

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: P910520

Luminaire Tested: DFN2DIP-4P4F0-050D060US850-RLLFLL

Issue Date: 11/21/2024

**Test Information**

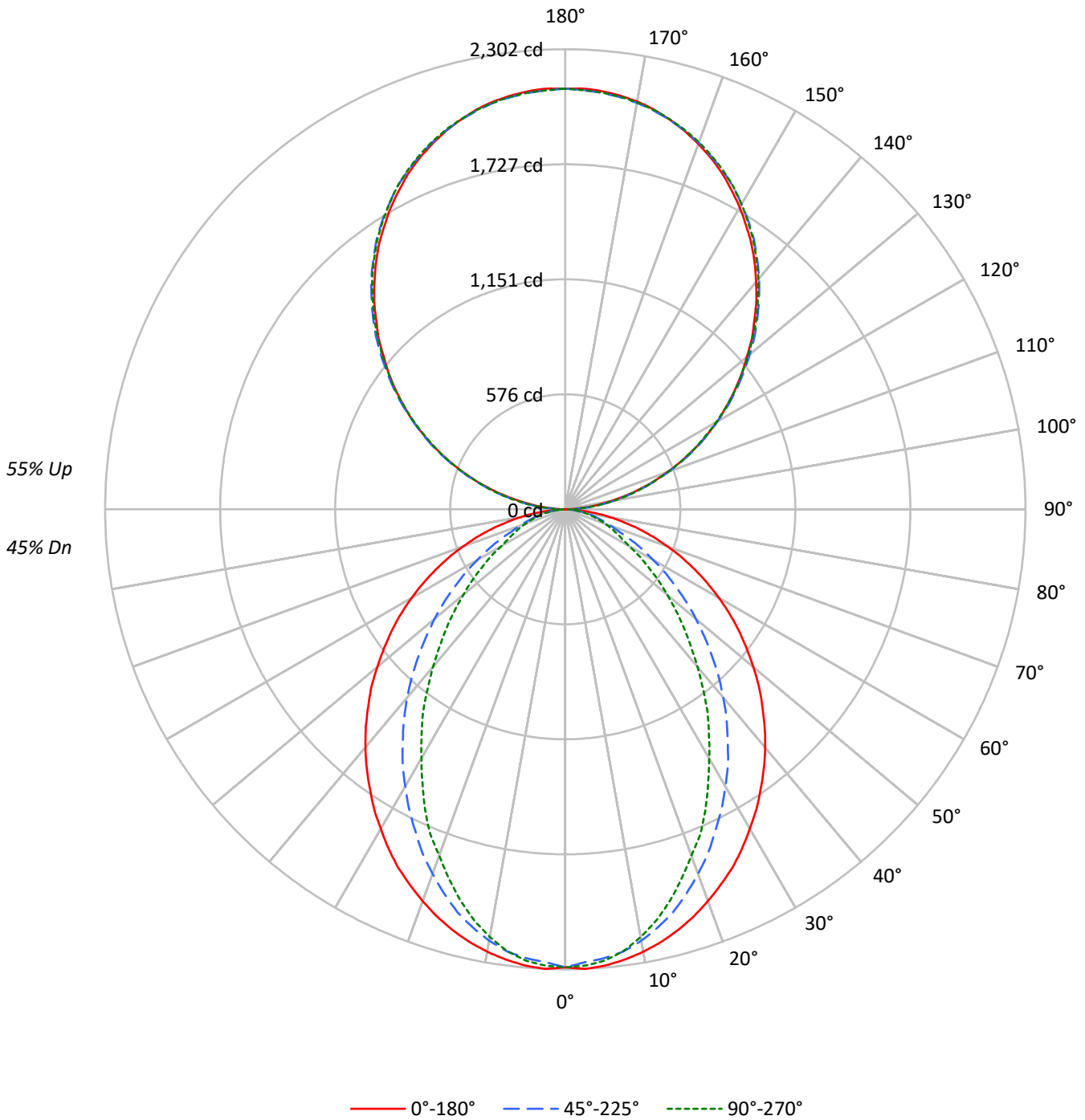
Test Method: LM-79-2019  
Report Number: P910520  
REPORT IS A COMBINATION OF REPORTS P899120 AND P895967  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-4P4F0-050D060US850-RLLFLL  
Description: 4 foot, 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: 10602.1 lumens  
Efficiency: N/A  
Efficacy: 105.6 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')  
CIE Type: General Diffuse  
  
Input Watts (W): 100.4  
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

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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	50	30	10	0		
RCR																										
0	106	106	106	106	97	97	97	97	80	80	80	65	65	65	51	51	51	45								
1	97	93	89	86	89	85	82	79	71	69	67	58	56	55	46	45	44	38								
2	89	82	76	71	81	75	70	66	63	59	56	51	49	47	41	39	38	33								
3	81	72	65	59	74	66	60	55	56	51	47	46	43	40	37	34	33	28								
4	74	64	56	51	68	59	52	47	50	45	41	41	37	35	33	30	28	25								
5	68	57	49	44	63	53	46	41	45	39	35	37	33	30	30	27	25	22								
6	63	51	44	38	58	48	41	36	40	35	31	34	30	27	27	24	22	19								
7	58	47	39	33	54	43	36	31	37	31	28	31	27	24	25	22	20	17								
8	54	42	35	30	50	39	33	28	34	28	25	28	24	21	23	20	18	16								
9	51	39	31	27	46	36	29	25	31	26	22	26	22	19	21	18	16	14								
10	47	36	29	24	43	33	27	23	28	23	20	24	20	17	20	17	15	13								

