

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: P911479

Luminaire Tested: DFN2DIP-PN4F0-080D050US850-RLLONL

Issue Date: 11/21/2024

**Test Information**

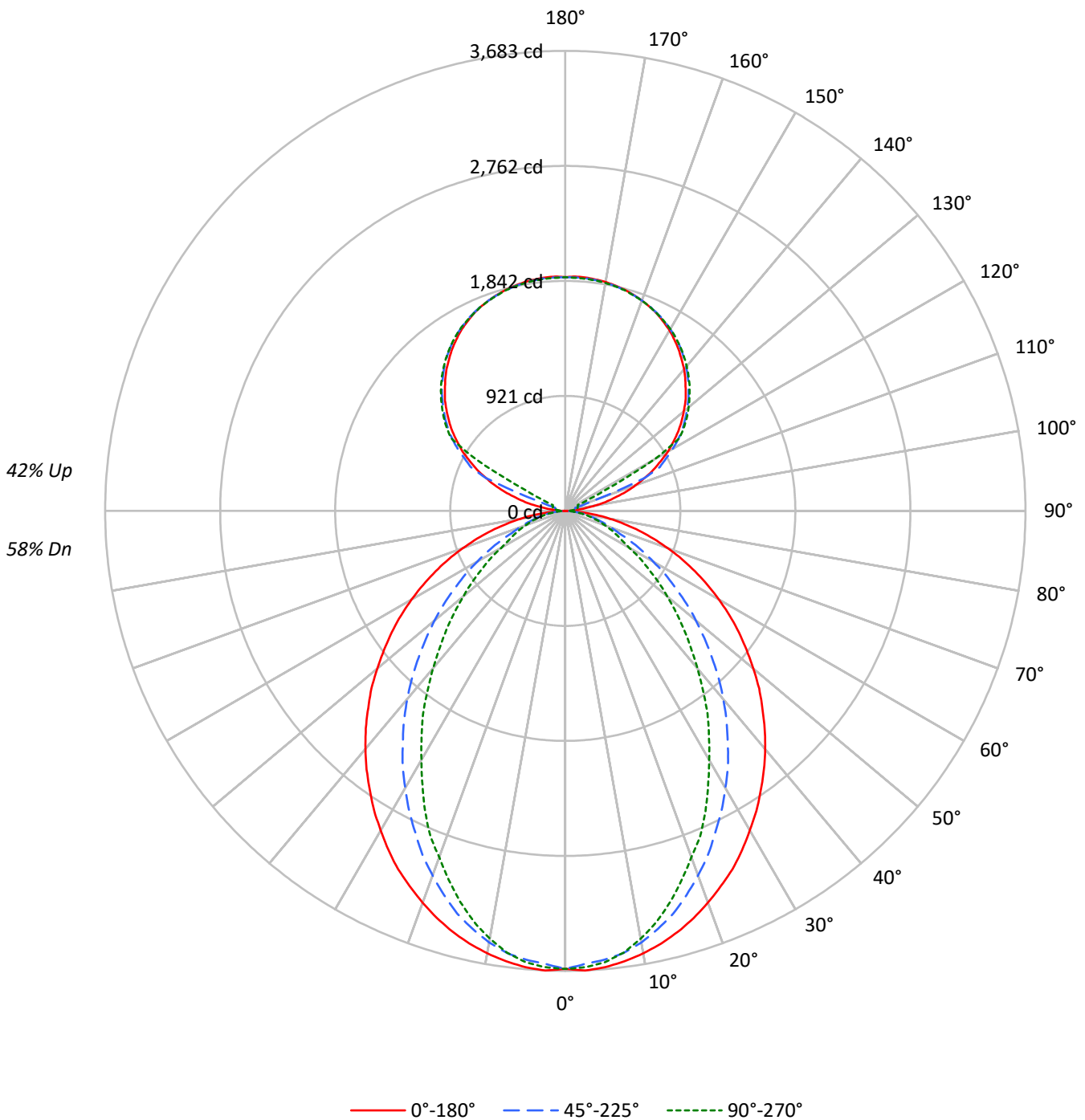
Test Method: LM-79-2019  
Report Number: P911479  
REPORT IS A COMBINATION OF REPORTS P901156 AND P898053  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-PN4F0-080D050US850-RLONL  
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 13030.8 lumens  
Efficiency: N/A  
Efficacy: 113.5 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')  
CIE Type: General Diffuse  
  
Input Watts (W): 114.8  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9971  
Total Harmonic Distortion (THDi): 0.049  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

