

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: P909602

Luminaire Tested: DFN2DIP-SQ4F0-110D140US840-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P909602
REPORT IS A COMBINATION OF REPORTS P900196 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-110D140US840-RLLFLL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

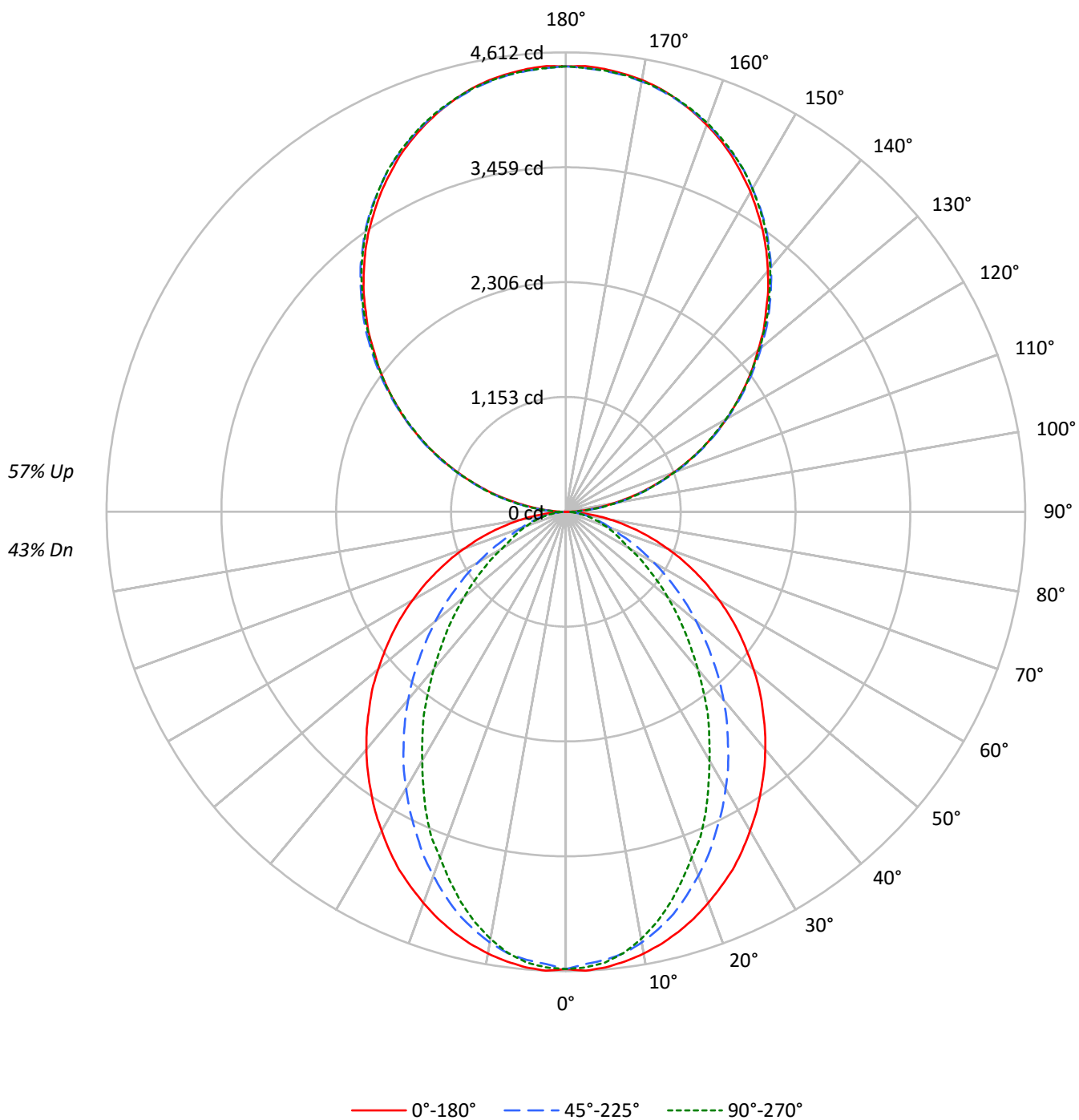
Lumens per Lamp: N/A
Luminaire Lumens: 21954.5 lumens
Efficiency: N/A
Efficacy: 104.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 210.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9951
Total Harmonic Distortion (THDi): 0.07
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	105	105	105	105	96	96	96	96	79	79	79	64	64	64	50	50	50
1	97	93	89	85	88	85	82	79	70	68	66	57	55	54	45	44	43
2	88	81	75	70	81	75	70	65	62	58	55	50	48	46	40	38	37
3	81	72	65	59	74	66	60	55	55	51	47	45	42	39	36	33	32
4	74	64	56	50	68	59	52	47	49	44	40	40	37	34	32	30	28
5	68	57	49	43	62	53	46	41	44	39	35	36	33	30	29	26	24
6	63	51	43	38	57	47	40	35	40	35	31	33	29	26	27	24	22
7	58	46	39	33	53	43	36	31	36	31	27	30	26	23	24	22	19
8	54	42	35	29	49	39	32	28	33	28	24	28	24	21	22	20	17
9	50	38	31	26	46	36	29	25	30	25	22	25	22	19	21	18	16
10	47	35	28	24	43	33	27	22	28	23	20	24	20	17	19	17	14

