

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: P909566

Luminaire Tested: DFN2DIP-SQ4F0-100D140US840-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P909566
REPORT IS A COMBINATION OF REPORTS P900194 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-100D140US840-RLLFLL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

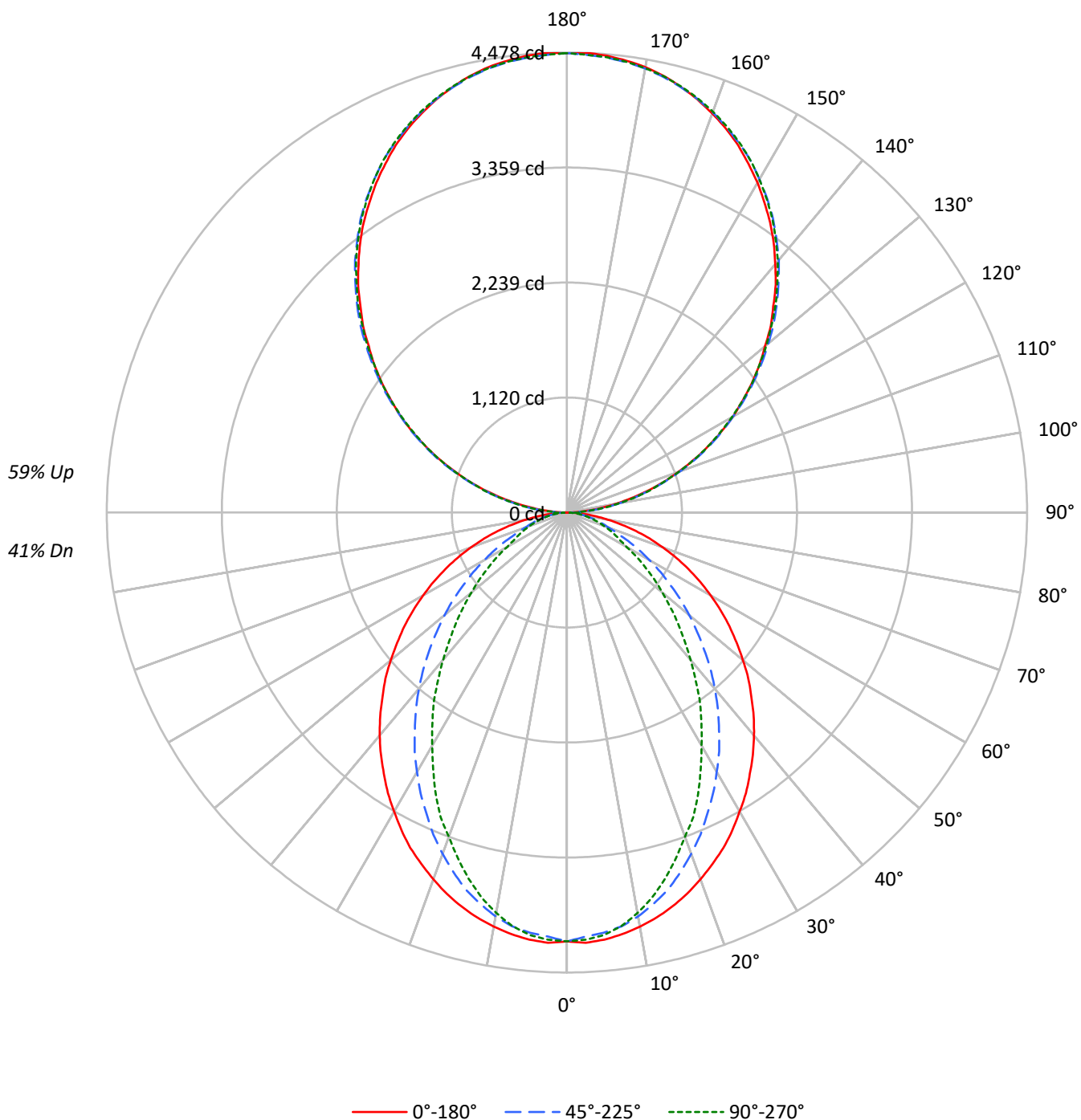
Lumens per Lamp: N/A
Luminaire Lumens: 21096.1 lumens
Efficiency: N/A
Efficacy: 106.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 198.5
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9968
Total Harmonic Distortion (THDi): 0.064
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	78	78	78	62	62	62	48	48	48
1	96	92	88	85	87	84	81	78	69	67	65	55	54	53	43	42	41
2	88	81	75	70	80	74	69	65	61	57	54	49	47	44	38	36	35
3	80	71	64	59	73	65	59	54	54	50	46	44	41	38	34	32	30
4	74	63	56	50	67	58	52	46	48	43	40	39	36	33	31	28	26
5	68	57	49	43	62	52	45	40	43	38	34	35	32	29	28	25	23
6	62	51	43	37	57	47	40	35	39	34	30	32	28	25	25	23	21
7	58	46	38	33	53	42	36	31	36	30	27	29	25	23	23	21	19
8	54	42	34	29	49	39	32	27	32	27	24	27	23	20	21	19	17
9	50	38	31	26	46	35	29	24	30	25	21	25	21	18	20	17	15
10	47	35	28	23	43	32	26	22	27	23	19	23	19	17	18	16	14

