

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: P912840

Luminaire Tested: DFN2DIP-TR4F0-070D050US850-RLLFLL

Issue Date: 11/21/2024

**Test Information**

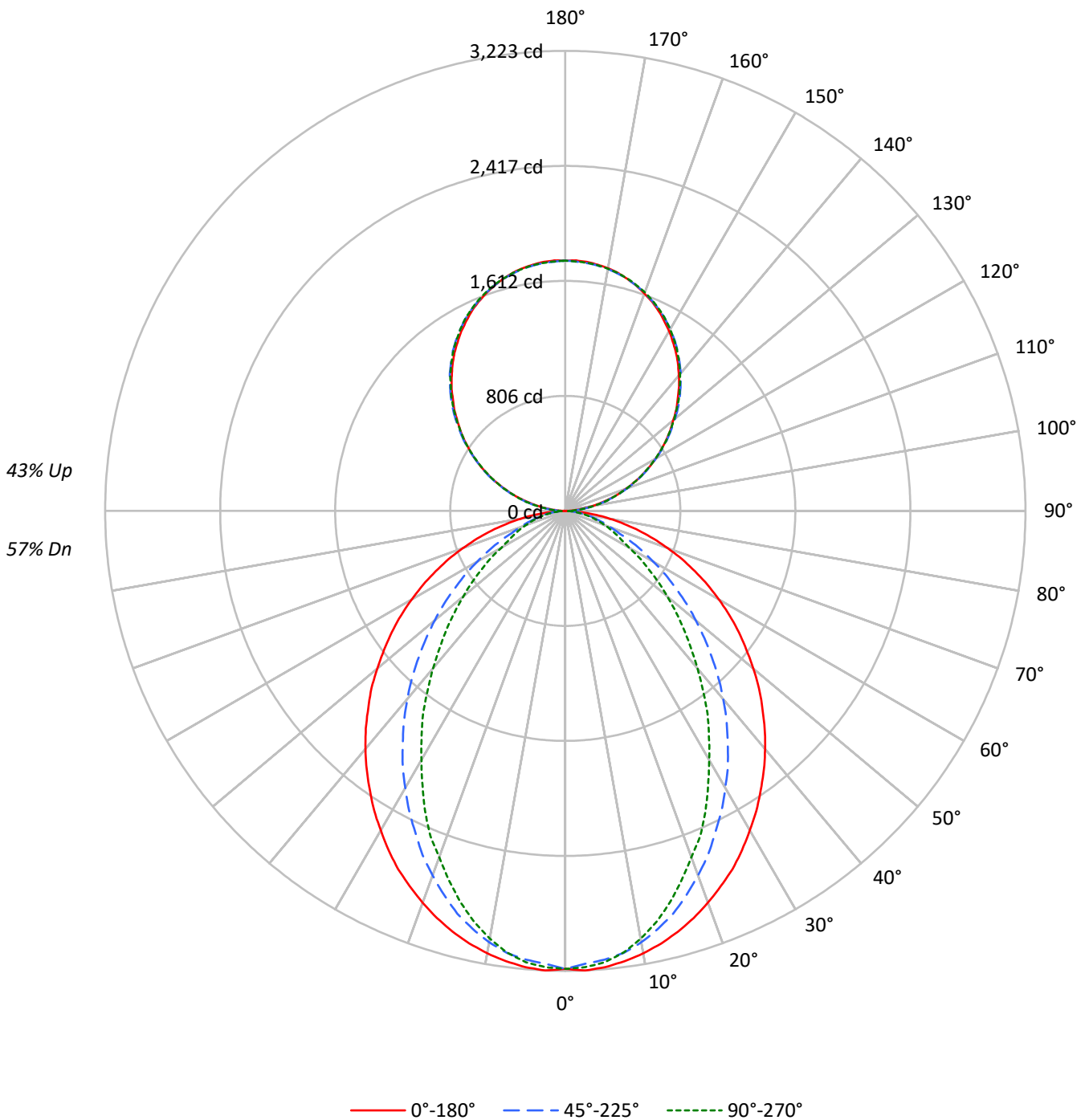
Test Method: LM-79-2019  
Report Number: P912840  
REPORT IS A COMBINATION OF REPORTS P900394 AND P897293  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-TR4F0-070D050US850-RLLFLL  
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 11505.9 lumens  
Efficiency: N/A  
Efficacy: 111.3 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')  
CIE Type: General Diffuse  
  
Input Watts (W): 103.4  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9977  
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	101	101	101	101	87	87	87	75	75	75	63	63	63	57	57	57	57
1	100	96	92	89	93	89	86	83	78	75	73	67	65	63	56	55	54	49	49	49	49
2	92	84	78	73	85	79	74	69	69	65	61	59	56	54	50	48	47	42	42	42	42
3	84	75	68	62	78	70	64	59	61	56	52	53	49	46	45	42	40	36	36	36	36
4	77	66	59	53	72	62	56	50	55	49	45	47	43	40	41	38	35	32	32	32	32
5	71	60	52	46	66	56	49	44	49	44	39	43	39	35	37	34	31	28	28	28	28
6	66	54	46	40	61	51	43	38	45	39	35	39	34	31	34	30	28	25	25	25	25
7	61	49	41	35	57	46	39	34	41	35	31	36	31	28	31	27	25	22	22	22	22
8	57	44	37	32	53	42	35	30	37	32	28	33	28	25	29	25	22	20	20	20	20
9	53	41	33	28	49	38	32	27	34	29	25	30	26	23	26	23	20	18	18	18	18
10	49	37	30	26	46	35	29	25	32	26	23	28	24	21	25	21	19	17	17	17	17

