

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: P903169

Luminaire Tested: DFN2DIP-PN4F0-040D100US830-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P903169
REPORT IS A COMBINATION OF REPORTS P901237 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-040D100US830-FLLONL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

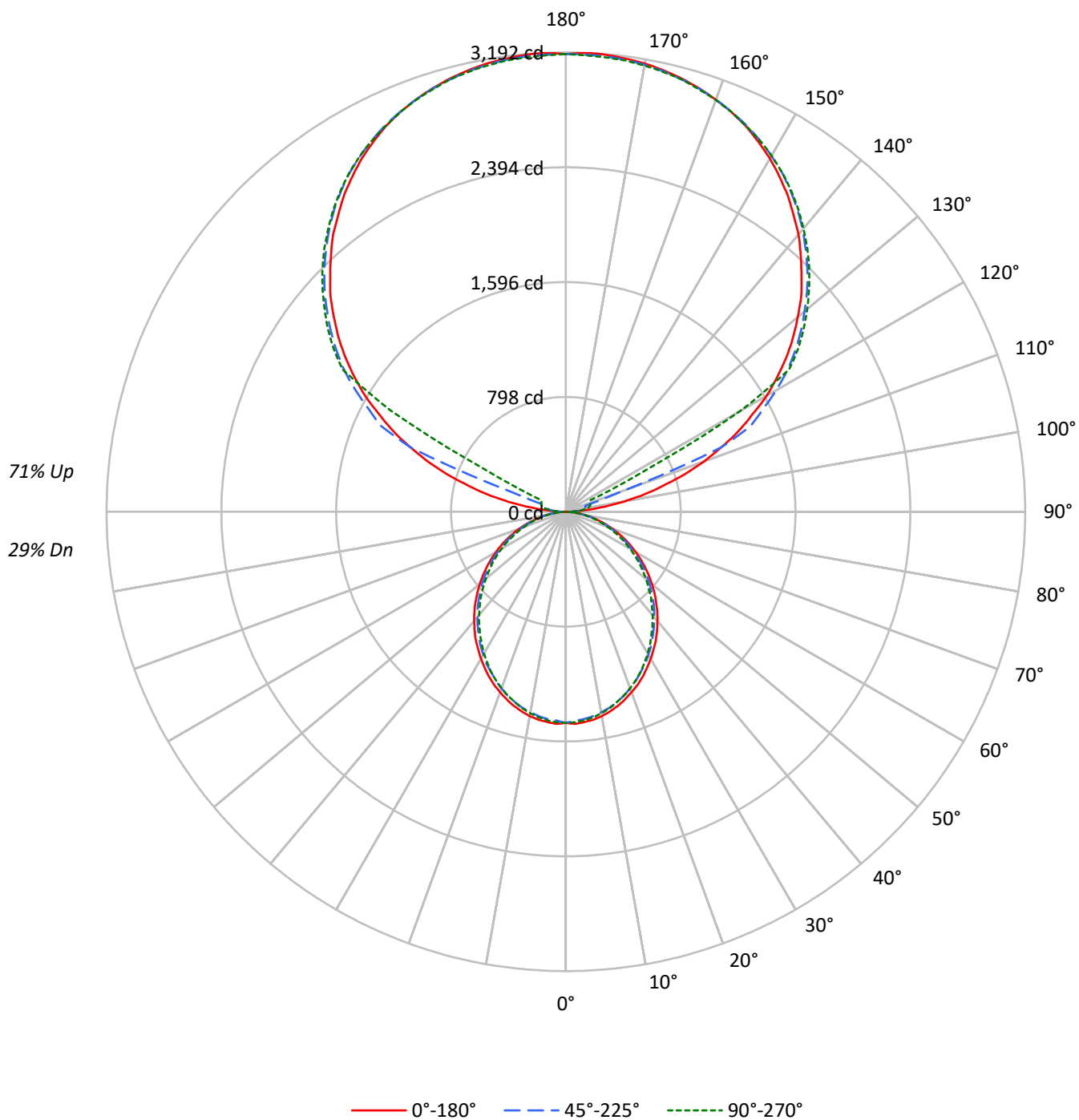
Lumens per Lamp: N/A
Luminaire Lumens: 13063.6 lumens
Efficiency: N/A
Efficacy: 120.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 108.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9968
Total Harmonic Distortion (THDi): 0.064
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P903169

CATALOG NUMBER: DFN2DIP-PN4F0-040D100US830-FLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P903169

CATALOG NUMBER: DFN2DIP-PN4F0-040D100US830-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	102	102	102	102	91	91	91	91	71	71	71	53	53	53	36	36	36
1	93	89	85	82	83	80	77	74	62	60	58	47	45	44	32	31	31
2	85	77	72	67	76	70	65	60	55	51	48	41	39	37	28	27	26
3	77	68	61	55	69	61	55	50	48	44	41	36	33	31	25	23	22
4	71	60	53	47	63	54	48	43	43	38	34	32	29	27	22	21	19
5	65	53	46	40	58	48	41	36	38	33	30	29	26	23	20	18	16
6	59	48	40	34	53	43	36	31	34	29	26	26	23	20	18	16	14
7	55	43	35	30	49	39	32	27	31	26	23	24	20	18	17	14	13
8	51	39	31	26	45	35	29	24	28	23	20	22	18	16	15	13	11
9	47	35	28	23	42	32	26	21	26	21	18	20	16	14	14	12	10
10	44	32	25	21	39	29	23	19	24	19	16	18	15	13	13	11	9

