

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: P927532

Luminaire Tested: DFN2DIP-HX4F0-040D070US840-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927532
REPORT IS A COMBINATION OF REPORTS P900873 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-040D070US840-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

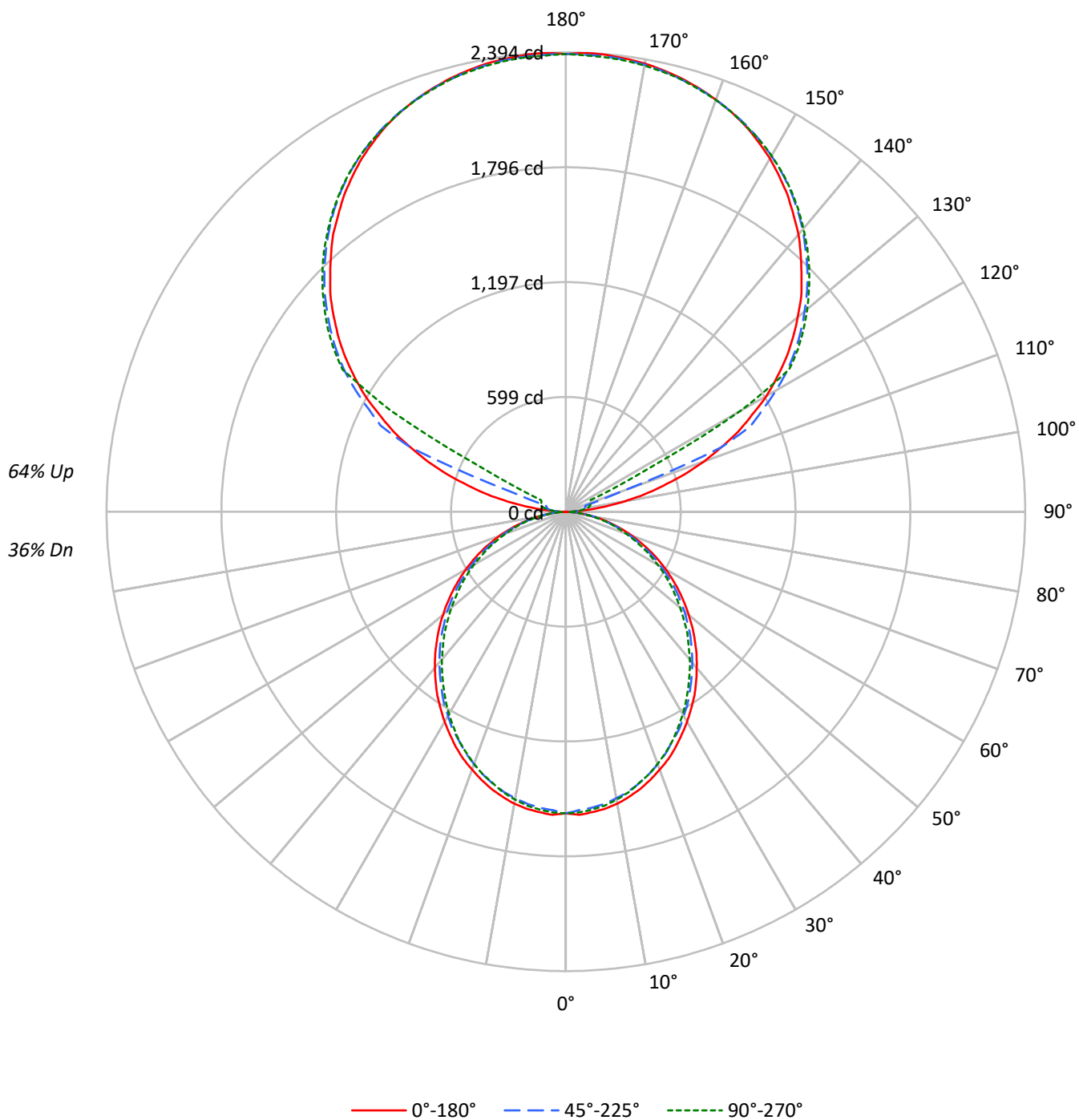
Lumens per Lamp: N/A
Luminaire Lumens: 10996.7 lumens
Efficiency: N/A
Efficacy: 128.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 85.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9977
Total Harmonic Distortion (THDi): 0.049
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	104	104	104	104	94	94	94	94	76	76	76	59	59	59	44	44	44
1	95	90	87	83	86	82	79	76	66	64	62	52	50	49	39	38	37
2	86	79	73	68	78	72	67	62	58	54	51	46	43	41	34	32	31
3	79	69	62	57	71	63	57	52	51	47	43	40	37	35	30	28	26
4	72	61	54	48	65	56	49	44	45	41	37	36	32	30	27	25	23
5	66	55	47	41	59	50	43	38	41	35	32	32	28	26	24	22	20
6	61	49	41	35	55	45	38	33	37	31	27	29	25	22	22	19	17
7	56	44	36	31	51	40	33	29	33	28	24	26	23	20	20	17	15
8	52	40	32	27	47	37	30	25	30	25	21	24	20	18	18	16	14
9	48	36	29	24	44	33	27	22	28	23	19	22	18	16	17	14	12
10	45	33	26	21	41	31	24	20	25	20	17	20	17	14	16	13	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1169	1169	1169
5°	1171	1152	1160
10°	1161	1137	1145
15°	1144	1118	1120
20°	1121	1093	1095
25°	1098	1062	1066
30°	1070	1033	1029
35°	1043	999	990
40°	1009	964	953
45°	976	930	915
50°	939	894	871
55°	901	852	831
60°	858	802	784
65°	811	751	730
70°	751	688	671
75°	668	614	617
80°	569	518	513
85°	413	353	341

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1227 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	147.9	1.3
