

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: P912402

Luminaire Tested: DFN2DIP-SQ4F0-140D140US850-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P912402
REPORT IS A COMBINATION OF REPORTS P900200 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-140D140US850-RLLFLL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

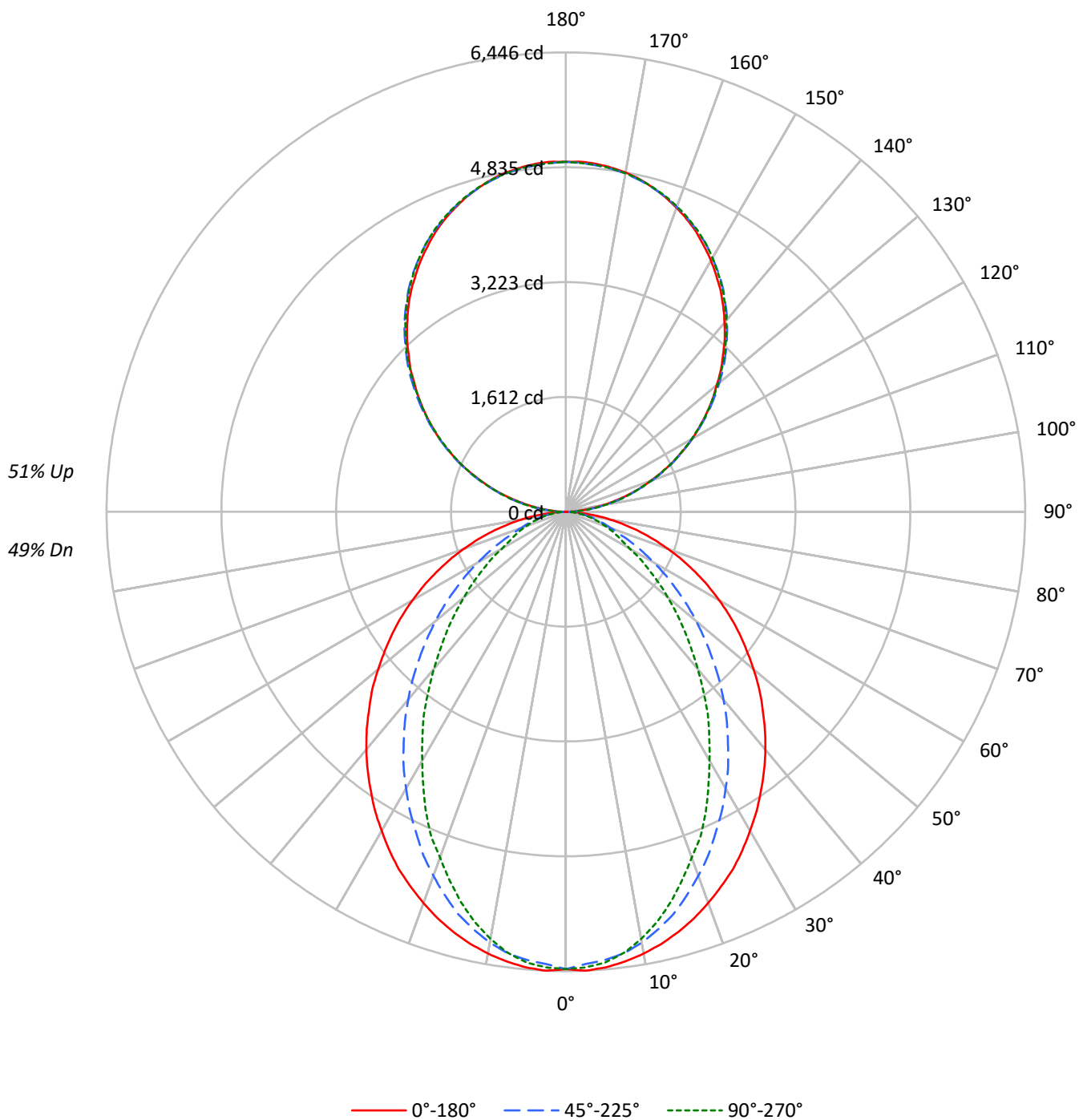
Lumens per Lamp: N/A
Luminaire Lumens: 26937.6 lumens
Efficiency: N/A
Efficacy: 107.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 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	107	107	107	107	99	99	99	99	83	83	83	68	68	68	55	55	55
1	98	94	90	87	90	87	84	81	73	71	69	61	59	58	50	49	48
2	90	83	77	72	82	76	71	67	65	61	58	54	51	49	44	42	41
3	82	73	66	60	75	68	61	57	58	53	49	48	45	42	40	37	35
4	75	65	57	51	69	60	54	48	51	46	42	43	40	36	36	33	31
5	69	58	50	44	64	54	47	42	46	41	37	39	35	32	32	29	27
6	64	52	44	39	59	49	42	37	42	36	32	35	31	28	30	26	24
7	59	47	40	34	55	44	37	32	38	33	29	32	28	25	27	24	22
8	55	43	36	30	51	40	33	29	35	29	26	30	26	23	25	22	20
9	51	39	32	27	47	37	30	26	32	27	23	27	23	20	23	20	18
10	48	36	29	24	44	34	28	23	30	24	21	25	21	19	22	18	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4503	4503	4503
5°	4510	4432	4461
10°	4465	4346	4317
15°	4403	4203	4094
20°	4322	4006	3819
25°	4239	3785	3554
30°	4127	3558	3218
35°	4017	3314	2922
40°	3906	3061	2583
45°	3776	2781	2276
50°	3642	2498	1975
55°	3502	2195	1686
60°	3340	1879	1389
65°	3154	1557	1252
70°	2928	1257	1135
75°	2644	1110	1035
80°	2234	934	903
85°	1555	628	687

