

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: P920405

Luminaire Tested: DFN2DIP-SQ4F0-080D140US935-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P920405
REPORT IS A COMBINATION OF REPORTS P901709 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-080D140US935-FLLONL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

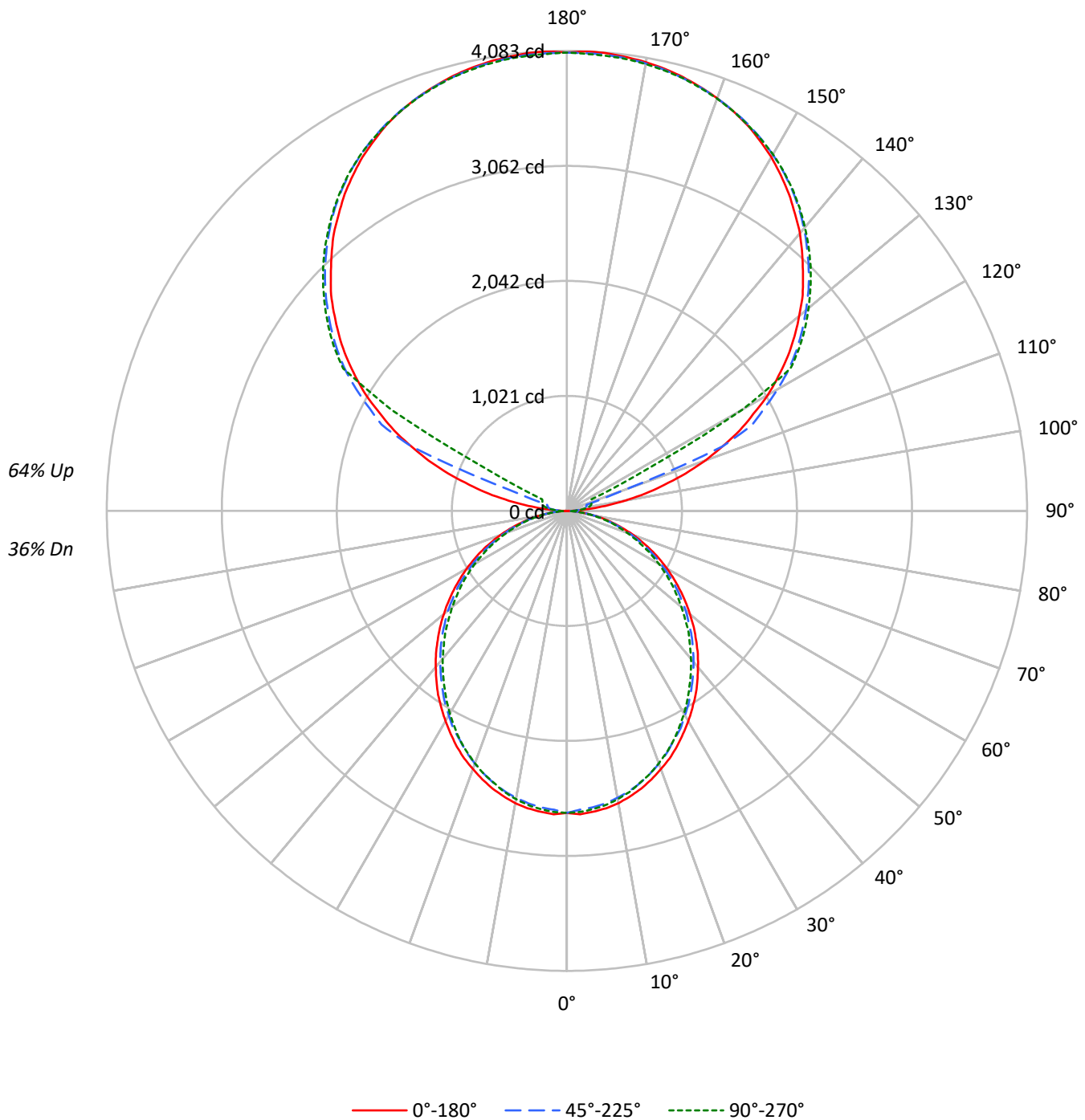
Lumens per Lamp: N/A
Luminaire Lumens: 18752.5 lumens
Efficiency: N/A
Efficacy: 105.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 177.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9954
Total Harmonic Distortion (THDi): 0.076
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
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	104	104	104	104	94	94	94	94	76	76	76	59	59	59	44	44	44
1	95	90	87	83	86	82	79	76	66	64	62	52	50	49	39	38	37
2	86	79	73	68	78	72	67	62	58	54	51	46	43	41	34	32	31
3	79	69	62	57	71	63	57	52	51	47	43	40	37	35	30	28	26
4	72	61	54	48	65	56	49	44	45	41	37	36	32	30	27	25	23
5	66	55	47	41	59	50	43	38	41	35	32	32	28	26	24	22	20
6	61	49	41	35	55	45	38	33	37	31	27	29	25	22	22	19	17
7	56	44	36	31	51	40	33	29	33	28	24	26	23	20	20	17	15
8	52	40	32	27	47	37	30	25	30	25	21	24	20	18	18	16	14
9	48	36	29	24	44	33	27	22	28	23	19	22	18	16	17	14	12
10	45	33	26	21	41	31	24	20	25	20	17	20	17	14	16	13	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1881	1881	1881
5°	1884	1855	1867
10°	1868	1830	1843
15°	1841	1800	1804
20°	1804	1759	1764
25°	1767	1709	1718
30°	1720	1663	1659
35°	1677	1608	1596
40°	1623	1553	1537
45°	1569	1498	1476
50°	1510	1440	1406
55°	1448	1373	1342
60°	1378	1294	1268
65°	1302	1211	1181
70°	1206	1111	1087
75°	1071	991	1002
80°	910	838	837
85°	658	574	562

