

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: P925105

Luminaire Tested: DFN2DIP-PN4F0-070D110US950-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P925105
REPORT IS A COMBINATION OF REPORTS P901261 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-070D110US950-FLLONL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

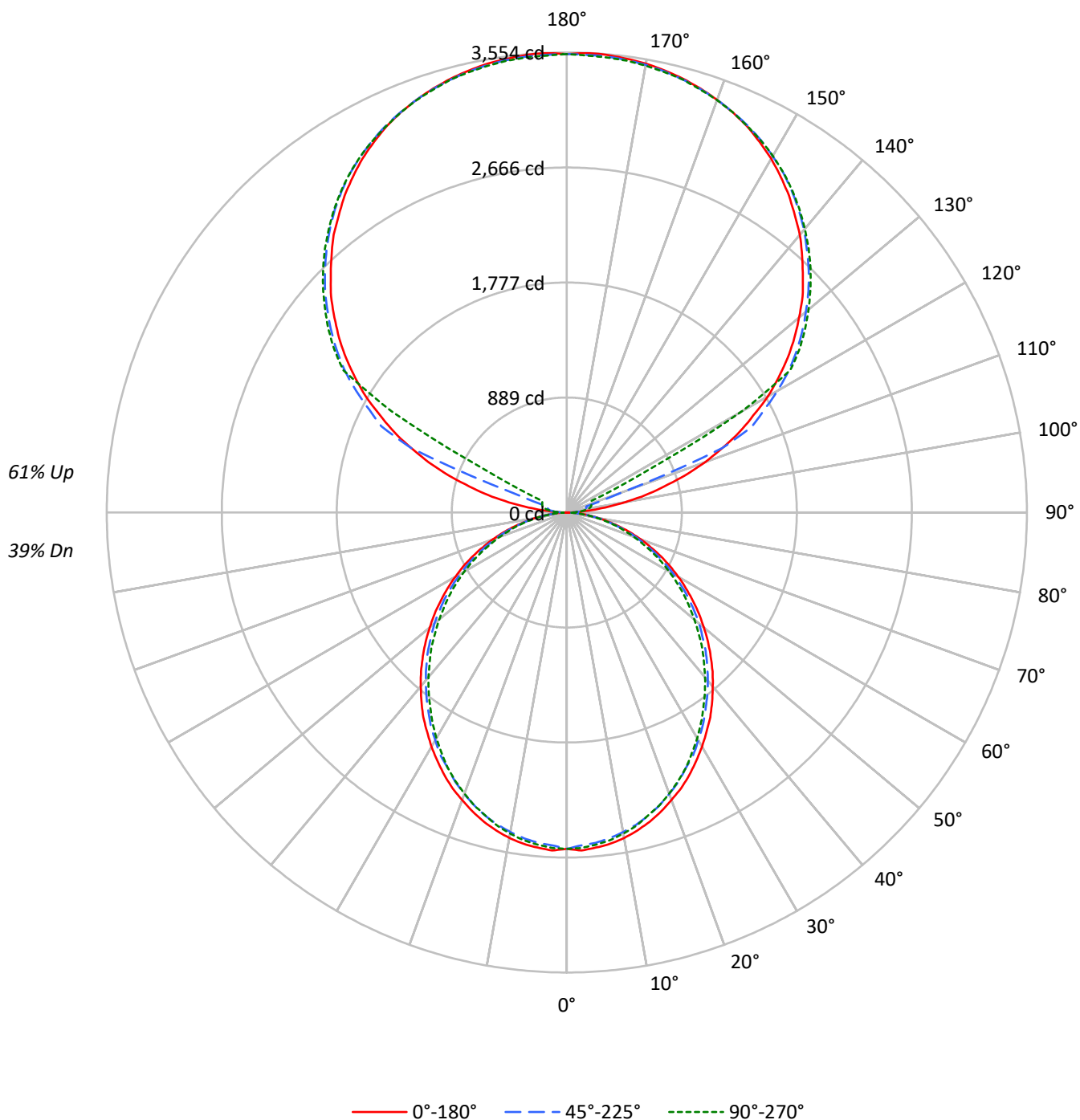
Lumens per Lamp: N/A
Luminaire Lumens: 17000.3 lumens
Efficiency: N/A
Efficacy: 107.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 158.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9789
Total Harmonic Distortion (THDi): 0.074
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	105	105	105	105	95	95	95	95	77	77	77	61	61	61	46	46	46
1	95	91	87	84	86	83	80	77	68	65	63	54	52	51	41	40	39
2	87	79	73	68	79	72	67	63	59	56	52	47	44	42	36	34	33
3	79	70	63	57	72	64	58	53	52	48	44	42	38	36	32	30	28
4	72	62	54	48	65	56	50	44	46	41	37	37	33	31	28	26	24
5	66	55	47	41	60	50	43	38	41	36	32	33	29	26	25	23	21
6	61	49	41	36	55	45	38	33	37	32	28	30	26	23	23	20	18
7	56	44	37	31	51	41	34	29	34	28	25	27	23	20	21	18	16
8	52	40	33	27	47	37	30	26	31	26	22	25	21	18	19	17	15
9	49	37	29	24	44	34	27	23	28	23	19	23	19	16	18	15	13
10	45	34	26	22	41	31	25	20	26	21	17	21	17	15	17	14	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1897	1897	1897
5°	1900	1871	1883
10°	1884	1846	1858
15°	1857	1816	1819
20°	1819	1774	1778
25°	1782	1723	1731
30°	1735	1677	1672
35°	1691	1621	1609
40°	1637	1566	1549
45°	1582	1510	1487
50°	1523	1451	1416
55°	1461	1384	1351
60°	1391	1303	1276
65°	1314	1220	1188
70°	1216	1118	1093
75°	1081	997	1006
80°	918	843	839
85°	665	575	561

