

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: P908869

Luminaire Tested: DFN2DIP-PN4F0-110D080US840-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P908869
REPORT IS A COMBINATION OF REPORTS P901215 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-110D080US840-FLLONL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

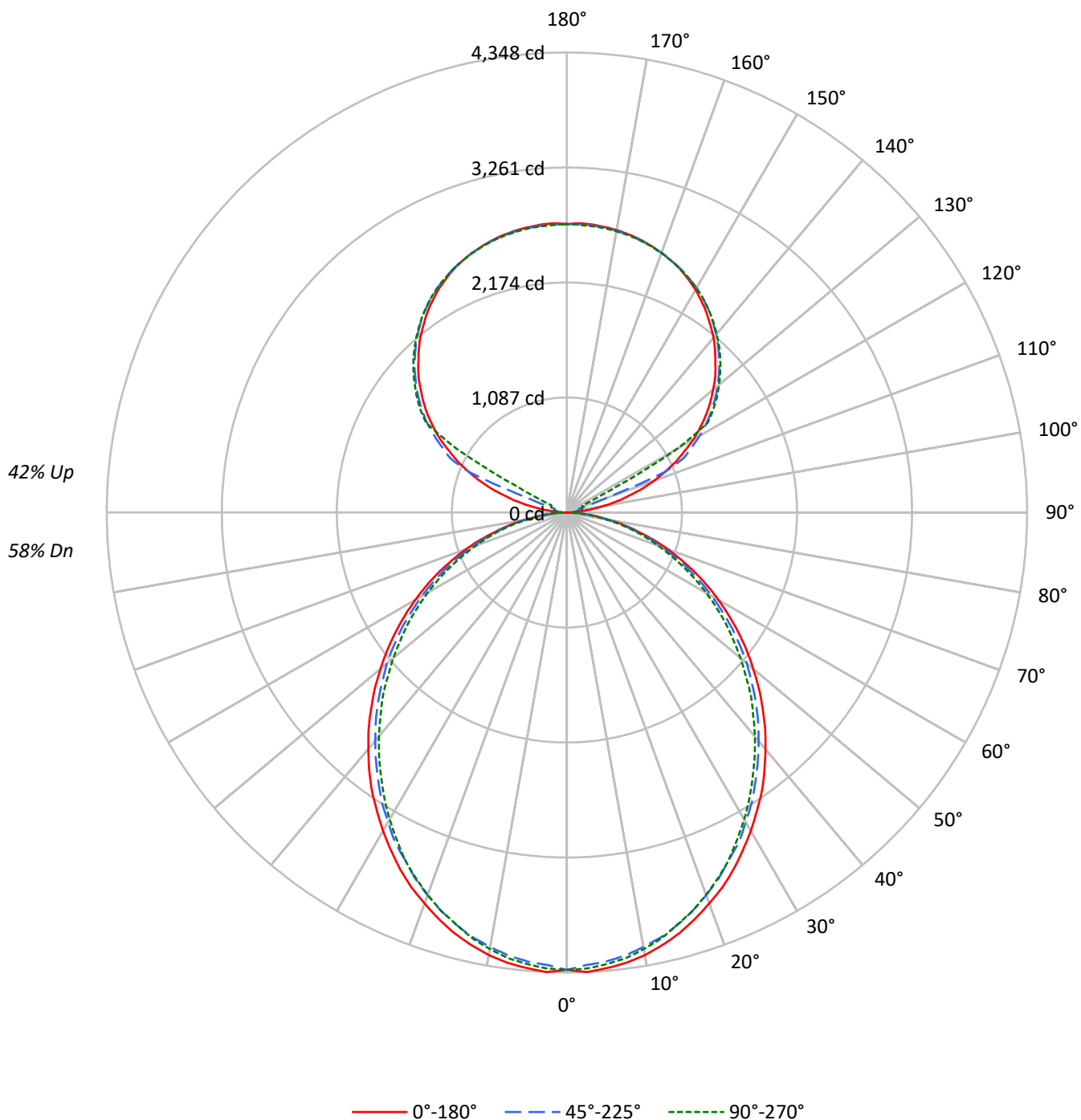
Lumens per Lamp: N/A
Luminaire Lumens: 18995.6 lumens
Efficiency: N/A
Efficacy: 110.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 172.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.996
Total Harmonic Distortion (THDi): 0.064
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	102	102	102	102	88	88	88	75	75	75	63	63	63
1	100	95	91	88	93	89	85	82	77	74	72	66	64	63	56	55	54
2	91	83	77	72	84	78	72	68	67	63	60	58	55	52	49	47	45
3	83	73	66	60	77	68	62	57	60	54	50	51	47	44	44	41	38
4	76	65	57	51	70	61	54	48	53	47	43	46	41	38	39	36	33
5	70	58	50	43	65	54	47	41	47	42	37	41	37	33	35	32	29
6	64	52	44	38	60	49	41	36	43	37	32	37	32	29	32	28	25
7	59	47	39	33	55	44	37	32	39	33	29	34	29	26	29	26	23
8	55	43	35	29	51	40	33	28	35	30	25	31	26	23	27	23	20
9	51	39	31	26	48	37	30	25	33	27	23	29	24	21	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°	3155	3155	3155
5°	3160	3112	3133
10°	3135	3070	3091
15°	3088	3020	3025
20°	3026	2950	2958
25°	2964	2867	2880
30°	2887	2789	2781
35°	2813	2697	2676
40°	2722	2605	2576
45°	2632	2512	2474
50°	2533	2414	2356
55°	2430	2302	2247
60°	2313	2168	2123
65°	2186	2029	1976
70°	2023	1861	1818
75°	1798	1659	1674
80°	1528	1401	1396
85°	1105	957	934

