

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: P904684

Luminaire Tested: DFN2DIP-TR4F0-070D120US830-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P904684
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-TR4F0-070D120US830-RLLFLL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

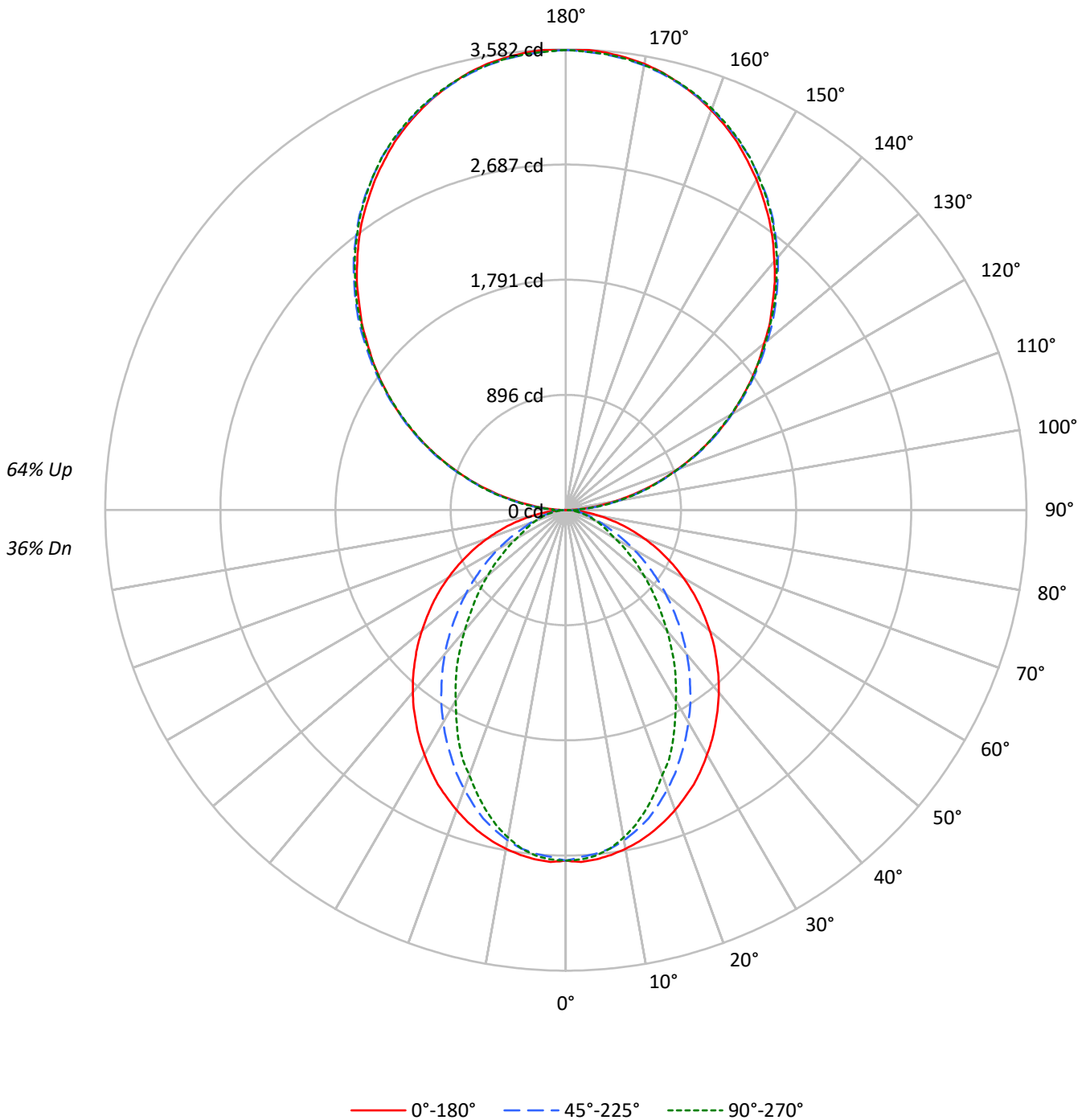
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 15617.9 lumens
Efficiency: N/A
Efficacy: 99.5 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

TEST NUMBER: P904684
CATALOG NUMBER: DFN2DIP-TR4F0-070D120US830-RLLFLL

Luminous Intensity Polar Plot





TEST NUMBER: P904684

CATALOG NUMBER: DFN2DIP-TR4F0-070D120US830-RLLFLL

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

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

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2166	2166	2166
5°	2170	2132	2146
10°	2148	2090	2076
15°	2119	2021	1968
20°	2080	1926	1835
25°	2040	1819	1707
30°	1986	1710	1545
35°	1933	1592	1402
40°	1880	1470	1239
45°	1817	1335	1091
50°	1753	1199	946
55°	1686	1053	807
60°	1608	900	664
65°	1518	746	598
70°	1410	601	541
75°	1273	530	492
80°	1076	445	427
85°	750	296	320

