

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: P912868

Luminaire Tested: DFN2DIP-TR4F0-070D120US850-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P912868
REPORT IS A COMBINATION OF REPORTS P900520 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-070D120US850-RLLFLL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

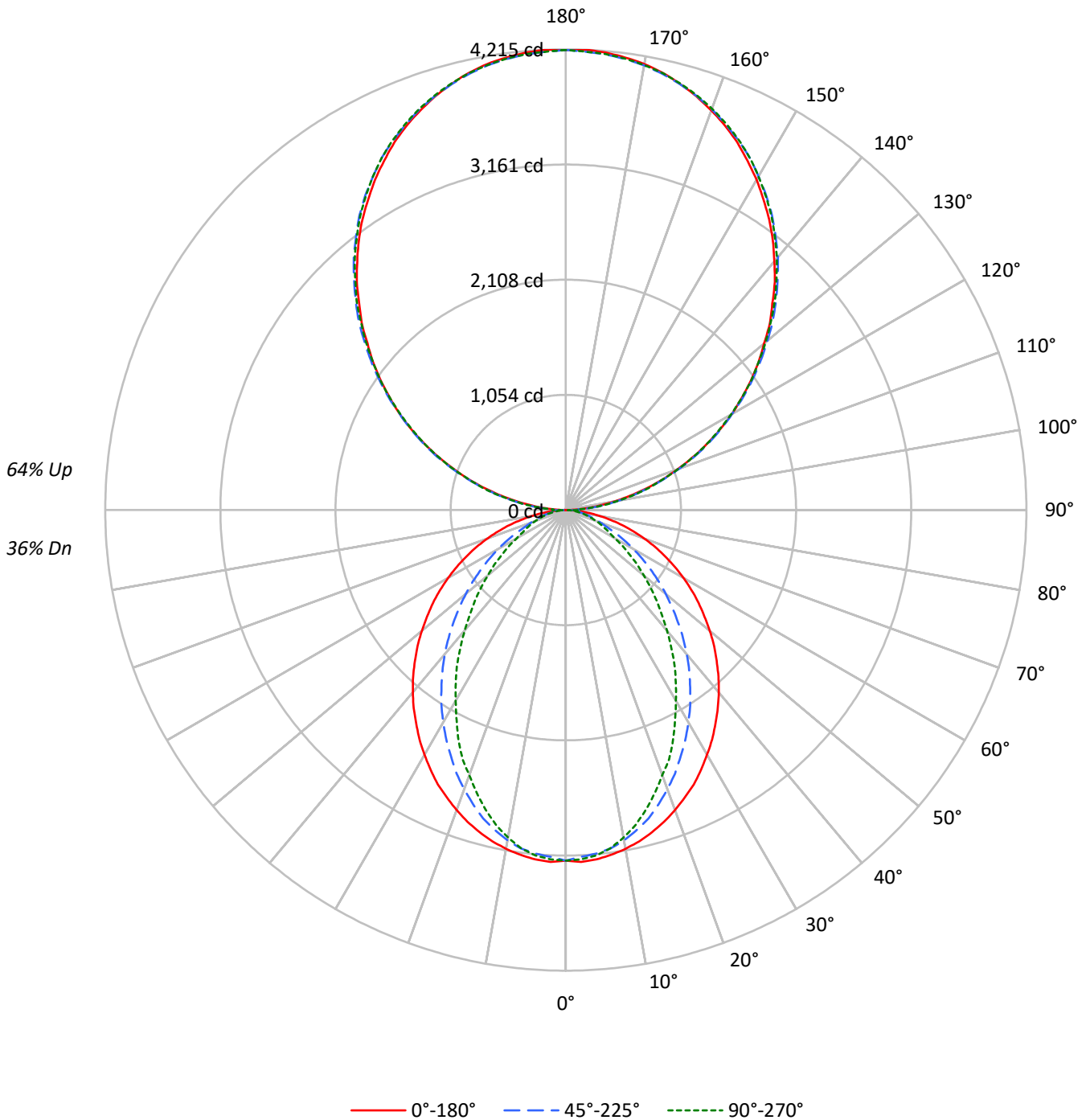
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 18376.1 lumens
Efficiency: N/A
Efficacy: 117.1 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: Semi-Indirect