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1889 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	244.6	1.4
10°-20°	688.1	4.0
20°-30°	1011.3	5.9
30°-40°	1174.5	6.9
40°-50°	1173.1	6.9
50°-60°	1022.9	6.0
60°-70°	756.1	4.4
70°-80°	427.8	2.5
80°-90°	119.2	0.7
90°-100°	116.8	0.7
100°-110°	435.4	2.6
110°-120°	1154.6	6.8
120°-130°	1915.0	11.3
130°-140°	2034.2	12.0
140°-150°	1890.5	11.1
150°-160°	1519.9	8.9
160°-170°	979.4	5.8
170°-180°	337.1	2.0
0°-30°	1943.9	11.4
0°-40°	3118.5	18.3
0°-60°	5314.4	31.3
0°-90°	6617.5	38.9
90°-120°	1706.7	10.0
90°-150°	7546.4	44.4
90°-180°	10383.0	61.1
0°-180°	17000.3	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°	2	31	51	64	69	16
95°	166	82	100	113	110	197
105°	779	856	156	184	195	832
115°	1474	1517	1581	395	210	1451
125°	2083	2117	2166	2183	2191	1858
135°	2578	2619	2642	2668	2663	1992
145°	2991	2988	3032	3050	3037	1871
155°	3293	3270	3301	3316	3296	1517
165°	3470	3454	3462	3480	3462	980
175°	3549	3531	3536	3554	3529	338
180°	3542	3542	3542	3542	3542	

