

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: P904187

Luminaire Tested: DFN2DIP-SQ4F0-120D160US830-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P904187
REPORT IS A COMBINATION OF REPORTS P901736 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-120D160US830-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

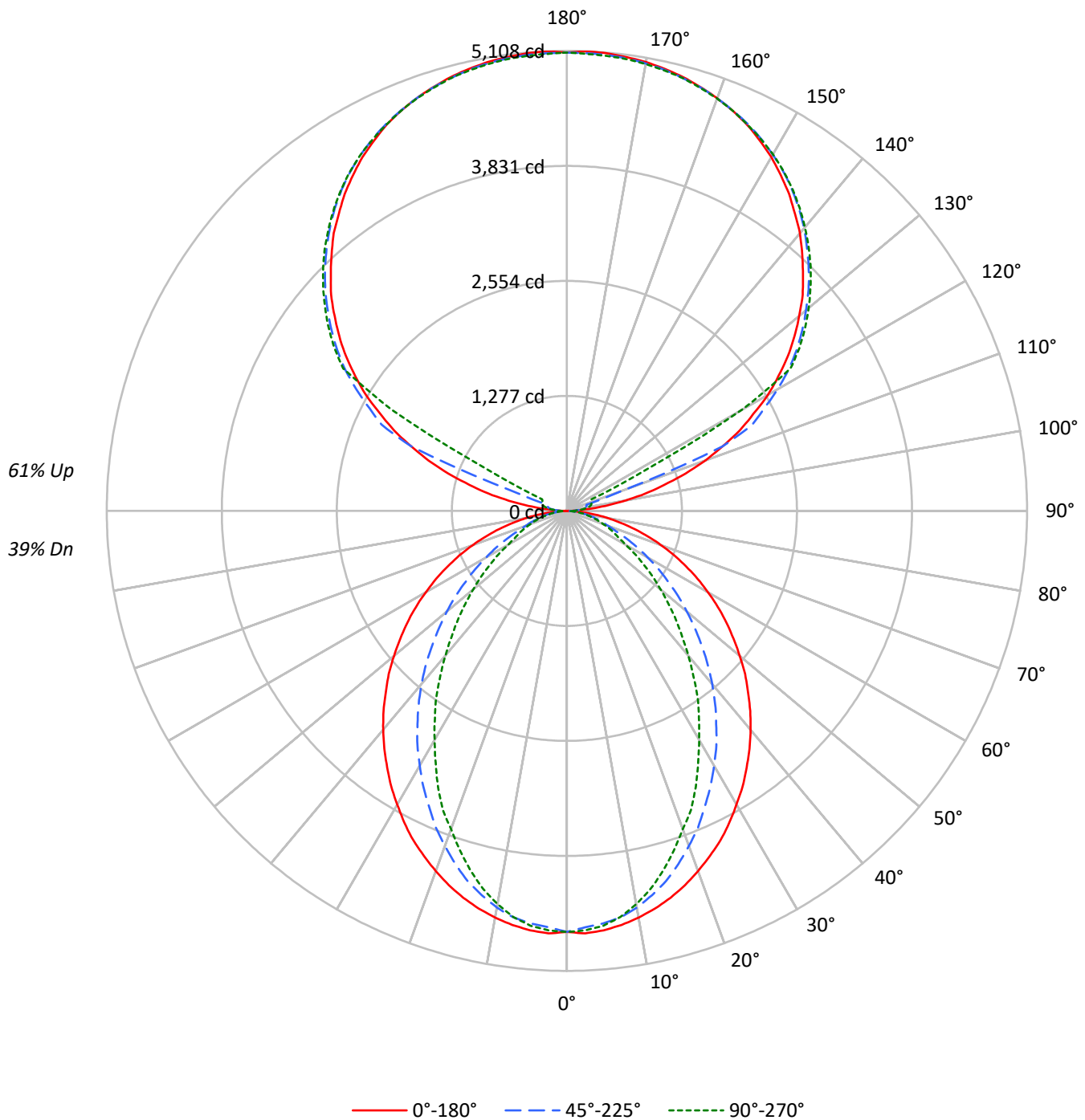
Lumens per Lamp: N/A
Luminaire Lumens: 24543.8 lumens
Efficiency: N/A
Efficacy: 102.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 239.7
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9933
Total Harmonic Distortion (THDi): 0.066
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P904187

