

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: P911948

Luminaire Tested: DFN2DIP-SQ3F0-080D060US850-FLLFLL

Issue Date: 11/21/2024

**Test Information**

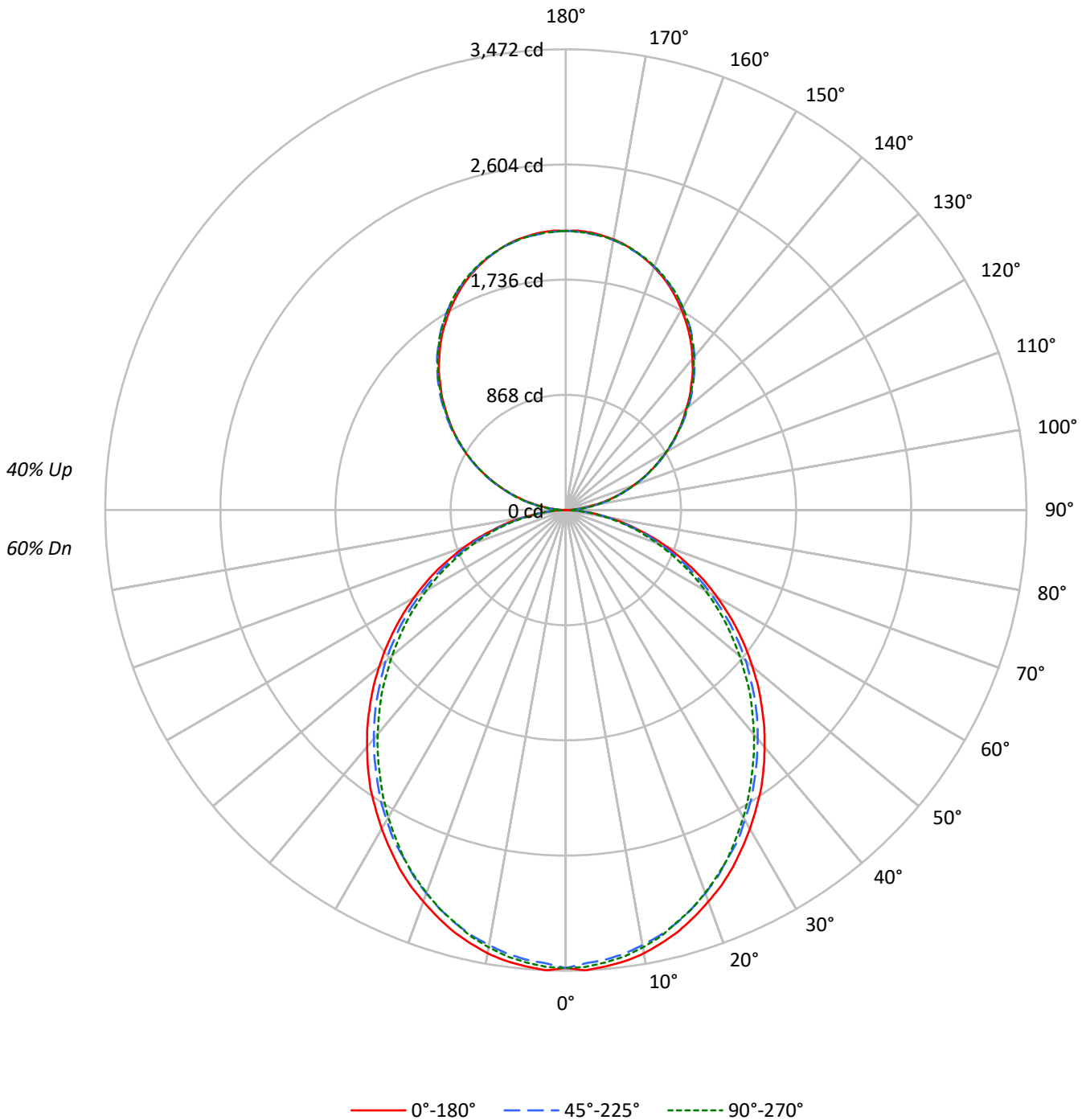
Test Method: LM-79-2019  
Report Number: P911948  
REPORT IS A COMBINATION OF REPORTS P899905 AND P896733  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ3F0-080D060US850-FLLFLL  
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 14672.1 lumens  
Efficiency: N/A  
Efficacy: 121.0 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')  
CIE Type: General Diffuse  
  
