

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: P903456

Luminaire Tested: DFN2DIP-PN4F0-120D100US830-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P903456
REPORT IS A COMBINATION OF REPORTS P899733 AND P896497
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-120D100US830-FLLFLL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

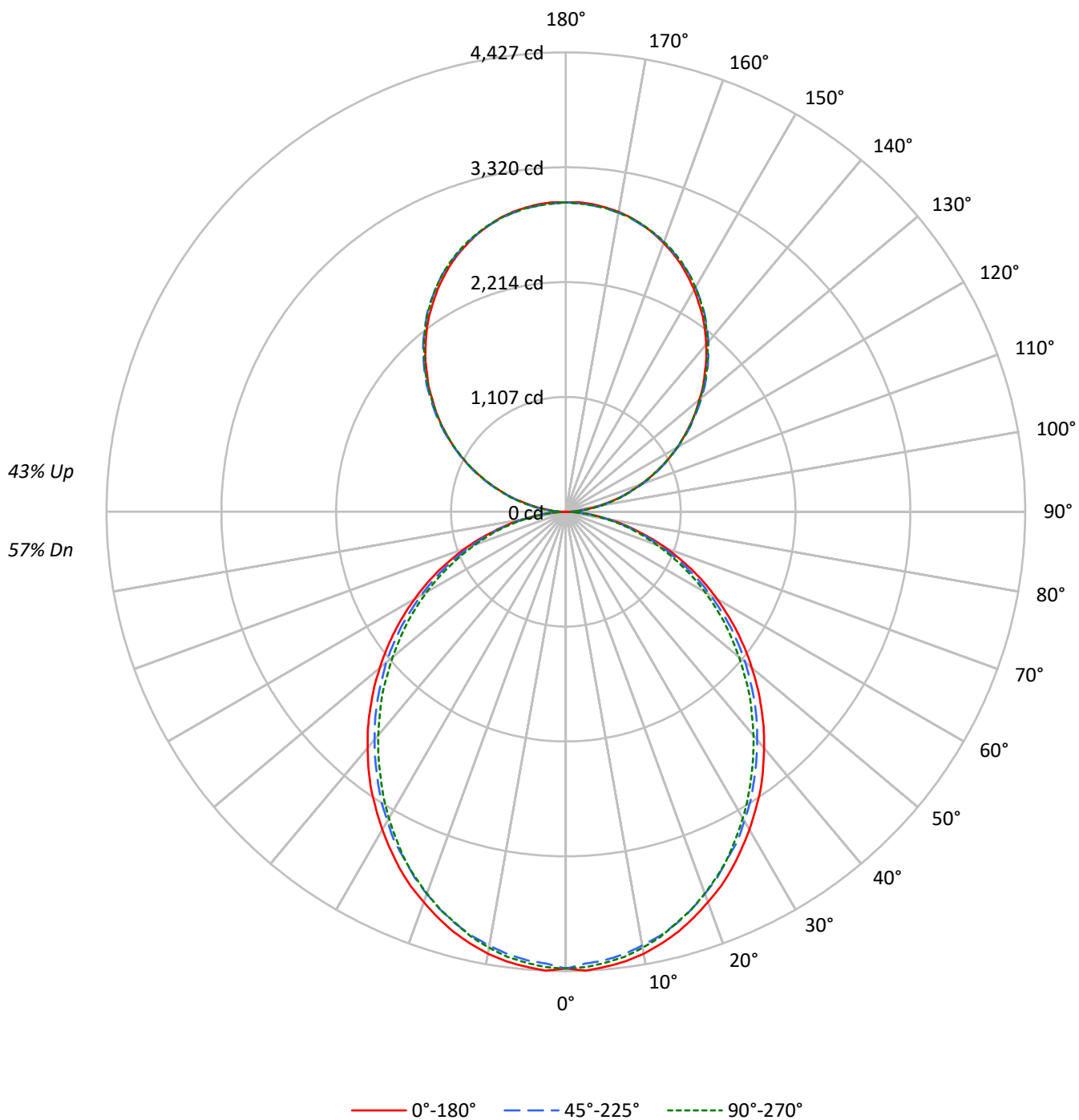
Lumens per Lamp: N/A
Luminaire Lumens: 19538.9 lumens
Efficiency: N/A
Efficacy: 97.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: General Diffuse

