

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: P903365

Luminaire Tested: DFN2DIP-PN4F0-100D050US830-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P903365
REPORT IS A COMBINATION OF REPORTS P901159 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-100D050US830-FLLONL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

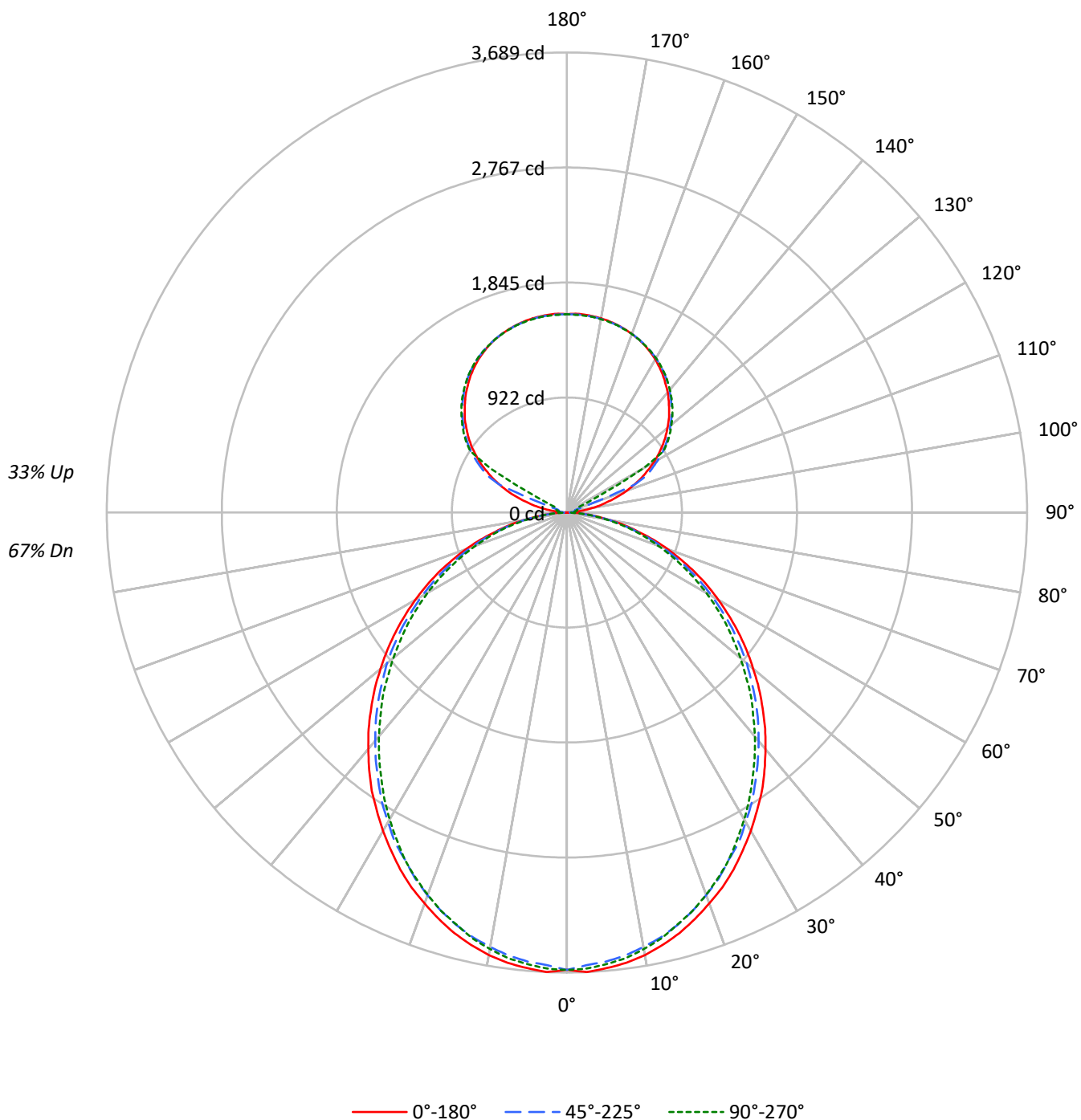
Lumens per Lamp: N/A
Luminaire Lumens: 13996.8 lumens
Efficiency: N/A
Efficacy: 101.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 138.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9952
Total Harmonic Distortion (THDi): 0.069
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P903365

CATALOG NUMBER: DFN2DIP-PN4F0-100D050US830-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
RCR																	
0	111	111	111	111	105	105	105	105	93	93	93		82	82	82		71
1	102	97	93	90	95	92	88	85	81	79	76		72	70	68		63
2	92	85	79	73	87	80	75	70	71	67	63		63	60	57		56
3	84	75	67	61	79	71	64	58	63	58	53		56	52	48		49
4	77	66	58	52	72	63	55	50	56	50	45		50	45	41		44
5	71	59	51	44	67	56	48	43	50	44	39		45	40	36		40
6	66	53	45	39	62	50	43	37	45	39	34		41	35	32		36
7	61	48	40	34	57	46	38	33	41	35	30		37	32	28		33
8	56	44	36	30	53	42	34	29	38	31	27		34	29	25		30
9	53	40	32	27	50	38	31	26	35	29	24		31	26	23		28
10	49	37	29	24	46	35	28	24	32	26	22		29	24	20		26