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

	0°	45°	90°
0°	2549	2549	2549
5°	2553	2508	2524
10°	2528	2459	2442
15°	2493	2378	2315
20°	2447	2266	2159
25°	2400	2140	2009
30°	2337	2011	1818
35°	2275	1873	1650
40°	2211	1730	1458
45°	2138	1571	1284
50°	2062	1410	1113
55°	1983	1239	950
60°	1892	1059	782
65°	1786	877	704
70°	1659	707	636
75°	1498	623	579
80°	1266	523	502
85°	883	349	377

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 2138 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	300.7	2.6
10°-20°	825.5	7.2
20°-30°	1158.9	10.1
30°-40°	1263.3	11.0
40°-50°	1161.1	10.1
50°-60°	911.9	7.9
60°-70°	593.5	5.2
70°-80°	305.5	2.7
80°-90°	83.0	0.7
90°-100°	108.5	0.9
100°-110°	344.8	3.0
110°-120°	590.1	5.1
120°-130°	776.0	6.7
130°-140°	871.0	7.6
140°-150°	854.2	7.4
150°-160°	716.5	6.2
160°-170°	475.2	4.1
170°-180°	166.1	1.4
0°-30°	2285.1	19.9
0°-40°	3548.4	30.8
0°-60°	5621.4	48.9
0°-90°	6603.5	57.4
90°-120°	1043.4	9.1
90°-150°	3544.6	30.8
90°-180°	4902.0	42.6
0°-180°	11505.9	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	3208	3208	3208	3208	3208	
5°	3208	3194	3156	3182	3174	304
15°	3052	3020	2921	2866	2837	860
25°	2770	2677	2485	2366	2323	1274
35°	2387	2239	1983	1800	1736	1494
45°	1951	1756	1452	1246	1176	1507
55°	1484	1257	944	770	714	1326
65°	1002	766	505	407	398	993
75°	534	331	232	212	209	565
85°	125	64	55	55	55	143
90°	2	19	52	49	50	11
95°	77	92	95	95	92	86
105°	318	322	326	328	328	336
115°	592	601	598	596	592	586
125°	861	874	870	866	864	770
135°	1114	1130	1134	1132	1128	861
145°	1352	1363	1371	1373	1367	845
155°	1546	1551	1555	1563	1558	712
165°	1682	1681	1681	1691	1684	475
175°	1751	1746	1743	1754	1745	166
180°	1754	1754	1754	1754	1754	



TEST NUMBER: P912840

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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	3208.4	3208.4	3208.4	3208.4	3208.4
2.5°	3222.9	3208.4	3176.4	3205.7	3199.8
5°	3208.4	3193.9	3156.1	3182.3	3173.6
7.5°	3182.3	3165.0	3124.4	3135.7	3121.3
10°	3147.5	3127.2	3069.2	3060.3	3043.0
12.5°	3104.0	3077.8	2999.3	2982.0	2949.9
15°	3051.6	3019.6	2921.0	2865.9	2836.9
17.5°	2990.6	2944.2	2822.2	2758.3	2711.8
20°	2921.0	2862.8	2717.7	2645.3	2581.2
22.5°	2845.6	2778.7	2610.1	2511.6	2468.2
25°	2770.1	2677.0	2485.4	2366.5	2322.8
27.5°	2680.1	2581.2	2369.3	2232.9	2166.0
30°	2584.3	2473.7	2241.4	2093.6	2015.1
32.5°	2491.3	2357.6	2119.7	1945.4	1872.7
35°	2386.8	2238.6	1983.3	1800.4	1736.3
37.5°	2285.2	2125.3	1855.5	1654.8	1582.5
40°	2177.6	2003.6	1721.7	1515.7	1440.1
42.5°	2067.4	1881.6	1588.3	1373.3	1301.0
45°	1951.3	1756.5	1451.9	1245.5	1175.9
47.5°	1840.9	1634.9	1321.3	1114.9	1051.1
50°	1719.0	1512.9	1193.4	992.9	932.2
52.5°	1599.7	1381.9	1071.4	879.8	824.7
55°	1483.6	1257.2	943.5	769.5	714.4
57.5°	1364.7	1132.4	830.5	667.8	621.4
60°	1242.7	1010.4	711.3	563.5	516.9
62.5°	1123.7	891.5	609.6	470.4	447.3
65°	1001.8	766.4	505.3	406.7	397.7
67.5°	885.6	650.3	406.7	357.0	348.4
70°	763.7	537.2	336.7	307.7	296.0
72.5°	647.5	432.5	281.6	258.5	252.6
75°	534.2	330.8	232.2	211.9	209.2
77.5°	421.1	235.0	183.0	171.2	165.5
80°	316.4	168.5	139.3	127.9	127.9
82.5°	220.6	113.3	95.8	89.9	89.9
85°	124.8	63.8	55.1	55.1	55.1
87.5°	46.5	23.1	23.1	20.3	20.3
90°	1.6	19.1	51.8	48.7	50.2
92.5°	32.8	44.4	46.0	47.6	47.6
95°	77.2	92.0	94.6	94.6	92.0
97.5°	128.4	142.2	148.1	148.1	148.1
100°	187.6	199.8	204.1	204.1	202.5
102.5°	250.1	259.1	264.8	266.5	264.8
105°	318.3	322.5	325.7	328.3	328.3
107.5°	385.9	392.3	392.3	393.4	385.9
110°	451.5	460.0	460.0	460.0	455.7