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°	601.4	2.2
10°-20°	1651.0	6.1
20°-30°	2317.9	8.6
30°-40°	2526.6	9.4
40°-50°	2322.3	8.6
50°-60°	1823.8	6.8
60°-70°	1187.1	4.4
70°-80°	611.1	2.3
80°-90°	169.9	0.6
90°-100°	303.8	1.1
100°-110°	965.4	3.6
110°-120°	1652.1	6.1
120°-130°	2172.8	8.1
130°-140°	2438.9	9.1
140°-150°	2391.6	8.9
150°-160°	2006.2	7.4
160°-170°	1330.5	4.9
170°-180°	465.0	1.7
0°-30°	4570.2	17.0
0°-40°	7096.9	26.3
0°-60°	11242.9	41.7
0°-90°	13211.0	49.0
90°-120°	2921.4	10.8
90°-150°	9924.8	36.8
90°-180°	13727.0	51.0
0°-180°	26937.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	6417	6417	6417	6417	6417	
5°	6417	6388	6312	6365	6347	608
15°	6103	6039	5842	5732	5674	1720
25°	5540	5354	4971	4733	4646	2548
35°	4774	4477	3967	3601	3472	2988
45°	3902	3513	2904	2491	2352	3014
55°	2967	2514	1887	1539	1429	2651
65°	2004	1533	1010	813	795	1986
75°	1068	662	465	424	418	1130
85°	250	128	110	110	110	286
90°	4	53	145	136	141	27
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°	6416.9	6416.9	6416.9	6416.9	6416.9
2.5°	6445.8	6416.9	6352.8	6411.4	6399.6
5°	6416.9	6388.0	6312.1	6364.6	6347.3
7.5°	6364.6	6330.0	6248.7	6271.5	6242.6
10°	6294.9	6254.2	6138.4	6120.5	6086.0
12.5°	6208.0	6155.6	5998.5	5964.0	5900.0
15°	6103.3	6039.2	5842.0	5731.8	5673.9
17.5°	5981.3	5888.2	5644.3	5516.7	5423.7
20°	5842.0	5725.5	5435.4	5290.6	5162.5
22.5°	5691.1	5557.4	5220.4	5023.2	4936.4
25°	5540.1	5354.0	4970.9	4733.0	4645.5
27.5°	5360.2	5162.5	4738.5	4465.6	4332.0
30°	5168.6	4947.5	4482.9	4187.1	4030.0
32.5°	4982.5	4715.1	4239.5	3890.8	3745.4
35°	4773.7	4477.4	3966.6	3600.6	3472.4
37.5°	4570.4	4250.6	3710.8	3309.8	3165.0
40°	4355.4	4007.3	3443.4	3031.3	2880.4
42.5°	4134.8	3763.3	3176.7	2746.7	2601.8
45°	3902.5	3513.1	2903.8	2490.9	2351.7
47.5°	3681.9	3269.8	2642.5	2229.8	2102.2
50°	3437.9	3025.8	2386.8	1985.8	1864.3
