

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: P910579

Luminaire Tested: DFN2DIP-4P4F0-080D030US850-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910579
REPORT IS A COMBINATION OF REPORTS P900609 AND P897523
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-080D030US850-FLLONL
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

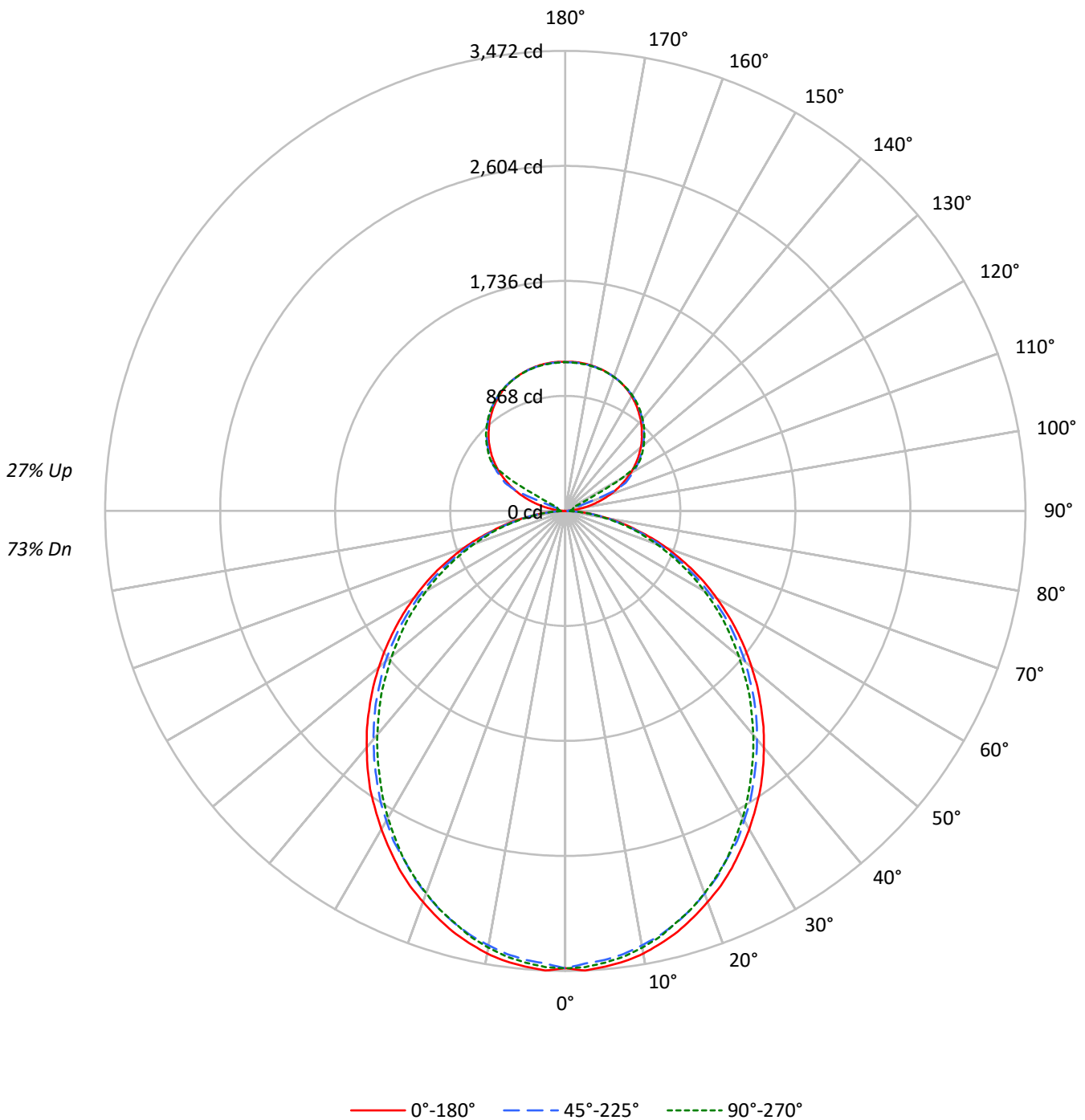
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 12077.0 lumens
Efficiency: N/A
Efficacy: 111.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 108.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9971
Total Harmonic Distortion (THDi): 0.049
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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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		0	
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10
RCR																				
0	113	113	113	113	107	107	107	107	96	96	96	86	86	86	77	77	77	77	73	
1	103	98	94	91	97	94	90	87	84	82	79	76	74	72	68	67	65	65	61	
2	94	86	80	74	89	82	76	71	74	69	66	67	63	60	60	57	55	55	51	
3	86	76	68	62	81	72	65	60	65	60	55	59	55	51	53	50	47	47	44	
4	78	67	59	53	74	64	57	51	58	52	47	53	48	44	48	44	40	40	37	
5	72	60	51	45	68	57	50	44	52	46	41	47	42	38	43	39	35	35	32	
6	67	54	45	39	63	52	44	38	47	41	36	43	37	33	39	35	31	31	29	
7	62	49	41	35	58	47	39	34	43	36	32	39	34	30	36	31	28	28	25	
8	57	44	36	31	54	43	35	30	39	33	28	36	30	27	33	28	25	25	23	
9	53	41	33	28	51	39	32	27	36	30	25	33	28	24	30	26	22	22	20	
10	50	38	30	25	48	36	29	24	33	27	23	31	25	22	28	24	20	20	19	

