

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: P927606

Luminaire Tested: DFN2DIP-HX4F0-060D070US840-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927606
REPORT IS A COMBINATION OF REPORTS P900878 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-060D070US840-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

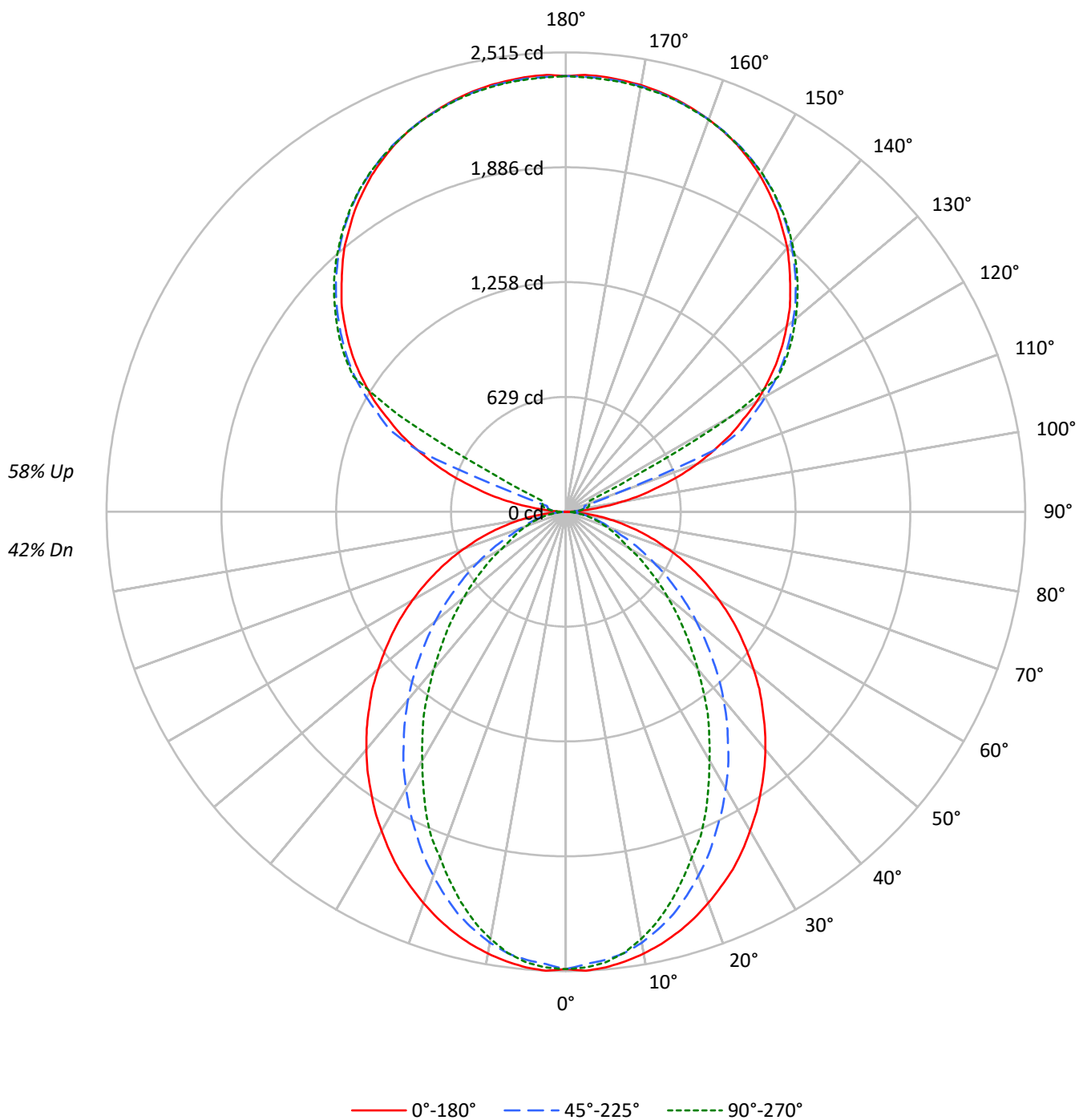
Lumens per Lamp: N/A
Luminaire Lumens: 12147.9 lumens
Efficiency: N/A
Efficacy: 114.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 106.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.099
Total Harmonic Distortion (THDi): 0.979
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	105	105	105	105	96	96	96	96	79	79	79	64	64	64	49	49	49
1	96	92	89	85	88	85	81	79	70	68	66	56	55	54	44	43	42
2	88	81	75	70	80	74	69	65	62	58	55	50	48	45	39	38	36
3	81	72	65	59	74	66	60	55	55	50	47	45	42	39	35	33	31
4	74	64	56	50	67	59	52	47	49	44	40	40	36	34	32	29	27
5	68	57	49	43	62	52	46	40	44	39	35	36	32	29	29	26	24
6	63	51	43	38	57	47	40	35	40	34	31	33	29	26	26	23	21
7	58	46	39	33	53	43	36	31	36	31	27	30	26	23	24	21	19
8	54	42	35	29	49	39	32	28	33	28	24	27	24	21	22	19	17
9	50	38	31	26	46	36	29	25	30	25	22	25	21	19	21	18	16
10	47	35	28	24	43	33	26	22	28	23	20	23	20	17	19	16	14

