

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: P906165

Luminaire Tested: DFN2DIP-PN4F0-120D050US835-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P906165
REPORT IS A COMBINATION OF REPORTS P901163 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-120D050US835-FLLONL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

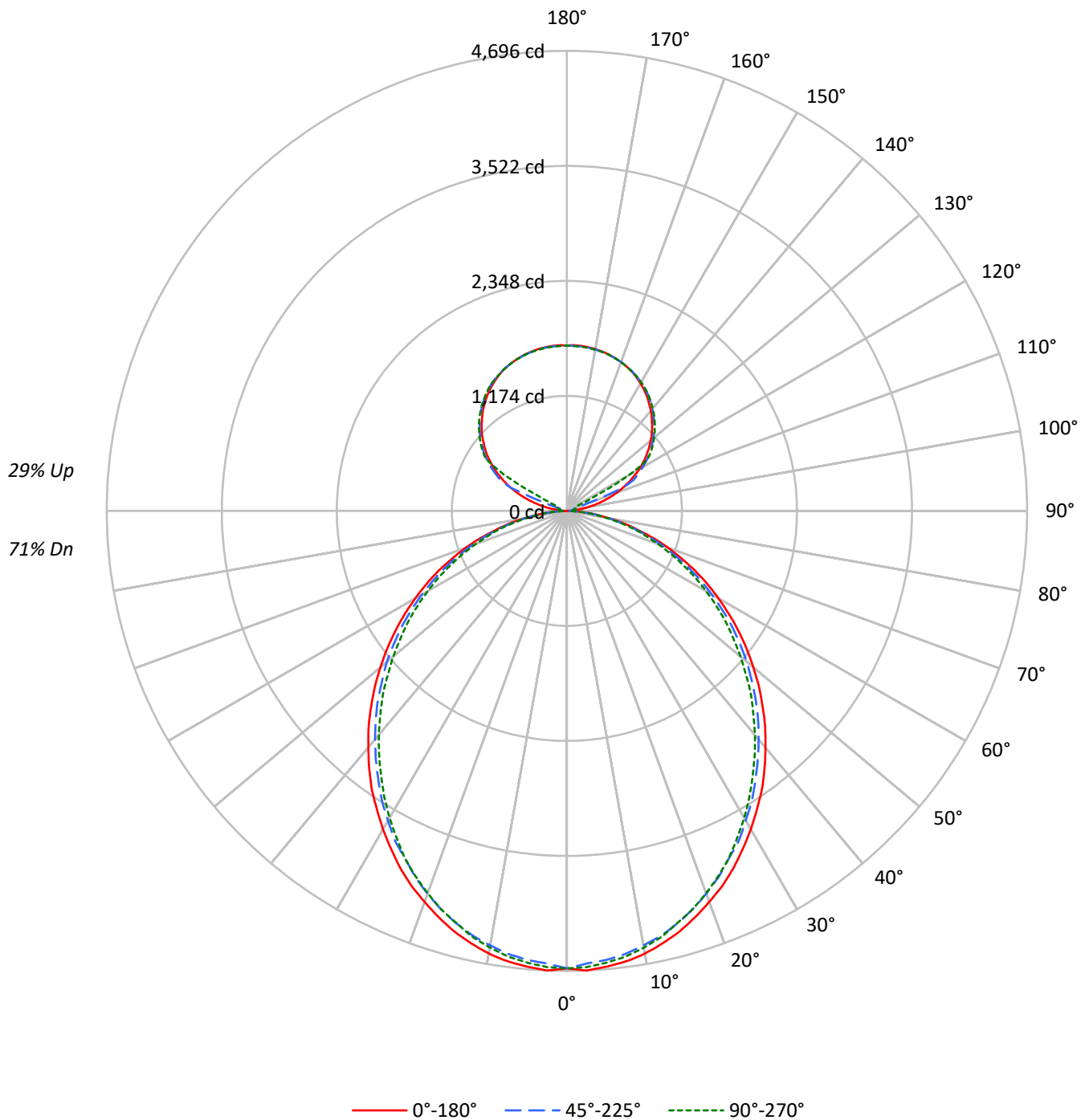
Lumens per Lamp: N/A
Luminaire Lumens: 16830.0 lumens
Efficiency: N/A
Efficacy: 102.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 163.9
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

