

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: P906792

Luminaire Tested: DFN2DIP-SQ4F0-090D110US835-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P906792
REPORT IS A COMBINATION OF REPORTS P900155 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-090D110US835-FLLFLL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

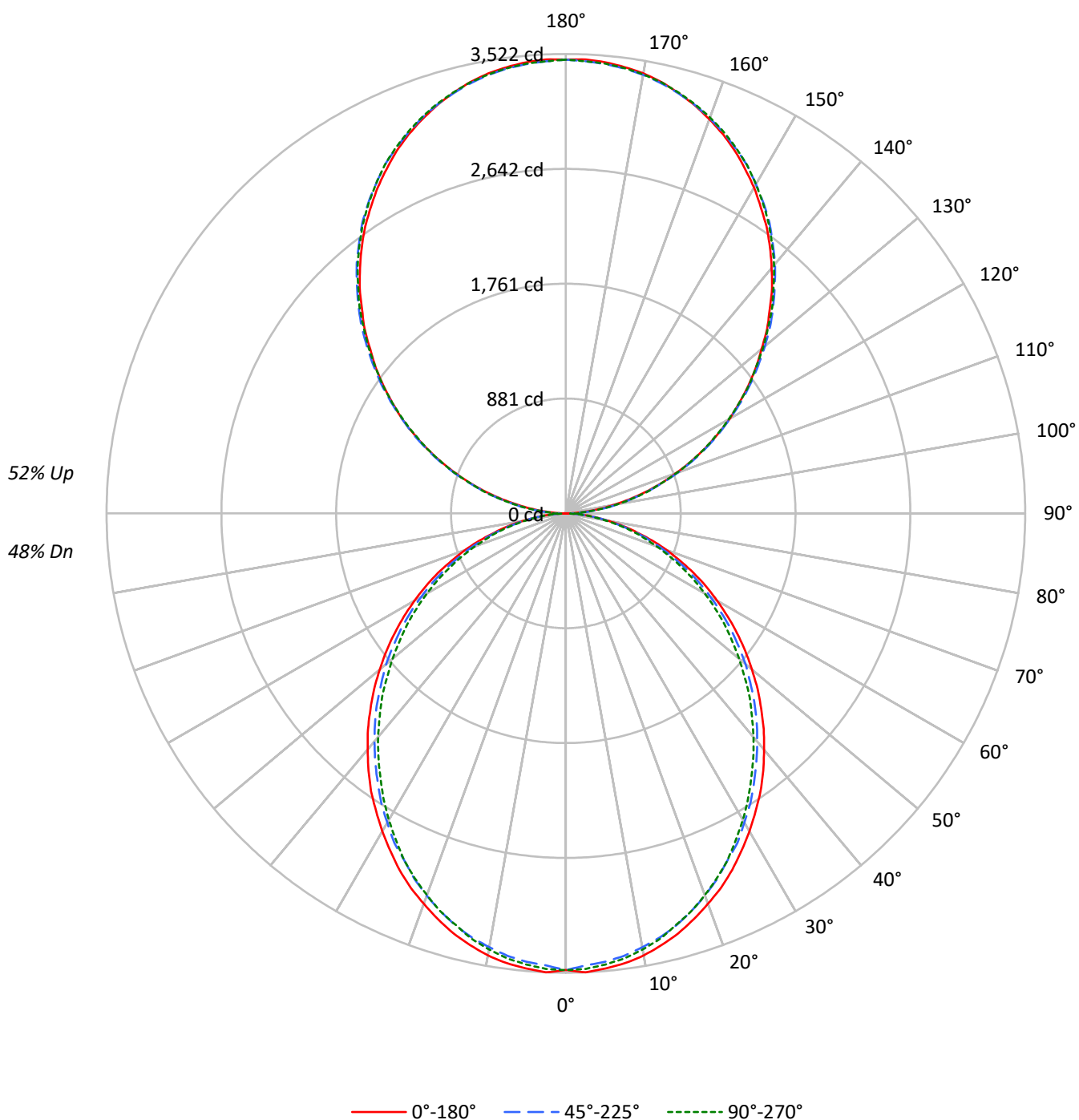
Lumens per Lamp: N/A
Luminaire Lumens: 18645.0 lumens
Efficiency: N/A
Efficacy: 112.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 165.5
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.983
Total Harmonic Distortion (THDi): 0.073
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	50	30	10
RCR																				
0	107	107	107	107	98	98	98	98	82	82	82	68	68	68	54	54	54	48	48	48
1	97	93	89	86	89	86	82	79	72	70	67	59	58	56	48	47	46	40	40	40
2	89	81	75	70	81	75	70	65	63	59	56	52	49	47	42	40	38	34	34	34
3	81	71	64	58	74	66	60	54	56	51	47	46	43	40	37	35	33	29	29	29
4	74	63	55	49	68	58	51	46	49	44	40	41	37	34	33	31	28	25	25	25
5	68	56	48	42	62	52	45	40	44	39	34	37	33	29	30	27	25	21	21	21
6	62	50	42	37	57	47	40	34	40	34	30	33	29	26	27	24	22	19	19	19
7	58	46	38	32	53	42	35	30	36	31	26	30	26	23	25	22	19	17	17	17
8	54	41	34	28	49	38	32	27	33	27	24	28	23	20	23	20	17	15	15	15
9	50	38	30	25	46	35	28	24	30	25	21	26	21	18	21	18	16	13	13	13
10	47	35	27	23	43	32	26	21	28	23	19	24	19	17	20	16	14	12	12	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2457	2457	2457
5°	2461	2424	2440
10°	2441	2391	2408
15°	2405	2352	2357
20°	2357	2298	2305
25°	2308	2233	2244
30°	2248	2173	2167
35°	2191	2102	2086
40°	2120	2030	2008
45°	2050	1958	1929
50°	1973	1882	1837
55°	1892	1794	1753
60°	1801	1690	1657
65°	1702	1583	1543
70°	1575	1452	1421
75°	1400	1295	1309
80°	1189	1095	1094
85°	859	749	735

