

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: P904683

Luminaire Tested: DFN2DIP-TR4F0-070D120US830-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P904683
REPORT IS A COMBINATION OF REPORTS P902039 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-070D120US830-FLLONL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

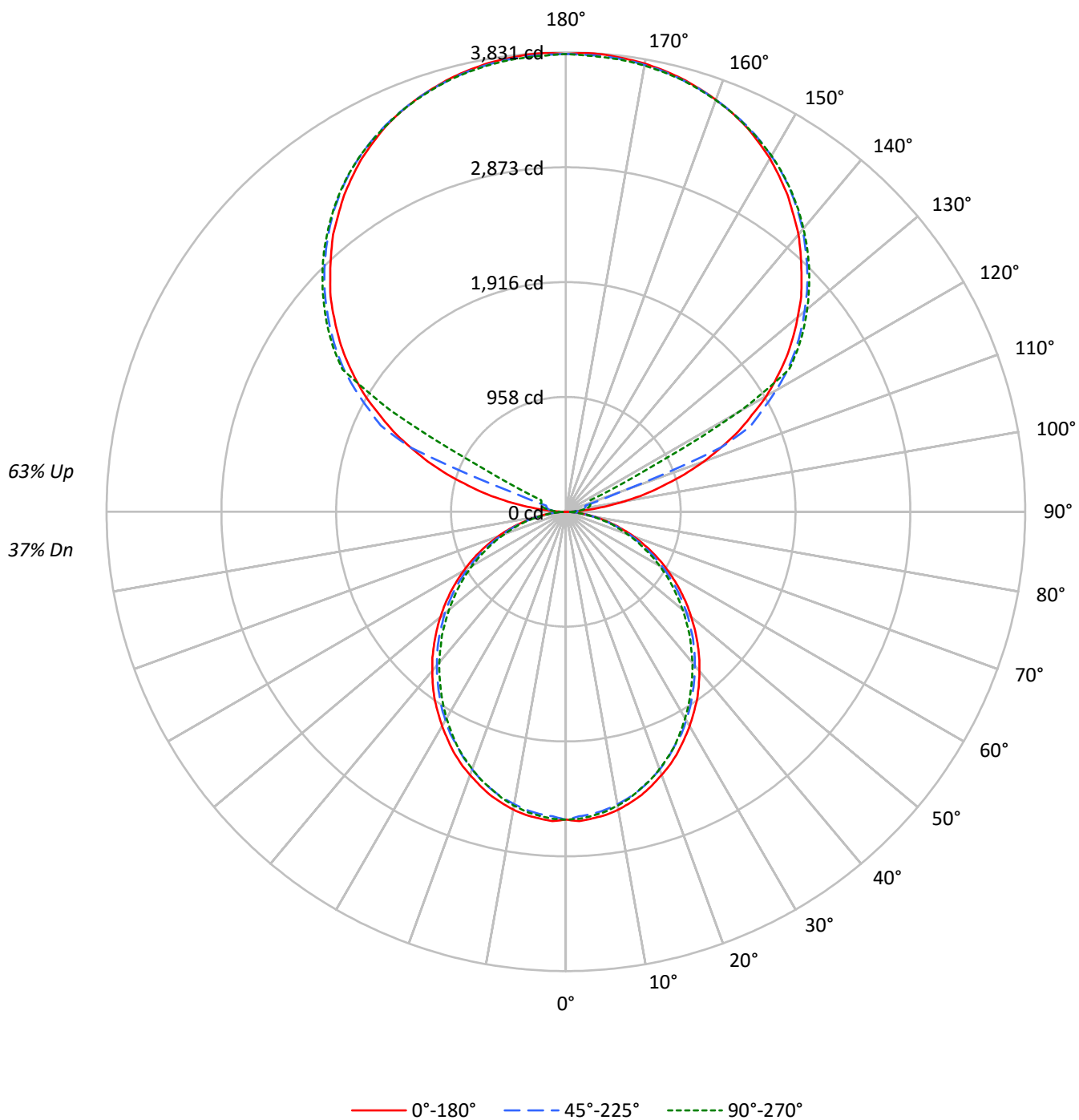
Lumens per Lamp: N/A
Luminaire Lumens: 17729.3 lumens
Efficiency: N/A
Efficacy: 113.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Indirect