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	109	109	109	109	101	101	101	101	87	87	87	75	75	75	63	63	63
1	99	95	91	88	92	89	85	82	77	74	72	66	64	62	56	54	53
2	91	83	77	72	84	78	72	67	67	63	60	58	55	52	49	47	45
3	83	73	66	60	77	68	62	56	59	54	50	51	47	44	43	41	38
4	76	65	57	51	70	61	53	48	53	47	43	46	41	38	39	36	33
5	69	58	49	43	64	54	47	41	47	41	37	41	36	33	35	31	29
6	64	52	44	38	59	49	41	36	43	37	32	37	32	29	32	28	25
7	59	47	39	33	55	44	37	32	39	33	28	34	29	25	29	25	22
8	55	43	35	29	51	40	33	28	35	29	25	31	26	23	27	23	20
9	51	39	31	26	48	37	30	25	32	27	23	28	24	20	25	21	18
10	48	36	28	24	45	34	27	23	30	24	21	26	22	19	23	19	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3213	3213	3213
5°	3218	3168	3190
10°	3192	3126	3147
15°	3145	3075	3080
20°	3081	3004	3012
25°	3018	2919	2932
30°	2939	2840	2831
35°	2864	2746	2725
40°	2772	2652	2623
45°	2680	2557	2519
50°	2579	2458	2399
55°	2474	2343	2288
60°	2355	2207	2161
65°	2226	2066	2012
70°	2060	1894	1852
75°	1831	1689	1704
80°	1556	1427	1421
85°	1125	974	951

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2680 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	414.2	2.1
10°-20°	1165.5	6.0
20°-30°	1712.8	8.8
30°-40°	1989.3	10.2
40°-50°	1986.8	10.2
50°-60°	1732.4	8.9
60°-70°	1280.6	6.6
70°-80°	724.6	3.7
80°-90°	199.7	1.0
90°-100°	184.5	0.9
100°-110°	586.1	3.0
110°-120°	1003.0	5.1
120°-130°	1319.1	6.8
130°-140°	1480.6	7.6
140°-150°	1451.9	7.4
150°-160°	1217.9	6.2
160°-170°	807.7	4.1
170°-180°	282.3	1.4
0°-30°	3292.4	16.9
0°-40°	5281.7	27.0
0°-60°	9000.9	46.1
0°-90°	11205.8	57.4
90°-120°	1773.5	9.1
90°-150°	6025.1	30.8
90°-180°	8333.0	42.6
0°-180°	19538.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4401	4401	4401	4401	4401	
5°	4401	4384	4338	4371	4363	418
15°	4190	4164	4109	4126	4105	1180
25°	3792	3758	3686	3694	3686	1745
35°	3271	3229	3161	3136	3115	2043
45°	2662	2632	2569	2522	2505	2054
55°	2015	1989	1938	1888	1866	1801
65°	1359	1333	1291	1253	1232	1343
75°	711	703	681	656	664	759
85°	173	169	165	152	148	193
90°	3	32	88	83	85	19
95°	131	156	161	161	156	146
105°	541	548	554	558	558	571
115°	1006	1021	1016	1014	1006	996
125°	1464	1486	1479	1471	1468	1308
135°	1894	1921	1927	1924	1917	1464
145°	2299	2317	2331	2334	2324	1436
155°	2629	2636	2644	2656	2648	1210
165°	2860	2857	2857	2875	2862	807
175°	2976	2968	2963	2981	2966	283
180°	2981	2981	2981	2981	2981	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4401.0	4401.0	4401.0	4401.0	4401.0
2.5°	4426.6	4405.4	4358.8	4401.0	4392.9
5°	4401.0	4384.3	4337.7	4371.3	4363.2
7.5°	4371.3	4346.2	4299.5	4333.6	4325.1
10°	4325.1	4295.4	4244.7	4278.4	4265.9
12.5°	4261.3	4236.2	4185.5	4206.6	4198.0
15°	4189.5	4164.3	4109.1	4126.2	4105.1
17.5°	4100.6	4075.5	4020.2	4041.3	4020.2
20°	4003.2	3978.0	3918.8	3931.3	3914.8
22.5°	3906.2	3868.0	3812.8	3812.8	3804.3
25°	3791.7	3758.0	3686.2	3694.3	3686.2
27.5°	3664.6	3635.0	3580.2	3567.6	3546.6
30°	3538.0	3503.9	3440.6	3428.0	3411.0
32.5°	3402.4	3377.3	3309.5	3283.9	3266.9
35°	3271.3	3229.1	3161.3	3135.7	3114.6
37.5°	3123.1	3085.0	3017.2	2987.6	2966.5
40°	2971.0	2936.9	2869.0	2831.3	2814.2
42.5°	2822.8	2788.7	2721.3	2678.7	2653.5
45°	2662.0	2632.4	2568.6	2522.4	2505.4
47.5°	2505.4	2475.7	2407.9	2361.3	2336.1
50°	2340.1	2319.0	2259.7	2200.5	2179.3
52.5°	2179.3	2149.8	2095.0	2048.2	2018.6
55°	2014.6	1989.0	1938.2	1887.5	1866.4
57.5°	1849.4	1828.2	1773.0	1722.3	1705.2
60°	1684.1	1667.5	1608.3	1561.6	1549.0
62.5°	1523.4	1493.7	1451.6	1409.4	1392.3
65°	1358.7	1333.0	1290.8	1252.6	1231.6
67.5°	1189.4	1167.8	1130.1	1100.5	1083.5
70°	1032.6	1015.6	977.4	947.8	931.2
72.5°	871.9	854.9	833.8	804.2	791.5
75°	710.8	702.7	681.1	656.0	664.5
77.5°	567.0	550.0	541.5	528.9	516.3
80°	423.4	418.9	410.4	397.8	389.3
82.5°	287.8	287.8	283.8	266.7	266.7
85°	173.3	169.3	165.2	152.2	148.2
87.5°	76.3	67.8	59.3	46.7	42.2
90°	2.7	32.3	88.0	82.7	85.4
92.5°	55.7	75.5	78.2	80.9	80.9
95°	131.2	156.4	160.9	160.9	156.4
97.5°	218.4	241.8	251.7	251.7	251.7
100°	319.1	339.7	346.9	346.9	344.2
102.5°	425.1	440.4	450.3	452.9	450.3
105°	541.0	548.2	553.6	558.1	558.1
107.5°	656.0	666.8	666.8	668.6	656.0
110°	767.5	781.8	781.8	781.8	774.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	887.9	903.1	900.5	893.2	887.9
115°	1006.5	1020.9	1016.4	1013.7	1006.5
117.5°	1124.3	1144.1	1131.4	1124.3	1117.0
120°	1242.8	1262.6	1242.8	1242.8	1234.8
122.5°	1350.7	1375.8	1363.3	1356.1	1350.7
125°	1464.0	1486.4	1479.2	1471.1	1468.5
127.5°	1574.5	1602.3	1592.4	1581.7	1574.5
130°	1677.8	1710.1	1705.7	1700.3	1690.4
132.5°	1793.8	1818.9	1820.7	1808.2	1800.9
135°	1893.5	1921.4	1926.7	1924.1	1916.8
137.5°	2005.0	2027.4	2031.9	2030.1	2019.3
140°	2102.9	2125.3	2138.0	2138.0	2128.1
142.5°	2203.6	2226.0	2233.2	2235.9	2226.0
145°	2298.8	2316.8	2331.2	2333.8	2323.9
147.5°	2384.2	2406.7	2417.4	2422.0	2412.1
150°	2472.3	2487.6	2497.5	2505.5	2497.5
152.5°	2550.4	2565.7	2578.3	2588.2	2578.3
155°	2628.7	2635.8	2643.9	2656.5	2648.4
157.5°	2696.0	2701.4	2705.9	2723.9	2711.3
160°	2756.3	2761.6	2764.3	2779.6	2768.8
162.5°	2812.0	2812.0	2814.6	2831.7	2819.1
165°	2859.6	2856.8	2856.8	2874.8	2862.3
167.5°	2902.7	2894.6	2894.6	2912.6	2900.0
170°	2935.1	2927.9	2925.2	2943.2	2927.9
172.5°	2957.5	2950.3	2947.6	2965.6	2950.3
175°	2975.5	2968.3	2963.0	2980.9	2965.6
177.5°	2985.4	2978.2	2972.8	2988.0	2972.8
180°	2980.9	2980.9	2980.9	2980.9	2980.9

