

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: P909659

Luminaire Tested: DFN2DIP-SQ4F0-140D090US840-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P909659
REPORT IS A COMBINATION OF REPORTS P901648 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-140D090US840-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

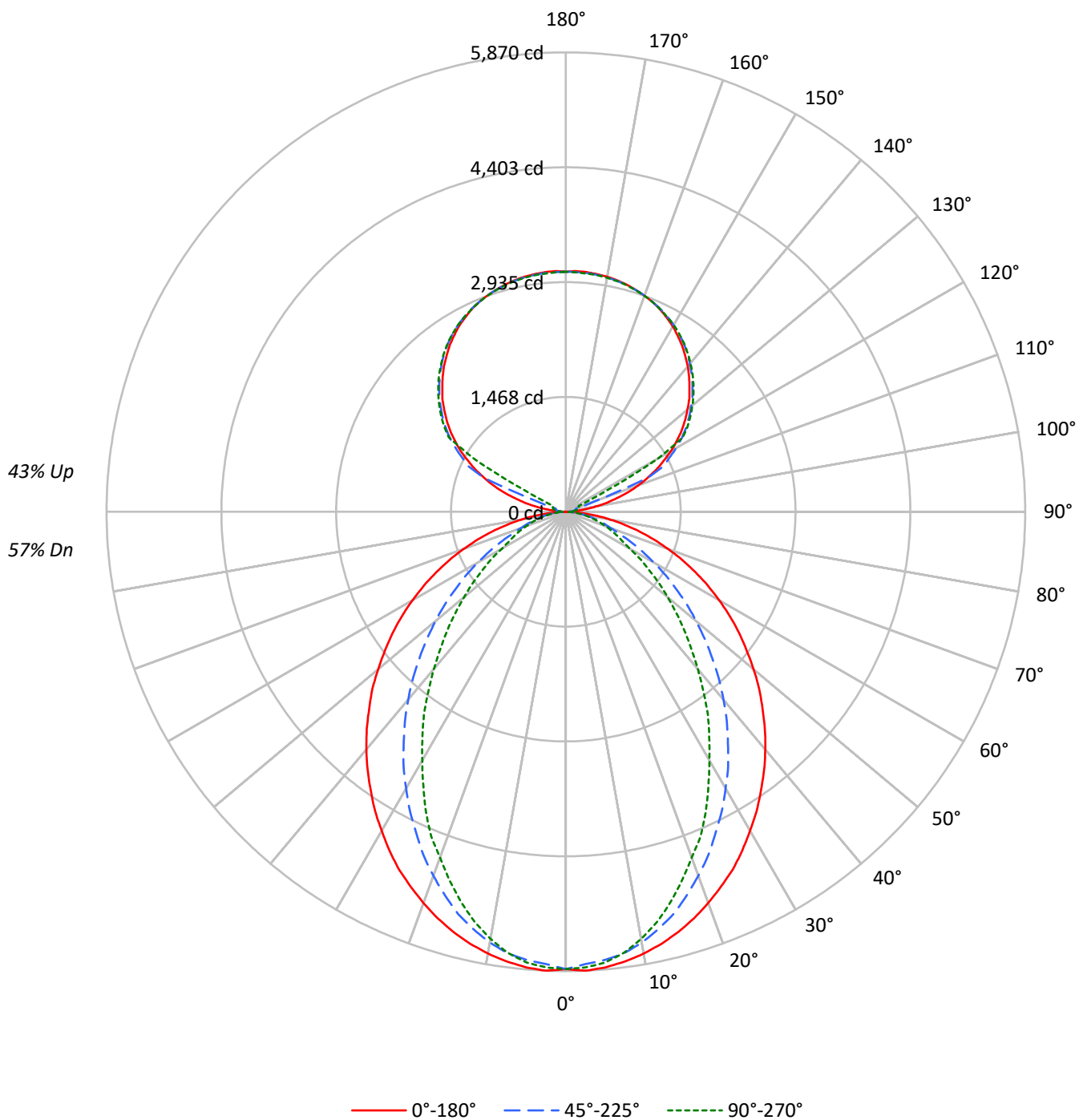
Lumens per Lamp: N/A
Luminaire Lumens: 21015.3 lumens
Efficiency: N/A
Efficacy: 99.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 210.5
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9789
Total Harmonic Distortion (THDi): 0.074
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P909659

