

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: P911525

Luminaire Tested: DFN2DIP-PN4F0-090D080US850-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P911525
REPORT IS A COMBINATION OF REPORTS P901211 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-090D080US850-FLLONL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

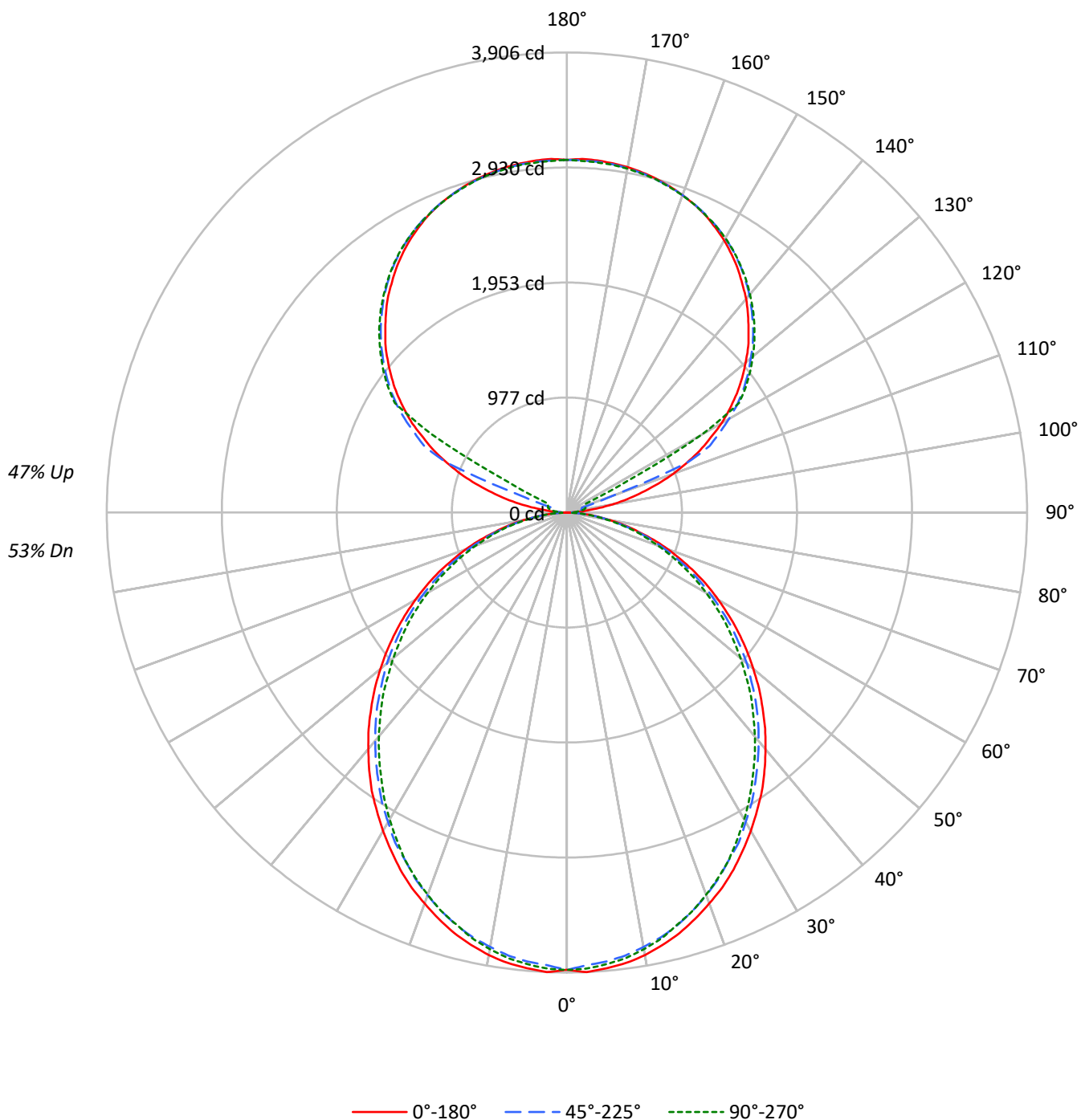
Lumens per Lamp: N/A
Luminaire Lumens: 18664.5 lumens
Efficiency: N/A
Efficacy: 127.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 146.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9963
Total Harmonic Distortion (THDi): 0.065
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		85	85	85		71	71	71		59	59	59
1	98	94	90	87		91	87	84	81		75	72	70		63	61	59		52	51	50
2	90	82	76	71		83	76	71	66		65	61	58		55	52	50		46	44	42
3	82	72	65	59		75	67	61	55		58	53	49		49	45	42		41	38	36
4	75	64	56	50		69	60	53	47		51	46	41		43	39	36		36	33	31
5	69	57	49	43		63	53	46	40		46	40	36		39	35	31		33	29	27
6	63	51	43	37		58	48	40	35		41	36	31		35	31	27		30	26	24
7	59	46	38	33		54	43	36	31		37	32	28		32	28	24		27	24	21
8	54	42	34	29		50	39	32	27		34	29	24		29	25	22		25	21	19
9	51	38	31	26		47	36	29	24		31	26	22		27	23	19		23	20	17
10	47	35	28	23		44	33	26	22		29	24	20		25	21	18		21	18	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2835	2835	2835
5°	2839	2796	2815
10°	2816	2759	2777
15°	2775	2713	2718
20°	2719	2651	2658
25°	2663	2576	2588
30°	2594	2506	2499
35°	2528	2423	2404
40°	2446	2340	2315
45°	2365	2257	2223
50°	2276	2169	2117
55°	2183	2068	2019
60°	2078	1948	1907
65°	1964	1823	1775
70°	1818	1672	1634
75°	1616	1490	1504
80°	1373	1259	1254
85°	992	859	839

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2365 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	365.5	2.0
