

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: P911862

Luminaire Tested: DFN2DIP-SQ3F0-050D110US850-RLLFLL

Issue Date: 11/21/2024

**Test Information**

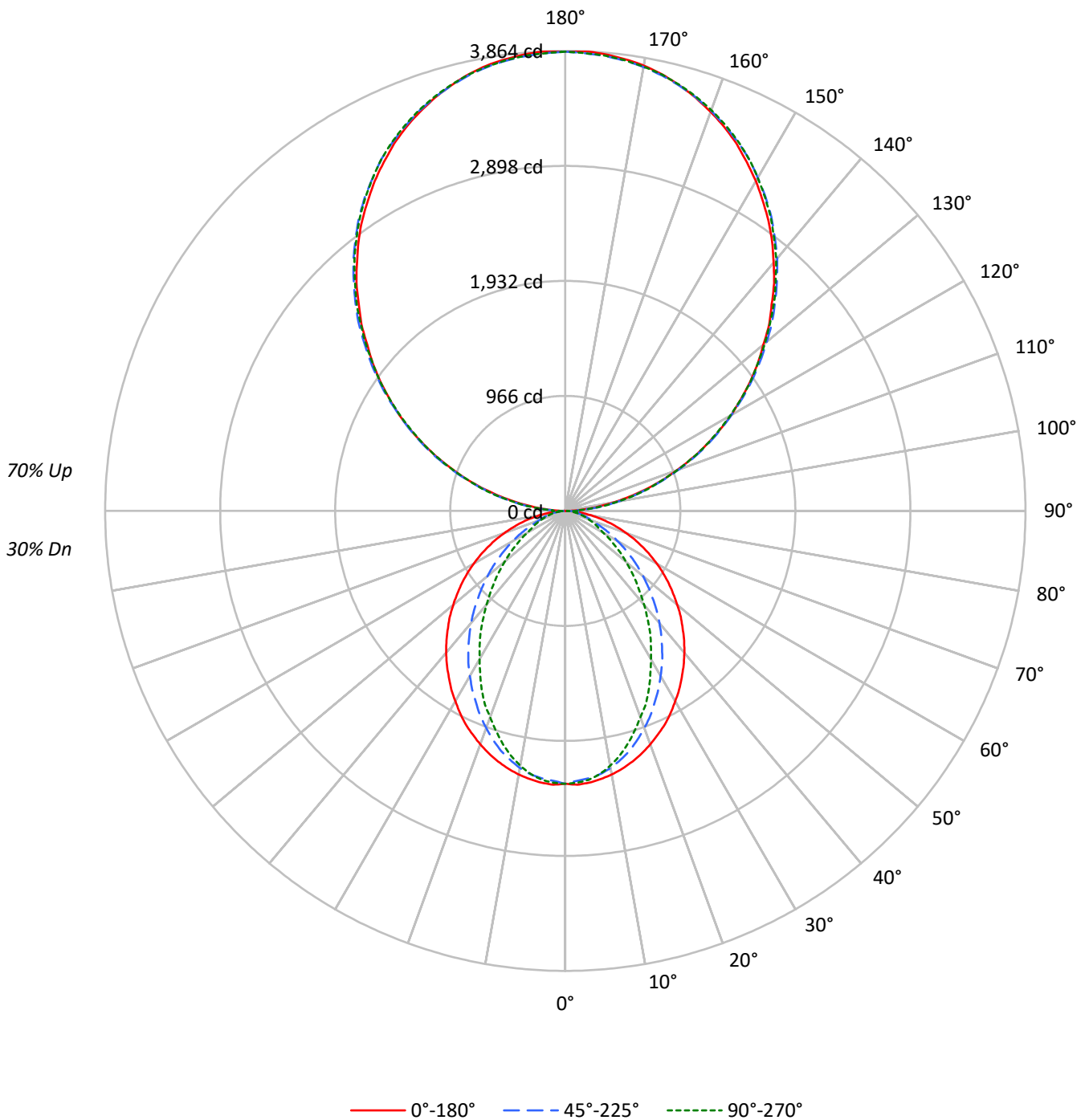
Test Method: LM-79-2019  
Report Number: P911862  
REPORT IS A COMBINATION OF REPORTS P899990 AND P896733  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ3F0-050D110US850-RLLFLL  
Description: 3 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 15509.4 lumens  
Efficiency: N/A  
Efficacy: 121.1 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')  
CIE Type: Semi-Indirect  
  
