

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: P908863

Luminaire Tested: DFN2DIP-PN4F0-110D060US840-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P908863
REPORT IS A COMBINATION OF REPORTS P901180 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-110D060US840-RLLONL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

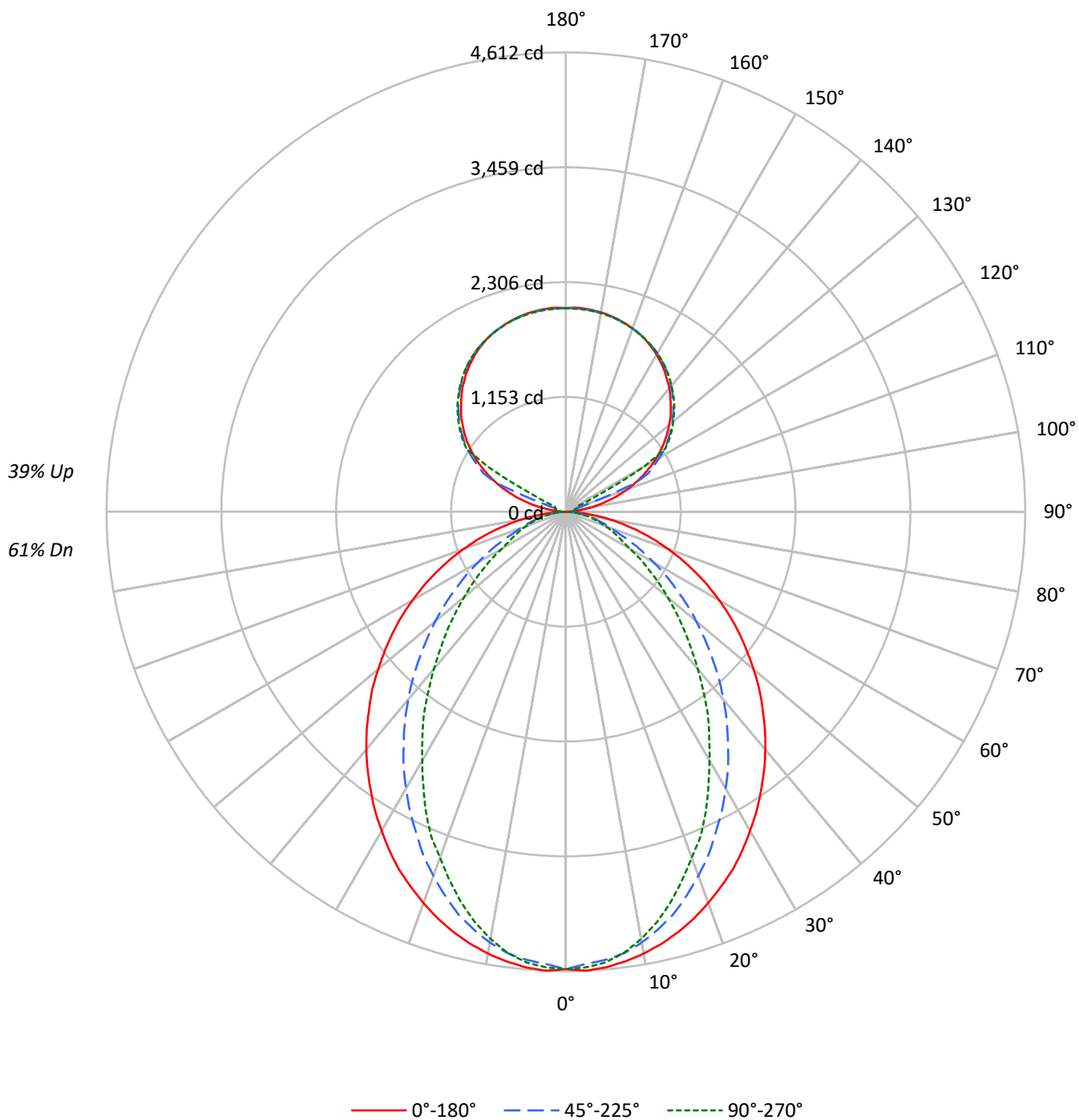
Lumens per Lamp: N/A
Luminaire Lumens: 15440.8 lumens
Efficiency: N/A
Efficacy: 96.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 159.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.996
Total Harmonic Distortion (THDi): 0.064
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	110	110	110	110	103	103	103	103	90	90	90	77	77	77	66	66	66
1	101	97	93	90	94	91	87	85	79	77	75	69	67	66	60	58	57
2	92	85	79	74	86	80	75	70	70	66	63	61	58	56	53	51	49
3	85	75	68	63	79	71	65	60	63	58	54	55	51	48	48	45	43
4	78	67	59	54	73	63	56	51	56	51	46	49	45	42	43	40	37
5	72	60	52	46	67	57	50	44	51	45	40	45	40	37	39	36	33
6	66	54	46	41	62	51	44	39	46	40	36	41	36	32	36	32	29
7	61	49	41	36	58	47	40	35	42	36	32	37	32	29	33	29	26
8	57	45	37	32	54	43	36	31	38	33	28	34	29	26	30	26	24
9	53	41	34	29	50	39	32	28	35	30	26	32	27	24	28	24	22
10	50	38	31	26	47	36	30	25	33	27	23	29	25	21	26	22	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3351	3351	3351
5°	3357	3299	3320
10°	3323	3234	3212
15°	3278	3128	3046
20°	3217	2981	2842
25°	3155	2816	2644
30°	3072	2647	2393
35°	2990	2465	2173
40°	2907	2277	1921
45°	2811	2069	1692
50°	2711	1858	1468
55°	2607	1632	1253
60°	2487	1397	1032
65°	2348	1157	930
70°	2180	934	842
75°	1969	824	768
80°	1663	693	668
85°	1159	465	506

