

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: P924096

Luminaire Tested: DFN2DIP-4P3F0-060D060US950-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P924096
REPORT IS A COMBINATION OF REPORTS P899078 AND P895917
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P3F0-060D060US950-RLLFLL
Description: 3 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

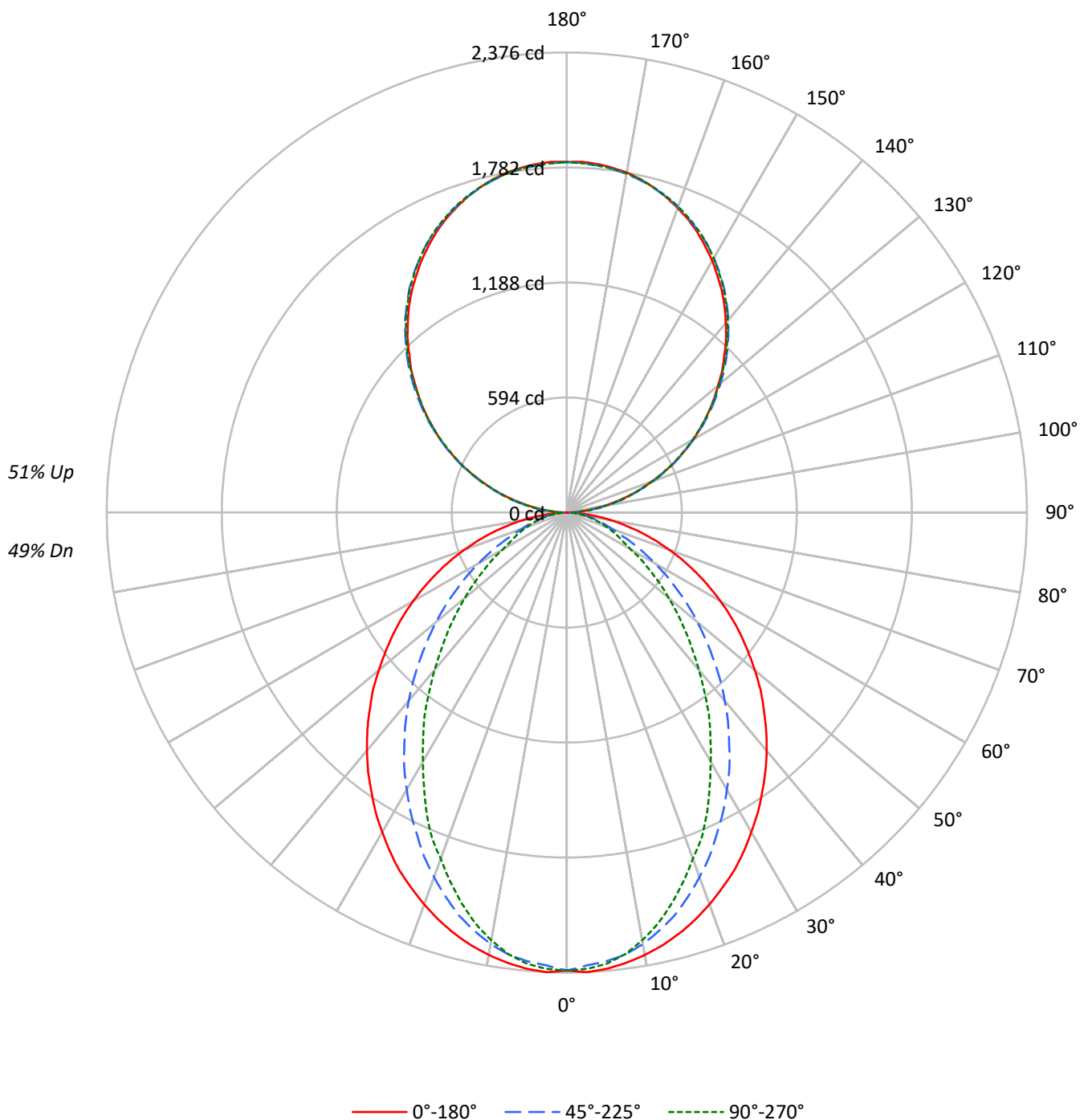
Lumens per Lamp: N/A
Luminaire Lumens: 9931.1 lumens
Efficiency: N/A
Efficacy: 90.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.07' x L: 3.07' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 109.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9963
Total Harmonic Distortion (THDi): 0.065
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P924096

CATALOG NUMBER: DFN2DIP-4P3F0-060D060US950-RLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P924096

