

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: P904857

Luminaire Tested: DFN2DIP-TR4F0-120D100US830-RLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P904857
REPORT IS A COMBINATION OF REPORTS P902014 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-120D100US830-RLLONL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

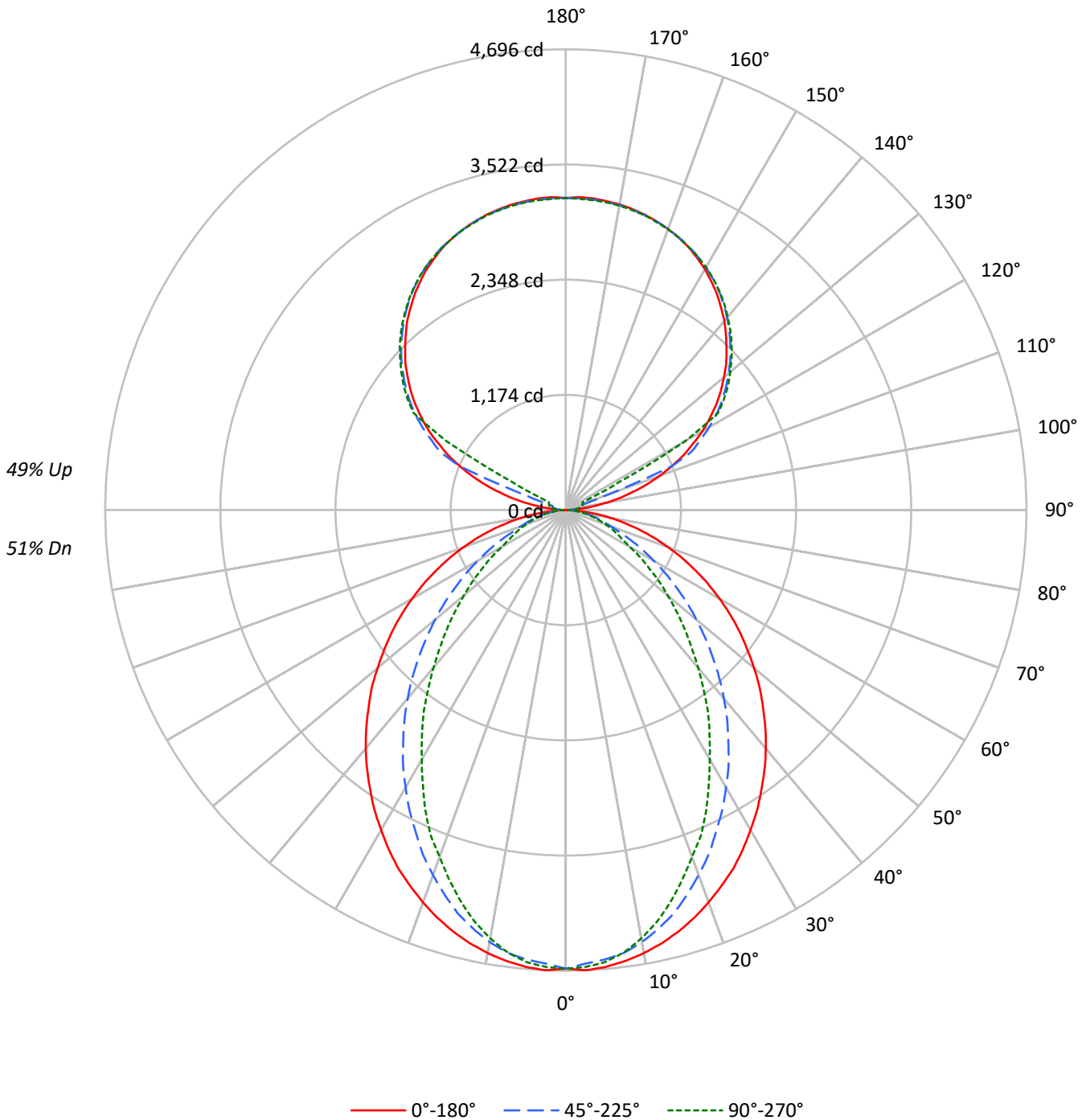
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 18945.1 lumens
Efficiency: N/A
Efficacy: 93.8 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): 202
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9821
Total Harmonic Distortion (THDi): 0.08
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P904857
CATALOG NUMBER: DFN2DIP-TR4F0-120D100US830-RLLONL