Input Watts (W): 128.1  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9789  
Total Harmonic Distortion (THDi): 0.074  
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				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	102	102	102	102	92	92	92	92	72	72	72	55	55	55	38	38	38	38	38	38	30
1	94	90	86	83	84	81	78	75	64	62	60	48	47	46	34	33	33	34	33	33	26
2	86	79	73	68	77	71	66	62	56	53	50	43	41	39	30	29	28	30	29	28	22
3	78	69	62	57	70	62	57	52	50	46	42	38	35	33	27	26	24	27	26	24	19
4	72	61	54	48	64	55	49	44	44	40	36	34	31	29	24	23	21	24	23	21	17
5	66	55	47	41	59	50	43	38	40	35	31	31	27	25	22	20	18	22	20	18	15
6	60	49	41	36	54	44	38	33	36	31	27	28	24	22	20	18	16	20	18	16	13
7	56	44	37	31	50	40	34	29	32	28	24	25	22	19	18	16	15	18	16	15	12
8	52	40	33	28	47	36	30	26	30	25	21	23	20	17	17	15	13	17	15	13	11
9	48	37	29	25	43	33	27	23	27	22	19	21	18	16	16	14	12	16	14	12	10
10	45	33	27	22	40	31	24	20	25	20	17	20	16	14	15	12	11	15	12	11	9

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

	0°	45°	90°
0°	2626	2626	2626
5°	2628	2583	2600
10°	2601	2530	2514
15°	2563	2445	2383
20°	2514	2328	2222
25°	2464	2197	2066
30°	2397	2063	1869
35°	2331	1919	1696
40°	2265	1771	1498
45°	2187	1606	1318
50°	2107	1440	1142
55°	2023	1263	974
60°	1925	1078	801
65°	1813	890	720
70°	1677	715	650
75°	1506	627	590
80°	1258	520	508
85°	854	339	377

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°  
 Vertical Angle: 90°  
 Luminance: 3881 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	214.8	1.4
10°-20°	589.6	3.8
20°-30°	827.8	5.3
30°-40°	902.4	5.8
40°-50°	829.4	5.3
50°-60°	651.3	4.2
60°-70°	424.0	2.7
70°-80°	218.2	1.4
80°-90°	66.7	0.4
90°-100°	238.7	1.5
100°-110°	758.6	4.9
110°-120°	1298.1	8.4
120°-130°	1707.2	11.0
130°-140°	1916.3	12.4
140°-150°	1879.1	12.1
150°-160°	1576.3	10.2
160°-170°	1045.4	6.7
170°-180°	365.4	2.4
0°-30°	1632.2	10.5
0°-40°	2534.6	16.3
0°-60°	4015.3	25.9
0°-90°	4724.2	30.5
90°-120°	2295.4	14.8
90°-150°	7798.0	50.3
90°-180°	10785.0	69.5
0°-180°	15509.4	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°	3	42	114	107	110	15
95°	170	202	208	208	202	189
105°	700	710	716	722	722	739
115°	1303	1321	1316	1312	1303	1288
125°	1895	1924	1914	1904	1900	1693
135°	2451	2487	2494	2490	2481	1894
145°	2975	2998	3017	3021	3008	1859
155°	3402	3411	3422	3438	3428	1566
165°	3701	3698	3698	3721	3704	1044
175°	3851	3842	3835	3858	3838	366
180°	3858	3858	3858	3858	3858	



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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°	3.4	41.9	114.0	107.0	110.5
92.5°	72.1	97.7	101.1	104.7	104.7
95°	169.8	202.4	208.2	208.2	202.4
97.5°	282.7	312.8	325.7	325.7	325.7
100°	412.9	439.6	448.9	448.9	445.5
102.5°	550.2	569.9	582.8	586.2	582.8
105°	700.2	709.5	716.5	722.3	722.3
107.5°	849.1	863.0	863.0	865.4	849.1
110°	993.3	1012.0	1012.0	1012.0	1002.6



