

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: P911561

Luminaire Tested: DFN2DIP-PN4F0-100D080US850-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P911561
REPORT IS A COMBINATION OF REPORTS P901213 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-100D080US850-FLONL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

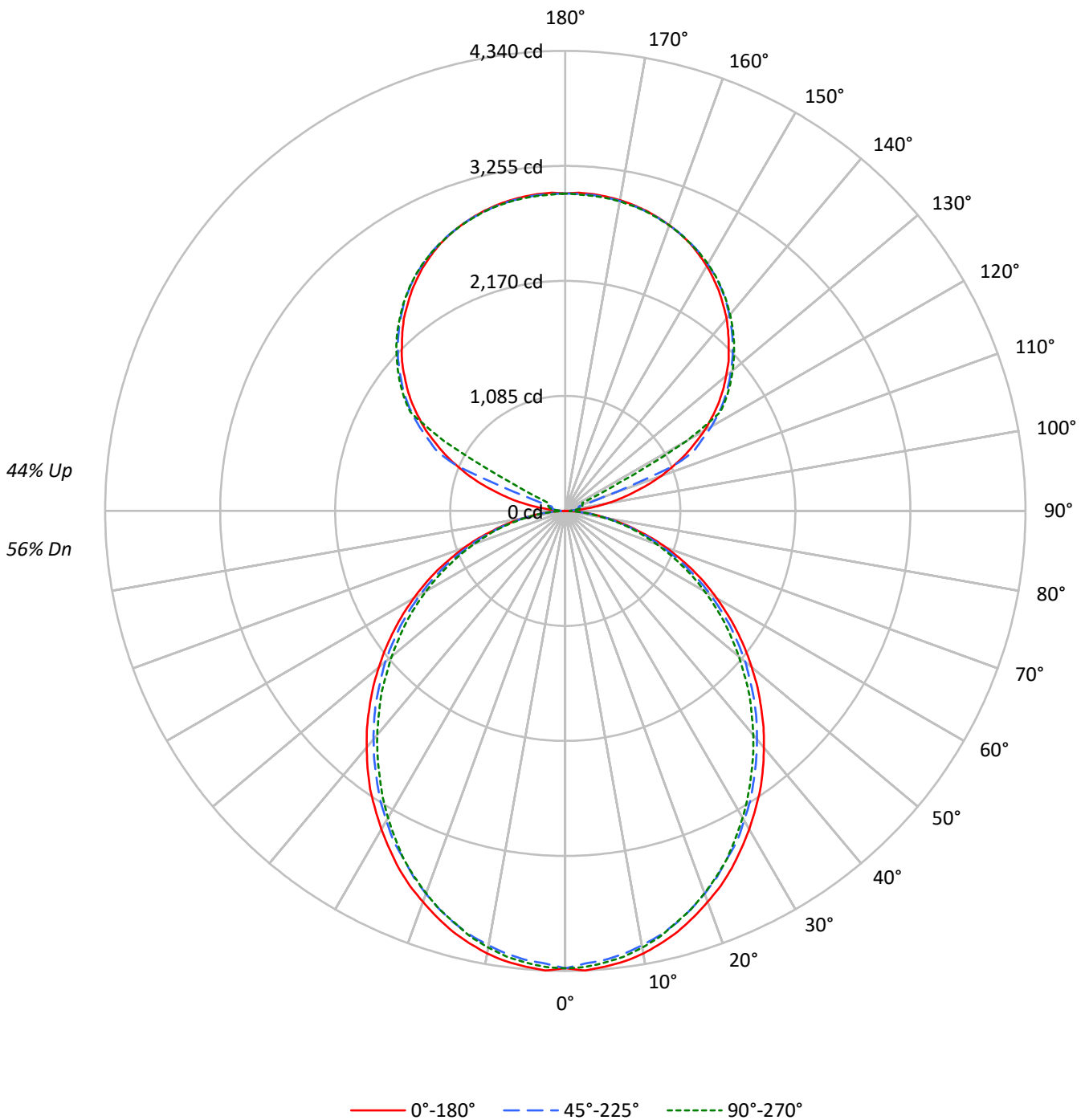
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 19762.4 lumens
Efficiency: N/A
Efficacy: 124.4 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): 158.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9952
Total Harmonic Distortion (THDi): 0.069
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				20	
RC	80				70				50				30				10				0	
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0	
RCR																						
0	108	108	108	108	101	101	101	101	86	86	86	73	73	73	61	61	61	56				56
1	99	95	91	87	92	88	85	82	76	73	71	65	63	61	54	53	52	47				47
2	90	83	76	71	84	77	72	67	66	62	59	57	54	51	48	46	44	39				39
3	82	73	65	59	76	68	61	56	59	54	50	50	46	43	42	39	37	33				33
4	75	64	56	50	70	60	53	48	52	47	42	45	40	37	38	35	32	29				29
5	69	57	49	43	64	54	46	41	47	41	36	40	36	32	34	31	28	25				25
6	64	52	43	37	59	48	41	36	42	36	32	36	32	28	31	27	25	22				22
7	59	47	39	33	55	44	36	31	38	32	28	33	28	25	28	25	22	19				19
8	55	42	34	29	51	40	33	28	35	29	25	30	26	22	26	22	20	17				17
9	51	39	31	26	47	36	29	25	32	26	22	28	23	20	24	20	18	16				16
10	48	35	28	23	44	33	27	22	29	24	20	26	21	18	22	19	16	14				14