Input Watts (W): 121.3  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9952  
Total Harmonic Distortion (THDi): 0.069  
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	110	110	110	110	102	102	102	102	89	89	89	77	77	77	65	65	65	65	65	65	60
1	100	96	92	88	93	89	86	83	78	75	73	67	66	64	58	56	55	55	55	55	50
2	91	84	77	72	85	78	73	68	68	64	61	59	56	53	51	48	46	46	46	46	42
3	83	73	66	60	77	69	62	57	60	55	51	52	48	45	45	42	40	40	40	40	36
4	76	65	57	51	71	61	54	48	54	48	43	47	42	39	40	37	34	34	34	34	31
5	70	58	50	44	65	55	47	42	48	42	38	42	37	34	36	33	30	30	30	30	27
6	64	52	44	38	60	49	42	36	43	37	33	38	33	29	33	29	26	26	26	26	23
7	60	47	39	33	56	44	37	32	39	33	29	35	30	26	30	26	23	23	23	23	21
8	55	43	35	30	52	40	33	28	36	30	26	32	27	23	28	24	21	21	21	21	19
9	52	39	32	26	48	37	30	25	33	27	23	29	24	21	26	22	19	19	19	19	17
10	48	36	29	24	45	34	27	23	30	25	21	27	22	19	24	20	17	17	17	17	15

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

	0°	45°	90°
0°	3955	3955	3955
5°	3959	3898	3925
10°	3925	3843	3871
15°	3864	3777	3787
20°	3784	3686	3700
25°	3704	3579	3601
30°	3604	3478	3475
35°	3509	3360	3341
40°	3393	3241	3214
45°	3277	3121	3084
50°	3150	2995	2933
55°	3016	2849	2794
60°	2865	2677	2635
65°	2700	2498	2448
70°	2490	2280	2246
75°	2200	2018	2057
80°	1849	1683	1700
85°	1302	1115	1113

