

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: P925831

Luminaire Tested: DFN2DIP-SQ4F0-070D160US950-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P925831
REPORT IS A COMBINATION OF REPORTS P901726 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-070D160US950-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

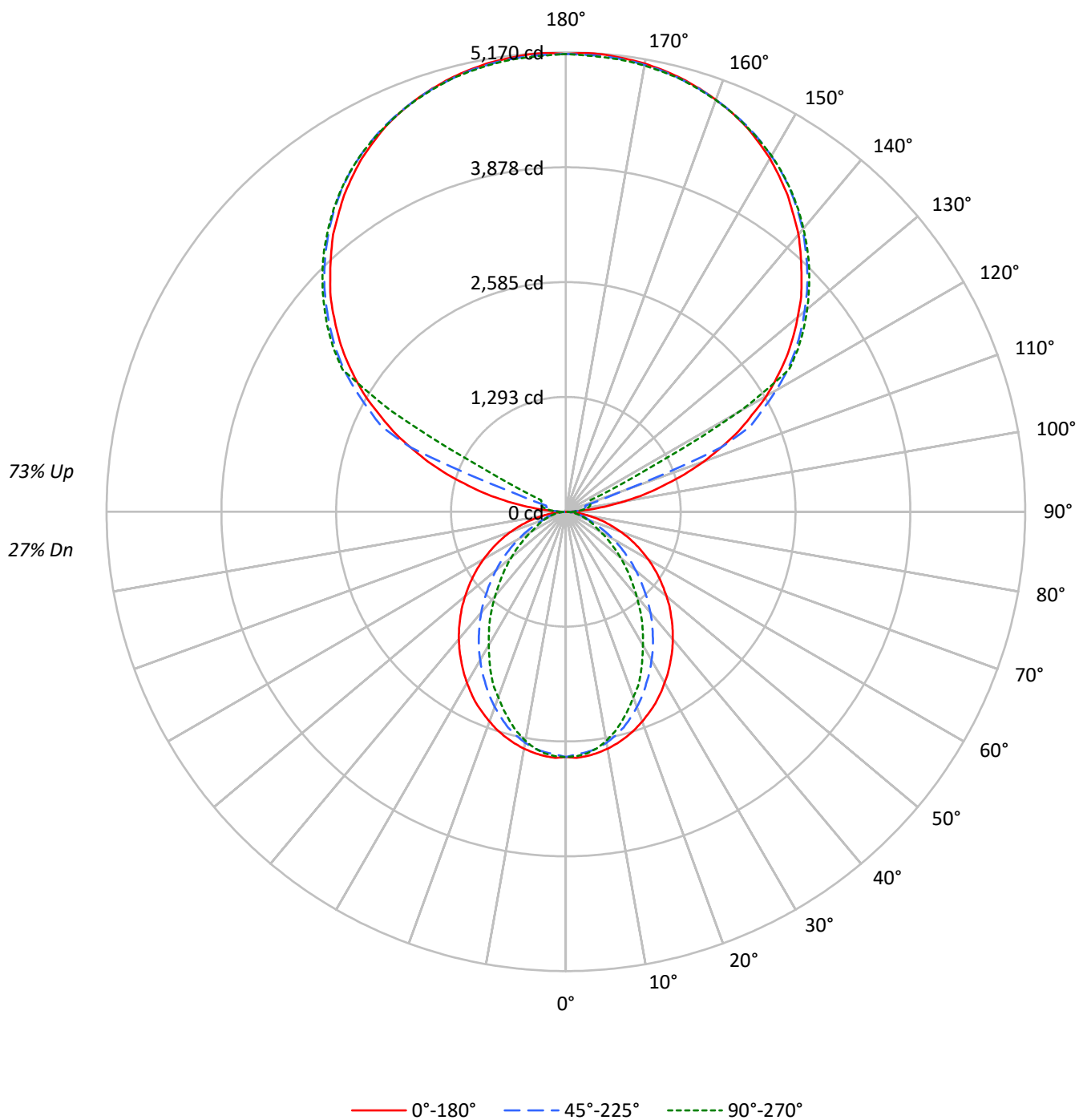
Lumens per Lamp: N/A
Luminaire Lumens: 20787.6 lumens
Efficiency: N/A
Efficacy: 113.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 183.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9967
Total Harmonic Distortion (THDi): 0.063
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	102	102	102	102	91	91	91	91	71	71	71	52	52	52	35	35	35
1	93	89	85	82	83	80	77	74	62	60	58	46	45	44	32	31	30
2	85	78	72	67	76	70	65	61	55	52	49	41	39	37	28	27	26
3	77	69	62	56	69	62	56	51	49	44	41	36	34	32	25	24	22
4	71	61	53	48	63	55	48	43	43	39	35	33	30	27	23	21	19
5	65	54	46	41	58	49	42	37	39	34	30	29	26	24	20	19	17
6	60	49	41	35	53	44	37	32	35	30	27	26	23	21	19	17	15
7	55	44	36	31	49	40	33	28	32	27	23	24	21	18	17	15	13
8	51	40	32	27	46	36	29	25	29	24	21	22	19	16	16	14	12
9	48	36	29	24	43	33	27	22	26	22	18	20	17	15	14	12	11
10	44	33	26	22	40	30	24	20	24	20	17	19	15	13	13	11	10

