

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: P922309

Luminaire Tested: DFN2DIP-PN4F0-050D120US940-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P922309
REPORT IS A COMBINATION OF REPORTS P901275 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-050D120US940-FLLONL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

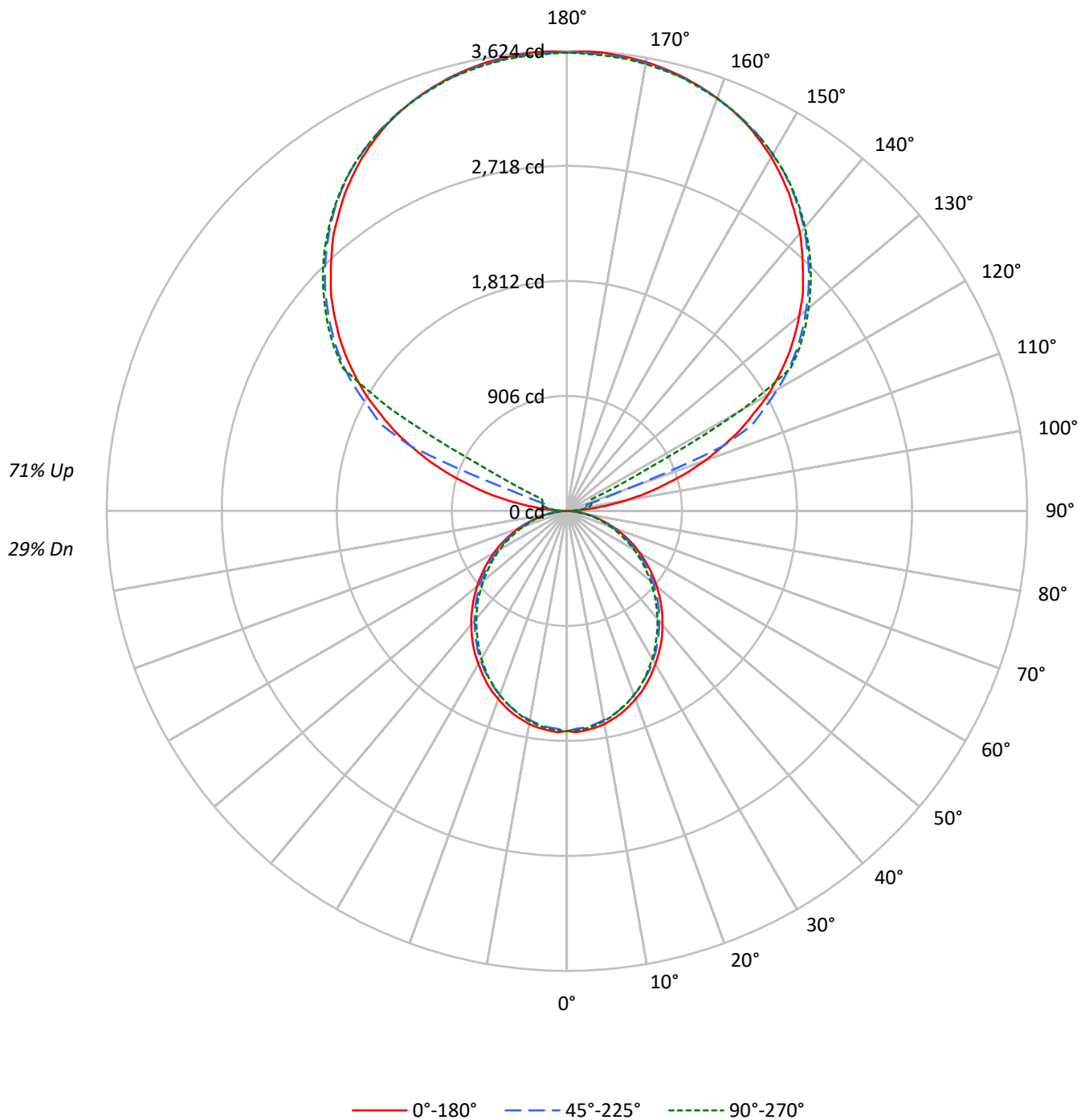
Lumens per Lamp: N/A
Luminaire Lumens: 15007.5 lumens
Efficiency: N/A
Efficacy: 101.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 147.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9951
Total Harmonic Distortion (THDi): 0.07
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P922309

CATALOG NUMBER: DFN2DIP-PN4F0-050D120US940-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	102	102	102	102	92	92	92	92	72	72	72	54	54	54	37	37	37
1	93	89	85	82	83	80	77	74	63	61	59	47	46	45	33	32	31
2	85	78	72	67	76	70	65	61	55	52	49	41	39	37	29	28	26
3	77	68	61	56	69	61	55	51	49	44	41	37	34	32	26	24	22
4	71	60	53	47	63	54	48	43	43	38	35	33	29	27	23	21	19
5	65	54	46	40	58	48	42	37	38	34	30	29	26	23	21	19	17
6	60	48	40	34	53	43	36	32	35	30	26	26	23	20	19	16	15
7	55	43	35	30	49	39	32	28	31	26	23	24	20	18	17	15	13
8	51	39	32	26	46	35	29	24	28	23	20	22	18	16	16	13	12
9	47	35	28	23	42	32	26	22	26	21	18	20	17	14	14	12	11
10	44	32	25	21	40	29	23	19	24	19	16	18	15	13	13	11	10