CATALOG NUMBER: DFN2DIP-4P3F0-060D060US950-RLLFLL

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	107	107	107	107	99	99	99	99	83	83	83	68	68	68	55	55	55
1	98	94	90	87	90	87	84	81	73	71	69	61	59	58	50	49	48
2	90	83	77	72	82	76	71	67	65	61	58	54	51	49	44	42	41
3	82	73	66	60	75	68	61	57	58	53	49	48	45	42	40	37	35
4	75	65	57	51	69	60	54	48	51	46	42	43	40	36	36	33	31
5	69	58	50	44	64	54	47	42	46	41	37	39	35	32	32	29	27
6	64	52	44	39	59	49	42	37	42	36	32	35	31	28	30	26	24
7	59	47	40	34	55	44	37	32	38	33	29	32	28	25	27	24	22
8	55	43	36	30	51	40	33	29	35	29	26	30	26	23	25	22	20
9	51	39	32	27	47	37	30	26	32	27	23	27	23	20	23	20	18
10	48	36	29	24	44	34	28	23	30	24	21	25	21	19	22	18	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2696	2696	2696
5°	2699	2651	2669
10°	2670	2598	2582
15°	2632	2510	2446
20°	2581	2390	2281
25°	2530	2256	2121
30°	2461	2118	1919
35°	2394	1971	1741
40°	2325	1818	1538
45°	2246	1650	1353
50°	2163	1479	1173
55°	2077	1297	1000
60°	1977	1107	822
65°	1862	914	739
70°	1722	734	668
75°	1547	643	606
80°	1293	534	522
85°	877	348	387

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2246 cd/sqm

TEST NUMBER: P924096

CATALOG NUMBER: DFN2DIP-4P3F0-060D060US950-RLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	221.7	2.2
10°-20°	608.7	6.1
20°-30°	854.5	8.6
30°-40°	931.5	9.4
40°-50°	856.2	8.6
50°-60°	672.4	6.8
60°-70°	437.7	4.4
70°-80°	225.3	2.3
80°-90°	62.7	0.6
90°-100°	112.0	1.1
100°-110°	355.9	3.6
110°-120°	609.1	6.1
120°-130°	801.1	8.1
130°-140°	899.2	9.1
140°-150°	881.7	8.9
150°-160°	739.6	7.4
160°-170°	490.5	4.9
170°-180°	171.4	1.7
0°-30°	1684.9	17.0
0°-40°	2616.4	26.3
0°-60°	4144.9	41.7
0°-90°	4870.5	49.0
90°-120°	1077.0	10.8
90°-150°	3659.0	36.8
90°-180°	5061.0	51.0
0°-180°	9931.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2366	2366	2366	2366	2366	
5°	2366	2355	2327	2346	2340	224
15°	2250	2226	2154	2113	2092	634
25°	2042	1974	1833	1745	1713	939
35°	1760	1651	1462	1327	1280	1102
45°	1439	1295	1071	918	867	1111
55°	1094	927	696	567	527	978
65°	739	565	372	300	293	732
75°	394	244	171	156	154	417
85°	92	47	41	41	41	106
90°	2	20	54	50	52	10
95°	80	95	98	98	95	89
105°	329	333	336	339	339	347
115°	611	620	617	616	611	605
125°	889	903	898	893	892	794
135°	1150	1167	1170	1168	1164	889
145°	1396	1407	1416	1417	1411	872
155°	1596	1601	1606	1613	1608	735
165°	1737	1735	1735	1746	1738	490
175°	1807	1803	1799	1810	1801	172
180°	1810	1810	1810	1810	1810	

TEST NUMBER: P924096

CATALOG NUMBER: DFN2DIP-4P3F0-060D060US950-RLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2365.7	2365.7	2365.7	2365.7	2365.7
2.5°	2376.4	2365.7	2342.1	2363.6	2359.3
5°	2365.7	2355.0	2327.1	2346.5	2340.1
7.5°	2346.5	2333.7	2303.7	2312.1	2301.4
10°	2320.7	2305.7	2263.1	2256.5	2243.7
12.5°	2288.7	2269.4	2211.5	2198.8	2175.1
15°	2250.1	2226.4	2153.8	2113.1	2091.7
17.5°	2205.2	2170.8	2080.9	2033.8	1999.6
20°	2153.8	2110.8	2003.9	1950.5	1903.2
22.5°	2098.1	2048.8	1924.6	1851.9	1819.9
25°	2042.5	1973.9	1832.6	1745.0	1712.7
27.5°	1976.2	1903.2	1747.0	1646.3	1597.1
30°	1905.5	1824.0	1652.7	1543.7	1485.8
32.5°	1836.9	1738.4	1563.0	1434.4	1380.8
35°	1759.9	1650.7	1462.4	1327.4	1280.2
37.5°	1685.0	1567.0	1368.1	1220.3	1166.8
40°	1605.7	1477.4	1269.5	1117.5	1061.9
42.5°	1524.4	1387.4	1171.1	1012.6	959.2
45°	1438.7	1295.2	1070.6	918.3	867.0
47.5°	1357.4	1205.5	974.2	822.1	775.0
50°	1267.5	1115.5	880.0	732.1	687.4
52.5°	1179.5	1019.0	790.0	648.7	608.1
55°	1094.0	927.0	695.8	567.4	526.7
57.5°	1006.3	834.9	612.4	492.5	458.1
60°	916.3	745.1	524.5	415.5	381.1
62.5°	828.6	657.4	449.5	346.9	329.8
65°	738.7	565.1	372.5	299.8	293.3
67.5°	653.0	479.5	299.8	263.3	256.9
70°	563.1	396.1	248.2	227.0	218.3
72.5°	477.5	318.9	207.6	190.6	186.2
75°	393.9	243.9	171.2	156.3	154.3
77.5°	310.5	173.3	134.9	126.3	122.0
80°	233.3	124.2	102.7	94.3	94.3
82.5°	162.7	83.6	70.6	66.3	66.3
85°	92.0	47.0	40.6	40.6	40.6
87.5°	34.3	17.1	17.1	15.0	15.0
90°	1.6	19.7	53.5	50.2	51.8
92.5°	33.9	45.9	47.5	49.1	49.1
95°	79.7	94.9	97.7	97.7	94.9
97.5°	132.6	146.8	152.8	152.8	152.8
100°	193.8	206.3	210.6	210.6	209.0
102.5°	258.2	267.4	273.4	275.0	273.4
105°	328.6	332.9	336.2	339.0	339.0
107.5°	398.4	405.0	405.0	406.0	398.4
110°	466.1	474.8	474.8	474.8	470.4

