

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: P912222

Luminaire Tested: DFN2DIP-SQ4F0-080D140US850-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P912222
REPORT IS A COMBINATION OF REPORTS P900190 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-080D140US850-RLLFLL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

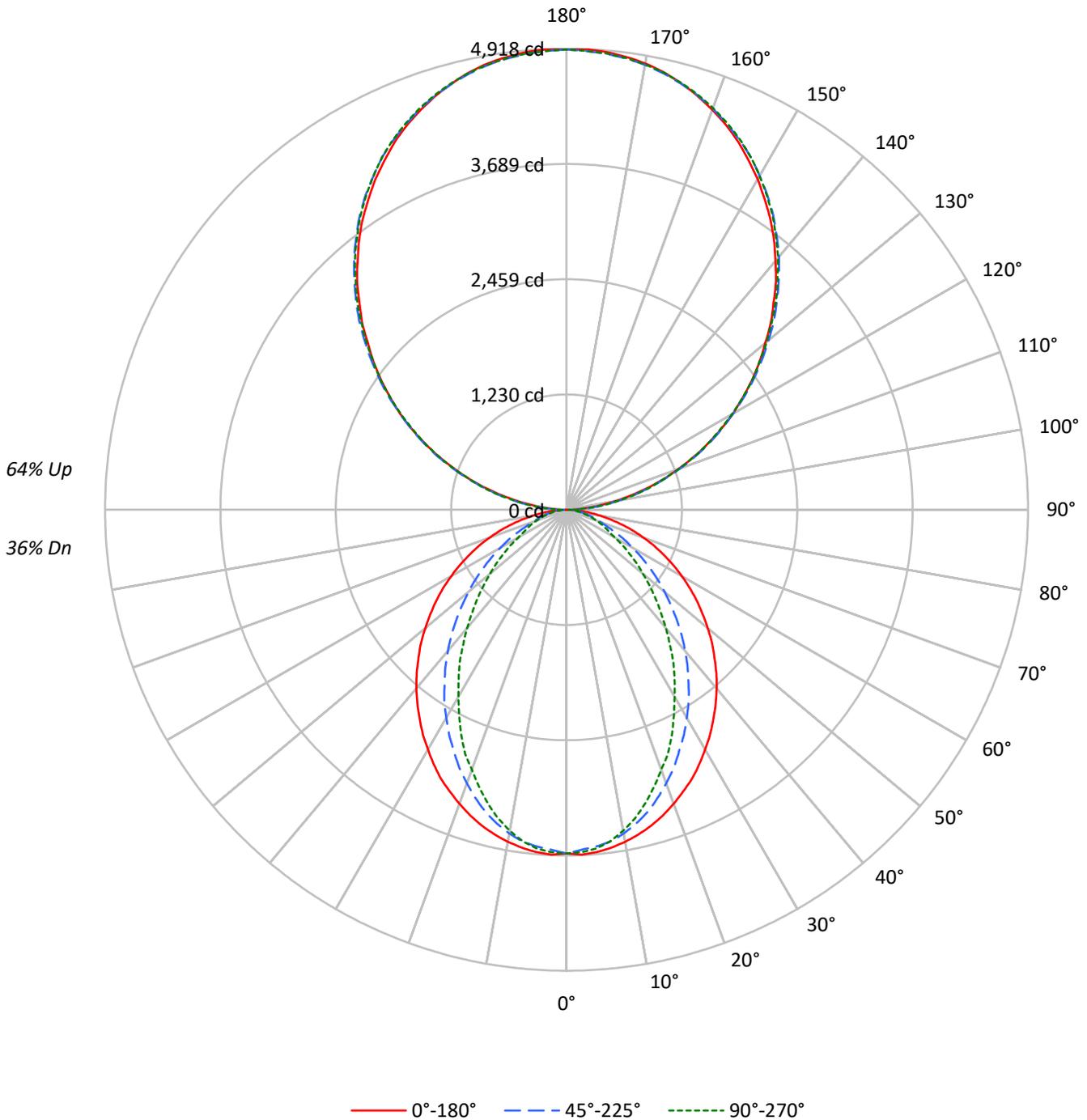
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 21281.7 lumens
Efficiency: N/A
Efficacy: 120.1 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: Semi-Indirect

