

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: P906177

Luminaire Tested: DFN2DIP-PN4F0-120D080US835-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P906177
REPORT IS A COMBINATION OF REPORTS P901217 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-120D080US835-FLLONL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

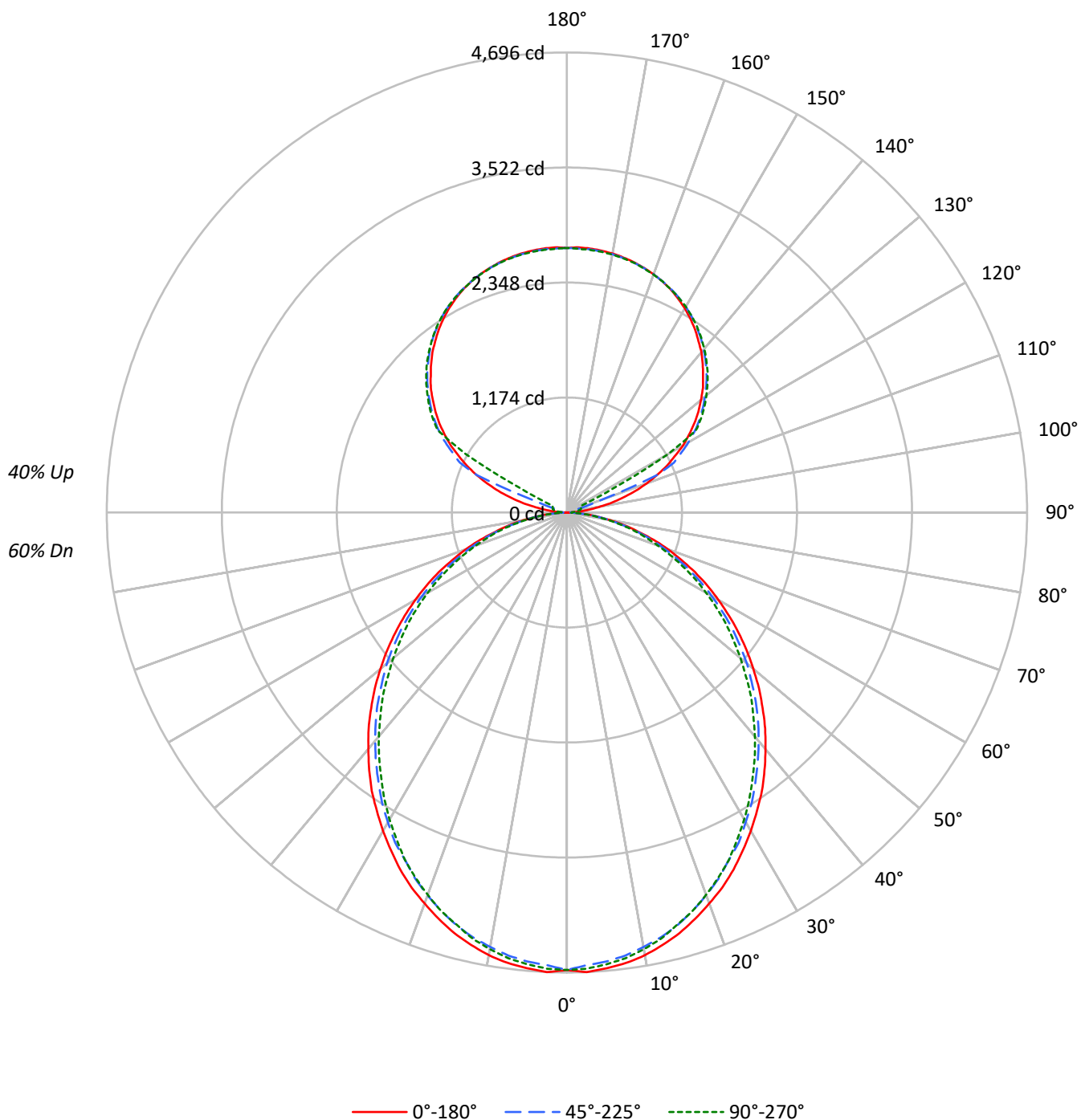
Lumens per Lamp: N/A
Luminaire Lumens: 19800.0 lumens
Efficiency: N/A
Efficacy: 107.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 184.2
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	110	110	110	110		102	102	102	102		89	89	89		77	77	77		65	65	65
1	100	96	92	88		93	90	86	83		78	75	73		67	66	64		58	56	55
2	91	84	77	72		85	78	73	68		68	64	61		59	56	53		51	49	47
3	83	73	66	60		77	69	62	57		60	55	51		52	48	45		45	42	40
4	76	65	57	51		71	61	54	48		54	48	44		47	42	39		40	37	34
5	70	58	50	44		65	55	47	42		48	42	38		42	37	34		36	33	30
6	64	52	44	38		60	49	42	36		43	37	33		38	33	30		33	29	26
7	60	47	39	33		56	44	37	32		39	33	29		35	30	26		30	26	23
8	55	43	35	30		52	40	33	28		36	30	26		32	27	23		28	24	21
9	52	39	32	26		48	37	30	25		33	27	23		29	24	21		26	22	19
10	48	36	29	24		45	34	27	23		30	25	21		27	22	19		24	20	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3408	3408	3408
5°	3414	3361	3384
10°	3386	3317	3339
15°	3336	3262	3268
20°	3269	3187	3195
25°	3202	3097	3111
30°	3118	3013	3004
35°	3039	2914	2891
40°	2941	2814	2783
45°	2843	2713	2673
50°	2737	2608	2545
55°	2625	2486	2428
60°	2499	2342	2293
65°	2361	2192	2135
70°	2186	2010	1965
75°	1943	1792	1808
80°	1651	1514	1508
85°	1194	1033	1009

