

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: P912397

Luminaire Tested: DFN2DIP-SQ4F0-140D120US850-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P912397
REPORT IS A COMBINATION OF REPORTS P901701 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-140D120US850-FLLONL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

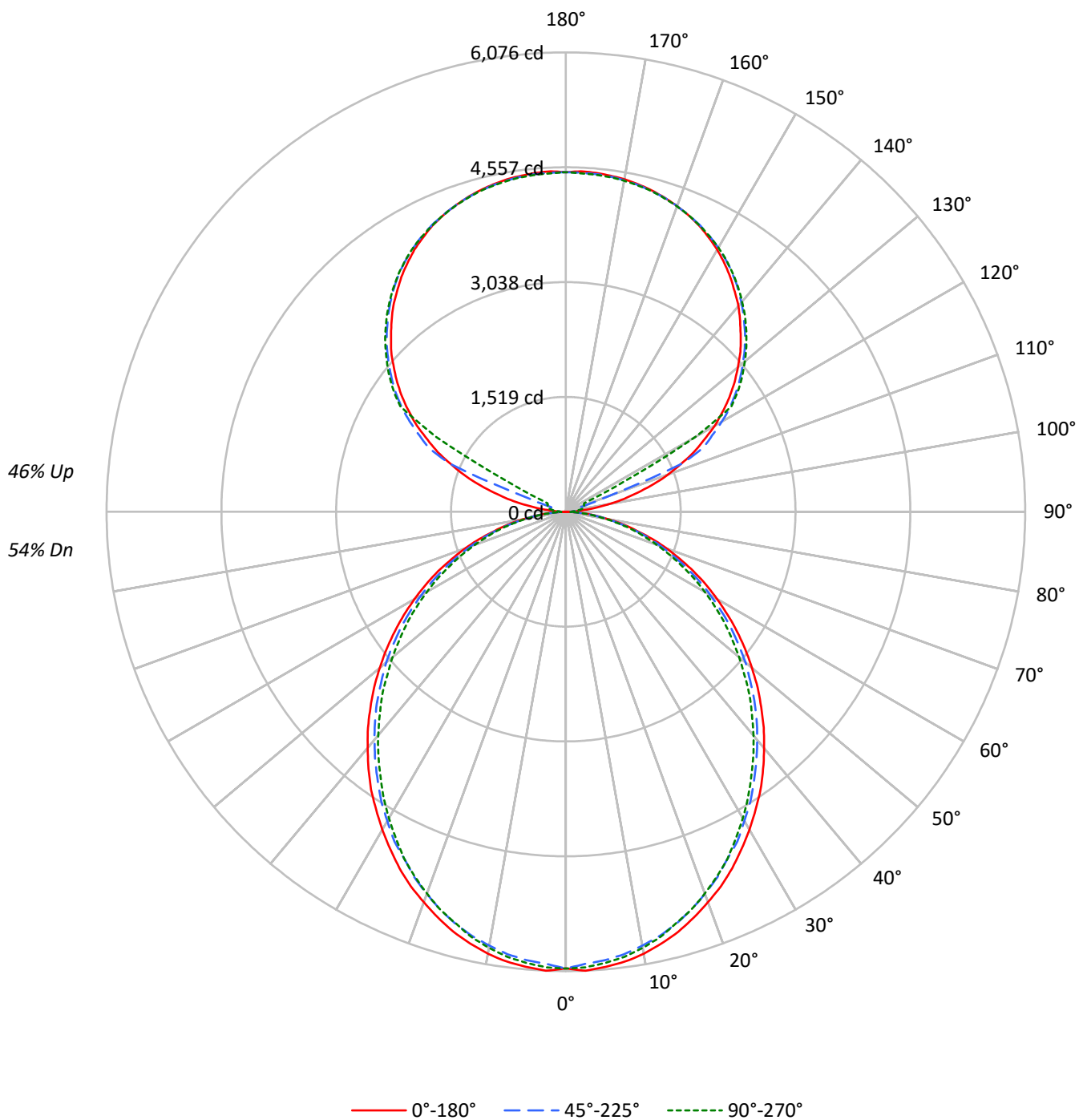
Lumens per Lamp: N/A
Luminaire Lumens: 28545.7 lumens
Efficiency: N/A
Efficacy: 122.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 233.9
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

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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	85	85	85	72	72	72	60	60	60
1	99	94	90	87	91	88	84	81	75	73	70	63	62	60	53	52	50
2	90	82	76	71	83	77	71	67	66	62	58	56	53	50	46	44	42
3	82	72	65	59	76	67	61	56	58	53	49	49	46	42	41	38	36
4	75	64	56	50	69	60	53	47	52	46	42	44	40	36	37	34	31
5	69	57	49	43	64	53	46	41	46	40	36	39	35	32	33	30	27
6	63	51	43	37	59	48	41	35	42	36	31	36	31	28	30	27	24
7	59	46	38	33	54	43	36	31	38	32	28	32	28	24	27	24	21
8	54	42	34	29	50	39	32	28	34	29	25	30	25	22	25	22	19
9	51	38	31	26	47	36	29	25	32	26	22	27	23	20	23	20	17
10	47	35	28	23	44	33	27	22	29	24	20	25	21	18	22	18	16

