

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: P903459

Luminaire Tested: DFN2DIP-PN4F0-120D100US830-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P903459
REPORT IS A COMBINATION OF REPORTS P901254 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-120D100US830-RLLONL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

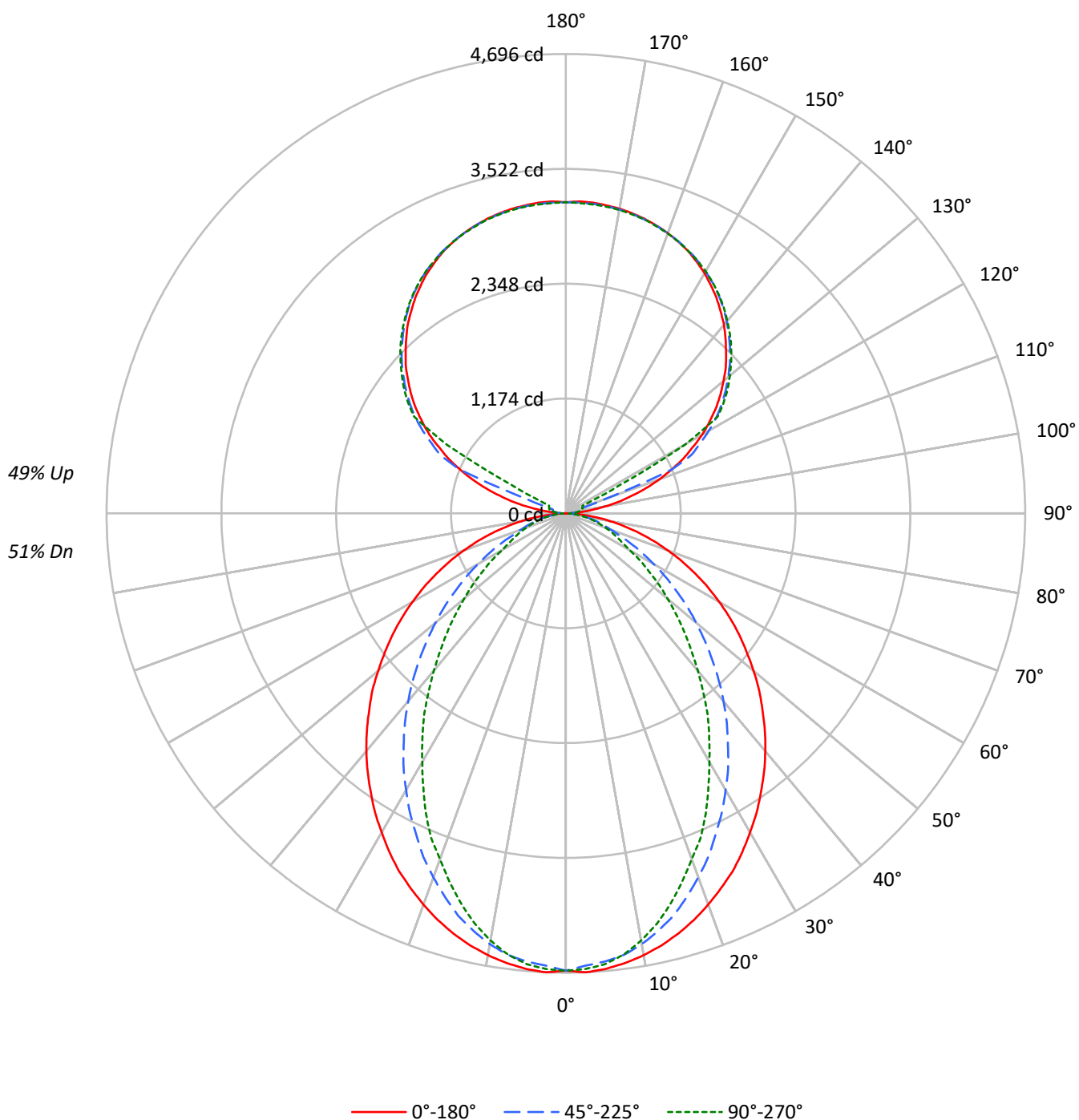
Lumens per Lamp: N/A
Luminaire Lumens: 18945.1 lumens
Efficiency: N/A
Efficacy: 94.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 201.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9781
Total Harmonic Distortion (THDi): 0.075
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	107	107	107	107	99	99	99	99	84	84	84	70	70	70	57	57	57
1	98	94	91	87	91	87	84	81	74	72	70	62	61	59	51	50	49
2	90	83	77	72	83	77	72	67	66	62	59	55	52	50	45	44	42
3	82	73	66	61	76	68	62	57	58	54	50	49	46	43	41	38	36
4	76	65	58	52	70	61	54	49	52	47	43	44	40	37	37	34	32
5	70	58	50	45	64	54	47	42	47	41	37	40	36	33	33	30	28
6	64	53	45	39	59	49	42	37	42	37	33	36	32	29	30	27	25
7	60	48	40	34	55	45	38	33	39	33	29	33	29	26	28	25	22
8	55	43	36	31	51	41	34	29	35	30	26	30	26	23	26	23	20
9	52	40	32	27	48	37	31	26	32	27	23	28	24	21	24	21	18
10	48	36	29	25	45	34	28	24	30	25	21	26	22	19	22	19	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3412	3412	3412
5°	3418	3359	3380
10°	3384	3293	3271
15°	3337	3185	3101
20°	3276	3035	2893
25°	3213	2867	2692
30°	3128	2695	2437
35°	3045	2510	2213
40°	2960	2319	1956
45°	2862	2106	1723
50°	2761	1892	1495
55°	2655	1662	1276
60°	2532	1422	1051
65°	2391	1178	947
70°	2220	951	858
75°	2005	839	781
80°	1694	705	680
85°	1180	473	515

