

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: P910276

Luminaire Tested: DFN2DIP-TR4F0-110D100US840-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910276
REPORT IS A COMBINATION OF REPORTS P900492 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-110D100US840-RLLFLL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

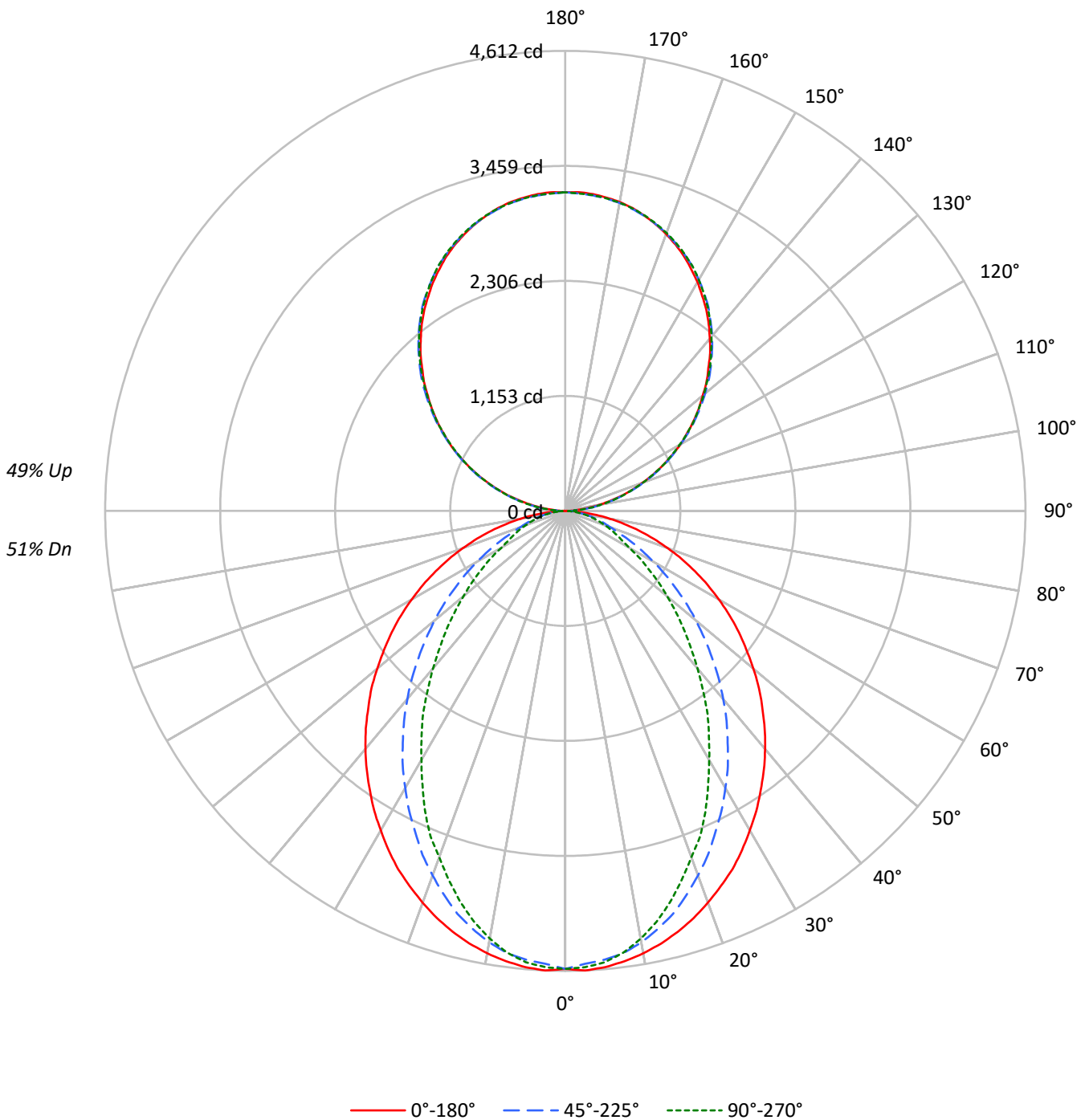
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 18379.6 lumens
Efficiency: N/A
Efficacy: 97.2 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): 189
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9613
Total Harmonic Distortion (THDi): 0.083
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	107	107	107	107	99	99	99	99	84	84	84	70	70	70	57	57	57	57	57	57	51
1	99	94	91	87	91	87	84	81	74	72	70	63	61	59	52	50	49	52	50	49	44
2	90	83	77	72	83	77	72	68	66	62	59	56	53	50	46	44	42	46	44	42	38
3	83	73	66	61	76	68	62	57	59	54	50	50	46	43	41	39	37	41	39	37	33
4	76	65	58	52	70	61	54	49	52	47	43	44	41	37	37	34	32	37	34	32	28
5	70	58	51	45	64	55	48	42	47	42	38	40	36	33	34	31	28	34	31	28	25
6	64	53	45	39	59	49	42	37	43	37	33	36	32	29	31	28	25	31	28	25	22
7	60	48	40	34	55	45	38	33	39	33	29	33	29	26	28	25	23	28	25	23	20
8	55	43	36	31	51	41	34	29	36	30	26	31	26	23	26	23	20	26	23	20	18
9	52	40	32	27	48	37	31	26	33	27	24	28	24	21	24	21	18	24	21	18	16
10	48	37	29	25	45	34	28	24	30	25	21	26	22	19	22	19	17	22	19	17	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3647	3647	3647
5°	3653	3589	3612
10°	3617	3519	3495
15°	3567	3403	3313
20°	3501	3242	3090
25°	3434	3062	2874
30°	3343	2878	2601
35°	3255	2680	2361
40°	3164	2475	2086
45°	3060	2248	1837
50°	2951	2018	1593
55°	2838	1773	1359
60°	2707	1516	1119
65°	2556	1255	1007
70°	2373	1012	911
75°	2144	892	828
80°	1811	748	718
85°	1262	499	539