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 2790 cd/sqm



TEST NUMBER: P904684

CATALOG NUMBER: DFN2DIP-TR4F0-070D120US830-RLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	255.6	1.6
10°-20°	701.6	4.5
20°-30°	985.0	6.3
30°-40°	1073.7	6.9
40°-50°	986.9	6.3
50°-60°	775.0	5.0
60°-70°	504.5	3.2
70°-80°	259.7	1.7
80°-90°	76.4	0.5
90°-100°	221.3	1.4
100°-110°	703.3	4.5
110°-120°	1203.6	7.7
120°-130°	1582.9	10.1
130°-140°	1776.7	11.4
140°-150°	1742.3	11.2
150°-160°	1461.5	9.4
160°-170°	969.3	6.2
170°-180°	338.8	2.2
0°-30°	1942.1	12.4
0°-40°	3015.8	19.3
0°-60°	4777.7	30.6
0°-90°	5618.2	36.0
90°-120°	2128.2	13.6
90°-150°	7230.1	46.3
90°-180°	10000.0	64.0
0°-180°	15617.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2727	2727	2727	2727	2727	
5°	2727	2714	2682	2705	2697	259
15°	2594	2566	2483	2436	2411	731
25°	2354	2275	2112	2011	1974	1083
35°	2028	1903	1686	1530	1476	1270
45°	1658	1493	1234	1059	999	1281
55°	1261	1068	802	654	607	1127
65°	851	651	429	346	338	844
75°	454	281	197	180	178	480
85°	106	54	47	47	47	122
90°	3	39	106	99	102	15
95°	157	188	193	193	188	175
105°	649	658	664	670	670	685
115°	1208	1225	1220	1216	1208	1195
125°	1757	1784	1775	1765	1762	1570
135°	2272	2306	2312	2309	2300	1756
145°	2758	2780	2797	2801	2789	1724
155°	3154	3163	3173	3188	3178	1452
165°	3432	3428	3428	3450	3435	968
175°	3571	3562	3556	3577	3559	339
180°	3577	3577	3577	3577	3577	



TEST NUMBER: P904684

CATALOG NUMBER: DFN2DIP-TR4F0-070D120US830-RLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2726.9	2726.9	2726.9	2726.9	2726.9
2.5°	2739.1	2726.9	2699.6	2724.5	2719.5
5°	2726.9	2714.5	2682.4	2704.6	2697.3
7.5°	2704.6	2689.9	2655.4	2665.0	2652.8
10°	2675.0	2657.8	2608.5	2600.9	2586.2
12.5°	2638.1	2615.8	2549.1	2534.4	2507.2
15°	2593.6	2566.4	2482.6	2435.7	2411.1
17.5°	2541.8	2502.3	2398.6	2344.3	2304.8
20°	2482.6	2433.1	2309.8	2248.2	2193.8
22.5°	2418.5	2361.6	2218.4	2134.6	2097.7
25°	2354.3	2275.2	2112.3	2011.3	1974.2
27.5°	2277.8	2193.8	2013.6	1897.7	1840.9
30°	2196.4	2102.4	1905.0	1779.3	1712.6
32.5°	2117.3	2003.8	1801.6	1653.4	1591.6
35°	2028.5	1902.6	1685.6	1530.1	1475.6
37.5°	1942.2	1806.3	1577.0	1406.5	1345.0
40°	1850.8	1702.9	1463.3	1288.2	1224.0
42.5°	1757.1	1599.2	1349.9	1167.2	1105.7
45°	1658.4	1492.9	1234.0	1058.6	999.4
47.5°	1564.6	1389.5	1122.9	947.5	893.3
50°	1460.9	1285.8	1014.3	843.9	792.3
52.5°	1359.6	1174.5	910.6	747.7	700.9
55°	1260.9	1068.5	801.9	654.0	607.2
57.5°	1159.9	962.4	705.9	567.6	528.1
60°	1056.2	858.8	604.5	478.9	439.3
62.5°	955.1	757.7	518.1	399.8	380.1
65°	851.4	651.4	429.4	345.6	338.0
67.5°	752.7	552.7	345.6	303.4	296.1
70°	649.0	456.6	286.2	261.6	251.6
72.5°	550.4	367.6	239.3	219.7	214.7
75°	454.0	281.2	197.4	180.1	177.8
77.5°	357.9	199.7	155.5	145.5	140.6
80°	268.9	143.2	118.4	108.7	108.7
82.5°	187.5	96.3	81.4	76.4	76.4
85°	106.0	54.2	46.8	46.8	46.8
87.5°	39.5	19.6	19.6	17.2	17.2
90°	3.2	38.8	105.7	99.2	102.5
92.5°	66.8	90.6	93.8	97.1	97.1
95°	157.4	187.7	193.0	193.0	187.7
97.5°	262.0	290.1	302.0	302.0	302.0
100°	382.9	407.6	416.2	416.2	413.0
102.5°	510.1	528.4	540.3	543.6	540.3
105°	649.2	657.8	664.3	669.7	669.7
107.5°	787.2	800.2	800.2	802.3	787.2
110°	921.0	938.2	938.2	938.2	929.6



