

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: P912230

Luminaire Tested: DFN2DIP-SQ4F0-090D060US850-RLLFLL

Issue Date: 11/21/2024

**Test Information**

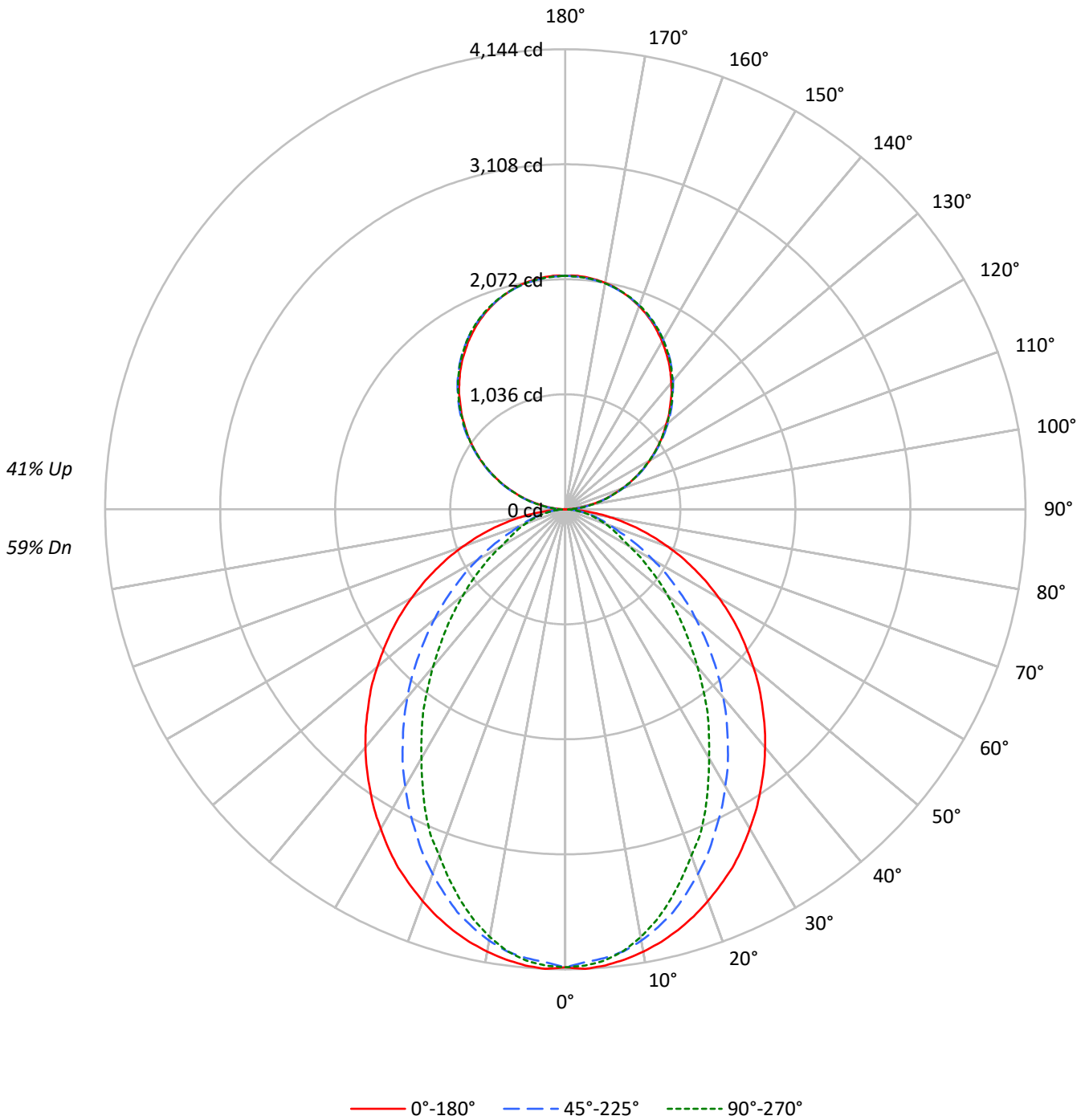
Test Method: LM-79-2019  
Report Number: P912230  
REPORT IS A COMBINATION OF REPORTS P900066 AND P896915  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ4F0-090D060US850-RLLFLL  
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 14372.7 lumens  
Efficiency: N/A  
Efficacy: 112.4 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')  
CIE Type: General Diffuse  
  