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### 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	109	109	109	109	102	102	102	102	88	88	88	75	75	75	63	63	63	58			58
1	100	96	92	89	93	90	86	83	78	75	73	67	65	64	57	56	55	50			50
2	92	84	79	74	85	79	74	69	69	65	62	59	57	54	51	49	47	43			43
3	84	75	68	62	78	70	64	59	61	56	52	53	49	46	45	43	41	37			37
4	77	67	59	53	72	62	56	50	55	49	45	48	44	40	41	38	35	32			32
5	71	60	52	46	66	56	49	44	49	44	39	43	39	35	37	34	31	28			28
6	66	54	46	40	61	51	43	38	45	39	35	39	35	31	34	31	28	25			25
7	61	49	41	35	57	46	39	34	41	35	31	36	31	28	31	28	25	22			22
8	57	44	37	32	53	42	35	30	37	32	28	33	28	25	29	25	23	20			20
9	53	41	33	28	49	39	32	27	34	29	25	30	26	23	27	23	20	18			18
10	49	38	30	26	46	36	29	25	32	26	23	28	24	21	25	21	19	17			17

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

	0°	45°	90°
0°	2677	2677	2677
5°	2681	2634	2651
10°	2654	2583	2566
15°	2618	2498	2433
20°	2569	2381	2269
25°	2520	2249	2112
30°	2453	2114	1912
35°	2388	1969	1736
40°	2322	1819	1534
45°	2245	1652	1351
50°	2165	1484	1172
55°	2082	1304	1001
60°	1986	1116	824
65°	1875	924	743
70°	1741	746	673
75°	1573	658	613
80°	1328	553	533
85°	926	371	404

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 2245 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	343.7	2.6
10°-20°	943.4	7.2
20°-30°	1324.5	10.2
30°-40°	1443.8	11.1
40°-50°	1327.0	10.2
50°-60°	1042.1	8.0
60°-70°	678.3	5.2
70°-80°	349.2	2.7
80°-90°	92.4	0.7
90°-100°	61.7	0.5
100°-110°	230.0	1.8
110°-120°	610.1	4.7
120°-130°	1011.9	7.8
130°-140°	1074.8	8.2
140°-150°	999.0	7.7
150°-160°	803.1	6.2
160°-170°	517.5	4.0
170°-180°	178.1	1.4
0°-30°	2611.6	20.0
0°-40°	4055.4	31.1
0°-60°	6424.5	49.3
0°-90°	7544.5	57.9
90°-120°	901.9	6.9
90°-150°	3987.5	30.6
90°-180°	5486.0	42.1
0°-180°	13030.8	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	3667	3667	3667	3667	3667	
5°	3667	3650	3607	3637	3627	348
15°	3488	3451	3338	3275	3242	983
25°	3166	3060	2840	2705	2655	1456
35°	2728	2558	2267	2058	1984	1707
45°	2230	2008	1659	1423	1344	1722
55°	1696	1437	1078	879	816	1515
65°	1145	876	577	465	454	1135
75°	610	378	266	242	239	646
85°	143	73	63	63	63	164
90°	1	16	27	34	36	12
95°	88	43	53	60	58	104
105°	412	452	83	98	103	440
115°	779	802	836	209	111	767
125°	1101	1118	1144	1154	1158	982
135°	1362	1384	1396	1410	1407	1052
145°	1580	1579	1602	1611	1605	988
155°	1740	1728	1744	1752	1742	802
165°	1833	1825	1829	1839	1829	518
175°	1875	1866	1869	1878	1865	178
180°	1871	1871	1871	1871	1871	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	3666.8	3666.8	3666.8	3666.8	3666.8
2.5°	3683.3	3666.8	3630.2	3663.6	3656.9
5°	3666.8	3650.3	3606.9	3636.9	3627.0
7.5°	3636.9	3617.1	3570.6	3583.7	3567.1
10°	3597.0	3573.9	3507.7	3497.5	3477.7
12.5°	3547.5	3517.5	3427.7	3408.0	3371.4
15°	3487.6	3451.0	3338.3	3275.3	3242.2
17.5°	3417.8	3364.7	3225.3	3152.4	3099.2
20°	3338.3	3271.8	3106.0	3023.2	2949.9
22.5°	3252.0	3175.6	2983.1	2870.4	2820.7
25°	3165.8	3059.5	2840.5	2704.6	2654.6
27.5°	3062.9	2949.9	2707.7	2551.8	2475.4
30°	2953.5	2827.1	2561.7	2392.7	2302.8
32.5°	2847.1	2694.4	2422.6	2223.3	2140.3
35°	2727.8	2558.5	2266.6	2057.5	1984.2
37.5°	2611.6	2428.9	2120.5	1891.3	1808.6
40°	2488.8	2289.9	1967.7	1732.1	1645.9
42.5°	2362.7	2150.5	1815.2	1569.6	1486.7
45°	2230.0	2007.5	1659.3	1423.4	1343.9
47.5°	2104.0	1868.4	1510.0	1274.1	1201.3
50°	1964.5	1729.0	1364.0	1134.7	1065.3
52.5°	1828.3	1579.3	1224.4	1005.5	942.5
55°	1695.6	1436.8	1078.4	879.4	816.4
57.5°	1559.7	1294.2	949.2	763.3	710.1
60°	1420.2	1154.8	812.9	643.9	590.8
62.5°	1284.3	1018.8	696.8	537.6	511.2
65°	1144.9	875.9	577.3	464.8	454.5
67.5°	1012.2	743.3	464.8	408.0	398.2
70°	872.8	614.1	384.8	351.7	338.4
72.5°	740.0	494.3	321.8	295.4	288.7
75°	610.5	378.2	265.5	242.2	239.1
77.5°	481.3	268.6	209.2	195.7	189.1
80°	361.5	192.6	159.1	146.1	146.1
82.5°	252.1	129.5	109.5	102.8	102.8
85°	142.6	72.9	63.0	63.0	63.0
87.5°	53.1	26.4	26.4	23.3	23.3
90°	1.3	16.2	27.1	33.9	36.5
92.5°	33.9	28.5	32.5	35.3	36.5
95°	87.9	43.3	52.8	59.7	58.2
97.5°	158.4	47.5	69.0	73.2	74.4
100°	239.8	54.2	77.2	87.9	90.7
102.5°	329.0	326.4	80.0	94.7	98.9
105°	411.7	452.4	82.6	97.5	102.9
107.5°	507.8	541.5	85.4	100.1	105.7
110°	600.0	628.2	237.0	101.6	106.9



