

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: P911512

Luminaire Tested: DFN2DIP-PN4F0-090D050US850-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P911512
REPORT IS A COMBINATION OF REPORTS P899637 AND P896497
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-090D050US850-FLLFLL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

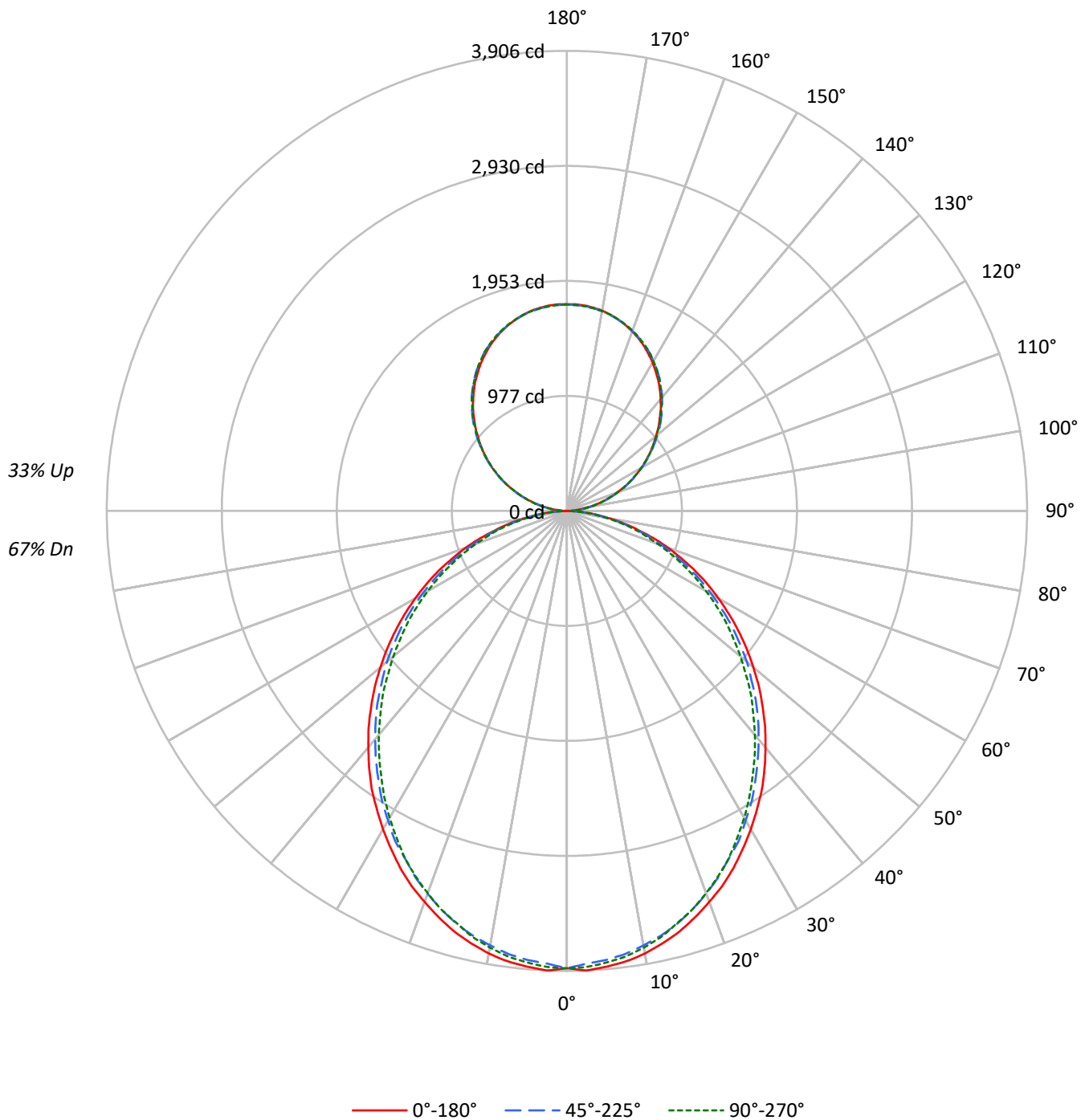
Lumens per Lamp: N/A
Luminaire Lumens: 14788.6 lumens
Efficiency: N/A
Efficacy: 117.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 126
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: P911512

CATALOG NUMBER: DFN2DIP-PN4F0-090D050US850-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P911512

CATALOG NUMBER: DFN2DIP-PN4F0-090D050US850-FLLFL

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	111	111	111	111	105	105	105	105	93	93	93	82	82	82	72	72	72
1	102	97	93	90	96	92	88	85	81	79	76	72	70	68	63	62	61
2	93	85	79	73	87	80	75	70	71	67	63	63	60	57	56	53	51
3	84	75	67	61	79	71	64	58	63	58	53	56	52	48	49	46	43
4	77	66	58	52	73	63	55	50	56	50	45	50	45	41	44	41	37
5	71	59	51	45	67	56	48	43	50	44	39	45	40	36	40	36	33
6	66	53	45	39	62	50	43	37	45	39	34	41	35	32	36	32	29
7	61	48	40	34	57	46	38	33	41	35	30	37	32	28	33	29	26
8	56	44	36	30	53	42	34	29	38	32	27	34	29	25	30	26	23
9	53	40	32	27	50	38	31	26	35	29	24	31	26	23	28	24	21
10	49	37	29	24	46	35	28	24	32	26	22	29	24	20	26	22	19