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1266	1266	1266
5°	1268	1249	1257
10°	1258	1232	1241
15°	1240	1212	1214
20°	1215	1184	1187
25°	1190	1151	1156
30°	1158	1119	1116
35°	1129	1083	1074
40°	1093	1045	1034
45°	1056	1008	993
50°	1017	969	946
55°	975	924	902
60°	928	870	852
65°	877	814	793
70°	812	747	730
75°	722	666	672
80°	613	563	560
85°	443	384	375

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1925 cd/sqm

TEST NUMBER: P922309

CATALOG NUMBER: DFN2DIP-PN4F0-050D120US940-FLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	163.3	1.1
10°-20°	459.4	3.1
20°-30°	675.2	4.5
30°-40°	784.2	5.2
40°-50°	783.2	5.2
50°-60°	682.9	4.6
60°-70°	504.8	3.4
70°-80°	285.6	1.9
80°-90°	81.7	0.5
90°-100°	119.1	0.8
100°-110°	443.9	3.0
110°-120°	1177.3	7.8
120°-130°	1952.7	13.0
130°-140°	2074.2	13.8
140°-150°	1927.7	12.8
150°-160°	1549.8	10.3
160°-170°	998.7	6.7
170°-180°	343.7	2.3
0°-30°	1297.9	8.6
0°-40°	2082.0	13.9
0°-60°	3548.1	23.6
0°-90°	4420.3	29.5
90°-120°	1740.3	11.6
90°-150°	7694.9	51.3
90°-180°	10587.0	70.5
0°-180°	15007.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1735	1735	1735	1735	1735	
5°	1735	1728	1710	1723	1720	165
15°	1651	1642	1620	1627	1618	465
25°	1495	1481	1453	1456	1453	688
35°	1290	1273	1246	1236	1228	805
45°	1049	1038	1012	994	988	810
55°	794	784	764	744	736	710
65°	536	526	509	494	485	530
75°	280	277	268	259	262	299
85°	68	67	65	60	58	76
90°	2	31	52	66	70	14
95°	170	84	102	115	112	201
105°	794	873	160	188	199	849
115°	1502	1547	1612	402	214	1479
125°	2124	2158	2208	2226	2234	1895
135°	2629	2671	2694	2720	2715	2031
145°	3050	3047	3091	3110	3096	1907
155°	3358	3334	3366	3381	3361	1547
165°	3538	3522	3530	3549	3530	1000
175°	3619	3601	3606	3624	3598	344
180°	3611	3611	3611	3611	3611	

TEST NUMBER: P922309

CATALOG NUMBER: DFN2DIP-PN4F0-050D120US940-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1734.8	1734.8	1734.8	1734.8	1734.8
2.5°	1744.9	1736.6	1718.2	1734.8	1731.7
5°	1734.8	1728.3	1709.9	1723.1	1720.0
7.5°	1723.1	1713.2	1694.9	1708.3	1705.0
10°	1705.0	1693.3	1673.3	1686.5	1681.6
12.5°	1679.8	1669.9	1649.9	1658.2	1654.8
15°	1651.4	1641.5	1619.8	1626.6	1618.2
17.5°	1616.4	1606.5	1584.7	1593.0	1584.7
20°	1578.1	1568.2	1544.8	1549.7	1543.2
22.5°	1539.8	1524.7	1503.0	1503.0	1499.6
25°	1494.7	1481.4	1453.0	1456.3	1453.0
27.5°	1444.6	1432.9	1411.3	1406.3	1398.0
30°	1394.6	1381.3	1356.3	1351.3	1344.6
32.5°	1341.2	1331.3	1304.6	1294.5	1287.8
35°	1289.5	1272.9	1246.2	1236.1	1227.8
37.5°	1231.1	1216.1	1189.4	1177.7	1169.4
40°	1171.2	1157.7	1131.0	1116.1	1109.4
42.5°	1112.8	1099.3	1072.7	1055.9	1046.0
45°	1049.4	1037.7	1012.5	994.3	987.6
47.5°	987.6	975.9	949.2	930.8	920.9
50°	922.5	914.2	890.8	867.5	859.1
52.5°	859.1	847.4	825.8	807.4	795.8
55°	794.2	784.1	764.0	744.0	735.8
57.5°	729.0	720.7	698.9	678.9	672.2
60°	663.9	657.4	634.0	615.5	610.6
62.5°	600.6	588.9	572.2	555.5	548.8
65°	535.6	525.5	508.8	493.8	485.4
67.5°	468.9	460.4	445.5	433.8	427.0
70°	407.1	400.4	385.3	373.6	367.1
72.5°	343.8	337.0	328.7	317.0	312.0
75°	280.2	277.0	268.5	258.6	262.0
77.5°	223.6	216.8	213.5	208.5	203.6
80°	166.9	165.1	161.8	156.9	153.5
82.5°	113.4	113.4	111.8	105.1	105.1
85°	68.3	66.7	65.1	60.0	58.4
87.5°	30.1	26.8	23.4	18.4	16.7
90°	2.5	31.3	52.2	65.5	70.4
92.5°	65.5	54.9	62.7	67.9	70.4
95°	169.7	83.5	101.7	115.1	112.4
97.5°	305.7	91.6	133.1	141.2	143.7
100°	462.6	104.6	148.9	169.7	175.0
102.5°	634.9	629.9	154.2	182.8	190.8
105°	794.3	872.9	159.5	188.1	198.6
107.5°	979.9	1045.1	164.8	193.3	203.8
110°	1157.7	1212.4	457.4	196.1	206.3

