

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: P927786

Luminaire Tested: DFN2DIP-HX4F0-110D070US840-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927786
REPORT IS A COMBINATION OF REPORTS P900888 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-110D070US840-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

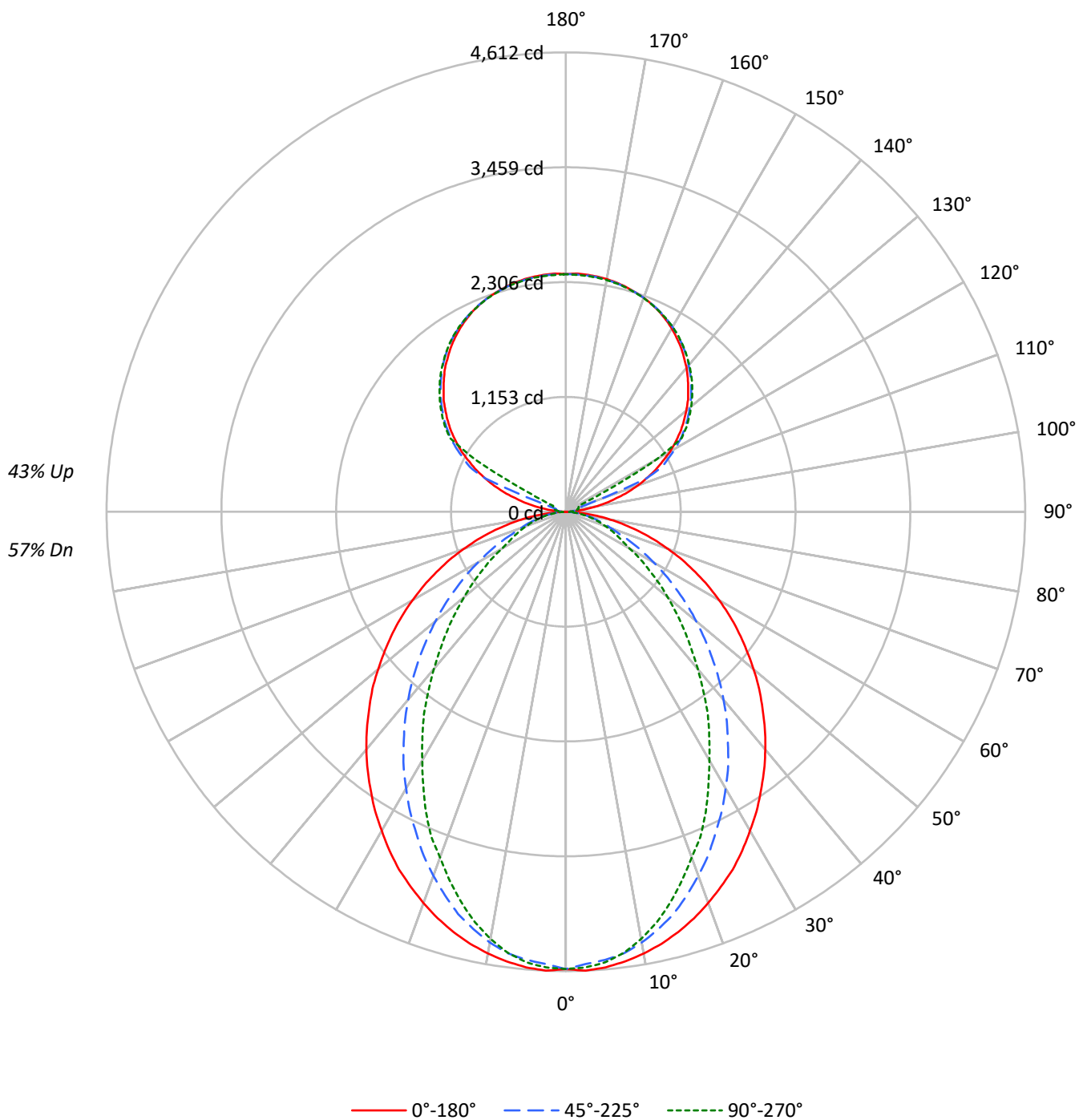
Lumens per Lamp: N/A
Luminaire Lumens: 16439.5 lumens
Efficiency: N/A
Efficacy: 100.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 164.3
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

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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	109	109	109	109		101	101	101	101		87	87	87		75	75	75		63	63	63
1	100	96	92	89		93	89	86	83		78	75	73		67	65	63		57	55	54
2	92	84	78	73		85	79	74	69		69	65	61		59	56	54		50	48	47
3	84	75	68	62		78	70	64	59		61	56	52		53	49	46		45	43	40
4	77	66	59	53		72	62	56	50		55	49	45		47	43	40		41	38	35
5	71	60	52	46		66	56	49	44		49	44	39		43	39	35		37	34	31
6	66	54	46	40		61	51	43	38		45	39	35		39	35	31		34	30	28
7	61	49	41	35		57	46	39	34		41	35	31		36	31	28		31	27	25
8	57	44	37	32		53	42	35	30		37	32	28		33	28	25		29	25	22
9	53	41	33	28		49	38	32	27		34	29	25		30	26	23		27	23	20
10	49	37	30	26		46	35	29	25		32	26	23		28	24	21		25	21	19

