

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: P918707

Luminaire Tested: DFN2DIP-4P4F0-050D070US935-FLONL

Issue Date: 11/21/2024

**Test Information**

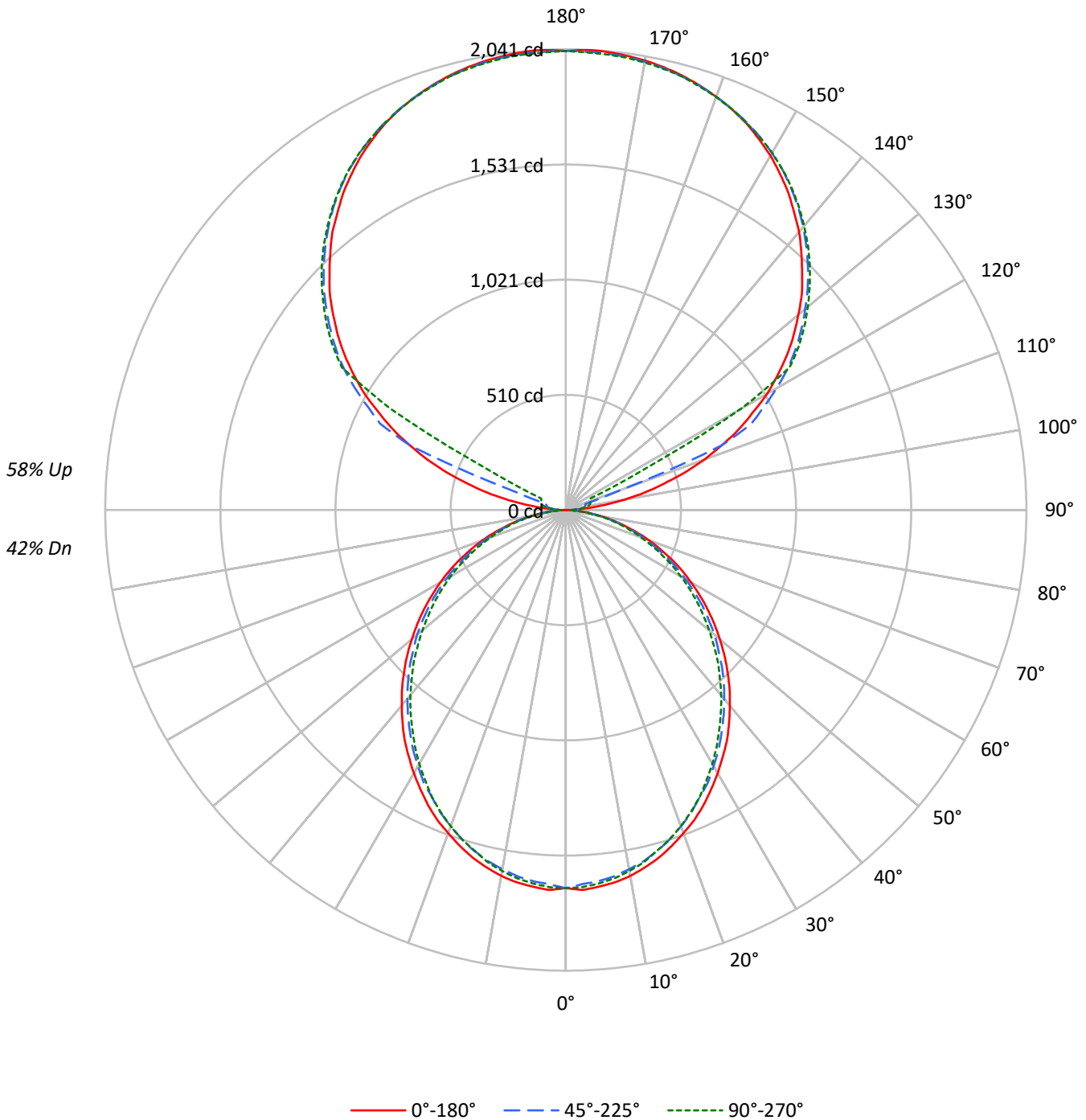
Test Method: LM-79-2019  
Report Number: P918707  
REPORT IS A COMBINATION OF REPORTS P900651 AND P897523  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-4P4F0-050D070US935-FLLONL  
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 10228.7 lumens  
Efficiency: N/A  
Efficacy: 92.0 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): 111.2  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9951  
Total Harmonic Distortion (THDi): 0.07  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

