

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: P925867

Luminaire Tested: DFN2DIP-SQ4F0-080D160US950-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P925867
REPORT IS A COMBINATION OF REPORTS P901728 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-080D160US950-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

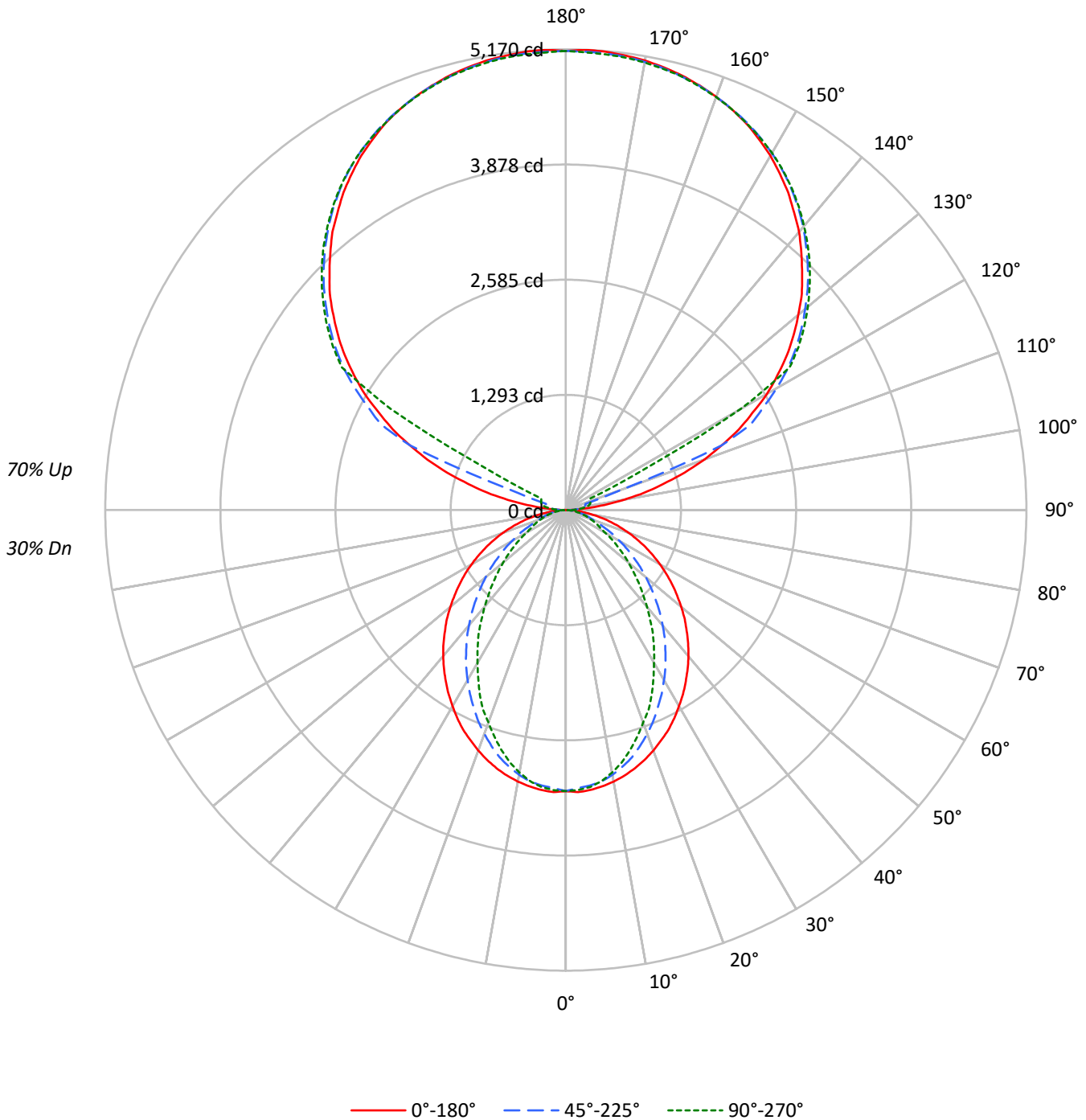
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 21598.6 lumens
Efficiency: N/A
Efficacy: 111.6 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): 193.5
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	102	102	102	102	92	92	92	92	72	72	72	54	54	54	38	38	38	38	38	38	30
1	94	90	86	83	84	81	77	75	64	62	60	48	47	46	34	33	32	34	33	32	26
2	85	78	73	68	76	71	66	62	56	53	50	43	40	39	30	29	28	30	29	28	22
3	78	69	62	57	70	62	57	52	50	46	42	38	35	33	27	25	24	27	25	24	19
4	71	61	54	48	64	55	49	44	44	40	36	34	31	28	24	22	21	24	22	21	17
5	66	55	47	41	59	49	43	38	40	35	31	30	27	25	22	20	18	22	20	18	15
6	60	49	41	36	54	44	38	33	36	31	27	28	24	22	20	18	16	20	18	16	13
7	56	44	37	31	50	40	34	29	32	28	24	25	22	19	18	16	15	18	16	15	12
8	52	40	33	28	46	36	30	25	29	25	21	23	20	17	17	15	13	17	15	13	11
9	48	37	29	25	43	33	27	23	27	22	19	21	18	15	16	13	12	16	13	12	10
10	45	33	27	22	40	30	24	20	25	20	17	20	16	14	14	12	11	14	12	11	9