TEST NUMBER: P906165

CATALOG NUMBER: DFN2DIP-PN4F0-120D050US835-FLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P906165

CATALOG NUMBER: DFN2DIP-PN4F0-120D050US835-FLLONL

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	112	112	112	112	106	106	106	106	95	95	95	84	84	84	75	75	75
1	102	98	94	90	97	93	89	86	83	81	78	74	72	71	66	65	63
2	93	86	79	74	88	81	76	71	73	69	65	65	62	59	58	56	53
3	85	75	68	62	80	72	65	59	64	59	54	58	54	50	52	48	46
4	78	67	59	52	73	64	56	50	57	51	47	52	47	43	46	42	39
5	72	60	51	45	68	57	49	43	51	45	40	46	41	37	42	38	34
6	66	54	45	39	62	51	43	38	46	40	35	42	37	33	38	34	30
7	61	49	40	35	58	46	39	33	42	36	31	38	33	29	35	30	27
8	57	44	36	31	54	42	35	30	39	32	28	35	30	26	32	27	24
9	53	40	33	28	50	39	32	27	35	29	25	32	27	23	29	25	22
10	50	37	30	25	47	36	29	24	33	27	23	30	25	21	27	23	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3408	3408	3408
5°	3414	3361	3384
10°	3386	3317	3339
15°	3336	3262	3268
20°	3269	3187	3195
25°	3202	3097	3111
30°	3118	3013	3004
35°	3039	2914	2891
40°	2941	2814	2783
45°	2843	2713	2673
50°	2737	2608	2545
55°	2625	2486	2428
60°	2499	2342	2293
65°	2361	2192	2135
70°	2186	2010	1965
75°	1943	1792	1808
80°	1651	1514	1508
85°	1194	1033	1009

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2843 cd/sqm

TEST NUMBER: P906165

CATALOG NUMBER: DFN2DIP-PN4F0-120D050US835-FLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	439.5	2.6
10°-20°	1236.5	7.3
20°-30°	1817.2	10.8
30°-40°	2110.5	12.5
40°-50°	2107.9	12.5
50°-60°	1838.0	10.9
60°-70°	1358.7	8.1
70°-80°	768.7	4.6
80°-90°	205.9	1.2
90°-100°	55.7	0.3
100°-110°	207.4	1.2
110°-120°	550.1	3.3
120°-130°	912.4	5.4
130°-140°	969.2	5.8
140°-150°	900.8	5.4
150°-160°	724.2	4.3
160°-170°	466.6	2.8
170°-180°	160.6	1.0
0°-30°	3493.1	20.8
0°-40°	5603.7	33.3
0°-60°	9549.6	56.7
0°-90°	11883.0	70.6
90°-120°	813.2	4.8
90°-150°	3595.6	21.4
90°-180°	4947.0	29.4
0°-180°	16830.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4669	4669	4669	4669	4669	
5°	4669	4652	4602	4638	4629	443
15°	4445	4418	4360	4378	4355	1252
25°	4023	3987	3911	3920	3911	1851
35°	3471	3426	3354	3327	3304	2167
45°	2824	2793	2725	2676	2658	2180
55°	2137	2110	2056	2003	1980	1911
65°	1442	1414	1370	1329	1307	1425
75°	754	746	723	696	705	805
85°	184	180	175	162	157	205
90°	1	15	24	31	33	16
95°	79	39	48	54	52	94
105°	371	408	74	88	93	397
115°	702	723	753	188	100	691
125°	993	1009	1032	1040	1044	885
135°	1228	1248	1259	1271	1269	949
145°	1425	1424	1444	1453	1447	891
155°	1569	1558	1573	1580	1570	723
165°	1653	1646	1650	1658	1650	467
175°	1691	1682	1685	1694	1681	161
180°	1687	1687	1687	1687	1687	