CATALOG NUMBER: DFN2DIP-SQ4F0-140D090US840-RLLONL

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	109	109	109	109	101	101	101	101	87	87	87	75	75	75	63	63	63
1	100	96	92	89	93	89	86	83	77	75	73	66	65	63	56	55	54
2	91	84	78	73	85	79	74	69	69	65	61	59	56	54	50	48	46
3	84	75	67	62	78	70	64	59	61	56	52	53	49	46	45	42	40
4	77	66	59	53	72	62	55	50	55	49	45	47	43	40	41	38	35
5	71	60	52	46	66	56	49	44	49	44	39	43	38	35	37	34	31
6	66	54	46	40	61	51	43	38	45	39	35	39	34	31	34	30	28
7	61	49	41	35	57	46	39	34	41	35	31	36	31	28	31	27	25
8	57	44	37	31	53	42	35	30	37	32	27	33	28	25	29	25	22
9	53	41	33	28	49	38	32	27	34	29	25	30	26	23	26	23	20
10	49	37	30	26	46	35	29	25	32	26	23	28	24	21	25	21	19

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4100	4100	4100
5°	4107	4036	4062
10°	4066	3957	3931
15°	4010	3827	3728
20°	3936	3648	3478
25°	3860	3446	3237
30°	3758	3240	2930
35°	3658	3018	2661
40°	3557	2788	2352
45°	3439	2532	2072
50°	3316	2275	1799
55°	3189	1999	1536
60°	3042	1711	1265
65°	2872	1418	1140
70°	2666	1144	1034
75°	2408	1011	943
80°	2034	851	822
85°	1416	572	626

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3439 cd/sqm

TEST NUMBER: P909659

CATALOG NUMBER: DFN2DIP-SQ4F0-140D090US840-RLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	547.6	2.6
10°-20°	1503.4	7.2
20°-30°	2110.7	10.0
30°-40°	2300.8	10.9
40°-50°	2114.7	10.1
50°-60°	1660.7	7.9
60°-70°	1081.0	5.1
70°-80°	556.5	2.6
80°-90°	147.5	0.7
90°-100°	101.2	0.5
100°-110°	377.0	1.8
110°-120°	1000.0	4.8
120°-130°	1658.6	7.9
130°-140°	1761.8	8.4
140°-150°	1637.4	7.8
150°-160°	1316.4	6.3
160°-170°	848.2	4.0
170°-180°	292.0	1.4
0°-30°	4161.7	19.8
0°-40°	6462.5	30.8
0°-60°	10237.9	48.7
0°-90°	12022.8	57.2
90°-120°	1478.2	7.0
90°-150°	6535.9	31.1
90°-180°	8992.0	42.8
0°-180°	21015.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	5843	5843	5843	5843	5843	
5°	5843	5817	5748	5796	5780	554
15°	5558	5499	5320	5219	5167	1566
25°	5045	4875	4526	4310	4230	2320
35°	4347	4077	3612	3279	3162	2721
45°	3554	3199	2644	2268	2142	2744
55°	2702	2290	1718	1402	1301	2414
65°	1824	1396	920	740	724	1809
75°	973	603	423	386	381	1029
85°	227	116	100	100	100	261
90°	2	27	44	56	60	20
95°	144	71	86	98	95	171
105°	675	741	135	160	169	721
115°	1276	1314	1370	342	182	1256
125°	1804	1833	1876	1891	1898	1609
135°	2233	2268	2288	2311	2306	1725
145°	2590	2588	2626	2641	2630	1620
155°	2852	2832	2859	2872	2854	1314
165°	3005	2992	2999	3014	2999	849
175°	3074	3058	3063	3078	3056	293
180°	3067	3067	3067	3067	3067	