10°-20°	416.2	3.8
20°-30°	611.7	5.6
30°-40°	710.4	6.5
40°-50°	709.5	6.5
50°-60°	618.7	5.6
60°-70°	457.3	4.2
70°-80°	258.8	2.4
80°-90°	72.5	0.7
90°-100°	78.7	0.7
100°-110°	293.2	2.7
110°-120°	777.7	7.1
120°-130°	1289.9	11.7
130°-140°	1370.2	12.5
140°-150°	1273.4	11.6
150°-160°	1023.8	9.3
160°-170°	659.7	6.0
170°-180°	227.1	2.1
0°-30°	1175.8	10.7
0°-40°	1886.2	17.2
0°-60°	3214.4	29.2
0°-90°	4003.0	36.4
90°-120°	1149.6	10.5
90°-150°	5083.2	46.2
90°-180°	6994.0	63.6
0°-180°	10996.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1572	1572	1572	1572	1572	
5°	1572	1566	1549	1561	1558	149
15°	1496	1487	1467	1474	1466	421
25°	1354	1342	1316	1319	1316	623
35°	1168	1153	1129	1120	1112	730
45°	951	940	917	901	895	734
55°	720	710	692	674	667	643
65°	485	476	461	447	440	480
75°	254	251	243	234	237	271
85°	62	60	59	54	53	69
90°	2	21	34	43	47	10
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°	1571.7	1571.7	1571.7	1571.7	1571.7
2.5°	1580.8	1573.3	1556.6	1571.7	1568.8
5°	1571.7	1565.7	1549.0	1561.0	1558.2
7.5°	1561.0	1552.1	1535.4	1547.6	1544.6
10°	1544.6	1534.0	1515.9	1527.9	1523.4
12.5°	1521.8	1512.8	1494.7	1502.3	1499.1
15°	1496.1	1487.1	1467.4	1473.5	1466.0
17.5°	1464.4	1455.4	1435.7	1443.2	1435.7
20°	1429.6	1420.6	1399.5	1403.9	1398.1
22.5°	1394.9	1381.3	1361.6	1361.6	1358.6
25°	1354.0	1342.0	1316.4	1319.3	1316.4
27.5°	1308.7	1298.1	1278.6	1274.1	1266.6
30°	1263.5	1251.3	1228.7	1224.2	1218.1
32.5°	1215.1	1206.1	1181.9	1172.8	1166.6
35°	1168.2	1153.2	1129.0	1119.9	1112.3
37.5°	1115.3	1101.7	1077.5	1067.0	1059.4
40°	1061.0	1048.8	1024.5	1011.1	1005.1
42.5°	1008.1	995.9	971.8	956.6	947.6
45°	950.6	940.1	917.3	900.8	894.7
47.5°	894.7	884.1	859.9	843.3	834.3
50°	835.7	828.1	807.0	785.8	778.3