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2240	2240	2240
5°	2243	2209	2224
10°	2225	2180	2195
15°	2193	2145	2149
20°	2149	2096	2101
25°	2105	2037	2046
30°	2050	1982	1976
35°	1998	1917	1902
40°	1934	1852	1832
45°	1870	1786	1760
50°	1800	1718	1676
55°	1727	1638	1600
60°	1644	1544	1512
65°	1554	1447	1409
70°	1439	1328	1298
75°	1280	1186	1197
80°	1089	1005	1001
85°	790	691	675

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 1870 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	324.9	2.7
10°-20°	914.2	7.6
20°-30°	1343.5	11.1
30°-40°	1560.4	12.9
40°-50°	1558.4	12.9
50°-60°	1358.9	11.3
60°-70°	1004.5	8.3
70°-80°	568.4	4.7
80°-90°	152.0	1.3
90°-100°	37.0	0.3
100°-110°	138.0	1.1
110°-120°	366.1	3.0
120°-130°	607.1	5.0
130°-140°	644.9	5.3
140°-150°	599.4	5.0
150°-160°	481.9	4.0
160°-170°	310.5	2.6
170°-180°	106.9	0.9
0°-30°	2582.6	21.4
0°-40°	4143.0	34.3
0°-60°	7060.4	58.5
0°-90°	8785.3	72.7
90°-120°	541.1	4.5
90°-150°	2392.5	19.8
90°-180°	3292.0	27.3
0°-180°	12077.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3452	3452	3452	3452	3452	
5°	3452	3439	3402	3429	3423	328
15°	3286	3267	3223	3237	3220	926
25°	2974	2948	2892	2898	2892	1369
35°	2566	2533	2480	2460	2443	1602
45°	2088	2065	2015	1979	1965	1612
55°	1580	1560	1520	1481	1464	1413
65°	1066	1046	1012	983	966	1054
75°	558	551	534	515	521	595
85°	136	133	130	119	116	152
90°	1	10	16	20	22	11
95°	53	26	32	36	35	63
105°	247	271	50	58	62	264
115°	467	481	501	125	67	460
125°	660	671	687	692	695	589
135°	817	830	838	846	844	631
145°	948	947	961	967	963	593
155°	1044	1037	1046	1051	1045	481
165°	1100	1095	1098	1103	1098	311
175°	1125	1120	1121	1127	1119	107
180°	1123	1123	1123	1123	1123	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3452.1	3452.1	3452.1	3452.1	3452.1
2.5°	3472.2	3455.6	3419.0	3452.1	3445.8
5°	3452.1	3439.1	3402.5	3428.9	3422.6
7.5°	3428.9	3409.2	3372.6	3399.3	3392.7
10°	3392.7	3369.4	3329.6	3355.9	3346.2
12.5°	3342.6	3322.9	3283.1	3299.6	3293.0
15°	3286.3	3266.6	3223.2	3236.6	3220.1
17.5°	3216.5	3196.8	3153.4	3170.1	3153.4
20°	3140.1	3120.4	3073.9	3083.8	3070.7
22.5°	3064.1	3034.1	2990.8	2990.8	2984.1
25°	2974.2	2947.8	2891.5	2897.8	2891.5
27.5°	2874.5	2851.3	2808.3	2798.5	2781.9
30°	2775.3	2748.4	2698.9	2689.0	2675.6
32.5°	2668.9	2649.2	2595.9	2575.9	2562.6
35°	2566.0	2533.0	2479.7	2459.7	2443.1
37.5°	2449.8	2419.8	2366.7	2343.4	2326.9
40°	2330.5	2303.6	2250.5	2220.9	2207.5
42.5°	2214.2	2187.4	2134.6	2101.1	2081.5
45°	2088.1	2064.8	2014.8	1978.6	1965.3
47.5°	1965.3	1942.0	1888.7	1852.1	1832.4
50°	1835.6	1819.1	1772.5	1726.0	1709.5
52.5°	1709.5	1686.2	1643.3	1606.7	1583.4
55°	1580.2	1560.1	1520.4	1480.6	1464.0
57.5°	1450.7	1434.2	1390.8	1351.0	1337.6
60°	1321.0	1308.1	1261.5	1224.9	1215.0
62.5°	1194.9	1171.8	1138.6	1105.6	1092.1
65°	1065.7	1045.7	1012.5	982.6	966.0
67.5°	932.9	916.0	886.4	863.2	849.8
70°	810.0	796.6	766.8	743.5	730.4
72.5°	683.9	670.6	654.0	630.8	620.9
75°	557.5	551.2	534.3	514.6	521.2
77.5°	444.8	431.4	424.7	414.9	405.0
80°	332.1	328.6	321.9	312.1	305.3
82.5°	225.8	225.8	222.6	209.2	209.2
85°	136.0	132.7	129.6	119.4	116.2
87.5°	59.9	53.2	46.5	36.6	33.2
90°	0.8	9.8	16.2	20.4	21.8
92.5°	20.4	17.1	19.5	21.2	21.8
95°	52.8	26.0	31.6	35.8	34.9
97.5°	95.0	28.5	41.4	43.9	44.7
100°	143.8	32.5	46.4	52.8	54.5
102.5°	197.4	195.8	47.9	56.8	59.3
105°	247.0	271.4	49.6	58.4	61.8
107.5°	304.6	324.9	51.2	60.1	63.4
110°	360.0	376.9	142.2	61.0	64.2