CATALOG NUMBER: DFN2DIP-SQ4F0-120D160US830-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
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	105	105	105	105	95	95	95	95	77	77	77	61	61	61	46	46	46
1	96	92	88	85	87	83	80	78	68	66	64	54	53	52	41	41	40
2	87	80	75	70	79	73	68	64	60	57	54	48	46	44	37	35	34
3	80	71	64	58	73	65	59	54	53	49	46	43	40	37	33	31	29
4	73	63	55	50	67	58	51	46	48	43	39	38	35	32	30	27	26
5	67	56	48	43	61	52	45	40	43	38	34	35	31	28	27	25	23
6	62	51	43	37	56	46	40	35	39	34	30	31	28	25	25	22	20
7	57	46	38	33	52	42	35	31	35	30	26	29	25	22	23	20	18
8	53	42	34	29	49	38	32	27	32	27	23	26	22	20	21	18	16
9	50	38	31	26	45	35	29	24	29	24	21	24	20	18	19	17	15
10	46	35	28	23	42	32	26	22	27	22	19	22	19	16	18	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3280	3280	3280
5°	3285	3229	3250
10°	3253	3166	3145
15°	3208	3062	2982
20°	3149	2918	2782
25°	3088	2757	2589
30°	3006	2592	2344
35°	2927	2414	2129
40°	2845	2230	1882
45°	2751	2026	1658
50°	2653	1820	1439
55°	2551	1599	1228
60°	2433	1369	1012
65°	2298	1134	912
70°	2133	916	827
75°	1926	809	754
80°	1627	680	657
85°	1133	458	500

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2751 cd/sqm

TEST NUMBER: P904187

CATALOG NUMBER: DFN2DIP-SQ4F0-120D160US830-RLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	438.1	1.8
10°-20°	1202.7	4.9
20°-30°	1688.5	6.9
30°-40°	1840.6	7.5
40°-50°	1691.7	6.9
50°-60°	1328.6	5.4
60°-70°	864.8	3.5
70°-80°	445.2	1.8
80°-90°	122.6	0.5
90°-100°	167.8	0.7
100°-110°	625.6	2.5
110°-120°	1659.3	6.8
120°-130°	2752.0	11.2
130°-140°	2923.2	11.9
140°-150°	2716.8	11.1
150°-160°	2184.3	8.9
160°-170°	1407.5	5.7
170°-180°	484.4	2.0
0°-30°	3329.4	13.6
0°-40°	5170.0	21.1
0°-60°	8190.3	33.4
0°-90°	9622.9	39.2
90°-120°	2452.7	10.0
90°-150°	10844.8	44.2
90°-180°	14921.0	60.8
0°-180°	24543.8	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°	4	44	73	92	99	23
95°	239	118	144	162	158	283
105°	1120	1230	225	265	280	1196
115°	2118	2180	2272	567	302	2085
125°	2994	3042	3112	3138	3149	2670
135°	3705	3764	3797	3834	3826	2862
145°	4298	4294	4357	4382	4364	2688
155°	4732	4699	4744	4766	4736	2181
165°	4986	4964	4975	5001	4975	1409
175°	5100	5075	5082	5108	5071	485
180°	5090	5090	5090	5090	5090	

TEST NUMBER: P904187

CATALOG NUMBER: DFN2DIP-SQ4F0-120D160US830-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°	3.5	44.2	73.4	92.3	99.2
92.5°	92.3	77.4	88.3	95.8	99.2
95°	239.2	117.6	143.5	162.2	158.3
97.5°	430.7	129.0	187.6	199.0	202.5
100°	652.1	147.4	209.9	239.2	246.7
102.5°	894.8	887.8	217.4	257.6	268.9
105°	1119.6	1230.2	224.8	265.0	279.8
107.5°	1381.0	1472.9	232.2	272.5	287.3
110°	1631.6	1708.6	644.6	276.4	290.8