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2862 cd/sqm

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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	

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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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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	11.49	12.33	12.45	13.30	14.56	7.46	8.29	8.41	9.26	10.52
	3H	13.17	13.92	14.14	14.90	16.18	8.65	9.39	9.61	10.37	11.66
	4H	13.78	14.49	14.77	15.47	16.76	9.10	9.80	10.08	10.79	12.08
	6H	14.21	14.86	15.20	15.84	17.15	9.42	10.07	10.41	11.06	12.36
	8H	14.34	14.95	15.33	15.96	17.26	9.51	10.13	10.51	11.13	12.43
	12H	14.40	14.99	15.40	15.98	17.31	9.55	10.14	10.56	11.14	12.47
4H	2H	11.51	12.22	12.50	13.20	14.49	8.05	8.76	9.04	9.74	11.04
	3H	13.34	13.93	14.34	14.94	16.25	9.41	9.99	10.40	11.00	12.31
	4H	14.04	14.57	15.04	15.58	16.91	9.95	10.49	10.96	11.49	12.83
	6H	14.56	15.02	15.57	16.04	17.37	10.38	10.84	11.39	11.86	13.19
	8H	14.73	15.16	15.75	16.18	17.53	10.50	10.93	11.52	11.95	13.30
	12H	14.83	15.22	15.87	16.25	17.60	10.57	10.96	11.61	11.99	13.34
8H	4H	14.01	14.44	15.02	15.46	16.80	10.24	10.67	11.25	11.69	13.03
	6H	14.58	14.93	15.62	15.99	17.33	10.76	11.11	11.80	12.17	13.51
	8H	14.79	15.11	15.84	16.15	17.51	10.95	11.26	12.00	12.31	13.67
	12H	14.94	15.21	15.99	16.25	17.66	11.07	11.34	12.12	12.39	13.79
12H	4H	13.96	14.35	14.99	15.38	16.73	10.24	10.63	11.28	11.67	13.01
	6H	14.55	14.86	15.60	15.91	17.27	10.81	11.12	11.86	12.17	13.53
	8H	14.77	15.05	15.83	16.09	17.49	11.02	11.29	12.07	12.34	13.74