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2929	2929	2929
5°	2933	2883	2901
10°	2904	2827	2808
15°	2864	2734	2663
20°	2811	2606	2484
25°	2757	2462	2312
30°	2684	2314	2093
35°	2613	2156	1901
40°	2540	1991	1680
45°	2456	1809	1480
50°	2369	1625	1285
55°	2278	1428	1097
60°	2173	1222	904
65°	2051	1013	814
70°	1904	817	738
75°	1720	722	674
80°	1452	608	587
85°	1011	409	447

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°	391.2	1.9
10°-20°	1073.8	5.1
20°-30°	1507.6	7.1
30°-40°	1643.4	7.8
40°-50°	1510.5	7.2
50°-60°	1186.3	5.6
60°-70°	772.1	3.7
70°-80°	397.5	1.9
80°-90°	114.2	0.5
90°-100°	276.7	1.3
100°-110°	879.1	4.2
110°-120°	1504.5	7.1
120°-130°	1978.6	9.4
130°-140°	2220.9	10.5
140°-150°	2177.8	10.3
150°-160°	1826.9	8.7
160°-170°	1211.6	5.7
170°-180°	423.5	2.0
0°-30°	2972.6	14.1
0°-40°	4616.1	21.9
0°-60°	7312.8	34.7
0°-90°	8596.5	40.7
90°-120°	2660.3	12.6
90°-150°	9037.6	42.8
90°-180°	12500.0	59.3
0°-180°	21096.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4174	4174	4174	4174	4174	
5°	4174	4155	4106	4140	4128	396
15°	3970	3928	3800	3728	3690	1119
25°	3604	3482	3233	3078	3022	1657
35°	3105	2912	2580	2342	2259	1943
45°	2538	2285	1889	1620	1530	1960
55°	1930	1636	1228	1001	929	1725
65°	1303	997	657	529	517	1292
75°	695	430	302	276	272	735
85°	162	83	72	72	72	186
90°	4	49	132	124	128	21
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°	4173.8	4173.8	4173.8	4173.8	4173.8
2.5°	4192.6	4173.8	4132.1	4170.1	4162.6
5°	4173.8	4154.9	4105.6	4139.7	4128.4
7.5°	4139.7	4117.2	4064.3	4079.1	4060.4
10°	4094.4	4067.9	3992.6	3981.0	3958.6
12.5°	4037.9	4003.8	3901.6	3879.2	3837.5
15°	3969.8	3928.1	3799.8	3728.1	3690.5
17.5°	3890.4	3829.9	3671.3	3588.3	3527.8
20°	3799.8	3724.1	3535.3	3441.2	3357.8
22.5°	3701.7	3614.7	3395.5	3267.3	3210.8
25°	3603.5	3482.5	3233.2	3078.5	3021.6
27.5°	3486.5	3357.8	3082.1	2904.6	2817.6
30°	3361.8	3217.9	2915.8	2723.5	2621.3
32.5°	3240.9	3066.9	2757.5	2530.7	2436.1
35°	3104.9	2912.3	2580.0	2342.0	2258.6
