

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: P904865

Luminaire Tested: DFN2DIP-TR4F0-120D120US830-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P904865
REPORT IS A COMBINATION OF REPORTS P902050 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-120D120US830-RLLONL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

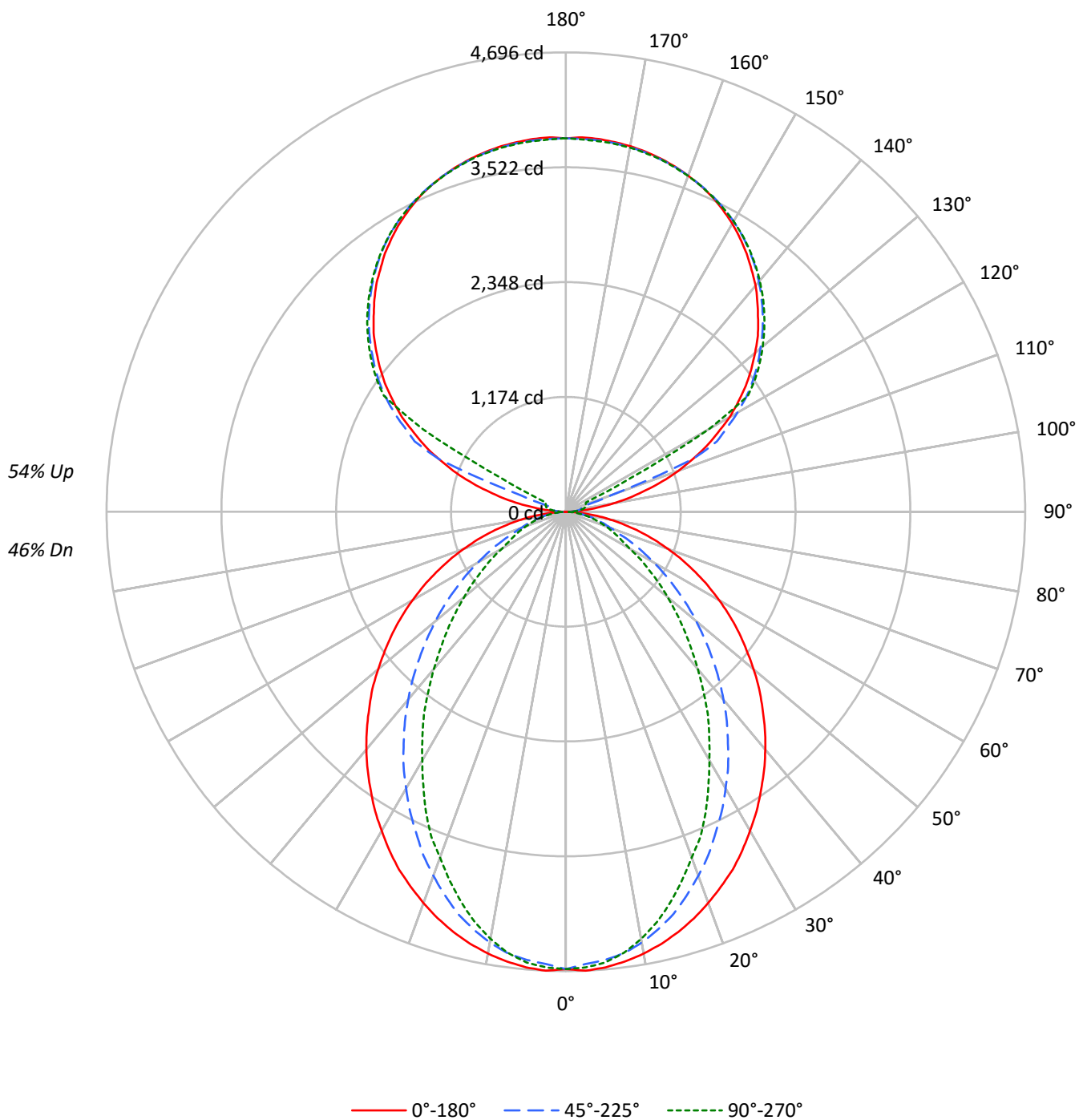
Lumens per Lamp: N/A
Luminaire Lumens: 20811.3 lumens
Efficiency: N/A
Efficacy: 95.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 217
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