52.5°	778.3	767.8	748.2	731.5	720.9
55°	719.5	710.3	692.2	674.0	666.6
57.5°	660.4	652.9	633.1	615.1	609.0
60°	601.4	595.5	574.4	557.7	553.2
62.5°	544.1	533.5	518.4	503.3	497.2
65°	485.2	476.0	461.0	447.3	439.9
67.5°	424.7	417.0	403.6	393.0	387.0
70°	368.8	362.7	349.1	338.5	332.5
72.5°	311.4	305.3	297.8	287.2	282.6
75°	253.9	250.9	243.3	234.3	237.3
77.5°	202.5	196.4	193.4	188.8	184.4
80°	151.2	149.6	146.5	142.1	139.0
82.5°	102.8	102.8	101.4	95.2	95.2
85°	61.9	60.5	59.0	54.3	52.9
87.5°	27.3	24.2	21.2	16.7	15.0
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	6.41	7.16	7.47	8.23	9.68	5.98	6.73	7.04	7.79	9.25
	3H	8.06	8.73	9.14	9.81	11.28	7.59	8.26	8.66	9.34	10.81
	4H	8.64	9.28	9.73	10.36	11.84	8.17	8.81	9.26	9.89	11.36
	6H	9.04	9.63	10.13	10.71	12.20	8.56	9.15	9.66	10.23	11.72
	8H	9.14	9.70	10.24	10.80	12.28	8.67	9.22	9.76	10.32	11.81
	12H	9.19	9.72	10.29	10.81	12.31	8.70	9.24	9.81	10.33	11.83
4H	2H	6.86	7.49	7.95	8.57	10.05	6.51	7.15	7.61	8.23	9.71
	3H	8.71	9.25	9.81	10.35	11.84	8.32	8.85	9.42	9.96	11.45
	4H	9.42	9.91	10.53	11.01	12.52	9.02	9.51	10.12	10.60	12.11
	6H	9.93	10.35	11.05	11.47	12.98	9.52	9.94	10.64	11.06	12.57
	8H	10.08	10.47	11.19	11.58	13.10	9.67	10.06	10.78	11.17	12.69
	12H	10.15	10.50	11.28	11.63	13.15	9.73	10.08	10.86	11.20	12.73
8H	4H	9.61	10.00	10.72	11.11	12.63	9.25	9.64	10.36	10.75	12.27
	6H	10.24	10.56	11.37	11.72	13.23	9.88	10.20	11.01	11.35	12.87
	8H	10.46	10.74	11.60	11.88	13.41	10.09	10.37	11.23	11.51	13.04
	12H	10.59	10.84	11.73	11.97	13.54	10.20	10.45	11.35	11.58	13.15
12H	4H	9.59	9.95	10.72	11.07	12.60	9.24	9.60	10.37	10.72	12.24
	6H	10.27	10.55	11.41	11.69	13.22	9.92	10.20	11.06	11.33	12.87
	8H	10.51	10.76	11.65	11.89	13.46	10.15	10.40	11.29	11.53	13.10