

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: P909601

Luminaire Tested: DFN2DIP-SQ4F0-110D140US840-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P909601
REPORT IS A COMBINATION OF REPORTS P901715 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-110D140US840-FLLONL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

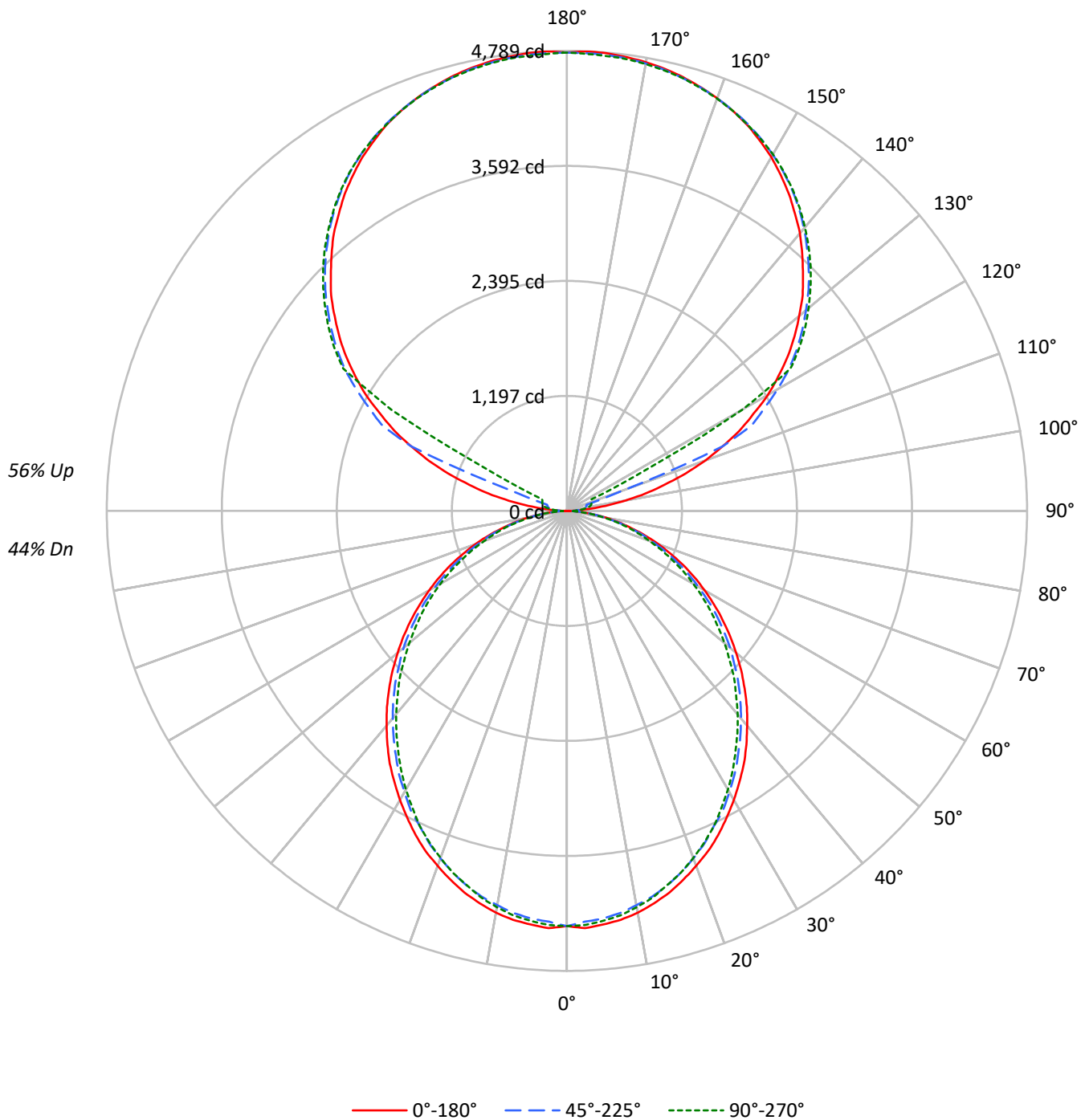
Lumens per Lamp: N/A
Luminaire Lumens: 24994.2 lumens
Efficiency: N/A
Efficacy: 118.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