TEST NUMBER: P904684

CATALOG NUMBER: DFN2DIP-TR4F0-070D120US830-RLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1065.4	1083.8	1080.5	1072.0	1065.4
115°	1207.8	1225.1	1219.6	1216.4	1207.8
117.5°	1349.1	1372.8	1357.7	1349.1	1340.5
120°	1491.5	1515.1	1491.5	1491.5	1481.8
122.5°	1620.9	1651.1	1636.0	1627.3	1620.9
125°	1756.7	1783.7	1775.1	1765.4	1762.1
127.5°	1889.4	1922.8	1910.9	1898.0	1889.4
130°	2013.4	2052.2	2046.8	2040.3	2028.4
132.5°	2152.5	2182.7	2184.8	2169.7	2161.2
135°	2272.2	2305.6	2312.2	2308.9	2300.3
137.5°	2405.9	2432.9	2438.3	2436.1	2423.2
140°	2523.5	2550.4	2565.5	2565.5	2553.6
142.5°	2644.3	2671.3	2679.8	2683.0	2671.3
145°	2758.5	2780.1	2797.4	2800.7	2788.8
147.5°	2861.0	2887.9	2901.0	2906.3	2894.5
150°	2966.7	2985.0	2996.9	3006.6	2996.9
152.5°	3060.5	3078.8	3094.0	3105.9	3094.0
155°	3154.3	3163.0	3172.7	3187.8	3178.1
157.5°	3235.3	3241.7	3247.1	3268.6	3253.6
160°	3307.5	3314.0	3317.2	3335.6	3322.6
162.5°	3374.3	3374.3	3377.6	3398.1	3383.0
165°	3431.5	3428.3	3428.3	3449.8	3434.7
167.5°	3483.3	3473.6	3473.6	3495.1	3480.1
170°	3522.1	3513.4	3510.2	3531.8	3513.4
172.5°	3549.0	3540.4	3537.2	3558.8	3540.4
175°	3570.6	3562.0	3555.6	3577.0	3558.8
177.5°	3582.5	3573.8	3567.3	3585.7	3567.3
180°	3577.0	3577.0	3577.0	3577.0	3577.0



TEST NUMBER: P904684
 CATALOG NUMBER: DFN2DIP-TR4F0-070D120US830-RLLFLL

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	8.35	9.08	9.43	10.15	11.61	4.33	5.06	5.40	6.13	7.59
	3H	10.02	10.67	11.11	11.75	13.23	5.51	6.16	6.59	7.24	8.72
	4H	10.63	11.24	11.72	12.33	13.81	5.96	6.57	7.05	7.65	9.14
	6H	11.04	11.61	12.15	12.70	14.19	6.27	6.84	7.38	7.92	9.42
	8H	11.17	11.71	12.27	12.81	14.30	6.36	6.90	7.47	8.00	9.49
	12H	11.23	11.74	12.34	12.83	14.35	6.40	6.91	7.51	8.01	9.52
4H	2H	8.36	8.98	9.46	10.06	11.54	4.91	5.53	6.01	6.61	8.09
	3H	10.18	10.69	11.29	11.80	13.30	6.25	6.77	7.36	7.87	9.37
	4H	10.87	11.34	11.98	12.44	13.96	6.80	7.27	7.91	8.37	9.88
	6H	11.38	11.78	12.50	12.90	14.41	7.21	7.61	8.33	8.74	10.25
	8H	11.55	11.93	12.67	13.04	14.57	7.34	7.72	8.46	8.83	10.36
	12H	11.64	11.98	12.78	13.11	14.64	7.40	7.74	8.54	8.87	10.40
8H	4H	10.83	11.20	11.95	12.32	13.84	7.07	7.45	8.19	8.56	10.09
	6H	11.39	11.70	12.53	12.86	14.38	7.59	7.90	8.73	9.05	10.57
	8H	11.61	11.88	12.75	13.01	14.56	7.78	8.05	8.92	9.18	10.73
	12H	11.74	11.98	12.89	13.11	14.69	7.89	8.13	9.04	9.26	10.84
12H	4H	10.78	11.12	11.91	12.24	13.77	7.07	7.41	8.21	8.54	10.07
	6H	11.37	11.64	12.51	12.77	14.32	7.63	7.91	8.78	9.04	10.59
	8H	11.58	11.82	12.73	12.95	14.53	7.84	8.08	8.99	9.21	10.79