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1862	1862	1862
5°	1865	1833	1844
10°	1847	1797	1784
15°	1821	1738	1692
20°	1788	1656	1578
25°	1754	1564	1468
30°	1708	1470	1329
35°	1663	1369	1206
40°	1617	1265	1066
45°	1563	1149	939
50°	1508	1032	814
55°	1450	906	695
60°	1384	776	572
65°	1307	642	515
70°	1214	518	466
75°	1098	457	424
80°	928	384	368
85°	649	257	277

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1563 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	234.7	1.9
10°-20°	644.3	5.3
20°-30°	904.5	7.4
30°-40°	986.0	8.1
40°-50°	906.2	7.5
50°-60°	711.7	5.9
60°-70°	463.3	3.8
70°-80°	238.5	2.0
80°-90°	65.1	0.5
90°-100°	78.7	0.6
100°-110°	293.2	2.4
110°-120°	777.7	6.4
120°-130°	1289.9	10.6
130°-140°	1370.2	11.3
140°-150°	1273.4	10.5
150°-160°	1023.8	8.4
160°-170°	659.7	5.4
170°-180°	227.1	1.9
0°-30°	1783.5	14.7
0°-40°	2769.5	22.8
0°-60°	4387.4	36.1
0°-90°	5154.2	42.4
90°-120°	1149.6	9.5
90°-150°	5083.2	41.8
90°-180°	6994.0	57.6
0°-180°	12147.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2504	2504	2504	2504	2504	
5°	2504	2493	2463	2484	2477	237
15°	2382	2357	2280	2237	2214	671
25°	2162	2089	1940	1847	1813	994
35°	1863	1747	1548	1405	1355	1166
45°	1523	1371	1133	972	918	1176
55°	1158	981	736	601	558	1035
65°	782	598	394	317	310	775
75°	417	258	181	165	163	441
85°	97	50	43	43	43	112
90°	2	21	34	43	47	11
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°	2504.1	2504.1	2504.1	2504.1	2504.1
2.5°	2515.4	2504.1	2479.1	2501.9	2497.3
5°	2504.1	2492.8	2463.2	2483.7	2476.9
7.5°	2483.7	2470.2	2438.5	2447.4	2436.0
10°	2456.4	2440.6	2395.4	2388.5	2374.9
12.5°	2422.6	2402.1	2340.8	2327.4	2302.3
15°	2381.7	2356.7	2279.7	2236.7	2214.1
17.5°	2334.2	2297.8	2202.6	2152.8	2116.5
20°	2279.7	2234.3	2121.1	2064.5	2014.6
22.5°	2220.9	2168.6	2037.2	1960.2	1926.3
25°	2162.0	2089.4	1939.8	1847.0	1812.9
27.5°	2091.8	2014.6	1849.1	1742.6	1690.5
30°	2017.0	1930.6	1749.4	1634.0	1572.7
32.5°	1944.4	1840.1	1654.5	1518.3	1461.6