Input Watts (W): 127.9  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.983  
Total Harmonic Distortion (THDi): 0.073  
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	76	76	76	64	64	64	59			
1	100	96	92	89	94	90	87	84	78	76	74	68	66	64	58	57	56	51			
2	92	85	79	74	86	79	74	70	69	65	62	60	57	55	52	50	48	44			
3	84	75	68	62	78	70	64	59	62	57	53	54	50	47	46	44	41	38			
4	77	67	59	53	72	63	56	51	55	50	46	48	44	41	42	39	36	33			
5	71	60	52	46	66	56	49	44	50	44	40	44	39	36	38	34	32	29			
6	66	54	46	40	61	51	44	39	45	39	35	40	35	32	35	31	28	26			
7	61	49	41	36	57	46	39	34	41	35	31	36	32	28	32	28	25	23			
8	57	45	37	32	53	42	35	30	38	32	28	33	29	25	29	26	23	21			
9	53	41	34	29	50	39	32	27	35	29	25	31	26	23	27	24	21	19			
10	50	38	31	26	47	36	29	25	32	27	23	29	24	21	25	22	19	17			

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

	0°	45°	90°
0°	2894	2894	2894
5°	2899	2849	2868
10°	2870	2794	2775
15°	2831	2702	2632
20°	2779	2575	2455
25°	2725	2433	2285
30°	2653	2287	2069
35°	2583	2130	1879
40°	2511	1968	1661
45°	2428	1788	1463
50°	2341	1606	1270
55°	2251	1411	1084
60°	2147	1208	893
65°	2027	1001	805
70°	1882	808	730
75°	1700	714	666
80°	1436	600	580
85°	1000	404	442

