

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: P919825

Luminaire Tested: DFN2DIP-PN4F0-120D100US935-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P919825
REPORT IS A COMBINATION OF REPORTS P901253 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-120D100US935-FLLONL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

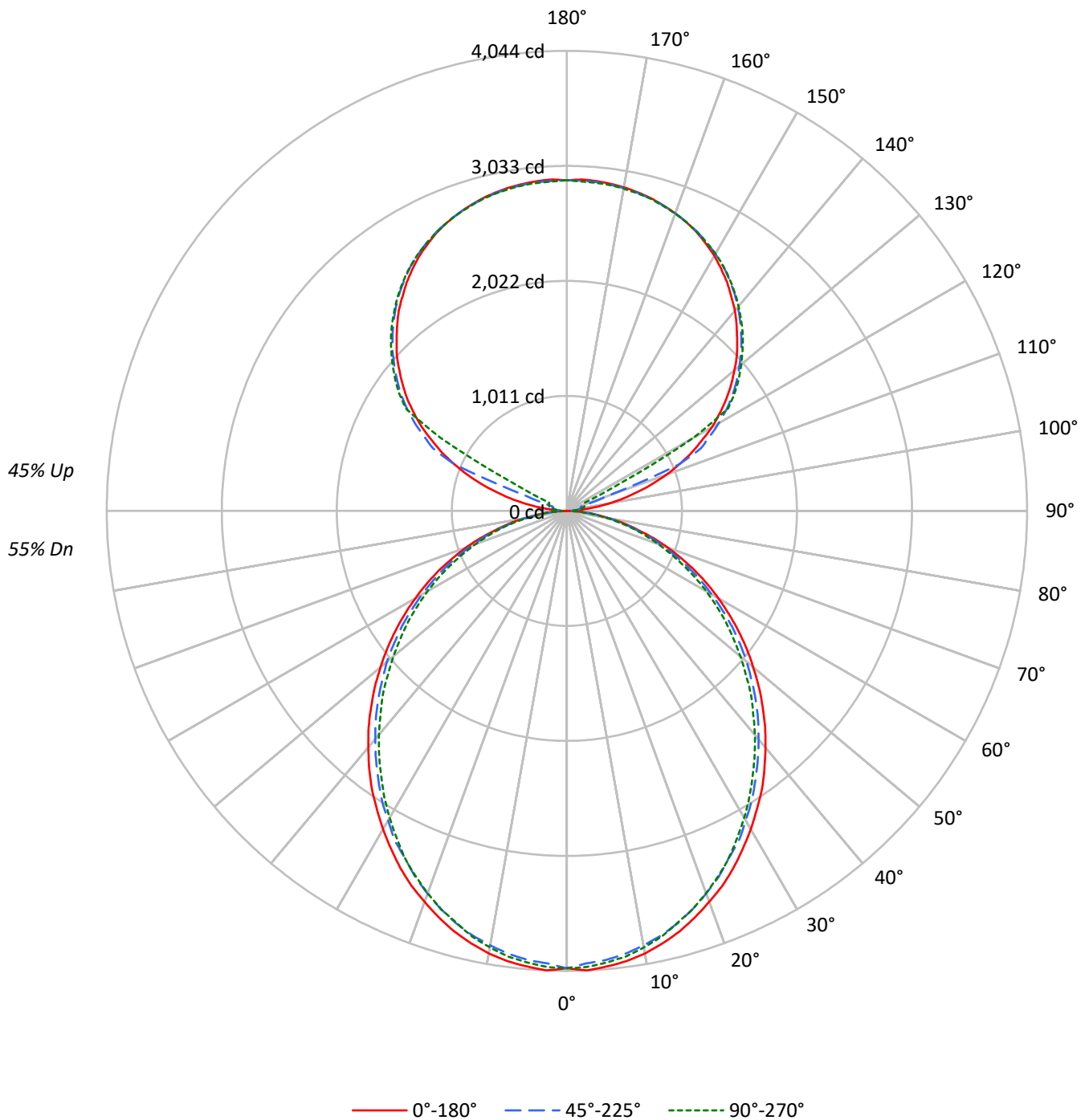
Lumens per Lamp: N/A
Luminaire Lumens: 18752.6 lumens
Efficiency: N/A
Efficacy: 93.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: General Diffuse