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	50	30	10
RCR																				
0	106	106	106	106	97	97	97	97	80	80	80	65	65	65	51	51	51			44
1	96	92	88	85	88	84	81	78	70	68	66	57	55	54	45	44	43			37
2	88	80	74	69	80	74	69	64	61	58	54	50	47	45	39	38	36			31
3	80	71	63	58	73	65	59	54	54	50	46	44	41	38	35	33	31			26
4	73	63	55	49	67	58	51	45	48	43	39	39	36	33	31	29	26			23
5	67	56	48	42	61	51	44	39	43	38	34	35	31	28	28	25	23			20
6	62	50	42	36	56	46	39	34	39	33	29	32	28	25	25	23	20			17
7	57	45	37	32	52	42	35	30	35	30	26	29	25	22	23	20	18			15
8	53	41	33	28	48	38	31	26	32	27	23	27	22	19	21	18	16			14
9	49	37	30	25	45	35	28	23	29	24	20	24	20	17	20	17	15			12
10	46	34	27	22	42	32	25	21	27	22	18	23	19	16	18	15	13			11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3033	3033	3033
5°	3038	2991	3012
10°	3013	2952	2972
15°	2969	2904	2909
20°	2909	2837	2845
25°	2849	2757	2770
30°	2774	2682	2675
35°	2704	2594	2574
40°	2617	2505	2479
45°	2530	2416	2381
50°	2435	2323	2268
55°	2335	2215	2164
60°	2223	2086	2045
65°	2100	1954	1904
70°	1944	1792	1753
75°	1728	1598	1616
80°	1468	1352	1349
85°	1061	925	907

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2559 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	406.8	1.6
10°-20°	1144.7	4.6
20°-30°	1682.2	6.7
30°-40°	1953.7	7.8
40°-50°	1951.3	7.8
50°-60°	1701.5	6.8
60°-70°	1257.8	5.0
70°-80°	711.6	2.8
80°-90°	196.2	0.8
90°-100°	157.3	0.6
100°-110°	586.5	2.3
110°-120°	1555.5	6.2
120°-130°	2580.0	10.3
130°-140°	2740.5	11.0
140°-150°	2547.0	10.2
150°-160°	2047.7	8.2
160°-170°	1319.5	5.3
170°-180°	454.2	1.8
0°-30°	3233.7	12.9
0°-40°	5187.4	20.8
0°-60°	8840.2	35.4
0°-90°	11005.8	44.0
90°-120°	2299.4	9.2
90°-150°	10166.9	40.7
90°-180°	13988.0	56.0
0°-180°	24994.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4322	4322	4322	4322	4322	
5°	4322	4306	4260	4293	4285	410
15°	4115	4090	4036	4052	4032	1159
25°	3724	3691	3620	3628	3620	1714
35°	3213	3172	3105	3080	3059	2006
45°	2614	2585	2523	2477	2461	2018
55°	1979	1954	1904	1854	1833	1769
65°	1334	1309	1268	1230	1210	1319
75°	698	690	669	644	653	745
85°	170	166	162	150	146	190
90°	3	41	69	86	93	23
95°	224	110	134	152	148	266
105°	1050	1153	211	248	262	1121
115°	1985	2044	2130	532	283	1954
125°	2807	2852	2918	2942	2952	2503
135°	3473	3529	3560	3594	3587	2683
145°	4029	4026	4084	4108	4091	2520
155°	4436	4406	4447	4468	4440	2044
165°	4675	4654	4664	4689	4664	1321
175°	4782	4758	4764	4789	4754	455
180°	4771	4771	4771	4771	4771	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4322.4	4322.4	4322.4	4322.4	4322.4
2.5°	4347.5	4326.8	4280.9	4322.4	4314.4
5°	4322.4	4306.1	4260.2	4293.2	4285.4
7.5°	4293.2	4268.6	4222.8	4256.3	4247.9
10°	4247.9	4218.7	4168.9	4201.9	4189.6
12.5°	4185.3	4160.5	4110.8	4131.5	4123.1
15°	4114.7	4090.0	4035.7	4052.5	4031.8
17.5°	4027.3	4002.7	3948.5	3969.2	3948.5
20°	3931.7	3907.0	3848.8	3861.1	3844.9
22.5°	3836.5	3798.9	3744.7	3744.7	3736.3
25°	3724.0	3691.0	3620.4	3628.3	3620.4
27.5°	3599.2	3570.1	3516.3	3503.9	3483.2
30°	3474.8	3441.3	3379.1	3366.8	3350.0
32.5°	3341.6	3317.0	3250.4	3225.2	3208.4
35°	3212.9	3171.5	3104.8	3079.7	3059.0
37.5°	3067.4	3029.9	2963.3	2934.2	2913.5
40°	2917.9	2884.4	2817.8	2780.8	2764.0
42.5°	2772.4	2738.9	2672.7	2630.8	2606.2
45°	2614.5	2585.4	2522.7	2477.4	2460.6
47.5°	2460.6	2431.6	2364.9	2319.1	2294.3
50°	2298.4	2277.7	2219.4	2161.2	2140.5
52.5°	2140.5	2111.3	2057.6	2011.7	1982.6
55°	1978.6	1953.5	1903.7	1853.8	1833.1
57.5°	1816.3	1795.6	1741.4	1691.5	1674.8
60°	1654.1	1637.8	1579.5	1533.7	1521.4
62.5°	1496.2	1467.1	1425.6	1384.2	1367.5
65°	1334.3	1309.2	1267.8	1230.3	1209.6
67.5°	1168.1	1147.0	1109.9	1080.9	1064.1
70°	1014.2	997.4	960.0	930.9	914.5
72.5°	856.4	839.6	818.9	789.8	777.4
75°	698.0	690.1	668.9	644.3	652.7
77.5°	556.9	540.2	531.8	519.5	507.2
80°	415.9	411.4	403.0	390.7	382.3
82.5°	282.7	282.7	278.7	262.0	262.0
85°	170.3	166.2	162.3	149.5	145.5
87.5°	74.9	66.6	58.2	45.8	41.4
90°	3.2	41.4	68.9	86.5	93.1
92.5°	86.5	72.6	82.8	89.8	93.1
95°	224.3	110.3	134.5	152.1	148.5
97.5°	403.8	121.0	175.9	186.5	189.9
100°	611.3	138.1	196.8	224.3	231.3
102.5°	838.8	832.2	203.8	241.5	252.2
105°	1049.6	1153.3	210.8	248.4	262.4
107.5°	1294.7	1380.8	217.7	255.4	269.3
110°	1529.6	1601.8	604.3	259.1	272.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1750.6	1812.5	1753.9	265.7	276.3
115°	1985.2	2043.8	2130.3	531.8	283.3
117.5°	2188.9	2257.8	2316.8	1822.8	918.4
120°	2416.9	2468.5	2530.8	2572.2	2106.1
122.5°	2610.0	2665.3	2734.6	2755.1	2758.9
125°	2806.8	2851.9	2917.5	2941.6	2951.9
127.5°	2986.4	3034.7	3086.8	3121.2	3124.5
130°	3155.6	3211.1	3248.7	3286.9	3283.6
132.5°	3328.3	3373.4	3411.1	3442.2	3439.0
135°	3473.4	3528.8	3559.5	3594.3	3587.3
137.5°	3625.1	3666.5	3701.4	3735.8	3725.6
140°	3773.6	3801.4	3839.1	3870.3	3853.0
142.5°	3898.2	3922.3	3967.1	3994.5	3977.3
145°	4029.4	4025.6	4084.3	4108.5	4091.3
147.5°	4143.0	4132.7	4191.3	4208.5	4195.0
150°	4253.7	4229.4	4284.8	4305.3	4288.1
152.5°	4346.7	4319.2	4370.9	4391.8	4367.6
155°	4436.4	4405.7	4447.1	4467.6	4440.2
157.5°	4509.0	4481.6	4512.8	4536.9	4509.0
160°	4571.4	4550.5	4571.4	4591.9	4567.7
162.5°	4626.3	4605.8	4623.1	4647.2	4616.1
165°	4674.7	4654.2	4664.5	4688.6	4664.5
167.5°	4712.8	4691.9	4702.5	4726.8	4695.6
170°	4743.9	4723.0	4730.0	4754.2	4723.0
172.5°	4764.4	4743.9	4750.9	4775.1	4743.9
175°	4781.7	4757.5	4764.4	4788.7	4754.2
177.5°	4788.7	4764.4	4768.2	4792.3	4761.2
180°	4771.4	4771.4	4771.4	4771.4	4771.4