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1937	1937	1937
5°	1940	1906	1919
10°	1920	1869	1857
15°	1894	1808	1761
20°	1859	1723	1643
25°	1823	1628	1529
30°	1775	1530	1384
35°	1728	1425	1257
40°	1680	1317	1111
45°	1624	1196	979
50°	1567	1074	850
55°	1506	944	725
60°	1437	808	598
65°	1356	670	539
70°	1259	541	488
75°	1137	477	445
80°	961	402	388
85°	669	270	295

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°	258.7	1.2
10°-20°	710.1	3.4
20°-30°	997.0	4.8
30°-40°	1086.8	5.2
40°-50°	998.8	4.8
50°-60°	784.4	3.8
60°-70°	510.6	2.5
70°-80°	262.8	1.3
80°-90°	76.1	0.4
90°-100°	169.9	0.8
100°-110°	633.2	3.0
110°-120°	1679.4	8.1
120°-130°	2785.4	13.4
130°-140°	2958.8	14.2
140°-150°	2749.9	13.2
150°-160°	2210.8	10.6
160°-170°	1424.6	6.9
170°-180°	490.3	2.4
0°-30°	1965.7	9.5
0°-40°	3052.5	14.7
0°-60°	4835.8	23.3
0°-90°	5685.3	27.3
90°-120°	2482.5	11.9
90°-150°	10976.6	52.8
90°-180°	15102.0	72.6
0°-180°	20787.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2760	2760	2760	2760	2760	
5°	2760	2748	2715	2738	2730	262
15°	2625	2598	2513	2465	2440	740
25°	2383	2303	2138	2036	1998	1096
35°	2053	1926	1706	1549	1494	1285
45°	1679	1511	1249	1071	1012	1296
55°	1276	1082	812	662	615	1140
65°	862	659	435	350	342	854
75°	460	285	200	182	180	486
85°	107	55	47	47	47	123
90°	4	45	74	93	100	19
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°	2760.0	2760.0	2760.0	2760.0	2760.0
2.5°	2772.4	2760.0	2732.4	2757.6	2752.6
5°	2760.0	2747.5	2715.0	2737.5	2730.1
7.5°	2737.5	2722.6	2687.7	2697.4	2685.0
10°	2707.5	2690.1	2640.2	2632.6	2617.7
12.5°	2670.2	2647.6	2580.1	2565.2	2537.6
15°	2625.1	2597.6	2512.7	2465.3	2440.4
17.5°	2572.7	2532.7	2427.7	2372.8	2332.8
20°	2512.7	2462.7	2337.9	2275.6	2220.4
22.5°	2447.9	2390.3	2245.3	2160.5	2123.2
25°	2382.9	2302.9	2138.0	2035.7	1998.2
27.5°	2305.5	2220.4	2038.1	1920.8	1863.3
30°	2223.1	2128.0	1928.1	1801.0	1733.4
32.5°	2143.1	2028.1	1823.5	1673.5	1610.9
35°	2053.2	1925.7	1706.1	1548.7	1493.6