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2811 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	430.3	2.8
10°-20°	1181.2	7.7
20°-30°	1658.4	10.7
30°-40°	1807.8	11.7
40°-50°	1661.5	10.8
50°-60°	1304.9	8.5
60°-70°	849.4	5.5
70°-80°	437.2	2.8
80°-90°	115.2	0.7
90°-100°	67.4	0.4
100°-110°	251.4	1.6
110°-120°	666.7	4.3
120°-130°	1105.7	7.2
130°-140°	1174.5	7.6
140°-150°	1091.6	7.1
150°-160°	877.6	5.7
160°-170°	565.5	3.7
170°-180°	194.6	1.3
0°-30°	3269.9	21.2
0°-40°	5077.7	32.9
0°-60°	8044.1	52.1
0°-90°	9445.9	61.2
90°-120°	985.5	6.4
90°-150°	4357.2	28.2
90°-180°	5995.0	38.8
0°-180°	15440.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4591	4591	4591	4591	4591	
5°	4591	4570	4516	4554	4541	435
15°	4367	4321	4180	4101	4060	1231
25°	3964	3831	3556	3386	3324	1823
35°	3416	3203	2838	2576	2484	2138
45°	2792	2514	2078	1782	1683	2156
55°	2123	1799	1350	1101	1022	1897
65°	1434	1097	723	582	569	1421
75°	764	473	332	303	299	808
85°	178	91	79	79	79	205
90°	1	18	30	37	40	15
95°	96	47	58	65	64	114
105°	450	494	90	106	112	481
115°	851	876	913	228	121	838
125°	1203	1222	1250	1261	1265	1073
135°	1489	1512	1526	1540	1537	1150
145°	1727	1725	1750	1761	1753	1080
155°	1901	1888	1906	1915	1903	876
165°	2004	1995	1999	2009	1999	566
175°	2049	2039	2042	2052	2038	195
180°	2045	2045	2045	2045	2045	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4591.2	4591.2	4591.2	4591.2	4591.2
2.5°	4611.9	4591.2	4545.3	4587.2	4578.8
5°	4591.2	4570.4	4516.2	4553.7	4541.4
7.5°	4553.7	4528.9	4470.8	4487.1	4466.3
10°	4503.9	4474.7	4391.9	4379.1	4354.4
12.5°	4441.7	4404.2	4291.8	4267.1	4221.2
15°	4366.8	4320.9	4179.8	4101.0	4059.5
17.5°	4279.5	4213.0	4038.4	3947.1	3880.5
20°	4179.8	4096.5	3888.9	3785.3	3693.6
22.5°	4071.9	3976.1	3735.1	3594.0	3531.8
25°	3963.8	3830.7	3556.5	3386.4	3323.8
27.5°	3835.2	3693.6	3390.3	3195.0	3099.4
30°	3698.0	3539.8	3207.4	2995.8	2883.4
32.5°	3564.9	3373.6	3033.2	2783.8	2679.8
35°	3415.5	3203.4	2838.0	2576.2	2484.5
37.5°	3270.0	3041.2	2655.0	2368.0	2264.5
40°	3116.1	2867.1	2463.8	2168.8	2060.8
42.5°	2958.3	2692.5	2272.9	1965.2	1861.6
45°	2792.2	2513.6	2077.6	1782.2	1682.6
47.5°	2634.3	2339.5	1890.7	1595.3	1504.1
50°	2459.7	2164.8	1707.8	1420.8	1333.9
52.5°	2289.2	1977.5	1533.2	1259.0	1180.0
55°	2122.9	1799.0	1350.2	1101.2	1022.3
57.5°	1952.9	1620.4	1188.4	955.7	889.1
60°	1778.3	1445.9	1017.8	806.3	739.7
62.5°	1608.1	1275.8	872.4	673.2	640.1
65°	1433.5	1096.7	723.0	581.9	569.1
67.5°	1267.4	930.6	581.9	510.9	498.6
70°	1092.8	768.8	481.8	440.4	423.6
72.5°	926.6	618.9	402.9	369.8	361.4
75°	764.4	473.4	332.3	303.3	299.3
77.5°	602.6	336.4	261.9	245.1	236.7
80°	452.7	241.2	199.2	183.0	183.0
82.5°	315.6	162.2	137.1	128.8	128.8
85°	178.5	91.3	78.9	78.9	78.9
87.5°	66.6	33.0	33.0	29.1	29.1
90°	1.4	17.8	29.5	37.1	39.9
92.5°	37.1	31.1	35.4	38.5	39.9
95°	96.1	47.3	57.7	65.2	63.6
97.5°	173.1	51.8	75.3	80.0	81.4
100°	262.0	59.2	84.3	96.1	99.1
102.5°	359.5	356.7	87.4	103.5	108.1
105°	449.8	494.2	90.3	106.4	112.5
107.5°	554.9	591.8	93.3	109.5	115.4
110°	655.6	686.5	259.0	111.1	116.8