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
RC	80				70				50				30				10
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	104	104	104	104	94	94	94	94	76	76	76	59	59	59	44	44	44
1	95	91	87	83	86	82	79	76	67	64	62	52	51	49	39	38	37
2	86	79	73	68	78	72	67	62	58	55	52	46	43	41	34	33	31
3	79	69	62	57	71	63	57	52	51	47	43	40	37	35	30	28	27
4	72	61	54	48	65	56	49	44	46	41	37	36	33	30	27	25	23
5	66	55	47	41	60	50	43	38	41	36	32	32	29	26	24	22	20
6	61	49	41	35	55	45	38	33	37	31	28	29	25	23	22	20	18
7	56	44	36	31	51	40	33	29	33	28	24	26	23	20	20	18	16
8	52	40	32	27	47	37	30	25	30	25	21	24	20	18	19	16	14
9	48	36	29	24	44	33	27	22	28	23	19	22	19	16	17	15	13
10	45	33	26	22	41	31	24	20	25	21	17	20	17	14	16	13	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2039	2039	2039
5°	2043	2011	2025
10°	2026	1984	1997
15°	1996	1951	1954
20°	1956	1906	1910
25°	1916	1852	1860
30°	1866	1801	1795
35°	1819	1741	1727
40°	1760	1681	1662
45°	1702	1621	1595
50°	1638	1558	1518
55°	1571	1484	1448
60°	1495	1397	1367
65°	1413	1307	1271
70°	1308	1197	1168
75°	1163	1066	1073
80°	988	899	891
85°	715	610	591

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2028 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	241.6	1.4
10°-20°	679.9	3.8
20°-30°	999.1	5.6
30°-40°	1160.4	6.5
40°-50°	1159.0	6.5
50°-60°	1010.6	5.7
60°-70°	747.1	4.2
70°-80°	422.7	2.4
80°-90°	118.3	0.7
90°-100°	125.9	0.7
100°-110°	469.2	2.6
110°-120°	1244.4	7.0
120°-130°	2064.0	11.6
130°-140°	2192.4	12.4
140°-150°	2037.6	11.5
150°-160°	1638.2	9.2
160°-170°	1055.6	6.0
170°-180°	363.3	2.0
0°-30°	1920.6	10.8
0°-40°	3081.0	17.4
0°-60°	5250.6	29.6
0°-90°	6538.6	36.9
90°-120°	1839.5	10.4
90°-150°	8133.6	45.9
90°-180°	11191.0	63.1
0°-180°	17729.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2567	2567	2567	2567	2567	
5°	2567	2558	2530	2550	2545	244
15°	2444	2429	2397	2407	2395	688
25°	2212	2192	2150	2155	2150	1018
35°	1908	1884	1844	1829	1817	1192
45°	1553	1536	1498	1471	1461	1198
55°	1175	1160	1131	1101	1089	1051
65°	793	778	753	731	718	784
75°	415	410	397	383	388	443
85°	101	99	96	89	86	113
90°	3	33	55	69	74	16
95°	179	88	108	122	119	212
105°	840	923	169	199	210	897
115°	1588	1635	1704	425	227	1563
125°	2245	2282	2334	2353	2362	2003
135°	2779	2823	2848	2876	2870	2146
145°	3224	3221	3267	3287	3273	2016
155°	3549	3524	3558	3574	3552	1635
165°	3740	3723	3732	3751	3732	1057
175°	3825	3806	3812	3831	3803	364
180°	3817	3817	3817	3817	3817	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2567.2	2567.2	2567.2	2567.2	2567.2
2.5°	2582.2	2569.8	2542.6	2567.2	2562.5
5°	2567.2	2557.6	2530.3	2550.0	2545.2
7.5°	2550.0	2535.3	2508.0	2528.0	2523.0
10°	2523.0	2505.7	2476.1	2495.8	2488.4
12.5°	2485.8	2471.2	2441.6	2453.8	2448.8
15°	2443.9	2429.2	2397.0	2407.0	2394.6
17.5°	2392.0	2377.4	2345.1	2357.5	2345.1
20°	2335.1	2320.5	2285.9	2293.3	2283.6
22.5°	2278.6	2256.4	2224.1	2224.1	2219.1
25°	2211.9	2192.2	2150.3	2155.0	2150.3
27.5°	2137.7	2120.4	2088.5	2081.1	2068.8
30°	2063.9	2043.9	2007.0	1999.7	1989.7
32.5°	1984.7	1970.1	1930.5	1915.6	1905.6
35°	1908.3	1883.7	1844.1	1829.2	1816.8
37.5°	1821.8	1799.6	1760.0	1742.8	1730.4
40°	1733.1	1713.2	1673.6	1651.6	1641.6
42.5°	1646.6	1626.7	1587.4	1562.5	1547.8
45°	1552.8	1535.6	1498.4	1471.4	1461.4
47.5°	1461.4	1444.2	1404.6	1377.3	1362.7
50°	1365.1	1352.7	1318.1	1283.6	1271.3
52.5°	1271.3	1254.1	1222.1	1194.9	1177.5
55°	1175.2	1160.3	1130.7	1101.1	1088.7
57.5°	1078.8	1066.5	1034.3	1004.7	994.8
60°	982.4	972.7	938.2	911.0	903.6
62.5°	888.6	871.4	846.8	822.2	812.2
65°	792.6	777.6	753.0	730.8	718.4
67.5°	693.8	681.3	659.2	642.0	632.0
70°	602.4	592.5	570.1	552.9	543.2
72.5°	508.6	498.7	486.4	469.1	461.8
75°	414.6	409.9	397.3	382.7	387.7
77.5°	330.8	320.8	315.8	308.5	301.2
80°	246.9	244.4	239.4	232.1	227.1
82.5°	167.9	167.9	165.5	155.6	155.6
85°	101.1	98.8	96.4	88.8	86.4
87.5°	44.5	39.6	34.6	27.2	24.6
90°	2.6	33.1	55.1	69.2	74.5
92.5°	69.2	58.1	66.3	71.8	74.5
95°	179.4	88.2	107.5	121.7	118.8
97.5°	323.1	96.8	140.7	149.2	151.8
100°	489.0	110.6	157.4	179.4	185.0
102.5°	671.1	665.8	163.0	193.2	201.7
105°	839.6	922.7	168.6	198.8	209.9
107.5°	1035.8	1104.7	174.2	204.3	215.5
110°	1223.7	1281.5	483.4	207.3	218.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1400.5	1450.0	1403.2	212.5	221.0
115°	1588.1	1635.0	1704.2	425.4	226.7
117.5°	1751.1	1806.3	1853.5	1458.2	734.7
120°	1933.5	1974.8	2024.7	2057.9	1684.9
122.5°	2088.0	2132.3	2187.7	2204.1	2207.1
125°	2245.4	2281.5	2334.0	2353.3	2361.5
127.5°	2389.1	2427.8	2469.5	2497.0	2499.6
130°	2524.5	2568.8	2599.0	2629.5	2626.9
132.5°	2662.6	2698.7	2728.8	2753.8	2751.2
135°	2778.7	2823.0	2847.6	2875.5	2869.9
137.5°	2900.1	2933.2	2961.1	2988.6	2980.4
140°	3018.9	3041.1	3071.3	3096.3	3082.5
142.5°	3118.5	3137.9	3173.6	3195.6	3181.8
145°	3223.5	3220.6	3267.4	3286.8	3273.0
147.5°	3314.4	3306.2	3353.1	3366.9	3356.0
150°	3402.9	3383.5	3427.8	3444.2	3430.5
152.5°	3477.3	3455.4	3496.7	3513.4	3494.1
155°	3549.1	3524.5	3557.7	3574.1	3552.2
157.5°	3607.2	3585.2	3610.2	3629.5	3607.2
160°	3657.1	3640.4	3657.1	3673.5	3654.1
162.5°	3701.1	3684.7	3698.4	3717.8	3692.9
165°	3739.7	3723.3	3731.5	3750.9	3731.5
167.5°	3770.3	3753.5	3762.1	3781.4	3756.5
170°	3795.1	3778.5	3784.0	3803.3	3778.5
172.5°	3811.5	3795.1	3800.8	3820.1	3795.1
175°	3825.3	3806.0	3811.5	3831.0	3803.3
177.5°	3831.0	3811.5	3814.6	3833.9	3809.0
180°	3817.2	3817.2	3817.2	3817.2	3817.2