Input Watts (W): 177.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9954
Total Harmonic Distortion (THDi): 0.076
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				20	
RC	80				70				50				30				10				0	
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0	
RCR																						
0	104	104	104	104	94	94	94	94	75	75	75	58	58	58	43	43	43	36				36
1	95	91	87	84	86	82	79	76	66	64	62	52	50	49	38	37	37	31				31
2	87	80	74	69	78	72	67	63	59	55	52	46	44	42	34	33	31	26				26
3	79	70	63	58	71	64	58	53	52	48	44	41	38	36	31	29	27	23				23
4	73	62	55	49	65	57	50	45	46	42	38	37	33	31	27	25	24	20				20
5	67	56	48	42	60	51	44	39	42	37	33	33	29	27	25	23	21	17				17
6	61	50	42	37	55	46	39	34	37	32	29	30	26	24	23	20	18	15				15
7	57	45	37	32	51	41	35	30	34	29	25	27	24	21	21	18	17	14				14
8	53	41	33	28	48	38	31	26	31	26	23	25	21	19	19	17	15	12				12
9	49	37	30	25	44	34	28	24	28	24	20	23	19	17	18	15	14	11				11
10	46	34	27	23	42	31	25	21	26	21	18	21	18	15	16	14	12	10				10

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2573	2573	2573
5°	2577	2533	2549
10°	2551	2483	2467
15°	2516	2402	2339
20°	2470	2289	2182
25°	2422	2163	2031
30°	2358	2033	1839
35°	2296	1894	1670
40°	2232	1749	1476
45°	2158	1589	1300
50°	2081	1428	1129
55°	2001	1255	964
60°	1909	1074	794
65°	1802	890	715
70°	1673	718	649
75°	1511	634	592
80°	1276	534	516
85°	889	359	393