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	750.2	776.8	751.6	113.8	118.5
115°	850.8	876.0	913.0	227.9	121.4
117.5°	938.1	967.7	992.9	781.2	393.5
120°	1035.8	1057.9	1084.7	1102.4	902.6
122.5°	1118.5	1142.3	1171.9	1180.7	1182.4
125°	1203.0	1222.2	1250.3	1260.7	1265.1
127.5°	1279.9	1300.6	1322.9	1337.7	1339.1
130°	1352.4	1376.1	1392.3	1408.7	1407.2
132.5°	1426.4	1445.7	1461.9	1475.2	1473.8
135°	1488.6	1512.4	1525.5	1540.4	1537.4
137.5°	1553.6	1571.4	1586.3	1601.0	1596.7
140°	1617.2	1629.2	1645.4	1658.7	1651.3
142.5°	1670.6	1681.0	1700.2	1711.9	1704.6
145°	1726.9	1725.3	1750.4	1760.8	1753.4
147.5°	1775.5	1771.1	1796.2	1803.6	1797.9
150°	1823.0	1812.6	1836.3	1845.1	1837.8
152.5°	1862.9	1851.1	1873.2	1882.2	1871.8
155°	1901.4	1888.1	1905.9	1914.7	1902.9
157.5°	1932.5	1920.7	1934.0	1944.4	1932.5
160°	1959.1	1950.2	1959.1	1967.9	1957.6
162.5°	1982.7	1973.9	1981.3	1991.7	1978.3
165°	2003.5	1994.7	1999.0	2009.4	1999.0
167.5°	2019.7	2010.8	2015.4	2025.8	2012.4
170°	2033.2	2024.2	2027.2	2037.5	2024.2
172.5°	2041.9	2033.2	2036.1	2046.5	2033.2
175°	2049.3	2038.9	2041.9	2052.2	2037.5
177.5°	2052.2	2041.9	2043.5	2053.9	2040.5
180°	2044.9	2044.9	2044.9	2044.9	2044.9

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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	12.34	13.27	13.20	14.15	15.25	8.30	9.24	9.17	10.11	11.22
	3H	14.03	14.86	14.90	15.75	16.88	9.50	10.33	10.38	11.22	12.35
	4H	14.64	15.43	15.53	16.32	17.46	9.96	10.74	10.85	11.64	12.78
	6H	15.07	15.80	15.97	16.70	17.85	10.28	11.01	11.19	11.91	13.06
	8H	15.20	15.89	16.11	16.81	17.96	10.38	11.07	11.29	11.98	13.14
	12H	15.27	15.92	16.18	16.84	18.01	10.43	11.08	11.34	11.99	13.17
4H	2H	12.37	13.16	13.27	14.05	15.19	8.91	9.70	9.81	10.59	11.74
	3H	14.21	14.86	15.12	15.79	16.95	10.27	10.93	11.18	11.85	13.01
	4H	14.91	15.50	15.83	16.43	17.61	10.83	11.42	11.74	12.34	13.52
	6H	15.43	15.94	16.36	16.89	18.07	11.25	11.76	12.18	12.71	13.89
	8H	15.61	16.09	16.55	17.03	18.23	11.38	11.86	12.32	12.80	14.00
	12H	15.71	16.14	16.67	17.10	18.30	11.45	11.88	12.41	12.84	14.04
8H	4H	14.89	15.36	15.82	16.30	17.50	11.12	11.59	12.05	12.53	13.73
	6H	15.46	15.85	16.42	16.83	18.03	11.64	12.03	12.60	13.02	14.21
	8H	15.68	16.03	16.65	17.00	18.21	11.83	12.18	12.80	13.15	14.37
	12H	15.82	16.13	16.79	17.09	18.36	11.96	12.26	12.93	13.23	14.49
12H	4H	14.84	15.27	15.79	16.23	17.43	11.13	11.56	12.08	12.51	13.72
	6H	15.43	15.78	16.40	16.75	17.97	11.69	12.04	12.66	13.01	14.22
	8H	15.66	15.97	16.63	16.93	18.20	11.91	12.21	12.88	13.18	14.44