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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	11.98	12.92	12.88	13.83	14.99	11.54	12.48	12.44	13.39	14.55
	3H	13.65	14.49	14.56	15.41	16.60	13.17	14.01	14.07	14.93	16.11
	4H	14.25	15.04	15.16	15.96	17.16	13.76	14.55	14.68	15.48	16.67
	6H	14.65	15.38	15.58	16.31	17.52	14.16	14.89	15.09	15.82	17.03
	8H	14.76	15.45	15.70	16.40	17.61	14.27	14.96	15.20	15.91	17.12
	12H	14.81	15.47	15.75	16.42	17.65	14.31	14.97	15.26	15.92	17.15
4H	2H	12.45	13.25	13.38	14.17	15.37	12.10	12.89	13.03	13.82	15.02
	3H	14.33	14.99	15.26	15.95	17.16	13.93	14.59	14.86	15.54	16.76
	4H	15.05	15.65	15.99	16.60	17.84	14.63	15.23	15.58	16.19	17.42
	6H	15.57	16.09	16.53	17.07	18.30	15.15	15.67	16.11	16.64	17.88
	8H	15.72	16.21	16.68	17.18	18.43	15.30	15.78	16.26	16.75	18.00
	12H	15.80	16.24	16.78	17.23	18.48	15.36	15.80	16.34	16.79	18.04
8H	4H	15.25	15.74	16.21	16.71	17.96	14.88	15.37	15.84	16.34	17.59
	6H	15.89	16.29	16.88	17.30	18.55	15.51	15.92	16.50	16.93	18.18
	8H	16.11	16.47	17.11	17.47	18.73	15.73	16.08	16.72	17.08	18.35
	12H	16.25	16.56	17.25	17.56	18.87	15.85	16.16	16.85	17.15	18.47
12H	4H	15.24	15.68	16.22	16.67	17.92	14.88	15.32	15.86	16.30	17.56
	6H	15.92	16.28	16.92	17.28	18.54	15.56	15.91	16.55	16.91	18.18
	8H	16.17	16.48	17.17	17.47	18.79	15.80	16.11	16.79	17.10	18.42