

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: P903885

Luminaire Tested: DFN2DIP-SQ3F0-110D090US830-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P903885
REPORT IS A COMBINATION OF REPORTS P901485 AND P898289
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-110D090US830-FLONL
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

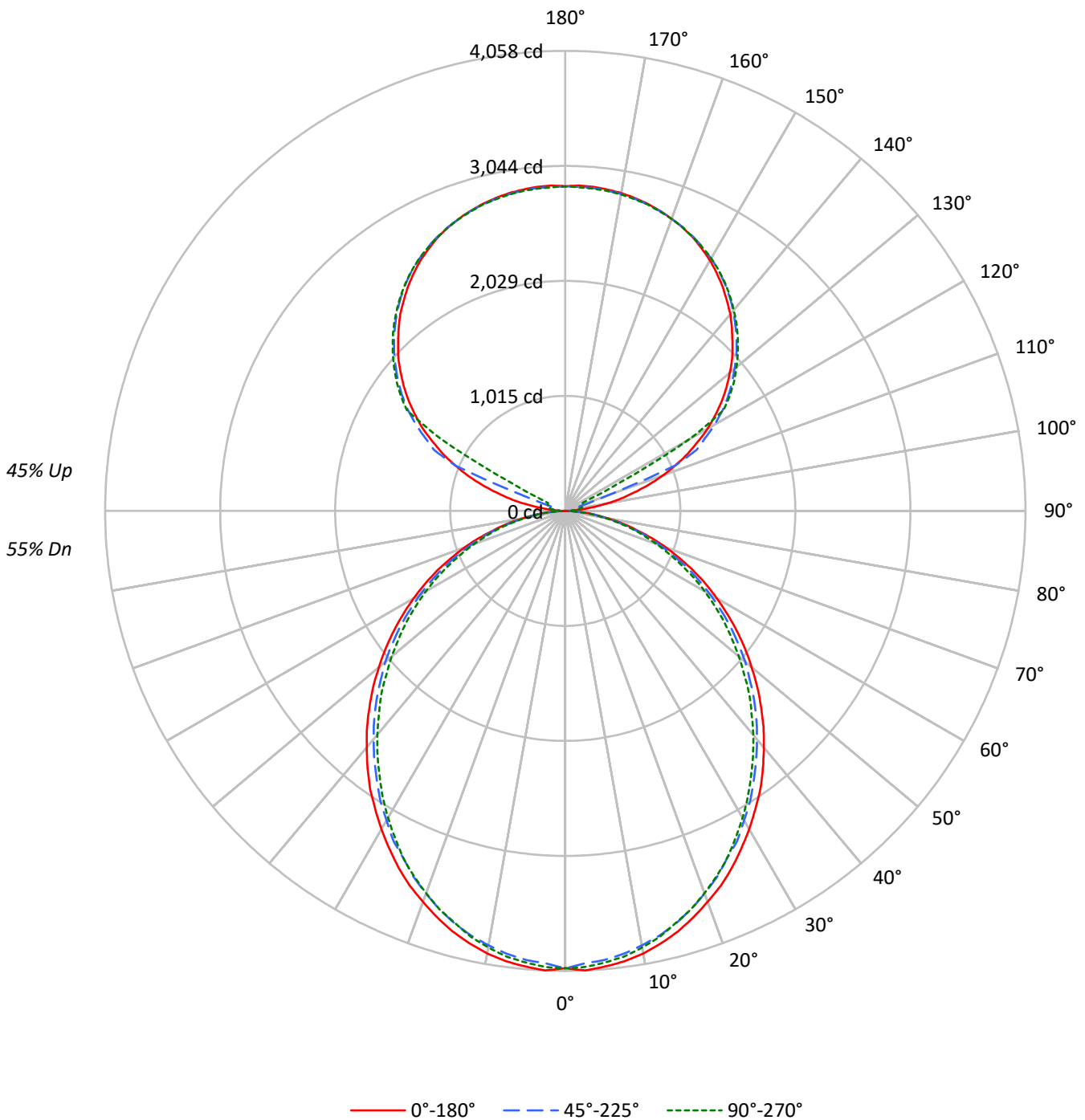
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 18662.3 lumens
Efficiency: N/A
Efficacy: 103.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 180.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9977
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	0
RCR																					
0	108	108	108	108	101	101	101	101	86	86	86	73	73	73	61	61	61	55			
1	99	95	91	87	92	88	85	81	76	73	71	64	62	61	54	52	51	46			
2	90	83	76	71	83	77	71	67	66	62	59	56	53	51	47	45	43	39			
3	82	73	65	59	76	68	61	56	58	53	49	50	46	43	42	39	37	33			
4	75	64	56	50	70	60	53	47	52	46	42	44	40	37	37	34	32	28			
5	69	57	49	43	64	54	46	41	47	41	36	40	35	32	34	30	28	25			
6	64	51	43	37	59	48	41	35	42	36	32	36	32	28	31	27	24	22			
7	59	46	38	33	55	44	36	31	38	32	28	33	28	25	28	24	22	19			
8	55	42	34	29	51	40	33	28	35	29	25	30	25	22	26	22	19	17			
9	51	39	31	26	47	36	29	25	32	26	22	28	23	20	24	20	18	15			
10	48	35	28	23	44	33	27	22	29	24	20	26	21	18	22	19	16	14			