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2843 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	439.5	2.2
10°-20°	1236.5	6.2
20°-30°	1817.2	9.2
30°-40°	2110.5	10.7
40°-50°	2107.9	10.6
50°-60°	1838.0	9.3
60°-70°	1358.7	6.9
70°-80°	768.7	3.9
80°-90°	207.7	1.0
90°-100°	89.0	0.4
100°-110°	331.9	1.7
110°-120°	880.2	4.4
120°-130°	1459.9	7.4
130°-140°	1550.7	7.8
140°-150°	1441.2	7.3
150°-160°	1158.7	5.9
160°-170°	746.6	3.8
170°-180°	257.0	1.3
0°-30°	3493.1	17.6
0°-40°	5603.7	28.3
0°-60°	9549.6	48.2
0°-90°	11884.7	60.0
90°-120°	1301.1	6.6
90°-150°	5752.9	29.1
90°-180°	7915.0	40.0
0°-180°	19800.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4669	4669	4669	4669	4669	
5°	4669	4652	4602	4638	4629	443
15°	4445	4418	4360	4378	4355	1252
25°	4023	3987	3911	3920	3911	1851
35°	3471	3426	3354	3327	3304	2167
45°	2824	2793	2725	2676	2658	2180
55°	2137	2110	2056	2003	1980	1911
65°	1442	1414	1370	1329	1307	1425
75°	754	746	723	696	705	805
85°	184	180	175	162	157	205
90°	2	23	39	49	53	18
95°	127	62	76	86	84	150
105°	594	653	119	141	148	635
115°	1123	1156	1205	301	160	1106
125°	1588	1614	1651	1664	1670	1416
135°	1965	1997	2014	2034	2030	1518
145°	2280	2278	2311	2325	2315	1426
155°	2510	2493	2516	2528	2512	1157
165°	2645	2634	2639	2653	2639	747
175°	2706	2692	2696	2710	2690	258
180°	2700	2700	2700	2700	2700	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4669.3	4669.3	4669.3	4669.3	4669.3
2.5°	4696.4	4674.0	4624.5	4669.3	4660.7
5°	4669.3	4651.6	4602.1	4637.8	4629.2
7.5°	4637.8	4611.1	4561.6	4597.8	4588.8
10°	4588.8	4557.3	4503.5	4539.2	4525.9
12.5°	4521.1	4494.4	4440.6	4463.0	4453.9
15°	4444.9	4418.2	4359.6	4377.7	4355.3
17.5°	4350.6	4323.9	4265.3	4287.7	4265.3
20°	4247.2	4220.5	4157.7	4171.0	4153.4
22.5°	4144.3	4103.8	4045.2	4045.2	4036.2
25°	4022.8	3987.1	3910.9	3919.5	3910.9
27.5°	3888.0	3856.6	3798.5	3785.1	3762.8
30°	3753.7	3717.5	3650.3	3637.0	3618.9
32.5°	3609.8	3583.2	3511.2	3484.1	3466.0
35°	3470.7	3426.0	3354.0	3326.9	3304.5
37.5°	3313.5	3273.1	3201.1	3169.7	3147.3
40°	3152.1	3115.9	3043.9	3003.9	2985.8
42.5°	2994.9	2958.7	2887.2	2842.0	2815.3
45°	2824.3	2792.9	2725.2	2676.2	2658.1
47.5°	2658.1	2626.6	2554.7	2505.2	2478.5
50°	2482.8	2460.4	2397.5	2334.6	2312.2
52.5°	2312.2	2280.8	2222.7	2173.1	2141.7
55°	2137.4	2110.3	2056.4	2002.6	1980.2
57.5°	1962.1	1939.7	1881.1	1827.3	1809.2
60°	1786.8	1769.2	1706.3	1656.8	1643.4
62.5°	1616.3	1584.8	1540.1	1495.3	1477.2
65°	1441.5	1414.3	1369.5	1329.0	1306.7
67.5°	1261.9	1239.0	1199.0	1167.6	1149.5
70°	1095.6	1077.5	1037.0	1005.6	988.0
72.5°	925.1	907.0	884.6	853.2	839.8
75°	754.1	745.5	722.6	696.0	705.0
77.5°	601.6	583.5	574.5	561.1	547.8
80°	449.2	444.4	435.4	422.1	413.0
82.5°	305.3	305.3	301.1	283.0	283.0
85°	183.9	179.6	175.3	161.5	157.2
87.5°	81.0	71.9	62.9	49.5	44.8
90°	1.9	23.4	39.0	48.9	52.7
92.5°	48.9	41.1	46.9	50.8	52.7
95°	126.9	62.4	76.1	86.1	84.0
97.5°	228.5	68.4	99.5	105.6	107.4
100°	345.9	78.2	111.4	126.9	130.8
102.5°	474.7	470.9	115.3	136.6	142.7
105°	593.9	652.6	119.2	140.6	148.5
107.5°	732.6	781.3	123.2	144.5	152.4
110°	865.6	906.4	342.0	146.6	154.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	990.6	1025.6	992.5	150.3	156.4
115°	1123.3	1156.5	1205.4	300.9	160.3
117.5°	1238.6	1277.6	1311.0	1031.4	519.7
120°	1367.6	1396.8	1432.1	1455.5	1191.7
122.5°	1476.8	1508.2	1547.4	1559.0	1561.1
125°	1588.2	1613.7	1650.8	1664.5	1670.3
127.5°	1689.8	1717.2	1746.7	1766.1	1768.0
130°	1785.6	1816.9	1838.3	1859.9	1858.0
132.5°	1883.3	1908.8	1930.2	1947.8	1945.9
135°	1965.4	1996.7	2014.1	2033.9	2029.9
137.5°	2051.3	2074.7	2094.4	2113.9	2108.1
140°	2135.2	2151.0	2172.4	2190.0	2180.2
142.5°	2205.8	2219.4	2244.7	2260.3	2250.5
145°	2280.0	2277.9	2311.1	2324.8	2315.0
147.5°	2344.3	2338.5	2371.6	2381.4	2373.7
150°	2406.9	2393.2	2424.5	2436.1	2426.4
152.5°	2459.6	2444.0	2473.2	2485.1	2471.4
155°	2510.4	2493.0	2516.4	2528.0	2512.5
157.5°	2551.4	2535.9	2553.5	2567.2	2551.4
160°	2586.7	2574.9	2586.7	2598.3	2584.6
162.5°	2617.8	2606.2	2615.9	2629.6	2612.0
165°	2645.2	2633.6	2639.4	2653.0	2639.4
167.5°	2666.7	2654.9	2660.9	2674.6	2657.0
170°	2684.4	2672.5	2676.5	2690.2	2672.5
172.5°	2696.0	2684.4	2688.3	2702.0	2684.4
175°	2705.7	2692.0	2696.0	2709.6	2690.2
177.5°	2709.6	2696.0	2698.0	2711.7	2694.1
180°	2699.9	2699.9	2699.9	2699.9	2699.9