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1071	1071	1071
5°	1073	1056	1063
10°	1064	1042	1049
15°	1048	1025	1027
20°	1027	1001	1004
25°	1006	973	977
30°	980	947	944
35°	955	915	908
40°	924	884	874
45°	893	852	840
50°	860	819	799
55°	825	781	763
60°	785	736	720
65°	742	689	671
70°	687	631	617
75°	611	563	568
80°	518	476	474
85°	375	324	317

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1695 cd/sqm

TEST NUMBER: P903169

CATALOG NUMBER: DFN2DIP-PN4F0-040D100US830-FLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	138.1	1.1
10°-20°	388.5	3.0
20°-30°	570.9	4.4
30°-40°	663.1	5.1
40°-50°	662.3	5.1
50°-60°	577.5	4.4
60°-70°	426.9	3.3
70°-80°	241.5	1.8
80°-90°	69.3	0.5
90°-100°	104.9	0.8
100°-110°	391.0	3.0
110°-120°	1037.0	7.9
120°-130°	1720.0	13.2
130°-140°	1827.0	14.0
140°-150°	1698.0	13.0
150°-160°	1365.2	10.5
160°-170°	879.7	6.7
170°-180°	302.8	2.3
0°-30°	1097.5	8.4
0°-40°	1760.6	13.5
0°-60°	3000.3	23.0
0°-90°	3738.1	28.6
90°-120°	1532.9	11.7
90°-150°	6778.0	51.9
90°-180°	9326.0	71.4
0°-180°	13063.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1467	1467	1467	1467	1467	
5°	1467	1461	1446	1457	1454	139
15°	1396	1388	1370	1375	1368	393
25°	1264	1253	1229	1231	1229	582
35°	1090	1076	1054	1045	1038	681
45°	887	878	856	841	835	685
55°	672	663	646	629	622	600
65°	453	444	430	418	411	448
75°	237	234	227	219	222	253
85°	58	56	55	51	49	64
90°	2	28	46	58	62	12
95°	150	74	90	101	99	177
105°	700	769	140	166	175	748
115°	1323	1362	1420	354	189	1303
125°	1871	1901	1945	1961	1968	1669
135°	2316	2352	2373	2396	2392	1789
145°	2686	2684	2723	2739	2728	1680
155°	2958	2937	2965	2978	2960	1363
165°	3116	3103	3110	3126	3110	880
175°	3188	3172	3176	3192	3170	303
180°	3181	3181	3181	3181	3181	

TEST NUMBER: P903169

CATALOG NUMBER: DFN2DIP-PN4F0-040D100US830-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1467.0	1467.0	1467.0	1467.0	1467.0
2.5°	1475.5	1468.5	1452.9	1467.0	1464.3
5°	1467.0	1461.4	1445.9	1457.1	1454.4
7.5°	1457.1	1448.7	1433.1	1444.5	1441.7
10°	1441.7	1431.8	1414.9	1426.2	1421.9
12.5°	1420.4	1412.0	1395.2	1402.2	1399.3
15°	1396.5	1388.1	1369.7	1375.4	1368.4
17.5°	1366.9	1358.5	1340.1	1347.1	1340.1
20°	1334.4	1326.0	1306.3	1310.4	1304.9
22.5°	1302.0	1289.3	1270.9	1270.9	1268.1
25°	1263.9	1252.6	1228.7	1231.4	1228.7
27.5°	1221.5	1211.6	1193.4	1189.2	1182.2
30°	1179.3	1168.0	1146.9	1142.6	1137.0
32.5°	1134.2	1125.8	1103.2	1094.7	1088.9
35°	1090.4	1076.4	1053.8	1045.3	1038.2
37.5°	1041.0	1028.3	1005.7	995.9	988.8
40°	990.3	978.9	956.3	943.8	938.1
42.5°	940.9	929.5	907.1	892.9	884.5
45°	887.3	877.5	856.2	840.8	835.1
47.5°	835.1	825.2	802.7	787.1	778.7
50°	780.0	773.0	753.3	733.5	726.4
52.5°	726.4	716.6	698.3	682.8	672.9
55°	671.6	663.0	646.1	629.1	622.2
57.5°	616.4	609.4	591.0	574.1	568.4
60°	561.4	555.8	536.1	520.6	516.3
62.5°	507.8	497.9	483.9	469.8	464.1
65°	452.9	444.3	430.3	417.5	410.6
67.5°	396.4	389.3	376.7	366.8	361.2
70°	344.2	338.6	325.8	315.9	310.4
72.5°	290.7	284.9	278.0	268.1	263.8
75°	237.0	234.2	227.1	218.7	221.5
77.5°	189.0	183.3	180.5	176.3	172.1
80°	141.1	139.6	136.8	132.6	129.8
82.5°	96.0	96.0	94.6	88.9	88.9
85°	57.8	56.5	55.0	50.7	49.4
87.5°	25.4	22.6	19.8	15.6	14.0
90°	2.2	27.6	45.9	57.7	62.0
92.5°	57.7	48.4	55.2	59.9	62.0
95°	149.5	73.5	89.6	101.4	99.0
97.5°	269.2	80.6	117.3	124.3	126.6
100°	407.6	92.1	131.2	149.5	154.2
102.5°	559.2	554.9	135.8	161.0	168.1
105°	699.7	768.8	140.5	165.6	174.9
107.5°	863.2	920.6	145.2	170.3	179.6
110°	1019.7	1067.9	402.8	172.8	181.7