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	522.3	531.3	529.8	525.6	522.3
115°	592.1	600.6	598.0	596.4	592.1
117.5°	661.4	673.1	665.6	661.4	657.2
120°	731.2	742.8	731.2	731.2	726.4
122.5°	794.6	809.5	802.0	797.8	794.6
125°	861.2	874.4	870.2	865.5	863.9
127.5°	926.2	942.6	936.9	930.5	926.2
130°	987.1	1006.1	1003.4	1000.3	994.4
132.5°	1055.3	1070.1	1071.2	1063.8	1059.5
135°	1114.0	1130.3	1133.5	1132.0	1127.7
137.5°	1179.5	1192.7	1195.4	1194.3	1188.0
140°	1237.1	1250.4	1257.7	1257.7	1252.0
142.5°	1296.3	1309.6	1313.8	1315.4	1309.6
145°	1352.4	1363.0	1371.4	1373.1	1367.2
147.5°	1402.7	1415.9	1422.2	1424.8	1419.0
150°	1454.5	1463.4	1469.2	1474.0	1469.2
152.5°	1500.5	1509.5	1516.8	1522.7	1516.8
155°	1546.4	1550.6	1555.4	1562.8	1558.0
157.5°	1586.1	1589.2	1591.9	1602.5	1595.1
160°	1621.5	1624.7	1626.2	1635.2	1628.9
162.5°	1654.3	1654.3	1655.8	1665.9	1658.5
165°	1682.4	1680.7	1680.7	1691.3	1683.9
167.5°	1707.6	1702.9	1702.9	1713.5	1706.1
170°	1726.7	1722.5	1720.9	1731.5	1722.5
172.5°	1739.9	1735.7	1734.1	1744.7	1735.7
175°	1750.6	1746.2	1743.1	1753.7	1744.7
177.5°	1756.3	1752.1	1748.9	1757.9	1748.9
180°	1753.7	1753.7	1753.7	1753.7	1753.7



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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	11.06	11.95	11.95	12.86	14.03	7.03	7.92	7.93	8.84	10.00
	3H	12.74	13.54	13.65	14.46	15.65	8.22	9.02	9.13	9.94	11.13
	4H	13.35	14.10	14.27	15.03	16.23	8.68	9.43	9.60	10.36	11.56
	6H	13.77	14.47	14.71	15.40	16.61	9.00	9.70	9.94	10.63	11.84
	8H	13.90	14.56	14.85	15.51	16.72	9.10	9.76	10.04	10.71	11.92
	12H	13.97	14.59	14.91	15.54	16.77	9.14	9.77	10.09	10.71	11.95
4H	2H	11.08	11.84	12.01	12.76	13.96	7.63	8.39	8.56	9.31	10.51
	3H	12.92	13.54	13.86	14.50	15.72	8.99	9.62	9.93	10.57	11.79
	4H	13.61	14.18	14.56	15.14	16.37	9.54	10.11	10.49	11.06	12.30
	6H	14.13	14.62	15.09	15.60	16.84	9.96	10.46	10.93	11.43	12.67
	8H	14.31	14.77	15.27	15.74	16.99	10.09	10.55	11.06	11.52	12.78
	12H	14.40	14.82	15.39	15.80	17.06	10.16	10.58	11.15	11.56	12.82
8H	4H	13.58	14.04	14.55	15.01	16.27	9.82	10.28	10.79	11.25	12.51
	6H	14.15	14.53	15.14	15.54	16.79	10.35	10.73	11.34	11.74	12.99
	8H	14.37	14.70	15.37	15.70	16.97	10.54	10.87	11.54	11.87	13.14
	12H	14.51	14.80	15.51	15.80	17.11	10.66	10.96	11.66	11.95	13.27
12H	4H	13.54	13.95	14.52	14.94	16.20	9.83	10.25	10.82	11.23	12.49
	6H	14.13	14.46	15.13	15.46	16.73	10.40	10.73	11.40	11.73	13.00
	8H	14.35	14.65	15.35	15.64	16.96	10.61	10.91	11.61	11.90	13.21