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	108	108	108	108	100	100	100	100	86	86	86	73	73	73	60	60	60
1	99	94	91	87	92	88	84	81	75	73	71	64	62	60	53	52	51
2	90	82	76	71	83	77	71	67	66	62	58	56	53	51	47	45	43
3	82	73	65	59	76	68	61	56	58	53	49	50	46	43	42	39	37
4	75	64	56	50	69	60	53	47	52	46	42	44	40	37	37	34	32
5	69	57	49	43	64	53	46	41	46	41	36	40	35	32	34	30	27
6	64	51	43	37	59	48	41	35	42	36	32	36	31	28	30	27	24
7	59	46	38	33	54	43	36	31	38	32	28	33	28	25	28	24	22
8	55	42	34	29	51	40	33	28	35	29	25	30	25	22	26	22	19
9	51	39	31	26	47	36	29	25	32	26	22	28	23	20	24	20	17
10	48	35	28	23	44	33	27	22	29	24	20	25	21	18	22	18	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2935	2935	2935
5°	2939	2894	2914
10°	2915	2856	2875
15°	2873	2809	2814
20°	2815	2744	2751
25°	2757	2666	2679
30°	2685	2594	2586
35°	2616	2509	2489
40°	2532	2422	2396
45°	2448	2336	2301
50°	2356	2246	2191
55°	2260	2141	2090
60°	2151	2016	1974
65°	2033	1887	1838
70°	1882	1731	1692
75°	1673	1543	1557
80°	1421	1304	1298
85°	1028	889	868

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2448 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	378.4	2.0
10°-20°	1064.6	5.7
20°-30°	1564.6	8.3
30°-40°	1817.2	9.7
40°-50°	1814.9	9.7
50°-60°	1582.5	8.4
60°-70°	1169.9	6.2
70°-80°	661.9	3.5
80°-90°	179.8	1.0
90°-100°	95.8	0.5
100°-110°	357.2	1.9
110°-120°	947.3	5.1
120°-130°	1571.2	8.4
130°-140°	1669.0	8.9
140°-150°	1551.1	8.3
150°-160°	1247.1	6.7
160°-170°	803.6	4.3
170°-180°	276.6	1.5
0°-30°	3007.6	16.0
0°-40°	4824.8	25.7
0°-60°	8222.2	43.8
0°-90°	10233.8	54.6
90°-120°	1400.3	7.5
90°-150°	6191.6	33.0
90°-180°	8519.0	45.4
0°-180°	18752.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4020	4020	4020	4020	4020	
5°	4020	4005	3962	3993	3986	382
15°	3827	3804	3754	3769	3750	1078
25°	3464	3433	3367	3375	3367	1594
35°	2988	2950	2888	2864	2845	1866
45°	2432	2405	2346	2304	2289	1877
55°	1840	1817	1771	1724	1705	1645
65°	1241	1218	1179	1144	1125	1227
75°	649	642	622	599	607	693
85°	158	155	151	139	135	177
90°	2	25	42	53	57	17
95°	137	67	82	93	90	162
105°	639	702	128	151	160	683
115°	1209	1245	1297	324	172	1190
125°	1709	1737	1777	1792	1798	1524
135°	2115	2149	2168	2189	2185	1634
145°	2454	2452	2487	2502	2492	1535
155°	2702	2683	2708	2721	2704	1245
165°	2847	2834	2841	2855	2841	804
175°	2912	2897	2902	2916	2895	277
180°	2906	2906	2906	2906	2906	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4020.3	4020.3	4020.3	4020.3	4020.3
2.5°	4043.6	4024.3	3981.7	4020.3	4012.9
5°	4020.3	4005.0	3962.4	3993.1	3985.7
7.5°	3993.1	3970.1	3927.5	3958.7	3950.9
10°	3950.9	3923.8	3877.5	3908.2	3896.8
12.5°	3892.7	3869.7	3823.3	3842.6	3834.8
15°	3827.0	3804.1	3753.6	3769.2	3749.9
17.5°	3745.9	3722.9	3672.4	3691.7	3672.4
20°	3656.8	3633.8	3579.8	3591.2	3576.1
22.5°	3568.2	3533.4	3482.9	3482.9	3475.2
25°	3463.6	3432.9	3367.3	3374.7	3367.3
27.5°	3347.6	3320.5	3270.5	3259.0	3239.8
30°	3231.9	3200.8	3142.9	3131.4	3115.9
32.5°	3108.0	3085.1	3023.1	2999.8	2984.2
35°	2988.3	2949.8	2887.8	2864.5	2845.2
37.5°	2852.9	2818.1	2756.1	2729.1	2709.8
40°	2714.0	2682.8	2620.8	2586.4	2570.8
42.5°	2578.6	2547.4	2485.9	2447.0	2424.0
45°	2431.7	2404.7	2346.4	2304.2	2288.6
47.5°	2288.6	2261.5	2199.6	2157.0	2134.0
50°	2137.7	2118.4	2064.2	2010.1	1990.8
52.5°	1990.8	1963.8	1913.7	1871.0	1844.0
55°	1840.3	1817.0	1770.6	1724.2	1704.9
57.5°	1689.4	1670.1	1619.6	1573.3	1557.7
60°	1538.4	1523.3	1469.1	1426.5	1415.0
62.5°	1391.6	1364.5	1326.0	1287.5	1271.9
65°	1241.1	1217.7	1179.1	1144.3	1125.1
67.5°	1086.5	1066.8	1032.3	1005.3	989.7
70°	943.3	927.7	892.9	865.8	850.7
72.5°	796.5	780.9	761.6	734.6	723.1
75°	649.3	641.9	622.2	599.3	607.0
77.5°	518.0	502.4	494.6	483.1	471.7
80°	386.8	382.6	374.9	363.4	355.6
82.5°	262.9	262.9	259.2	243.7	243.7
85°	158.3	154.6	150.9	139.1	135.3
87.5°	69.7	61.9	54.2	42.6	38.6
90°	2.0	25.2	41.9	52.7	56.7
92.5°	52.7	44.2	50.5	54.7	56.7
95°	136.6	67.2	81.9	92.6	90.4
97.5°	245.9	73.6	107.1	113.6	115.6
100°	372.3	84.1	119.9	136.6	140.9
102.5°	510.8	506.9	124.1	147.1	153.5
105°	639.2	702.3	128.4	151.3	159.8
107.5°	788.5	840.9	132.6	155.6	164.0
110°	931.5	975.5	368.0	157.8	166.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1066.1	1103.8	1068.2	161.8	168.3
115°	1208.9	1244.7	1297.4	323.8	172.5
117.5°	1333.0	1375.0	1410.9	1110.1	559.3
120°	1471.9	1503.3	1541.3	1566.5	1282.6
122.5°	1589.5	1623.2	1665.3	1677.8	1680.1
125°	1709.3	1736.8	1776.8	1791.5	1797.7
127.5°	1818.7	1848.1	1879.8	1900.8	1902.8
130°	1921.7	1955.5	1978.5	2001.6	1999.7
132.5°	2026.9	2054.3	2077.3	2096.3	2094.3
135°	2115.3	2149.0	2167.7	2188.9	2184.7
137.5°	2207.7	2232.9	2254.1	2275.1	2268.8
140°	2298.0	2315.1	2338.0	2357.0	2346.5
142.5°	2373.9	2388.7	2415.9	2432.6	2422.2
145°	2453.8	2451.6	2487.3	2502.1	2491.6
147.5°	2523.0	2516.8	2552.4	2562.9	2554.8
150°	2590.4	2575.7	2609.4	2621.9	2611.4
152.5°	2647.1	2630.3	2661.9	2674.5	2659.8
155°	2701.8	2683.0	2708.3	2720.8	2704.0
157.5°	2746.0	2729.3	2748.2	2762.9	2746.0
160°	2784.0	2771.2	2784.0	2796.4	2781.7
162.5°	2817.4	2804.9	2815.4	2830.1	2811.2
165°	2846.8	2834.3	2840.6	2855.3	2840.6
167.5°	2870.1	2857.3	2863.9	2878.6	2859.5
170°	2889.0	2876.3	2880.6	2895.3	2876.3
172.5°	2901.5	2889.0	2893.3	2908.0	2889.0
175°	2912.0	2897.3	2901.5	2916.3	2895.3
177.5°	2916.3	2901.5	2903.8	2918.5	2899.5
180°	2905.8	2905.8	2905.8	2905.8	2905.8