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 3277 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	324.9	2.2
10°-20°	914.2	6.2
20°-30°	1343.5	9.2
30°-40°	1560.4	10.6
40°-50°	1558.4	10.6
50°-60°	1358.9	9.3
60°-70°	1004.5	6.8
70°-80°	568.4	3.9
80°-90°	156.0	1.1
90°-100°	130.2	0.9
100°-110°	413.7	2.8
110°-120°	708.0	4.8
120°-130°	931.2	6.3
130°-140°	1045.3	7.1
140°-150°	1025.0	7.0
150°-160°	859.8	5.9
160°-170°	570.2	3.9
170°-180°	199.3	1.4
0°-30°	2582.6	17.6
0°-40°	4143.0	28.2
0°-60°	7060.4	48.1
0°-90°	8789.2	59.9
90°-120°	1252.0	8.5
90°-150°	4253.5	29.0
90°-180°	5883.0	40.1
0°-180°	14672.1	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	3452	3452	3452	3452	3452	
5°	3452	3439	3402	3429	3423	328
15°	3286	3267	3223	3237	3220	926
25°	2974	2948	2892	2898	2892	1369
35°	2566	2533	2480	2460	2443	1602
45°	2088	2065	2015	1979	1965	1612
55°	1580	1560	1520	1481	1464	1413
65°	1066	1046	1012	983	966	1054
75°	558	551	534	515	521	595
85°	136	133	130	119	116	152
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°	3452.1	3452.1	3452.1	3452.1	3452.1
2.5°	3472.2	3455.6	3419.0	3452.1	3445.8
5°	3452.1	3439.1	3402.5	3428.9	3422.6
7.5°	3428.9	3409.2	3372.6	3399.3	3392.7
10°	3392.7	3369.4	3329.6	3355.9	3346.2
12.5°	3342.6	3322.9	3283.1	3299.6	3293.0
15°	3286.3	3266.6	3223.2	3236.6	3220.1
17.5°	3216.5	3196.8	3153.4	3170.1	3153.4
20°	3140.1	3120.4	3073.9	3083.8	3070.7
22.5°	3064.1	3034.1	2990.8	2990.8	2984.1
25°	2974.2	2947.8	2891.5	2897.8	2891.5
27.5°	2874.5	2851.3	2808.3	2798.5	2781.9
30°	2775.3	2748.4	2698.9	2689.0	2675.6
32.5°	2668.9	2649.2	2595.9	2575.9	2562.6
35°	2566.0	2533.0	2479.7	2459.7	2443.1
37.5°	2449.8	2419.8	2366.7	2343.4	2326.9
40°	2330.5	2303.6	2250.5	2220.9	2207.5
42.5°	2214.2	2187.4	2134.6	2101.1	2081.5
45°	2088.1	2064.8	2014.8	1978.6	1965.3
47.5°	1965.3	1942.0	1888.7	1852.1	1832.4
50°	1835.6	1819.1	1772.5	1726.0	1709.5
52.5°	1709.5	1686.2	1643.3	1606.7	1583.4
55°	1580.2	1560.1	1520.4	1480.6	1464.0
57.5°	1450.7	1434.2	1390.8	1351.0	1337.6
60°	1321.0	1308.1	1261.5	1224.9	1215.0
62.5°	1194.9	1171.8	1138.6	1105.6	1092.1
65°	1065.7	1045.7	1012.5	982.6	966.0
67.5°	932.9	916.0	886.4	863.2	849.8
70°	810.0	796.6	766.8	743.5	730.4
72.5°	683.9	670.6	654.0	630.8	620.9
75°	557.5	551.2	534.3	514.6	521.2
77.5°	444.8	431.4	424.7	414.9	405.0
80°	332.1	328.6	321.9	312.1	305.3
82.5°	225.8	225.8	222.6	209.2	209.2
85°	136.0	132.7	129.6	119.4	116.2
87.5°	59.9	53.2	46.5	36.6	33.2
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	12.88	13.84	13.75	14.73	15.85	12.44	13.39	13.30	14.28	15.41
	3H	14.54	15.40	15.42	16.30	17.45	14.05	14.91	14.93	15.81	16.96
	4H	15.13	15.95	16.03	16.85	18.01	14.64	15.45	15.53	16.36	17.51
	6H	15.53	16.28	16.44	17.19	18.37	15.03	15.78	15.94	16.69	17.87
	8H	15.64	16.35	16.56	17.28	18.45	15.14	15.85	16.05	16.78	17.95
	12H	15.69	16.37	16.61	17.29	18.49	15.18	15.86	16.10	16.78	17.98
4H	2H	13.35	14.16	14.25	15.07	16.23	13.00	13.81	13.90	14.71	15.87
	3H	15.22	15.90	16.13	16.83	18.01	14.81	15.49	15.72	16.43	17.60
	4H	15.93	16.55	16.86	17.48	18.68	15.51	16.13	16.43	17.06	18.26
	6H	16.45	16.98	17.39	17.94	19.14	16.02	16.55	16.95	17.51	18.71
	8H	16.60	17.10	17.54	18.05	19.26	16.16	16.66	17.10	17.61	18.82
	12H	16.68	17.13	17.63	18.09	19.31	16.23	16.68	17.18	17.64	18.86
8H	4H	16.13	16.63	17.07	17.58	18.80	15.76	16.26	16.70	17.20	18.42
	6H	16.76	17.18	17.73	18.17	19.38	16.38	16.79	17.34	17.78	19.00
	8H	16.98	17.35	17.96	18.33	19.56	16.59	16.95	17.56	17.93	19.16
	12H	17.11	17.44	18.09	18.41	19.69	16.70	17.03	17.68	18.00	19.28
12H	4H	16.12	16.57	17.08	17.54	18.76	15.75	16.21	16.71	17.17	18.39
	6H	16.79	17.16	17.77	18.14	19.37	16.42	16.79	17.39	17.77	19.00
	8H	17.03	17.36	18.01	18.33	19.61	16.65	16.98	17.63	17.95	19.23