

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: P912716

Luminaire Tested: DFN2DIP-TR3F0-090D070US850-FLLFLL

Issue Date: 11/21/2024

**Test Information**

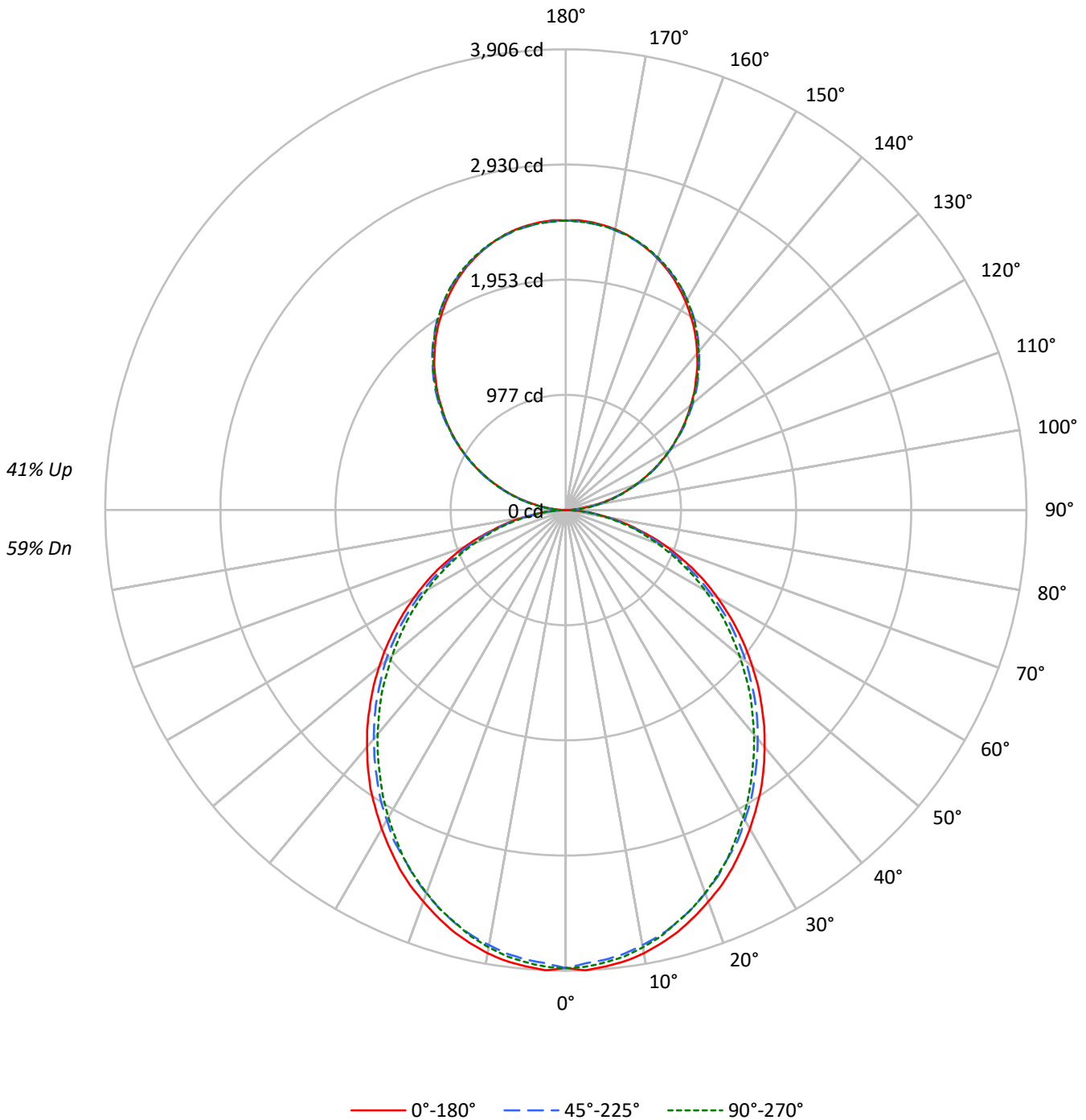
Test Method: LM-79-2019  
Report Number: P912716  
REPORT IS A COMBINATION OF REPORTS P900339 AND P897195  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-TR3F0-090D070US850-FLLFLL  
Description: 3 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 16751.5 lumens  
Efficiency: N/A  
Efficacy: 113.1 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 2.74' x L: 3.16' x H: 0.1')  
CIE Type: General Diffuse  
  
Input Watts (W): 148.1  
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	0
RCR																					
0	109	109	109	109	102	102	102	102	88	88	88	76	76	76	64	64	64	59			59
1	100	95	91	88	93	89	86	83	78	75	73	67	65	63	57	56	54	50			50
2	91	83	77	72	85	78	73	68	68	64	60	59	56	53	50	48	46	42			42
3	83	73	66	60	77	69	62	57	60	55	51	52	48	45	44	42	39	35			35
4	76	65	57	51	71	61	54	48	53	48	43	46	42	38	40	36	34	30			30
5	70	58	50	44	65	54	47	41	48	42	37	42	37	33	36	32	29	26			26
6	64	52	44	38	60	49	41	36	43	37	33	38	33	29	33	29	26	23			23
7	59	47	39	33	55	44	37	32	39	33	29	34	29	26	30	26	23	21			21
8	55	43	35	29	51	40	33	28	36	30	26	31	27	23	27	23	21	18			18
9	51	39	31	26	48	37	30	25	33	27	23	29	24	21	25	21	19	17			17
10	48	36	29	24	45	34	27	23	30	25	21	27	22	19	23	20	17	15			15

