

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: P909586

Luminaire Tested: DFN2DIP-SQ4F0-110D090US840-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P909586
REPORT IS A COMBINATION OF REPORTS P900124 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-110D090US840-RLLFLL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

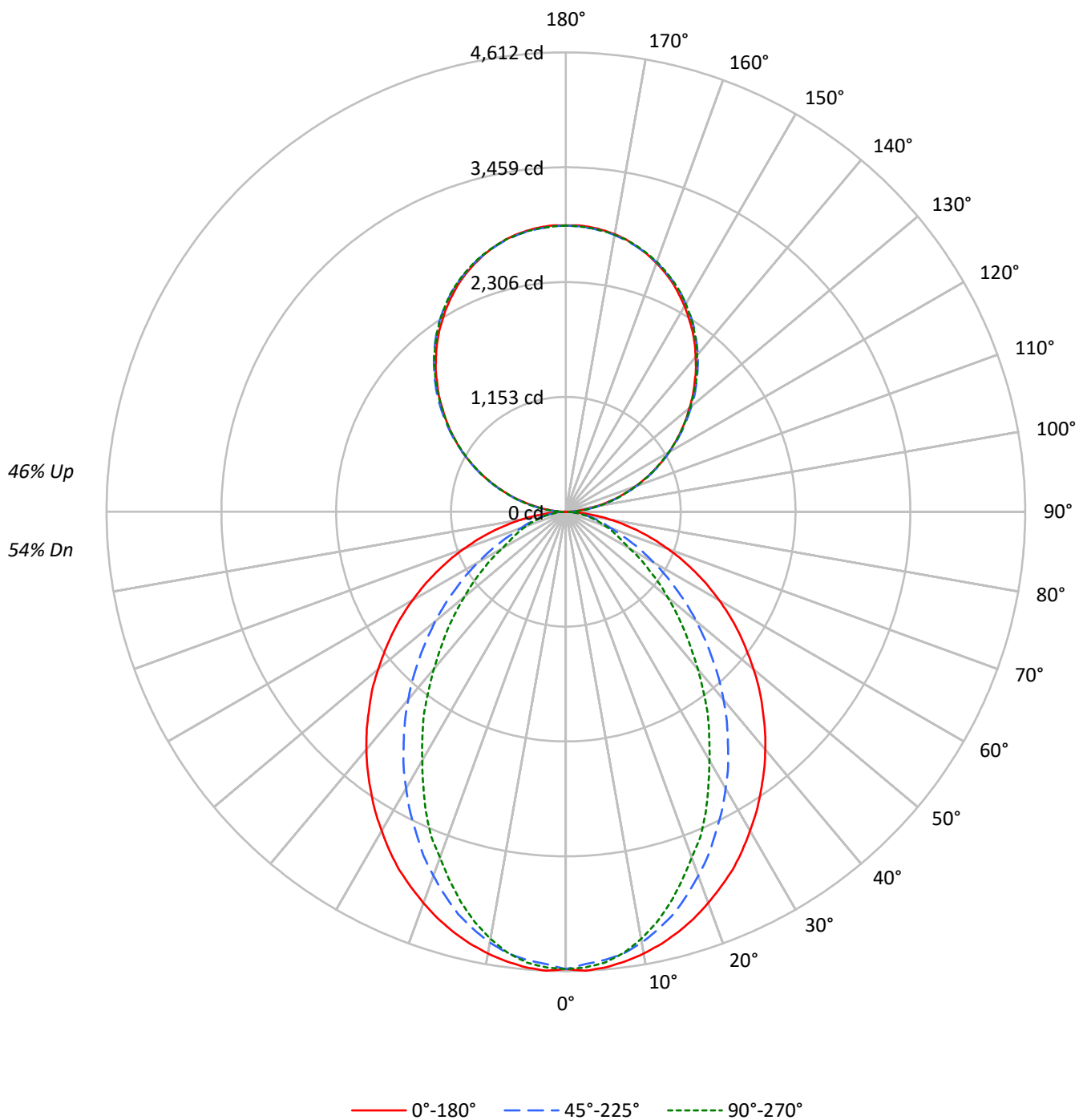
Lumens per Lamp: N/A
Luminaire Lumens: 17485.8 lumens
Efficiency: N/A
Efficacy: 101.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 171.8
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	108	108	108	108	100	100	100	100	86	86	86	72	72	72	60	60	60
1	99	95	91	88	92	88	85	82	76	73	71	64	63	61	54	53	52
2	91	84	78	73	84	78	73	68	67	63	60	57	54	52	48	46	44
3	83	74	67	61	77	69	63	58	60	55	51	51	47	45	43	40	38
4	76	66	58	52	71	62	55	49	53	48	44	46	42	39	39	36	33
5	70	59	51	45	65	55	48	43	48	42	38	41	37	34	35	32	29
6	65	53	45	39	60	50	43	38	43	38	34	38	33	30	32	29	26
7	60	48	40	35	56	45	38	33	40	34	30	34	30	27	29	26	23
8	56	44	36	31	52	41	34	30	36	31	27	32	27	24	27	24	21
9	52	40	33	28	49	38	31	27	33	28	24	29	25	22	25	22	19
10	49	37	30	25	45	35	28	24	31	26	22	27	23	20	23	20	18