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	107	107	107	107	99	99	99	99	84	84	84	70	70	70	57	57	57	57	57	57	51
1	98	94	91	87	91	87	84	81	74	72	70	62	61	59	51	50	49	51	50	49	44
2	90	83	77	72	83	77	72	67	66	62	59	55	52	50	45	44	42	45	44	42	37
3	82	73	66	61	76	68	62	57	58	54	50	49	46	43	41	38	36	41	38	36	32
4	76	65	58	52	70	61	54	49	52	47	43	44	40	37	37	34	32	37	34	32	28
5	70	58	50	45	64	54	47	42	47	41	37	40	36	33	33	30	28	33	30	28	25
6	64	53	45	39	59	49	42	37	42	37	33	36	32	29	30	27	25	30	27	25	22
7	60	48	40	34	55	45	38	33	39	33	29	33	29	26	28	25	22	28	25	22	20
8	55	43	36	31	51	41	34	29	35	30	26	30	26	23	26	23	20	26	23	20	18
9	52	40	32	27	48	37	31	26	32	27	23	28	24	21	24	21	18	24	21	18	16
10	48	36	29	25	45	34	28	24	30	25	21	26	22	19	22	19	17	22	19	17	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3714	3714	3714
5°	3720	3655	3678
10°	3683	3583	3558
15°	3632	3465	3373
20°	3565	3301	3146
25°	3497	3118	2927
30°	3404	2931	2648
35°	3314	2729	2404
40°	3222	2520	2124
45°	3115	2288	1870
50°	3005	2055	1622
55°	2890	1805	1384
60°	2756	1544	1139
65°	2603	1278	1025
70°	2417	1030	927
75°	2183	908	843
80°	1845	761	731
85°	1286	508	549

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 3115 cd/sqm



TEST NUMBER: P904857

CATALOG NUMBER: DFN2DIP-TR4F0-120D100US830-RLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	438.1	2.3
10°-20°	1202.7	6.3
20°-30°	1688.5	8.9
30°-40°	1840.6	9.7
40°-50°	1691.7	8.9
50°-60°	1328.6	7.0
60°-70°	864.8	4.6
70°-80°	445.2	2.3
80°-90°	119.2	0.6
90°-100°	104.9	0.6
100°-110°	391.0	2.1
110°-120°	1037.0	5.5
120°-130°	1720.0	9.1
130°-140°	1827.0	9.6
140°-150°	1698.0	9.0
150°-160°	1365.2	7.2
160°-170°	879.7	4.6
170°-180°	302.8	1.6
0°-30°	3329.4	17.6
0°-40°	5170.0	27.3
0°-60°	8190.3	43.2
0°-90°	9619.5	50.8
90°-120°	1532.9	8.1
90°-150°	6778.0	35.8
90°-180°	9326.0	49.2
0°-180°	18945.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4675	4675	4675	4675	4675	
5°	4675	4654	4598	4636	4624	443
15°	4446	4400	4256	4176	4133	1253
25°	4036	3900	3621	3448	3384	1856
35°	3478	3262	2890	2623	2530	2177
45°	2843	2559	2115	1815	1713	2195
55°	2162	1832	1375	1121	1041	1932
65°	1460	1117	736	592	580	1447
75°	778	482	338	309	305	823
85°	182	93	80	80	80	209
90°	2	28	46	58	62	18
95°	150	74	90	101	99	177
105°	700	769	140	166	175	748
115°	1323	1362	1420	354	189	1303
125°	1871	1901	1945	1961	1968	1669
135°	2316	2352	2373	2396	2392	1789
145°	2686	2684	2723	2739	2728	1680
155°	2958	2937	2965	2978	2960	1363
165°	3116	3103	3110	3126	3110	880
175°	3188	3172	3176	3192	3170	303
180°	3181	3181	3181	3181	3181	