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

	0°	45°	90°
0°	4839	4839	4839
5°	4844	4768	4801
10°	4803	4700	4733
15°	4729	4618	4628
20°	4631	4507	4521
25°	4534	4374	4398
30°	4412	4250	4241
35°	4296	4105	4077
40°	4154	3958	3920
45°	4013	3811	3759
50°	3858	3656	3573
55°	3695	3476	3401
60°	3511	3264	3204
65°	3310	3044	2971
70°	3054	2775	2721
75°	2701	2452	2484
80°	2273	2040	2042
85°	1605	1344	1319

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 4013 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	365.5	2.2
10°-20°	1028.5	6.1
20°-30°	1511.4	9.0
30°-40°	1755.4	10.5
40°-50°	1753.3	10.5
50°-60°	1528.8	9.1
60°-70°	1130.1	6.7
70°-80°	639.4	3.8
80°-90°	175.7	1.0
90°-100°	151.9	0.9
100°-110°	482.7	2.9
110°-120°	826.1	4.9
120°-130°	1086.4	6.5
130°-140°	1219.5	7.3
140°-150°	1195.8	7.1
150°-160°	1003.1	6.0
160°-170°	665.3	4.0
170°-180°	232.5	1.4
0°-30°	2905.4	17.3
0°-40°	4660.9	27.8
0°-60°	7942.9	47.4
0°-90°	9888.2	59.0
90°-120°	1460.7	8.7
90°-150°	4962.4	29.6
90°-180°	6863.0	41.0
0°-180°	16751.5	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	3884	3884	3884	3884	3884	
5°	3884	3869	3828	3858	3850	369
15°	3697	3675	3626	3641	3622	1041
25°	3346	3316	3253	3260	3253	1540
35°	2887	2850	2790	2767	2748	1803
45°	2349	2323	2267	2226	2211	1813
55°	1778	1755	1710	1666	1647	1589
65°	1199	1176	1139	1106	1087	1185
75°	627	620	601	579	586	670
85°	153	149	146	134	131	171
90°	2	27	72	68	70	16
95°	108	129	132	132	129	120
105°	446	452	456	460	460	470
115°	829	841	837	835	829	820
125°	1206	1224	1218	1212	1210	1077
135°	1560	1582	1587	1585	1579	1205
145°	1893	1908	1920	1922	1914	1183
155°	2165	2171	2178	2188	2181	997
165°	2355	2353	2353	2368	2357	664
175°	2451	2445	2440	2455	2443	233
180°	2455	2455	2455	2455	2455	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	3883.6	3883.6	3883.6	3883.6	3883.6
2.5°	3906.2	3887.6	3846.5	3883.6	3876.5
5°	3883.6	3869.0	3827.8	3857.5	3850.3
7.5°	3857.5	3835.4	3794.1	3824.3	3816.7
10°	3816.7	3790.6	3745.8	3775.5	3764.4
12.5°	3760.4	3738.2	3693.5	3712.0	3704.6
15°	3697.1	3674.9	3626.1	3641.2	3622.5
17.5°	3618.6	3596.4	3547.7	3566.3	3547.7
20°	3532.6	3510.4	3458.1	3469.2	3454.5
22.5°	3447.0	3413.4	3364.6	3364.6	3357.1
25°	3346.0	3316.2	3252.9	3260.0	3252.9
27.5°	3233.8	3207.7	3159.4	3148.3	3129.7
30°	3122.2	3092.0	3036.1	3025.0	3010.0
32.5°	3002.5	2980.3	2920.4	2897.9	2882.8
35°	2886.8	2849.6	2789.7	2767.2	2748.5
37.5°	2756.1	2722.4	2662.5	2636.4	2617.8
40°	2621.7	2591.6	2531.7	2498.5	2483.5
42.5°	2490.9	2460.9	2401.4	2363.8	2341.7
45°	2349.1	2323.0	2266.7	2225.9	2210.9
47.5°	2210.9	2184.7	2124.8	2083.7	2061.5
50°	2065.1	2046.4	1994.1	1941.9	1923.2
52.5°	1923.2	1897.1	1848.7	1807.6	1781.4
55°	1777.8	1755.2	1710.4	1665.7	1647.1
57.5°	1632.0	1613.4	1564.7	1519.9	1504.8
60°	1486.2	1471.5	1419.2	1378.0	1367.0
62.5°	1344.3	1318.2	1280.9	1243.7	1228.7
65°	1198.9	1176.3	1139.1	1105.5	1086.8
67.5°	1049.6	1030.6	997.2	971.2	956.1
70°	911.3	896.2	862.6	836.4	821.8
72.5°	769.4	754.3	735.7	709.6	698.6
75°	627.3	620.0	601.1	578.9	586.4
77.5°	500.4	485.4	477.9	466.8	455.7
80°	373.6	369.6	362.1	351.0	343.6
82.5°	254.0	254.0	250.4	235.3	235.3
85°	152.9	149.4	145.8	134.3	130.8
87.5°	67.3	59.8	52.3	41.3	37.3
90°	2.2	26.6	72.5	68.1	70.3
92.5°	45.9	62.2	64.4	66.7	66.7
95°	108.0	128.8	132.5	132.5	128.8
97.5°	179.9	199.1	207.3	207.3	207.3
100°	262.7	279.8	285.7	285.7	283.5
102.5°	350.1	362.6	370.8	373.1	370.8
105°	445.6	451.5	455.9	459.7	459.7
107.5°	540.3	549.2	549.2	550.7	540.3
110°	632.1	644.0	644.0	644.0	638.0