TEST NUMBER: P906165

CATALOG NUMBER: DFN2DIP-PN4F0-120D050US835-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4669.3	4669.3	4669.3	4669.3	4669.3
2.5°	4696.4	4674.0	4624.5	4669.3	4660.7
5°	4669.3	4651.6	4602.1	4637.8	4629.2
7.5°	4637.8	4611.1	4561.6	4597.8	4588.8
10°	4588.8	4557.3	4503.5	4539.2	4525.9
12.5°	4521.1	4494.4	4440.6	4463.0	4453.9
15°	4444.9	4418.2	4359.6	4377.7	4355.3
17.5°	4350.6	4323.9	4265.3	4287.7	4265.3
20°	4247.2	4220.5	4157.7	4171.0	4153.4
22.5°	4144.3	4103.8	4045.2	4045.2	4036.2
25°	4022.8	3987.1	3910.9	3919.5	3910.9
27.5°	3888.0	3856.6	3798.5	3785.1	3762.8
30°	3753.7	3717.5	3650.3	3637.0	3618.9
32.5°	3609.8	3583.2	3511.2	3484.1	3466.0
35°	3470.7	3426.0	3354.0	3326.9	3304.5
37.5°	3313.5	3273.1	3201.1	3169.7	3147.3
40°	3152.1	3115.9	3043.9	3003.9	2985.8
42.5°	2994.9	2958.7	2887.2	2842.0	2815.3
45°	2824.3	2792.9	2725.2	2676.2	2658.1
47.5°	2658.1	2626.6	2554.7	2505.2	2478.5
50°	2482.8	2460.4	2397.5	2334.6	2312.2
52.5°	2312.2	2280.8	2222.7	2173.1	2141.7
55°	2137.4	2110.3	2056.4	2002.6	1980.2
57.5°	1962.1	1939.7	1881.1	1827.3	1809.2
60°	1786.8	1769.2	1706.3	1656.8	1643.4
62.5°	1616.3	1584.8	1540.1	1495.3	1477.2
65°	1441.5	1414.3	1369.5	1329.0	1306.7
67.5°	1261.9	1239.0	1199.0	1167.6	1149.5
70°	1095.6	1077.5	1037.0	1005.6	988.0
72.5°	925.1	907.0	884.6	853.2	839.8
75°	754.1	745.5	722.6	696.0	705.0
77.5°	601.6	583.5	574.5	561.1	547.8
80°	449.2	444.4	435.4	422.1	413.0
82.5°	305.3	305.3	301.1	283.0	283.0
85°	183.9	179.6	175.3	161.5	157.2
87.5°	81.0	71.9	62.9	49.5	44.8
90°	1.2	14.6	24.4	30.6	32.9
92.5°	30.6	25.7	29.3	31.8	32.9
95°	79.3	39.0	47.6	53.8	52.5
97.5°	142.8	42.8	62.2	66.0	67.1
100°	216.2	48.9	69.6	79.3	81.8
102.5°	296.7	294.3	72.1	85.4	89.2
105°	371.2	407.9	74.5	87.9	92.8
107.5°	457.9	488.3	77.0	90.3	95.3
110°	541.0	566.5	213.7	91.6	96.4

