

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: P903973

Luminaire Tested: DFN2DIP-SQ4F0-070D060US830-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P903973
REPORT IS A COMBINATION OF REPORTS P901581 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-070D060US830-FLLONL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

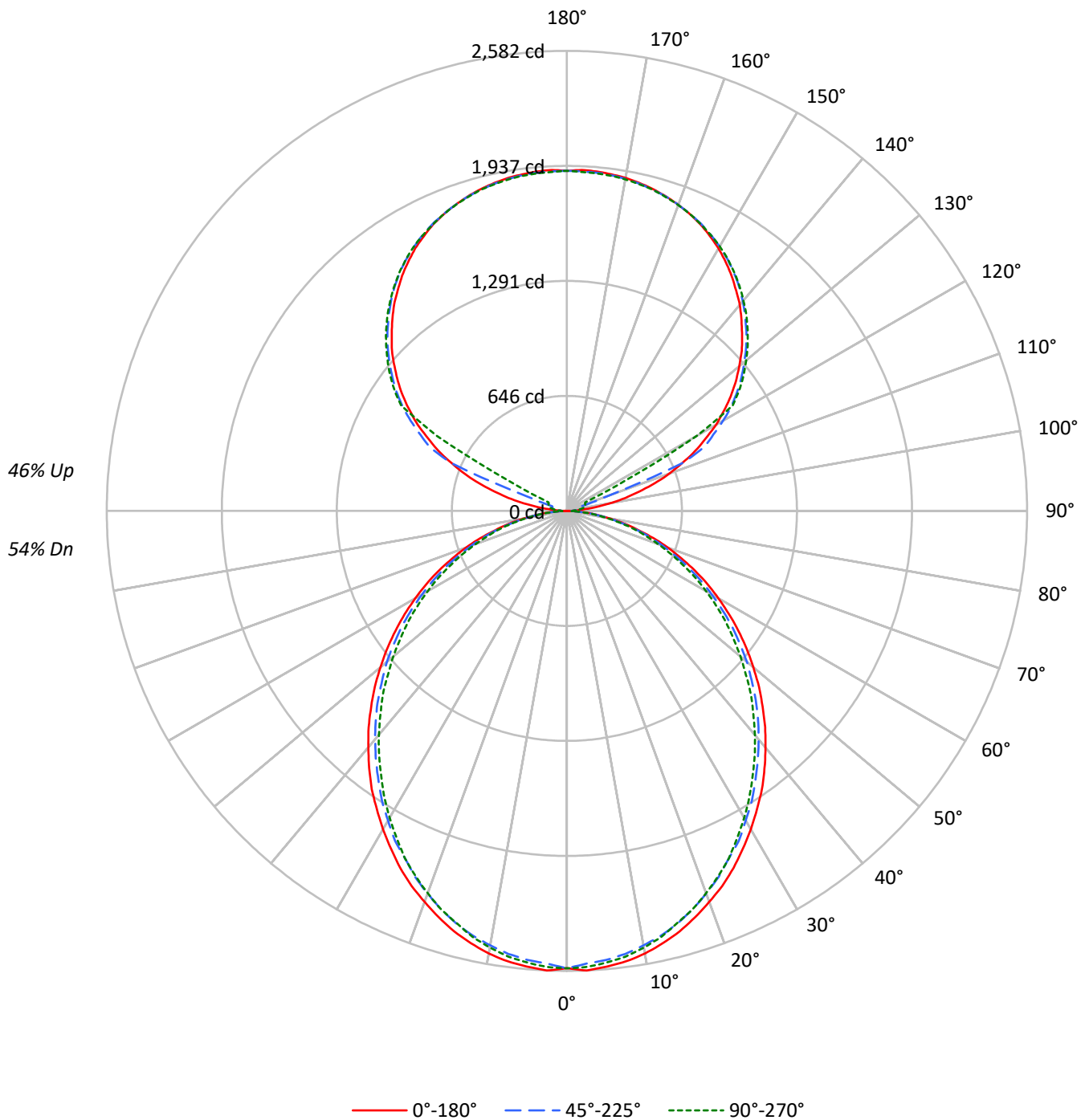
Lumens per Lamp: N/A
Luminaire Lumens: 12130.5 lumens
Efficiency: N/A
Efficacy: 113.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 106.5
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	108	108	108	108	100	100	100	100	85	85	85	72	72	72	60	60	60
1	99	94	90	87	91	88	84	81	75	73	70	63	62	60	53	52	50
2	90	82	76	71	83	77	71	67	66	62	58	56	53	50	46	44	42
3	82	72	65	59	76	67	61	56	58	53	49	49	46	42	41	38	36
4	75	64	56	50	69	60	53	47	52	46	42	44	40	36	37	34	31
5	69	57	49	43	64	53	46	41	46	40	36	39	35	32	33	30	27
6	63	51	43	37	59	48	41	35	42	36	31	36	31	28	30	27	24
7	59	46	38	33	54	43	36	31	38	32	28	32	28	24	27	24	21
8	54	42	34	29	50	39	32	28	34	29	25	30	25	22	25	22	19
9	51	38	31	26	47	36	29	25	32	26	22	27	23	20	23	20	17
10	47	35	28	23	44	33	27	22	29	24	20	25	21	18	22	18	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1801	1801	1801
5°	1804	1777	1789
10°	1790	1753	1765
15°	1763	1725	1728
20°	1728	1685	1689
25°	1692	1637	1645
30°	1648	1593	1589
35°	1606	1541	1529
40°	1554	1488	1472
45°	1503	1435	1414
50°	1446	1379	1347
55°	1387	1315	1285
60°	1320	1239	1214
65°	1248	1160	1131
70°	1155	1064	1041
75°	1026	949	960
80°	871	803	802
85°	630	549	538

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1503 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	241.6	2.0
10°-20°	679.9	5.6
20°-30°	999.1	8.2
30°-40°	1160.4	9.6
40°-50°	1159.0	9.6