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	686.6	710.9	687.9	104.2	108.3
115°	778.6	801.6	835.5	208.6	111.1
117.5°	858.5	885.5	908.7	714.9	360.2
120°	947.9	968.2	992.6	1008.9	826.0
122.5°	1023.6	1045.3	1072.5	1080.6	1082.1
125°	1100.8	1118.5	1144.3	1153.7	1157.8
127.5°	1171.2	1190.2	1210.7	1224.1	1225.4
130°	1237.6	1259.4	1274.1	1289.1	1287.9
132.5°	1305.4	1323.0	1337.8	1350.1	1348.8
135°	1362.3	1384.0	1396.0	1409.8	1407.0
137.5°	1421.7	1438.0	1451.7	1465.2	1461.2
140°	1480.0	1490.9	1505.7	1517.9	1511.2
142.5°	1528.9	1538.4	1555.9	1566.7	1559.9
145°	1580.3	1578.9	1601.8	1611.4	1604.6
147.5°	1624.9	1620.8	1643.9	1650.6	1645.3
150°	1668.3	1658.8	1680.5	1688.6	1681.8
152.5°	1704.8	1694.0	1714.3	1722.5	1713.0
155°	1740.0	1727.9	1744.1	1752.2	1741.5
157.5°	1768.4	1757.7	1769.9	1779.4	1768.4
160°	1792.9	1784.7	1792.9	1800.9	1791.5
162.5°	1814.4	1806.5	1813.1	1822.6	1810.4
165°	1833.4	1825.4	1829.4	1838.8	1829.4
167.5°	1848.4	1840.2	1844.4	1853.8	1841.6
170°	1860.6	1852.4	1855.1	1864.6	1852.4
172.5°	1868.7	1860.6	1863.3	1872.8	1860.6
175°	1875.4	1865.9	1868.7	1878.1	1864.6
177.5°	1878.1	1868.7	1870.1	1879.5	1867.3
180°	1871.3	1871.3	1871.3	1871.3	1871.3



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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	11.28	12.18	12.18	13.09	14.25	7.25	8.15	8.14	9.05	10.21
	3H	12.97	13.77	13.87	14.69	15.87	8.44	9.25	9.35	10.16	11.35
	4H	13.58	14.34	14.50	15.26	16.46	8.90	9.65	9.82	10.58	11.77
	6H	14.01	14.71	14.94	15.64	16.84	9.22	9.92	10.15	10.85	12.05
	8H	14.14	14.80	15.08	15.75	16.95	9.31	9.98	10.25	10.93	12.13
	12H	14.20	14.84	15.15	15.78	17.00	9.36	9.99	10.30	10.93	12.16
4H	2H	11.31	12.07	12.23	12.99	14.18	7.85	8.61	8.78	9.53	10.73
	3H	13.15	13.78	14.08	14.73	15.94	9.21	9.84	10.15	10.79	12.00
	4H	13.84	14.42	14.79	15.37	16.60	9.76	10.34	10.71	11.28	12.52
	6H	14.37	14.86	15.33	15.83	17.06	10.19	10.68	11.14	11.65	12.88
	8H	14.54	15.01	15.51	15.97	17.22	10.32	10.78	11.28	11.74	12.99
	12H	14.64	15.06	15.62	16.04	17.29	10.38	10.80	11.36	11.78	13.03
8H	4H	13.82	14.28	14.78	15.25	16.49	10.05	10.51	11.01	11.48	12.72
	6H	14.39	14.77	15.38	15.78	17.02	10.57	10.95	11.56	11.96	13.20
	8H	14.61	14.94	15.60	15.94	17.20	10.76	11.10	11.76	12.10	13.36
	12H	14.75	15.05	15.75	16.04	17.35	10.89	11.18	11.88	12.17	13.48
12H	4H	13.77	14.19	14.75	15.17	16.42	10.06	10.47	11.04	11.46	12.71
	6H	14.37	14.70	15.36	15.70	16.96	10.62	10.96	11.62	11.95	13.22
	8H	14.59	14.89	15.59	15.88	17.19	10.84	11.13	11.83	12.12	13.43