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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°	2.5	30.7	51.1	64.2	69.1
92.5°	64.2	53.9	61.4	66.7	69.1
95°	166.5	81.9	99.8	112.9	110.2
97.5°	299.7	89.8	130.5	138.4	140.9
100°	453.7	102.6	146.1	166.5	171.6
102.5°	622.6	617.7	151.2	179.3	187.2
105°	779.0	856.0	156.5	184.4	194.8
107.5°	961.1	1024.9	161.6	189.6	200.0
110°	1135.4	1189.0	448.6	192.3	202.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1299.4	1345.3	1301.8	197.2	205.1
115°	1473.5	1517.0	1581.3	394.7	210.3
117.5°	1624.8	1675.9	1719.7	1353.0	681.6
120°	1793.9	1832.3	1878.5	1909.2	1563.2
122.5°	1937.3	1978.3	2029.7	2045.0	2047.8
125°	2083.3	2116.8	2165.5	2183.4	2191.1
127.5°	2216.6	2252.5	2291.1	2316.7	2319.2
130°	2342.3	2383.4	2411.3	2439.7	2437.3
132.5°	2470.4	2503.9	2531.9	2555.0	2552.6
135°	2578.2	2619.2	2642.0	2668.0	2662.7
137.5°	2690.8	2721.5	2747.3	2772.9	2765.3
140°	2800.9	2821.6	2849.6	2872.7	2859.9
142.5°	2893.4	2911.3	2944.5	2964.9	2952.2
145°	2990.8	2988.0	3031.5	3049.6	3036.8
147.5°	3075.1	3067.5	3111.0	3123.8	3113.8
150°	3157.3	3139.3	3180.3	3195.6	3182.8
152.5°	3226.3	3205.9	3244.3	3259.8	3241.9
155°	3293.0	3270.1	3300.8	3316.1	3295.7
157.5°	3346.8	3326.4	3349.6	3367.5	3346.8
160°	3393.1	3377.5	3393.1	3408.3	3390.3
162.5°	3433.8	3418.7	3431.4	3449.4	3426.3
165°	3469.8	3454.5	3462.2	3480.1	3462.2
167.5°	3498.0	3482.6	3490.5	3508.4	3485.3
170°	3521.2	3505.7	3510.8	3528.8	3505.7
172.5°	3536.4	3521.2	3526.4	3544.3	3521.2
175°	3549.2	3531.2	3536.4	3554.4	3528.8
177.5°	3554.4	3536.4	3539.1	3557.1	3534.0
180°	3541.6	3541.6	3541.6	3541.6	3541.6

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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	8.38	9.15	9.43	10.21	11.63	7.94	8.71	8.99	9.77	11.19
	3H	10.04	10.73	11.10	11.79	13.23	9.56	10.25	10.61	11.31	12.75
	4H	10.63	11.28	11.69	12.34	13.79	10.14	10.79	11.21	11.86	13.30
	6H	11.02	11.63	12.10	12.69	14.15	10.53	11.13	11.61	12.20	13.66
	8H	11.13	11.70	12.21	12.78	14.24	10.63	11.21	11.72	12.29	13.74
	12H	11.17	11.72	12.26	12.79	14.27	10.67	11.22	11.76	12.29	13.77
4H	2H	8.83	9.49	9.91	10.55	12.00	8.48	9.14	9.56	10.20	11.65
	3H	10.70	11.24	11.78	12.33	13.79	10.29	10.84	11.37	11.93	13.39
	4H	11.41	11.91	12.50	12.99	14.47	10.99	11.49	12.08	12.57	14.05
	6H	11.92	12.35	13.02	13.45	14.93	11.50	11.93	12.59	13.03	14.50
	8H	12.07	12.47	13.17	13.57	15.06	11.64	12.04	12.74	13.14	14.63
	12H	12.14	12.50	13.25	13.61	15.11	11.70	12.06	12.81	13.17	14.67
8H	4H	11.60	12.00	12.69	13.09	14.58	11.23	11.63	12.32	12.72	14.21
	6H	12.23	12.56	13.35	13.70	15.18	11.85	12.18	12.97	13.32	14.81
	8H	12.45	12.74	13.57	13.86	15.37	12.07	12.36	13.19	13.47	14.98
	12H	12.58	12.83	13.71	13.95	15.49	12.18	12.43	13.31	13.55	15.09
12H	4H	11.58	11.94	12.69	13.05	14.55	11.22	11.58	12.33	12.69	14.18
	6H	12.26	12.55	13.38	13.67	15.17	11.89	12.18	13.02	13.30	14.81
	8H	12.50	12.75	13.63	13.87	15.41	12.12	12.38	13.25	13.50	15.04