TEST NUMBER: P903169

CATALOG NUMBER: DFN2DIP-PN4F0-040D100US830-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1167.1	1208.3	1169.3	177.1	184.3
115°	1323.4	1362.5	1420.2	354.5	188.9
117.5°	1459.2	1505.2	1544.5	1215.2	612.3
120°	1611.3	1645.7	1687.2	1714.9	1404.1
122.5°	1740.0	1776.9	1823.1	1836.7	1839.2
125°	1871.2	1901.3	1945.0	1961.1	1967.9
127.5°	1990.9	2023.2	2057.9	2080.9	2083.0
130°	2103.8	2140.7	2165.9	2191.2	2189.1
132.5°	2218.8	2248.9	2274.1	2294.8	2292.6
135°	2315.6	2352.5	2373.0	2396.2	2391.6
137.5°	2416.8	2444.4	2467.6	2490.6	2483.7
140°	2515.6	2534.3	2559.4	2580.2	2568.7
142.5°	2598.8	2614.9	2644.7	2663.0	2651.6
145°	2686.2	2683.8	2722.9	2739.0	2727.5
147.5°	2761.9	2755.1	2794.2	2805.7	2796.7
150°	2835.7	2819.6	2856.6	2870.2	2858.7
152.5°	2897.8	2879.5	2914.0	2927.8	2911.7
155°	2957.7	2937.2	2964.8	2978.4	2960.1
157.5°	3006.1	2987.8	3008.5	3024.6	3006.1
160°	3047.6	3033.7	3047.6	3061.3	3045.2
162.5°	3084.2	3070.5	3082.0	3098.1	3077.4
165°	3116.4	3102.8	3109.6	3125.8	3109.6
167.5°	3141.9	3127.9	3135.1	3151.2	3130.4
170°	3162.6	3148.8	3153.4	3169.5	3148.8
172.5°	3176.3	3162.6	3167.3	3183.4	3162.6
175°	3187.8	3171.7	3176.3	3192.5	3169.5
177.5°	3192.5	3176.3	3178.8	3194.9	3174.1
180°	3181.0	3181.0	3181.0	3181.0	3181.0

TEST NUMBER: P903169

CATALOG NUMBER: DFN2DIP-PN4F0-040D100US830-FLONL

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	5.11	5.81	6.23	6.92	8.47	4.67	5.37	5.79	6.48	8.03
	3H	6.76	7.38	7.89	8.51	10.07	6.28	6.90	7.41	8.02	9.59
	4H	7.34	7.94	8.48	9.06	10.63	6.86	7.45	7.99	8.57	10.14
	6H	7.74	8.28	8.88	9.41	10.99	7.24	7.79	8.39	8.92	10.50
	8H	7.84	8.36	8.99	9.50	11.07	7.34	7.86	8.49	9.01	10.58
	12H	7.88	8.37	9.04	9.51	11.10	7.38	7.87	8.54	9.01	10.60
4H	2H	5.55	6.14	6.70	7.27	8.84	5.20	5.79	6.35	6.92	8.49
	3H	7.41	7.90	8.56	9.05	10.63	7.00	7.50	8.15	8.65	10.23
	4H	8.12	8.57	9.27	9.71	11.31	7.70	8.15	8.85	9.29	10.89
	6H	8.62	9.01	9.78	10.17	11.76	8.20	8.59	9.36	9.75	11.34
	8H	8.77	9.13	9.93	10.29	11.89	8.34	8.71	9.50	9.86	11.47
	12H	8.84	9.17	10.01	10.33	11.94	8.40	8.73	9.57	9.89	11.50
8H	4H	8.30	8.66	9.46	9.82	11.42	7.93	8.29	9.09	9.44	11.05
	6H	8.93	9.23	10.11	10.42	12.03	8.55	8.85	9.73	10.05	11.65
	8H	9.15	9.41	10.33	10.58	12.21	8.76	9.02	9.95	10.20	11.82
	12H	9.27	9.50	10.46	10.67	12.33	8.87	9.10	10.06	10.27	11.93
12H	4H	8.28	8.61	9.45	9.77	11.38	7.91	8.24	9.09	9.41	11.02
	6H	8.95	9.22	10.14	10.39	12.01	8.59	8.85	9.78	10.03	11.65
	8H	9.19	9.42	10.38	10.59	12.25	8.82	9.05	10.01	10.22	11.88

END OF REPORT