TEST NUMBER: P909659

CATALOG NUMBER: DFN2DIP-SQ4F0-140D090US840-RLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	5843.3	5843.3	5843.3	5843.3	5843.3
2.5°	5869.6	5843.3	5784.9	5838.2	5827.5
5°	5843.3	5816.9	5747.9	5795.6	5779.9
7.5°	5795.6	5764.1	5690.1	5710.9	5684.5
10°	5732.2	5695.1	5589.7	5573.3	5541.9
12.5°	5653.0	5605.4	5462.3	5430.9	5372.6
15°	5557.7	5499.3	5319.8	5219.4	5166.7
17.5°	5446.6	5361.9	5139.7	5023.6	4938.8
20°	5319.8	5213.7	4949.6	4817.7	4701.0
22.5°	5182.3	5060.6	4753.7	4574.2	4495.1
25°	5044.9	4875.4	4526.5	4309.9	4230.2
27.5°	4881.1	4701.0	4315.0	4066.4	3944.7
30°	4706.6	4505.2	4082.2	3812.8	3669.8
32.5°	4537.1	4293.6	3860.5	3543.0	3410.6
35°	4347.0	4077.1	3612.0	3278.7	3162.0
37.5°	4161.9	3870.6	3379.1	3013.9	2882.1
40°	3966.0	3649.0	3135.6	2760.4	2622.9
42.5°	3765.2	3426.9	2892.8	2501.1	2369.2
45°	3553.6	3199.1	2644.2	2268.3	2141.5
47.5°	3352.8	2977.5	2406.3	2030.4	1914.3
50°	3130.6	2755.3	2173.4	1808.3	1697.7
52.5°	2913.5	2516.8	1951.3	1602.4	1501.9
55°	2702.0	2289.6	1718.5	1401.5	1301.0
57.5°	2485.4	2062.3	1512.6	1216.4	1131.7
60°	2263.2	1840.2	1295.5	1026.1	941.4
62.5°	2046.7	1623.7	1110.3	856.7	814.7
65°	1824.5	1395.8	920.1	740.5	724.3
67.5°	1613.0	1184.4	740.5	650.3	634.5
70°	1390.8	978.5	613.2	560.5	539.2
72.5°	1179.3	787.7	512.8	470.7	460.1
75°	972.8	602.6	423.0	386.0	380.9
77.5°	767.0	428.1	333.3	311.9	301.2
80°	576.2	306.9	253.6	232.9	232.9
82.5°	401.7	206.4	174.5	163.8	163.8
85°	227.2	116.1	100.4	100.4	100.4
87.5°	84.7	42.1	42.1	37.1	37.1
90°	2.1	26.7	44.2	55.6	59.8
92.5°	55.6	46.7	53.2	57.8	59.8
95°	144.2	70.9	86.4	97.8	95.4
97.5°	259.6	77.8	113.1	119.9	122.0
100°	392.9	88.9	126.5	144.2	148.7
102.5°	539.3	535.0	131.0	155.2	162.1
105°	674.7	741.4	135.4	159.8	168.6
107.5°	832.3	887.7	140.0	164.2	173.2
110°	983.3	1029.8	388.5	166.5	175.3