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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	8.39	9.15	9.45	10.21	11.66	7.96	8.72	9.02	9.78	11.23
	3H	10.04	10.72	11.12	11.79	13.26	9.57	10.25	10.64	11.32	12.79
	4H	10.63	11.27	11.71	12.34	13.81	10.15	10.80	11.24	11.87	13.34
	6H	11.02	11.61	12.11	12.69	14.17	10.55	11.14	11.64	12.21	13.70
	8H	11.12	11.68	12.22	12.78	14.26	10.65	11.21	11.74	12.30	13.78
	12H	11.17	11.70	12.27	12.79	14.29	10.69	11.22	11.79	12.31	13.81
4H	2H	8.84	9.48	9.93	10.56	12.03	8.50	9.14	9.59	10.21	11.68
	3H	10.70	11.23	11.79	12.33	13.82	10.30	10.84	11.40	11.94	13.43
	4H	11.41	11.90	12.51	12.99	14.50	11.00	11.49	12.10	12.58	14.09
	6H	11.92	12.34	13.02	13.45	14.95	11.51	11.93	12.62	13.04	14.54
	8H	12.06	12.46	13.17	13.56	15.08	11.65	12.04	12.76	13.15	14.67
	12H	12.13	12.49	13.26	13.61	15.13	11.71	12.07	12.84	13.19	14.71
8H	4H	11.59	11.99	12.70	13.10	14.61	11.23	11.63	12.34	12.74	14.25
	6H	12.22	12.55	13.35	13.70	15.21	11.86	12.18	12.99	13.33	14.84
	8H	12.44	12.73	13.58	13.86	15.39	12.07	12.36	13.21	13.49	15.02
	12H	12.57	12.82	13.71	13.94	15.51	12.18	12.43	13.32	13.56	15.13
12H	4H	11.57	11.93	12.70	13.05	14.57	11.22	11.58	12.35	12.70	14.22
	6H	12.25	12.54	13.39	13.67	15.20	11.90	12.18	13.04	13.31	14.85
	8H	12.49	12.74	13.63	13.86	15.43	12.13	12.38	13.27	13.51	15.08