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3150	3150	3150
5°	3155	3106	3128
10°	3129	3065	3086
15°	3083	3015	3020
20°	3021	2945	2953
25°	2959	2862	2875
30°	2882	2784	2776
35°	2808	2693	2671
40°	2718	2600	2572
45°	2628	2508	2470
50°	2529	2410	2352
55°	2426	2298	2244
60°	2309	2164	2119
65°	2182	2026	1973
70°	2020	1857	1815
75°	1795	1656	1671
80°	1525	1399	1394
85°	1103	955	932

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2628 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	406.1	2.1
10°-20°	1142.7	5.8
20°-30°	1679.4	8.5
30°-40°	1950.5	9.9
40°-50°	1948.1	9.9
50°-60°	1698.7	8.6
60°-70°	1255.7	6.4
70°-80°	710.4	3.6
80°-90°	192.8	1.0
90°-100°	98.7	0.5
100°-110°	368.1	1.9
110°-120°	976.2	4.9
120°-130°	1619.0	8.2
130°-140°	1719.8	8.7
140°-150°	1598.3	8.1
150°-160°	1285.0	6.5
160°-170°	828.0	4.2
170°-180°	285.0	1.4
0°-30°	3228.3	16.3
0°-40°	5178.7	26.2
0°-60°	8825.5	44.7
0°-90°	10984.4	55.6
90°-120°	1442.9	7.3
90°-150°	6380.0	32.3
90°-180°	8778.0	44.4
0°-180°	19762.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4315	4315	4315	4315	4315	
5°	4315	4299	4253	4286	4278	410
15°	4108	4083	4029	4046	4025	1157
25°	3718	3685	3614	3622	3614	1711
35°	3208	3166	3100	3075	3054	2003
45°	2610	2581	2518	2473	2456	2014
55°	1975	1950	1900	1851	1830	1766
65°	1332	1307	1266	1228	1208	1317
75°	697	689	668	643	652	744
85°	170	166	162	149	145	190
90°	2	26	43	54	58	18
95°	141	69	84	96	93	167
105°	659	724	132	156	165	704
115°	1246	1283	1337	334	178	1226
125°	1761	1790	1831	1846	1852	1571
135°	2180	2214	2234	2256	2251	1684
145°	2528	2526	2563	2578	2567	1581
155°	2784	2765	2791	2804	2786	1283
165°	2934	2921	2927	2942	2927	829
175°	3001	2985	2990	3005	2983	286
180°	2994	2994	2994	2994	2994	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4315.2	4315.2	4315.2	4315.2	4315.2
2.5°	4340.3	4319.6	4273.8	4315.2	4307.2
5°	4315.2	4298.9	4253.1	4286.2	4278.2
7.5°	4286.2	4261.4	4215.6	4249.1	4240.8
10°	4240.8	4211.8	4162.0	4195.0	4182.7
12.5°	4178.3	4153.6	4103.9	4124.6	4116.2
15°	4107.8	4083.2	4029.0	4045.7	4025.1
17.5°	4020.7	3996.1	3941.8	3962.6	3941.8
20°	3925.1	3900.5	3842.4	3854.7	3838.4
22.5°	3830.0	3792.7	3738.4	3738.4	3730.1
25°	3717.8	3684.8	3614.3	3622.2	3614.3
27.5°	3593.2	3564.1	3510.4	3498.1	3477.4
30°	3469.1	3435.6	3373.5	3361.2	3344.4
32.5°	3336.1	3311.5	3244.9	3219.9	3203.1
35°	3207.6	3166.2	3099.7	3074.6	3053.9
37.5°	3062.3	3024.8	2958.4	2929.3	2908.6
40°	2913.0	2879.5	2813.1	2776.2	2759.4
42.5°	2767.7	2734.2	2668.3	2626.4	2601.8
45°	2610.1	2581.1	2518.5	2473.2	2456.5
47.5°	2456.5	2427.5	2361.0	2315.1	2290.5
50°	2294.5	2273.8	2215.7	2157.6	2136.9
52.5°	2136.9	2107.9	2054.1	2008.4	1979.3
55°	1975.4	1950.3	1900.5	1850.7	1830.1
57.5°	1813.3	1792.6	1738.5	1688.8	1672.0
60°	1651.3	1635.0	1576.9	1531.1	1518.8
62.5°	1493.7	1464.7	1423.3	1381.9	1365.2
65°	1332.1	1307.1	1265.7	1228.2	1207.6
67.5°	1166.2	1145.0	1108.1	1079.1	1062.3
70°	1012.5	995.8	958.4	929.3	913.0
72.5°	854.9	838.2	817.6	788.5	776.1
75°	696.9	689.0	667.8	643.2	651.5
77.5°	556.1	539.3	530.9	518.6	506.3
80°	415.1	410.8	402.3	390.0	381.7
82.5°	282.2	282.2	278.2	261.5	261.5
85°	169.9	166.0	162.0	149.3	145.3
87.5°	74.9	66.4	58.1	45.8	41.4
90°	2.1	26.0	43.3	54.2	58.4
92.5°	54.2	45.6	52.0	56.3	58.4
95°	140.7	69.2	84.4	95.5	93.2
97.5°	253.4	75.9	110.3	117.1	119.1
100°	383.6	86.7	123.5	140.7	145.1
102.5°	526.4	522.2	127.9	151.5	158.3
105°	658.6	723.7	132.2	155.9	164.7
107.5°	812.5	866.5	136.6	160.3	169.0
110°	960.0	1005.2	379.3	162.6	171.1



