

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: P903168

Luminaire Tested: DFN2DIP-PN4F0-040D100US830-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P903168
REPORT IS A COMBINATION OF REPORTS P899717 AND P896497
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-040D100US830-FLLFLL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

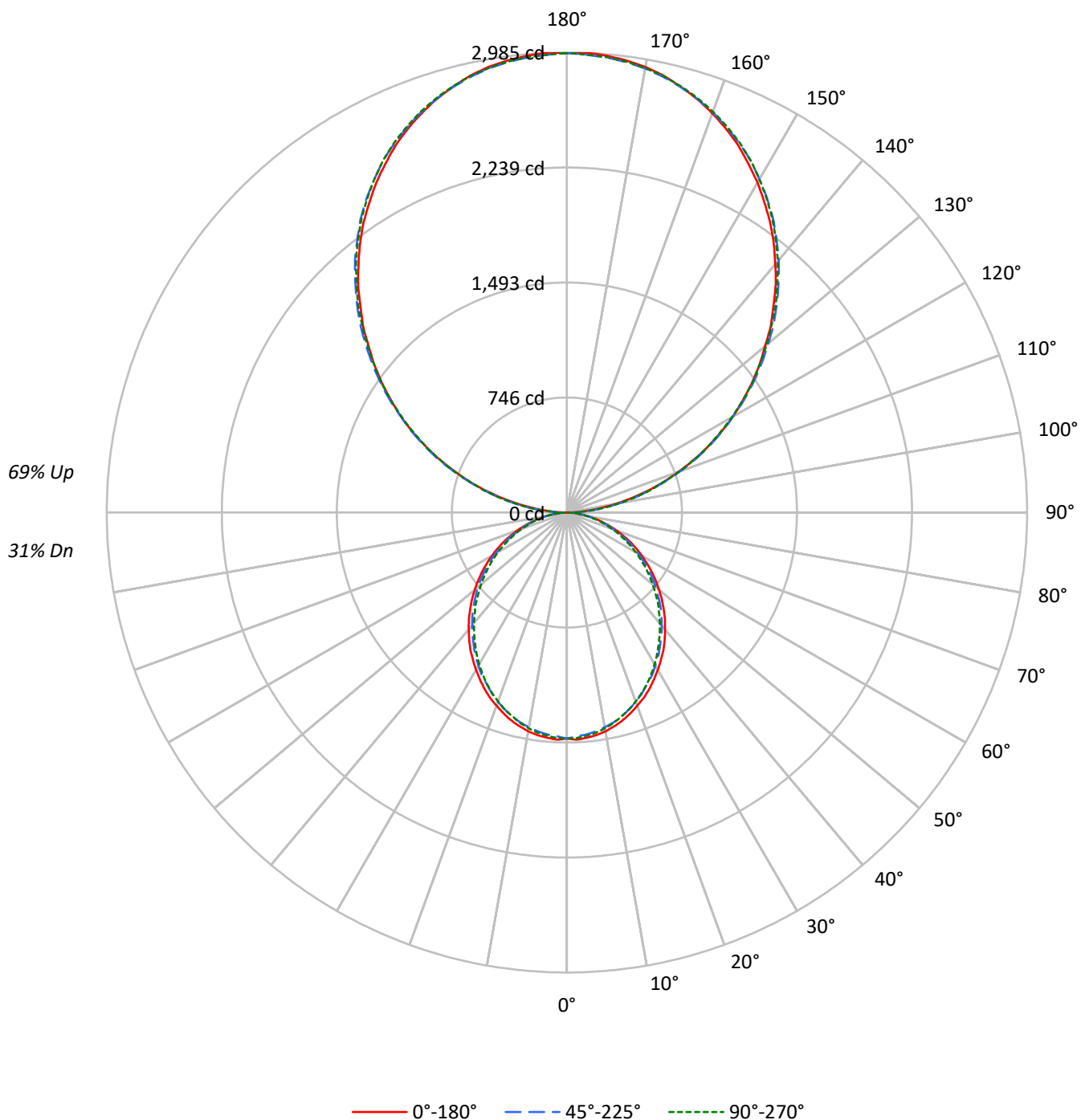
Lumens per Lamp: N/A
Luminaire Lumens: 12074.0 lumens
Efficiency: N/A
Efficacy: 111.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Indirect

