

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: P904860

Luminaire Tested: DFN2DIP-TR4F0-120D110US830-RLFL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P904860
REPORT IS A COMBINATION OF REPORTS P900512 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-120D110US830-RLLFLL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

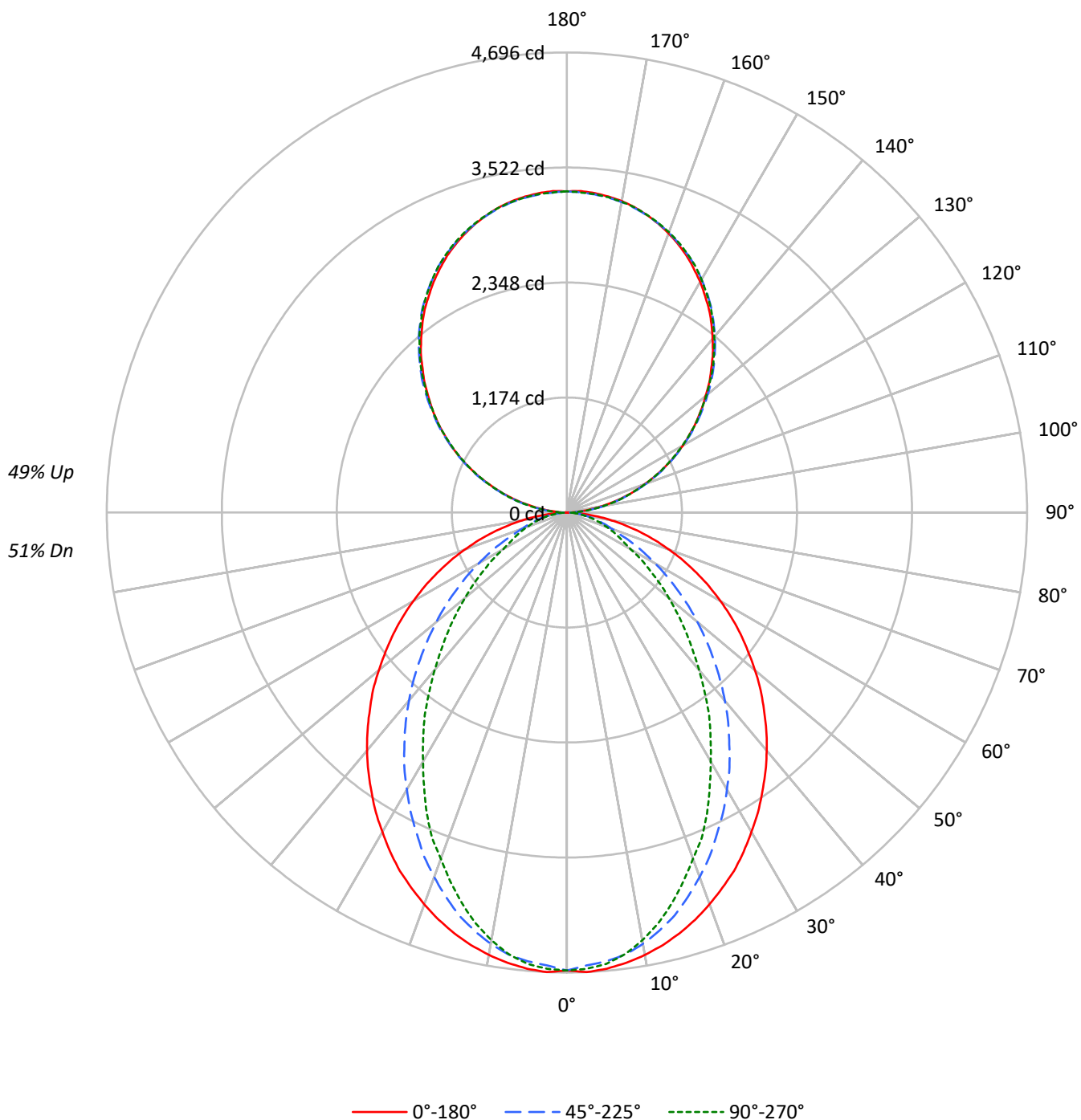
Lumens per Lamp: N/A
Luminaire Lumens: 18789.5 lumens
Efficiency: N/A
Efficacy: 89.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 210.4
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
RCR																	
0	107	107	107	107	99	99	99	99	84	84	84		70	70	70		57
1	99	94	91	87	91	87	84	81	74	72	70		62	61	59		51
2	90	83	77	72	83	77	72	68	66	62	59		55	53	50		46
3	83	73	66	61	76	68	62	57	58	54	50		49	46	43		41
4	76	65	58	52	70	61	54	49	52	47	43		44	41	37		37
5	70	58	51	45	64	54	47	42	47	42	37		40	36	33		34
6	64	53	45	39	59	49	42	37	43	37	33		36	32	29		31
7	60	48	40	34	55	45	38	33	39	33	29		33	29	26		28
8	55	43	36	31	51	41	34	29	35	30	26		31	26	23		26
9	52	40	32	27	48	37	31	26	33	27	24		28	24	21		24
10	48	37	29	25	45	34	28	24	30	25	21		26	22	19		22

