

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: P905905

Luminaire Tested: DFN2DIP-PN4F0-040D120US835-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P905905
REPORT IS A COMBINATION OF REPORTS P901273 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-040D120US835-FLLONL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

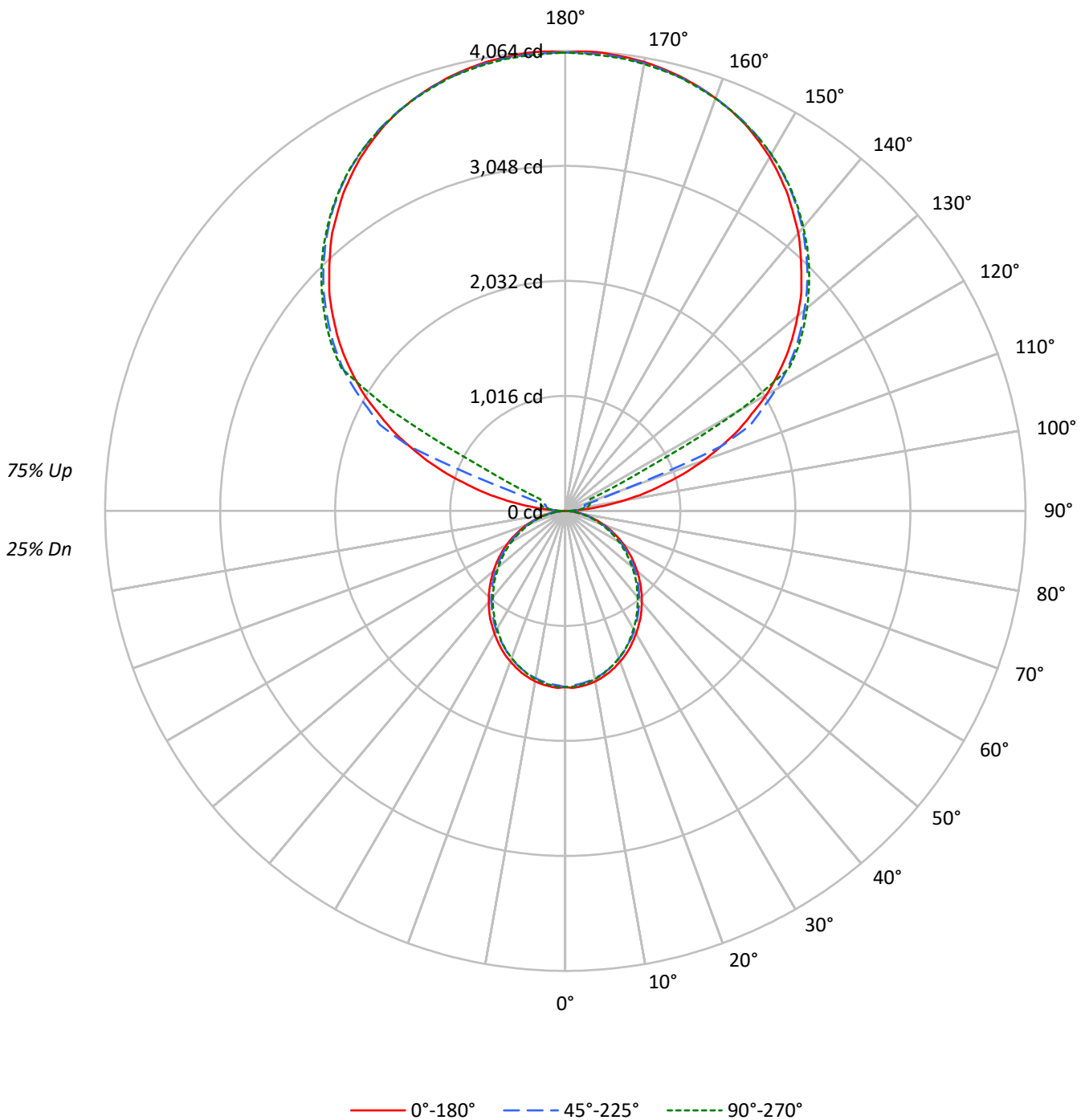
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 15840.0 lumens
Efficiency: N/A
Efficacy: 115.7 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): 136.9
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: P905905
CATALOG NUMBER: DFN2DIP-PN4F0-040D120US835-FLLONL

Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				20				20	
RC	80				70				50				30				10				0	
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0	
RCR																						
0	101	101	101	101	90	90	90	90	69	69	69	51	51	51	33	33	33	25				25
1	92	88	84	81	82	79	75	73	61	59	57	44	43	42	29	29	28	21				21
2	84	77	71	66	74	69	64	59	53	50	47	39	37	35	26	25	24	18				18
3	76	67	60	55	68	60	54	50	47	43	39	34	32	30	23	21	20	15				15
4	70	60	52	46	62	53	47	42	42	37	33	31	28	25	20	19	17	13				13
5	64	53	45	39	57	47	41	36	37	32	29	27	24	22	18	16	15	11				11
6	59	47	40	34	52	42	36	31	33	28	25	25	21	19	17	15	13	10				10
7	54	43	35	30	48	38	32	27	30	25	22	22	19	17	15	13	12	9				9
8	50	38	31	26	45	35	28	24	27	23	19	20	17	15	14	12	10	8				8
9	47	35	28	23	41	31	25	21	25	20	17	19	15	13	13	11	9	7				7
10	43	32	25	20	39	29	23	19	23	18	15	17	14	12	12	10	8	6				6