TEST NUMBER: P918707  
CATALOG NUMBER: DFN2DIP-4P4F0-050D070US935-FLLONL

### Luminous Intensity Polar Plot





TEST NUMBER: P918707

CATALOG NUMBER: DFN2DIP-4P4F0-050D070US935-FLLONL

**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20				20				20				20				20				20	
RC	80				70				50				30				10				0	
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0	
RCR																						
0	105	105	105	105	96	96	96	96	79	79	79	63	63	63	49	49	49	49	49	49	49	42
1	96	92	88	84	87	84	80	78	69	67	65	55	54	52	43	42	41	41	41	41	41	35
2	87	80	74	69	79	73	68	64	60	57	53	49	46	44	38	36	34	34	34	34	34	29
3	80	70	63	57	72	64	58	53	53	49	45	43	40	37	33	31	29	29	29	29	29	25
4	73	62	54	48	66	57	50	45	47	42	38	38	35	32	30	27	25	25	25	25	25	21
5	67	55	47	41	61	51	44	39	42	37	33	34	30	27	27	24	22	22	22	22	22	19
6	62	50	42	36	56	46	39	33	38	33	29	31	27	24	24	22	19	19	19	19	19	16
7	57	45	37	31	52	41	34	29	34	29	25	28	24	21	22	19	17	17	17	17	17	14
8	53	41	33	28	48	37	31	26	31	26	22	26	22	19	20	18	15	15	15	15	15	13
9	49	37	30	25	45	34	28	23	29	24	20	24	20	17	19	16	14	14	14	14	14	12
10	46	34	27	22	42	31	25	21	26	21	18	22	18	15	18	15	13	13	13	13	13	11

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	1087	1087	1087
5°	1089	1072	1079
10°	1080	1058	1065
15°	1064	1041	1043
20°	1043	1017	1020
25°	1021	988	993
30°	995	962	959
35°	969	930	923
40°	938	899	889
45°	907	867	854
50°	873	834	813
55°	838	795	776
60°	798	749	734
65°	754	702	683
70°	698	644	630
75°	621	575	581
80°	529	488	486
85°	384	335	328

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°  
 Vertical Angle: 90°  
 Luminance: 1049 cd/sqm



TEST NUMBER: P918707

CATALOG NUMBER: DFN2DIP-4P4F0-050D070US935-FLLONL

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	157.7	1.5
10°-20°	443.6	4.3
20°-30°	651.9	6.4
30°-40°	757.2	7.4
40°-50°	756.2	7.4
50°-60°	659.4	6.4
60°-70°	487.4	4.8
70°-80°	275.8	2.7
80°-90°	76.4	0.7
90°-100°	67.1	0.7
100°-110°	250.0	2.4
110°-120°	663.1	6.5
120°-130°	1099.8	10.8
130°-140°	1168.3	11.4
140°-150°	1085.8	10.6
150°-160°	872.9	8.5
160°-170°	562.5	5.5
170°-180°	193.6	1.9
0°-30°	1253.2	12.3
0°-40°	2010.3	19.7
0°-60°	3425.9	33.5
0°-90°	4265.5	41.7
90°-120°	980.2	9.6
90°-150°	4334.1	42.4
90°-180°	5963.0	58.3
0°-180°	10228.7	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1675	1675	1675	1675	1675	
5°	1675	1669	1651	1664	1661	159
15°	1595	1585	1564	1570	1562	449
25°	1443	1430	1403	1406	1403	664
35°	1245	1229	1203	1194	1186	778
45°	1013	1002	978	960	954	782
55°	767	757	738	718	710	686
65°	517	507	491	477	469	511
75°	270	267	259	250	253	289
85°	66	64	63	58	56	74
90°	1	18	29	37	40	9
95°	96	47	57	65	63	113
105°	448	492	90	106	112	478
115°	846	871	908	227	121	833
125°	1196	1216	1244	1254	1258	1067
135°	1481	1504	1517	1532	1529	1144
145°	1718	1716	1741	1751	1744	1074
155°	1891	1878	1896	1904	1893	872
165°	1993	1984	1988	1999	1988	563
175°	2038	2028	2031	2041	2027	194
180°	2034	2034	2034	2034	2034	