50°-60°	1010.6	8.3
60°-70°	747.1	6.2
70°-80°	422.7	3.5
80°-90°	114.9	0.9
90°-100°	62.9	0.5
100°-110°	234.6	1.9
110°-120°	622.2	5.1
120°-130°	1032.0	8.5
130°-140°	1096.2	9.0
140°-150°	1018.8	8.4
150°-160°	819.1	6.8
160°-170°	527.8	4.4
170°-180°	181.7	1.5
0°-30°	1920.6	15.8
0°-40°	3081.0	25.4
0°-60°	5250.6	43.3
0°-90°	6535.2	53.9
90°-120°	919.8	7.6
90°-150°	4066.8	33.5
90°-180°	5595.0	46.1
0°-180°	12130.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2567	2567	2567	2567	2567	
5°	2567	2558	2530	2550	2545	244
15°	2444	2429	2397	2407	2395	688
25°	2212	2192	2150	2155	2150	1018
35°	1908	1884	1844	1829	1817	1192
45°	1553	1536	1498	1471	1461	1198
55°	1175	1160	1131	1101	1089	1051
65°	793	778	753	731	718	784
75°	415	410	397	383	388	443
85°	101	99	96	89	86	113
90°	1	17	28	35	37	11
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°	2567.2	2567.2	2567.2	2567.2	2567.2
2.5°	2582.2	2569.8	2542.6	2567.2	2562.5
5°	2567.2	2557.6	2530.3	2550.0	2545.2
7.5°	2550.0	2535.3	2508.0	2528.0	2523.0
10°	2523.0	2505.7	2476.1	2495.8	2488.4
12.5°	2485.8	2471.2	2441.6	2453.8	2448.8
15°	2443.9	2429.2	2397.0	2407.0	2394.6
17.5°	2392.0	2377.4	2345.1	2357.5	2345.1
20°	2335.1	2320.5	2285.9	2293.3	2283.6
22.5°	2278.6	2256.4	2224.1	2224.1	2219.1
25°	2211.9	2192.2	2150.3	2155.0	2150.3
27.5°	2137.7	2120.4	2088.5	2081.1	2068.8
30°	2063.9	2043.9	2007.0	1999.7	1989.7
32.5°	1984.7	1970.1	1930.5	1915.6	1905.6
35°	1908.3	1883.7	1844.1	1829.2	1816.8
37.5°	1821.8	1799.6	1760.0	1742.8	1730.4
40°	1733.1	1713.2	1673.6	1651.6	1641.6
42.5°	1646.6	1626.7	1587.4	1562.5	1547.8
45°	1552.8	1535.6	1498.4	1471.4	1461.4
47.5°	1461.4	1444.2	1404.6	1377.3	1362.7
50°	1365.1	1352.7	1318.1	1283.6	1271.3
52.5°	1271.3	1254.1	1222.1	1194.9	1177.5
55°	1175.2	1160.3	1130.7	1101.1	1088.7