Input Watts (W): 156.9
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											20		
RC	80					70						30					10							10											0		
RW	70	50	30	10		70	50	30	10		50	30	10		50	30	10		50	30	10		50	30	10		50	30	10		50	30	10		0		
RCR																																					
0	104	104	104	104		94	94	94	94		76	76	76		59	59	59		43	43	43		36	36	36		31	31	31		26	26	26		23		
1	95	91	87	84		86	82	79	77		67	64	63		52	51	49		39	38	37		31	31	31		26	26	26		21	21	21		18		
2	87	80	74	69		78	72	68	63		59	55	52		46	44	42		34	33	32		26	26	26		21	21	21		17	17	17		14		
3	79	70	63	58		72	64	58	53		52	48	44		41	38	36		31	29	27		23	23	23		18	18	18		14	14	14		11		
4	73	62	55	49		66	57	50	45		46	42	38		37	34	31		28	26	24		20	20	20		15	15	15		11	11	11		11		
5	67	56	48	42		60	51	44	39		42	37	33		33	30	27		25	23	21		18	18	18		13	13	13		11	11	11		11		
6	62	50	42	37		56	46	39	34		38	33	29		30	26	24		23	21	19		16	16	16		12	12	12		11	11	11		11		
7	57	45	38	32		51	41	35	30		34	29	25		27	24	21		21	19	17		14	14	14		11	11	11		11	11	11		11		
8	53	41	34	28		48	38	31	26		31	26	23		25	21	19		19	17	15		13	13	13		11	11	11		11	11	11		11		
9	49	37	30	25		45	34	28	24		29	24	20		23	20	17		18	15	14		11	11	11		11	11	11		11	11	11		11		
10	46	34	27	23		42	32	25	21		26	22	18		21	18	15		17	14	12		10	10	10		11	11	11		11	11	11		11		

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: 90°
 Vertical Angle: 90°
 Luminance: 3280 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	300.7	1.6
10°-20°	825.5	4.5
20°-30°	1158.9	6.3
30°-40°	1263.3	6.9
40°-50°	1161.1	6.3
50°-60°	911.9	5.0
60°-70°	593.5	3.2
70°-80°	305.5	1.7
80°-90°	89.9	0.5
90°-100°	260.4	1.4
100°-110°	827.5	4.5
110°-120°	1416.1	7.7
120°-130°	1862.4	10.1
130°-140°	2090.5	11.4
140°-150°	2050.0	11.2
150°-160°	1719.6	9.4
160°-170°	1140.4	6.2
170°-180°	398.6	2.2
0°-30°	2285.1	12.4
0°-40°	3548.4	19.3
0°-60°	5621.4	30.6
0°-90°	6610.5	36.0
90°-120°	2504.0	13.6
90°-150°	8506.9	46.3
90°-180°	11766.0	64.0
0°-180°	18376.1	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°	4	46	124	117	120	18
95°	185	221	227	227	221	206
105°	764	774	782	788	788	806
115°	1421	1442	1435	1431	1421	1406
125°	2067	2099	2089	2077	2073	1847
135°	2674	2713	2720	2717	2706	2066
145°	3246	3271	3291	3295	3281	2028
155°	3711	3722	3733	3751	3739	1708
165°	4038	4034	4034	4059	4041	1139
175°	4201	4191	4184	4209	4187	399
180°	4209	4209	4209	4209	4209	



TEST NUMBER: P912868

CATALOG NUMBER: DFN2DIP-TR4F0-070D120US850-RLLFLL

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°	3.8	45.7	124.3	116.8	120.5
92.5°	78.6	106.6	110.3	114.2	114.2
95°	185.2	220.8	227.1	227.1	220.8
97.5°	308.3	341.4	355.3	355.3	355.3
100°	450.5	479.6	489.7	489.7	486.0
102.5°	600.2	621.7	635.7	639.6	635.7
105°	763.9	774.0	781.6	787.9	787.9
107.5°	926.2	941.5	941.5	944.0	926.2
110°	1083.6	1103.9	1103.9	1103.9	1093.8