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	412.0	426.5	412.8	62.5	65.0
115°	467.1	481.0	501.3	125.1	66.7
117.5°	515.1	531.3	545.2	429.0	216.1
120°	568.7	580.9	595.5	605.3	495.6
122.5°	614.2	627.3	643.6	648.3	649.2
125°	660.5	671.1	686.6	692.2	694.7
127.5°	702.8	714.1	726.4	734.5	735.3
130°	742.6	755.7	764.5	773.4	772.8
132.5°	783.2	793.8	802.7	810.0	809.2
135°	817.3	830.4	837.6	845.8	844.2
137.5°	853.0	862.8	871.0	879.1	876.7
140°	888.0	894.5	903.4	910.7	906.7
142.5°	917.4	923.0	933.6	940.0	936.0
145°	948.2	947.3	961.2	966.8	962.7
147.5°	974.9	972.5	986.3	990.3	987.1
150°	1001.0	995.3	1008.3	1013.1	1009.1
152.5°	1022.8	1016.4	1028.6	1033.5	1027.8
155°	1044.0	1036.8	1046.5	1051.3	1044.9
157.5°	1061.1	1054.7	1062.0	1067.6	1061.1
160°	1075.7	1070.9	1075.7	1080.6	1074.8
162.5°	1088.7	1083.8	1087.9	1093.6	1086.3
165°	1100.0	1095.2	1097.7	1103.3	1097.7
167.5°	1109.0	1104.1	1106.6	1112.3	1105.0
170°	1116.3	1111.4	1113.1	1118.8	1111.4
172.5°	1121.2	1116.3	1118.0	1123.6	1116.3
175°	1125.2	1119.5	1121.2	1126.9	1118.8
177.5°	1126.9	1121.2	1122.1	1127.7	1120.4
180°	1122.9	1122.9	1122.9	1122.9	1122.9



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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	11.97	13.08	12.70	13.84	14.74	11.53	12.64	12.26	13.39	14.30
	3H	13.65	14.65	14.40	15.42	16.35	13.16	14.16	13.91	14.93	15.86
	4H	14.26	15.20	15.02	15.97	16.92	13.76	14.70	14.53	15.48	16.43
	6H	14.67	15.54	15.45	16.33	17.29	14.17	15.04	14.95	15.83	16.79
	8H	14.79	15.62	15.58	16.42	17.38	14.29	15.11	15.07	15.92	16.88
	12H	14.85	15.64	15.64	16.43	17.42	14.34	15.13	15.13	15.92	16.91
4H	2H	12.46	13.40	13.23	14.18	15.13	12.11	13.05	12.88	13.82	14.77
	3H	14.36	15.14	15.14	15.95	16.92	13.95	14.74	14.73	15.54	16.51
	4H	15.08	15.80	15.88	16.61	17.60	14.66	15.38	15.46	16.19	17.18
	6H	15.62	16.24	16.43	17.07	18.07	15.19	15.81	16.00	16.64	17.64
	8H	15.78	16.36	16.59	17.19	18.20	15.34	15.92	16.16	16.75	17.76
	12H	15.87	16.39	16.70	17.24	18.25	15.42	15.94	16.25	16.79	17.81
8H	4H	15.30	15.88	16.12	16.71	17.72	14.93	15.51	15.74	16.33	17.35
	6H	15.95	16.43	16.80	17.30	18.31	15.57	16.05	16.41	16.92	17.93
	8H	16.18	16.60	17.03	17.47	18.50	15.78	16.21	16.64	17.08	18.11
	12H	16.32	16.70	17.18	17.56	18.64	15.91	16.29	16.77	17.15	18.23
12H	4H	15.30	15.82	16.14	16.67	17.69	14.93	15.45	15.77	16.30	17.32
	6H	15.98	16.41	16.84	17.28	18.31	15.61	16.04	16.47	16.91	17.93
	8H	16.24	16.62	17.10	17.48	18.56	15.86	16.24	16.72	17.10	18.18