TEST NUMBER: P918707

CATALOG NUMBER: DFN2DIP-4P4F0-050D070US935-FLLONL

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1675.1	1675.1	1675.1	1675.1	1675.1
2.5°	1684.8	1676.8	1659.1	1675.1	1672.1
5°	1675.1	1668.8	1651.0	1663.8	1660.8
7.5°	1663.8	1654.2	1636.5	1649.5	1646.2
10°	1646.2	1634.9	1615.7	1628.4	1623.7
12.5°	1621.9	1612.4	1593.1	1601.1	1597.8
15°	1594.6	1585.0	1564.0	1570.5	1562.5
17.5°	1560.7	1551.2	1530.2	1538.2	1530.2
20°	1523.7	1514.2	1491.6	1496.3	1490.0
22.5°	1486.8	1472.2	1451.2	1451.2	1447.9
25°	1443.2	1430.4	1403.0	1406.1	1403.0
27.5°	1394.8	1383.5	1362.7	1357.9	1349.9
30°	1346.6	1333.7	1309.6	1304.8	1298.3
32.5°	1295.0	1285.5	1259.6	1249.9	1243.5
35°	1245.1	1229.1	1203.2	1193.5	1185.5
37.5°	1188.7	1174.2	1148.4	1137.1	1129.1
40°	1130.8	1117.8	1092.0	1077.6	1071.2
42.5°	1074.4	1061.4	1035.8	1019.5	1010.0
45°	1013.2	1001.9	977.7	960.1	953.6
47.5°	953.6	942.3	916.5	898.7	889.2
50°	890.7	882.7	860.1	837.6	829.5
52.5°	829.5	818.2	797.4	779.6	768.4
55°	766.8	757.1	737.7	718.4	710.4
57.5°	703.9	695.9	674.9	655.6	649.0
60°	641.0	634.7	612.2	594.3	589.6
62.5°	579.9	568.6	552.5	536.4	529.9
65°	517.1	507.4	491.3	476.8	468.7
67.5°	452.7	444.5	430.2	418.9	412.3
70°	393.0	386.6	372.0	360.8	354.5
72.5°	331.9	325.4	317.4	306.1	301.3
75°	270.5	267.4	259.2	249.7	253.0
77.5°	215.9	209.3	206.1	201.3	196.6
80°	161.2	159.5	156.2	151.4	148.2
82.5°	109.5	109.5	108.0	101.5	101.5
85°	66.0	64.4	62.9	57.9	56.4
87.5°	29.0	25.8	22.6	17.7	16.1
90°	1.4	17.7	29.4	36.9	39.7
92.5°	36.9	30.9	35.3	38.3	39.7
95°	95.6	47.0	57.3	64.8	63.3
97.5°	172.1	51.6	75.0	79.6	80.9
100°	260.6	58.9	83.9	95.6	98.6
102.5°	357.6	354.8	86.9	103.0	107.5
105°	447.5	491.6	89.8	105.9	111.8
107.5°	551.9	588.7	92.8	108.9	114.9
110°	652.1	682.9	257.6	110.5	116.2