TEST NUMBER: P904187

CATALOG NUMBER: DFN2DIP-SQ4F0-120D160US830-RLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1867.4	1933.4	1870.9	283.4	294.7
115°	2117.5	2180.0	2272.3	567.2	302.2
117.5°	2334.9	2408.3	2471.3	1944.4	979.6
120°	2578.0	2633.1	2699.5	2743.7	2246.5
122.5°	2784.0	2843.0	2916.9	2938.8	2942.7
125°	2993.9	3042.0	3112.0	3137.8	3148.8
127.5°	3185.4	3237.1	3292.6	3329.3	3332.8
130°	3366.1	3425.1	3465.4	3506.0	3502.5
132.5°	3550.2	3598.2	3638.5	3671.8	3668.3
135°	3704.9	3764.0	3796.8	3834.0	3826.5
137.5°	3866.8	3911.0	3948.1	3984.9	3973.9
140°	4025.1	4054.8	4095.1	4128.3	4110.0
142.5°	4158.0	4183.9	4231.5	4260.9	4242.5
145°	4298.0	4294.0	4356.6	4382.4	4364.1
147.5°	4419.1	4408.2	4470.8	4489.1	4474.6
150°	4537.2	4511.4	4570.5	4592.3	4574.0
152.5°	4636.5	4607.1	4662.3	4684.6	4658.8
155°	4732.2	4699.4	4743.6	4765.5	4736.2
157.5°	4809.7	4780.4	4813.6	4839.4	4809.7
160°	4876.1	4853.8	4876.1	4898.0	4872.2
162.5°	4934.8	4912.9	4931.2	4957.0	4923.8
165°	4986.3	4964.5	4975.4	5001.2	4975.4
167.5°	5027.0	5004.7	5016.1	5041.8	5008.7
170°	5060.2	5038.0	5045.3	5071.2	5038.0
172.5°	5082.1	5060.2	5067.7	5093.5	5060.2
175°	5100.5	5074.6	5082.1	5107.9	5071.2
177.5°	5107.9	5082.1	5086.1	5111.9	5078.6
180°	5089.5	5089.5	5089.5	5089.5	5089.5

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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	10.19	10.94	11.24	11.99	13.41	6.15	6.90	7.20	7.95	9.37
	3H	11.86	12.53	12.92	13.59	15.03	7.33	8.00	8.39	9.06	10.50
	4H	12.47	13.11	13.54	14.17	15.61	7.78	8.41	8.85	9.48	10.92
	6H	12.89	13.48	13.97	14.54	16.00	8.10	8.68	9.18	9.75	11.20
	8H	13.02	13.57	14.10	14.66	16.11	8.18	8.74	9.27	9.82	11.27
	12H	13.08	13.61	14.17	14.68	16.16	8.23	8.75	9.32	9.83	11.30
4H	2H	10.20	10.83	11.27	11.89	13.34	6.74	7.37	7.82	8.43	9.88
	3H	12.02	12.55	13.11	13.64	15.10	8.08	8.61	9.17	9.70	11.16
	4H	12.72	13.20	13.81	14.28	15.76	8.63	9.11	9.72	10.19	11.67
	6H	13.23	13.64	14.33	14.75	16.22	9.04	9.46	10.14	10.56	12.03
	8H	13.41	13.79	14.51	14.89	16.38	9.17	9.56	10.27	10.65	12.14
	12H	13.50	13.85	14.62	14.96	16.45	9.23	9.58	10.35	10.69	12.18
8H	4H	12.68	13.06	13.78	14.16	15.65	8.90	9.29	10.00	10.38	11.87
	6H	13.25	13.56	14.37	14.70	16.19	9.42	9.74	10.54	10.88	12.36
	8H	13.46	13.74	14.59	14.86	16.37	9.61	9.89	10.74	11.01	12.51
	12H	13.60	13.85	14.73	14.96	16.51	9.73	9.97	10.86	11.09	12.63
12H	4H	12.63	12.98	13.74	14.08	15.58	8.90	9.25	10.02	10.36	11.86
	6H	13.22	13.50	14.35	14.62	16.12	9.47	9.75	10.60	10.87	12.37
	8H	13.44	13.69	14.57	14.80	16.34	9.68	9.92	10.81	11.04	12.58

END OF REPORT