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2677	2677	2677
5°	2681	2640	2658
10°	2660	2605	2623
15°	2621	2562	2567
20°	2568	2503	2510
25°	2515	2432	2444
30°	2449	2366	2359
35°	2387	2289	2270
40°	2310	2210	2186
45°	2233	2131	2099
50°	2150	2049	1999
55°	2062	1953	1907
60°	1963	1839	1801
65°	1855	1722	1677
70°	1717	1579	1543
75°	1526	1407	1420
80°	1296	1189	1184
85°	937	812	792

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2233 cd/sqm

TEST NUMBER: P903365

CATALOG NUMBER: DFN2DIP-PN4F0-100D050US830-FLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	345.2	2.5
10°-20°	971.2	6.9
20°-30°	1427.3	10.2
30°-40°	1657.7	11.8
40°-50°	1655.7	11.8
50°-60°	1443.7	10.3
60°-70°	1067.2	7.6
70°-80°	603.8	4.3
80°-90°	162.2	1.2
90°-100°	52.5	0.4
100°-110°	195.5	1.4
110°-120°	518.5	3.7
120°-130°	860.0	6.1
130°-140°	913.5	6.5
140°-150°	849.0	6.1
150°-160°	682.6	4.9
160°-170°	439.8	3.1
170°-180°	151.4	1.1
0°-30°	2743.7	19.6
0°-40°	4401.4	31.4
0°-60°	7500.8	53.6
0°-90°	9334.0	66.7
90°-120°	766.5	5.5
90°-150°	3389.0	24.2
90°-180°	4663.0	33.3
0°-180°	13996.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3668	3668	3668	3668	3668	
5°	3668	3654	3615	3643	3636	348
15°	3491	3470	3424	3438	3421	983
25°	3160	3132	3072	3078	3072	1454
35°	2726	2691	2634	2613	2596	1702
45°	2218	2194	2140	2102	2088	1712
55°	1679	1658	1615	1573	1555	1501
65°	1132	1111	1076	1044	1026	1119
75°	592	586	568	547	554	632
85°	144	141	138	127	124	161
90°	1	14	23	29	31	13
95°	75	37	45	51	50	89
105°	350	384	70	83	88	374
115°	662	681	710	177	94	651
125°	936	951	972	980	984	834
135°	1158	1176	1186	1198	1196	894
145°	1343	1342	1361	1370	1364	840
155°	1479	1469	1482	1489	1480	681
165°	1558	1551	1555	1563	1555	440
175°	1594	1586	1588	1596	1585	152
180°	1590	1590	1590	1590	1590	

TEST NUMBER: P903365

CATALOG NUMBER: DFN2DIP-PN4F0-100D050US830-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3667.5	3667.5	3667.5	3667.5	3667.5
2.5°	3688.8	3671.2	3632.3	3667.5	3660.7
5°	3667.5	3653.7	3614.7	3642.8	3636.0
7.5°	3642.8	3621.8	3582.9	3611.4	3604.3
10°	3604.3	3579.6	3537.3	3565.4	3554.9
12.5°	3551.1	3530.2	3487.9	3505.5	3498.3
15°	3491.3	3470.3	3424.3	3438.5	3421.0
17.5°	3417.2	3396.3	3350.2	3367.8	3350.2
20°	3335.9	3315.0	3265.6	3276.1	3262.2
22.5°	3255.2	3223.4	3177.3	3177.3	3170.2
25°	3159.8	3131.7	3071.8	3078.5	3071.8
27.5°	3053.8	3029.1	2983.5	2973.1	2955.4
30°	2948.4	2919.9	2867.1	2856.7	2842.4
32.5°	2835.4	2814.4	2757.9	2736.6	2722.3
35°	2726.1	2691.0	2634.4	2613.1	2595.5
37.5°	2602.6	2570.8	2514.3	2489.6	2472.0
40°	2475.8	2447.3	2390.9	2359.5	2345.2
42.5°	2352.3	2323.8	2267.8	2232.2	2211.3
45°	2218.4	2193.7	2140.5	2102.0	2087.8
47.5°	2087.8	2063.1	2006.6	1967.7	1946.7
50°	1950.1	1932.5	1883.1	1833.7	1816.2
52.5°	1816.2	1791.5	1745.8	1706.9	1682.2
55°	1678.9	1657.6	1615.2	1572.9	1555.4
57.5°	1541.2	1523.5	1477.5	1435.3	1421.1
60°	1403.4	1389.6	1340.2	1301.3	1290.8
62.5°	1269.5	1244.8	1209.7	1174.5	1160.3
65°	1132.2	1110.9	1075.7	1043.9	1026.3
67.5°	991.2	973.2	941.8	917.1	902.9
70°	860.5	846.3	814.5	789.9	776.0
72.5°	726.6	712.4	694.8	670.1	659.6
75°	592.3	585.6	567.6	546.7	553.7
77.5°	472.6	458.4	451.2	440.7	430.3
80°	352.8	349.1	342.0	331.5	324.4
82.5°	239.9	239.9	236.5	222.3	222.3
85°	144.4	141.1	137.7	126.9	123.5
87.5°	63.6	56.5	49.4	38.9	35.2
90°	1.1	13.8	23.0	28.8	31.0
92.5°	28.8	24.2	27.6	30.0	31.0
95°	74.7	36.8	44.9	50.7	49.5
97.5°	134.6	40.3	58.6	62.2	63.2
100°	203.8	46.1	65.6	74.7	77.1
102.5°	279.7	277.4	68.0	80.5	84.1
105°	349.9	384.5	70.2	82.8	87.5
107.5°	431.6	460.2	72.6	85.1	89.8
110°	509.9	534.0	201.4	86.3	90.9