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	731.3	743.9	741.7	735.7	731.3
115°	829.0	840.8	837.2	835.0	829.0
117.5°	925.9	942.2	931.9	925.9	920.0
120°	1023.6	1039.9	1023.6	1023.6	1017.0
122.5°	1112.4	1133.2	1122.9	1116.9	1112.4
125°	1205.7	1224.2	1218.3	1211.7	1209.5
127.5°	1296.8	1319.7	1311.6	1302.7	1296.8
130°	1381.9	1408.5	1404.9	1400.4	1392.2
132.5°	1477.4	1498.1	1499.6	1489.3	1483.3
135°	1559.6	1582.4	1587.0	1584.7	1578.8
137.5°	1651.3	1669.8	1673.5	1672.0	1663.2
140°	1732.0	1750.6	1760.9	1760.9	1752.8
142.5°	1814.9	1833.4	1839.3	1841.5	1833.4
145°	1893.4	1908.1	1920.0	1922.2	1914.1
147.5°	1963.7	1982.2	1991.1	1994.8	1986.7
150°	2036.2	2048.8	2057.0	2063.6	2057.0
152.5°	2100.6	2113.2	2123.5	2131.7	2123.5
155°	2165.0	2170.9	2177.6	2187.9	2181.3
157.5°	2220.6	2225.0	2228.6	2243.5	2233.1
160°	2270.1	2274.6	2276.8	2289.3	2280.4
162.5°	2316.0	2316.0	2318.3	2332.2	2321.9
165°	2355.2	2353.0	2353.0	2367.8	2357.4
167.5°	2390.8	2384.1	2384.1	2398.9	2388.6
170°	2417.4	2411.5	2409.3	2424.1	2411.5
172.5°	2435.9	2429.9	2427.7	2442.6	2429.9
175°	2450.7	2444.8	2440.4	2455.1	2442.6
177.5°	2458.9	2452.9	2448.5	2461.1	2448.5
180°	2455.1	2455.1	2455.1	2455.1	2455.1



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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	13.49	14.44	14.37	15.34	16.47	13.06	14.01	13.94	14.91	16.04
	3H	15.15	16.00	16.04	16.91	18.07	14.68	15.53	15.57	16.44	17.60
	4H	15.73	16.54	16.64	17.45	18.62	15.27	16.07	16.17	16.98	18.16
	6H	16.13	16.87	17.05	17.79	18.98	15.66	16.40	16.58	17.32	18.51
	8H	16.23	16.94	17.16	17.88	19.06	15.77	16.47	16.69	17.41	18.59
	12H	16.28	16.96	17.21	17.89	19.09	15.81	16.48	16.74	17.41	18.62
4H	2H	13.96	14.77	14.87	15.68	16.85	13.62	14.42	14.53	15.33	16.51
	3H	15.82	16.50	16.74	17.44	18.62	15.43	16.11	16.35	17.05	18.24
	4H	16.53	17.15	17.46	18.09	19.30	16.13	16.75	17.06	17.68	18.90
	6H	17.04	17.57	17.99	18.54	19.75	16.64	17.17	17.58	18.13	19.34
	8H	17.19	17.69	18.14	18.64	19.87	16.79	17.28	17.73	18.24	19.46
	12H	17.26	17.71	18.23	18.68	19.92	16.85	17.30	17.82	18.27	19.50
8H	4H	16.73	17.23	17.68	18.18	19.41	16.38	16.87	17.32	17.83	19.05
	6H	17.36	17.77	18.33	18.76	19.99	17.00	17.41	17.97	18.41	19.63
	8H	17.57	17.93	18.55	18.92	20.16	17.21	17.57	18.19	18.56	19.80
	12H	17.70	18.02	18.69	19.00	20.29	17.32	17.64	18.31	18.62	19.91
12H	4H	16.72	17.17	17.69	18.14	19.37	16.37	16.82	17.34	17.79	19.02
	6H	17.39	17.75	18.37	18.74	19.98	17.04	17.40	18.02	18.39	19.63
	8H	17.63	17.94	18.61	18.92	20.21	17.27	17.59	18.26	18.57	19.86