35°	1862.9	1747.3	1547.9	1405.0	1355.1
37.5°	1783.5	1658.7	1448.2	1291.6	1235.1
40°	1699.6	1563.8	1343.7	1182.9	1124.0
42.5°	1613.6	1468.6	1239.6	1071.8	1015.4
45°	1522.9	1370.9	1133.2	972.0	917.7
47.5°	1436.8	1276.0	1031.2	870.1	820.4
50°	1341.6	1180.8	931.4	774.9	727.6
52.5°	1248.5	1078.6	836.2	686.7	643.6
55°	1157.9	981.2	736.4	600.6	557.5
57.5°	1065.1	883.8	648.2	521.3	484.9
60°	969.9	788.7	555.2	439.8	403.4
62.5°	877.1	695.9	475.8	367.2	349.1
65°	781.9	598.2	394.3	317.4	310.4
67.5°	691.2	507.5	317.4	278.7	271.9
70°	596.0	419.3	262.7	240.2	231.0
72.5°	505.4	337.6	219.7	201.8	197.1
75°	416.9	258.2	181.3	165.4	163.3
77.5°	328.7	183.5	142.8	133.7	129.2
80°	246.9	131.5	108.7	99.8	99.8
82.5°	172.2	88.5	74.7	70.2	70.2
85°	97.3	49.8	43.0	43.0	43.0
87.5°	36.4	18.1	18.1	15.9	15.9
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	8.56	9.33	9.58	10.36	11.74	4.53	5.30	5.56	6.33	7.71
	3H	10.23	10.92	11.27	11.96	13.36	5.72	6.41	6.75	7.45	8.84
	4H	10.84	11.49	11.89	12.53	13.94	6.17	6.82	7.21	7.86	9.27
	6H	11.26	11.86	12.31	12.90	14.32	6.49	7.09	7.54	8.13	9.55
	8H	11.38	11.95	12.45	13.01	14.43	6.58	7.15	7.64	8.21	9.62
	12H	11.44	11.99	12.51	13.04	14.48	6.62	7.16	7.68	8.22	9.65
4H	2H	8.57	9.22	9.62	10.26	11.67	5.12	5.77	6.17	6.81	8.22
	3H	10.39	10.94	11.46	12.01	13.42	6.47	7.01	7.53	8.08	9.50
	4H	11.08	11.58	12.15	12.64	14.08	7.01	7.51	8.08	8.57	10.01
	6H	11.60	12.02	12.67	13.11	14.54	7.43	7.86	8.51	8.94	10.38
	8H	11.77	12.17	12.85	13.25	14.70	7.56	7.96	8.64	9.03	10.48
	12H	11.87	12.22	12.96	13.31	14.77	7.62	7.98	8.72	9.07	10.53
8H	4H	11.05	11.45	12.13	12.52	13.97	7.29	7.69	8.37	8.76	10.21
	6H	11.61	11.94	12.71	13.06	14.51	7.81	8.14	8.91	9.25	10.70
	8H	11.83	12.12	12.94	13.22	14.69	8.00	8.29	9.11	9.39	10.86
	12H	11.97	12.22	13.08	13.32	14.82	8.12	8.37	9.23	9.47	10.97
12H	4H	11.00	11.36	12.09	12.45	13.90	7.29	7.65	8.39	8.74	10.20
	6H	11.59	11.88	12.70	12.98	14.44	7.86	8.15	8.96	9.25	10.71
	8H	11.81	12.06	12.92	13.16	14.66	8.07	8.32	9.18	9.42	10.92