

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: P908713

Luminaire Tested: DFN2DIP-PN4F0-070D050US840-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P908713
REPORT IS A COMBINATION OF REPORTS P901153 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-070D050US840-FLLONL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

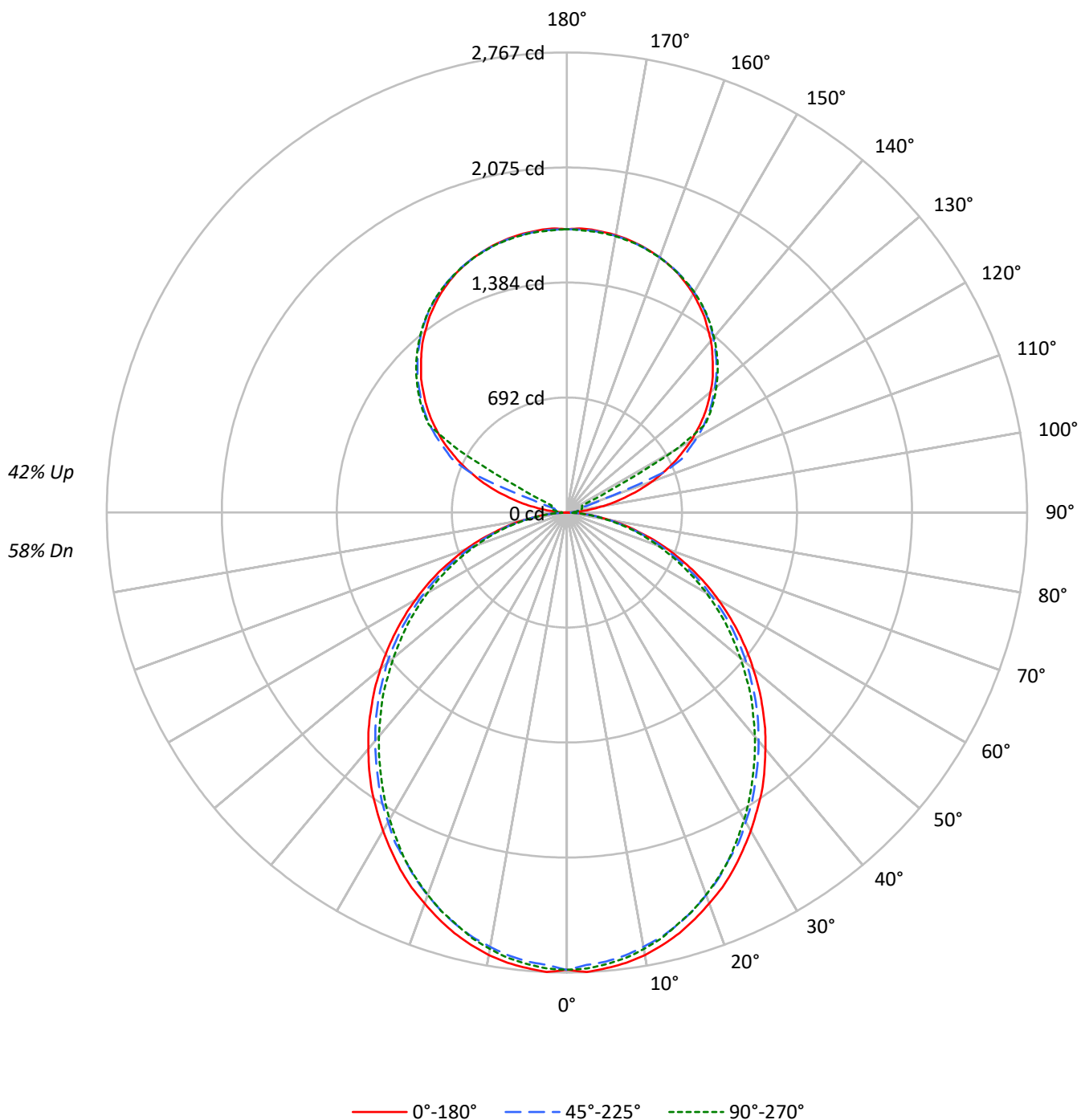
Lumens per Lamp: N/A
Luminaire Lumens: 11997.2 lumens
Efficiency: N/A
Efficacy: 115.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 104.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9789
Total Harmonic Distortion (THDi): 0.074
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P908713