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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	11.43	12.34	12.35	13.27	14.48	10.99	11.90	11.91	12.83	14.04
	3H	13.10	13.91	14.03	14.85	16.08	12.61	13.42	13.54	14.37	15.60
	4H	13.69	14.46	14.63	15.41	16.64	13.20	13.97	14.15	14.92	16.16
	6H	14.09	14.80	15.05	15.76	17.01	13.60	14.31	14.56	15.26	16.52
	8H	14.20	14.87	15.16	15.85	17.10	13.71	14.38	14.67	15.35	16.60
	12H	14.25	14.89	15.22	15.86	17.13	13.75	14.39	14.72	15.36	16.63
4H	2H	11.90	12.67	12.85	13.62	14.85	11.55	12.31	12.50	13.26	14.50
	3H	13.77	14.41	14.73	15.39	16.64	13.37	14.01	14.33	14.99	16.24
	4H	14.49	15.07	15.46	16.05	17.32	14.07	14.66	15.04	15.63	16.91
	6H	15.01	15.51	15.99	16.51	17.79	14.59	15.09	15.57	16.09	17.36
	8H	15.16	15.63	16.15	16.62	17.91	14.73	15.21	15.72	16.20	17.49
	12H	15.24	15.66	16.24	16.67	17.97	14.80	15.22	15.80	16.23	17.53
8H	4H	14.69	15.16	15.67	16.15	17.44	14.32	14.79	15.30	15.78	17.07
	6H	15.33	15.72	16.33	16.75	18.04	14.95	15.34	15.96	16.37	17.66
	8H	15.55	15.89	16.57	16.91	18.22	15.17	15.51	16.18	16.53	17.83
	12H	15.69	15.99	16.71	17.00	18.35	15.28	15.59	16.30	16.60	17.95
12H	4H	14.68	15.10	15.68	16.11	17.41	14.32	14.74	15.32	15.75	17.04
	6H	15.36	15.70	16.37	16.72	18.03	14.99	15.34	16.01	16.36	17.66
	8H	15.60	15.91	16.62	16.92	18.27	15.23	15.53	16.25	16.55	17.90