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: 0°

Vertical Angle: 45°

Luminance: 2702 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	430.3	2.5
10°-20°	1181.2	6.8
20°-30°	1658.4	9.5
30°-40°	1807.8	10.3
40°-50°	1661.5	9.5
50°-60°	1304.9	7.5
60°-70°	849.4	4.9
70°-80°	437.2	2.5
80°-90°	119.8	0.7
90°-100°	177.9	1.0
100°-110°	565.2	3.2
110°-120°	967.2	5.5
120°-130°	1272.0	7.3
130°-140°	1427.7	8.2
140°-150°	1400.0	8.0
150°-160°	1174.4	6.7
160°-170°	778.9	4.5
170°-180°	272.2	1.6
0°-30°	3269.9	18.7
0°-40°	5077.7	29.0
0°-60°	8044.1	46.0
0°-90°	9450.4	54.0
90°-120°	1710.2	9.8
90°-150°	5809.9	33.2
90°-180°	8035.0	46.0
0°-180°	17485.8	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	31	85	80	82	17
95°	126	151	155	155	151	141
105°	522	529	534	538	538	551
115°	971	984	980	978	971	960
125°	1412	1433	1426	1419	1416	1261
135°	1826	1853	1858	1855	1848	1411
145°	2217	2234	2248	2250	2241	1385
155°	2535	2542	2550	2562	2554	1167
165°	2757	2755	2755	2772	2760	778
175°	2869	2862	2857	2874	2860	273
180°	2874	2874	2874	2874	2874	

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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°	2.6	31.2	84.9	79.7	82.3
92.5°	53.7	72.8	75.4	78.0	78.0
95°	126.5	150.8	155.1	155.1	150.8
97.5°	210.6	233.1	242.7	242.7	242.7
100°	307.6	327.6	334.5	334.5	331.9
102.5°	409.9	424.6	434.1	436.8	434.1
105°	521.7	528.6	533.8	538.2	538.2
107.5°	632.6	643.0	643.0	644.7	632.6
110°	740.0	754.0	754.0	754.0	747.0



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	856.2	870.9	868.3	861.4	856.2
115°	970.6	984.4	980.1	977.5	970.6
117.5°	1084.1	1103.2	1091.1	1084.1	1077.1
120°	1198.5	1217.5	1198.5	1198.5	1190.6
122.5°	1302.4	1326.8	1314.6	1307.7	1302.4
125°	1411.7	1433.3	1426.4	1418.6	1416.0
127.5°	1518.2	1545.1	1535.6	1525.2	1518.2
130°	1617.9	1649.1	1644.8	1639.5	1630.0
132.5°	1729.7	1753.9	1755.7	1743.5	1736.7
135°	1825.8	1852.7	1858.0	1855.3	1848.5
137.5°	1933.3	1955.0	1959.3	1957.6	1947.2
140°	2027.8	2049.4	2061.5	2061.5	2052.0
142.5°	2124.9	2146.5	2153.4	2156.1	2146.5
145°	2216.8	2234.0	2247.9	2250.5	2241.0
147.5°	2299.1	2320.7	2331.1	2335.4	2325.9
150°	2384.0	2398.7	2408.2	2416.0	2408.2
152.5°	2459.3	2474.1	2486.2	2495.8	2486.2
155°	2534.8	2541.6	2549.5	2561.6	2553.8
157.5°	2599.7	2604.9	2609.3	2626.6	2614.4
160°	2657.8	2663.0	2665.6	2680.3	2669.9
162.5°	2711.5	2711.5	2714.1	2730.6	2718.5
165°	2757.4	2754.8	2754.8	2772.2	2760.1
167.5°	2799.0	2791.3	2791.3	2808.5	2796.4
170°	2830.2	2823.3	2820.8	2838.0	2823.3
172.5°	2851.9	2845.0	2842.4	2859.7	2845.0
175°	2869.2	2862.3	2857.1	2874.5	2859.7
177.5°	2878.7	2871.9	2866.6	2881.3	2866.6
180°	2874.5	2874.5	2874.5	2874.5	2874.5

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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	11.59	12.46	12.52	13.40	14.61	7.55	8.42	8.48	9.36	10.57
	3H	13.28	14.05	14.22	15.00	16.24	8.75	9.52	9.69	10.47	11.71
	4H	13.89	14.62	14.85	15.58	16.82	9.20	9.93	10.15	10.88	12.13
	6H	14.32	14.99	15.28	15.95	17.21	9.52	10.19	10.49	11.15	12.41
	8H	14.45	15.09	15.42	16.06	17.32	9.61	10.25	10.59	11.23	12.49
	12H	14.51	15.12	15.49	16.09	17.37	9.66	10.27	10.64	11.24	12.52
4H	2H	11.62	12.35	12.58	13.30	14.55	8.16	8.89	9.12	9.84	11.09
	3H	13.45	14.06	14.42	15.04	16.31	9.51	10.12	10.48	11.10	12.36
	4H	14.15	14.70	15.13	15.68	16.97	10.06	10.61	11.04	11.59	12.88
	6H	14.67	15.15	15.66	16.15	17.43	10.48	10.96	11.47	11.96	13.25
	8H	14.85	15.29	15.84	16.29	17.59	10.61	11.06	11.60	12.05	13.35
	12H	14.95	15.35	15.96	16.36	17.66	10.68	11.08	11.69	12.09	13.40
8H	4H	14.12	14.56	15.11	15.56	16.86	10.35	10.79	11.34	11.79	13.08
	6H	14.69	15.06	15.71	16.10	17.39	10.87	11.23	11.88	12.27	13.57
	8H	14.91	15.23	15.94	16.26	17.58	11.06	11.38	12.08	12.41	13.72
	12H	15.05	15.34	16.08	16.36	17.72	11.18	11.46	12.21	12.48	13.84
12H	4H	14.07	14.47	15.08	15.49	16.79	10.35	10.75	11.36	11.77	13.07
	6H	14.67	14.99	15.69	16.02	17.33	10.92	11.24	11.94	12.27	13.58
	8H	14.89	15.18	15.92	16.20	17.56	11.13	11.42	12.16	12.43	13.79