TEST NUMBER: P922309

CATALOG NUMBER: DFN2DIP-PN4F0-050D120US940-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1325.0	1371.8	1327.5	201.1	209.1
115°	1502.4	1546.8	1612.3	402.4	214.5
117.5°	1656.7	1708.9	1753.5	1379.6	695.1
120°	1829.3	1868.3	1915.5	1946.9	1594.0
122.5°	1975.4	2017.3	2069.7	2085.3	2088.0
125°	2124.3	2158.5	2208.1	2226.4	2234.2
127.5°	2260.2	2296.9	2336.3	2362.3	2364.8
130°	2388.4	2430.3	2458.8	2487.7	2485.2
132.5°	2519.0	2553.1	2581.7	2605.3	2602.8
135°	2628.9	2670.8	2694.0	2720.4	2715.2
137.5°	2743.7	2775.0	2801.4	2827.4	2819.7
140°	2856.1	2877.1	2905.6	2929.3	2916.2
142.5°	2950.3	2968.7	3002.5	3023.3	3010.2
145°	3049.6	3046.9	3091.2	3109.6	3096.5
147.5°	3135.6	3127.9	3172.3	3185.3	3175.0
150°	3219.3	3201.1	3243.0	3258.5	3245.5
152.5°	3289.8	3269.0	3308.2	3323.9	3305.7
155°	3357.7	3334.5	3365.8	3381.4	3360.6
157.5°	3412.7	3391.9	3415.5	3433.8	3412.7
160°	3459.8	3444.1	3459.8	3475.4	3457.1
162.5°	3501.5	3486.0	3499.0	3517.3	3493.7
165°	3538.0	3522.5	3530.3	3548.7	3530.3
167.5°	3566.9	3551.1	3559.2	3577.5	3553.9
170°	3590.5	3574.7	3579.9	3598.2	3574.7
172.5°	3606.0	3590.5	3595.8	3614.1	3590.5
175°	3619.0	3600.7	3606.0	3624.4	3598.2
177.5°	3624.4	3606.0	3608.8	3627.1	3603.6
180°	3611.3	3611.3	3611.3	3611.3	3611.3

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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	5.81	6.51	6.93	7.62	9.16	5.37	6.07	6.49	7.18	8.72
	3H	7.46	8.09	8.59	9.21	10.76	6.98	7.61	8.10	8.72	10.28
	4H	8.04	8.64	9.18	9.76	11.32	7.56	8.15	8.69	9.27	10.83
	6H	8.44	8.99	9.58	10.11	11.68	7.95	8.50	9.09	9.62	11.19
	8H	8.54	9.06	9.68	10.20	11.76	8.05	8.57	9.19	9.71	11.27
	12H	8.58	9.08	9.73	10.21	11.80	8.08	8.58	9.23	9.71	11.30
4H	2H	6.25	6.85	7.39	7.97	9.53	5.90	6.50	7.04	7.62	9.18
	3H	8.11	8.61	9.25	9.75	11.32	7.70	8.20	8.85	9.35	10.92
	4H	8.82	9.28	9.97	10.41	12.00	8.40	8.86	9.55	9.99	11.58
	6H	9.33	9.72	10.48	10.88	12.46	8.90	9.29	10.06	10.45	12.03
	8H	9.47	9.84	10.63	10.99	12.59	9.04	9.41	10.20	10.56	12.16
	12H	9.54	9.87	10.71	11.03	12.64	9.10	9.43	10.27	10.59	12.20
8H	4H	9.00	9.37	10.16	10.52	12.11	8.63	9.00	9.78	10.15	11.74
	6H	9.63	9.93	10.80	11.12	12.72	9.25	9.56	10.43	10.75	12.34
	8H	9.85	10.11	11.03	11.28	12.90	9.47	9.73	10.65	10.90	12.51
	12H	9.98	10.21	11.16	11.37	13.02	9.57	9.81	10.76	10.97	12.62
12H	4H	8.98	9.31	10.15	10.47	12.08	8.62	8.95	9.79	10.11	11.71
	6H	9.66	9.92	10.84	11.09	12.71	9.29	9.56	10.47	10.73	12.34
	8H	9.89	10.13	11.08	11.29	12.94	9.52	9.75	10.71	10.92	12.57

END OF REPORT