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4623	4623	4623
5°	4627	4555	4587
10°	4586	4491	4524
15°	4516	4414	4425
20°	4422	4308	4324
25°	4328	4182	4208
30°	4212	4064	4060
35°	4101	3926	3904
40°	3965	3787	3756
45°	3829	3647	3604
50°	3681	3500	3428
55°	3525	3330	3266
60°	3349	3128	3080
65°	3156	2919	2861
70°	2910	2664	2624
75°	2571	2358	2404
80°	2161	1967	1987
85°	1522	1304	1300

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 3829 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	379.7	2.0
10°-20°	1068.3	5.7
20°-30°	1570.0	8.4
30°-40°	1823.5	9.8
40°-50°	1821.2	9.8
50°-60°	1588.0	8.5
60°-70°	1173.9	6.3
70°-80°	664.2	3.6
80°-90°	180.3	1.0
90°-100°	94.4	0.5
100°-110°	351.9	1.9
110°-120°	933.3	5.0
120°-130°	1548.0	8.3
130°-140°	1644.3	8.8
140°-150°	1528.2	8.2
150°-160°	1228.6	6.6
160°-170°	791.7	4.2
170°-180°	272.5	1.5
0°-30°	3018.1	16.2
0°-40°	4841.6	25.9
0°-60°	8250.9	44.2
0°-90°	10269.3	55.0
90°-120°	1379.6	7.4
90°-150°	6100.2	32.7
90°-180°	8393.0	45.0
0°-180°	18662.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4034	4034	4034	4034	4034	
5°	4034	4019	3976	4007	4000	383
15°	3840	3817	3767	3782	3763	1082
25°	3476	3445	3379	3386	3379	1599
35°	2999	2960	2898	2874	2855	1873
45°	2440	2413	2355	2312	2297	1883
55°	1847	1823	1777	1730	1711	1651
65°	1245	1222	1183	1148	1129	1231
75°	652	644	624	601	609	696
85°	159	155	152	140	136	177
90°	2	25	41	52	56	17
95°	135	66	81	91	89	159
105°	630	692	126	149	157	673
115°	1191	1226	1278	319	170	1173
125°	1684	1711	1750	1765	1771	1502
135°	2084	2117	2136	2157	2152	1610
145°	2418	2415	2451	2465	2455	1512
155°	2662	2644	2668	2681	2664	1227
165°	2805	2792	2799	2813	2799	792
175°	2869	2854	2859	2873	2852	273
180°	2863	2863	2863	2863	2863	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4034.3	4034.3	4034.3	4034.3	4034.3
2.5°	4057.6	4038.3	3995.5	4034.3	4026.8
5°	4034.3	4019.0	3976.2	4007.0	3999.7
7.5°	4007.0	3984.0	3941.2	3972.5	3964.7
10°	3964.7	3937.5	3891.0	3921.8	3910.3
12.5°	3906.3	3883.2	3836.7	3856.0	3848.2
15°	3840.4	3817.3	3766.7	3782.3	3763.0
17.5°	3758.9	3735.9	3685.2	3704.6	3685.2
20°	3669.6	3646.5	3592.2	3603.7	3588.5
22.5°	3580.7	3545.7	3495.0	3495.0	3487.2
25°	3475.7	3444.9	3379.0	3386.5	3379.0
27.5°	3359.2	3332.1	3281.8	3270.3	3251.0
30°	3243.2	3211.9	3153.8	3142.3	3126.7
32.5°	3118.9	3095.9	3033.7	3010.2	2994.6
35°	2998.7	2960.1	2897.8	2874.4	2855.1
37.5°	2862.9	2827.9	2765.8	2738.6	2719.2
40°	2723.4	2692.1	2630.0	2595.4	2579.7
42.5°	2587.6	2556.3	2494.5	2455.4	2432.4
45°	2440.2	2413.0	2354.6	2312.2	2296.6
47.5°	2296.6	2269.5	2207.2	2164.5	2141.4
50°	2145.1	2125.8	2071.4	2017.1	1997.8
52.5°	1997.8	1970.6	1920.4	1877.5	1850.4
55°	1846.7	1823.3	1776.8	1730.2	1710.9
57.5°	1695.3	1675.9	1625.3	1578.8	1563.1
60°	1543.8	1528.6	1474.2	1431.4	1419.9
62.5°	1396.5	1369.3	1330.6	1291.9	1276.3
65°	1245.4	1221.9	1183.3	1148.3	1129.0
67.5°	1090.2	1070.5	1035.9	1008.8	993.2
70°	946.6	930.9	896.0	868.8	853.6
72.5°	799.3	783.6	764.3	737.2	725.6
75°	651.5	644.1	624.3	601.3	609.2
77.5°	519.8	504.2	496.3	484.8	473.3
80°	388.1	384.0	376.2	364.7	356.8
82.5°	263.8	263.8	260.1	244.5	244.5
85°	158.9	155.1	151.5	139.5	135.8
87.5°	69.9	62.1	54.3	42.8	38.6
90°	2.0	24.9	41.3	51.9	55.8
92.5°	51.9	43.5	49.7	53.9	55.8
95°	134.6	66.2	80.7	91.2	89.1
97.5°	242.3	72.6	105.6	111.9	113.9
100°	366.7	82.9	118.1	134.6	138.7
102.5°	503.3	499.4	122.2	144.9	151.3
105°	629.7	692.0	126.4	149.1	157.4
107.5°	776.8	828.5	130.6	153.3	161.6
110°	917.8	961.1	362.6	155.4	163.6