TEST NUMBER: P909659

CATALOG NUMBER: DFN2DIP-SQ4F0-140D090US840-RLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1125.4	1165.2	1127.5	170.8	177.6
115°	1276.2	1313.8	1369.5	341.8	182.1
117.5°	1407.1	1451.5	1489.3	1171.8	590.4
120°	1553.7	1586.9	1627.0	1653.6	1353.9
122.5°	1677.9	1713.4	1758.0	1771.1	1773.5
125°	1804.3	1833.3	1875.5	1891.1	1897.6
127.5°	1919.8	1950.9	1984.4	2006.5	2008.6
130°	2028.6	2064.3	2088.5	2112.9	2110.9
132.5°	2139.6	2168.6	2192.8	2212.9	2210.8
135°	2232.9	2268.5	2288.3	2310.7	2306.2
137.5°	2330.5	2357.0	2379.4	2401.6	2395.0
140°	2425.8	2443.8	2468.0	2488.0	2477.0
142.5°	2506.0	2521.5	2550.2	2567.9	2556.9
145°	2590.3	2587.9	2625.7	2641.2	2630.1
147.5°	2663.3	2656.8	2694.4	2705.5	2696.7
150°	2734.5	2719.0	2754.5	2767.6	2756.6
152.5°	2794.3	2776.6	2809.8	2823.3	2807.7
155°	2852.1	2832.3	2858.8	2872.1	2854.4
157.5°	2898.7	2881.0	2901.0	2916.6	2898.7
160°	2938.7	2925.3	2938.7	2951.9	2936.4
162.5°	2974.1	2960.8	2971.9	2987.5	2967.5
165°	3005.2	2991.9	2998.6	3014.1	2998.6
167.5°	3029.7	3016.3	3023.0	3038.6	3018.6
170°	3049.7	3036.3	3040.7	3056.3	3036.3
172.5°	3062.9	3049.7	3054.1	3069.7	3049.7
175°	3073.9	3058.4	3062.9	3078.4	3056.3
177.5°	3078.4	3062.9	3065.2	3080.8	3060.8
180°	3067.4	3067.4	3067.4	3067.4	3067.4

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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	12.71	13.60	13.61	14.52	15.68	8.67	9.56	9.57	10.48	11.65
	3H	14.40	15.19	15.31	16.12	17.31	9.86	10.66	10.78	11.59	12.78
	4H	15.01	15.76	15.94	16.69	17.90	10.32	11.07	11.25	12.00	13.20
	6H	15.44	16.13	16.38	17.07	18.28	10.64	11.34	11.58	12.27	13.49
	8H	15.57	16.23	16.52	17.18	18.39	10.74	11.40	11.68	12.35	13.56
	12H	15.64	16.26	16.59	17.21	18.45	10.78	11.41	11.73	12.36	13.59
4H	2H	12.74	13.49	13.67	14.42	15.62	9.28	10.03	10.21	10.96	12.16
	3H	14.58	15.20	15.52	16.16	17.38	10.63	11.26	11.58	12.22	13.44
	4H	15.27	15.84	16.23	16.80	18.04	11.18	11.76	12.14	12.71	13.95
	6H	15.80	16.29	16.76	17.27	18.51	11.61	12.10	12.57	13.08	14.32
	8H	15.98	16.43	16.94	17.41	18.66	11.74	12.20	12.71	13.17	14.42
	12H	16.08	16.49	17.06	17.48	18.74	11.81	12.22	12.79	13.21	14.47
8H	4H	15.25	15.70	16.21	16.68	17.93	11.47	11.93	12.44	12.90	14.16
	6H	15.82	16.20	16.81	17.21	18.46	11.99	12.37	12.99	13.39	14.64
	8H	16.04	16.37	17.04	17.38	18.65	12.19	12.52	13.19	13.52	14.79
	12H	16.18	16.48	17.19	17.47	18.79	12.31	12.60	13.31	13.60	14.92
12H	4H	15.20	15.61	16.19	16.60	17.86	11.48	11.89	12.47	12.88	14.14
	6H	15.79	16.13	16.80	17.13	18.40	12.04	12.38	13.05	13.38	14.65
	8H	16.02	16.32	17.03	17.31	18.63	12.26	12.55	13.26	13.55	14.87