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 2428 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	386.6	2.7
10°-20°	1061.3	7.4
20°-30°	1490.1	10.4
30°-40°	1624.3	11.3
40°-50°	1492.9	10.4
50°-60°	1172.4	8.2
60°-70°	763.1	5.3
70°-80°	392.8	2.7
80°-90°	106.3	0.7
90°-100°	130.2	0.9
100°-110°	413.7	2.9
110°-120°	708.0	4.9
120°-130°	931.2	6.5
130°-140°	1045.3	7.3
140°-150°	1025.0	7.1
150°-160°	859.8	6.0
160°-170°	570.2	4.0
170°-180°	199.3	1.4
0°-30°	2938.0	20.4
0°-40°	4562.3	31.7
0°-60°	7227.6	50.3
0°-90°	8489.9	59.1
90°-120°	1252.0	8.7
90°-150°	4253.5	29.6
90°-180°	5883.0	40.9
0°-180°	14372.7	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	4125	4125	4125	4125	4125	
5°	4125	4106	4058	4091	4080	391
15°	3924	3882	3756	3685	3648	1106
25°	3562	3442	3196	3043	2986	1638
35°	3069	2878	2550	2315	2232	1921
45°	2509	2258	1867	1601	1512	1937
55°	1908	1616	1213	989	918	1705
65°	1288	986	650	523	511	1277
75°	687	425	299	272	269	726
85°	160	82	71	71	71	184
90°	2	23	62	58	60	14
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°	4125.1	4125.1	4125.1	4125.1	4125.1
2.5°	4143.8	4125.1	4083.9	4121.6	4114.1
5°	4125.1	4106.5	4057.8	4091.4	4080.3
7.5°	4091.4	4069.3	4017.0	4031.7	4013.0
10°	4046.7	4020.6	3946.2	3934.6	3912.4
12.5°	3990.8	3957.2	3856.2	3834.0	3792.8
15°	3923.5	3882.4	3755.6	3684.7	3647.5
17.5°	3845.1	3785.3	3628.4	3546.5	3486.7
20°	3755.6	3680.8	3494.1	3401.1	3318.7
22.5°	3658.6	3572.6	3355.9	3229.2	3173.4
25°	3561.6	3441.9	3195.6	3042.7	2986.4
27.5°	3445.9	3318.7	3046.2	2870.8	2784.8
30°	3322.7	3180.5	2881.8	2691.8	2590.7
32.5°	3203.0	3031.1	2725.4	2501.2	2407.7
35°	3068.8	2878.3	2549.9	2314.7	2232.3
37.5°	2938.1	2732.6	2385.6	2127.7	2034.7
40°	2799.9	2576.1	2213.7	1948.7	1851.7
42.5°	2658.1	2419.3	2042.1	1765.7	1672.6
45°	2508.8	2258.5	1866.7	1601.3	1511.8
47.5°	2366.9	2102.0	1698.8	1433.4	1351.4
50°	2210.1	1945.1	1534.4	1276.6	1198.5
52.5°	2056.9	1776.8	1377.6	1131.2	1060.3
55°	1907.5	1616.4	1213.1	989.4	918.5
57.5°	1754.7	1456.0	1067.9	858.7	798.9
60°	1597.7	1299.1	914.6	724.4	664.6
62.5°	1444.9	1146.3	783.8	604.8	575.1
65°	1288.0	985.5	649.5	522.8	511.4
67.5°	1138.7	836.1	522.8	459.0	447.9
70°	981.9	690.8	433.0	395.7	380.6
72.5°	832.5	556.1	362.0	332.3	324.8
75°	686.8	425.4	298.7	272.5	268.9
77.5°	541.4	302.2	235.2	220.2	212.7
80°	406.8	216.7	179.0	164.4	164.4
82.5°	283.6	145.7	123.2	115.7	115.7
85°	160.4	82.0	70.9	70.9	70.9
87.5°	59.8	29.7	29.7	26.2	26.2
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	11.66	12.57	12.54	13.47	14.60	7.62	8.53	8.50	9.43	10.57
	3H	13.35	14.16	14.24	15.07	16.23	8.81	9.63	9.71	10.54	11.70
	4H	13.96	14.73	14.87	15.64	16.82	9.27	10.04	10.18	10.95	12.12
	6H	14.39	15.10	15.31	16.02	17.20	9.59	10.30	10.52	11.22	12.41
	8H	14.52	15.19	15.45	16.13	17.32	9.69	10.36	10.62	11.30	12.48
	12H	14.59	15.23	15.52	16.16	17.37	9.73	10.37	10.67	11.30	12.51
4H	2H	11.69	12.45	12.60	13.37	14.54	8.23	8.99	9.14	9.91	11.08
	3H	13.53	14.17	14.45	15.11	16.30	9.58	10.22	10.51	11.17	12.36
	4H	14.23	14.81	15.16	15.75	16.96	10.14	10.72	11.07	11.66	12.87
	6H	14.75	15.25	15.70	16.21	17.43	10.56	11.06	11.51	12.02	13.24
	8H	14.93	15.40	15.88	16.35	17.58	10.69	11.16	11.64	12.12	13.34
	12H	15.03	15.45	16.00	16.43	17.66	10.76	11.18	11.73	12.16	13.39
8H	4H	14.20	14.67	15.15	15.62	16.85	10.43	10.89	11.38	11.85	13.08
	6H	14.77	15.16	15.75	16.16	17.38	10.95	11.33	11.92	12.33	13.56
	8H	14.99	15.33	15.98	16.32	17.57	11.14	11.48	12.13	12.47	13.71
	12H	15.14	15.44	16.13	16.42	17.71	11.26	11.56	12.25	12.54	13.84
12H	4H	14.16	14.58	15.13	15.55	16.78	10.43	10.86	11.40	11.83	13.06
	6H	14.75	15.09	15.74	16.08	17.32	11.00	11.34	11.98	12.33	13.57
	8H	14.98	15.28	15.97	16.26	17.55	11.21	11.51	12.20	12.49	13.79