

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: P914353

Luminaire Tested: DFN2DIP-PN4F0-120D060US927-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P914353
REPORT IS A COMBINATION OF REPORTS P901181 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-120D060US927-FLLONL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

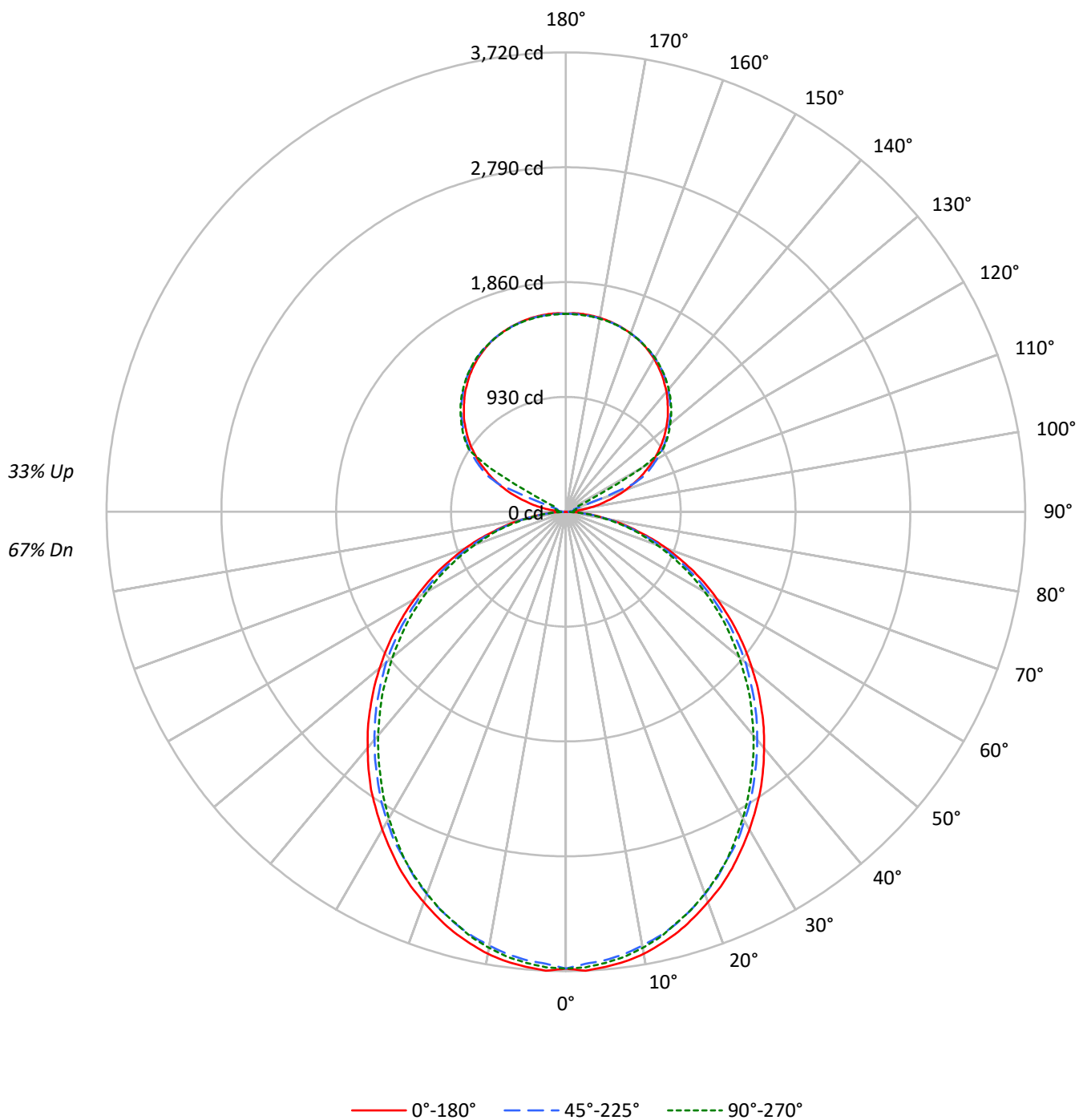
Lumens per Lamp: N/A
Luminaire Lumens: 14116.6 lumens
Efficiency: N/A
Efficacy: 82.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 171.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9781
Total Harmonic Distortion (THDi): 0.075
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	111	111	111	111	105	105	105	105	93	93	93	82	82	82	71	71	71
1	102	97	93	90	95	92	88	85	81	79	76	72	70	68	63	62	60
2	92	85	79	73	87	80	75	70	71	67	63	63	60	57	56	53	51
3	84	75	67	61	79	71	64	58	63	58	53	56	52	48	49	46	43
4	77	66	58	52	72	63	55	50	56	50	45	50	45	41	44	40	37
5	71	59	51	44	67	56	48	43	50	44	39	45	40	36	40	36	33
6	66	53	45	39	62	50	43	37	45	39	34	41	35	32	36	32	29
7	61	48	40	34	57	46	38	33	41	35	30	37	32	28	33	29	26
8	56	44	36	30	53	42	34	29	38	31	27	34	29	25	30	26	23
9	53	40	32	27	50	38	31	26	35	29	24	31	26	23	28	24	21
10	49	37	29	24	46	35	28	24	32	26	22	29	24	20	26	22	19

