

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: P903297

Luminaire Tested: DFN2DIP-PN4F0-080D060US830-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P903297
REPORT IS A COMBINATION OF REPORTS P901173 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-080D060US830-FLLONL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

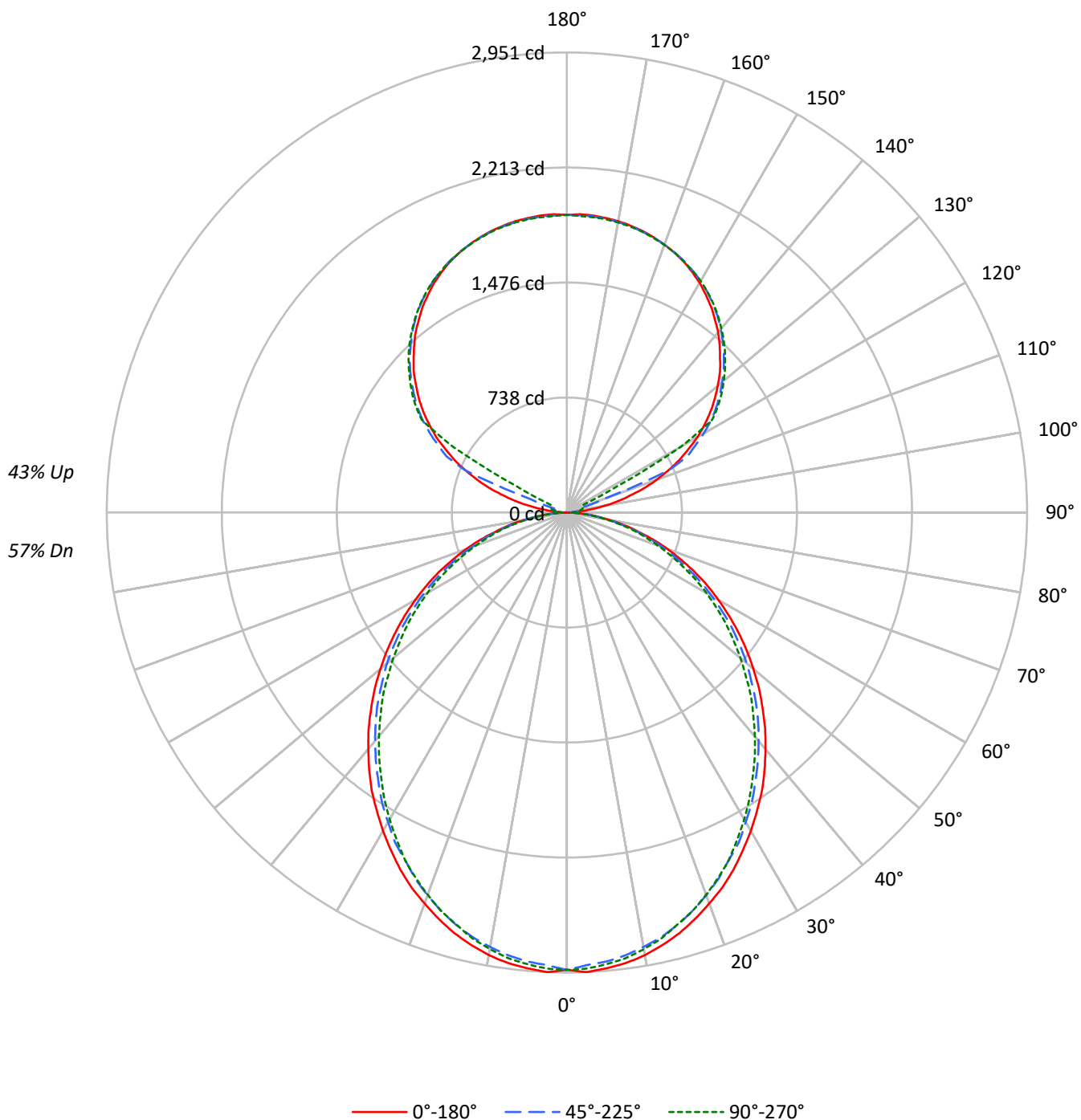
Lumens per Lamp: N/A
Luminaire Lumens: 13063.6 lumens
Efficiency: N/A
Efficacy: 106.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 122.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9971
Total Harmonic Distortion (THDi): 0.049
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	109	109	109	109	101	101	101	101	87	87	87	74	74	74	63	63	63
1	99	95	91	88	92	89	85	82	77	74	72	66	64	62	55	54	53
2	91	83	77	72	84	77	72	67	67	63	59	58	55	52	49	47	45
3	83	73	66	60	77	68	62	56	59	54	50	51	47	44	43	40	38
4	76	65	57	50	70	61	53	48	53	47	43	45	41	38	39	35	33
5	69	58	49	43	64	54	47	41	47	41	37	41	36	33	35	31	29
6	64	52	44	38	59	49	41	36	43	37	32	37	32	29	32	28	25
7	59	47	39	33	55	44	37	31	39	33	28	34	29	25	29	25	22
8	55	43	35	29	51	40	33	28	35	29	25	31	26	23	27	23	20
9	51	39	31	26	48	37	30	25	32	27	23	28	24	20	25	21	18
10	48	36	28	24	45	34	27	22	30	24	20	26	22	18	23	19	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2142	2142	2142
5°	2145	2112	2127
10°	2128	2084	2098
15°	2096	2050	2054
20°	2054	2003	2008
25°	2012	1946	1955
30°	1959	1893	1888
35°	1909	1831	1816
40°	1848	1768	1749
45°	1787	1705	1679
50°	1720	1639	1599
55°	1649	1562	1525
60°	1570	1471	1441
65°	1484	1377	1341
70°	1373	1263	1234
75°	1221	1126	1136
80°	1037	951	947
85°	750	649	634

