

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: P910499

Luminaire Tested: DFN2DIP-4P4F0-040D070US850-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910499
REPORT IS A COMBINATION OF REPORTS P900649 AND P897523
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-040D070US850-FLLONL
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

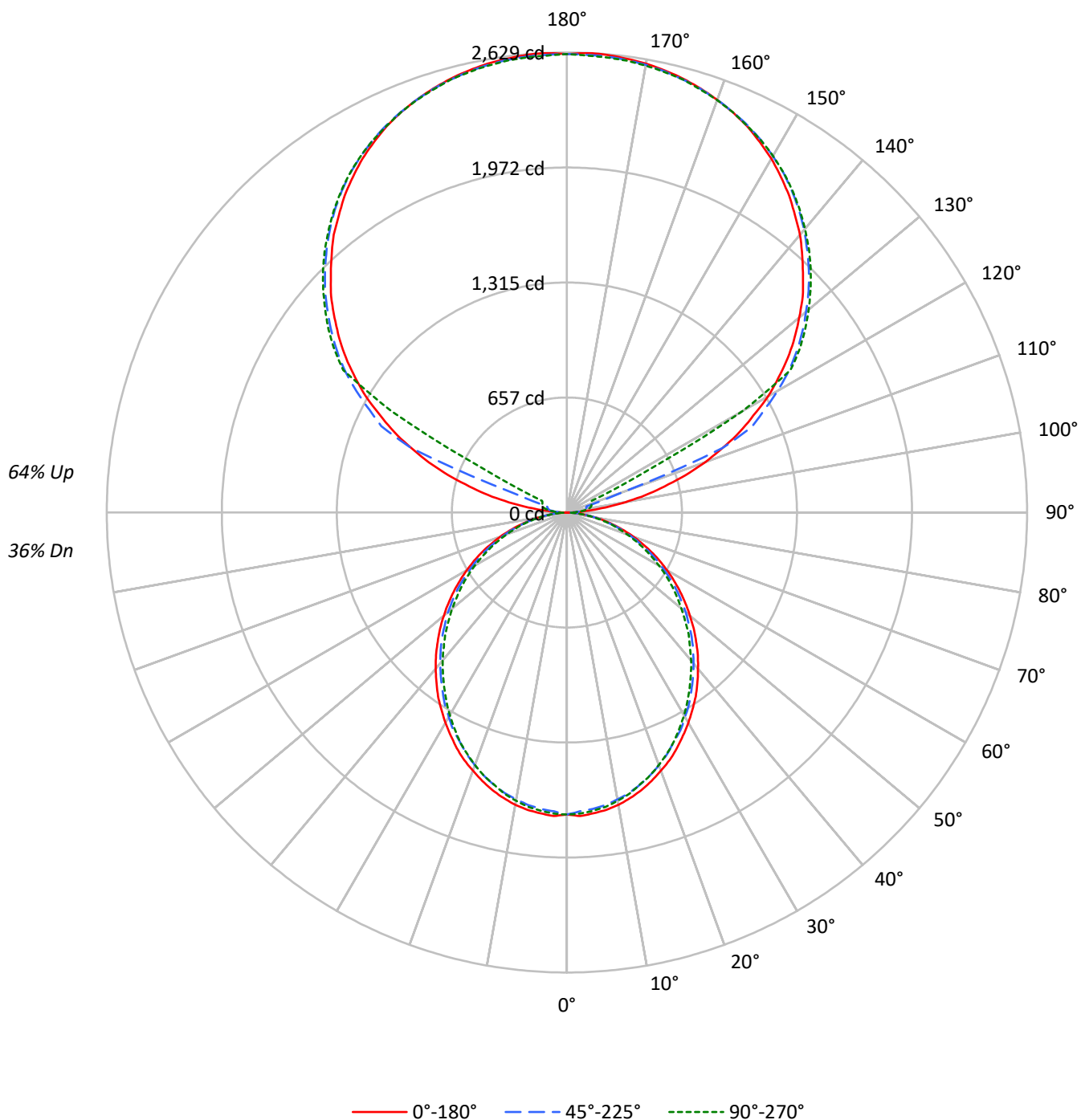
Lumens per Lamp: N/A
Luminaire Lumens: 12077.0 lumens
Efficiency: N/A
Efficacy: 120.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 99.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9968
Total Harmonic Distortion (THDi): 0.064
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°	1120	1120	1120
5°	1122	1104	1112
10°	1113	1090	1097
15°	1096	1072	1074
20°	1074	1048	1051
25°	1052	1018	1023
30°	1025	991	988
35°	999	959	951
40°	967	926	916
45°	935	893	880
50°	900	859	838
55°	863	819	800
60°	822	772	756
65°	777	723	704
70°	720	664	649
75°	640	593	598
80°	544	502	501
85°	395	345	338