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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	12.42	13.37	13.28	14.26	15.38	11.98	12.93	12.84	13.82	14.94
	3H	14.09	14.95	14.96	15.84	16.99	13.60	14.46	14.48	15.36	16.51
	4H	14.68	15.49	15.57	16.40	17.55	14.19	15.01	15.09	15.91	17.07
	6H	15.09	15.84	15.99	16.75	17.92	14.60	15.35	15.50	16.26	17.43
	8H	15.20	15.91	16.11	16.84	18.01	14.70	15.42	15.62	16.35	17.51
	12H	15.25	15.93	16.17	16.85	18.05	14.75	15.43	15.67	16.35	17.55
4H	2H	12.89	13.70	13.79	14.61	15.76	12.54	13.35	13.44	14.25	15.41
	3H	14.77	15.45	15.68	16.38	17.55	14.36	15.04	15.27	15.98	17.15
	4H	15.49	16.11	16.41	17.04	18.23	15.07	15.69	15.99	16.62	17.82
	6H	16.01	16.55	16.95	17.50	18.70	15.59	16.12	16.52	17.08	18.27
	8H	16.16	16.66	17.10	17.61	18.82	15.74	16.24	16.67	17.18	18.40
	12H	16.24	16.70	17.20	17.66	18.88	15.80	16.26	16.76	17.22	18.44
8H	4H	15.69	16.19	16.63	17.14	18.35	15.32	15.82	16.26	16.77	17.98
	6H	16.33	16.75	17.30	17.73	18.94	15.95	16.37	16.92	17.36	18.57
	8H	16.55	16.92	17.53	17.90	19.13	16.17	16.54	17.14	17.52	18.74
	12H	16.69	17.02	17.67	17.99	19.26	16.29	16.61	17.27	17.59	18.86
12H	4H	15.68	16.13	16.64	17.10	18.32	15.32	15.77	16.28	16.74	17.95
	6H	16.36	16.73	17.34	17.71	18.94	16.00	16.36	16.97	17.34	18.57
	8H	16.61	16.93	17.59	17.91	19.18	16.24	16.56	17.22	17.53	18.81