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	1149.1	1168.9	1165.4	1156.1	1149.1
115°	1302.7	1321.3	1315.5	1312.1	1302.7
117.5°	1455.1	1480.6	1464.3	1455.1	1445.8
120°	1608.6	1634.2	1608.6	1608.6	1598.2
122.5°	1748.2	1780.7	1764.4	1755.1	1748.2
125°	1894.7	1923.8	1914.5	1904.0	1900.5
127.5°	2037.8	2073.8	2061.1	2047.1	2037.8
130°	2171.5	2213.5	2207.6	2200.6	2187.8
132.5°	2321.6	2354.2	2356.5	2340.2	2330.9
135°	2450.7	2486.7	2493.7	2490.3	2480.9
137.5°	2594.9	2624.0	2629.8	2627.4	2613.6
140°	2721.7	2750.8	2767.1	2767.1	2754.3
142.5°	2852.0	2881.1	2890.4	2893.8	2881.1
145°	2975.2	2998.5	3017.1	3020.6	3007.8
147.5°	3085.8	3114.8	3128.8	3134.6	3121.8
150°	3199.8	3219.5	3232.3	3242.8	3232.3
152.5°	3300.9	3320.7	3337.0	3349.8	3337.0
155°	3402.2	3411.4	3421.9	3438.2	3427.7
157.5°	3489.4	3496.3	3502.1	3525.4	3509.1
160°	3567.3	3574.3	3577.7	3597.6	3583.6
162.5°	3639.4	3639.4	3643.0	3665.0	3648.7
165°	3701.1	3697.5	3697.5	3720.8	3704.5
167.5°	3756.8	3746.4	3746.4	3769.7	3753.4
170°	3798.8	3789.5	3786.0	3809.2	3789.5
172.5°	3827.8	3818.5	3815.1	3838.4	3818.5
175°	3851.1	3841.8	3834.8	3858.1	3838.4
177.5°	3863.9	3854.6	3847.6	3867.4	3847.6
180°	3858.1	3858.1	3858.1	3858.1	3858.1



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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	8.29	8.99	9.41	10.09	11.62	4.26	4.95	5.37	6.05	7.58
	3H	9.96	10.58	11.08	11.69	13.23	5.43	6.05	6.55	7.16	8.70
	4H	10.56	11.14	11.69	12.26	13.81	5.87	6.45	7.00	7.57	9.12
	6H	10.97	11.51	12.11	12.62	14.19	6.17	6.72	7.31	7.83	9.39
	8H	11.09	11.60	12.23	12.73	14.29	6.26	6.77	7.40	7.90	9.46
	12H	11.14	11.63	12.29	12.76	14.33	6.29	6.78	7.44	7.91	9.48
4H	2H	8.29	8.88	9.43	10.00	11.55	4.83	5.42	5.97	6.53	8.08
	3H	10.11	10.59	11.25	11.73	13.30	6.16	6.65	7.31	7.79	9.35
	4H	10.79	11.24	11.94	12.37	13.95	6.70	7.15	7.85	8.28	9.86
	6H	11.29	11.68	12.44	12.83	14.40	7.10	7.49	8.26	8.64	10.21
	8H	11.46	11.82	12.61	12.96	14.55	7.23	7.58	8.38	8.73	10.32
	12H	11.55	11.87	12.72	13.03	14.62	7.28	7.61	8.45	8.76	10.35
8H	4H	10.74	11.10	11.90	12.25	13.84	6.97	7.33	8.12	8.47	10.06
	6H	11.30	11.60	12.47	12.78	14.37	7.47	7.77	8.64	8.95	10.54
	8H	11.51	11.77	12.69	12.94	14.54	7.66	7.91	8.83	9.08	10.68
	12H	11.64	11.87	12.82	13.03	14.67	7.76	7.99	8.94	9.15	10.79
12H	4H	10.69	11.02	11.86	12.17	13.76	6.96	7.29	8.13	8.44	10.04
	6H	11.27	11.53	12.45	12.70	14.30	7.52	7.78	8.70	8.94	10.55
	8H	11.49	11.71	12.67	12.87	14.51	7.72	7.94	8.90	9.11	10.74