TEST NUMBER: P903365

CATALOG NUMBER: DFN2DIP-PN4F0-100D050US830-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	583.5	604.2	584.7	88.6	92.1
115°	661.8	681.3	710.1	177.3	94.4
117.5°	729.6	752.6	772.3	607.6	306.1
120°	805.6	822.8	843.6	857.4	702.0
122.5°	870.0	888.4	911.5	918.4	919.6
125°	935.6	950.6	972.5	980.5	984.0
127.5°	995.4	1011.5	1029.0	1040.4	1041.5
130°	1051.9	1070.4	1082.9	1095.6	1094.6
132.5°	1109.5	1124.5	1137.0	1147.5	1146.3
135°	1157.8	1176.3	1186.5	1198.2	1195.8
137.5°	1208.3	1222.2	1233.8	1245.3	1241.9
140°	1257.8	1267.2	1279.7	1290.1	1284.4
142.5°	1299.4	1307.5	1322.4	1331.5	1325.8
145°	1343.1	1341.9	1361.4	1369.5	1363.8
147.5°	1381.0	1377.5	1397.1	1402.9	1398.4
150°	1417.9	1409.9	1428.2	1435.1	1429.4
152.5°	1448.9	1439.7	1457.0	1464.0	1455.9
155°	1478.8	1468.6	1482.3	1489.2	1480.1
157.5°	1503.0	1493.8	1504.2	1512.3	1503.0
160°	1523.8	1516.8	1523.8	1530.6	1522.6
162.5°	1542.1	1535.3	1541.0	1549.1	1538.7
165°	1558.2	1551.4	1554.8	1562.8	1554.8
167.5°	1570.9	1564.0	1567.5	1575.6	1565.2
170°	1581.3	1574.3	1576.7	1584.7	1574.3
172.5°	1588.2	1581.3	1583.7	1591.7	1581.3
175°	1593.9	1585.8	1588.2	1596.2	1584.7
177.5°	1596.2	1588.2	1589.4	1597.4	1587.1
180°	1590.4	1590.4	1590.4	1590.4	1590.4

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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	12.11	13.15	12.91	13.97	14.98	11.67	12.71	12.47	13.53	14.54
	3H	13.79	14.72	14.60	15.55	16.59	13.30	14.23	14.12	15.07	16.11
	4H	14.39	15.26	15.22	16.10	17.15	13.90	14.78	14.73	15.62	16.67
	6H	14.80	15.61	15.64	16.45	17.52	14.31	15.12	15.15	15.96	17.03
	8H	14.91	15.68	15.76	16.55	17.61	14.42	15.19	15.27	16.05	17.12
	12H	14.96	15.70	15.82	16.56	17.65	14.46	15.20	15.32	16.06	17.15
4H	2H	12.60	13.47	13.43	14.31	15.36	12.24	13.12	13.08	13.96	15.01
	3H	14.48	15.21	15.33	16.08	17.15	14.08	14.81	14.92	15.68	16.75
	4H	15.20	15.87	16.06	16.74	17.83	14.79	15.45	15.64	16.32	17.42
	6H	15.73	16.31	16.61	17.20	18.30	15.31	15.88	16.18	16.78	17.88
	8H	15.89	16.43	16.76	17.32	18.43	15.46	16.00	16.34	16.89	18.00
	12H	15.97	16.46	16.87	17.36	18.48	15.53	16.02	16.43	16.92	18.04
8H	4H	15.41	15.95	16.29	16.84	17.95	15.04	15.58	15.92	16.47	17.58
	6H	16.06	16.50	16.96	17.43	18.54	15.68	16.13	16.58	17.06	18.17
	8H	16.28	16.68	17.20	17.60	18.73	15.90	16.29	16.81	17.22	18.34
	12H	16.42	16.77	17.34	17.69	18.87	16.02	16.37	16.94	17.29	18.46
12H	4H	15.41	15.89	16.31	16.80	17.92	15.05	15.53	15.94	16.44	17.56
	6H	16.09	16.48	17.00	17.41	18.54	15.72	16.12	16.64	17.04	18.17
	8H	16.34	16.69	17.26	17.61	18.78	15.97	16.32	16.89	17.23	18.41