TEST NUMBER: P904857

CATALOG NUMBER: DFN2DIP-TR4F0-120D100US830-RLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4674.6	4674.6	4674.6	4674.6	4674.6
2.5°	4695.7	4674.6	4628.0	4670.6	4662.0
5°	4674.6	4653.5	4598.3	4636.5	4623.9
7.5°	4636.5	4611.3	4552.1	4568.7	4547.6
10°	4585.8	4556.2	4471.7	4458.7	4433.6
12.5°	4522.4	4484.3	4369.8	4344.7	4298.1
15°	4446.2	4399.5	4255.9	4175.5	4133.3
17.5°	4357.3	4289.5	4111.7	4018.9	3951.1
20°	4255.9	4171.0	3959.6	3854.1	3760.7
22.5°	4145.9	4048.5	3803.0	3659.3	3596.1
25°	4036.0	3900.3	3621.2	3447.9	3384.2
27.5°	3904.9	3760.7	3452.0	3253.2	3155.7
30°	3765.3	3604.2	3265.7	3050.3	2935.8
32.5°	3629.7	3434.9	3088.4	2834.4	2728.5
35°	3477.6	3261.7	2889.6	2623.0	2529.6
37.5°	3329.4	3096.5	2703.3	2411.1	2305.6
40°	3172.8	2919.2	2508.6	2208.3	2098.3
42.5°	3012.1	2741.5	2314.2	2000.9	1895.5
45°	2842.9	2559.3	2115.3	1814.7	1713.2
47.5°	2682.2	2382.0	1925.0	1624.4	1531.4
50°	2504.5	2204.2	1738.8	1446.6	1358.2
52.5°	2330.8	2013.5	1561.0	1281.9	1201.6
55°	2161.6	1831.7	1374.8	1121.2	1040.8
57.5°	1988.3	1649.9	1210.0	973.1	905.3
60°	1810.6	1472.2	1036.3	821.0	753.2
62.5°	1637.4	1298.9	888.3	685.4	651.7
65°	1459.6	1116.7	736.1	592.5	579.5
67.5°	1290.4	947.4	592.5	520.2	507.7
70°	1112.7	782.8	490.6	448.4	431.3
72.5°	943.5	630.2	410.2	376.5	368.1
75°	778.3	482.0	338.5	308.8	304.7
77.5°	613.6	342.4	266.6	249.6	241.0
80°	461.0	245.5	202.8	186.2	186.2
82.5°	321.4	165.1	139.6	131.0	131.0
85°	181.8	92.9	80.3	80.3	80.3
87.5°	67.8	33.6	33.6	29.6	29.6
90°	2.2	27.6	45.9	57.7	62.0
92.5°	57.7	48.4	55.2	59.9	62.0
95°	149.5	73.5	89.6	101.4	99.0
97.5°	269.2	80.6	117.3	124.3	126.6
100°	407.6	92.1	131.2	149.5	154.2
102.5°	559.2	554.9	135.8	161.0	168.1
105°	699.7	768.8	140.5	165.6	174.9
107.5°	863.2	920.6	145.2	170.3	179.6
110°	1019.7	1067.9	402.8	172.8	181.7