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3222	3222	3222
5°	3227	3171	3192
10°	3195	3109	3089
15°	3151	3007	2929
20°	3092	2866	2733
25°	3033	2708	2543
30°	2953	2546	2302
35°	2874	2371	2091
40°	2794	2190	1848
45°	2702	1990	1628
50°	2606	1787	1413
55°	2506	1571	1207
60°	2390	1344	994
65°	2257	1114	896
70°	2095	899	812
75°	1892	794	741
80°	1598	668	646
85°	1112	450	492

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 3520 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	430.3	2.0
10°-20°	1181.2	5.4
20°-30°	1658.4	7.6
30°-40°	1807.8	8.2
40°-50°	1661.5	7.6
50°-60°	1304.9	5.9
60°-70°	849.4	3.9
70°-80°	437.2	2.0
80°-90°	124.3	0.6
90°-100°	276.7	1.3
100°-110°	879.1	4.0
110°-120°	1504.5	6.9
120°-130°	1978.6	9.0
130°-140°	2220.9	10.1
140°-150°	2177.8	9.9
150°-160°	1826.9	8.3
160°-170°	1211.6	5.5
170°-180°	423.5	1.9
0°-30°	3269.9	14.9
0°-40°	5077.7	23.1
0°-60°	8044.1	36.6
0°-90°	9455.0	43.1
90°-120°	2660.3	12.1
90°-150°	9037.6	41.2
90°-180°	12500.0	56.9
0°-180°	21954.5	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°	4	49	132	124	128	22
95°	197	235	241	241	235	219
105°	812	822	830	837	837	856
115°	1510	1531	1525	1521	1510	1493
125°	2196	2230	2219	2207	2203	1962
135°	2840	2882	2890	2886	2875	2195
145°	3448	3475	3497	3501	3486	2154
155°	3943	3954	3966	3985	3973	1815
165°	4289	4285	4285	4312	4293	1210
175°	4463	4452	4444	4471	4448	424
180°	4471	4471	4471	4471	4471	