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1350 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	162.5	1.3
10°-20°	457.1	3.8
20°-30°	671.7	5.6
30°-40°	780.2	6.5
40°-50°	779.2	6.5
50°-60°	679.5	5.6
60°-70°	502.3	4.2
70°-80°	284.2	2.4
80°-90°	79.6	0.7
90°-100°	86.4	0.7
100°-110°	322.1	2.7
110°-120°	854.1	7.1
120°-130°	1416.6	11.7
130°-140°	1504.8	12.5
140°-150°	1398.5	11.6
150°-160°	1124.4	9.3
160°-170°	724.5	6.0
170°-180°	249.4	2.1
0°-30°	1291.3	10.7
0°-40°	2071.5	17.2
0°-60°	3530.2	29.2
0°-90°	4396.3	36.4
90°-120°	1262.6	10.5
90°-150°	5582.5	46.2
90°-180°	7681.0	63.6
0°-180°	12077.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1726	1726	1726	1726	1726	
5°	1726	1720	1701	1714	1711	164
15°	1643	1633	1612	1618	1610	463
25°	1487	1474	1446	1449	1446	684
35°	1283	1266	1240	1230	1222	801
45°	1044	1032	1007	989	983	806
55°	790	780	760	740	732	706
65°	533	523	506	491	483	527
75°	279	276	267	257	261	298
85°	68	66	65	60	58	76
90°	2	23	38	48	51	11
95°	123	61	74	84	82	146
105°	576	633	116	136	144	616
115°	1090	1122	1170	292	156	1073
125°	1541	1566	1602	1615	1621	1375
135°	1907	1938	1954	1974	1970	1473
145°	2212	2210	2243	2256	2246	1384
155°	2436	2419	2442	2453	2438	1123
165°	2567	2556	2561	2574	2561	725
175°	2626	2612	2616	2629	2610	250
180°	2620	2620	2620	2620	2620	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1726.0	1726.0	1726.0	1726.0	1726.0
2.5°	1736.1	1727.8	1709.5	1726.0	1722.9
5°	1726.0	1719.5	1701.2	1714.4	1711.3
7.5°	1714.4	1704.5	1686.2	1699.7	1696.3
10°	1696.3	1684.7	1664.8	1678.0	1673.0
12.5°	1671.3	1661.4	1641.5	1649.9	1646.4
15°	1643.1	1633.2	1611.6	1618.3	1610.0
17.5°	1608.3	1598.4	1576.8	1585.0	1576.8
20°	1570.0	1560.1	1537.0	1541.8	1535.4
22.5°	1532.0	1517.0	1495.4	1495.4	1492.0
25°	1487.1	1473.9	1445.7	1448.9	1445.7
27.5°	1437.3	1425.6	1404.2	1399.2	1391.0
30°	1387.6	1374.3	1349.4	1344.4	1337.8
32.5°	1334.5	1324.6	1298.0	1288.0	1281.2
35°	1283.0	1266.5	1239.9	1229.9	1221.6
37.5°	1224.9	1209.9	1183.3	1171.8	1163.5
40°	1165.2	1151.8	1125.2	1110.4	1103.8
42.5°	1107.1	1093.7	1067.3	1050.6	1040.7
45°	1044.0	1032.5	1007.4	989.3	982.6
47.5°	982.6	970.9	944.4	926.1	916.3
50°	917.8	909.5	886.3	863.0	854.7
52.5°	854.7	843.2	821.7	803.4	791.7
55°	790.2	780.1	760.2	740.3	732.1
57.5°	725.3	717.1	695.3	675.5	668.8
60°	660.5	654.0	630.8	612.5	607.5
62.5°	597.5	585.9	569.4	552.7	546.1
65°	532.9	522.8	506.3	491.3	483.1
67.5°	466.4	458.0	443.3	431.6	425.0
70°	405.0	398.4	383.4	371.7	365.2
72.5°	342.0	335.3	327.0	315.4	310.4
75°	278.8	275.6	267.2	257.3	260.6
77.5°	222.4	215.7	212.4	207.4	202.5
80°	166.0	164.2	160.9	156.0	152.7
82.5°	112.9	112.9	111.3	104.6	104.6
85°	68.0	66.4	64.8	59.7	58.1
87.5°	29.9	26.6	23.3	18.3	16.5
90°	1.8	22.7	37.8	47.5	51.1
92.5°	47.5	39.8	45.5	49.4	51.1
95°	123.1	60.6	73.9	83.5	81.5
97.5°	221.7	66.4	96.6	102.5	104.2
100°	335.7	75.9	108.0	123.1	127.0
102.5°	460.6	457.0	111.9	132.6	138.4
105°	576.3	633.2	115.7	136.4	144.1
107.5°	710.9	758.2	119.6	140.3	147.9
110°	840.0	879.5	331.8	142.3	149.7



