

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: P912223

Luminaire Tested: DFN2DIP-SQ4F0-080D140US850-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P912223
REPORT IS A COMBINATION OF REPORTS P901710 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-080D140US850-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

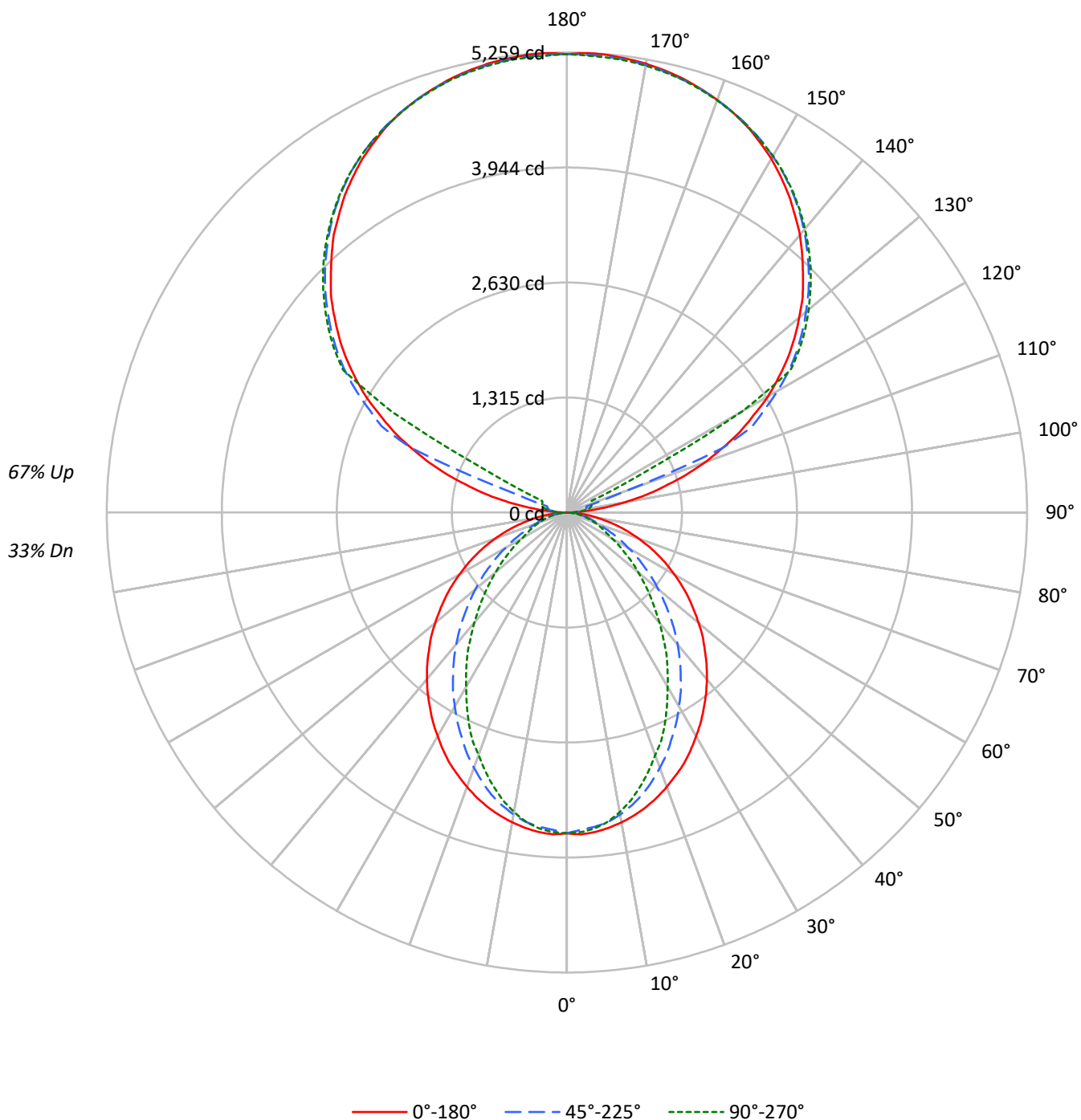
Lumens per Lamp: N/A
Luminaire Lumens: 22911.9 lumens
Efficiency: N/A
Efficacy: 129.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Indirect

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
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	103	103	103	103	93	93	93	93	74	74	74	56	56	56	40	40	40
1	94	90	87	83	85	81	78	76	65	63	61	50	49	48	36	35	35
2	86	79	73	68	77	72	67	62	57	54	51	44	42	40	32	31	30
3	79	70	63	57	71	63	57	53	51	47	43	39	37	34	29	27	26
4	72	62	54	49	65	56	50	45	45	41	37	35	32	30	26	24	22
5	66	55	47	42	59	50	43	38	41	36	32	32	28	26	24	21	20
6	61	49	42	36	55	45	38	33	37	32	28	29	25	23	21	19	17
7	56	45	37	32	51	41	34	29	33	28	25	26	23	20	20	17	16
8	52	41	33	28	47	37	31	26	30	25	22	24	21	18	18	16	14
9	49	37	30	25	44	34	27	23	28	23	20	22	19	16	17	14	13
10	45	34	27	22	41	31	25	21	26	21	18	20	17	15	16	13	12