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2213	2213	2213
5°	2217	2179	2193
10°	2195	2136	2122
15°	2165	2066	2012
20°	2125	1969	1877
25°	2084	1860	1747
30°	2029	1749	1582
35°	1975	1629	1436
40°	1920	1505	1270
45°	1856	1367	1119
50°	1790	1228	971
55°	1722	1079	829
60°	1642	924	683
65°	1550	765	615
70°	1439	618	558
75°	1300	546	509
80°	1098	459	443
85°	765	309	338

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 2762 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	295.6	1.4
10°-20°	811.5	3.8
20°-30°	1139.4	5.3
30°-40°	1242.0	5.8
40°-50°	1141.5	5.3
50°-60°	896.5	4.2
60°-70°	583.5	2.7
70°-80°	300.4	1.4
80°-90°	85.7	0.4
90°-100°	169.9	0.8
100°-110°	633.2	2.9
110°-120°	1679.4	7.8
120°-130°	2785.4	12.9
130°-140°	2958.8	13.7
140°-150°	2749.9	12.7
150°-160°	2210.8	10.2
160°-170°	1424.6	6.6
170°-180°	490.3	2.3
0°-30°	2246.6	10.4
0°-40°	3488.6	16.2
0°-60°	5526.6	25.6
0°-90°	6496.3	30.1
90°-120°	2482.5	11.5
90°-150°	10976.6	50.8
90°-180°	15102.0	69.9
0°-180°	21598.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3154	3154	3154	3154	3154	
5°	3154	3140	3103	3128	3120	299
15°	3000	2969	2872	2818	2789	845
25°	2723	2632	2444	2327	2284	1252
35°	2347	2201	1950	1770	1707	1469
45°	1918	1727	1427	1224	1156	1481
55°	1459	1236	928	756	702	1303
65°	985	754	497	400	391	976
75°	525	325	228	208	206	555
85°	123	63	54	54	54	141
90°	4	45	74	93	100	20
95°	242	119	145	164	160	287
105°	1133	1245	228	268	283	1211
115°	2143	2206	2300	574	306	2110
125°	3030	3079	3150	3176	3187	2703
135°	3750	3810	3843	3881	3873	2897
145°	4350	4346	4410	4436	4417	2721
155°	4790	4756	4801	4823	4794	2207
165°	5047	5025	5036	5062	5036	1426
175°	5162	5136	5144	5170	5133	491
180°	5151	5151	5151	5151	5151	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3154.3	3154.3	3154.3	3154.3	3154.3
2.5°	3168.5	3154.3	3122.8	3151.5	3145.8
5°	3154.3	3140.1	3102.8	3128.5	3120.1
7.5°	3128.5	3111.6	3071.6	3082.9	3068.5
10°	3094.3	3074.4	3017.4	3008.6	2991.6
12.5°	3051.7	3025.9	2948.6	2931.6	2900.2
15°	3000.1	2968.7	2871.7	2817.5	2789.0
17.5°	2940.1	2894.4	2774.5	2711.8	2666.0
20°	2871.7	2814.5	2671.9	2600.7	2537.6
22.5°	2797.5	2731.8	2566.2	2469.2	2426.5
25°	2723.3	2631.9	2443.5	2326.6	2283.6
27.5°	2634.9	2537.6	2329.3	2195.2	2129.4
30°	2540.7	2431.9	2203.6	2058.3	1981.0
32.5°	2449.2	2317.8	2084.0	1912.6	1841.1
35°	2346.6	2200.9	1949.8	1770.0	1706.9
37.5°	2246.6	2089.5	1824.1	1627.0	1555.8
40°	2141.0	1969.8	1692.7	1490.1	1415.8
42.5°	2032.5	1849.9	1561.5	1350.2	1278.9
45°	1918.3	1726.9	1427.4	1224.5	1156.1
47.5°	1809.9	1607.3	1299.0	1096.1	1033.4
50°	1689.9	1487.4	1173.3	976.1	916.4
52.5°	1572.8	1358.6	1053.3	865.0	810.8
55°	1458.6	1236.0	927.7	756.5	702.3
57.5°	1341.7	1113.3	816.5	656.6	610.8
60°	1221.7	993.4	699.3	553.9	508.2
62.5°	1104.8	876.4	599.4	462.5	439.8
65°	984.9	753.5	496.7	399.8	390.9
67.5°	870.7	639.4	399.8	351.0	342.6
70°	750.8	528.2	331.0	302.5	291.1
72.5°	636.6	425.2	276.9	254.1	248.3
75°	525.2	325.3	228.4	208.4	205.7
77.5°	414.0	231.1	179.9	168.4	162.7
80°	311.0	165.7	136.9	125.6	125.6
82.5°	216.8	111.4	94.2	88.4	88.4
85°	122.7	62.7	54.2	54.2	54.2
87.5°	45.7	22.7	22.7	20.0	20.0
90°	3.5	44.7	74.3	93.4	100.5
92.5°	93.4	78.3	89.4	96.9	100.5
95°	242.1	119.1	145.2	164.2	160.3
97.5°	436.0	130.6	189.8	201.4	204.9
100°	660.0	149.2	212.5	242.1	249.7
102.5°	905.6	898.6	220.0	260.7	272.2
105°	1133.2	1245.2	227.5	268.3	283.2
107.5°	1397.8	1490.8	235.1	275.8	290.8
110°	1651.5	1729.4	652.4	279.7	294.3