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3414	3414	3414
5°	3419	3360	3381
10°	3386	3294	3271
15°	3339	3186	3101
20°	3278	3036	2893
25°	3215	2868	2691
30°	3131	2696	2436
35°	3048	2510	2211
40°	2964	2319	1954
45°	2866	2106	1721
50°	2765	1891	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

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	430.3	2.6
10°-20°	1181.1	7.2
20°-30°	1658.3	10.1
30°-40°	1807.6	11.0
40°-50°	1661.4	10.1
50°-60°	1304.8	7.9
60°-70°	849.3	5.2
70°-80°	437.2	2.7
80°-90°	115.8	0.7
90°-100°	78.7	0.5
100°-110°	293.2	1.8
110°-120°	777.7	4.7
120°-130°	1289.9	7.8
130°-140°	1370.2	8.3
140°-150°	1273.4	7.7
150°-160°	1023.8	6.2
160°-170°	659.7	4.0
170°-180°	227.1	1.4
0°-30°	3269.7	19.9
0°-40°	5077.3	30.9
0°-60°	8043.5	48.9
0°-90°	9445.8	57.5
90°-120°	1149.6	7.0
90°-150°	5083.2	30.9
90°-180°	6994.0	42.5
0°-180°	16439.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4591	4591	4591	4591	4591	
5°	4591	4570	4516	4553	4541	435
15°	4366	4321	4180	4101	4059	1230
25°	3964	3830	3556	3386	3324	1823
35°	3415	3203	2838	2576	2484	2138
45°	2792	2513	2078	1782	1682	2156
55°	2123	1799	1350	1101	1022	1897
65°	1433	1097	723	582	569	1421
75°	764	473	332	303	299	808
85°	178	91	79	79	79	205
90°	2	21	34	43	47	15
95°	112	55	67	76	74	133
105°	525	577	105	124	131	561
115°	992	1022	1065	266	142	977
125°	1403	1426	1459	1471	1476	1252
135°	1737	1764	1780	1797	1794	1341
145°	2015	2013	2042	2054	2046	1260
155°	2218	2203	2223	2234	2220	1022
165°	2337	2327	2332	2344	2332	660
175°	2391	2379	2382	2394	2377	228
180°	2386	2386	2386	2386	2386	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4590.9	4590.9	4590.9	4590.9	4590.9
2.5°	4611.6	4590.9	4545.0	4586.9	4578.5
5°	4590.9	4570.2	4515.9	4553.4	4541.1
7.5°	4553.4	4528.7	4470.5	4486.8	4466.0
10°	4503.6	4474.4	4391.6	4378.8	4354.2
12.5°	4441.4	4403.9	4291.5	4266.8	4221.0
15°	4366.5	4320.6	4179.6	4100.7	4059.2
17.5°	4279.2	4212.7	4038.1	3946.8	3880.3
20°	4179.6	4096.3	3888.6	3785.0	3693.3
22.5°	4071.6	3975.9	3734.8	3593.8	3531.6
25°	3963.6	3830.5	3556.3	3386.2	3323.6
27.5°	3834.9	3693.3	3390.1	3194.8	3099.2
30°	3697.8	3539.6	3207.2	2995.6	2883.2
32.5°	3564.7	3373.3	3033.0	2783.6	2679.6
35°	3415.2	3203.2	2837.8	2576.0	2484.3
37.5°	3269.8	3041.0	2654.9	2367.9	2264.4
40°	3115.9	2866.9	2463.6	2168.6	2060.7
42.5°	2958.1	2692.3	2272.8	1965.1	1861.5
45°	2792.0	2513.4	2077.5	1782.1	1682.5
47.5°	2634.2	2339.3	1890.5	1595.2	1504.0
50°	2459.6	2164.7	1707.7	1420.7	1333.8
52.5°	2289.0	1977.4	1533.1	1258.9	1180.0
55°	2122.8	1798.9	1350.1	1101.1	1022.2
57.5°	1952.8	1620.3	1188.3	955.7	889.0
60°	1778.2	1445.8	1017.8	806.2	739.7
62.5°	1608.0	1275.7	872.4	673.1	640.0
65°	1433.4	1096.6	722.9	581.8	569.0
67.5°	1267.3	930.5	581.8	510.9	498.5
70°	1092.7	768.8	481.8	440.4	423.6
72.5°	926.5	618.9	402.9	369.8	361.4
75°	764.3	473.4	332.3	303.2	299.3
77.5°	602.5	336.4	261.8	245.1	236.7
80°	452.7	241.1	199.2	183.0	183.0
82.5°	315.6	162.2	137.1	128.7	128.7
85°	178.5	91.3	78.9	78.9	78.9
87.5°	66.5	33.0	33.0	29.1	29.1
90°	1.6	20.7	34.4	43.2	46.6
92.5°	43.2	36.3	41.4	44.9	46.6
95°	112.1	55.1	67.3	76.0	74.2
97.5°	201.9	60.5	88.0	93.3	94.9
100°	305.7	69.1	98.4	112.1	115.6
102.5°	419.4	416.1	101.9	120.8	126.0
105°	524.8	576.6	105.3	124.2	131.2
107.5°	647.3	690.4	108.9	127.7	134.7
110°	764.8	800.9	302.1	129.6	136.3



