

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: P925829

Luminaire Tested: DFN2DIP-SQ4F0-070D160US950-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P925829
REPORT IS A COMBINATION OF REPORTS P901725 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-070D160US950-FLLONL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

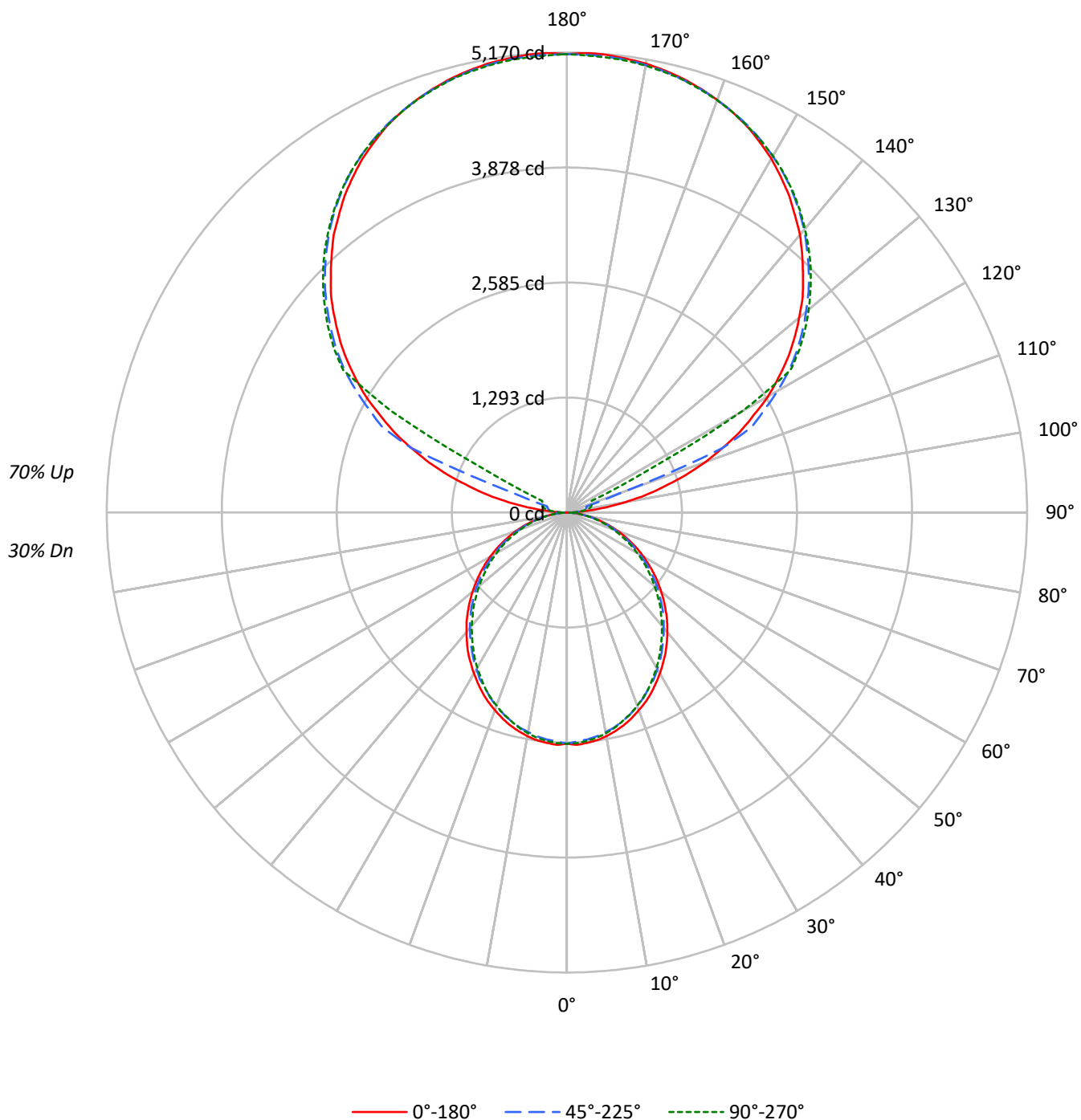
Lumens per Lamp: N/A
Luminaire Lumens: 21722.6 lumens
Efficiency: N/A
Efficacy: 118.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Indirect