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1098.6	1137.4	1100.7	166.7	173.4
115°	1245.7	1282.6	1336.8	333.7	177.8
117.5°	1373.6	1416.9	1453.9	1143.8	576.3
120°	1516.7	1549.1	1588.2	1614.1	1321.6
122.5°	1637.8	1672.6	1716.1	1728.9	1731.3
125°	1761.3	1789.6	1830.7	1845.9	1852.4
127.5°	1874.0	1904.4	1937.1	1958.6	1960.7
130°	1980.2	2014.9	2038.7	2062.6	2060.5
132.5°	2088.6	2116.9	2140.6	2160.1	2158.0
135°	2179.6	2214.3	2233.6	2255.6	2251.2
137.5°	2274.9	2300.8	2322.7	2344.3	2337.9
140°	2367.9	2385.5	2409.2	2428.7	2417.8
142.5°	2446.2	2461.3	2489.4	2506.7	2495.8
145°	2528.5	2526.2	2563.0	2578.2	2567.3
147.5°	2599.8	2593.4	2630.1	2641.0	2632.4
150°	2669.3	2654.1	2688.8	2701.6	2690.9
152.5°	2727.7	2710.4	2742.8	2756.0	2740.8
155°	2784.0	2764.7	2790.7	2803.6	2786.4
157.5°	2829.5	2812.3	2831.8	2847.0	2829.5
160°	2868.7	2855.6	2868.7	2881.5	2866.3
162.5°	2903.1	2890.3	2901.0	2916.2	2896.7
165°	2933.5	2920.7	2927.1	2942.2	2927.1
167.5°	2957.4	2944.3	2950.9	2966.1	2946.6
170°	2977.0	2963.8	2968.2	2983.4	2963.8
172.5°	2989.9	2977.0	2981.3	2996.5	2977.0
175°	3000.6	2985.4	2989.9	3004.9	2983.4
177.5°	3004.9	2989.9	2992.1	3007.3	2987.8
180°	2994.2	2994.2	2994.2	2994.2	2994.2



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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	11.77	12.68	12.67	13.61	14.80	11.33	12.24	12.23	13.17	14.36
	3H	13.43	14.25	14.35	15.19	16.40	12.95	13.77	13.87	14.70	15.92
	4H	14.02	14.80	14.96	15.74	16.96	13.54	14.31	14.47	15.25	16.48
	6H	14.43	15.14	15.38	16.09	17.33	13.94	14.65	14.88	15.60	16.84
	8H	14.54	15.22	15.49	16.18	17.42	14.04	14.73	15.00	15.69	16.92
	12H	14.59	15.24	15.55	16.19	17.45	14.09	14.74	15.05	15.69	16.95
4H	2H	12.23	13.01	13.17	13.95	15.17	11.88	12.66	12.82	13.60	14.82
	3H	14.11	14.75	15.06	15.73	16.96	13.71	14.35	14.66	15.32	16.56
	4H	14.83	15.42	15.79	16.38	17.65	14.41	15.00	15.37	15.97	17.23
	6H	15.35	15.86	16.32	16.85	18.11	14.92	15.43	15.90	16.42	17.68
	8H	15.50	15.98	16.47	16.96	18.23	15.07	15.55	16.05	16.53	17.81
	12H	15.58	16.01	16.57	17.01	18.29	15.14	15.57	16.13	16.57	17.85
8H	4H	15.03	15.50	16.00	16.49	17.76	14.66	15.13	15.63	16.12	17.39
	6H	15.66	16.06	16.66	17.08	18.36	15.29	15.68	16.29	16.71	17.98
	8H	15.89	16.24	16.90	17.25	18.54	15.50	15.85	16.51	16.86	18.16
	12H	16.02	16.33	17.04	17.34	18.67	15.62	15.93	16.63	16.93	18.27
12H	4H	15.02	15.45	16.01	16.45	17.73	14.65	15.08	15.65	16.08	17.36
	6H	15.69	16.04	16.70	17.06	18.35	15.33	15.68	16.34	16.69	17.98
	8H	15.94	16.25	16.95	17.25	18.59	15.57	15.88	16.58	16.88	18.22