

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: P912389

Luminaire Tested: DFN2DIP-SQ4F0-140D100US850-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P912389
REPORT IS A COMBINATION OF REPORTS P901665 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-140D100US850-FLLONL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

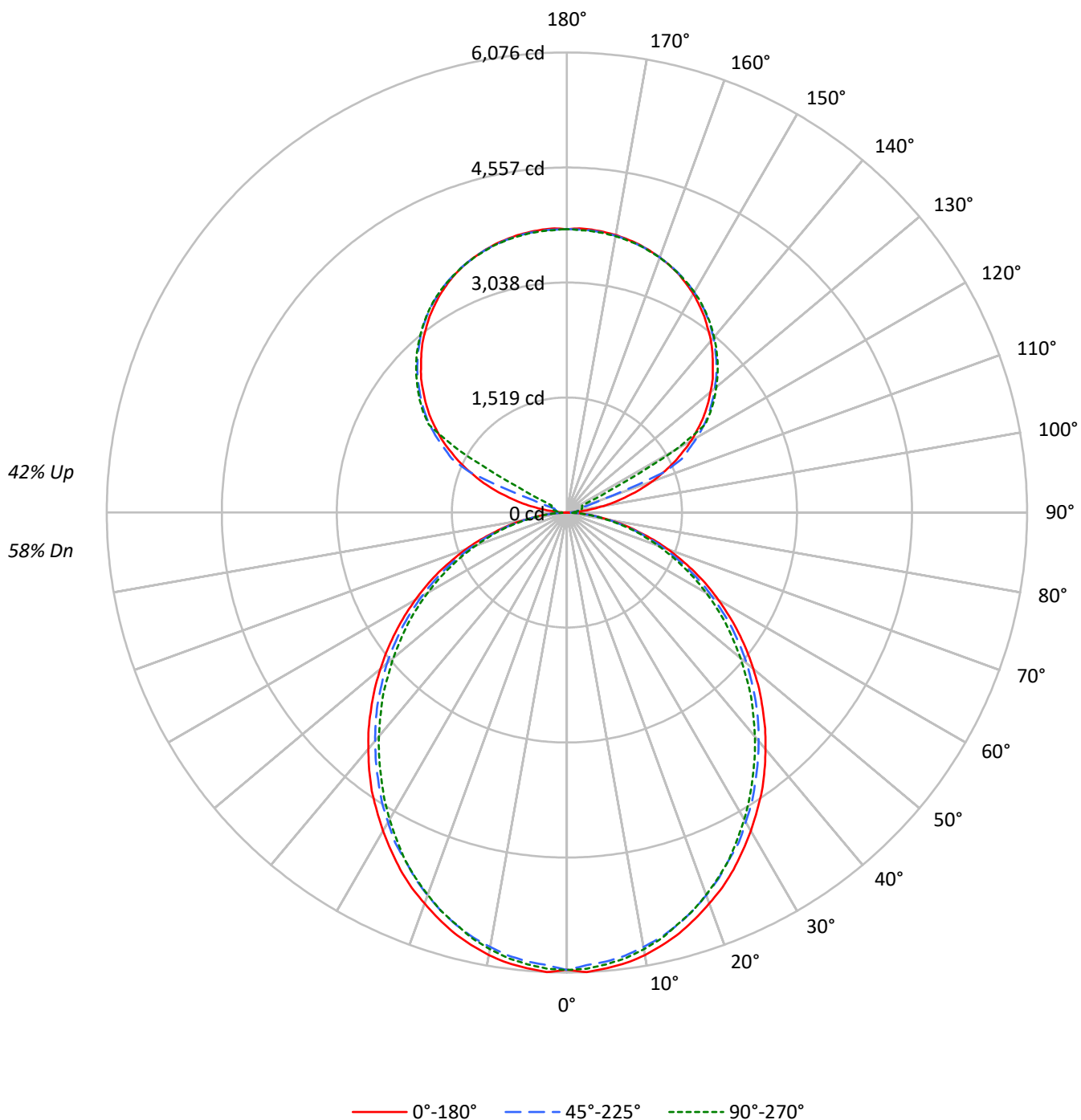
Lumens per Lamp: N/A
Luminaire Lumens: 26349.9 lumens
Efficiency: N/A
Efficacy: 120.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 218.5
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: P912389