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1787 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	276.1	2.1
10°-20°	777.0	5.9
20°-30°	1141.8	8.7
30°-40°	1326.2	10.2
40°-50°	1324.5	10.1
50°-60°	1155.0	8.8
60°-70°	853.8	6.5
70°-80°	483.0	3.7
80°-90°	130.9	1.0
90°-100°	62.9	0.5
100°-110°	234.6	1.8
110°-120°	622.2	4.8
120°-130°	1032.0	7.9
130°-140°	1096.2	8.4
140°-150°	1018.8	7.8
150°-160°	819.1	6.3
160°-170°	527.8	4.0
170°-180°	181.7	1.4
0°-30°	2195.0	16.8
0°-40°	3521.1	27.0
0°-60°	6000.6	45.9
0°-90°	7468.3	57.2
90°-120°	919.8	7.0
90°-150°	4066.8	31.1
90°-180°	5595.0	42.8
0°-180°	13063.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2934	2934	2934	2934	2934	
5°	2934	2923	2892	2914	2909	279
15°	2793	2776	2739	2751	2737	787
25°	2528	2505	2458	2463	2458	1163
35°	2181	2153	2108	2090	2076	1362
45°	1775	1755	1712	1682	1670	1370
55°	1343	1326	1292	1258	1244	1201
65°	906	889	860	835	821	896
75°	474	468	454	437	443	506
85°	116	113	110	102	99	129
90°	1	17	28	35	37	12
95°	90	44	54	61	59	106
105°	420	461	84	99	105	449
115°	794	818	852	213	113	782
125°	1123	1141	1167	1177	1181	1001
135°	1389	1412	1424	1438	1435	1073
145°	1612	1610	1634	1643	1636	1008
155°	1775	1762	1779	1787	1776	818
165°	1870	1862	1866	1876	1866	528
175°	1913	1903	1906	1915	1902	182
180°	1909	1909	1909	1909	1909	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2933.9	2933.9	2933.9	2933.9	2933.9
2.5°	2951.0	2937.0	2905.9	2933.9	2928.6
5°	2933.9	2922.9	2891.8	2914.2	2908.9
7.5°	2914.2	2897.5	2866.4	2889.1	2883.4
10°	2883.4	2863.6	2829.8	2852.2	2843.9
12.5°	2840.9	2824.1	2790.3	2804.3	2798.7
15°	2793.0	2776.3	2739.4	2750.8	2736.8
17.5°	2733.7	2717.0	2680.1	2694.3	2680.1
20°	2668.8	2652.0	2612.5	2620.9	2609.8
22.5°	2604.2	2578.7	2541.8	2541.8	2536.2
25°	2527.8	2505.4	2457.5	2462.9	2457.5
27.5°	2443.1	2423.4	2386.8	2378.4	2364.4
30°	2358.7	2335.9	2293.8	2285.4	2274.0
32.5°	2268.3	2251.5	2206.3	2189.2	2177.9
35°	2180.9	2152.8	2107.5	2090.5	2076.4
37.5°	2082.1	2056.6	2011.5	1991.7	1977.6
40°	1980.7	1957.8	1912.7	1887.5	1876.1
42.5°	1881.9	1859.1	1814.2	1785.7	1769.1
45°	1774.7	1754.9	1712.4	1681.6	1670.3
47.5°	1670.3	1650.5	1605.2	1574.1	1557.4
50°	1560.1	1546.1	1506.5	1467.0	1452.9
52.5°	1452.9	1433.1	1396.7	1365.6	1345.8
55°	1343.0	1326.0	1292.2	1258.4	1244.3
57.5°	1232.9	1218.9	1182.0	1148.2	1136.8
60°	1122.8	1111.7	1072.1	1041.0	1032.6
62.5°	1015.6	995.9	967.7	939.6	928.2
65°	905.8	888.7	860.5	835.1	821.0
67.5°	792.9	778.5	753.4	733.7	722.3
70°	688.4	677.0	651.7	631.9	620.8
72.5°	581.3	570.0	555.8	536.1	527.7
75°	473.8	468.4	454.1	437.3	443.0
77.5°	378.1	366.6	361.0	352.6	344.2
80°	282.3	279.3	273.6	265.2	259.5
82.5°	191.9	191.9	189.2	177.8	177.8
85°	115.6	112.8	110.2	101.5	98.8
87.5°	50.9	45.2	39.5	31.1	28.2
90°	1.3	16.6	27.5	34.6	37.2
92.5°	34.6	29.0	33.1	35.9	37.2
95°	89.7	44.1	53.8	60.9	59.4
97.5°	161.6	48.4	70.3	74.6	76.0
100°	244.5	55.2	78.7	89.7	92.5
102.5°	335.5	332.9	81.5	96.6	100.9
105°	419.8	461.3	84.3	99.3	105.0
107.5°	517.9	552.3	87.1	102.2	107.7
110°	611.9	640.7	241.8	103.7	109.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	700.2	725.0	701.5	106.2	110.6
115°	794.1	817.6	852.2	212.7	113.3
117.5°	875.5	903.1	926.7	729.2	367.3
120°	966.8	987.4	1012.4	1028.9	842.4
122.5°	1044.0	1066.1	1093.8	1102.0	1103.5
125°	1122.8	1140.8	1167.0	1176.7	1180.7
127.5°	1194.6	1213.9	1234.7	1248.5	1249.8
130°	1262.3	1284.4	1299.5	1314.8	1313.4
132.5°	1331.3	1349.3	1364.4	1376.9	1375.5
135°	1389.4	1411.6	1423.8	1437.8	1434.9
137.5°	1450.0	1466.6	1480.5	1494.3	1490.3
140°	1509.4	1520.6	1535.7	1548.1	1541.2
142.5°	1559.2	1569.0	1586.9	1597.8	1590.9
145°	1611.7	1610.2	1633.7	1643.4	1636.5
147.5°	1657.2	1653.0	1676.5	1683.4	1678.0
150°	1701.5	1691.8	1713.9	1722.1	1715.2
152.5°	1738.7	1727.7	1748.3	1756.7	1747.0
155°	1774.6	1762.3	1778.9	1787.1	1776.0
157.5°	1803.6	1792.6	1805.1	1814.8	1803.6
160°	1828.5	1820.1	1828.5	1836.7	1827.1
162.5°	1850.5	1842.3	1849.2	1858.9	1846.4
165°	1869.9	1861.7	1865.8	1875.5	1865.8
167.5°	1885.1	1876.8	1881.0	1890.7	1878.2
170°	1897.6	1889.2	1892.1	1901.7	1889.2
172.5°	1905.8	1897.6	1900.4	1910.1	1897.6
175°	1912.7	1903.0	1905.8	1915.4	1901.7
177.5°	1915.4	1905.8	1907.2	1916.9	1904.5
180°	1908.6	1908.6	1908.6	1908.6	1908.6

