

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: P902383

Luminaire Tested: DFN2DIP-4P4F0-070D060US830-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P902383
REPORT IS A COMBINATION OF REPORTS P900643 AND P897523
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-070D060US830-FLLONL
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

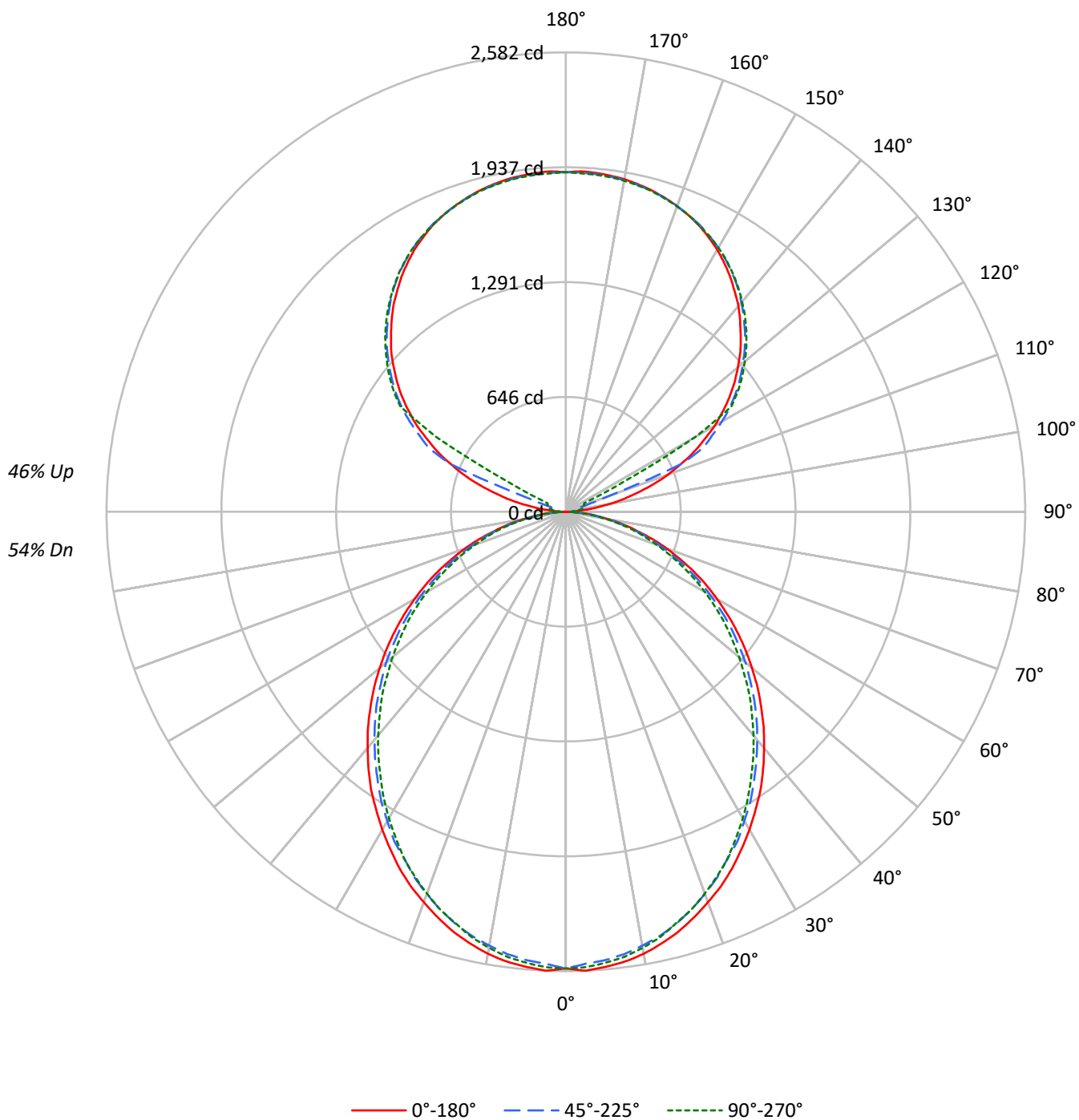
Lumens per Lamp: N/A
Luminaire Lumens: 12130.5 lumens
Efficiency: N/A
Efficacy: 97.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 124.6
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

TEST NUMBER: P902383

CATALOG NUMBER: DFN2DIP-4P4F0-070D060US830-FLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P902383

CATALOG NUMBER: DFN2DIP-4P4F0-070D060US830-FLONL

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°	1665	1665	1665
5°	1668	1643	1654
10°	1655	1621	1632
15°	1631	1595	1598
20°	1598	1558	1563
25°	1565	1515	1522
30°	1524	1474	1470
35°	1486	1426	1415
40°	1438	1377	1362
45°	1390	1329	1309
50°	1339	1277	1247
55°	1284	1218	1190
60°	1223	1148	1125
65°	1156	1076	1048
70°	1070	987	965
75°	952	882	890
80°	810	747	745
85°	588	514	502

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1390 cd/sqm

TEST NUMBER: P902383

CATALOG NUMBER: DFN2DIP-4P4F0-070D060US830-FLLONL

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	

TEST NUMBER: P902383

CATALOG NUMBER: DFN2DIP-4P4F0-070D060US830-FLLONL

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



TEST NUMBER: P902383

CATALOG NUMBER: DFN2DIP-4P4F0-070D060US830-FLLONL

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

TEST NUMBER: P902383

CATALOG NUMBER: DFN2DIP-4P4F0-070D060US830-FLONL

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	9.41	10.31	10.34	11.25	12.47	8.97	9.87	9.89	10.81	12.02
	3H	11.08	11.89	12.02	12.84	14.08	10.59	11.40	11.53	12.35	13.59
	4H	11.68	12.44	12.63	13.39	14.64	11.18	11.94	12.13	12.90	14.15
	6H	12.08	12.78	13.04	13.74	15.01	11.58	12.28	12.54	13.24	14.51
	8H	12.19	12.86	13.16	13.84	15.09	11.69	12.36	12.66	13.34	14.59
	12H	12.24	12.88	13.22	13.85	15.13	11.73	12.37	12.71	13.34	14.62
4H	2H	9.88	10.64	10.84	11.60	12.84	9.53	10.29	10.48	11.24	12.49
	3H	11.76	12.39	12.72	13.38	14.64	11.35	11.98	12.31	12.97	14.23
	4H	12.48	13.06	13.45	14.04	15.32	12.05	12.63	13.03	13.61	14.90
	6H	13.00	13.50	13.99	14.50	15.79	12.57	13.07	13.55	14.07	15.35
	8H	13.15	13.62	14.14	14.62	15.92	12.72	13.18	13.70	14.18	15.48
	12H	13.23	13.65	14.24	14.66	15.97	12.78	13.20	13.79	14.22	15.52
8H	4H	12.68	13.14	13.67	14.14	15.44	12.30	12.77	13.29	13.76	15.06
	6H	13.32	13.70	14.33	14.74	16.04	12.93	13.32	13.95	14.36	15.65
	8H	13.54	13.88	14.56	14.91	16.22	13.15	13.49	14.17	14.51	15.83
	12H	13.68	13.98	14.70	15.00	16.36	13.27	13.57	14.29	14.59	15.95
12H	4H	12.66	13.09	13.67	14.10	15.40	12.30	12.72	13.30	13.73	15.04
	6H	13.35	13.69	14.37	14.71	16.03	12.98	13.32	14.00	14.34	15.66
	8H	13.59	13.90	14.62	14.91	16.27	13.22	13.52	14.24	14.53	15.89