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	92	92	92	92	72	72	72	55	55	55	38	38	38
1	93	89	85	82	84	80	77	74	63	61	59	48	47	45	34	33	32
2	85	78	72	67	76	70	65	61	56	52	49	42	40	38	30	28	27
3	78	68	61	56	69	62	56	51	49	45	41	37	34	32	26	25	23
4	71	60	53	47	63	55	48	43	43	39	35	33	30	27	23	21	20
5	65	54	46	40	58	49	42	37	39	34	30	30	26	24	21	19	17
6	60	48	40	35	53	43	37	32	35	30	26	27	23	21	19	17	15
7	55	43	36	30	49	39	32	28	31	26	23	24	21	18	17	15	13
8	51	39	32	27	46	36	29	24	29	24	20	22	19	16	16	14	12
9	47	36	28	23	43	32	26	22	26	21	18	20	17	14	15	12	11
10	44	33	26	21	40	30	23	19	24	19	16	19	15	13	14	11	10

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1823	1823	1823
5°	1826	1798	1811
10°	1811	1774	1787
15°	1785	1746	1749
20°	1749	1705	1710
25°	1713	1657	1665
30°	1668	1612	1608
35°	1625	1559	1548
40°	1573	1506	1490
45°	1521	1453	1431
50°	1464	1396	1363
55°	1404	1331	1301
60°	1336	1254	1229
65°	1263	1175	1145
70°	1169	1077	1054
75°	1039	961	971
80°	882	813	811
85°	638	556	545