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	875.3	906.2	876.9	132.8	138.1
115°	992.5	1021.8	1065.0	265.9	141.7
117.5°	1094.4	1128.9	1158.3	911.3	459.2
120°	1208.3	1234.2	1265.4	1286.1	1053.0
122.5°	1304.9	1332.5	1367.3	1377.5	1379.3
125°	1403.3	1425.8	1458.7	1470.8	1475.8
127.5°	1493.1	1517.2	1543.3	1560.5	1562.2
130°	1577.7	1605.4	1624.3	1643.3	1641.7
132.5°	1664.0	1686.6	1705.5	1721.0	1719.4
135°	1736.6	1764.2	1779.7	1797.0	1793.6
137.5°	1812.4	1833.2	1850.6	1867.8	1862.7
140°	1886.6	1900.5	1919.4	1935.0	1926.4
142.5°	1948.9	1961.0	1983.3	1997.1	1988.5
145°	2014.6	2012.7	2042.0	2054.1	2045.6
147.5°	2071.3	2066.3	2095.5	2104.1	2097.4
150°	2126.6	2114.6	2142.3	2152.5	2143.9
152.5°	2173.2	2159.5	2185.3	2195.7	2183.7
155°	2218.1	2202.7	2223.4	2233.7	2219.9
157.5°	2254.4	2240.6	2256.2	2268.3	2254.4
160°	2285.6	2275.1	2285.6	2295.8	2283.7
162.5°	2313.0	2302.7	2311.3	2323.4	2307.9
165°	2337.2	2327.0	2332.0	2344.1	2332.0
167.5°	2356.3	2345.8	2351.1	2363.2	2347.7
170°	2371.8	2361.4	2364.9	2377.0	2361.4
172.5°	2382.1	2371.8	2375.4	2387.4	2371.8
175°	2390.7	2378.6	2382.1	2394.1	2377.0
177.5°	2394.1	2382.1	2383.9	2396.1	2380.4
180°	2385.6	2385.6	2385.6	2385.6	2385.6

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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	12.08	12.98	12.98	13.89	15.05	8.06	8.95	8.95	9.86	11.03
	3H	13.77	14.57	14.68	15.49	16.68	9.25	10.05	10.16	10.97	12.16
	4H	14.38	15.13	15.30	16.06	17.26	9.71	10.46	10.63	11.39	12.59
	6H	14.80	15.50	15.74	16.43	17.64	10.03	10.73	10.97	11.66	12.87
	8H	14.93	15.59	15.88	16.54	17.75	10.13	10.79	11.07	11.74	12.95
	12H	15.00	15.63	15.95	16.57	17.80	10.17	10.80	11.12	11.75	12.98
4H	2H	12.11	12.87	13.04	13.79	14.99	8.66	9.42	9.59	10.34	11.54
	3H	13.95	14.57	14.89	15.53	16.74	10.02	10.65	10.96	11.60	12.82
	4H	14.64	15.21	15.59	16.17	17.40	10.57	11.14	11.52	12.09	13.33
	6H	15.16	15.65	16.12	16.63	17.87	10.99	11.49	11.96	12.46	13.70
	8H	15.34	15.80	16.30	16.77	18.02	11.13	11.59	12.09	12.56	13.81
	12H	15.44	15.85	16.42	16.84	18.09	11.20	11.61	12.18	12.60	13.85
8H	4H	14.61	15.07	15.58	16.04	17.29	10.86	11.32	11.82	12.29	13.54
	6H	15.18	15.56	16.17	16.58	17.82	11.38	11.76	12.37	12.77	14.02
	8H	15.40	15.74	16.40	16.74	18.00	11.57	11.91	12.57	12.91	14.17
	12H	15.54	15.84	16.55	16.83	18.15	11.70	11.99	12.70	12.98	14.30
12H	4H	14.57	14.98	15.55	15.97	17.23	10.86	11.28	11.85	12.26	13.52
	6H	15.16	15.50	16.16	16.50	17.76	11.43	11.76	12.43	12.76	14.03
	8H	15.38	15.68	16.39	16.67	17.99	11.64	11.94	12.65	12.93	14.25

END OF REPORT