

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: P926576

Luminaire Tested: DFN2DIP-TR4F0-090D110US950-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P926576
REPORT IS A COMBINATION OF REPORTS P900506 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-090D110US950-RLLFLL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

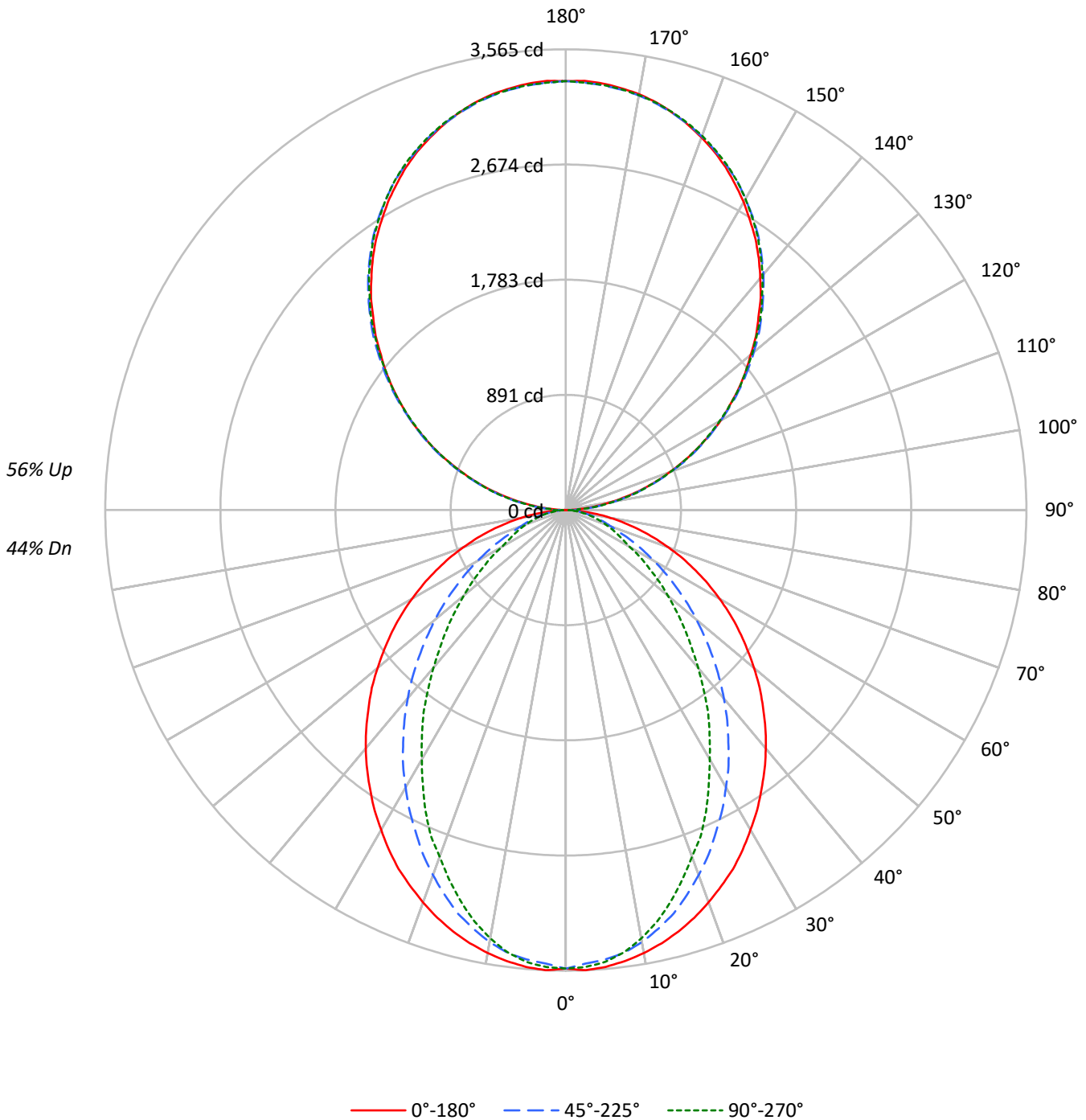
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 16585.3 lumens
Efficiency: N/A
Efficacy: 96.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 172.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.099
Total Harmonic Distortion (THDi): 0.979
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				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	106	106	106	106	97	97	97	97	80	80	80	65	65	65	51	51	51	44	44	44	44
1	97	93	89	86	89	85	82	79	71	69	67	58	56	55	45	44	44	38	38	38	38
2	89	81	76	71	81	75	70	66	62	59	56	51	49	46	40	39	37	32	32	32	32
3	81	72	65	59	74	66	60	55	55	51	47	45	42	40	36	34	32	28	28	28	28
4	74	64	56	51	68	59	52	47	50	45	41	41	37	34	33	30	28	24	24	24	24
5	68	57	49	44	62	53	46	41	45	39	35	37	33	30	30	27	25	21	21	21	21
6	63	51	44	38	58	48	41	36	40	35	31	33	29	26	27	24	22	19	19	19	19
7	58	46	39	33	53	43	36	31	37	31	27	30	27	24	25	22	20	17	17	17	17
8	54	42	35	30	50	39	33	28	33	28	24	28	24	21	23	20	18	15	15	15	15
9	51	39	31	26	46	36	29	25	31	26	22	26	22	19	21	18	16	14	14	14	14
10	47	35	28	24	43	33	27	22	28	23	20	24	20	17	20	17	15	13	13	13	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2819	2819	2819
5°	2824	2774	2792
10°	2796	2720	2701
15°	2757	2630	2561
20°	2706	2506	2388
25°	2654	2367	2222
30°	2584	2225	2010
35°	2516	2071	1825
40°	2446	1913	1612
45°	2365	1737	1420
50°	2281	1560	1231
55°	2194	1370	1051
60°	2092	1172	865
65°	1976	970	778
70°	1835	782	704
75°	1657	689	640
80°	1400	578	555
85°	975	386	417