CATALOG NUMBER: DFN2DIP-SQ4F0-140D100US850-FLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P912389

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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	102	102	102	102	88	88	88	75	75	75	64	64	64
1	100	95	91	88	93	89	86	82	77	75	72	66	65	63	56	55	54
2	91	83	77	72	84	78	72	68	68	64	60	58	55	53	50	47	45
3	83	73	66	60	77	69	62	57	60	55	50	52	48	44	44	41	39
4	76	65	57	51	70	61	54	48	53	47	43	46	42	38	39	36	33
5	70	58	50	43	65	54	47	41	48	42	37	41	37	33	35	32	29
6	64	52	44	38	60	49	41	36	43	37	32	37	33	29	32	29	26
7	59	47	39	33	55	44	37	32	39	33	29	34	29	26	29	26	23
8	55	43	35	29	51	40	33	28	36	30	26	31	26	23	27	23	20
9	51	39	31	26	48	37	30	25	33	27	23	29	24	21	25	21	18
10	48	36	29	24	45	34	27	23	30	25	21	27	22	19	23	19	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4239	4239	4239
5°	4246	4181	4209
10°	4211	4125	4153
15°	4149	4058	4066
20°	4066	3965	3976
25°	3982	3853	3871
30°	3878	3748	3739
35°	3779	3626	3598
40°	3657	3501	3464
45°	3536	3377	3328
50°	3403	3246	3169
55°	3264	3095	3024
60°	3107	2916	2858
65°	2936	2731	2661
70°	2717	2504	2450
75°	2415	2234	2258
80°	2051	1890	1886
85°	1483	1293	1268

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3536 cd/sqm

TEST NUMBER: P912389

CATALOG NUMBER: DFN2DIP-SQ4F0-140D100US850-FLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	568.6	2.2
10°-20°	1599.8	6.1
20°-30°	2351.1	8.9
30°-40°	2730.7	10.4
40°-50°	2727.3	10.4
50°-60°	2378.1	9.0
60°-70°	1757.9	6.7
70°-80°	994.6	3.8
80°-90°	269.1	1.0
90°-100°	123.4	0.5
100°-110°	460.1	1.7
110°-120°	1220.2	4.6
120°-130°	2023.8	7.7
130°-140°	2149.7	8.2
140°-150°	1997.9	7.6
150°-160°	1606.3	6.1
160°-170°	1035.0	3.9
170°-180°	356.2	1.4
0°-30°	4519.6	17.2
0°-40°	7250.2	27.5
0°-60°	12355.7	46.9
0°-90°	15377.3	58.4
90°-120°	1803.7	6.8
90°-150°	7975.0	30.3
90°-180°	10973.0	41.6
0°-180°	26349.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	6041	6041	6041	6041	6041	
5°	6041	6018	5954	6001	5990	573
15°	5751	5716	5641	5664	5635	1620
25°	5205	5159	5060	5071	5060	2395
35°	4491	4433	4340	4304	4275	2804
45°	3654	3614	3526	3462	3439	2820
55°	2766	2730	2661	2591	2562	2472
65°	1865	1830	1772	1720	1691	1844
75°	976	965	935	900	912	1042
85°	238	232	227	209	203	265
90°	3	32	54	68	73	24
95°	176	86	106	119	116	208
105°	823	905	165	195	206	880
115°	1557	1603	1671	417	222	1533
125°	2202	2237	2288	2308	2316	1964
135°	2725	2768	2792	2819	2814	2105
145°	3161	3158	3204	3223	3209	1977
155°	3480	3456	3488	3504	3483	1604
165°	3667	3651	3659	3678	3659	1036
175°	3751	3732	3737	3756	3729	357
180°	3743	3743	3743	3743	3743	