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°	244.6	1.1
10°-20°	688.1	3.2
20°-30°	1011.3	4.7
30°-40°	1174.5	5.4
40°-50°	1173.1	5.4
50°-60°	1022.9	4.7
60°-70°	756.1	3.5
70°-80°	427.8	2.0
80°-90°	122.0	0.6
90°-100°	169.9	0.8
100°-110°	633.2	2.9
110°-120°	1679.4	7.7
120°-130°	2785.4	12.8
130°-140°	2958.8	13.6
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°	1943.9	8.9
0°-40°	3118.5	14.4
0°-60°	5314.4	24.5
0°-90°	6620.3	30.5
90°-120°	2482.5	11.4
90°-150°	10976.6	50.5
90°-180°	15102.0	69.5
0°-180°	21722.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2598	2598	2598	2598	2598	
5°	2598	2589	2561	2581	2576	247
15°	2474	2459	2426	2436	2424	697
25°	2239	2219	2176	2181	2176	1030
35°	1932	1907	1866	1851	1839	1206
45°	1572	1554	1517	1489	1479	1213
55°	1189	1174	1144	1114	1102	1063
65°	802	787	762	740	727	793
75°	420	415	402	387	392	448
85°	102	100	98	90	88	114
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°	2598.4	2598.4	2598.4	2598.4	2598.4
2.5°	2613.6	2601.1	2573.5	2598.4	2593.6
5°	2598.4	2588.7	2561.1	2581.0	2576.2
7.5°	2581.0	2566.1	2538.5	2558.7	2553.7
10°	2553.7	2536.1	2506.2	2526.1	2518.7
12.5°	2516.0	2501.2	2471.2	2483.6	2478.6
15°	2473.6	2458.7	2426.1	2436.2	2423.7
17.5°	2421.1	2406.3	2373.6	2386.1	2373.6
20°	2363.5	2348.7	2313.7	2321.2	2311.4
22.5°	2306.3	2283.8	2251.2	2251.2	2246.1
25°	2238.8	2218.8	2176.5	2181.2	2176.5
27.5°	2163.7	2146.2	2113.9	2106.4	2093.9
30°	2089.0	2068.7	2031.4	2024.0	2013.9
32.5°	2008.8	1994.1	1954.0	1938.9	1928.8
35°	1931.5	1906.6	1866.5	1851.4	1838.9
37.5°	1844.0	1821.5	1781.4	1763.9	1751.4
40°	1754.1	1734.0	1693.9	1671.7	1661.6
42.5°	1666.6	1646.5	1606.7	1581.5	1566.7
45°	1571.7	1554.3	1516.6	1489.3	1479.2
47.5°	1479.2	1461.7	1421.7	1394.1	1379.3
50°	1381.7	1369.2	1334.2	1299.3	1286.8
52.5°	1286.8	1269.3	1237.0	1209.4	1191.8
55°	1189.4	1174.4	1144.4	1114.5	1102.0
57.5°	1091.9	1079.5	1046.8	1016.9	1006.9
60°	994.4	984.5	949.6	922.0	914.6
62.5°	899.4	882.0	857.1	832.2	822.1
65°	802.2	787.0	762.2	739.6	727.1
67.5°	702.2	689.6	667.2	649.8	639.7
70°	609.7	599.7	577.1	559.6	549.8
72.5°	514.8	504.8	492.3	474.8	467.4
75°	419.7	414.9	402.1	387.3	392.4
77.5°	334.9	324.7	319.7	312.2	304.9
80°	249.9	247.4	242.3	234.9	229.8
82.5°	169.9	169.9	167.5	157.5	157.5
85°	102.4	100.0	97.6	89.9	87.5
87.5°	45.0	40.1	35.0	27.6	24.9
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	7.22	7.93	8.33	9.04	10.56	6.78	7.49	7.89	8.59	10.12
	3H	8.88	9.51	9.99	10.62	12.17	8.39	9.02	9.50	10.13	11.67
	4H	9.46	10.06	10.59	11.18	12.72	8.96	9.57	10.09	10.68	12.23
	6H	9.85	10.41	10.99	11.53	13.08	9.35	9.91	10.49	11.03	12.58
	8H	9.96	10.48	11.10	11.62	13.17	9.45	9.98	10.59	11.11	12.67
	12H	10.00	10.50	11.14	11.63	13.20	9.49	9.99	10.63	11.12	12.69
4H	2H	7.67	8.27	8.80	9.38	10.93	7.31	7.91	8.44	9.03	10.57
	3H	9.52	10.03	10.66	11.16	12.72	9.11	9.62	10.25	10.76	12.32
	4H	10.23	10.70	11.38	11.82	13.40	9.81	10.27	10.95	11.40	12.98
	6H	10.74	11.14	11.89	12.29	13.86	10.31	10.71	11.46	11.86	13.43
	8H	10.89	11.26	12.04	12.41	13.99	10.45	10.83	11.60	11.97	13.56
	12H	10.96	11.30	12.13	12.45	14.04	10.51	10.85	11.68	12.00	13.59
8H	4H	10.42	10.79	11.57	11.93	13.52	10.04	10.41	11.19	11.55	13.14
	6H	11.05	11.35	12.22	12.54	14.12	10.66	10.97	11.83	12.15	13.74
	8H	11.27	11.54	12.44	12.70	14.30	10.88	11.14	12.05	12.31	13.91
	12H	11.40	11.63	12.58	12.79	14.43	10.99	11.22	12.16	12.38	14.02
12H	4H	10.40	10.73	11.56	11.89	13.48	10.03	10.36	11.19	11.52	13.11
	6H	11.08	11.34	12.25	12.51	14.11	10.70	10.97	11.88	12.14	13.74
	8H	11.31	11.55	12.49	12.71	14.35	10.93	11.17	12.11	12.33	13.97

END OF REPORT