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2737 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	329.6	1.8
10°-20°	927.4	5.0
20°-30°	1362.9	7.3
30°-40°	1582.9	8.5
40°-50°	1580.9	8.5
50°-60°	1378.5	7.4
60°-70°	1019.0	5.5
70°-80°	576.6	3.1
80°-90°	162.1	0.9
90°-100°	215.3	1.2
100°-110°	684.0	3.7
110°-120°	1170.5	6.3
120°-130°	1539.4	8.3
130°-140°	1727.9	9.3
140°-150°	1694.4	9.1
150°-160°	1421.4	7.6
160°-170°	942.6	5.1
170°-180°	329.5	1.8
0°-30°	2619.9	14.1
0°-40°	4202.8	22.5
0°-60°	7162.3	38.4
0°-90°	8919.9	47.8
90°-120°	2069.8	11.1
90°-150°	7031.6	37.7
90°-180°	9725.0	52.2
0°-180°	18645.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3502	3502	3502	3502	3502	
5°	3502	3489	3452	3478	3472	332
15°	3334	3314	3270	3283	3266	939
25°	3017	2990	2933	2940	2933	1388
35°	2603	2570	2516	2495	2478	1626
45°	2118	2095	2044	2007	1994	1635
55°	1603	1583	1542	1502	1485	1433
65°	1081	1061	1027	997	980	1069
75°	566	559	542	522	529	604
85°	138	135	132	121	118	154
90°	3	38	103	96	100	18
95°	153	182	188	188	182	170
105°	631	640	646	651	651	666
115°	1175	1191	1186	1183	1175	1162
125°	1708	1735	1726	1717	1714	1527
135°	2210	2242	2249	2246	2237	1708
145°	2683	2704	2721	2724	2712	1676
155°	3068	3076	3086	3100	3091	1412
165°	3337	3334	3334	3355	3340	941
175°	3473	3464	3458	3479	3461	330
180°	3479	3479	3479	3479	3479	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3501.9	3501.9	3501.9	3501.9	3501.9
2.5°	3522.3	3505.5	3468.4	3501.9	3495.5
5°	3501.9	3488.7	3451.6	3478.4	3471.9
7.5°	3478.4	3458.4	3421.2	3448.4	3441.6
10°	3441.6	3418.0	3377.6	3404.4	3394.4
12.5°	3390.8	3370.8	3330.5	3347.2	3340.5
15°	3333.7	3313.7	3269.7	3283.3	3266.5
17.5°	3262.9	3242.9	3199.0	3215.8	3199.0
20°	3185.4	3165.4	3118.2	3128.2	3115.0
22.5°	3108.2	3077.9	3033.9	3033.9	3027.1
25°	3017.1	2990.3	2933.2	2939.6	2933.2
27.5°	2916.0	2892.4	2848.9	2838.9	2822.1
30°	2815.3	2788.1	2737.7	2727.7	2714.2
32.5°	2707.4	2687.4	2633.4	2613.1	2599.5
35°	2603.1	2569.5	2515.5	2495.2	2478.4
37.5°	2485.2	2454.8	2400.8	2377.3	2360.5
40°	2364.0	2336.9	2282.9	2252.9	2239.4
42.5°	2246.1	2219.0	2165.4	2131.5	2111.5
45°	2118.2	2094.7	2043.9	2007.1	1993.6
47.5°	1993.6	1970.0	1916.0	1878.9	1858.9
50°	1862.1	1845.3	1798.1	1751.0	1734.2
52.5°	1734.2	1710.6	1667.0	1629.9	1606.3
55°	1603.1	1582.7	1542.3	1502.0	1485.2
57.5°	1471.6	1454.8	1410.9	1370.5	1356.9
60°	1340.1	1326.9	1279.7	1242.6	1232.6
62.5°	1212.2	1188.6	1155.0	1121.5	1107.9
65°	1081.1	1060.7	1027.1	996.8	980.0
67.5°	946.4	929.3	899.2	875.7	862.1
70°	821.7	808.1	777.8	754.2	741.0
72.5°	693.8	680.2	663.4	639.9	629.9
75°	565.6	559.1	542.0	522.0	528.8
77.5°	451.2	437.7	430.9	420.9	410.9
80°	336.9	333.3	326.5	316.5	309.8
82.5°	229.0	229.0	225.8	212.2	212.2
85°	137.9	134.7	131.5	121.1	117.9
87.5°	60.7	53.9	47.2	37.2	33.6
90°	3.1	37.8	102.8	96.5	99.6
92.5°	65.0	88.1	91.2	94.4	94.4
95°	153.1	182.5	187.7	187.7	182.5
97.5°	254.9	282.1	293.7	293.7	293.7
100°	372.3	396.4	404.8	404.8	401.7
102.5°	496.1	513.9	525.5	528.6	525.5
105°	631.4	639.8	646.1	651.3	651.3
107.5°	765.6	778.2	778.2	780.3	765.6
110°	895.7	912.5	912.5	912.5	904.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1036.2	1054.0	1050.9	1042.5	1036.2
115°	1174.7	1191.4	1186.2	1183.1	1174.7
117.5°	1312.1	1335.1	1320.4	1312.1	1303.7
120°	1450.5	1473.6	1450.5	1450.5	1441.1
122.5°	1576.4	1605.7	1591.0	1582.6	1576.4
125°	1708.5	1734.7	1726.3	1716.9	1713.7
127.5°	1837.5	1870.0	1858.5	1845.9	1837.5
130°	1958.1	1995.9	1990.6	1984.3	1972.8
132.5°	2093.4	2122.8	2124.9	2110.2	2101.8
135°	2209.8	2242.3	2248.6	2245.5	2237.1
137.5°	2339.9	2366.1	2371.3	2369.2	2356.7
140°	2454.2	2480.4	2495.1	2495.1	2483.6
142.5°	2571.7	2597.9	2606.3	2609.4	2597.9
145°	2682.8	2703.8	2720.6	2723.7	2712.2
147.5°	2782.5	2808.7	2821.3	2826.5	2815.0
150°	2885.3	2903.1	2914.6	2924.1	2914.6
152.5°	2976.5	2994.3	3009.0	3020.6	3009.0
155°	3067.8	3076.1	3085.6	3100.3	3090.8
157.5°	3146.4	3152.7	3157.9	3178.9	3164.2
160°	3216.7	3223.0	3226.1	3244.0	3231.4
162.5°	3281.7	3281.7	3284.9	3304.8	3290.1
165°	3337.3	3334.1	3334.1	3355.1	3340.4
167.5°	3387.6	3378.2	3378.2	3399.2	3384.5
170°	3425.4	3417.0	3413.9	3434.8	3417.0
172.5°	3451.6	3443.2	3440.1	3461.1	3443.2
175°	3472.6	3464.2	3457.9	3478.9	3461.1
177.5°	3484.1	3475.7	3469.4	3487.3	3469.4
180°	3478.9	3478.9	3478.9	3478.9	3478.9