TEST NUMBER: P912389

CATALOG NUMBER: DFN2DIP-SQ4F0-140D100US850-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	6041.3	6041.3	6041.3	6041.3	6041.3
2.5°	6076.3	6047.4	5983.3	6041.3	6030.2
5°	6041.3	6018.4	5954.3	6000.6	5989.5
7.5°	6000.6	5966.1	5902.0	5948.8	5937.0
10°	5937.0	5896.4	5826.8	5873.0	5855.7
12.5°	5849.5	5815.0	5745.4	5774.3	5762.7
15°	5750.9	5716.5	5640.6	5664.1	5635.1
17.5°	5629.0	5594.5	5518.6	5547.6	5518.6
20°	5495.2	5460.7	5379.3	5396.6	5373.8
22.5°	5362.0	5309.7	5233.8	5233.8	5222.2
25°	5204.9	5158.6	5060.0	5071.1	5060.0
27.5°	5030.4	4989.8	4914.6	4897.3	4868.4
30°	4856.6	4809.8	4722.9	4705.7	4682.2
32.5°	4670.6	4636.1	4542.9	4507.9	4484.4
35°	4490.6	4432.7	4339.5	4304.5	4275.4
37.5°	4287.2	4234.8	4141.7	4101.1	4072.0
40°	4078.2	4031.4	3938.3	3886.6	3863.1
42.5°	3874.8	3828.0	3735.6	3677.0	3642.5
45°	3654.2	3613.6	3526.1	3462.5	3439.1
47.5°	3439.1	3398.4	3305.4	3241.3	3206.8
50°	3212.3	3183.4	3102.0	3020.6	2991.6
52.5°	2991.6	2950.9	2875.7	2811.6	2771.1
55°	2765.5	2730.4	2660.7	2591.1	2562.1
57.5°	2538.6	2509.7	2433.9	2364.3	2340.8
60°	2311.8	2289.1	2207.7	2143.6	2126.3
62.5°	2091.2	2050.5	1992.5	1934.7	1911.3
65°	1865.0	1829.8	1772.0	1719.5	1690.6
67.5°	1632.7	1603.1	1551.3	1510.6	1487.2
70°	1417.5	1394.1	1341.8	1301.1	1278.2
72.5°	1196.9	1173.4	1144.5	1103.9	1086.6
75°	975.7	964.6	935.0	900.5	912.2
77.5°	778.4	755.0	743.3	726.1	708.8
80°	581.2	575.0	563.4	546.1	534.3
82.5°	395.0	395.0	389.5	366.1	366.1
85°	237.9	232.3	226.8	208.9	203.4
87.5°	104.8	93.0	81.4	64.1	57.9
90°	2.6	32.5	54.0	67.9	73.0
92.5°	67.9	56.9	65.0	70.4	73.0
95°	175.9	86.5	105.5	119.3	116.4
97.5°	316.7	94.8	138.0	146.3	148.9
100°	479.5	108.3	154.4	175.9	181.4
102.5°	658.0	652.9	159.8	189.4	197.7
105°	823.3	904.6	165.4	194.9	205.8
107.5°	1015.6	1083.2	170.8	200.4	211.3
110°	1199.8	1256.5	474.0	203.3	213.8