10°-20°	1028.5	5.5
20°-30°	1511.4	8.1
30°-40°	1755.4	9.4
40°-50°	1753.3	9.4
50°-60°	1528.8	8.2
60°-70°	1130.1	6.1
70°-80°	639.4	3.4
80°-90°	174.0	0.9
90°-100°	98.7	0.5
100°-110°	368.1	2.0
110°-120°	976.2	5.2
120°-130°	1619.0	8.7
130°-140°	1719.8	9.2
140°-150°	1598.3	8.6
150°-160°	1285.0	6.9
160°-170°	828.0	4.4
170°-180°	285.0	1.5
0°-30°	2905.4	15.6
0°-40°	4660.9	25.0
0°-60°	7942.9	42.6
0°-90°	9886.5	53.0
90°-120°	1442.9	7.7
90°-150°	6380.0	34.2
90°-180°	8778.0	47.0
0°-180°	18664.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3884	3884	3884	3884	3884	
5°	3884	3869	3828	3858	3850	369
15°	3697	3675	3626	3641	3622	1041
25°	3346	3316	3253	3260	3253	1540
35°	2887	2850	2790	2767	2748	1803
45°	2349	2323	2267	2226	2211	1813
55°	1778	1755	1710	1666	1647	1589
65°	1199	1176	1139	1106	1087	1185
75°	627	620	601	579	586	670
85°	153	149	146	134	131	171
90°	2	26	43	54	58	17
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°	3883.6	3883.6	3883.6	3883.6	3883.6
2.5°	3906.2	3887.6	3846.5	3883.6	3876.5
5°	3883.6	3869.0	3827.8	3857.5	3850.3
7.5°	3857.5	3835.4	3794.1	3824.3	3816.7
10°	3816.7	3790.6	3745.8	3775.5	3764.4
12.5°	3760.4	3738.2	3693.5	3712.0	3704.6
15°	3697.1	3674.9	3626.1	3641.2	3622.5
17.5°	3618.6	3596.4	3547.7	3566.3	3547.7
20°	3532.6	3510.4	3458.1	3469.2	3454.5
22.5°	3447.0	3413.4	3364.6	3364.6	3357.1
25°	3346.0	3316.2	3252.9	3260.0	3252.9
27.5°	3233.8	3207.7	3159.4	3148.3	3129.7
30°	3122.2	3092.0	3036.1	3025.0	3010.0
32.5°	3002.5	2980.3	2920.4	2897.9	2882.8
35°	2886.8	2849.6	2789.7	2767.2	2748.5
37.5°	2756.1	2722.4	2662.5	2636.4	2617.8
40°	2621.7	2591.6	2531.7	2498.5	2483.5
42.5°	2490.9	2460.9	2401.4	2363.8	2341.7
45°	2349.1	2323.0	2266.7	2225.9	2210.9
47.5°	2210.9	2184.7	2124.8	2083.7	2061.5
50°	2065.1	2046.4	1994.1	1941.9	1923.2
52.5°	1923.2	1897.1	1848.7	1807.6	1781.4