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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	10.56	11.37	11.57	12.39	13.74	10.12	10.93	11.12	11.94	13.30
	3H	12.22	12.95	13.24	13.97	15.35	11.73	12.46	12.75	13.48	14.86
	4H	12.81	13.50	13.84	14.53	15.91	12.32	13.00	13.35	14.03	15.41
	6H	13.21	13.84	14.25	14.88	16.27	12.71	13.34	13.75	14.38	15.77
	8H	13.32	13.92	14.36	14.97	16.36	12.81	13.42	13.86	14.47	15.86
	12H	13.36	13.94	14.41	14.98	16.40	12.86	13.43	13.91	14.47	15.89
4H	2H	11.02	11.70	12.05	12.73	14.12	10.66	11.35	11.70	12.38	13.76
	3H	12.88	13.46	13.93	14.51	15.91	12.48	13.05	13.52	14.11	15.50
	4H	13.60	14.12	14.65	15.17	16.59	13.17	13.70	14.23	14.75	16.17
	6H	14.11	14.57	15.18	15.64	17.05	13.68	14.13	14.74	15.21	16.62
	8H	14.27	14.69	15.33	15.75	17.18	13.83	14.25	14.89	15.31	16.74
	12H	14.34	14.72	15.42	15.80	17.23	13.89	14.27	14.97	15.35	16.78
8H	4H	13.79	14.21	14.85	15.28	16.71	13.41	13.84	14.48	14.90	16.33
	6H	14.43	14.77	15.51	15.88	17.31	14.04	14.39	15.13	15.50	16.92
	8H	14.65	14.95	15.74	16.04	17.49	14.26	14.56	15.35	15.65	17.10
	12H	14.78	15.05	15.88	16.13	17.62	14.37	14.64	15.47	15.72	17.21
12H	4H	13.77	14.16	14.85	15.23	16.67	13.41	13.79	14.49	14.87	16.30
	6H	14.45	14.76	15.55	15.85	17.30	14.08	14.39	15.17	15.48	16.92
	8H	14.70	14.97	15.79	16.05	17.54	14.32	14.59	15.41	15.67	17.16

END OF REPORT