

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: P918731

Luminaire Tested: DFN2DIP-4P4F0-060D070US935-FLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P918731
REPORT IS A COMBINATION OF REPORTS P900653 AND P897523
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-060D070US935-FLLONL
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

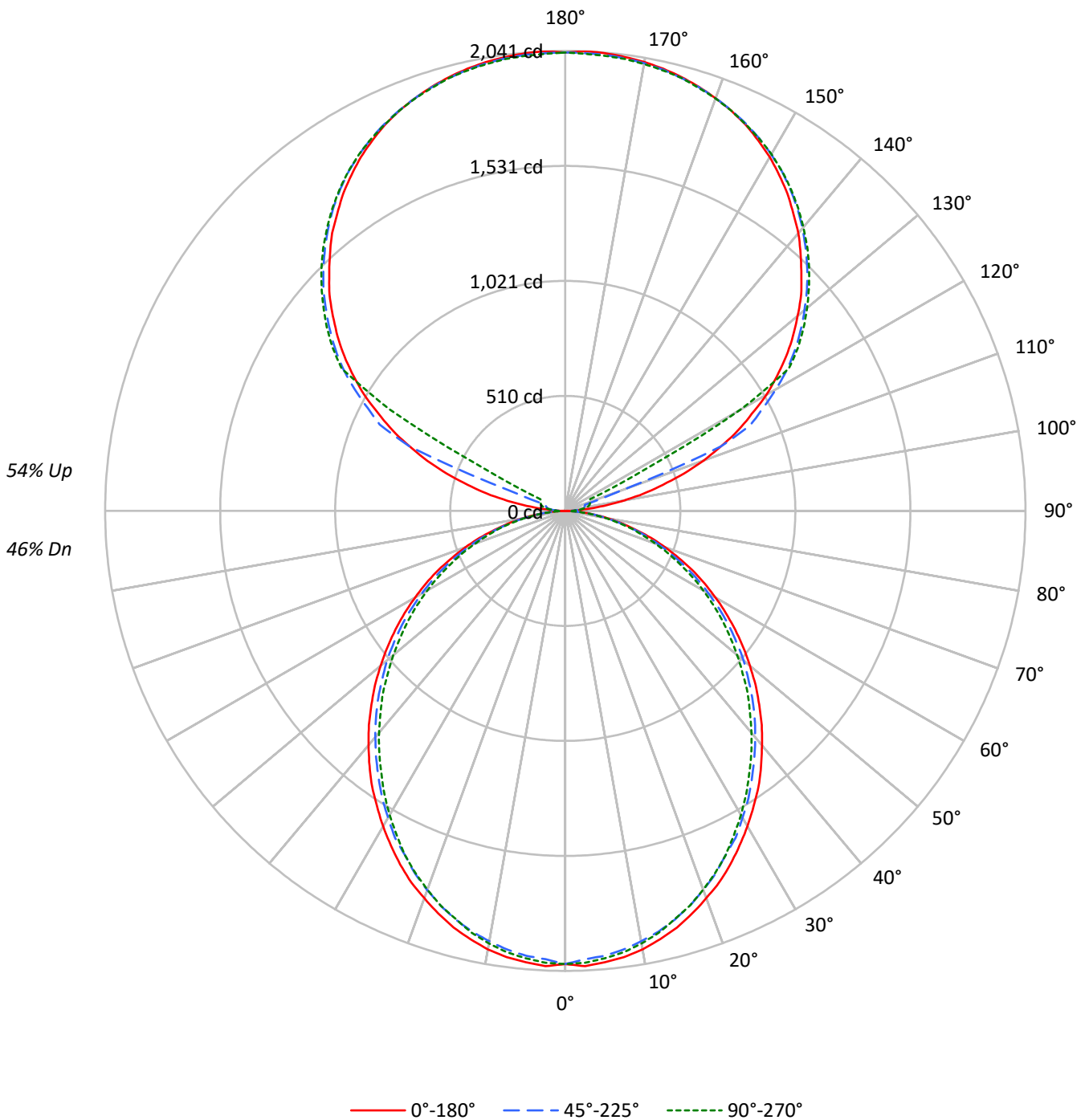
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 11081.1 lumens
Efficiency: N/A
Efficacy: 90.4 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): 122.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9933
Total Harmonic Distortion (THDi): 0.066
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P918731
CATALOG NUMBER: DFN2DIP-4P4F0-060D070US935-FLLONL