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1136	1136	1136
5°	1138	1120	1128
10°	1129	1106	1113
15°	1112	1087	1089
20°	1090	1062	1065
25°	1067	1032	1037
30°	1039	1004	1001
35°	1013	971	964
40°	980	938	928
45°	948	904	891
50°	912	869	848
55°	875	829	809
60°	833	781	764
65°	787	731	712
70°	729	670	655
75°	648	597	603
80°	550	505	503
85°	398	344	336

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 2160 cd/sqm



TEST NUMBER: P905905

CATALOG NUMBER: DFN2DIP-PN4F0-040D120US835-FLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	146.5	0.9
10°-20°	412.2	2.6
20°-30°	605.7	3.8
30°-40°	703.5	4.4
40°-50°	702.6	4.4
50°-60°	612.7	3.9
60°-70°	452.9	2.9
70°-80°	256.2	1.6
80°-90°	74.8	0.5
90°-100°	133.5	0.8
100°-110°	497.8	3.1
110°-120°	1320.3	8.3
120°-130°	2189.8	13.8
130°-140°	2326.1	14.7
140°-150°	2161.8	13.6
150°-160°	1738.1	11.0
160°-170°	1119.9	7.1
170°-180°	385.5	2.4
0°-30°	1164.4	7.4
0°-40°	1867.9	11.8
0°-60°	3183.2	20.1
0°-90°	3967.1	25.0
90°-120°	1951.7	12.3
90°-150°	8629.4	54.5
90°-180°	11873.0	75.0
0°-180°	15840.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1556	1556	1556	1556	1556	
5°	1556	1550	1534	1546	1543	148
15°	1482	1473	1453	1459	1452	417
25°	1341	1329	1304	1306	1304	617
35°	1157	1142	1118	1109	1102	722
45°	941	931	908	892	886	727
55°	712	703	686	668	660	637
65°	480	471	456	443	436	475
75°	251	248	241	232	235	268
85°	61	60	58	54	52	68
90°	3	35	58	73	79	15
95°	190	94	114	129	126	225
105°	891	979	179	211	223	952
115°	1685	1735	1808	451	240	1659
125°	2382	2421	2476	2497	2506	2125
135°	2948	2995	3021	3051	3045	2277
145°	3420	3417	3467	3487	3472	2139
155°	3766	3739	3775	3792	3769	1735
165°	3968	3950	3959	3980	3959	1121
175°	4058	4038	4044	4064	4035	386
180°	4050	4050	4050	4050	4050	



TEST NUMBER: P905905

CATALOG NUMBER: DFN2DIP-PN4F0-040D120US835-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1556.4	1556.4	1556.4	1556.4	1556.4
2.5°	1565.5	1558.0	1541.5	1556.4	1553.6
5°	1556.4	1550.5	1534.0	1545.9	1543.1
7.5°	1545.9	1537.0	1520.5	1532.6	1529.6
10°	1529.6	1519.1	1501.2	1513.1	1508.6
12.5°	1507.0	1498.1	1480.2	1487.7	1484.6
15°	1481.6	1472.7	1453.2	1459.2	1451.8
17.5°	1450.2	1441.3	1421.8	1429.2	1421.8
20°	1415.7	1406.8	1385.9	1390.3	1384.5
22.5°	1381.4	1367.9	1348.4	1348.4	1345.4
25°	1340.9	1329.0	1303.6	1306.5	1303.6
27.5°	1296.0	1285.5	1266.2	1261.7	1254.3
30°	1251.2	1239.2	1216.8	1212.3	1206.3
32.5°	1203.3	1194.4	1170.4	1161.4	1155.3
35°	1156.9	1142.0	1118.0	1109.0	1101.5
37.5°	1104.5	1091.0	1067.0	1056.6	1049.1
40°	1050.7	1038.6	1014.6	1001.3	995.3
42.5°	998.3	986.2	962.4	947.3	938.4
45°	941.4	931.0	908.4	892.1	886.0
47.5°	886.0	875.5	851.6	835.1	826.2
50°	827.6	820.1	799.2	778.2	770.7
52.5°	770.7	760.3	740.9	724.4	713.9
55°	712.5	703.4	685.5	667.5	660.1
57.5°	654.0	646.6	627.0	609.1	603.1
60°	595.6	589.7	568.8	552.3	547.8
62.5°	538.8	528.3	513.4	498.4	492.4
65°	480.5	471.4	456.5	443.0	435.6
67.5°	420.6	413.0	399.7	389.2	383.2
70°	365.2	359.2	345.7	335.2	329.3
72.5°	308.4	302.3	294.9	284.4	279.9
75°	251.4	248.5	240.9	232.0	235.0
77.5°	200.5	194.5	191.5	187.0	182.6
80°	149.7	148.1	145.1	140.7	137.7
82.5°	101.8	101.8	100.4	94.3	94.3
85°	61.3	59.9	58.4	53.8	52.4
87.5°	27.0	24.0	21.0	16.5	14.9
90°	2.8	35.1	58.5	73.4	79.0
92.5°	73.4	61.6	70.3	76.2	79.0
95°	190.3	93.6	114.1	129.1	126.0
97.5°	342.8	102.7	149.3	158.3	161.1
100°	518.8	117.3	167.0	190.3	196.3
102.5°	712.0	706.4	172.9	205.0	214.0
105°	890.8	978.9	178.9	210.9	222.7
107.5°	1098.9	1172.0	184.8	216.8	228.6
110°	1298.3	1359.6	512.9	219.9	231.4