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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	10.56	11.49	11.45	12.40	13.57	10.12	11.05	11.01	11.96	13.13
	3H	12.23	13.06	13.14	13.99	15.18	11.75	12.58	12.65	13.50	14.69
	4H	12.82	13.61	13.74	14.54	15.74	12.34	13.12	13.26	14.05	15.25
	6H	13.23	13.96	14.16	14.89	16.10	12.74	13.46	13.67	14.40	15.61
	8H	13.34	14.03	14.28	14.98	16.19	12.84	13.54	13.78	14.49	15.70
	12H	13.39	14.05	14.33	14.99	16.23	12.89	13.55	13.83	14.49	15.73
4H	2H	11.03	11.82	11.96	12.75	13.95	10.68	11.47	11.61	12.40	13.60
	3H	12.91	13.57	13.84	14.52	15.74	12.50	13.16	13.44	14.12	15.34
	4H	13.63	14.23	14.57	15.18	16.42	13.21	13.81	14.15	14.76	16.00
	6H	14.15	14.67	15.11	15.64	16.88	13.72	14.24	14.68	15.22	16.46
	8H	14.30	14.79	15.26	15.76	17.01	13.87	14.36	14.83	15.33	16.58
	12H	14.38	14.82	15.36	15.80	17.06	13.94	14.38	14.92	15.36	16.62
8H	4H	13.83	14.31	14.79	15.28	16.54	13.46	13.94	14.42	14.91	16.17
	6H	14.47	14.87	15.45	15.88	17.13	14.09	14.49	15.08	15.50	16.75
	8H	14.69	15.04	15.69	16.04	17.31	14.30	14.66	15.30	15.66	16.93
	12H	14.83	15.14	15.83	16.13	17.45	14.42	14.74	15.42	15.73	17.05
12H	4H	13.82	14.25	14.80	15.24	16.50	13.46	13.89	14.44	14.88	16.14
	6H	14.50	14.85	15.49	15.85	17.12	14.13	14.49	15.13	15.49	16.76
	8H	14.74	15.06	15.74	16.05	17.37	14.37	14.68	15.37	15.68	16.99