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: 2809 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	343.7	1.5
10°-20°	943.4	4.1
20°-30°	1324.5	5.8
30°-40°	1443.8	6.3
40°-50°	1327.0	5.8
50°-60°	1042.1	4.5
60°-70°	678.3	3.0
70°-80°	349.2	1.5
80°-90°	98.4	0.4
90°-100°	172.8	0.8
100°-110°	644.1	2.8
110°-120°	1708.2	7.5
120°-130°	2833.3	12.4
130°-140°	3009.6	13.1
140°-150°	2797.1	12.2
150°-160°	2248.8	9.8
160°-170°	1449.0	6.3
170°-180°	498.7	2.2
0°-30°	2611.6	11.4
0°-40°	4055.4	17.7
0°-60°	6424.5	28.0
0°-90°	7550.4	33.0
90°-120°	2525.1	11.0
90°-150°	11165.0	48.7
90°-180°	15362.0	67.0
0°-180°	22911.9	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	46	76	95	102	21
95°	246	121	148	167	163	292
105°	1153	1266	231	273	288	1231
115°	2180	2244	2339	584	311	2146
125°	3082	3132	3204	3230	3242	2749
135°	3814	3875	3909	3947	3940	2947
145°	4425	4421	4485	4512	4493	2767
155°	4872	4838	4884	4906	4876	2245
165°	5134	5111	5122	5149	5122	1450
175°	5251	5224	5232	5259	5221	500
180°	5240	5240	5240	5240	5240	

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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°	3.5	45.5	75.6	95.0	102.2
92.5°	95.0	79.7	90.9	98.6	102.2
95°	246.3	121.1	147.7	167.0	163.0
97.5°	443.5	132.9	193.2	204.8	208.5
100°	671.3	151.7	216.1	246.3	254.0
102.5°	921.1	913.9	223.8	265.2	276.9
105°	1152.6	1266.5	231.4	272.8	288.1
107.5°	1421.8	1516.3	239.1	280.5	295.8
110°	1679.8	1759.1	663.6	284.6	299.4

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1922.5	1990.4	1926.1	291.8	303.4
115°	2180.1	2244.4	2339.4	584.0	311.1
117.5°	2403.8	2479.4	2544.3	2001.7	1008.5
120°	2654.2	2710.8	2779.3	2824.7	2312.8
122.5°	2866.2	2927.0	3003.1	3025.6	3029.7
125°	3082.4	3131.8	3203.9	3230.4	3241.7
127.5°	3279.5	3332.7	3389.8	3427.6	3431.2
130°	3465.4	3526.3	3567.7	3609.6	3605.9
132.5°	3655.0	3704.5	3746.0	3780.1	3776.6
135°	3814.4	3875.2	3908.9	3947.2	3939.5
137.5°	3981.0	4026.4	4064.7	4102.5	4091.3
140°	4144.0	4174.6	4216.0	4250.2	4231.3
142.5°	4280.9	4307.4	4356.5	4386.6	4367.7
145°	4424.9	4420.8	4485.2	4511.9	4492.9
147.5°	4549.7	4538.4	4602.8	4621.6	4606.8
150°	4671.2	4644.6	4705.4	4727.9	4709.0
152.5°	4773.4	4743.2	4800.0	4822.9	4796.3
155°	4871.9	4838.2	4883.7	4906.2	4876.1
157.5°	4951.7	4921.5	4955.8	4982.3	4951.7
160°	5020.1	4997.2	5020.1	5042.6	5016.1
162.5°	5080.4	5057.9	5076.9	5103.4	5069.2
165°	5133.6	5111.0	5122.4	5148.9	5122.4
167.5°	5175.5	5152.5	5164.2	5190.8	5156.5
170°	5209.6	5186.7	5194.3	5221.0	5186.7
172.5°	5232.2	5209.6	5217.3	5243.9	5209.6
175°	5251.1	5224.5	5232.2	5258.8	5221.0
177.5°	5258.8	5232.2	5236.3	5262.8	5228.6
180°	5239.8	5239.8	5239.8	5239.8	5239.8

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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	8.60	9.31	9.70	10.40	11.90	4.56	5.27	5.66	6.36	7.86
	3H	10.27	10.91	11.38	12.01	13.52	5.74	6.37	6.85	7.47	8.99
	4H	10.88	11.48	12.00	12.58	14.10	6.19	6.79	7.30	7.89	9.41
	6H	11.30	11.85	12.42	12.95	14.49	6.50	7.05	7.63	8.16	9.69
	8H	11.42	11.95	12.55	13.07	14.59	6.59	7.11	7.72	8.23	9.76
	12H	11.48	11.98	12.61	13.09	14.64	6.63	7.13	7.76	8.24	9.79
4H	2H	8.60	9.20	9.73	10.30	11.83	5.14	5.75	6.27	6.84	8.37
	3H	10.43	10.93	11.56	12.05	13.59	6.48	6.98	7.61	8.11	9.64
	4H	11.12	11.58	12.25	12.69	14.25	7.03	7.49	8.16	8.60	10.16
	6H	11.63	12.02	12.77	13.16	14.71	7.44	7.83	8.58	8.97	10.52
	8H	11.81	12.17	12.94	13.30	14.86	7.57	7.94	8.71	9.07	10.63
	12H	11.90	12.23	13.05	13.37	14.94	7.63	7.96	8.78	9.10	10.67
8H	4H	11.08	11.44	12.21	12.57	14.14	7.30	7.67	8.44	8.80	10.36
	6H	11.64	11.95	12.80	13.12	14.68	7.82	8.12	8.98	9.29	10.85
	8H	11.86	12.13	13.03	13.28	14.86	8.01	8.27	9.17	9.43	11.00
	12H	12.00	12.23	13.17	13.38	14.99	8.12	8.36	9.29	9.50	11.12
12H	4H	11.02	11.36	12.18	12.50	14.06	7.30	7.63	8.46	8.78	10.34
	6H	11.62	11.88	12.78	13.03	14.61	7.87	8.13	9.03	9.28	10.86
	8H	11.84	12.07	13.00	13.22	14.83	8.07	8.31	9.24	9.45	11.07