TEST NUMBER: P905905

CATALOG NUMBER: DFN2DIP-PN4F0-040D120US835-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1485.9	1538.4	1488.7	225.5	234.5
115°	1684.9	1734.7	1808.1	451.3	240.5
117.5°	1857.9	1916.4	1966.5	1547.1	779.5
120°	2051.4	2095.2	2148.1	2183.3	1787.6
122.5°	2215.3	2262.3	2321.1	2338.5	2341.6
125°	2382.3	2420.6	2476.3	2496.8	2505.5
127.5°	2534.7	2575.8	2620.0	2649.2	2652.0
130°	2678.4	2725.4	2757.4	2789.8	2787.0
132.5°	2824.9	2863.2	2895.2	2921.7	2918.9
135°	2948.1	2995.1	3021.2	3050.8	3044.9
137.5°	3076.9	3112.0	3141.6	3170.8	3162.1
140°	3202.9	3226.5	3258.5	3285.0	3270.4
142.5°	3308.6	3329.2	3367.1	3390.4	3375.8
145°	3420.0	3416.9	3466.6	3487.2	3472.5
147.5°	3516.4	3507.7	3557.5	3572.1	3560.6
150°	3610.3	3589.8	3636.8	3654.2	3639.6
152.5°	3689.3	3666.0	3709.9	3727.6	3707.1
155°	3765.5	3739.4	3774.6	3792.0	3768.7
157.5°	3827.1	3803.8	3830.3	3850.8	3827.1
160°	3880.0	3862.3	3880.0	3897.4	3876.9
162.5°	3926.7	3909.3	3923.9	3944.4	3918.0
165°	3967.7	3950.3	3959.0	3979.6	3959.0
167.5°	4000.1	3982.3	3991.4	4011.9	3985.5
170°	4026.5	4008.8	4014.7	4035.2	4008.8
172.5°	4043.9	4026.5	4032.5	4053.0	4026.5
175°	4058.5	4038.0	4043.9	4064.5	4035.2
177.5°	4064.5	4043.9	4047.1	4067.6	4041.2
180°	4049.9	4049.9	4049.9	4049.9	4049.9



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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	4.78	5.45	5.93	6.59	8.18	4.34	5.01	5.49	6.15	7.74
	3H	6.43	7.03	7.58	8.18	9.78	5.94	6.55	7.10	7.69	9.29
	4H	7.01	7.58	8.17	8.73	10.33	6.52	7.10	7.68	8.24	9.85
	6H	7.40	7.93	8.57	9.07	10.69	6.91	7.44	8.08	8.58	10.20
	8H	7.50	8.00	8.67	9.16	10.78	7.01	7.51	8.18	8.67	10.28
	12H	7.55	8.02	8.72	9.18	10.81	7.05	7.52	8.22	8.68	10.31
4H	2H	5.22	5.79	6.39	6.94	8.54	4.87	5.44	6.04	6.58	8.19
	3H	7.07	7.55	8.24	8.72	10.34	6.67	7.15	7.84	8.31	9.93
	4H	7.78	8.22	8.96	9.38	11.02	7.36	7.80	8.54	8.96	10.60
	6H	8.29	8.66	9.47	9.84	11.47	7.86	8.24	9.04	9.42	11.05
	8H	8.43	8.78	9.61	9.96	11.60	8.00	8.36	9.18	9.53	11.17
	12H	8.50	8.82	9.69	10.00	11.65	8.06	8.38	9.25	9.56	11.21
8H	4H	7.96	8.31	9.14	9.48	11.13	7.59	7.94	8.77	9.11	10.76
	6H	8.59	8.88	9.79	10.09	11.73	8.21	8.50	9.41	9.71	11.36
	8H	8.81	9.06	10.01	10.25	11.91	8.42	8.68	9.63	9.87	11.53
	12H	8.93	9.16	10.14	10.34	12.04	8.53	8.75	9.74	9.94	11.63
12H	4H	7.94	8.26	9.13	9.44	11.09	7.57	7.89	8.77	9.08	10.73
	6H	8.62	8.87	9.82	10.06	11.72	8.25	8.50	9.46	9.69	11.36
	8H	8.85	9.07	10.06	10.26	11.96	8.48	8.70	9.69	9.89	11.58