TEST NUMBER: P906165

CATALOG NUMBER: DFN2DIP-PN4F0-120D050US835-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	619.1	641.0	620.3	94.0	97.7
115°	702.1	722.8	753.4	188.1	100.2
117.5°	774.1	798.5	819.4	644.6	324.8
120°	854.7	873.0	895.0	909.7	744.8
122.5°	923.0	942.6	967.1	974.4	975.7
125°	992.6	1008.6	1031.8	1040.3	1044.0
127.5°	1056.1	1073.2	1091.7	1103.8	1105.0
130°	1116.0	1135.6	1148.9	1162.4	1161.3
132.5°	1177.1	1193.0	1206.3	1217.4	1216.2
135°	1228.4	1248.0	1258.8	1271.2	1268.7
137.5°	1282.0	1296.7	1309.0	1321.2	1317.6
140°	1334.5	1344.4	1357.7	1368.7	1362.7
142.5°	1378.6	1387.2	1403.0	1412.7	1406.6
145°	1425.0	1423.7	1444.4	1453.0	1446.9
147.5°	1465.2	1461.5	1482.3	1488.4	1483.6
150°	1504.3	1495.8	1515.3	1522.6	1516.5
152.5°	1537.2	1527.5	1545.8	1553.2	1544.6
155°	1569.0	1558.1	1572.7	1580.0	1570.3
157.5°	1594.6	1584.9	1595.9	1604.5	1594.6
160°	1616.7	1609.3	1616.7	1623.9	1615.4
162.5°	1636.1	1628.9	1634.9	1643.5	1632.5
165°	1653.2	1646.0	1649.6	1658.1	1649.6
167.5°	1666.7	1659.3	1663.1	1671.6	1660.6
170°	1677.7	1670.3	1672.8	1681.3	1670.3
172.5°	1685.0	1677.7	1680.2	1688.7	1677.7
175°	1691.1	1682.5	1685.0	1693.5	1681.3
177.5°	1693.5	1685.0	1686.3	1694.8	1683.8
180°	1687.4	1687.4	1687.4	1687.4	1687.4

TEST NUMBER: P906165

CATALOG NUMBER: DFN2DIP-PN4F0-120D050US835-FLLONL

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	13.25	14.34	14.01	15.12	16.06	12.81	13.90	13.57	14.68	15.62
	3H	14.93	15.91	15.71	16.70	17.67	14.45	15.42	15.22	16.21	17.19
	4H	15.53	16.45	16.32	17.25	18.24	15.05	15.97	15.84	16.76	17.75
	6H	15.95	16.80	16.75	17.60	18.60	15.46	16.30	16.26	17.11	18.11
	8H	16.06	16.87	16.87	17.69	18.69	15.57	16.37	16.38	17.20	18.20
	12H	16.12	16.89	16.93	17.71	18.73	15.62	16.39	16.43	17.21	18.23
4H	2H	13.74	14.66	14.53	15.46	16.44	13.39	14.31	14.18	15.11	16.09
	3H	15.63	16.40	16.44	17.23	18.23	15.23	16.00	16.03	16.83	17.83
	4H	16.36	17.06	17.18	17.89	18.92	15.94	16.64	16.76	17.47	18.50
	6H	16.89	17.49	17.72	18.35	19.38	16.46	17.07	17.30	17.92	18.96
	8H	17.04	17.61	17.88	18.46	19.51	16.62	17.18	17.45	18.03	19.08
	12H	17.13	17.64	17.99	18.51	19.56	16.69	17.20	17.55	18.07	19.12
8H	4H	16.57	17.14	17.41	17.99	19.03	16.20	16.77	17.04	17.62	18.66
	6H	17.22	17.68	18.08	18.58	19.62	16.84	17.31	17.71	18.20	19.25
	8H	17.44	17.86	18.32	18.74	19.81	17.06	17.47	17.93	18.36	19.42
	12H	17.58	17.95	18.47	18.83	19.95	17.18	17.55	18.06	18.43	19.55
12H	4H	16.57	17.08	17.43	17.95	19.00	16.21	16.71	17.06	17.59	18.64
	6H	17.25	17.66	18.13	18.55	19.62	16.88	17.30	17.76	18.19	19.25
	8H	17.50	17.87	18.38	18.75	19.87	17.13	17.50	18.01	18.38	19.49