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1890.1	1956.9	1893.6	286.9	298.3
115°	2143.3	2206.5	2299.9	574.1	305.9
117.5°	2363.2	2437.6	2501.4	1968.0	991.5
120°	2609.4	2665.1	2732.4	2777.1	2273.9
122.5°	2817.8	2877.6	2952.3	2974.5	2978.5
125°	3030.3	3078.9	3149.8	3176.0	3187.0
127.5°	3224.1	3276.4	3332.6	3369.8	3373.3
130°	3407.0	3466.7	3507.5	3548.6	3545.1
132.5°	3593.3	3642.0	3682.7	3716.4	3712.9
135°	3750.0	3809.8	3843.0	3880.6	3873.0
137.5°	3913.8	3958.5	3996.1	4033.3	4022.3
140°	4074.1	4104.1	4144.8	4178.5	4159.9
142.5°	4208.6	4234.7	4283.0	4312.7	4294.0
145°	4350.2	4346.2	4409.6	4435.6	4417.1
147.5°	4472.8	4461.8	4525.1	4543.7	4529.0
150°	4592.4	4566.2	4626.0	4648.2	4629.6
152.5°	4692.8	4663.2	4719.0	4741.6	4715.4
155°	4789.7	4756.5	4801.3	4823.4	4793.8
157.5°	4868.2	4838.5	4872.1	4898.2	4868.2
160°	4935.4	4912.8	4935.4	4957.6	4931.4
162.5°	4994.8	4972.6	4991.1	5017.3	4983.7
165°	5046.9	5024.8	5035.9	5062.0	5035.9
167.5°	5088.2	5065.5	5077.1	5103.1	5069.6
170°	5121.7	5099.2	5106.7	5132.8	5099.2
172.5°	5143.9	5121.7	5129.3	5155.4	5121.7
175°	5162.5	5136.3	5143.9	5170.0	5132.8
177.5°	5170.0	5143.9	5147.9	5174.0	5140.3
180°	5151.4	5151.4	5151.4	5151.4	5151.4



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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	7.70	8.39	8.81	9.50	11.03	3.66	4.35	4.78	5.46	6.99
	3H	9.37	9.99	10.49	11.10	12.65	4.84	5.45	5.96	6.57	8.12
	4H	9.97	10.56	11.11	11.68	13.23	5.28	5.87	6.42	6.98	8.54
	6H	10.39	10.93	11.54	12.05	13.62	5.60	6.13	6.74	7.25	8.82
	8H	10.52	11.03	11.66	12.16	13.72	5.68	6.20	6.83	7.33	8.89
	12H	10.58	11.06	11.73	12.19	13.77	5.72	6.21	6.87	7.34	8.92
4H	2H	7.70	8.29	8.84	9.40	10.96	4.24	4.83	5.38	5.94	7.50
	3H	9.52	10.01	10.67	11.15	12.72	5.58	6.07	6.72	7.21	8.77
	4H	10.21	10.66	11.36	11.79	13.38	6.12	6.57	7.27	7.70	9.29
	6H	10.72	11.11	11.88	12.26	13.84	6.53	6.92	7.69	8.07	9.65
	8H	10.90	11.26	12.05	12.40	13.99	6.66	7.02	7.81	8.16	9.76
	12H	10.99	11.31	12.16	12.47	14.07	6.72	7.04	7.89	8.20	9.80
8H	4H	10.17	10.53	11.32	11.67	13.26	6.39	6.75	7.55	7.90	9.49
	6H	10.73	11.03	11.91	12.22	13.81	6.91	7.20	8.08	8.39	9.98
	8H	10.95	11.21	12.13	12.38	13.99	7.10	7.36	8.28	8.52	10.13
	12H	11.09	11.31	12.27	12.48	14.12	7.21	7.44	8.40	8.60	10.25
12H	4H	10.11	10.44	11.28	11.60	13.19	6.39	6.72	7.56	7.87	9.47
	6H	10.71	10.97	11.89	12.13	13.74	6.96	7.22	8.14	8.38	9.99
	8H	10.93	11.15	12.11	12.32	13.96	7.16	7.39	8.35	8.55	10.20