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 2632 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	406.8	2.1
10°-20°	1144.7	6.0
20°-30°	1682.2	8.9
30°-40°	1953.7	10.3
40°-50°	1951.3	10.3
50°-60°	1701.5	9.0
60°-70°	1257.8	6.6
70°-80°	711.6	3.7
80°-90°	192.6	1.0
90°-100°	89.9	0.5
100°-110°	335.1	1.8
110°-120°	888.9	4.7
120°-130°	1474.3	7.8
130°-140°	1566.0	8.2
140°-150°	1455.4	7.7
150°-160°	1170.1	6.2
160°-170°	754.0	4.0
170°-180°	259.5	1.4
0°-30°	3233.7	17.0
0°-40°	5187.4	27.3
0°-60°	8840.2	46.5
0°-90°	11002.2	57.9
90°-120°	1314.0	6.9
90°-150°	5809.7	30.6
90°-180°	7993.0	42.1
0°-180°	18995.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4322	4322	4322	4322	4322	
5°	4322	4306	4260	4293	4285	410
15°	4115	4090	4036	4052	4032	1159
25°	3724	3691	3620	3628	3620	1714
35°	3213	3172	3105	3080	3059	2006
45°	2614	2585	2523	2477	2461	2018
55°	1979	1954	1904	1854	1833	1769
65°	1334	1309	1268	1230	1210	1319
75°	698	690	669	644	653	745
85°	170	166	162	150	146	190
90°	2	24	39	49	53	18
95°	128	63	77	87	85	152
105°	600	659	120	142	150	641
115°	1134	1168	1217	304	162	1117
125°	1604	1630	1667	1681	1687	1430
135°	1985	2016	2034	2054	2050	1533
145°	2302	2300	2334	2348	2338	1440
155°	2535	2518	2541	2553	2537	1168
165°	2671	2660	2665	2679	2665	755
175°	2732	2719	2723	2736	2717	260
180°	2726	2726	2726	2726	2726	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4322.4	4322.4	4322.4	4322.4	4322.4
2.5°	4347.5	4326.8	4280.9	4322.4	4314.4
5°	4322.4	4306.1	4260.2	4293.2	4285.4
7.5°	4293.2	4268.6	4222.8	4256.3	4247.9
10°	4247.9	4218.7	4168.9	4201.9	4189.6
12.5°	4185.3	4160.5	4110.8	4131.5	4123.1
15°	4114.7	4090.0	4035.7	4052.5	4031.8
17.5°	4027.3	4002.7	3948.5	3969.2	3948.5
20°	3931.7	3907.0	3848.8	3861.1	3844.9
22.5°	3836.5	3798.9	3744.7	3744.7	3736.3
25°	3724.0	3691.0	3620.4	3628.3	3620.4
27.5°	3599.2	3570.1	3516.3	3503.9	3483.2
30°	3474.8	3441.3	3379.1	3366.8	3350.0