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: P903168

CATALOG NUMBER: DFN2DIP-PN4F0-040D100US830-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P903168

CATALOG NUMBER: DFN2DIP-PN4F0-040D100US830-FLLFL

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	103	103	103	103	92	92	92	92	73	73	73	55	55	55	39	39	39
1	94	89	86	82	84	80	77	74	64	61	60	48	47	46	34	33	33
2	85	78	72	67	76	70	65	61	56	52	49	42	40	38	30	29	27
3	78	68	61	56	69	62	56	51	49	45	41	37	35	32	27	25	23
4	71	60	53	47	63	55	48	43	44	39	35	33	30	28	24	22	20
5	65	54	46	40	58	49	42	37	39	34	30	30	26	24	21	19	17
6	60	48	40	35	54	44	37	32	35	30	26	27	23	21	19	17	15
7	55	43	36	30	49	39	33	28	32	27	23	24	21	18	18	15	14
8	51	39	32	27	46	36	29	24	29	24	20	22	19	16	16	14	12
9	47	36	28	24	43	32	26	22	26	21	18	20	17	15	15	13	11
10	44	33	26	21	40	30	24	19	24	19	16	19	15	13	14	12	10

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: 2335 cd/sqm

TEST NUMBER: P903168

CATALOG NUMBER: DFN2DIP-PN4F0-040D100US830-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	138.1	1.1
10°-20°	388.5	3.2
20°-30°	570.9	4.7
30°-40°	663.1	5.5
40°-50°	662.3	5.5
50°-60°	577.5	4.8
60°-70°	426.9	3.5
70°-80°	241.5	2.0
80°-90°	72.2	0.6
90°-100°	184.5	1.5
100°-110°	586.1	4.9
110°-120°	1003.0	8.3
120°-130°	1319.1	10.9
130°-140°	1480.6	12.3
140°-150°	1451.9	12.0
150°-160°	1217.9	10.1
160°-170°	807.7	6.7
170°-180°	282.3	2.3
0°-30°	1097.5	9.1
0°-40°	1760.6	14.6
0°-60°	3000.3	24.8
0°-90°	3740.9	31.0
90°-120°	1773.5	14.7
90°-150°	6025.1	49.9
90°-180°	8333.0	69.0
0°-180°	12074.0	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°	3	32	88	83	85	12
95°	131	156	161	161	156	146
105°	541	548	554	558	558	571
115°	1006	1021	1016	1014	1006	996
125°	1464	1486	1479	1471	1468	1308
135°	1894	1921	1927	1924	1917	1464
145°	2299	2317	2331	2334	2324	1436
155°	2629	2636	2644	2656	2648	1210
165°	2860	2857	2857	2875	2862	807
175°	2976	2968	2963	2981	2966	283
180°	2981	2981	2981	2981	2981	

TEST NUMBER: P903168

CATALOG NUMBER: DFN2DIP-PN4F0-040D100US830-FLLFLL

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°	2.7	32.3	88.0	82.7	85.4
92.5°	55.7	75.5	78.2	80.9	80.9
95°	131.2	156.4	160.9	160.9	156.4
97.5°	218.4	241.8	251.7	251.7	251.7
100°	319.1	339.7	346.9	346.9	344.2
102.5°	425.1	440.4	450.3	452.9	450.3
105°	541.0	548.2	553.6	558.1	558.1
107.5°	656.0	666.8	666.8	668.6	656.0
110°	767.5	781.8	781.8	781.8	774.7