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2182 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	252.3	1.3
10°-20°	709.8	3.8
20°-30°	1043.1	5.6
30°-40°	1211.4	6.5
40°-50°	1209.9	6.5
50°-60°	1055.0	5.6
60°-70°	779.9	4.2
70°-80°	441.2	2.4
80°-90°	123.6	0.7
90°-100°	134.2	0.7
100°-110°	500.0	2.7
110°-120°	1326.2	7.1
120°-130°	2199.7	11.7
130°-140°	2336.6	12.5
140°-150°	2171.6	11.6
150°-160°	1745.9	9.3
160°-170°	1125.0	6.0
170°-180°	387.2	2.1
0°-30°	2005.1	10.7
0°-40°	3216.5	17.2
0°-60°	5481.5	29.2
0°-90°	6826.2	36.4
90°-120°	1960.4	10.5
90°-150°	8668.2	46.2
90°-180°	11926.0	63.6
0°-180°	18752.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2680	2680	2680	2680	2680	
5°	2680	2670	2642	2662	2657	254
15°	2551	2536	2502	2513	2500	719
25°	2309	2289	2245	2250	2245	1063
35°	1992	1966	1925	1910	1897	1244
45°	1621	1603	1564	1536	1526	1251
55°	1227	1211	1180	1150	1137	1097
65°	827	812	786	763	750	818
75°	433	428	415	400	405	462
85°	106	103	101	93	90	118
90°	3	35	59	74	79	17
95°	191	94	115	130	127	226
105°	895	983	180	212	224	956
115°	1692	1742	1816	453	242	1666
125°	2393	2432	2487	2508	2517	2134
135°	2961	3009	3035	3064	3058	2288
145°	3435	3432	3482	3503	3488	2149
155°	3782	3756	3792	3809	3786	1743
165°	3986	3968	3977	3997	3977	1126
175°	4077	4056	4062	4083	4053	388
180°	4068	4068	4068	4068	4068	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2680.1	2680.1	2680.1	2680.1	2680.1
2.5°	2695.7	2682.9	2654.5	2680.1	2675.2
5°	2680.1	2670.0	2641.6	2662.1	2657.2
7.5°	2662.1	2646.8	2618.4	2639.1	2634.0
10°	2634.0	2615.9	2585.0	2605.5	2597.9
12.5°	2595.1	2579.8	2548.9	2561.7	2556.6
15°	2551.4	2536.1	2502.4	2512.8	2500.0
17.5°	2497.2	2481.9	2448.2	2461.2	2448.2
20°	2437.9	2422.6	2386.5	2394.2	2384.0
22.5°	2378.9	2355.6	2321.9	2321.9	2316.8
25°	2309.1	2288.6	2244.9	2249.8	2244.9
27.5°	2231.7	2213.7	2180.3	2172.6	2159.8
30°	2154.6	2133.8	2095.3	2087.7	2077.2
32.5°	2072.1	2056.8	2015.4	1999.8	1989.5
35°	1992.2	1966.5	1925.2	1909.6	1896.8
37.5°	1901.9	1878.7	1837.5	1819.4	1806.5
40°	1809.3	1788.5	1747.2	1724.2	1713.8
42.5°	1719.1	1698.2	1657.2	1631.2	1616.0
45°	1621.2	1603.1	1564.3	1536.1	1525.8
47.5°	1525.8	1507.7	1466.4	1438.0	1422.6
50°	1425.1	1412.3	1376.1	1340.1	1327.2
52.5°	1327.2	1309.1	1275.8	1247.4	1229.3
55°	1226.8	1211.3	1180.4	1149.5	1136.6
57.5°	1126.3	1113.4	1079.8	1048.9	1038.4
60°	1025.6	1015.5	979.4	951.0	943.3
62.5°	927.7	909.7	884.0	858.3	847.9
65°	827.4	811.8	786.1	762.8	750.0
67.5°	724.3	711.2	688.2	670.2	659.8
70°	628.9	618.5	595.3	577.2	567.1
72.5°	531.0	520.6	507.7	489.7	482.1
75°	432.8	427.9	414.8	399.5	404.7
77.5°	345.3	334.9	329.8	322.1	314.4
80°	257.9	255.1	249.9	242.3	237.0
82.5°	175.3	175.3	172.8	162.4	162.4
85°	105.6	103.1	100.7	92.7	90.2
87.5°	46.5	41.3	36.1	28.4	25.7
90°	2.8	35.3	58.7	73.8	79.4
92.5°	73.8	61.9	70.6	76.5	79.4
95°	191.2	94.0	114.7	129.7	126.6
97.5°	344.3	103.1	150.0	159.0	161.9
100°	521.2	117.8	167.8	191.2	197.2
102.5°	715.1	709.5	173.7	205.9	215.0
105°	894.8	983.3	179.7	211.8	223.7
107.5°	1103.9	1177.2	185.6	217.7	229.6
110°	1304.2	1365.7	515.2	220.9	232.5