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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	10.20	11.05	11.18	12.03	13.34	9.76	10.60	10.73	11.59	12.89
	3H	11.87	12.62	12.85	13.62	14.94	11.38	12.13	12.36	13.13	14.45
	4H	12.46	13.17	13.46	14.17	15.50	11.96	12.68	12.96	13.68	15.01
	6H	12.86	13.52	13.87	14.52	15.87	12.36	13.02	13.37	14.02	15.37
	8H	12.96	13.59	13.98	14.61	15.96	12.46	13.09	13.48	14.11	15.45
	12H	13.01	13.61	14.04	14.63	15.99	12.50	13.10	13.53	14.12	15.48
4H	2H	10.66	11.38	11.67	12.38	13.71	10.31	11.02	11.31	12.02	13.36
	3H	12.53	13.13	13.55	14.16	15.50	12.12	12.72	13.14	13.75	15.10
	4H	13.25	13.79	14.27	14.82	16.19	12.82	13.37	13.85	14.39	15.76
	6H	13.77	14.24	14.80	15.28	16.65	13.33	13.80	14.37	14.85	16.22
	8H	13.92	14.36	14.95	15.40	16.78	13.48	13.92	14.51	14.96	16.34
	12H	13.99	14.39	15.04	15.44	16.83	13.54	13.94	14.60	14.99	16.38
8H	4H	13.44	13.88	14.48	14.92	16.30	13.07	13.51	14.10	14.55	15.92
	6H	14.08	14.44	15.14	15.52	16.90	13.70	14.06	14.75	15.14	16.52
	8H	14.30	14.62	15.37	15.69	17.08	13.91	14.23	14.98	15.29	16.69
	12H	14.44	14.72	15.51	15.78	17.22	14.03	14.31	15.09	15.37	16.80
12H	4H	13.43	13.83	14.48	14.88	16.26	13.06	13.46	14.11	14.51	15.90
	6H	14.11	14.43	15.17	15.49	16.89	13.74	14.06	14.80	15.12	16.52
	8H	14.35	14.63	15.42	15.69	17.13	13.97	14.25	15.04	15.31	16.75

END OF REPORT