TEST NUMBER: P918707

CATALOG NUMBER: DFN2DIP-4P4F0-050D070US935-FLLONL

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	746.3	772.7	747.7	113.2	117.8
115°	846.3	871.2	908.1	226.7	120.8
117.5°	933.1	962.5	987.7	777.1	391.5
120°	1030.3	1052.3	1078.9	1096.6	897.8
122.5°	1112.6	1136.2	1165.8	1174.5	1176.0
125°	1196.5	1215.7	1243.7	1254.0	1258.3
127.5°	1273.1	1293.6	1315.9	1330.6	1332.0
130°	1345.2	1368.8	1384.9	1401.2	1399.8
132.5°	1418.8	1438.0	1454.1	1467.4	1466.0
135°	1480.7	1504.2	1517.4	1532.2	1529.3
137.5°	1545.3	1563.1	1577.9	1592.6	1588.2
140°	1608.6	1620.5	1636.6	1649.8	1642.5
142.5°	1661.7	1672.1	1691.1	1702.8	1695.5
145°	1717.7	1716.1	1741.1	1751.4	1744.1
147.5°	1766.1	1761.8	1786.7	1794.1	1788.3
150°	1813.3	1803.0	1826.6	1835.3	1828.0
152.5°	1853.0	1841.2	1863.3	1872.2	1861.9
155°	1891.3	1878.1	1895.7	1904.5	1892.8
157.5°	1922.2	1910.5	1923.7	1934.1	1922.2
160°	1948.8	1939.8	1948.8	1957.5	1947.1
162.5°	1972.2	1963.4	1970.7	1981.1	1967.8
165°	1992.8	1984.1	1988.4	1998.7	1988.4
167.5°	2009.1	2000.1	2004.7	2015.0	2001.7
170°	2022.3	2013.4	2016.4	2026.7	2013.4
172.5°	2031.1	2022.3	2025.3	2035.6	2022.3
175°	2038.4	2028.1	2031.1	2041.3	2026.7
177.5°	2041.3	2031.1	2032.6	2043.0	2029.6
180°	2034.0	2034.0	2034.0	2034.0	2034.0



TEST NUMBER: P918707  
 CATALOG NUMBER: DFN2DIP-4P4F0-050D070US935-FLLONL

**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	6.76	7.55	7.79	8.59	9.97	6.32	7.11	7.34	8.14	9.53
	3H	8.42	9.13	9.46	10.17	11.58	7.93	8.64	8.97	9.68	11.09
	4H	9.01	9.68	10.06	10.73	12.14	8.52	9.19	9.56	10.23	11.64
	6H	9.41	10.03	10.47	11.08	12.50	8.91	9.53	9.97	10.58	12.00
	8H	9.52	10.11	10.58	11.17	12.59	9.01	9.60	10.08	10.67	12.09
	12H	9.56	10.12	10.63	11.18	12.63	9.05	9.61	10.12	10.67	12.12
4H	2H	7.21	7.89	8.27	8.93	10.34	6.86	7.53	7.91	8.58	9.99
	3H	9.08	9.64	10.14	10.71	12.14	8.67	9.23	9.73	10.31	11.73
	4H	9.80	10.31	10.86	11.37	12.82	9.37	9.89	10.44	10.95	12.40
	6H	10.31	10.75	11.39	11.84	13.28	9.88	10.32	10.96	11.41	12.85
	8H	10.46	10.88	11.54	11.96	13.41	10.03	10.44	11.10	11.52	12.98
	12H	10.54	10.91	11.63	12.00	13.46	10.09	10.46	11.18	11.55	13.01
8H	4H	9.99	10.40	11.07	11.48	12.94	9.61	10.02	10.69	11.10	12.56
	6H	10.62	10.96	11.72	12.08	13.54	10.24	10.58	11.34	11.70	13.16
	8H	10.85	11.15	11.95	12.25	13.72	10.45	10.75	11.56	11.86	13.33
	12H	10.98	11.24	12.09	12.34	13.85	10.57	10.83	11.68	11.93	13.44
12H	4H	9.97	10.34	11.07	11.44	12.90	9.60	9.98	10.70	11.07	12.53
	6H	10.65	10.95	11.76	12.06	13.53	10.28	10.58	11.39	11.68	13.16
	8H	10.90	11.16	12.01	12.26	13.77	10.52	10.78	11.63	11.88	13.39