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1492.5	1545.3	1495.4	226.5	235.6
115°	1692.5	1742.5	1816.3	453.4	241.5
117.5°	1866.2	1924.9	1975.3	1554.1	783.0
120°	2060.6	2104.6	2157.7	2193.0	1795.6
122.5°	2225.2	2272.4	2331.5	2349.0	2352.2
125°	2393.1	2431.5	2487.4	2508.0	2516.8
127.5°	2546.1	2587.4	2631.7	2661.1	2663.9
130°	2690.4	2737.7	2769.8	2802.4	2799.5
132.5°	2837.7	2876.1	2908.3	2934.8	2932.0
135°	2961.4	3008.6	3034.8	3064.5	3058.5
137.5°	3090.7	3126.0	3155.7	3185.1	3176.4
140°	3217.3	3241.1	3273.2	3299.8	3285.1
142.5°	3323.5	3344.1	3382.3	3405.7	3391.0
145°	3435.4	3432.2	3482.2	3502.9	3488.2
147.5°	3532.2	3523.5	3573.5	3588.1	3576.6
150°	3626.6	3605.9	3653.1	3670.6	3656.0
152.5°	3705.9	3682.5	3726.6	3744.4	3723.7
155°	3782.4	3756.3	3791.6	3809.1	3785.6
157.5°	3844.4	3820.9	3847.5	3868.1	3844.4
160°	3897.5	3879.7	3897.5	3915.0	3894.4
162.5°	3944.3	3926.8	3941.6	3962.1	3935.6
165°	3985.6	3968.1	3976.9	3997.4	3976.9
167.5°	4018.1	4000.3	4009.3	4030.0	4003.4
170°	4044.6	4026.8	4032.7	4053.4	4026.8
172.5°	4062.1	4044.6	4050.6	4071.2	4044.6
175°	4076.8	4056.2	4062.1	4082.8	4053.4
177.5°	4082.8	4062.1	4065.3	4085.9	4059.3
180°	4068.0	4068.0	4068.0	4068.0	4068.0

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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	8.07	8.82	9.14	9.89	11.34	7.63	8.38	8.69	9.45	10.90
	3H	9.73	10.40	10.80	11.48	12.95	9.24	9.91	10.31	10.99	12.46
	4H	10.31	10.95	11.40	12.03	13.51	9.82	10.46	10.91	11.54	13.01
	6H	10.71	11.30	11.81	12.38	13.87	10.21	10.80	11.31	11.88	13.37
	8H	10.81	11.37	11.91	12.47	13.96	10.31	10.87	11.41	11.97	13.45
	12H	10.86	11.39	11.97	12.48	13.99	10.35	10.88	11.46	11.97	13.48
4H	2H	8.52	9.16	9.61	10.24	11.71	8.17	8.80	9.26	9.88	11.36
	3H	10.38	10.91	11.48	12.02	13.51	9.97	10.51	11.07	11.61	13.10
	4H	11.09	11.58	12.20	12.68	14.19	10.67	11.16	11.77	12.25	13.77
	6H	11.61	12.03	12.72	13.14	14.65	11.17	11.59	12.29	12.71	14.22
	8H	11.76	12.15	12.87	13.26	14.78	11.32	11.71	12.43	12.82	14.34
	12H	11.83	12.18	12.96	13.30	14.83	11.38	11.73	12.51	12.85	14.38
8H	4H	11.28	11.67	12.39	12.78	14.30	10.91	11.30	12.02	12.41	13.93
	6H	11.91	12.24	13.05	13.39	14.91	11.53	11.85	12.66	13.01	14.52
	8H	12.14	12.42	13.28	13.55	15.09	11.74	12.03	12.88	13.16	14.70
	12H	12.27	12.51	13.41	13.64	15.22	11.85	12.10	13.00	13.23	14.81
12H	4H	11.26	11.62	12.39	12.74	14.27	10.89	11.25	12.02	12.37	13.90
	6H	11.94	12.23	13.08	13.36	14.90	11.57	11.85	12.71	12.99	14.52
	8H	12.18	12.43	13.33	13.56	15.13	11.80	12.05	12.95	13.18	14.75