55°	1777.8	1755.2	1710.4	1665.7	1647.1
57.5°	1632.0	1613.4	1564.7	1519.9	1504.8
60°	1486.2	1471.5	1419.2	1378.0	1367.0
62.5°	1344.3	1318.2	1280.9	1243.7	1228.7
65°	1198.9	1176.3	1139.1	1105.5	1086.8
67.5°	1049.6	1030.6	997.2	971.2	956.1
70°	911.3	896.2	862.6	836.4	821.8
72.5°	769.4	754.3	735.7	709.6	698.6
75°	627.3	620.0	601.1	578.9	586.4
77.5°	500.4	485.4	477.9	466.8	455.7
80°	373.6	369.6	362.1	351.0	343.6
82.5°	254.0	254.0	250.4	235.3	235.3
85°	152.9	149.4	145.8	134.3	130.8
87.5°	67.3	59.8	52.3	41.3	37.3
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	11.17	12.06	12.10	13.01	14.24	10.73	11.62	11.66	12.57	13.80
	3H	12.84	13.63	13.78	14.59	15.84	12.35	13.15	13.29	14.11	15.36
	4H	13.43	14.18	14.38	15.14	16.40	12.94	13.69	13.90	14.66	15.92
	6H	13.83	14.52	14.80	15.49	16.77	13.34	14.03	14.31	15.00	16.27
	8H	13.94	14.60	14.91	15.58	16.85	13.44	14.11	14.42	15.09	16.36
	12H	13.99	14.62	14.97	15.60	16.89	13.49	14.12	14.47	15.10	16.39
4H	2H	11.63	12.39	12.60	13.35	14.61	11.28	12.04	12.25	13.00	14.26
	3H	13.51	14.14	14.48	15.13	16.40	13.10	13.73	14.08	14.73	16.00
	4H	14.22	14.80	15.21	15.79	17.08	13.81	14.38	14.79	15.37	16.67
	6H	14.74	15.24	15.74	16.25	17.55	14.32	14.82	15.31	15.82	17.12
	8H	14.90	15.36	15.89	16.36	17.67	14.47	14.93	15.46	15.93	17.24
	12H	14.97	15.39	15.99	16.41	17.72	14.53	14.95	15.55	15.97	17.29
8H	4H	14.42	14.89	15.42	15.89	17.20	14.05	14.52	15.05	15.52	16.83
	6H	15.06	15.44	16.08	16.49	17.80	14.68	15.07	15.70	16.11	17.42
	8H	15.28	15.62	16.31	16.65	17.98	14.90	15.24	15.93	16.27	17.59
	12H	15.42	15.71	16.45	16.74	18.11	15.01	15.31	16.05	16.34	17.71
12H	4H	14.41	14.83	15.42	15.85	17.16	14.05	14.47	15.06	15.48	16.80
	6H	15.09	15.43	16.12	16.46	17.79	14.72	15.06	15.75	16.09	17.42
	8H	15.33	15.63	16.37	16.66	18.03	14.96	15.26	15.99	16.29	17.66