52.5°	3199.5	2763.8	2142.8	1759.7	1649.3
55°	2967.2	2514.3	1887.2	1539.1	1428.7
57.5°	2729.4	2264.8	1661.1	1335.8	1242.7
60°	2485.4	2020.8	1422.6	1126.9	1033.8
62.5°	2247.6	1783.1	1219.3	940.8	894.6
65°	2003.6	1532.9	1010.4	813.2	795.4
67.5°	1771.3	1300.6	813.2	714.1	696.8
70°	1527.3	1074.5	673.4	615.5	592.1
72.5°	1295.1	865.0	563.2	516.9	505.3
75°	1068.3	661.7	464.6	423.9	418.3
77.5°	842.3	470.1	366.0	342.6	330.8
80°	632.8	337.0	278.5	255.7	255.7
82.5°	441.2	226.7	191.6	179.9	179.9
85°	249.5	127.5	110.2	110.2	110.2
87.5°	93.0	46.2	46.2	40.7	40.7
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	12.30	13.12	13.27	14.10	15.39	8.26	9.08	9.23	10.06	11.35
	3H	13.98	14.71	14.96	15.70	17.01	9.44	10.18	10.43	11.17	12.48
	4H	14.59	15.28	15.58	16.28	17.60	9.90	10.59	10.89	11.58	12.90
	6H	15.01	15.65	16.02	16.65	17.98	10.22	10.86	11.22	11.86	13.19
	8H	15.14	15.75	16.15	16.77	18.09	10.31	10.92	11.32	11.93	13.26
	12H	15.20	15.78	16.22	16.79	18.14	10.35	10.93	11.37	11.94	13.29
4H	2H	12.31	13.01	13.32	14.00	15.32	8.85	9.55	9.86	10.54	11.86
	3H	14.15	14.72	15.16	15.75	17.08	10.20	10.78	11.21	11.80	13.14
	4H	14.84	15.37	15.86	16.38	17.74	10.75	11.28	11.77	12.30	13.65
	6H	15.36	15.81	16.39	16.85	18.20	11.17	11.63	12.20	12.66	14.02
	8H	15.54	15.96	16.57	16.99	18.36	11.30	11.72	12.33	12.76	14.12
	12H	15.63	16.02	16.68	17.06	18.44	11.37	11.75	12.41	12.80	14.17
8H	4H	14.81	15.23	15.84	16.26	17.63	11.03	11.46	12.06	12.49	13.86
	6H	15.38	15.73	16.43	16.80	18.17	11.55	11.90	12.61	12.98	14.34
	8H	15.60	15.91	16.66	16.96	18.35	11.75	12.05	12.81	13.11	14.49
	12H	15.74	16.01	16.80	17.06	18.49	11.86	12.14	12.93	13.19	14.61
12H	4H	14.76	15.14	15.81	16.19	17.56	11.04	11.42	12.09	12.47	13.84
	6H	15.35	15.66	16.42	16.72	18.10	11.60	11.91	12.67	12.97	14.35
	8H	15.58	15.85	16.64	16.90	18.33	11.82	12.09	12.88	13.14	14.56

END OF REPORT