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CATALOG NUMBER: DFN2DIP-TR4F0-120D100US830-RLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1167.1	1208.3	1169.3	177.1	184.3
115°	1323.4	1362.5	1420.2	354.5	188.9
117.5°	1459.2	1505.2	1544.5	1215.2	612.3
120°	1611.3	1645.7	1687.2	1714.9	1404.1
122.5°	1740.0	1776.9	1823.1	1836.7	1839.2
125°	1871.2	1901.3	1945.0	1961.1	1967.9
127.5°	1990.9	2023.2	2057.9	2080.9	2083.0
130°	2103.8	2140.7	2165.9	2191.2	2189.1
132.5°	2218.8	2248.9	2274.1	2294.8	2292.6
135°	2315.6	2352.5	2373.0	2396.2	2391.6
137.5°	2416.8	2444.4	2467.6	2490.6	2483.7
140°	2515.6	2534.3	2559.4	2580.2	2568.7
142.5°	2598.8	2614.9	2644.7	2663.0	2651.6
145°	2686.2	2683.8	2722.9	2739.0	2727.5
147.5°	2761.9	2755.1	2794.2	2805.7	2796.7
150°	2835.7	2819.6	2856.6	2870.2	2858.7
152.5°	2897.8	2879.5	2914.0	2927.8	2911.7
155°	2957.7	2937.2	2964.8	2978.4	2960.1
157.5°	3006.1	2987.8	3008.5	3024.6	3006.1
160°	3047.6	3033.7	3047.6	3061.3	3045.2
162.5°	3084.2	3070.5	3082.0	3098.1	3077.4
165°	3116.4	3102.8	3109.6	3125.8	3109.6
167.5°	3141.9	3127.9	3135.1	3151.2	3130.4
170°	3162.6	3148.8	3153.4	3169.5	3148.8
172.5°	3176.3	3162.6	3167.3	3183.4	3162.6
175°	3187.8	3171.7	3176.3	3192.5	3169.5
177.5°	3192.5	3176.3	3178.8	3194.9	3174.1
180°	3181.0	3181.0	3181.0	3181.0	3181.0



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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	11.77	12.61	12.73	13.58	14.84	7.75	8.58	8.70	9.55	10.81
	3H	13.45	14.20	14.42	15.18	16.46	8.94	9.68	9.91	10.66	11.95
	4H	14.06	14.77	15.04	15.75	17.04	9.39	10.09	10.37	11.08	12.37
	6H	14.48	15.13	15.47	16.12	17.42	9.71	10.36	10.70	11.35	12.65
	8H	14.61	15.23	15.61	16.23	17.53	9.80	10.42	10.80	11.42	12.73
	12H	14.67	15.26	15.67	16.25	17.58	9.85	10.43	10.85	11.43	12.76
4H	2H	11.79	12.50	12.78	13.48	14.77	8.34	9.05	9.33	10.03	11.32
	3H	13.62	14.21	14.62	15.22	16.53	9.69	10.28	10.69	11.29	12.60
	4H	14.31	14.85	15.32	15.85	17.19	10.24	10.78	11.25	11.78	13.11
	6H	14.83	15.29	15.85	16.32	17.65	10.66	11.12	11.68	12.15	13.48
	8H	15.00	15.44	16.02	16.45	17.80	10.79	11.22	11.81	12.24	13.59
	12H	15.10	15.49	16.14	16.52	17.87	10.86	11.25	11.89	12.28	13.63
8H	4H	14.28	14.71	15.30	15.73	17.08	10.52	10.95	11.54	11.97	13.32
	6H	14.85	15.20	15.89	16.27	17.61	11.04	11.40	12.08	12.46	13.80
	8H	15.07	15.38	16.11	16.43	17.79	11.23	11.55	12.28	12.60	13.95
	12H	15.20	15.48	16.26	16.52	17.92	11.35	11.63	12.41	12.67	14.08
12H	4H	14.23	14.62	15.27	15.66	17.01	10.53	10.92	11.56	11.95	13.30
	6H	14.82	15.14	15.87	16.18	17.54	11.09	11.41	12.14	12.45	13.81
	8H	15.04	15.32	16.10	16.36	17.77	11.30	11.58	12.36	12.62	14.02