TEST NUMBER: P903168

CATALOG NUMBER: DFN2DIP-PN4F0-040D100US830-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	887.9	903.1	900.5	893.2	887.9
115°	1006.5	1020.9	1016.4	1013.7	1006.5
117.5°	1124.3	1144.1	1131.4	1124.3	1117.0
120°	1242.8	1262.6	1242.8	1242.8	1234.8
122.5°	1350.7	1375.8	1363.3	1356.1	1350.7
125°	1464.0	1486.4	1479.2	1471.1	1468.5
127.5°	1574.5	1602.3	1592.4	1581.7	1574.5
130°	1677.8	1710.1	1705.7	1700.3	1690.4
132.5°	1793.8	1818.9	1820.7	1808.2	1800.9
135°	1893.5	1921.4	1926.7	1924.1	1916.8
137.5°	2005.0	2027.4	2031.9	2030.1	2019.3
140°	2102.9	2125.3	2138.0	2138.0	2128.1
142.5°	2203.6	2226.0	2233.2	2235.9	2226.0
145°	2298.8	2316.8	2331.2	2333.8	2323.9
147.5°	2384.2	2406.7	2417.4	2422.0	2412.1
150°	2472.3	2487.6	2497.5	2505.5	2497.5
152.5°	2550.4	2565.7	2578.3	2588.2	2578.3
155°	2628.7	2635.8	2643.9	2656.5	2648.4
157.5°	2696.0	2701.4	2705.9	2723.9	2711.3
160°	2756.3	2761.6	2764.3	2779.6	2768.8
162.5°	2812.0	2812.0	2814.6	2831.7	2819.1
165°	2859.6	2856.8	2856.8	2874.8	2862.3
167.5°	2902.7	2894.6	2894.6	2912.6	2900.0
170°	2935.1	2927.9	2925.2	2943.2	2927.9
172.5°	2957.5	2950.3	2947.6	2965.6	2950.3
175°	2975.5	2968.3	2963.0	2980.9	2965.6
177.5°	2985.4	2978.2	2972.8	2988.0	2972.8
180°	2980.9	2980.9	2980.9	2980.9	2980.9

TEST NUMBER: P903168

CATALOG NUMBER: DFN2DIP-PN4F0-040D100US830-FLLFLL

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	5.43	6.14	6.54	7.25	8.77	4.99	5.71	6.10	6.81	8.33
	3H	7.08	7.72	8.20	8.83	10.37	6.60	7.24	7.71	8.35	9.88
	4H	7.67	8.27	8.79	9.38	10.92	7.18	7.79	8.30	8.90	10.44
	6H	8.06	8.62	9.19	9.73	11.29	7.57	8.13	8.70	9.24	10.79
	8H	8.16	8.69	9.30	9.82	11.37	7.67	8.20	8.81	9.33	10.88
	12H	8.21	8.71	9.35	9.83	11.40	7.71	8.21	8.85	9.33	10.90
4H	2H	5.88	6.48	7.01	7.59	9.13	5.52	6.13	6.66	7.24	8.78
	3H	7.73	8.24	8.87	9.37	10.93	7.33	7.83	8.46	8.97	10.52
	4H	8.44	8.91	9.58	10.03	11.61	8.02	8.49	9.16	9.61	11.19
	6H	8.95	9.35	10.10	10.50	12.06	8.53	8.93	9.67	10.07	11.64
	8H	9.10	9.47	10.24	10.61	12.19	8.67	9.04	9.82	10.18	11.76
	12H	9.17	9.50	10.33	10.66	12.24	8.73	9.06	9.89	10.22	11.80
8H	4H	8.63	9.00	9.77	10.14	11.72	8.26	8.63	9.40	9.77	11.35
	6H	9.25	9.56	10.42	10.74	12.32	8.88	9.19	10.04	10.37	11.95
	8H	9.48	9.74	10.65	10.91	12.50	9.09	9.36	10.26	10.52	12.12
	12H	9.60	9.84	10.78	11.00	12.63	9.20	9.44	10.38	10.59	12.23
12H	4H	8.60	8.94	9.77	10.09	11.68	8.24	8.58	9.40	9.73	11.32
	6H	9.28	9.55	10.45	10.71	12.31	8.92	9.19	10.09	10.35	11.95
	8H	9.52	9.76	10.70	10.91	12.55	9.15	9.38	10.32	10.54	12.17