37.5°	2972.7	2764.7	2413.7	2152.8	2058.6
40°	2832.9	2606.5	2239.8	1971.7	1873.5
42.5°	2689.4	2447.7	2066.3	1786.6	1692.3
45°	2538.3	2285.0	1888.8	1620.2	1529.6
47.5°	2394.9	2126.8	1718.8	1450.3	1367.4
50°	2236.1	1968.0	1552.5	1291.6	1212.6
52.5°	2081.0	1797.8	1393.8	1144.5	1072.8
55°	1930.0	1635.5	1227.5	1001.1	929.3
57.5°	1775.3	1473.1	1080.5	868.8	808.3
60°	1616.6	1314.4	925.3	733.0	672.5
62.5°	1461.9	1159.7	793.0	612.0	581.9
65°	1303.2	997.0	657.2	529.0	517.4
67.5°	1152.2	846.0	529.0	464.4	453.2
70°	993.4	698.9	438.0	400.3	385.2
72.5°	842.3	562.6	366.3	336.2	328.6
75°	694.9	430.4	302.2	275.7	272.1
77.5°	547.9	305.8	238.0	222.8	215.2
80°	411.5	219.2	181.2	166.3	166.3
82.5°	286.9	147.4	124.6	117.0	117.0
85°	162.3	82.9	71.7	71.7	71.7
87.5°	60.5	30.1	30.1	26.5	26.5
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	9.96	10.72	11.00	11.76	13.16	5.92	6.68	6.96	7.72	9.12
	3H	11.64	12.32	12.69	13.37	14.79	7.11	7.79	8.15	8.83	10.25
	4H	12.25	12.89	13.31	13.94	15.37	7.55	8.20	8.61	9.25	10.68
	6H	12.67	13.26	13.74	14.32	15.75	7.87	8.46	8.94	9.52	10.96
	8H	12.79	13.36	13.87	14.43	15.86	7.96	8.52	9.03	9.59	11.03
	12H	12.86	13.39	13.93	14.46	15.91	8.00	8.54	9.08	9.60	11.06
4H	2H	9.97	10.61	11.04	11.67	13.09	6.51	7.15	7.58	8.21	9.63
	3H	11.80	12.33	12.87	13.41	14.85	7.86	8.39	8.93	9.47	10.91
	4H	12.49	12.98	13.57	14.05	15.51	8.40	8.89	9.48	9.96	11.42
	6H	13.01	13.43	14.10	14.52	15.98	8.82	9.24	9.91	10.33	11.79
	8H	13.18	13.58	14.27	14.66	16.13	8.95	9.34	10.03	10.42	11.89
	12H	13.28	13.63	14.38	14.73	16.21	9.01	9.36	10.11	10.46	11.94
8H	4H	12.45	12.85	13.54	13.93	15.40	8.68	9.07	9.77	10.16	11.63
	6H	13.02	13.35	14.13	14.47	15.94	9.20	9.52	10.31	10.65	12.12
	8H	13.24	13.53	14.36	14.63	16.12	9.39	9.67	10.51	10.78	12.27
	12H	13.38	13.63	14.50	14.74	16.26	9.50	9.75	10.62	10.86	12.39
12H	4H	12.40	12.76	13.51	13.86	15.33	8.68	9.04	9.79	10.14	11.61
	6H	13.00	13.28	14.11	14.39	15.88	9.25	9.53	10.36	10.64	12.13
	8H	13.22	13.47	14.34	14.57	16.10	9.46	9.70	10.58	10.81	12.34

END OF REPORT