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 3060 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	430.3	2.3
10°-20°	1181.2	6.4
20°-30°	1658.4	9.0
30°-40°	1807.8	9.8
40°-50°	1661.5	9.0
50°-60°	1304.9	7.1
60°-70°	849.4	4.6
70°-80°	437.2	2.4
80°-90°	120.7	0.7
90°-100°	197.6	1.1
100°-110°	627.9	3.4
110°-120°	1074.6	5.8
120°-130°	1413.3	7.7
130°-140°	1586.4	8.6
140°-150°	1555.6	8.5
150°-160°	1304.9	7.1
160°-170°	865.4	4.7
170°-180°	302.5	1.6
0°-30°	3269.9	17.8
0°-40°	5077.7	27.6
0°-60°	8044.1	43.8
0°-90°	9451.3	51.4
90°-120°	1900.2	10.3
90°-150°	6455.4	35.1
90°-180°	8928.0	48.6
0°-180°	18379.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4591	4591	4591	4591	4591	
5°	4591	4570	4516	4554	4541	435
15°	4367	4321	4180	4101	4060	1231
25°	3964	3831	3556	3386	3324	1823
35°	3416	3203	2838	2576	2484	2138
45°	2792	2514	2078	1782	1683	2156
55°	2123	1799	1350	1101	1022	1897
65°	1434	1097	723	582	569	1421
75°	764	473	332	303	299	808
85°	178	91	79	79	79	205
90°	3	35	94	89	92	18
95°	141	168	172	172	168	156
105°	580	587	593	598	598	612
115°	1078	1094	1089	1086	1078	1067
125°	1568	1593	1585	1576	1573	1402
135°	2029	2059	2064	2062	2054	1568
145°	2463	2482	2498	2500	2490	1539
155°	2816	2824	2833	2846	2838	1296
165°	3064	3061	3061	3080	3067	864
175°	3188	3180	3175	3194	3177	303
180°	3194	3194	3194	3194	3194	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4591.2	4591.2	4591.2	4591.2	4591.2
2.5°	4611.9	4591.2	4545.3	4587.2	4578.8
5°	4591.2	4570.4	4516.2	4553.7	4541.4
7.5°	4553.7	4528.9	4470.8	4487.1	4466.3
10°	4503.9	4474.7	4391.9	4379.1	4354.4
12.5°	4441.7	4404.2	4291.8	4267.1	4221.2
15°	4366.8	4320.9	4179.8	4101.0	4059.5
17.5°	4279.5	4213.0	4038.4	3947.1	3880.5
20°	4179.8	4096.5	3888.9	3785.3	3693.6
22.5°	4071.9	3976.1	3735.1	3594.0	3531.8
25°	3963.8	3830.7	3556.5	3386.4	3323.8
27.5°	3835.2	3693.6	3390.3	3195.0	3099.4
30°	3698.0	3539.8	3207.4	2995.8	2883.4
32.5°	3564.9	3373.6	3033.2	2783.8	2679.8
35°	3415.5	3203.4	2838.0	2576.2	2484.5
37.5°	3270.0	3041.2	2655.0	2368.0	2264.5
40°	3116.1	2867.1	2463.8	2168.8	2060.8
42.5°	2958.3	2692.5	2272.9	1965.2	1861.6
45°	2792.2	2513.6	2077.6	1782.2	1682.6
47.5°	2634.3	2339.5	1890.7	1595.3	1504.1
50°	2459.7	2164.8	1707.8	1420.8	1333.9
52.5°	2289.2	1977.5	1533.2	1259.0	1180.0
55°	2122.9	1799.0	1350.2	1101.2	1022.3
57.5°	1952.9	1620.4	1188.4	955.7	889.1
60°	1778.3	1445.9	1017.8	806.3	739.7
62.5°	1608.1	1275.8	872.4	673.2	640.1
65°	1433.5	1096.7	723.0	581.9	569.1
67.5°	1267.4	930.6	581.9	510.9	498.6
70°	1092.8	768.8	481.8	440.4	423.6
72.5°	926.6	618.9	402.9	369.8	361.4
75°	764.4	473.4	332.3	303.3	299.3
77.5°	602.6	336.4	261.9	245.1	236.7
80°	452.7	241.2	199.2	183.0	183.0
82.5°	315.6	162.2	137.1	128.8	128.8
85°	178.5	91.3	78.9	78.9	78.9
87.5°	66.6	33.0	33.0	29.1	29.1
90°	2.9	34.6	94.3	88.6	91.5
92.5°	59.7	80.9	83.8	86.6	86.6
95°	140.6	167.5	172.4	172.4	167.5
97.5°	234.0	259.0	269.6	269.6	269.6
100°	341.8	364.0	371.6	371.6	368.8
102.5°	455.4	471.8	482.4	485.2	482.4
105°	579.7	587.3	593.1	597.9	597.9
107.5°	702.9	714.5	714.5	716.4	702.9
110°	822.3	837.7	837.7	837.7	830.0