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 2586 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	332.6	2.0
10°-20°	913.0	5.5
20°-30°	1281.8	7.7
30°-40°	1397.3	8.4
40°-50°	1284.2	7.7
50°-60°	1008.6	6.1
60°-70°	656.5	4.0
70°-80°	337.9	2.0
80°-90°	95.7	0.6
90°-100°	205.4	1.2
100°-110°	652.5	3.9
110°-120°	1116.7	6.7
120°-130°	1468.6	8.9
130°-140°	1648.4	9.9
140°-150°	1616.5	9.7
150°-160°	1356.0	8.2
160°-170°	899.3	5.4
170°-180°	314.3	1.9
0°-30°	2527.4	15.2
0°-40°	3924.6	23.7
0°-60°	6217.4	37.5
0°-90°	7307.6	44.1
90°-120°	1974.6	11.9
90°-150°	6708.2	40.4
90°-180°	9278.0	55.9
0°-180°	16585.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3549	3549	3549	3549	3549	
5°	3549	3533	3491	3520	3510	336
15°	3375	3340	3231	3170	3138	951
25°	3064	2961	2749	2617	2569	1409
35°	2640	2476	2194	1991	1920	1652
45°	2158	1943	1606	1378	1300	1667
55°	1641	1390	1044	851	790	1466
65°	1108	848	559	450	440	1099
75°	591	366	257	234	231	625
85°	138	70	61	61	61	158
90°	3	36	98	92	95	16
95°	146	174	179	179	174	163
105°	602	610	616	621	621	636
115°	1121	1137	1132	1129	1121	1108
125°	1630	1655	1647	1638	1635	1457
135°	2108	2139	2145	2142	2134	1630
145°	2559	2579	2596	2598	2587	1599
155°	2927	2935	2944	2958	2949	1347
165°	3184	3181	3181	3201	3187	898
175°	3313	3305	3299	3319	3302	315
180°	3319	3319	3319	3319	3319	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3548.6	3548.6	3548.6	3548.6	3548.6
2.5°	3564.6	3548.6	3513.1	3545.5	3539.1
5°	3548.6	3532.6	3490.7	3519.6	3510.1
7.5°	3519.6	3500.5	3455.6	3468.2	3452.1
10°	3481.1	3458.6	3394.6	3384.7	3365.6
12.5°	3433.1	3404.2	3317.2	3298.2	3262.7
15°	3375.2	3339.8	3230.7	3169.7	3137.7
17.5°	3307.7	3256.3	3121.3	3050.8	2999.4
20°	3230.7	3166.3	3005.8	2925.7	2854.8
22.5°	3147.2	3073.3	2886.9	2777.9	2729.9
25°	3063.8	2960.8	2749.0	2617.4	2569.0
27.5°	2964.3	2854.8	2620.4	2469.5	2395.6
30°	2858.3	2736.0	2479.1	2315.5	2228.6
32.5°	2755.3	2607.5	2344.5	2151.7	2071.2
35°	2639.9	2476.0	2193.5	1991.2	1920.3
37.5°	2527.4	2350.7	2052.1	1830.3	1750.3
40°	2408.6	2216.0	1904.3	1676.4	1592.9
42.5°	2286.5	2081.2	1756.7	1519.0	1438.8
45°	2158.1	1942.8	1605.8	1377.5	1300.5
47.5°	2036.1	1808.2	1461.3	1233.0	1162.5
50°	1901.2	1673.2	1320.0	1098.1	1031.0
52.5°	1769.4	1528.5	1185.1	973.1	912.1
55°	1640.9	1390.5	1043.6	851.2	790.1
57.5°	1509.4	1252.5	918.6	738.7	687.3
60°	1374.4	1117.5	786.8	623.2	571.7
62.5°	1243.0	986.1	674.3	520.3	494.7
65°	1108.0	847.7	558.8	449.7	439.9
67.5°	979.6	719.2	449.7	394.9	385.3
70°	844.7	594.2	372.4	340.4	327.4
72.5°	716.2	478.3	311.4	285.8	279.4
75°	590.8	366.0	256.9	234.4	231.3
77.5°	465.7	260.0	202.3	189.5	183.0
80°	349.9	186.4	154.0	141.4	141.4
82.5°	243.9	125.4	106.0	99.5	99.5
85°	137.9	70.5	61.0	61.0	61.0
87.5°	51.4	25.6	25.6	22.5	22.5
90°	3.0	36.1	98.1	92.1	95.0
92.5°	62.0	84.0	87.0	90.1	90.1
95°	146.1	174.1	179.1	179.1	174.1
97.5°	243.2	269.1	280.2	280.2	280.2
100°	355.2	378.2	386.2	386.2	383.2
102.5°	473.3	490.3	501.3	504.3	501.3
105°	602.4	610.4	616.4	621.3	621.3
107.5°	730.4	742.4	742.4	744.4	730.4
110°	854.5	870.5	870.5	870.5	862.5