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

	0°	45°	90°
0°	1487	1487	1487
5°	1489	1464	1473
10°	1475	1435	1426
15°	1454	1388	1352
20°	1428	1323	1262
25°	1400	1251	1174
30°	1363	1176	1063
35°	1327	1095	966
40°	1291	1012	854
45°	1248	919	752
50°	1204	826	653
55°	1158	726	558
60°	1105	622	459
65°	1043	516	414
70°	969	416	376
75°	876	368	343
80°	741	311	299
85°	518	210	229

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°  
 Vertical Angle: 90°  
 Luminance: 1591 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	214.8	2.0
10°-20°	589.6	5.6
20°-30°	827.8	7.8
30°-40°	902.4	8.5
40°-50°	829.4	7.8
50°-60°	651.3	6.1
60°-70°	424.0	4.0
70°-80°	218.2	2.1
80°-90°	61.7	0.6
90°-100°	130.2	1.2
100°-110°	413.7	3.9
110°-120°	708.0	6.7
120°-130°	931.2	8.8
130°-140°	1045.3	9.9
140°-150°	1025.0	9.7
150°-160°	859.8	8.1
160°-170°	570.2	5.4
170°-180°	199.3	1.9
0°-30°	1632.2	15.4
0°-40°	2534.6	23.9
0°-60°	4015.3	37.9
0°-90°	4719.3	44.5
90°-120°	1252.0	11.8
90°-150°	4253.5	40.1
90°-180°	5883.0	55.5
0°-180°	10602.1	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2292	2292	2292	2292	2292	
5°	2292	2281	2254	2273	2267	217
15°	2180	2157	2086	2047	2026	614
25°	1979	1912	1775	1690	1659	910
35°	1705	1599	1417	1286	1240	1067
45°	1394	1255	1037	890	840	1076
55°	1060	898	674	550	510	947
65°	716	548	361	290	284	709
75°	382	236	166	151	149	404
85°	89	46	39	39	39	102
90°	2	23	62	58	60	10
95°	93	110	114	114	110	103
105°	382	387	391	394	394	403
115°	710	721	718	716	710	703
125°	1034	1049	1044	1039	1037	924
135°	1337	1356	1360	1358	1353	1033
145°	1623	1636	1646	1648	1641	1014
155°	1856	1861	1866	1875	1870	854
165°	2019	2017	2017	2030	2021	569
175°	2101	2096	2092	2104	2094	200
180°	2104	2104	2104	2104	2104	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2291.7	2291.7	2291.7	2291.7	2291.7
2.5°	2302.1	2291.7	2268.9	2289.8	2285.5
5°	2291.7	2281.4	2254.4	2273.0	2266.9
7.5°	2273.0	2260.7	2231.6	2239.8	2229.4
10°	2248.2	2233.6	2192.3	2185.9	2173.5
12.5°	2217.1	2198.5	2142.4	2130.1	2107.1
15°	2179.7	2156.9	2086.5	2047.1	2026.4
17.5°	2136.2	2103.0	2015.8	1970.2	1937.0
20°	2086.5	2044.9	1941.2	1889.5	1843.7
22.5°	2032.6	1984.8	1864.5	1794.0	1763.0
25°	1978.6	1912.1	1775.3	1690.3	1659.1
27.5°	1914.4	1843.7	1692.3	1594.9	1547.2
30°	1845.9	1767.0	1601.1	1495.4	1439.3
32.5°	1779.5	1684.0	1514.1	1389.6	1337.7
35°	1704.9	1599.1	1416.6	1285.9	1240.2
37.5°	1632.2	1518.1	1325.4	1182.1	1130.4
40°	1555.5	1431.2	1229.8	1082.6	1028.7
42.5°	1476.7	1344.0	1134.5	980.9	929.2
45°	1393.8	1254.7	1037.0	889.6	839.8
47.5°	1314.9	1167.8	943.8	796.4	750.8
50°	1227.9	1080.6	852.5	709.2	665.8
52.5°	1142.7	987.1	765.3	628.5	589.1
55°	1059.8	898.0	673.9	549.6	510.3
57.5°	974.8	808.9	593.2	477.1	443.8
60°	887.6	721.7	508.0	402.5	369.2
62.5°	802.7	636.8	435.5	336.0	319.5
65°	715.5	547.5	360.9	290.4	284.1
67.5°	632.6	464.6	290.4	255.1	248.9
70°	545.5	383.7	240.5	219.8	211.5
72.5°	462.6	309.0	201.2	184.6	180.4
75°	381.6	236.3	165.9	151.4	149.4
77.5°	300.8	167.9	130.8	122.3	118.1
80°	226.0	120.3	99.5	91.3	91.3
82.5°	157.6	81.0	68.4	64.2	64.2
85°	89.2	45.6	39.4	39.4	39.4
87.5°	33.3	16.5	16.5	14.5	14.5
90°	1.9	22.8	62.2	58.3	60.2
92.5°	39.4	53.3	55.2	57.1	57.1
95°	92.6	110.3	113.6	113.6	110.3
97.5°	154.2	170.7	177.7	177.7	177.7
100°	225.2	239.8	244.9	244.9	243.0
102.5°	300.1	310.9	317.8	319.7	317.8
105°	381.9	387.0	390.8	394.0	394.0
107.5°	463.1	470.8	470.8	472.0	463.1
110°	541.9	551.9	551.9	551.9	546.8