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1253.6	1275.2	1271.4	1261.3	1253.6
115°	1421.1	1441.5	1435.0	1431.3	1421.1
117.5°	1587.3	1615.3	1597.5	1587.3	1577.2
120°	1754.9	1782.7	1754.9	1754.9	1743.5
122.5°	1907.1	1942.6	1924.9	1914.7	1907.1
125°	2067.0	2098.7	2088.6	2077.2	2073.3
127.5°	2223.1	2262.4	2248.4	2233.2	2223.1
130°	2368.9	2414.6	2408.3	2400.7	2386.7
132.5°	2532.6	2568.2	2570.7	2552.9	2542.8
135°	2673.5	2712.8	2720.5	2716.6	2706.5
137.5°	2830.8	2862.6	2868.9	2866.3	2851.1
140°	2969.1	3000.8	3018.6	3018.6	3004.6
142.5°	3111.3	3143.0	3153.1	3156.9	3143.0
145°	3245.7	3271.1	3291.4	3295.3	3281.3
147.5°	3366.3	3398.0	3413.3	3419.6	3405.6
150°	3490.7	3512.2	3526.2	3537.6	3526.2
152.5°	3601.0	3622.5	3640.4	3654.4	3640.4
155°	3711.4	3721.6	3733.0	3750.7	3739.3
157.5°	3806.6	3814.2	3820.5	3845.9	3828.2
160°	3891.6	3899.2	3903.0	3924.6	3909.3
162.5°	3970.2	3970.2	3974.1	3998.2	3980.4
165°	4037.5	4033.8	4033.8	4059.1	4041.3
167.5°	4098.4	4087.0	4087.0	4112.4	4094.6
170°	4144.1	4133.9	4130.1	4155.5	4133.9
172.5°	4175.8	4165.6	4161.9	4187.3	4165.6
175°	4201.2	4191.0	4183.5	4208.8	4187.3
177.5°	4215.2	4205.0	4197.3	4219.0	4197.3
180°	4208.8	4208.8	4208.8	4208.8	4208.8



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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	8.92	9.65	9.99	10.72	12.18	4.89	5.62	5.97	6.69	8.15
	3H	10.59	11.24	11.67	12.32	13.80	6.07	6.72	7.16	7.81	9.28
	4H	11.19	11.81	12.29	12.89	14.38	6.52	7.14	7.62	8.22	9.70
	6H	11.61	12.18	12.71	13.26	14.76	6.84	7.40	7.94	8.49	9.99
	8H	11.73	12.27	12.84	13.37	14.86	6.93	7.46	8.03	8.57	10.06
	12H	11.79	12.30	12.90	13.40	14.91	6.97	7.48	8.08	8.57	10.09
4H	2H	8.93	9.54	10.03	10.62	12.11	5.48	6.09	6.58	7.17	8.66
	3H	10.74	11.26	11.85	12.37	13.86	6.82	7.33	7.92	8.44	9.94
	4H	11.43	11.90	12.54	13.00	14.52	7.36	7.83	8.47	8.93	10.45
	6H	11.94	12.35	13.06	13.47	14.98	7.78	8.18	8.90	9.30	10.81
	8H	12.12	12.49	13.23	13.61	15.13	7.90	8.28	9.02	9.39	10.92
	12H	12.21	12.55	13.34	13.67	15.20	7.96	8.31	9.10	9.43	10.96
8H	4H	11.39	11.77	12.51	12.88	14.41	7.63	8.01	8.75	9.12	10.65
	6H	11.96	12.27	13.10	13.42	14.94	8.15	8.46	9.29	9.62	11.14
	8H	12.17	12.44	13.32	13.58	15.12	8.34	8.61	9.49	9.75	11.29
	12H	12.31	12.54	13.45	13.68	15.26	8.46	8.70	9.61	9.83	11.41
12H	4H	11.34	11.68	12.48	12.81	14.34	7.63	7.97	8.77	9.10	10.63
	6H	11.93	12.20	13.08	13.34	14.88	8.20	8.47	9.35	9.61	11.15
	8H	12.15	12.39	13.30	13.52	15.10	8.41	8.64	9.56	9.78	11.36