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	988.5	1005.5	1002.6	994.5	988.5
115°	1120.7	1136.6	1131.6	1128.7	1120.7
117.5°	1251.7	1273.7	1259.7	1251.7	1243.7
120°	1383.8	1405.8	1383.8	1383.8	1374.8
122.5°	1503.9	1531.8	1517.8	1509.8	1503.9
125°	1629.9	1654.9	1646.9	1637.9	1634.9
127.5°	1753.0	1784.0	1773.0	1761.0	1753.0
130°	1868.0	1904.1	1899.0	1893.0	1882.1
132.5°	1997.1	2025.2	2027.2	2013.1	2005.1
135°	2108.1	2139.2	2145.2	2142.2	2134.2
137.5°	2232.3	2257.3	2262.2	2260.2	2248.3
140°	2341.3	2366.3	2380.3	2380.3	2369.4
142.5°	2453.4	2478.4	2486.4	2489.4	2478.4
145°	2559.4	2579.4	2595.5	2598.4	2587.4
147.5°	2654.5	2679.5	2691.5	2696.5	2685.5
150°	2752.6	2769.6	2780.5	2789.6	2780.5
152.5°	2839.6	2856.6	2870.6	2881.7	2870.6
155°	2926.7	2934.6	2943.7	2957.7	2948.6
157.5°	3001.7	3007.7	3012.6	3032.7	3018.6
160°	3068.7	3074.7	3077.7	3094.8	3082.8
162.5°	3130.7	3130.7	3133.8	3152.8	3138.8
165°	3183.8	3180.7	3180.7	3200.8	3186.7
167.5°	3231.8	3222.8	3222.8	3242.8	3228.8
170°	3267.8	3259.8	3256.9	3276.8	3259.8
172.5°	3292.8	3284.8	3281.9	3301.9	3284.8
175°	3312.9	3304.8	3298.8	3318.9	3301.9
177.5°	3323.8	3315.8	3309.8	3326.9	3309.8
180°	3318.9	3318.9	3318.9	3318.9	3318.9



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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	10.16	10.94	11.17	11.96	13.32	6.13	6.92	7.15	7.94	9.29
	3H	11.83	12.53	12.86	13.56	14.94	7.32	8.02	8.34	9.05	10.42
	4H	12.44	13.10	13.48	14.13	15.52	7.77	8.43	8.80	9.46	10.85
	6H	12.86	13.47	13.90	14.50	15.90	8.09	8.70	9.13	9.73	11.13
	8H	12.98	13.56	14.03	14.61	16.01	8.18	8.76	9.23	9.81	11.20
	12H	13.04	13.60	14.10	14.64	16.05	8.22	8.77	9.28	9.82	11.23
4H	2H	10.17	10.84	11.21	11.87	13.25	6.72	7.39	7.77	8.42	9.80
	3H	12.00	12.55	13.05	13.61	15.00	8.07	8.62	9.12	9.68	11.08
	4H	12.69	13.19	13.74	14.24	15.66	8.62	9.12	9.67	10.17	11.59
	6H	13.20	13.63	14.27	14.71	16.12	9.03	9.47	10.10	10.54	11.95
	8H	13.37	13.78	14.44	14.84	16.27	9.16	9.57	10.23	10.63	12.06
	12H	13.47	13.83	14.55	14.91	16.35	9.23	9.59	10.31	10.67	12.11
8H	4H	12.65	13.06	13.72	14.12	15.55	8.89	9.30	9.96	10.36	11.79
	6H	13.22	13.55	14.30	14.66	16.08	9.41	9.74	10.50	10.85	12.28
	8H	13.43	13.73	14.53	14.82	16.26	9.60	9.90	10.70	10.99	12.43
	12H	13.57	13.83	14.67	14.91	16.40	9.72	9.98	10.82	11.06	12.55
12H	4H	12.60	12.97	13.69	14.05	15.48	8.90	9.26	9.98	10.34	11.77
	6H	13.19	13.48	14.29	14.57	16.02	9.46	9.75	10.56	10.84	12.29
	8H	13.41	13.67	14.51	14.75	16.24	9.67	9.93	10.77	11.01	12.50