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	961.3	995.2	963.1	145.8	151.7
115°	1090.0	1122.2	1169.7	292.0	155.6
117.5°	1201.9	1239.8	1272.1	1000.9	504.3
120°	1327.0	1355.4	1389.7	1412.4	1156.5
122.5°	1433.0	1463.4	1501.6	1512.8	1514.8
125°	1541.2	1565.9	1602.0	1615.3	1620.8
127.5°	1639.8	1666.3	1694.9	1713.8	1715.6
130°	1732.7	1763.1	1783.8	1804.8	1803.0
132.5°	1827.5	1852.3	1873.0	1890.1	1888.3
135°	1907.1	1937.5	1954.5	1973.6	1969.8
137.5°	1990.4	2013.3	2032.4	2051.3	2045.7
140°	2071.9	2087.2	2108.0	2125.1	2115.6
142.5°	2140.4	2153.7	2178.2	2193.3	2183.8
145°	2212.5	2210.5	2242.6	2255.9	2246.5
147.5°	2274.8	2269.2	2301.4	2310.8	2303.4
150°	2335.6	2322.4	2352.7	2363.9	2354.5
152.5°	2386.7	2371.6	2400.0	2411.4	2398.2
155°	2436.0	2419.1	2441.8	2453.1	2438.0
157.5°	2475.8	2460.8	2477.8	2491.1	2475.8
160°	2510.1	2498.6	2510.1	2521.3	2508.0
162.5°	2540.3	2529.0	2538.4	2551.7	2534.6
165°	2566.8	2555.6	2561.1	2574.4	2561.1
167.5°	2587.7	2576.2	2582.1	2595.4	2578.3
170°	2604.8	2593.4	2597.2	2610.5	2593.4
172.5°	2616.1	2604.8	2608.7	2621.9	2604.8
175°	2625.6	2612.2	2616.1	2629.3	2610.5
177.5°	2629.3	2616.1	2618.1	2631.4	2614.2
180°	2619.9	2619.9	2619.9	2619.9	2619.9

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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	6.28	7.03	7.34	8.10	9.55	5.83	6.58	6.90	7.65	9.11
	3H	7.94	8.61	9.01	9.68	11.16	7.44	8.12	8.52	9.19	10.67
	4H	8.52	9.16	9.61	10.24	11.72	8.03	8.67	9.11	9.74	11.22
	6H	8.92	9.51	10.02	10.59	12.08	8.42	9.01	9.51	10.09	11.58
	8H	9.02	9.58	10.12	10.68	12.16	8.52	9.08	9.62	10.18	11.66
	12H	9.07	9.60	10.17	10.69	12.20	8.56	9.09	9.66	10.18	11.69
4H	2H	6.73	7.36	7.82	8.44	9.92	6.37	7.01	7.46	8.09	9.57
	3H	8.59	9.12	9.69	10.23	11.72	8.18	8.71	9.28	9.82	11.31
	4H	9.30	9.79	10.41	10.89	12.40	8.88	9.37	9.98	10.46	11.97
	6H	9.82	10.24	10.93	11.35	12.86	9.38	9.80	10.50	10.92	12.43
	8H	9.97	10.36	11.08	11.47	12.99	9.53	9.92	10.64	11.03	12.55
	12H	10.04	10.39	11.17	11.51	13.04	9.59	9.94	10.72	11.07	12.59
8H	4H	9.49	9.88	10.60	10.99	12.51	9.11	9.51	10.23	10.62	12.14
	6H	10.12	10.45	11.26	11.60	13.12	9.74	10.06	10.87	11.22	12.73
	8H	10.35	10.63	11.49	11.76	13.30	9.95	10.24	11.10	11.37	12.91
	12H	10.48	10.73	11.62	11.86	13.43	10.07	10.32	11.21	11.45	13.02
12H	4H	9.47	9.83	10.60	10.95	12.47	9.10	9.46	10.23	10.58	12.11
	6H	10.15	10.44	11.29	11.57	13.11	9.78	10.07	10.92	11.20	12.74
	8H	10.39	10.64	11.54	11.77	13.35	10.01	10.26	11.16	11.39	12.97

END OF REPORT