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	2.3
10°-20°	1202.7	6.4
20°-30°	1688.5	9.0
30°-40°	1840.6	9.8
40°-50°	1691.7	9.0
50°-60°	1328.6	7.1
60°-70°	864.8	4.6
70°-80°	445.2	2.4
80°-90°	122.9	0.7
90°-100°	202.9	1.1
100°-110°	644.7	3.4
110°-120°	1103.3	5.9
120°-130°	1451.0	7.7
130°-140°	1628.6	8.7
140°-150°	1597.1	8.5
150°-160°	1339.7	7.1
160°-170°	888.5	4.7
170°-180°	310.5	1.7
0°-30°	3329.4	17.7
0°-40°	5170.0	27.5
0°-60°	8190.3	43.6
0°-90°	9623.2	51.2
90°-120°	1950.9	10.4
90°-150°	6627.6	35.3
90°-180°	9166.0	48.8
0°-180°	18789.5	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	36	97	91	94	18
95°	144	172	177	177	172	161
105°	595	603	609	614	614	628
115°	1107	1123	1118	1115	1107	1095
125°	1610	1635	1627	1618	1615	1439
135°	2083	2114	2119	2116	2109	1610
145°	2529	2548	2564	2567	2556	1580
155°	2892	2899	2908	2922	2913	1331
165°	3146	3142	3142	3162	3148	887
175°	3273	3265	3259	3279	3262	311
180°	3279	3279	3279	3279	3279	

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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°	2.9	35.6	96.9	91.0	93.9
92.5°	61.3	83.0	86.0	89.0	89.0
95°	144.3	172.0	176.9	176.9	172.0
97.5°	240.3	265.9	276.8	276.8	276.8
100°	350.9	373.6	381.5	381.5	378.6
102.5°	467.6	484.4	495.3	498.2	495.3
105°	595.1	603.0	609.0	613.9	613.9
107.5°	721.6	733.5	733.5	735.5	721.6
110°	844.2	860.1	860.1	860.1	852.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	976.7	993.4	990.5	982.6	976.7
115°	1107.2	1122.9	1118.0	1115.1	1107.2
117.5°	1236.7	1258.4	1244.5	1236.7	1228.8
120°	1367.2	1388.9	1367.2	1367.2	1358.3
122.5°	1485.8	1513.4	1499.6	1491.7	1485.8
125°	1610.3	1635.0	1627.1	1618.3	1615.2
127.5°	1731.9	1762.6	1751.7	1739.8	1731.9
130°	1845.6	1881.2	1876.2	1870.3	1859.4
132.5°	1973.1	2000.8	2002.8	1989.0	1981.0
135°	2082.8	2113.5	2119.4	2116.5	2108.6
137.5°	2205.5	2230.1	2235.1	2233.1	2221.3
140°	2313.2	2337.9	2351.7	2351.7	2340.9
142.5°	2423.9	2448.6	2456.5	2459.5	2448.6
145°	2528.7	2548.4	2564.3	2567.2	2556.4
147.5°	2622.6	2647.3	2659.2	2664.1	2653.3
150°	2719.5	2736.3	2747.1	2756.1	2747.1
152.5°	2805.5	2822.3	2836.1	2847.0	2836.1
155°	2891.5	2899.4	2908.3	2922.2	2913.2
157.5°	2965.6	2971.6	2976.5	2996.2	2982.4
160°	3031.9	3037.8	3040.7	3057.6	3045.7
162.5°	3093.1	3093.1	3096.2	3114.9	3101.1
165°	3145.5	3142.5	3142.5	3162.3	3148.5
167.5°	3193.0	3184.1	3184.1	3203.9	3190.0
170°	3228.6	3220.7	3217.7	3237.4	3220.7
172.5°	3253.3	3245.4	3242.4	3262.2	3245.4
175°	3273.1	3265.2	3259.2	3279.0	3262.2
177.5°	3283.9	3276.0	3270.1	3286.9	3270.1
180°	3279.0	3279.0	3279.0	3279.0	3279.0

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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	11.81	12.65	12.77	13.62	14.87	7.79	8.63	8.74	9.59	10.85
	3H	13.49	14.24	14.45	15.22	16.49	8.98	9.73	9.94	10.70	11.98
	4H	14.10	14.81	15.08	15.79	17.07	9.43	10.14	10.41	11.12	12.40
	6H	14.52	15.17	15.51	16.16	17.46	9.75	10.40	10.74	11.39	12.69
	8H	14.65	15.27	15.64	16.27	17.57	9.84	10.46	10.84	11.46	12.76
	12H	14.71	15.30	15.71	16.29	17.62	9.89	10.48	10.89	11.47	12.79
4H	2H	11.83	12.54	12.82	13.52	14.81	8.38	9.09	9.37	10.07	11.36
	3H	13.66	14.25	14.66	15.26	16.56	9.73	10.32	10.73	11.33	12.63
	4H	14.35	14.89	15.36	15.89	17.22	10.28	10.82	11.29	11.82	13.15
	6H	14.87	15.33	15.88	16.36	17.68	10.70	11.17	11.72	12.19	13.51
	8H	15.04	15.48	16.06	16.49	17.83	10.83	11.27	11.85	12.28	13.62
	12H	15.14	15.53	16.17	16.56	17.90	10.90	11.29	11.93	12.32	13.66
8H	4H	14.32	14.76	15.34	15.77	17.11	10.56	11.00	11.58	12.01	13.35
	6H	14.89	15.25	15.93	16.30	17.64	11.08	11.44	12.12	12.50	13.83
	8H	15.11	15.42	16.15	16.46	17.82	11.28	11.59	12.32	12.63	13.99
	12H	15.24	15.52	16.29	16.56	17.96	11.40	11.67	12.44	12.71	14.11
12H	4H	14.28	14.67	15.31	15.70	17.04	10.57	10.96	11.60	11.99	13.33
	6H	14.86	15.18	15.91	16.22	17.58	11.13	11.45	12.18	12.49	13.85
	8H	15.09	15.36	16.13	16.40	17.80	11.34	11.62	12.39	12.66	14.06

END OF REPORT