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2835	2835	2835
5°	2839	2796	2815
10°	2816	2759	2777
15°	2775	2713	2718
20°	2719	2651	2658
25°	2663	2576	2588
30°	2594	2506	2499
35°	2528	2423	2404
40°	2446	2340	2315
45°	2365	2257	2223
50°	2276	2169	2117
55°	2183	2068	2019
60°	2078	1948	1907
65°	1964	1823	1775
70°	1818	1672	1634
75°	1616	1490	1504
80°	1373	1259	1254
85°	992	859	839

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 2365 cd/sqm

TEST NUMBER: P911512

CATALOG NUMBER: DFN2DIP-PN4F0-090D050US850-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	365.5	2.5
10°-20°	1028.5	7.0
20°-30°	1511.4	10.2
30°-40°	1755.4	11.9
40°-50°	1753.3	11.9
50°-60°	1528.8	10.3
60°-70°	1130.1	7.6
70°-80°	639.4	4.3
80°-90°	173.7	1.2
90°-100°	108.5	0.7
100°-110°	344.8	2.3
110°-120°	590.1	4.0
120°-130°	776.0	5.2
130°-140°	871.0	5.9
140°-150°	854.2	5.8
150°-160°	716.5	4.8
160°-170°	475.2	3.2
170°-180°	166.1	1.1
0°-30°	2905.4	19.6
0°-40°	4660.9	31.5
0°-60°	7942.9	53.7
0°-90°	9886.2	66.9
90°-120°	1043.4	7.1
90°-150°	3544.6	24.0
90°-180°	4902.0	33.1
0°-180°	14788.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3884	3884	3884	3884	3884	
5°	3884	3869	3828	3858	3850	369
15°	3697	3675	3626	3641	3622	1041
25°	3346	3316	3253	3260	3253	1540
35°	2887	2850	2790	2767	2748	1803
45°	2349	2323	2267	2226	2211	1813
55°	1778	1755	1710	1666	1647	1589
65°	1199	1176	1139	1106	1087	1185
75°	627	620	601	579	586	670
85°	153	149	146	134	131	171
90°	2	19	52	49	50	14
95°	77	92	95	95	92	86
105°	318	322	326	328	328	336
115°	592	601	598	596	592	586
125°	861	874	870	866	864	770
135°	1114	1130	1134	1132	1128	861
145°	1352	1363	1371	1373	1367	845
155°	1546	1551	1555	1563	1558	712
165°	1682	1681	1681	1691	1684	475
175°	1751	1746	1743	1754	1745	166
180°	1754	1754	1754	1754	1754	

TEST NUMBER: P911512

CATALOG NUMBER: DFN2DIP-PN4F0-090D050US850-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3883.6	3883.6	3883.6	3883.6	3883.6
2.5°	3906.2	3887.6	3846.5	3883.6	3876.5
5°	3883.6	3869.0	3827.8	3857.5	3850.3
7.5°	3857.5	3835.4	3794.1	3824.3	3816.7
10°	3816.7	3790.6	3745.8	3775.5	3764.4
12.5°	3760.4	3738.2	3693.5	3712.0	3704.6
15°	3697.1	3674.9	3626.1	3641.2	3622.5
17.5°	3618.6	3596.4	3547.7	3566.3	3547.7
20°	3532.6	3510.4	3458.1	3469.2	3454.5
22.5°	3447.0	3413.4	3364.6	3364.6	3357.1
25°	3346.0	3316.2	3252.9	3260.0	3252.9
27.5°	3233.8	3207.7	3159.4	3148.3	3129.7
30°	3122.2	3092.0	3036.1	3025.0	3010.0
32.5°	3002.5	2980.3	2920.4	2897.9	2882.8
35°	2886.8	2849.6	2789.7	2767.2	2748.5
37.5°	2756.1	2722.4	2662.5	2636.4	2617.8
40°	2621.7	2591.6	2531.7	2498.5	2483.5
42.5°	2490.9	2460.9	2401.4	2363.8	2341.7
45°	2349.1	2323.0	2266.7	2225.9	2210.9
47.5°	2210.9	2184.7	2124.8	2083.7	2061.5
50°	2065.1	2046.4	1994.1	1941.9	1923.2
52.5°	1923.2	1897.1	1848.7	1807.6	1781.4
55°	1777.8	1755.2	1710.4	1665.7	1647.1
57.5°	1632.0	1613.4	1564.7	1519.9	1504.8
60°	1486.2	1471.5	1419.2	1378.0	1367.0
62.5°	1344.3	1318.2	1280.9	1243.7	1228.7
65°	1198.9	1176.3	1139.1	1105.5	1086.8
67.5°	1049.6	1030.6	997.2	971.2	956.1
70°	911.3	896.2	862.6	836.4	821.8
72.5°	769.4	754.3	735.7	709.6	698.6
75°	627.3	620.0	601.1	578.9	586.4
77.5°	500.4	485.4	477.9	466.8	455.7
80°	373.6	369.6	362.1	351.0	343.6
82.5°	254.0	254.0	250.4	235.3	235.3
85°	152.9	149.4	145.8	134.3	130.8
87.5°	67.3	59.8	52.3	41.3	37.3
90°	1.6	19.1	51.8	48.7	50.2
92.5°	32.8	44.4	46.0	47.6	47.6
95°	77.2	92.0	94.6	94.6	92.0
97.5°	128.4	142.2	148.1	148.1	148.1
100°	187.6	199.8	204.1	204.1	202.5
102.5°	250.1	259.1	264.8	266.5	264.8
105°	318.3	322.5	325.7	328.3	328.3
107.5°	385.9	392.3	392.3	393.4	385.9
110°	451.5	460.0	460.0	460.0	455.7