TEST NUMBER: P924096

CATALOG NUMBER: DFN2DIP-4P3F0-060D060US950-RLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	539.2	548.5	546.8	542.4	539.2
115°	611.2	620.0	617.2	615.6	611.2
117.5°	682.8	694.8	687.1	682.8	678.4
120°	754.8	766.8	754.8	754.8	749.8
122.5°	820.2	835.5	827.9	823.6	820.2
125°	889.0	902.7	898.3	893.4	891.8
127.5°	956.2	973.1	967.1	960.6	956.2
130°	1019.0	1038.6	1035.9	1032.6	1026.6
132.5°	1089.4	1104.6	1105.7	1098.1	1093.7
135°	1150.0	1166.8	1170.1	1168.5	1164.1
137.5°	1217.6	1231.2	1234.0	1232.9	1226.4
140°	1277.1	1290.8	1298.4	1298.4	1292.4
142.5°	1338.2	1351.8	1356.2	1357.8	1351.8
145°	1396.1	1407.0	1415.7	1417.4	1411.3
147.5°	1447.9	1461.5	1468.1	1470.8	1464.8
150°	1501.4	1510.7	1516.7	1521.5	1516.7
152.5°	1548.8	1558.2	1565.8	1571.8	1565.8
155°	1596.3	1600.7	1605.6	1613.3	1608.3
157.5°	1637.3	1640.6	1643.3	1654.2	1646.6
160°	1673.9	1677.1	1678.8	1688.0	1681.5
162.5°	1707.7	1707.7	1709.3	1719.7	1712.0
165°	1736.6	1734.9	1734.9	1745.9	1738.3
167.5°	1762.8	1757.9	1757.9	1768.8	1761.2
170°	1782.5	1778.1	1776.4	1787.3	1778.1
172.5°	1796.1	1791.7	1790.1	1801.0	1791.7
175°	1807.0	1802.7	1799.3	1810.3	1801.0
177.5°	1813.0	1808.7	1805.3	1814.6	1805.3
180°	1810.3	1810.3	1810.3	1810.3	1810.3

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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	10.47	11.29	11.44	12.27	13.56	6.43	7.25	7.40	8.23	9.52
	3H	12.14	12.88	13.12	13.87	15.18	7.61	8.35	8.59	9.34	10.65
	4H	12.74	13.44	13.74	14.43	15.75	8.06	8.75	9.05	9.75	11.06
	6H	13.16	13.80	14.17	14.80	16.13	8.37	9.01	9.38	10.01	11.34
	8H	13.29	13.90	14.30	14.91	16.24	8.46	9.07	9.47	10.08	11.41
	12H	13.35	13.93	14.36	14.93	16.28	8.50	9.08	9.52	10.09	11.44
4H	2H	10.48	11.18	11.49	12.17	13.49	7.02	7.72	8.02	8.71	10.03
	3H	12.31	12.88	13.32	13.91	15.24	8.36	8.94	9.37	9.96	11.30
	4H	12.99	13.52	14.01	14.54	15.89	8.91	9.43	9.92	10.45	11.80
	6H	13.50	13.96	14.53	15.00	16.35	9.32	9.77	10.35	10.81	12.16
	8H	13.68	14.10	14.71	15.13	16.50	9.44	9.87	10.47	10.90	12.26
	12H	13.77	14.15	14.82	15.20	16.57	9.50	9.89	10.55	10.93	12.30
8H	4H	12.96	13.38	13.99	14.42	15.78	9.18	9.61	10.21	10.64	12.00
	6H	13.52	13.87	14.57	14.94	16.31	9.69	10.04	10.75	11.12	12.48
	8H	13.73	14.04	14.80	15.10	16.48	9.88	10.19	10.94	11.24	12.63
	12H	13.87	14.14	14.93	15.19	16.62	9.99	10.26	11.06	11.31	12.74
12H	4H	12.91	13.29	13.96	14.34	15.71	9.19	9.57	10.23	10.61	11.99
	6H	13.49	13.80	14.56	14.86	16.24	9.74	10.05	10.80	11.11	12.49
	8H	13.71	13.98	14.78	15.04	16.46	9.94	10.21	11.01	11.27	12.69