CATALOG NUMBER: DFN2DIP-PN4F0-070D050US840-FLLONL

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	102	102	102	102	88	88	88	75	75	75	64	64	64
1	100	95	91	88	93	89	86	82	77	75	72	66	65	63	56	55	54
2	91	83	77	72	84	78	72	68	68	64	60	58	55	53	50	47	45
3	83	73	66	60	77	69	62	57	60	55	50	52	48	44	44	41	39
4	76	65	57	51	70	61	54	48	53	47	43	46	42	38	39	36	33
5	70	58	50	43	65	54	47	41	48	42	37	41	37	33	35	32	29
6	64	52	44	38	60	49	41	36	43	37	32	37	33	29	32	29	26
7	59	47	39	33	55	44	37	32	39	33	29	34	29	26	29	26	23
8	55	43	35	29	51	40	33	28	36	30	26	31	26	23	27	23	20
9	51	39	31	26	48	37	30	25	33	27	23	29	24	21	25	21	18
10	48	36	29	24	45	34	27	23	30	25	21	27	22	19	23	19	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2008	2008	2008
5°	2011	1980	1994
10°	1995	1954	1967
15°	1965	1922	1925
20°	1926	1877	1882
25°	1886	1824	1833
30°	1837	1775	1770
35°	1790	1716	1703
40°	1732	1657	1639
45°	1675	1598	1574
50°	1612	1536	1499
55°	1546	1465	1430
60°	1472	1379	1351
65°	1391	1291	1257
70°	1288	1184	1157
75°	1144	1056	1065
80°	972	892	888
85°	704	609	594

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 1675 cd/sqm

TEST NUMBER: P908713

CATALOG NUMBER: DFN2DIP-PN4F0-070D050US840-FLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	258.9	2.2
10°-20°	728.4	6.1
20°-30°	1070.5	8.9
30°-40°	1243.3	10.4
40°-50°	1241.7	10.4
50°-60°	1082.8	9.0
60°-70°	800.4	6.7
70°-80°	452.9	3.8
80°-90°	122.5	1.0
90°-100°	56.2	0.5
100°-110°	209.5	1.7
110°-120°	555.6	4.6
120°-130°	921.4	7.7
130°-140°	978.8	8.2
140°-150°	909.7	7.6
150°-160°	731.3	6.1
160°-170°	471.2	3.9
170°-180°	162.2	1.4
0°-30°	2057.8	17.2
0°-40°	3301.1	27.5
0°-60°	5625.6	46.9
0°-90°	7001.4	58.4
90°-120°	821.2	6.8
90°-150°	3631.1	30.3
90°-180°	4996.0	41.6
0°-180°	11997.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2751	2751	2751	2751	2751	
5°	2751	2740	2711	2732	2727	261
15°	2618	2603	2568	2579	2566	737
25°	2370	2349	2304	2309	2304	1090
35°	2045	2018	1976	1960	1947	1277
45°	1664	1645	1605	1576	1566	1284
55°	1259	1243	1211	1180	1166	1126
65°	849	833	807	783	770	840
75°	444	439	426	410	415	474
85°	108	106	103	95	93	121
90°	1	15	25	31	33	11
95°	80	39	48	54	53	95
105°	375	412	75	89	94	401
115°	709	730	761	190	101	698
125°	1002	1019	1042	1051	1054	894
135°	1240	1260	1271	1284	1281	958
145°	1439	1438	1459	1467	1461	900
155°	1584	1574	1588	1596	1586	730
165°	1670	1662	1666	1674	1666	472
175°	1708	1699	1702	1710	1698	163
180°	1704	1704	1704	1704	1704	

TEST NUMBER: P908713

CATALOG NUMBER: DFN2DIP-PN4F0-070D050US840-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2750.6	2750.6	2750.6	2750.6	2750.6
2.5°	2766.6	2753.4	2724.2	2750.6	2745.5
5°	2750.6	2740.3	2711.1	2732.1	2727.0
7.5°	2732.1	2716.3	2687.2	2708.6	2703.2
10°	2703.2	2684.6	2652.9	2674.0	2666.1
12.5°	2663.3	2647.7	2616.0	2629.1	2623.7
15°	2618.5	2602.7	2568.2	2578.9	2565.7
17.5°	2562.8	2547.2	2512.6	2525.9	2512.6
20°	2501.9	2486.3	2449.2	2457.1	2446.7
22.5°	2441.3	2417.5	2383.0	2383.0	2377.6
25°	2369.9	2348.7	2303.9	2309.0	2303.9
27.5°	2290.4	2271.9	2237.7	2229.8	2216.6
30°	2211.3	2189.9	2150.4	2142.5	2131.8
32.5°	2126.5	2110.8	2068.4	2052.5	2041.7
35°	2044.6	2018.2	1975.8	1959.8	1946.6
37.5°	1952.0	1928.1	1885.7	1867.2	1854.0
40°	1856.8	1835.5	1793.1	1769.6	1758.9
42.5°	1764.2	1742.9	1700.8	1674.2	1658.4
45°	1663.8	1645.3	1605.4	1576.5	1565.8
47.5°	1565.8	1547.3	1504.9	1475.7	1460.1
50°	1462.6	1449.4	1412.3	1375.3	1362.1
52.5°	1362.1	1343.6	1309.4	1280.2	1261.6
55°	1259.1	1243.1	1211.4	1179.7	1166.5
57.5°	1155.9	1142.7	1108.1	1076.4	1065.8
60°	1052.6	1042.2	1005.2	976.0	968.2
62.5°	952.1	933.6	907.3	880.9	870.2
65°	849.2	833.1	806.8	782.9	769.7
67.5°	743.4	729.9	706.3	687.8	677.1
70°	645.4	634.8	610.9	592.4	582.0
72.5°	544.9	534.3	521.1	502.6	494.7
75°	444.2	439.2	425.7	410.0	415.4
77.5°	354.5	343.8	338.4	330.5	322.8
80°	264.6	261.9	256.5	248.6	243.3
82.5°	179.9	179.9	177.3	166.7	166.7
85°	108.4	105.8	103.3	95.1	92.6
87.5°	47.7	42.4	37.1	29.2	26.4
90°	1.2	14.7	24.6	30.9	33.2
92.5°	30.9	26.0	29.6	32.1	33.2
95°	80.1	39.4	48.1	54.3	53.0
97.5°	144.2	43.2	62.8	66.7	67.8
100°	218.3	49.4	70.3	80.1	82.6
102.5°	299.6	297.2	72.8	86.2	90.1
105°	374.9	411.9	75.2	88.8	93.7
107.5°	462.4	493.1	77.8	91.2	96.2
110°	546.3	572.1	215.8	92.5	97.4