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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	106	106	106	106	98	98	98	98	81	81	81	66	66	66	53	53	53
1	97	93	90	86	89	86	83	80	72	70	68	59	58	56	47	46	45
2	89	82	76	71	82	76	70	66	63	60	57	52	50	48	42	40	39
3	81	72	65	60	75	67	61	56	56	52	48	47	43	41	38	35	34
4	75	64	57	51	68	60	53	48	50	45	41	42	38	35	34	31	29
5	69	58	50	44	63	53	46	41	45	40	36	38	34	31	31	28	26
6	63	52	44	38	58	48	41	36	41	36	32	34	30	27	28	25	23
7	59	47	39	34	54	44	37	32	37	32	28	31	27	24	26	23	21
8	55	43	35	30	50	40	33	28	34	29	25	29	25	22	24	21	19
9	51	39	32	27	47	36	30	25	31	26	22	27	23	20	22	19	17
10	48	36	29	24	44	33	27	23	29	24	20	25	21	18	20	18	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

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	438.1	2.1
10°-20°	1202.7	5.8
20°-30°	1688.5	8.1
30°-40°	1840.6	8.8
40°-50°	1691.7	8.1
50°-60°	1328.6	6.4
60°-70°	864.8	4.2
70°-80°	445.2	2.1
80°-90°	120.3	0.6
90°-100°	125.9	0.6
100°-110°	469.2	2.3
110°-120°	1244.4	6.0
120°-130°	2064.0	9.9
130°-140°	2192.4	10.5
140°-150°	2037.6	9.8
150°-160°	1638.2	7.9
160°-170°	1055.6	5.1
170°-180°	363.3	1.7
0°-30°	3329.4	16.0
0°-40°	5170.0	24.8
0°-60°	8190.3	39.4
0°-90°	9620.6	46.2
90°-120°	1839.5	8.8
90°-150°	8133.6	39.1
90°-180°	11191.0	53.8
0°-180°	20811.3	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°	3	33	55	69	74	19
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°	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°	2.6	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	11.34	12.14	12.33	13.14	14.47	7.31	8.11	8.31	9.11	10.44
	3H	13.01	13.73	14.02	14.74	16.09	8.50	9.21	9.50	10.23	11.57
	4H	13.62	14.30	14.64	15.31	16.67	8.95	9.62	9.97	10.64	12.00
	6H	14.04	14.66	15.07	15.68	17.05	9.27	9.89	10.30	10.91	12.28
	8H	14.16	14.76	15.20	15.79	17.16	9.36	9.95	10.39	10.99	12.35
	12H	14.23	14.79	15.26	15.82	17.20	9.40	9.96	10.44	10.99	12.38
4H	2H	11.35	12.03	12.38	13.04	14.40	7.90	8.58	8.93	9.59	10.95
	3H	13.18	13.74	14.21	14.78	16.15	9.25	9.81	10.28	10.86	12.23
	4H	13.87	14.38	14.91	15.42	16.81	9.80	10.31	10.84	11.35	12.74
	6H	14.38	14.82	15.43	15.88	17.27	10.22	10.66	11.27	11.72	13.10
	8H	14.56	14.97	15.61	16.02	17.42	10.35	10.76	11.40	11.81	13.21
	12H	14.65	15.02	15.72	16.09	17.50	10.41	10.78	11.48	11.85	13.25
8H	4H	13.83	14.25	14.89	15.30	16.70	10.08	10.49	11.13	11.54	12.94
	6H	14.40	14.74	15.47	15.83	17.23	10.59	10.93	11.67	12.03	13.43
	8H	14.62	14.91	15.70	15.99	17.41	10.79	11.08	11.87	12.16	13.58
	12H	14.75	15.02	15.84	16.09	17.55	10.90	11.17	11.99	12.24	13.70
12H	4H	13.79	14.16	14.85	15.22	16.63	10.08	10.45	11.15	11.52	12.92
	6H	14.38	14.67	15.46	15.75	17.17	10.64	10.94	11.72	12.02	13.44
	8H	14.59	14.86	15.68	15.93	17.39	10.85	11.12	11.94	12.19	13.65

END OF REPORT