

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: P912400

Luminaire Tested: DFN2DIP-SQ4F0-140D140US850-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P912400
REPORT IS A COMBINATION OF REPORTS P900199 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-140D140US850-FLLFLL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

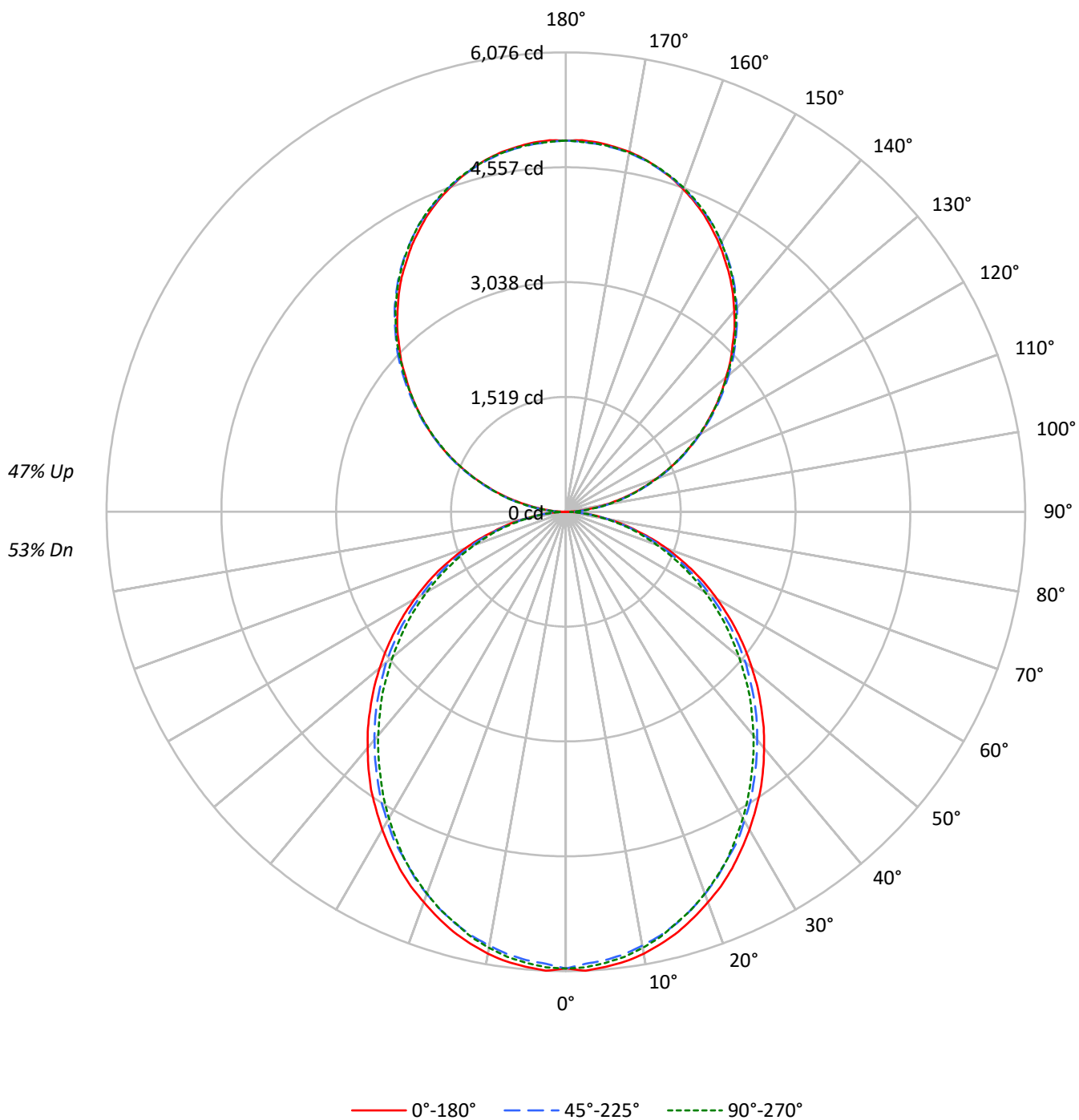
Lumens per Lamp: N/A
Luminaire Lumens: 29111.2 lumens
Efficiency: N/A
Efficacy: 116.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 249.6
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	71	71	71	59	59	59
1	98	94	90	87	91	87	84	81	74	72	70	63	61	59	52	51	50
2	90	82	76	71	83	76	71	66	65	61	58	55	52	50	46	44	42
3	82	72	65	59	75	67	61	55	58	53	49	49	45	42	41	38	36
4	75	64	56	50	69	60	52	47	51	46	41	43	39	36	36	33	31
5	69	57	49	43	63	53	46	40	46	40	36	39	35	31	33	29	27
6	63	51	43	37	58	48	40	35	41	36	31	35	31	27	30	26	24
7	59	46	38	33	54	43	36	31	37	32	28	32	28	24	27	24	21
8	54	42	34	29	50	39	32	27	34	29	24	29	25	22	25	21	19
9	51	38	31	26	47	36	29	24	31	26	22	27	23	19	23	20	17
10	47	35	28	23	44	33	26	22	29	23	20	25	21	18	21	18	15