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2700	2700	2700
5°	2704	2663	2681
10°	2682	2627	2645
15°	2643	2584	2589
20°	2590	2525	2531
25°	2537	2453	2465
30°	2470	2387	2380
35°	2407	2308	2290
40°	2330	2229	2204
45°	2252	2149	2117
50°	2168	2066	2016
55°	2079	1970	1923
60°	1979	1855	1817
65°	1870	1737	1691
70°	1732	1592	1556
75°	1539	1419	1432
80°	1307	1199	1195
85°	946	819	799

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2252 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	348.1	2.5
10°-20°	979.5	6.9
20°-30°	1439.5	10.2
30°-40°	1671.9	11.8
40°-50°	1669.9	11.8
50°-60°	1456.0	10.3
60°-70°	1076.3	7.6
70°-80°	609.0	4.3
80°-90°	163.6	1.2
90°-100°	52.9	0.4
100°-110°	197.2	1.4
110°-120°	523.0	3.7
120°-130°	867.4	6.1
130°-140°	921.3	6.5
140°-150°	856.3	6.1
150°-160°	688.4	4.9
160°-170°	443.6	3.1
170°-180°	152.7	1.1
0°-30°	2767.2	19.6
0°-40°	4439.1	31.4
0°-60°	7565.0	53.6
0°-90°	9413.9	66.7
90°-120°	773.0	5.5
90°-150°	3418.0	24.2
90°-180°	4703.0	33.3
0°-180°	14116.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3699	3699	3699	3699	3699	
5°	3699	3685	3646	3674	3667	351
15°	3521	3500	3454	3468	3450	992
25°	3187	3158	3098	3105	3098	1466
35°	2749	2714	2657	2636	2618	1717
45°	2237	2212	2159	2120	2106	1727
55°	1693	1672	1629	1586	1569	1514
65°	1142	1120	1085	1053	1035	1129
75°	597	591	572	551	558	638
85°	146	142	139	128	124	162
90°	1	14	23	29	31	13
95°	75	37	45	51	50	89
105°	353	388	71	84	88	377
115°	667	687	716	179	95	657
125°	944	959	981	989	992	842
135°	1168	1186	1197	1208	1206	902
145°	1355	1353	1373	1381	1376	847
155°	1492	1481	1495	1502	1493	687
165°	1572	1565	1568	1576	1568	444
175°	1608	1599	1602	1610	1598	153
180°	1604	1604	1604	1604	1604	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3698.9	3698.9	3698.9	3698.9	3698.9
2.5°	3720.4	3702.7	3663.4	3698.9	3692.1
5°	3698.9	3684.9	3645.7	3674.0	3667.2
7.5°	3674.0	3652.8	3613.6	3642.3	3635.2
10°	3635.2	3610.2	3567.6	3595.9	3585.3
12.5°	3581.5	3560.4	3517.8	3535.5	3528.3
15°	3521.2	3500.0	3453.6	3467.9	3450.2
17.5°	3446.5	3425.3	3378.9	3396.6	3378.9
20°	3364.6	3343.4	3293.7	3304.2	3290.2
22.5°	3283.0	3251.0	3204.5	3204.5	3197.4
25°	3186.8	3158.5	3098.1	3105.0	3098.1
27.5°	3080.0	3055.1	3009.1	2998.5	2980.8
30°	2973.6	2944.9	2891.7	2881.2	2866.8
32.5°	2859.6	2838.5	2781.5	2760.0	2745.7
35°	2749.4	2714.0	2657.0	2635.5	2617.8
37.5°	2624.9	2592.9	2535.9	2511.0	2493.2
40°	2497.0	2468.4	2411.3	2379.6	2365.3
42.5°	2372.5	2343.8	2287.2	2251.4	2230.2
45°	2237.4	2212.5	2158.9	2120.0	2105.7
47.5°	2105.7	2080.7	2023.8	1984.6	1963.4
50°	1966.8	1949.1	1899.3	1849.4	1831.7
52.5°	1831.7	1806.8	1760.8	1721.5	1696.6
55°	1693.2	1671.7	1629.0	1586.4	1568.7
57.5°	1554.3	1536.6	1490.2	1447.6	1433.2
60°	1415.5	1401.5	1351.7	1312.5	1301.9
62.5°	1280.4	1255.4	1220.0	1184.5	1170.2
65°	1141.9	1120.4	1084.9	1052.8	1035.1
67.5°	999.7	981.5	949.8	925.0	910.6
70°	867.9	853.6	821.5	796.6	782.7
72.5°	732.8	718.5	700.8	675.9	665.3
75°	597.4	590.6	572.4	551.4	558.5
77.5°	476.6	462.2	455.1	444.5	434.0
80°	355.8	352.0	344.9	334.4	327.2
82.5°	241.9	241.9	238.5	224.2	224.2
85°	145.7	142.3	138.9	127.9	124.5
87.5°	64.2	57.0	49.8	39.2	35.5
90°	1.1	13.9	23.1	29.1	31.3
92.5°	29.1	24.4	27.8	30.2	31.3
95°	75.4	37.1	45.2	51.2	49.9
97.5°	135.8	40.6	59.1	62.7	63.8
100°	205.5	46.4	66.1	75.4	77.7
102.5°	282.0	279.8	68.5	81.2	84.8
105°	352.8	387.7	70.8	83.5	88.2
107.5°	435.3	464.2	73.2	85.9	90.5
110°	514.3	538.5	203.2	87.1	91.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	588.5	609.3	589.6	89.3	92.9
115°	667.4	687.1	716.2	178.8	95.2
117.5°	735.9	759.1	778.9	612.8	308.7
120°	812.5	829.9	850.9	864.7	708.1
122.5°	877.4	896.0	919.3	926.2	927.5
125°	943.6	958.8	980.8	989.0	992.4
127.5°	1004.0	1020.3	1037.8	1049.3	1050.4
130°	1060.9	1079.5	1092.2	1105.0	1103.9
132.5°	1119.0	1134.1	1146.8	1157.2	1156.1
135°	1167.8	1186.4	1196.7	1208.4	1206.0
137.5°	1218.7	1232.6	1244.4	1255.9	1252.5
140°	1268.6	1278.0	1290.7	1301.2	1295.4
142.5°	1310.5	1318.7	1333.7	1342.9	1337.1
145°	1354.6	1353.4	1373.1	1381.2	1375.5
147.5°	1392.8	1389.3	1409.1	1414.8	1410.3
150°	1430.0	1421.9	1440.5	1447.4	1441.6
152.5°	1461.3	1452.1	1469.4	1476.5	1468.3
155°	1491.5	1481.1	1495.1	1502.0	1492.7
157.5°	1515.9	1506.6	1517.1	1525.3	1515.9
160°	1536.8	1529.8	1536.8	1543.7	1535.6
162.5°	1555.3	1548.4	1554.2	1562.3	1551.9
165°	1571.6	1564.7	1568.1	1576.3	1568.1
167.5°	1584.4	1577.4	1581.0	1589.1	1578.6
170°	1594.9	1587.8	1590.2	1598.3	1587.8
172.5°	1601.8	1594.9	1597.2	1605.4	1594.9
175°	1607.6	1599.4	1601.8	1609.9	1598.3
177.5°	1609.9	1601.8	1603.0	1611.1	1600.7
180°	1604.1	1604.1	1604.1	1604.1	1604.1