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			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	106	106	106	106	98	98	98	98	81	81	81	66	66	66	53	53	53	46			46
1	97	93	89	85	89	85	82	79	71	69	67	58	57	55	46	45	44	39			39
2	88	81	75	70	81	74	69	65	62	59	55	51	48	46	41	39	37	33			33
3	81	71	64	58	74	66	59	54	55	50	46	45	42	39	36	34	32	28			28
4	74	63	55	49	67	58	51	46	49	44	40	40	37	33	32	30	27	24			24
5	68	56	48	42	62	52	45	39	44	38	34	36	32	29	29	26	24	21			21
6	62	50	42	36	57	46	39	34	39	34	30	33	29	25	26	23	21	18			18
7	58	45	37	32	53	42	35	30	36	30	26	30	26	22	24	21	19	16			16
8	53	41	33	28	49	38	31	26	33	27	23	27	23	20	22	19	17	14			14
9	50	38	30	25	46	35	28	24	30	24	21	25	21	18	21	17	15	13			13
10	46	34	27	22	43	32	26	21	27	22	19	23	19	16	19	16	14	12			12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1304	1304	1304
5°	1306	1286	1295
10°	1296	1269	1278
15°	1277	1249	1251
20°	1251	1220	1223
25°	1226	1186	1191
30°	1194	1154	1151
35°	1163	1116	1108
40°	1126	1078	1067
45°	1089	1040	1025
50°	1048	1000	976
55°	1005	954	932
60°	957	899	881
65°	905	842	820
70°	838	773	756
75°	745	690	697
80°	634	585	583
85°	460	402	394

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 1089 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	189.2	1.7
10°-20°	532.3	4.8
20°-30°	782.3	7.1
30°-40°	908.6	8.2
40°-50°	907.5	8.2
50°-60°	791.3	7.1
60°-70°	584.9	5.3
70°-80°	330.9	3.0
80°-90°	90.9	0.8
90°-100°	67.1	0.6
100°-110°	250.0	2.3
110°-120°	663.1	6.0
120°-130°	1099.8	9.9
130°-140°	1168.3	10.5
140°-150°	1085.8	9.8
150°-160°	872.9	7.9
160°-170°	562.5	5.1
170°-180°	193.6	1.7
0°-30°	1503.8	13.6
0°-40°	2412.4	21.8
0°-60°	4111.1	37.1
0°-90°	5117.9	46.2
90°-120°	980.2	8.8
90°-150°	4334.1	39.1
90°-180°	5963.0	53.8
0°-180°	11081.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2010	2010	2010	2010	2010	
5°	2010	2002	1981	1997	1993	191
15°	1914	1902	1877	1885	1875	539
25°	1732	1716	1684	1687	1684	797
35°	1494	1475	1444	1432	1422	933
45°	1216	1202	1173	1152	1144	938
55°	920	908	885	862	852	823
65°	620	609	590	572	562	614
75°	325	321	311	300	304	347
85°	79	77	75	70	68	88
90°	1	18	29	37	40	10
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	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2010.1	2010.1	2010.1	2010.1	2010.1
2.5°	2021.8	2012.2	1990.8	2010.1	2006.4
5°	2010.1	2002.5	1981.2	1996.6	1992.9
7.5°	1996.6	1985.1	1963.8	1979.3	1975.5
10°	1975.5	1962.0	1938.7	1954.1	1948.4
12.5°	1946.4	1934.8	1911.7	1921.3	1917.4
15°	1913.5	1902.0	1876.8	1884.6	1875.0
17.5°	1872.9	1861.5	1836.3	1845.8	1836.3
20°	1828.4	1817.0	1789.8	1795.6	1788.0
22.5°	1784.2	1766.7	1741.5	1741.5	1737.6
25°	1731.8	1716.5	1683.6	1687.3	1683.6
27.5°	1673.8	1660.3	1635.2	1629.5	1619.9
30°	1616.0	1600.3	1571.5	1565.7	1557.9
32.5°	1554.0	1542.6	1511.6	1499.9	1492.1
35°	1494.2	1474.9	1443.9	1432.2	1422.5
37.5°	1426.5	1409.0	1378.1	1364.5	1354.9
40°	1356.9	1341.3	1310.4	1293.2	1285.4
42.5°	1289.3	1273.7	1242.9	1223.5	1211.9
45°	1215.9	1202.3	1173.2	1152.1	1144.3
47.5°	1144.3	1130.7	1099.8	1078.5	1066.9
50°	1068.8	1059.2	1032.2	1005.0	995.4
52.5°	995.4	981.9	956.8	935.6	922.0
55°	920.1	908.4	885.3	862.1	852.5
57.5°	844.7	835.1	809.9	786.7	778.9
60°	769.2	761.6	734.6	713.3	707.5
62.5°	695.8	682.3	663.0	643.7	635.9
65°	620.5	608.9	589.6	572.1	562.5
67.5°	543.2	533.4	516.2	502.7	494.8
70°	471.7	463.9	446.4	432.9	425.3
72.5°	398.2	390.5	380.8	367.3	361.5
75°	324.6	321.0	311.1	299.6	303.5
77.5°	259.0	251.2	247.3	241.6	235.8
80°	193.4	191.3	187.4	181.7	177.8
82.5°	131.5	131.5	129.6	121.8	121.8
85°	79.1	77.3	75.4	69.5	67.7
87.5°	34.9	31.0	27.0	21.4	19.3
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: P918731