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	626.8	637.6	635.7	630.6	626.8
115°	710.5	720.7	717.5	715.6	710.5
117.5°	793.7	807.7	798.7	793.7	788.6
120°	877.4	891.4	877.4	877.4	871.7
122.5°	953.5	971.3	962.4	957.4	953.5
125°	1033.5	1049.3	1044.2	1038.6	1036.7
127.5°	1111.6	1131.2	1124.2	1116.7	1111.6
130°	1184.5	1207.4	1204.2	1200.4	1193.4
132.5°	1266.4	1284.1	1285.3	1276.5	1271.4
135°	1336.8	1356.4	1360.2	1358.3	1353.2
137.5°	1415.4	1431.3	1434.5	1433.2	1425.6
140°	1484.6	1500.5	1509.3	1509.3	1502.4
142.5°	1555.6	1571.5	1576.6	1578.4	1571.5
145°	1622.9	1635.6	1645.8	1647.6	1640.7
147.5°	1683.1	1699.0	1706.6	1709.7	1702.8
150°	1745.3	1756.1	1763.1	1768.7	1763.1
152.5°	1800.5	1811.3	1820.2	1827.2	1820.2
155°	1855.7	1860.8	1866.4	1875.4	1869.7
157.5°	1903.3	1907.1	1910.3	1923.0	1914.1
160°	1945.9	1949.6	1951.5	1962.3	1954.7
162.5°	1985.1	1985.1	1987.0	1999.1	1990.2
165°	2018.7	2016.8	2016.8	2029.6	2020.7
167.5°	2049.2	2043.6	2043.6	2056.2	2047.3
170°	2072.1	2067.0	2065.1	2077.7	2067.0
172.5°	2087.9	2082.8	2080.9	2093.6	2082.8
175°	2100.6	2095.6	2091.7	2104.4	2093.6
177.5°	2107.5	2102.6	2098.7	2109.4	2098.7
180°	2104.4	2104.4	2104.4	2104.4	2104.4



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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	8.01	8.79	9.02	9.81	11.16	3.97	4.76	4.98	5.77	7.12
	3H	9.69	10.39	10.71	11.41	12.79	5.16	5.86	6.17	6.88	8.25
	4H	10.30	10.96	11.33	11.99	13.37	5.60	6.27	6.64	7.30	8.68
	6H	10.72	11.33	11.76	12.37	13.76	5.92	6.54	6.97	7.57	8.96
	8H	10.85	11.43	11.90	12.48	13.87	6.01	6.60	7.06	7.64	9.03
	12H	10.91	11.47	11.96	12.51	13.92	6.06	6.61	7.11	7.65	9.06
4H	2H	8.02	8.69	9.06	9.71	11.09	4.56	5.23	5.60	6.25	7.63
	3H	9.85	10.41	10.90	11.46	12.85	5.91	6.46	6.96	7.52	8.91
	4H	10.55	11.05	11.60	12.10	13.51	6.46	6.96	7.51	8.01	9.42
	6H	11.06	11.50	12.13	12.57	13.98	6.88	7.31	7.94	8.38	9.79
	8H	11.24	11.65	12.31	12.71	14.13	7.01	7.41	8.07	8.47	9.90
	12H	11.34	11.71	12.42	12.78	14.21	7.07	7.44	8.15	8.51	9.94
8H	4H	10.51	10.92	11.57	11.98	13.40	6.74	7.14	7.80	8.21	9.63
	6H	11.08	11.42	12.17	12.52	13.94	7.26	7.59	8.34	8.70	10.12
	8H	11.30	11.60	12.40	12.68	14.13	7.45	7.74	8.54	8.83	10.27
	12H	11.44	11.70	12.54	12.79	14.27	7.57	7.83	8.66	8.91	10.39
12H	4H	10.46	10.83	11.54	11.90	13.33	6.74	7.11	7.82	8.18	9.61
	6H	11.06	11.35	12.15	12.44	13.88	7.31	7.60	8.40	8.69	10.13
	8H	11.28	11.54	12.38	12.62	14.10	7.52	7.78	8.61	8.86	10.34