2576	2484	2138
45°	2792	2514	2078	1782	1683	2156
55°	2123	1799	1350	1101	1022	1897
65°	1434	1097	723	582	569	1421
75°	764	473	332	303	299	808
85°	178	91	79	79	79	205
90°	2	24	66	62	64	15
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	



TEST NUMBER: P908275

CATALOG NUMBER: DFN2DIP-HX4F0-110D070US840-RLFL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4591.2	4591.2	4591.2	4591.2	4591.2
2.5°	4611.9	4591.2	4545.3	4587.2	4578.8
5°	4591.2	4570.4	4516.2	4553.7	4541.4
7.5°	4553.7	4528.9	4470.8	4487.1	4466.3
10°	4503.9	4474.7	4391.9	4379.1	4354.4
12.5°	4441.7	4404.2	4291.8	4267.1	4221.2
15°	4366.8	4320.9	4179.8	4101.0	4059.5
17.5°	4279.5	4213.0	4038.4	3947.1	3880.5
20°	4179.8	4096.5	3888.9	3785.3	3693.6
22.5°	4071.9	3976.1	3735.1	3594.0	3531.8
25°	3963.8	3830.7	3556.5	3386.4	3323.8
27.5°	3835.2	3693.6	3390.3	3195.0	3099.4
30°	3698.0	3539.8	3207.4	2995.8	2883.4
32.5°	3564.9	3373.6	3033.2	2783.8	2679.8
35°	3415.5	3203.4	2838.0	2576.2	2484.5
37.5°	3270.0	3041.2	2655.0	2368.0	2264.5
40°	3116.1	2867.1	2463.8	2168.8	2060.8
42.5°	2958.3	2692.5	2272.9	1965.2	1861.6
45°	2792.2	2513.6	2077.6	1782.2	1682.6
47.5°	2634.3	2339.5	1890.7	1595.3	1504.1
50°	2459.7	2164.8	1707.8	1420.8	1333.9
52.5°	2289.2	1977.5	1533.2	1259.0	1180.0
55°	2122.9	1799.0	1350.2	1101.2	1022.3
57.5°	1952.9	1620.4	1188.4	955.7	889.1
60°	1778.3	1445.9	1017.8	806.3	739.7
62.5°	1608.1	1275.8	872.4	673.2	640.1
65°	1433.5	1096.7	723.0	581.9	569.1
67.5°	1267.4	930.6	581.9	510.9	498.6
70°	1092.8	768.8	481.8	440.4	423.6
72.5°	926.6	618.9	402.9	369.8	361.4
75°	764.4	473.4	332.3	303.3	299.3
77.5°	602.6	336.4	261.9	245.1	236.7
80°	452.7	241.2	199.2	183.0	183.0
82.5°	315.6	162.2	137.1	128.8	128.8
85°	178.5	91.3	78.9	78.9	78.9
87.5°	66.6	33.0	33.0	29.1	29.1
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



TEST NUMBER: P908275

CATALOG NUMBER: DFN2DIP-HX4F0-110D070US840-RLFL

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



TEST NUMBER: P908275
 CATALOG NUMBER: DFN2DIP-HX4F0-110D070US840-RLLFLL

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	12.31	13.24	13.19	14.12	15.24	8.29	9.21	9.16	10.10	11.22
	3H	14.00	14.82	14.88	15.72	16.87	9.48	10.31	10.37	11.21	12.35
	4H	14.61	15.39	15.51	16.29	17.45	9.94	10.72	10.84	11.62	12.78
	6H	15.04	15.76	15.95	16.67	17.84	10.27	10.98	11.18	11.89	13.06
	8H	15.17	15.85	16.09	16.78	17.95	10.36	11.04	11.28	11.97	13.14
	12H	15.23	15.88	16.16	16.80	18.00	10.41	11.06	11.33	11.98	13.17
4H	2H	12.34	13.12	13.25	14.02	15.18	8.89	9.67	9.80	10.57	11.73
	3H	14.18	14.83	15.10	15.76	16.93	10.25	10.90	11.17	11.84	13.01
	4H	14.88	15.47	15.81	16.40	17.59	10.81	11.40	11.73	12.33	13.52
	6H	15.40	15.91	16.34	16.86	18.06	11.23	11.74	12.17	12.69	13.89
	8H	15.58	16.05	16.52	17.00	18.21	11.37	11.84	12.31	12.79	14.00
	12H	15.68	16.10	16.64	17.07	18.28	11.44	11.86	12.40	12.83	14.04
8H	4H	14.85	15.33	15.80	16.27	17.49	11.10	11.57	12.04	12.52	13.73
	6H	15.42	15.81	16.39	16.80	18.01	11.62	12.01	12.59	13.00	14.21
	8H	15.64	15.99	16.62	16.97	18.20	11.81	12.16	12.79	13.14	14.37
	12H	15.79	16.09	16.77	17.06	18.34	11.94	12.24	12.92	13.21	14.49
12H	4H	14.81	15.24	15.77	16.20	17.42	11.10	11.53	12.07	12.50	13.71
	6H	15.40	15.75	16.38	16.73	17.95	11.67	12.01	12.65	12.99	14.22
	8H	15.63	15.93	16.61	16.90	18.18	11.89	12.19	12.87	13.16	14.44