57.5°	1078.8	1066.5	1034.3	1004.7	994.8
60°	982.4	972.7	938.2	911.0	903.6
62.5°	888.6	871.4	846.8	822.2	812.2
65°	792.6	777.6	753.0	730.8	718.4
67.5°	693.8	681.3	659.2	642.0	632.0
70°	602.4	592.5	570.1	552.9	543.2
72.5°	508.6	498.7	486.4	469.1	461.8
75°	414.6	409.9	397.3	382.7	387.7
77.5°	330.8	320.8	315.8	308.5	301.2
80°	246.9	244.4	239.4	232.1	227.1
82.5°	167.9	167.9	165.5	155.6	155.6
85°	101.1	98.8	96.4	88.8	86.4
87.5°	44.5	39.6	34.6	27.2	24.6
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	9.68	10.58	10.60	11.52	12.73	9.24	10.13	10.16	11.07	12.29
	3H	11.35	12.15	12.28	13.10	14.34	10.86	11.66	11.79	12.61	13.85
	4H	11.94	12.70	12.89	13.66	14.90	11.45	12.21	12.40	13.16	14.41
	6H	12.35	13.05	13.31	14.01	15.27	11.84	12.55	12.81	13.51	14.77
	8H	12.45	13.12	13.42	14.10	15.36	11.95	12.62	12.92	13.60	14.86
	12H	12.50	13.14	13.48	14.11	15.40	11.99	12.63	12.97	13.60	14.89
4H	2H	10.15	10.91	11.10	11.86	13.11	9.79	10.55	10.75	11.51	12.76
	3H	12.02	12.66	12.99	13.64	14.90	11.61	12.25	12.58	13.23	14.50
	4H	12.74	13.32	13.71	14.30	15.59	12.32	12.90	13.29	13.88	15.16
	6H	13.26	13.76	14.25	14.76	16.05	12.83	13.33	13.82	14.33	15.62
	8H	13.41	13.88	14.40	14.88	16.18	12.98	13.44	13.96	14.44	15.74
	12H	13.49	13.91	14.50	14.93	16.23	13.04	13.46	14.05	14.48	15.78
8H	4H	12.94	13.41	13.93	14.40	15.70	12.56	13.03	13.55	14.03	15.33
	6H	13.58	13.96	14.59	15.00	16.30	13.19	13.58	14.21	14.62	15.92
	8H	13.80	14.14	14.82	15.17	16.48	13.41	13.75	14.43	14.77	16.09
	12H	13.94	14.24	14.96	15.26	16.62	13.53	13.83	14.55	14.85	16.21
12H	4H	12.93	13.35	13.93	14.36	15.67	12.56	12.98	13.57	13.99	15.30
	6H	13.61	13.95	14.63	14.97	16.29	13.24	13.58	14.26	14.60	15.92
	8H	13.85	14.15	14.88	15.17	16.53	13.47	13.77	14.50	14.79	16.15