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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	12.14	13.18	12.94	14.00	15.01	11.70	12.74	12.50	13.56	14.57
	3H	13.82	14.75	14.63	15.58	16.62	13.33	14.26	14.15	15.10	16.14
	4H	14.42	15.29	15.25	16.13	17.18	13.93	14.81	14.76	15.65	16.70
	6H	14.83	15.64	15.67	16.48	17.55	14.34	15.14	15.18	15.99	17.06
	8H	14.94	15.71	15.79	16.57	17.64	14.45	15.22	15.30	16.08	17.15
	12H	14.99	15.73	15.85	16.59	17.68	14.49	15.23	15.35	16.09	17.18
4H	2H	12.62	13.50	13.46	14.34	15.39	12.27	13.15	13.11	13.99	15.04
	3H	14.51	15.24	15.36	16.11	17.18	14.11	14.84	14.95	15.71	16.78
	4H	15.23	15.90	16.09	16.77	17.86	14.82	15.48	15.67	16.35	17.45
	6H	15.76	16.34	16.63	17.23	18.33	15.34	15.91	16.21	16.81	17.90
	8H	15.92	16.46	16.79	17.34	18.45	15.49	16.03	16.37	16.92	18.03
	12H	16.00	16.49	16.90	17.39	18.51	15.56	16.05	16.46	16.95	18.07
8H	4H	15.44	15.98	16.32	16.87	17.98	15.07	15.61	15.95	16.50	17.61
	6H	16.09	16.53	16.99	17.46	18.57	15.71	16.16	16.61	17.09	18.20
	8H	16.31	16.71	17.23	17.63	18.76	15.93	16.32	16.84	17.25	18.37
	12H	16.45	16.80	17.37	17.72	18.90	16.05	16.40	16.97	17.31	18.49
12H	4H	15.44	15.92	16.34	16.83	17.95	15.08	15.56	15.97	16.47	17.59
	6H	16.12	16.51	17.03	17.44	18.56	15.75	16.15	16.67	17.07	18.20
	8H	16.37	16.72	17.29	17.63	18.81	16.00	16.35	16.92	17.26	18.44