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1050.4	1087.5	1052.3	159.4	165.8
115°	1191.1	1226.2	1278.2	319.1	169.9
117.5°	1313.3	1354.7	1390.1	1093.7	551.0
120°	1450.1	1481.1	1518.5	1543.3	1263.7
122.5°	1566.0	1599.2	1640.8	1653.0	1655.3
125°	1684.0	1711.1	1750.5	1765.0	1771.1
127.5°	1791.8	1820.8	1852.1	1872.7	1874.7
130°	1893.4	1926.7	1949.3	1972.1	1970.2
132.5°	1997.0	2024.0	2046.6	2065.4	2063.4
135°	2084.1	2117.2	2135.7	2156.6	2152.5
137.5°	2175.1	2199.9	2220.8	2241.5	2235.3
140°	2264.1	2280.9	2303.5	2322.1	2311.9
142.5°	2338.9	2353.4	2380.2	2396.7	2386.4
145°	2417.6	2415.4	2450.6	2465.1	2454.8
147.5°	2485.8	2479.6	2514.8	2525.2	2517.0
150°	2552.2	2537.7	2570.9	2583.1	2572.9
152.5°	2608.0	2591.5	2622.5	2635.1	2620.6
155°	2661.9	2643.5	2668.2	2680.6	2664.1
157.5°	2705.5	2689.0	2707.6	2722.2	2705.5
160°	2742.8	2730.3	2742.8	2755.1	2740.6
162.5°	2775.8	2763.4	2773.8	2788.3	2769.7
165°	2804.8	2792.5	2798.7	2813.2	2798.7
167.5°	2827.7	2815.2	2821.5	2836.0	2817.4
170°	2846.4	2833.8	2838.0	2852.5	2833.8
172.5°	2858.7	2846.4	2850.5	2865.0	2846.4
175°	2869.0	2854.5	2858.7	2873.2	2852.5
177.5°	2873.2	2858.7	2860.9	2875.4	2856.8
180°	2862.9	2862.9	2862.9	2862.9	2862.9



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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	13.01	13.92	13.92	14.85	16.05	12.56	13.47	13.48	14.40	15.60
	3H	14.67	15.48	15.59	16.42	17.65	14.18	14.99	15.10	15.93	17.16
	4H	15.26	16.03	16.19	16.97	18.20	14.76	15.53	15.70	16.48	17.71
	6H	15.65	16.36	16.60	17.32	18.56	15.15	15.86	16.10	16.82	18.06
	8H	15.76	16.43	16.72	17.40	18.65	15.26	15.93	16.21	16.90	18.14
	12H	15.81	16.45	16.77	17.41	18.68	15.30	15.94	16.26	16.90	18.17
4H	2H	13.47	14.24	14.42	15.19	16.42	13.12	13.89	14.06	14.83	16.06
	3H	15.34	15.98	16.29	16.96	18.20	14.93	15.57	15.88	16.55	17.79
	4H	16.05	16.64	17.01	17.61	18.88	15.63	16.21	16.59	17.18	18.45
	6H	16.56	17.07	17.54	18.06	19.33	16.13	16.64	17.11	17.63	18.90
	8H	16.71	17.18	17.69	18.17	19.45	16.27	16.75	17.25	17.73	19.02
	12H	16.78	17.21	17.78	18.22	19.50	16.34	16.76	17.33	17.77	19.05
8H	4H	16.25	16.72	17.22	17.71	18.99	15.87	16.34	16.85	17.33	18.61
	6H	16.87	17.26	17.88	18.29	19.57	16.49	16.88	17.49	17.91	19.19
	8H	17.09	17.44	18.10	18.45	19.75	16.70	17.04	17.71	18.06	19.36
	12H	17.22	17.52	18.24	18.54	19.88	16.81	17.11	17.83	18.12	19.47
12H	4H	16.23	16.66	17.23	17.66	18.95	15.86	16.29	16.86	17.30	18.58
	6H	16.90	17.25	17.91	18.26	19.56	16.53	16.87	17.54	17.89	19.19
	8H	17.14	17.45	18.16	18.46	19.80	16.76	17.07	17.78	18.08	19.42