TEST NUMBER: P908713

CATALOG NUMBER: DFN2DIP-PN4F0-070D050US840-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	625.2	647.3	626.4	94.9	98.7
115°	709.0	729.9	760.8	190.0	101.2
117.5°	781.7	806.4	827.5	651.0	328.0
120°	863.1	881.6	903.8	918.7	752.1
122.5°	932.1	951.9	976.6	984.0	985.3
125°	1002.4	1018.6	1042.0	1050.6	1054.3
127.5°	1066.5	1083.8	1102.5	1114.7	1115.9
130°	1127.0	1146.8	1160.2	1173.9	1172.8
132.5°	1188.7	1204.8	1218.2	1229.4	1228.2
135°	1240.5	1260.3	1271.2	1283.7	1281.2
137.5°	1294.6	1309.5	1321.9	1334.2	1330.6
140°	1347.7	1357.7	1371.1	1382.2	1376.1
142.5°	1392.2	1400.9	1416.8	1426.6	1420.5
145°	1439.1	1437.7	1458.6	1467.3	1461.2
147.5°	1479.7	1475.9	1496.9	1503.1	1498.2
150°	1519.1	1510.6	1530.2	1537.6	1531.5
152.5°	1552.4	1542.6	1561.1	1568.5	1559.8
155°	1584.5	1573.5	1588.2	1595.6	1585.8
157.5°	1610.3	1600.5	1611.6	1620.3	1610.3
160°	1632.6	1625.2	1632.6	1639.9	1631.3
162.5°	1652.2	1645.0	1651.0	1659.7	1648.6
165°	1669.5	1662.2	1665.9	1674.5	1665.9
167.5°	1683.1	1675.7	1679.5	1688.1	1677.0
170°	1694.3	1686.8	1689.3	1697.9	1686.8
172.5°	1701.6	1694.3	1696.8	1705.4	1694.3
175°	1707.8	1699.1	1701.6	1710.2	1697.9
177.5°	1710.2	1701.6	1702.9	1711.5	1700.4
180°	1704.0	1704.0	1704.0	1704.0	1704.0

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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	10.44	11.38	11.32	12.28	13.43	10.00	10.94	10.88	11.84	12.99
	3H	12.11	12.95	13.00	13.86	15.04	11.62	12.47	12.52	13.38	14.55
	4H	12.70	13.50	13.61	14.42	15.60	12.21	13.01	13.12	13.93	15.11
	6H	13.11	13.84	14.03	14.77	15.96	12.62	13.35	13.54	14.28	15.47
	8H	13.22	13.92	14.14	14.86	16.05	12.72	13.42	13.65	14.37	15.56
	12H	13.27	13.94	14.20	14.87	16.09	12.77	13.44	13.70	14.37	15.59
4H	2H	10.91	11.71	11.82	12.63	13.81	10.56	11.36	11.47	12.28	13.46
	3H	12.79	13.45	13.71	14.40	15.60	12.38	13.05	13.31	14.00	15.20
	4H	13.51	14.12	14.44	15.06	16.28	13.09	13.70	14.02	14.64	15.86
	6H	14.03	14.55	14.98	15.52	16.74	13.60	14.13	14.55	15.10	16.32
	8H	14.18	14.67	15.13	15.63	16.87	13.75	14.24	14.70	15.20	16.44
	12H	14.26	14.70	15.23	15.68	16.92	13.82	14.26	14.79	15.24	16.48
8H	4H	13.71	14.20	14.66	15.16	16.40	13.34	13.83	14.29	14.79	16.03
	6H	14.35	14.75	15.33	15.76	16.99	13.97	14.38	14.95	15.38	16.61
	8H	14.57	14.93	15.56	15.92	17.17	14.19	14.55	15.17	15.54	16.79
	12H	14.71	15.02	15.70	16.01	17.31	14.31	14.62	15.30	15.61	16.91
12H	4H	13.70	14.14	14.67	15.12	16.36	13.34	13.78	14.31	14.76	16.00
	6H	14.38	14.74	15.36	15.73	16.98	14.01	14.37	15.00	15.36	16.62
	8H	14.63	14.94	15.62	15.93	17.23	14.25	14.57	15.24	15.56	16.85

END OF REPORT