CATALOG NUMBER: DFN2DIP-4P4F0-060D070US935-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



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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	7.85	8.68	8.84	9.68	11.00	7.41	8.23	8.39	9.24	10.56
	3H	9.51	10.26	10.51	11.27	12.61	9.02	9.77	10.02	10.78	12.12
	4H	10.10	10.81	11.12	11.82	13.17	9.61	10.31	10.62	11.33	12.68
	6H	10.51	11.15	11.53	12.17	13.54	10.01	10.65	11.03	11.67	13.04
	8H	10.61	11.23	11.64	12.26	13.63	10.11	10.73	11.14	11.76	13.12
	12H	10.66	11.25	11.70	12.28	13.66	10.15	10.74	11.19	11.77	13.15
4H	2H	8.31	9.01	9.33	10.03	11.38	7.95	8.66	8.97	9.67	11.02
	3H	10.18	10.76	11.21	11.81	13.17	9.77	10.36	10.80	11.40	12.77
	4H	10.89	11.43	11.93	12.47	13.86	10.47	11.01	11.51	12.04	13.43
	6H	11.41	11.88	12.46	12.93	14.32	10.98	11.44	12.03	12.50	13.89
	8H	11.57	12.00	12.61	13.05	14.45	11.13	11.56	12.17	12.61	14.01
	12H	11.64	12.03	12.70	13.09	14.50	11.19	11.58	12.25	12.64	14.05
8H	4H	11.09	11.52	12.14	12.57	13.97	10.71	11.14	11.76	12.19	13.60
	6H	11.73	12.08	12.80	13.17	14.57	11.34	11.70	12.41	12.79	14.19
	8H	11.95	12.26	13.03	13.34	14.76	11.56	11.87	12.63	12.95	14.36
	12H	12.08	12.36	13.17	13.43	14.89	11.67	11.95	12.75	13.02	14.48
12H	4H	11.07	11.46	12.14	12.53	13.93	10.71	11.10	11.77	12.16	13.57
	6H	11.76	12.07	12.83	13.15	14.56	11.38	11.70	12.46	12.77	14.19
	8H	12.00	12.28	13.08	13.35	14.81	11.62	11.90	12.70	12.97	14.43