37.5°	1965.8	1828.2	1596.1	1423.6	1361.4
40°	1873.3	1723.6	1481.1	1303.8	1238.9
42.5°	1778.4	1618.7	1366.3	1181.3	1119.1
45°	1678.6	1511.0	1249.0	1071.4	1011.5
47.5°	1583.6	1406.4	1136.6	959.1	904.2
50°	1478.7	1301.4	1026.6	854.1	801.9
52.5°	1376.1	1188.8	921.7	756.8	709.4
55°	1276.3	1081.5	811.7	662.0	614.6
57.5°	1174.0	974.1	714.5	574.5	534.5
60°	1069.1	869.2	611.9	484.7	444.7
62.5°	966.7	766.9	524.4	404.7	384.7
65°	861.7	659.3	434.6	349.8	342.1
67.5°	761.9	559.4	349.8	307.1	299.7
70°	656.9	462.1	289.6	264.7	254.6
72.5°	557.0	372.1	242.2	222.4	217.3
75°	459.5	284.6	199.8	182.3	179.9
77.5°	362.2	202.2	157.4	147.3	142.3
80°	272.2	144.9	119.8	110.0	110.0
82.5°	189.8	97.5	82.4	77.4	77.4
85°	107.3	54.9	47.4	47.4	47.4
87.5°	40.0	19.8	19.8	17.5	17.5
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	6.85	7.52	7.98	8.64	10.21	2.81	3.48	3.94	4.60	6.17
	3H	8.52	9.12	9.66	10.25	11.83	3.98	4.59	5.13	5.72	7.30
	4H	9.12	9.69	10.27	10.82	12.41	4.43	5.00	5.58	6.13	7.71
	6H	9.54	10.06	10.70	11.20	12.79	4.74	5.27	5.90	6.40	8.00
	8H	9.66	10.16	10.82	11.31	12.90	4.83	5.33	5.99	6.48	8.06
	12H	9.72	10.19	10.89	11.34	12.95	4.87	5.34	6.03	6.48	8.09
4H	2H	6.84	7.42	8.00	8.55	10.13	3.38	3.96	4.54	5.09	6.67
	3H	8.66	9.14	9.83	10.30	11.89	4.72	5.20	5.89	6.35	7.95
	4H	9.35	9.79	10.52	10.94	12.55	5.26	5.70	6.43	6.85	8.46
	6H	9.86	10.24	11.04	11.41	13.01	5.68	6.05	6.85	7.22	8.82
	8H	10.04	10.39	11.21	11.55	13.17	5.80	6.15	6.97	7.31	8.93
	12H	10.13	10.45	11.32	11.62	13.24	5.86	6.18	7.05	7.35	8.98
8H	4H	9.31	9.66	10.48	10.82	12.44	5.54	5.88	6.71	7.04	8.67
	6H	9.88	10.16	11.06	11.37	12.98	6.05	6.34	7.24	7.54	9.16
	8H	10.09	10.34	11.29	11.52	13.16	6.24	6.49	7.44	7.67	9.31
	12H	10.23	10.45	11.43	11.63	13.30	6.35	6.57	7.55	7.75	9.42
12H	4H	9.25	9.57	10.44	10.74	12.37	5.53	5.85	6.72	7.02	8.65
	6H	9.85	10.10	11.04	11.28	12.92	6.10	6.35	7.29	7.53	9.17
	8H	10.07	10.29	11.27	11.46	13.14	6.30	6.52	7.50	7.70	9.37

END OF REPORT