TEST NUMBER: P911512

CATALOG NUMBER: DFN2DIP-PN4F0-090D050US850-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	522.3	531.3	529.8	525.6	522.3
115°	592.1	600.6	598.0	596.4	592.1
117.5°	661.4	673.1	665.6	661.4	657.2
120°	731.2	742.8	731.2	731.2	726.4
122.5°	794.6	809.5	802.0	797.8	794.6
125°	861.2	874.4	870.2	865.5	863.9
127.5°	926.2	942.6	936.9	930.5	926.2
130°	987.1	1006.1	1003.4	1000.3	994.4
132.5°	1055.3	1070.1	1071.2	1063.8	1059.5
135°	1114.0	1130.3	1133.5	1132.0	1127.7
137.5°	1179.5	1192.7	1195.4	1194.3	1188.0
140°	1237.1	1250.4	1257.7	1257.7	1252.0
142.5°	1296.3	1309.6	1313.8	1315.4	1309.6
145°	1352.4	1363.0	1371.4	1373.1	1367.2
147.5°	1402.7	1415.9	1422.2	1424.8	1419.0
150°	1454.5	1463.4	1469.2	1474.0	1469.2
152.5°	1500.5	1509.5	1516.8	1522.7	1516.8
155°	1546.4	1550.6	1555.4	1562.8	1558.0
157.5°	1586.1	1589.2	1591.9	1602.5	1595.1
160°	1621.5	1624.7	1626.2	1635.2	1628.9
162.5°	1654.3	1654.3	1655.8	1665.9	1658.5
165°	1682.4	1680.7	1680.7	1691.3	1683.9
167.5°	1707.6	1702.9	1702.9	1713.5	1706.1
170°	1726.7	1722.5	1720.9	1731.5	1722.5
172.5°	1739.9	1735.7	1734.1	1744.7	1735.7
175°	1750.6	1746.2	1743.1	1753.7	1744.7
177.5°	1756.3	1752.1	1748.9	1757.9	1748.9
180°	1753.7	1753.7	1753.7	1753.7	1753.7

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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	12.32	13.36	13.12	14.18	15.19	11.88	12.92	12.68	13.74	14.75
	3H	14.00	14.93	14.81	15.76	16.80	13.52	14.45	14.33	15.28	16.31
	4H	14.60	15.48	15.43	16.31	17.36	14.11	14.99	14.94	15.83	16.88
	6H	15.01	15.82	15.85	16.67	17.73	14.52	15.33	15.36	16.17	17.24
	8H	15.12	15.89	15.97	16.76	17.82	14.63	15.40	15.48	16.26	17.33
	12H	15.18	15.91	16.03	16.77	17.86	14.68	15.41	15.53	16.27	17.36
4H	2H	12.81	13.69	13.64	14.52	15.57	12.46	13.33	13.29	14.17	15.22
	3H	14.69	15.43	15.54	16.30	17.36	14.29	15.02	15.13	15.89	16.96
	4H	15.41	16.08	16.27	16.95	18.04	15.00	15.67	15.85	16.53	17.63
	6H	15.94	16.52	16.82	17.41	18.51	15.52	16.10	16.39	16.99	18.08
	8H	16.10	16.64	16.97	17.53	18.63	15.67	16.21	16.55	17.10	18.21
	12H	16.18	16.67	17.08	17.58	18.69	15.74	16.23	16.64	17.14	18.25
8H	4H	15.63	16.17	16.50	17.05	18.16	15.25	15.80	16.13	16.68	17.79
	6H	16.27	16.72	17.17	17.64	18.75	15.89	16.34	16.79	17.27	18.38
	8H	16.49	16.89	17.41	17.81	18.94	16.11	16.50	17.02	17.43	18.55
	12H	16.63	16.98	17.55	17.90	19.07	16.23	16.58	17.15	17.50	18.67
12H	4H	15.62	16.11	16.52	17.01	18.13	15.26	15.74	16.15	16.65	17.76
	6H	16.30	16.70	17.21	17.62	18.74	15.93	16.33	16.85	17.25	18.38
	8H	16.55	16.90	17.47	17.82	18.99	16.18	16.53	17.10	17.44	18.62

END OF REPORT