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	951.3	967.7	964.8	957.0	951.3
115°	1078.4	1093.8	1089.0	1086.1	1078.4
117.5°	1204.6	1225.8	1212.2	1204.6	1196.8
120°	1331.6	1352.8	1331.6	1331.6	1323.0
122.5°	1447.1	1474.1	1460.7	1453.0	1447.1
125°	1568.5	1592.6	1584.9	1576.2	1573.4
127.5°	1687.0	1716.8	1706.2	1694.7	1687.0
130°	1797.7	1832.3	1827.6	1821.7	1811.2
132.5°	1921.9	1948.8	1950.8	1937.3	1929.6
135°	2028.7	2058.6	2064.4	2061.5	2053.8
137.5°	2148.2	2172.2	2177.1	2175.1	2163.5
140°	2253.1	2277.1	2290.7	2290.7	2280.1
142.5°	2361.0	2385.0	2392.7	2395.6	2385.0
145°	2463.0	2482.2	2497.7	2500.5	2489.9
147.5°	2554.5	2578.6	2590.1	2595.0	2584.3
150°	2648.9	2665.2	2675.8	2684.4	2675.8
152.5°	2732.6	2749.0	2762.5	2773.1	2762.5
155°	2816.4	2824.1	2832.8	2846.2	2837.5
157.5°	2888.6	2894.4	2899.2	2918.4	2905.0
160°	2953.1	2958.9	2961.7	2978.1	2966.6
162.5°	3012.8	3012.8	3015.7	3033.9	3020.5
165°	3063.8	3060.9	3060.9	3080.2	3066.8
167.5°	3110.1	3101.4	3101.4	3120.7	3107.2
170°	3144.7	3137.0	3134.1	3153.4	3137.0
172.5°	3168.8	3161.1	3158.2	3177.4	3161.1
175°	3188.0	3180.4	3174.6	3193.8	3177.4
177.5°	3198.6	3191.0	3185.1	3201.5	3185.1
180°	3193.8	3193.8	3193.8	3193.8	3193.8



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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	11.77	12.61	12.72	13.57	14.83	7.74	8.58	8.69	9.55	10.80
	3H	13.45	14.20	14.41	15.17	16.45	8.93	9.69	9.90	10.66	11.93
	4H	14.06	14.77	15.03	15.74	17.03	9.38	10.10	10.36	11.07	12.36
	6H	14.48	15.13	15.47	16.11	17.41	9.71	10.36	10.69	11.34	12.64
	8H	14.60	15.23	15.60	16.23	17.52	9.80	10.42	10.79	11.42	12.71
	12H	14.67	15.26	15.67	16.25	17.57	9.84	10.43	10.84	11.43	12.75
4H	2H	11.79	12.50	12.77	13.48	14.76	8.34	9.05	9.32	10.03	11.31
	3H	13.62	14.21	14.61	15.22	16.51	9.69	10.28	10.68	11.29	12.59
	4H	14.31	14.85	15.31	15.85	17.17	10.24	10.78	11.24	11.78	13.10
	6H	14.83	15.29	15.84	16.31	17.63	10.66	11.13	11.67	12.15	13.47
	8H	15.00	15.44	16.01	16.45	17.78	10.79	11.22	11.80	12.24	13.57
	12H	15.10	15.49	16.13	16.52	17.86	10.86	11.25	11.89	12.28	13.62
8H	4H	14.28	14.71	15.29	15.73	17.06	10.52	10.95	11.53	11.97	13.30
	6H	14.85	15.20	15.88	16.26	17.59	11.04	11.40	12.08	12.46	13.79
	8H	15.06	15.38	16.11	16.42	17.77	11.23	11.55	12.28	12.59	13.94
	12H	15.20	15.48	16.25	16.52	17.91	11.35	11.63	12.40	12.67	14.06
12H	4H	14.23	14.62	15.26	15.65	16.99	10.53	10.92	11.56	11.95	13.29
	6H	14.82	15.14	15.87	16.18	17.53	11.09	11.41	12.14	12.45	13.80
	8H	15.04	15.32	16.09	16.36	17.75	11.30	11.58	12.35	12.62	14.01