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°	343.7	1.6
10°-20°	943.4	4.4
20°-30°	1324.5	6.2
30°-40°	1443.8	6.8
40°-50°	1327.0	6.2
50°-60°	1042.1	4.9
60°-70°	678.3	3.2
70°-80°	349.2	1.6
80°-90°	103.1	0.5
90°-100°	303.8	1.4
100°-110°	965.4	4.5
110°-120°	1652.1	7.8
120°-130°	2172.8	10.2
130°-140°	2438.9	11.5
140°-150°	2391.6	11.2
150°-160°	2006.2	9.4
160°-170°	1330.5	6.3
170°-180°	465.0	2.2
0°-30°	2611.6	12.3
0°-40°	4055.4	19.1
0°-60°	6424.5	30.2
0°-90°	7555.2	35.5
90°-120°	2921.4	13.7
90°-150°	9924.8	46.6
90°-180°	13727.0	64.5
0°-180°	21281.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3667	3667	3667	3667	3667	
5°	3667	3650	3607	3637	3627	348
15°	3488	3451	3338	3275	3242	983
25°	3166	3060	2840	2705	2655	1456
35°	2728	2558	2267	2058	1984	1707
45°	2230	2008	1659	1423	1344	1722
55°	1696	1437	1078	879	816	1515
65°	1145	876	577	465	454	1135
75°	610	378	266	242	239	646
85°	143	73	63	63	63	164
90°	4	53	145	136	141	21
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°	3666.8	3666.8	3666.8	3666.8	3666.8
2.5°	3683.3	3666.8	3630.2	3663.6	3656.9
5°	3666.8	3650.3	3606.9	3636.9	3627.0
7.5°	3636.9	3617.1	3570.6	3583.7	3567.1
10°	3597.0	3573.9	3507.7	3497.5	3477.7
12.5°	3547.5	3517.5	3427.7	3408.0	3371.4
15°	3487.6	3451.0	3338.3	3275.3	3242.2
17.5°	3417.8	3364.7	3225.3	3152.4	3099.2
20°	3338.3	3271.8	3106.0	3023.2	2949.9
22.5°	3252.0	3175.6	2983.1	2870.4	2820.7
25°	3165.8	3059.5	2840.5	2704.6	2654.6
27.5°	3062.9	2949.9	2707.7	2551.8	2475.4
30°	2953.5	2827.1	2561.7	2392.7	2302.8
32.5°	2847.1	2694.4	2422.6	2223.3	2140.3
35°	2727.8	2558.5	2266.6	2057.5	1984.2
37.5°	2611.6	2428.9	2120.5	1891.3	1808.6
40°	2488.8	2289.9	1967.7	1732.1	1645.9
42.5°	2362.7	2150.5	1815.2	1569.6	1486.7
45°	2230.0	2007.5	1659.3	1423.4	1343.9
47.5°	2104.0	1868.4	1510.0	1274.1	1201.3
50°	1964.5	1729.0	1364.0	1134.7	1065.3
52.5°	1828.3	1579.3	1224.4	1005.5	942.5
55°	1695.6	1436.8	1078.4	879.4	816.4
57.5°	1559.7	1294.2	949.2	763.3	710.1
60°	1420.2	1154.8	812.9	643.9	590.8
62.5°	1284.3	1018.8	696.8	537.6	511.2
65°	1144.9	875.9	577.3	464.8	454.5
67.5°	1012.2	743.3	464.8	408.0	398.2
70°	872.8	614.1	384.8	351.7	338.4
72.5°	740.0	494.3	321.8	295.4	288.7
75°	610.5	378.2	265.5	242.2	239.1
77.5°	481.3	268.6	209.2	195.7	189.1
80°	361.5	192.6	159.1	146.1	146.1
82.5°	252.1	129.5	109.5	102.8	102.8
85°	142.6	72.9	63.0	63.0	63.0
87.5°	53.1	26.4	26.4	23.3	23.3
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	8.91	9.64	9.99	10.71	12.18	4.87	5.60	5.95	6.67	8.14
	3H	10.59	11.24	11.67	12.32	13.80	6.06	6.70	7.14	7.79	9.27
	4H	11.19	11.81	12.29	12.89	14.38	6.50	7.12	7.60	8.20	9.69
	6H	11.61	12.18	12.72	13.27	14.77	6.82	7.38	7.92	8.47	9.97
	8H	11.74	12.28	12.85	13.38	14.88	6.91	7.44	8.02	8.55	10.04
	12H	11.80	12.31	12.91	13.41	14.93	6.95	7.46	8.06	8.55	10.07
4H	2H	8.92	9.53	10.02	10.62	12.11	5.46	6.07	6.56	7.16	8.65
	3H	10.74	11.25	11.85	12.37	13.87	6.80	7.31	7.91	8.42	9.93
	4H	11.43	11.90	12.55	13.00	14.53	7.34	7.81	8.46	8.91	10.44
	6H	11.95	12.35	13.07	13.47	14.99	7.76	8.16	8.88	9.29	10.80
	8H	12.12	12.50	13.25	13.61	15.15	7.89	8.26	9.01	9.38	10.91
	12H	12.22	12.56	13.35	13.68	15.22	7.95	8.29	9.09	9.42	10.95
8H	4H	11.39	11.77	12.52	12.89	14.42	7.62	7.99	8.74	9.11	10.64
	6H	11.96	12.27	13.10	13.43	14.96	8.14	8.44	9.28	9.60	11.13
	8H	12.18	12.45	13.33	13.59	15.14	8.33	8.60	9.48	9.74	11.28
	12H	12.32	12.56	13.47	13.69	15.28	8.44	8.68	9.59	9.81	11.40
12H	4H	11.34	11.68	12.48	12.81	14.35	7.62	7.96	8.76	9.09	10.63
	6H	11.94	12.21	13.09	13.35	14.89	8.19	8.46	9.33	9.59	11.14
	8H	12.16	12.39	13.31	13.53	15.11	8.39	8.63	9.54	9.77	11.35