TEST NUMBER: P912389

CATALOG NUMBER: DFN2DIP-SQ4F0-140D100US850-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1373.2	1421.7	1375.8	208.4	216.8
115°	1557.1	1603.2	1671.0	417.1	222.2
117.5°	1717.0	1771.1	1817.3	1429.8	720.4
120°	1895.8	1936.3	1985.2	2017.7	1652.1
122.5°	2047.3	2090.7	2145.0	2161.1	2164.0
125°	2201.7	2237.1	2288.5	2307.5	2315.5
127.5°	2342.5	2380.5	2421.3	2448.3	2450.9
130°	2475.3	2518.8	2548.4	2578.2	2575.7
132.5°	2610.7	2646.1	2675.7	2700.1	2697.5
135°	2724.6	2768.0	2792.1	2819.4	2814.0
137.5°	2843.6	2876.1	2903.4	2930.4	2922.3
140°	2959.9	2981.9	3011.4	3035.9	3022.4
142.5°	3057.7	3076.7	3111.7	3133.3	3119.8
145°	3160.6	3157.8	3203.8	3222.8	3209.2
147.5°	3249.7	3241.7	3287.6	3301.2	3290.6
150°	3336.5	3317.6	3361.0	3377.1	3363.6
152.5°	3409.5	3388.0	3428.6	3444.9	3425.9
155°	3480.0	3455.9	3488.4	3504.4	3482.9
157.5°	3536.9	3515.4	3539.8	3558.8	3536.9
160°	3585.8	3569.4	3585.8	3601.9	3583.0
162.5°	3628.9	3612.8	3626.3	3645.3	3620.9
165°	3666.8	3650.7	3658.8	3677.8	3658.8
167.5°	3696.7	3680.3	3688.8	3707.7	3683.2
170°	3721.1	3704.8	3710.3	3729.2	3704.8
172.5°	3737.2	3721.1	3726.7	3745.6	3721.1
175°	3750.7	3731.8	3737.2	3756.3	3729.2
177.5°	3756.3	3737.2	3740.2	3759.2	3734.7
180°	3742.8	3742.8	3742.8	3742.8	3742.8

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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	13.04	13.98	13.92	14.88	16.03	12.60	13.54	13.48	14.44	15.59
	3H	14.71	15.56	15.61	16.47	17.64	14.22	15.07	15.11	15.98	17.15
	4H	15.31	16.10	16.21	17.02	18.20	14.81	15.61	15.72	16.53	17.71
	6H	15.71	16.45	16.63	17.37	18.57	15.21	15.95	16.13	16.87	18.07
	8H	15.82	16.52	16.75	17.46	18.66	15.32	16.02	16.25	16.96	18.16
	12H	15.87	16.54	16.81	17.48	18.70	15.36	16.03	16.30	16.97	18.19
4H	2H	13.51	14.31	14.43	15.23	16.41	13.16	13.96	14.07	14.87	16.06
	3H	15.39	16.06	16.31	17.01	18.20	14.98	15.65	15.91	16.60	17.79
	4H	16.11	16.72	17.05	17.66	18.88	15.69	16.30	16.62	17.24	18.46
	6H	16.63	17.16	17.58	18.13	19.35	16.20	16.73	17.15	17.70	18.92
	8H	16.79	17.28	17.74	18.24	19.48	16.35	16.84	17.30	17.80	19.04
	12H	16.87	17.31	17.84	18.29	19.53	16.42	16.86	17.39	17.84	19.08
8H	4H	16.31	16.80	17.27	17.77	19.00	15.94	16.43	16.89	17.39	18.63
	6H	16.95	17.36	17.93	18.36	19.60	16.57	16.98	17.55	17.98	19.21
	8H	17.18	17.54	18.16	18.53	19.78	16.79	17.14	17.77	18.14	19.39
	12H	17.32	17.63	18.31	18.62	19.92	16.91	17.22	17.90	18.21	19.51
12H	4H	16.30	16.75	17.27	17.72	18.97	15.94	16.38	16.91	17.36	18.60
	6H	16.98	17.34	17.97	18.34	19.59	16.61	16.97	17.60	17.96	19.22
	8H	17.23	17.55	18.22	18.53	19.83	16.85	17.17	17.84	18.15	19.45