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

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	568.6	2.0
10°-20°	1599.8	5.6
20°-30°	2351.1	8.2
30°-40°	2730.7	9.6
40°-50°	2727.3	9.6
50°-60°	2378.1	8.3
60°-70°	1757.9	6.2
70°-80°	994.6	3.5
80°-90°	270.4	0.9
90°-100°	148.1	0.5
100°-110°	552.1	1.9
110°-120°	1464.2	5.1
120°-130°	2428.5	8.5
130°-140°	2579.6	9.0
140°-150°	2397.5	8.4
150°-160°	1927.5	6.8
160°-170°	1242.0	4.4
170°-180°	427.5	1.5
0°-30°	4519.6	15.8
0°-40°	7250.2	25.4
0°-60°	12355.7	43.3
0°-90°	15378.6	53.9
90°-120°	2164.4	7.6
90°-150°	9570.0	33.5
90°-180°	13167.0	46.1
0°-180°	28545.7	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	39	65	81	88	26
95°	211	104	126	143	140	250
105°	988	1086	198	234	247	1056
115°	1869	1924	2005	500	267	1840
125°	2642	2684	2746	2769	2779	2356
135°	3269	3322	3350	3383	3377	2526
145°	3793	3789	3844	3867	3851	2372
155°	4176	4147	4186	4205	4180	1924
165°	4400	4381	4390	4413	4390	1243
175°	4501	4478	4485	4508	4475	428
180°	4491	4491	4491	4491	4491	

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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°	3.1	38.9	64.9	81.4	87.6
92.5°	81.4	68.3	78.0	84.5	87.6
95°	211.0	103.8	126.5	143.2	139.7
97.5°	380.2	113.9	165.6	175.6	178.7
100°	575.3	130.1	185.2	211.0	217.7
102.5°	789.6	783.4	191.7	227.3	237.3
105°	987.9	1085.6	198.4	233.9	247.0
107.5°	1218.7	1299.7	204.9	240.4	253.5
110°	1439.8	1507.8	568.8	243.9	256.6

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1647.9	1706.1	1651.0	250.1	260.1
115°	1868.6	1923.8	2005.2	500.5	266.7
117.5°	2060.4	2125.3	2180.8	1715.7	864.5
120°	2275.0	2323.6	2382.2	2421.3	1982.4
122.5°	2456.8	2508.9	2574.1	2593.4	2596.8
125°	2642.0	2684.4	2746.2	2769.0	2778.6
127.5°	2811.0	2856.6	2905.6	2938.0	2941.1
130°	2970.3	3022.5	3058.0	3093.9	3090.8
132.5°	3132.8	3175.3	3210.8	3240.2	3237.1
135°	3269.4	3321.6	3350.5	3383.3	3376.8
137.5°	3412.3	3451.2	3484.0	3516.4	3506.8
140°	3552.0	3578.2	3613.7	3643.1	3626.9
142.5°	3669.2	3692.1	3734.1	3760.0	3743.8
145°	3792.8	3789.3	3844.5	3867.3	3851.0
147.5°	3899.7	3890.0	3945.3	3961.5	3948.7
150°	4003.8	3981.1	4033.2	4052.5	4036.3
152.5°	4091.4	4065.6	4114.3	4133.9	4111.2
155°	4175.9	4147.0	4186.0	4205.3	4179.5
157.5°	4244.3	4218.4	4247.8	4270.5	4244.3
160°	4302.9	4283.3	4302.9	4322.2	4299.5
162.5°	4354.7	4335.4	4351.6	4374.3	4345.1
165°	4400.2	4380.9	4390.5	4413.4	4390.5
167.5°	4436.1	4416.4	4426.5	4449.2	4419.9
170°	4465.4	4445.8	4452.3	4475.0	4445.8
172.5°	4484.7	4465.4	4472.0	4494.8	4465.4
175°	4500.9	4478.1	4484.7	4507.5	4475.0
177.5°	4507.5	4484.7	4488.2	4511.0	4481.7
180°	4491.3	4491.3	4491.3	4491.3	4491.3

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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	12.65	13.55	13.58	14.49	15.71	12.21	13.11	13.13	14.05	15.26
	3H	14.32	15.13	15.26	16.08	17.31	13.83	14.64	14.77	15.59	16.82
	4H	14.91	15.67	15.86	16.63	17.88	14.42	15.18	15.37	16.14	17.38
	6H	15.32	16.02	16.28	16.98	18.24	14.82	15.52	15.78	16.48	17.74
	8H	15.43	16.09	16.39	17.07	18.33	14.92	15.59	15.89	16.57	17.83
	12H	15.48	16.11	16.45	17.09	18.37	14.97	15.60	15.94	16.58	17.86
4H	2H	13.12	13.88	14.07	14.84	16.08	12.76	13.53	13.72	14.48	15.73
	3H	14.99	15.63	15.96	16.61	17.88	14.59	15.22	15.55	16.21	17.47
	4H	15.71	16.29	16.69	17.27	18.56	15.29	15.87	16.26	16.85	18.13
	6H	16.23	16.73	17.22	17.74	19.02	15.80	16.30	16.79	17.31	18.59
	8H	16.39	16.85	17.38	17.85	19.15	15.95	16.42	16.94	17.41	18.71
	12H	16.46	16.89	17.47	17.90	19.20	16.01	16.44	17.02	17.45	18.75
8H	4H	15.91	16.38	16.90	17.38	18.68	15.54	16.00	16.52	17.00	18.30
	6H	16.55	16.94	17.56	17.97	19.27	16.17	16.55	17.18	17.59	18.89
	8H	16.77	17.12	17.80	18.14	19.46	16.38	16.72	17.40	17.75	19.06
	12H	16.91	17.21	17.94	18.23	19.59	16.50	16.80	17.52	17.82	19.18
12H	4H	15.90	16.32	16.91	17.33	18.64	15.53	15.95	16.54	16.97	18.27
	6H	16.58	16.92	17.60	17.95	19.26	16.21	16.55	17.23	17.58	18.89
	8H	16.83	17.13	17.85	18.15	19.51	16.45	16.75	17.47	17.77	19.13