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: 90°

Vertical Angle: 90°

Luminance: 3864 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	568.6	2.0
10°-20°	1599.8	5.5
20°-30°	2351.1	8.1
30°-40°	2730.7	9.4
40°-50°	2727.3	9.4
50°-60°	2378.1	8.2
60°-70°	1757.9	6.0
70°-80°	994.6	3.4
80°-90°	276.5	0.9
90°-100°	303.8	1.0
100°-110°	965.4	3.3
110°-120°	1652.1	5.7
120°-130°	2172.8	7.5
130°-140°	2438.9	8.4
140°-150°	2391.6	8.2
150°-160°	2006.2	6.9
160°-170°	1330.5	4.6
170°-180°	465.0	1.6
0°-30°	4519.6	15.5
0°-40°	7250.2	24.9
0°-60°	12355.7	42.4
0°-90°	15384.7	52.8
90°-120°	2921.4	10.0
90°-150°	9924.8	34.1
90°-180°	13727.0	47.2
0°-180°	29111.2	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°	4	53	145	136	141	28
95°	216	258	265	265	258	241
105°	891	903	912	919	919	940
115°	1658	1682	1674	1670	1658	1640
125°	2412	2448	2437	2423	2419	2155
135°	3119	3165	3174	3169	3158	2411
145°	3787	3816	3840	3844	3828	2366
155°	4330	4342	4355	4376	4363	1993
165°	4710	4706	4706	4736	4715	1329
175°	4901	4890	4881	4910	4885	466
180°	4910	4910	4910	4910	4910	

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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°	4.4	53.3	145.1	136.2	140.6
92.5°	91.8	124.3	128.8	133.2	133.2
95°	216.1	257.6	264.9	264.9	257.6
97.5°	359.8	398.2	414.5	414.5	414.5
100°	525.6	559.6	571.4	571.4	566.9
102.5°	700.2	725.4	741.7	746.1	741.7
105°	891.2	903.1	911.9	919.3	919.3
107.5°	1080.6	1098.5	1098.5	1101.3	1080.6
110°	1264.3	1287.9	1287.9	1287.9	1276.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1462.5	1487.7	1483.3	1471.4	1462.5
115°	1658.0	1681.7	1674.3	1669.8	1658.0
117.5°	1851.9	1884.5	1863.8	1851.9	1840.1
120°	2047.3	2079.9	2047.3	2047.3	2034.0
122.5°	2225.0	2266.4	2245.7	2233.9	2225.0
125°	2411.5	2448.5	2436.6	2423.3	2418.8
127.5°	2593.5	2639.4	2623.1	2605.4	2593.5
130°	2763.7	2817.1	2809.7	2800.8	2784.5
132.5°	2954.7	2996.2	2999.2	2978.4	2966.6
135°	3119.1	3165.0	3173.8	3169.4	3157.5
137.5°	3302.6	3339.6	3347.1	3344.1	3326.3
140°	3464.0	3501.0	3521.7	3521.7	3505.4
142.5°	3629.8	3666.8	3678.7	3683.1	3666.8
145°	3786.7	3816.3	3840.0	3844.5	3828.2
147.5°	3927.3	3964.3	3982.1	3989.5	3973.2
150°	4072.4	4097.5	4113.8	4127.1	4113.8
152.5°	4201.2	4226.4	4247.1	4263.3	4247.1
155°	4330.0	4341.8	4355.2	4375.9	4362.6
157.5°	4441.0	4449.9	4457.3	4486.9	4466.2
160°	4540.2	4549.1	4553.6	4578.7	4560.9
162.5°	4632.0	4632.0	4636.4	4664.6	4643.8
165°	4710.5	4706.0	4706.0	4735.7	4714.9
167.5°	4781.5	4768.1	4768.1	4797.8	4777.0
170°	4834.8	4822.9	4818.5	4848.1	4822.9
172.5°	4871.8	4860.0	4855.5	4885.1	4860.0
175°	4901.4	4889.6	4880.7	4910.3	4885.1
177.5°	4917.6	4905.9	4897.0	4922.1	4897.0
180°	4910.3	4910.3	4910.3	4910.3	4910.3

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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	12.56	13.45	13.49	14.40	15.63	12.12	13.00	13.05	13.95	15.18
	3H	14.23	15.02	15.17	15.98	17.24	13.74	14.53	14.68	15.49	16.75
	4H	14.82	15.57	15.78	16.54	17.80	14.33	15.08	15.28	16.04	17.30
	6H	15.22	15.92	16.19	16.89	18.16	14.72	15.42	15.69	16.39	17.66
	8H	15.33	15.99	16.31	16.98	18.25	14.83	15.49	15.81	16.48	17.75
	12H	15.38	16.01	16.36	16.99	18.29	14.87	15.50	15.85	16.48	17.78
4H	2H	13.03	13.78	13.99	14.74	16.00	12.67	13.42	13.63	14.39	15.65
	3H	14.90	15.53	15.87	16.52	17.80	14.49	15.12	15.46	16.11	17.39
	4H	15.62	16.19	16.60	17.18	18.48	15.19	15.77	16.18	16.76	18.06
	6H	16.14	16.63	17.13	17.64	18.94	15.71	16.20	16.70	17.21	18.51
	8H	16.29	16.75	17.29	17.76	19.07	15.85	16.32	16.85	17.32	18.63
	12H	16.37	16.79	17.38	17.80	19.12	15.92	16.34	16.93	17.36	18.67
8H	4H	15.82	16.28	16.81	17.28	18.60	15.44	15.90	16.44	16.91	18.22
	6H	16.45	16.84	17.47	17.88	19.19	16.07	16.45	17.09	17.50	18.81
	8H	16.68	17.02	17.71	18.05	19.38	16.29	16.62	17.31	17.65	18.98
	12H	16.81	17.11	17.85	18.14	19.51	16.40	16.70	17.44	17.73	19.10
12H	4H	15.80	16.22	16.82	17.24	18.56	15.44	15.85	16.45	16.87	18.19
	6H	16.48	16.82	17.51	17.85	19.18	16.11	16.45	17.14	17.48	18.81
	8H	16.73	17.03	17.76	18.05	19.43	16.35	16.65	17.38	17.67	19.05

END OF REPORT