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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°	4.0	48.6	132.1	124.0	128.1
92.5°	83.6	113.2	117.2	121.3	121.3
95°	196.8	234.6	241.3	241.3	234.6
97.5°	327.6	362.6	377.5	377.5	377.5
100°	478.6	509.6	520.3	520.3	516.2
102.5°	637.6	660.6	675.4	679.4	675.4
105°	811.5	822.3	830.4	837.1	837.1
107.5°	984.0	1000.3	1000.3	1002.9	984.0
110°	1151.2	1172.8	1172.8	1172.8	1162.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1331.8	1354.7	1350.7	1339.9	1331.8
115°	1509.7	1531.4	1524.6	1520.6	1509.7
117.5°	1686.4	1716.1	1697.2	1686.4	1675.6
120°	1864.3	1894.0	1864.3	1864.3	1852.2
122.5°	2026.1	2063.8	2045.0	2034.2	2026.1
125°	2196.0	2229.6	2218.8	2206.7	2202.6
127.5°	2361.7	2403.5	2388.6	2372.5	2361.7
130°	2516.7	2565.3	2558.5	2550.4	2535.6
132.5°	2690.6	2728.4	2731.1	2712.2	2701.4
135°	2840.2	2882.1	2890.1	2886.1	2875.3
137.5°	3007.4	3041.1	3047.9	3045.1	3029.0
140°	3154.3	3188.0	3206.9	3206.9	3192.1
142.5°	3305.3	3339.0	3349.8	3353.9	3339.0
145°	3448.2	3475.1	3496.8	3500.8	3486.0
147.5°	3576.2	3610.0	3626.1	3632.9	3618.0
150°	3708.3	3731.3	3746.1	3758.2	3746.1
152.5°	3825.7	3848.6	3867.5	3882.2	3867.5
155°	3942.9	3953.7	3965.8	3984.7	3972.6
157.5°	4044.0	4052.1	4058.9	4085.8	4066.9
160°	4134.4	4142.5	4146.5	4169.4	4153.2
162.5°	4217.9	4217.9	4221.9	4247.6	4228.7
165°	4289.4	4285.4	4285.4	4312.3	4293.4
167.5°	4354.0	4341.9	4341.9	4368.9	4350.0
170°	4402.6	4391.8	4387.8	4414.7	4391.8
172.5°	4436.3	4425.5	4421.5	4448.5	4425.5
175°	4463.3	4452.5	4444.4	4471.4	4448.5
177.5°	4478.0	4467.3	4459.3	4482.1	4459.3
180°	4471.4	4471.4	4471.4	4471.4	4471.4

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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	10.54	11.32	11.56	12.34	13.71	6.50	7.28	7.52	8.30	9.67
	3H	12.22	12.91	13.25	13.94	15.33	7.68	8.38	8.72	9.41	10.80
	4H	12.83	13.48	13.87	14.52	15.92	8.13	8.79	9.18	9.83	11.22
	6H	13.25	13.85	14.30	14.89	16.30	8.45	9.06	9.50	10.10	11.51
	8H	13.37	13.95	14.43	15.01	16.41	8.54	9.12	9.60	10.17	11.58
	12H	13.44	13.98	14.50	15.03	16.46	8.58	9.13	9.65	10.18	11.61
4H	2H	10.55	11.21	11.60	12.24	13.64	7.09	7.75	8.14	8.78	10.18
	3H	12.38	12.93	13.44	13.99	15.40	8.44	8.98	9.49	10.05	11.46
	4H	13.07	13.57	14.14	14.63	16.06	8.98	9.48	10.05	10.54	11.97
	6H	13.59	14.02	14.66	15.10	16.52	9.40	9.83	10.47	10.91	12.34
	8H	13.77	14.17	14.84	15.24	16.68	9.53	9.93	10.60	11.00	12.44
	12H	13.86	14.22	14.95	15.31	16.75	9.59	9.95	10.68	11.04	12.49
8H	4H	13.04	13.44	14.11	14.51	15.95	9.26	9.66	10.33	10.73	12.18
	6H	13.61	13.94	14.70	15.05	16.49	9.78	10.11	10.88	11.22	12.66
	8H	13.82	14.11	14.93	15.21	16.67	9.97	10.26	11.07	11.36	12.82
	12H	13.96	14.22	15.07	15.31	16.81	10.09	10.34	11.19	11.44	12.93
12H	4H	12.99	13.35	14.08	14.43	15.88	9.26	9.63	10.36	10.71	12.16
	6H	13.58	13.87	14.68	14.97	16.43	9.83	10.12	10.93	11.22	12.68
	8H	13.80	14.06	14.91	15.15	16.65	10.04	10.29	11.14	11.39	12.88

END OF REPORT