32.5°	3341.6	3317.0	3250.4	3225.2	3208.4
35°	3212.9	3171.5	3104.8	3079.7	3059.0
37.5°	3067.4	3029.9	2963.3	2934.2	2913.5
40°	2917.9	2884.4	2817.8	2780.8	2764.0
42.5°	2772.4	2738.9	2672.7	2630.8	2606.2
45°	2614.5	2585.4	2522.7	2477.4	2460.6
47.5°	2460.6	2431.6	2364.9	2319.1	2294.3
50°	2298.4	2277.7	2219.4	2161.2	2140.5
52.5°	2140.5	2111.3	2057.6	2011.7	1982.6
55°	1978.6	1953.5	1903.7	1853.8	1833.1
57.5°	1816.3	1795.6	1741.4	1691.5	1674.8
60°	1654.1	1637.8	1579.5	1533.7	1521.4
62.5°	1496.2	1467.1	1425.6	1384.2	1367.5
65°	1334.3	1309.2	1267.8	1230.3	1209.6
67.5°	1168.1	1147.0	1109.9	1080.9	1064.1
70°	1014.2	997.4	960.0	930.9	914.5
72.5°	856.4	839.6	818.9	789.8	777.4
75°	698.0	690.1	668.9	644.3	652.7
77.5°	556.9	540.2	531.8	519.5	507.2
80°	415.9	411.4	403.0	390.7	382.3
82.5°	282.7	282.7	278.7	262.0	262.0
85°	170.3	166.2	162.3	149.5	145.5
87.5°	74.9	66.6	58.2	45.8	41.4
90°	1.9	23.6	39.4	49.4	53.2
92.5°	49.4	41.5	47.4	51.3	53.2
95°	128.2	63.0	76.9	86.9	84.8
97.5°	230.8	69.1	100.5	106.6	108.5
100°	349.3	79.0	112.5	128.2	132.1
102.5°	479.4	475.5	116.4	137.9	144.1
105°	599.8	659.0	120.4	142.0	150.0
107.5°	739.8	789.0	124.4	145.9	153.9
110°	874.1	915.3	345.4	148.0	155.8

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1000.4	1035.7	1002.3	151.8	157.9
115°	1134.4	1167.9	1217.3	303.9	161.9
117.5°	1250.8	1290.2	1323.9	1041.6	524.8
120°	1381.1	1410.6	1446.2	1469.9	1203.5
122.5°	1491.4	1523.1	1562.7	1574.4	1576.5
125°	1603.9	1629.6	1667.1	1680.9	1686.8
127.5°	1706.5	1734.1	1763.9	1783.5	1785.4
130°	1803.2	1834.8	1856.4	1878.2	1876.3
132.5°	1901.9	1927.6	1949.2	1967.0	1965.1
135°	1984.8	2016.4	2034.0	2054.0	2049.9
137.5°	2071.5	2095.2	2115.1	2134.8	2128.9
140°	2156.3	2172.2	2193.8	2211.6	2201.7
142.5°	2227.6	2241.3	2266.8	2282.6	2272.7
145°	2302.5	2300.4	2333.9	2347.7	2337.8
147.5°	2367.4	2361.6	2395.0	2404.9	2397.1
150°	2430.6	2416.8	2448.4	2460.1	2450.3
152.5°	2483.9	2468.1	2497.6	2509.6	2495.8
155°	2535.2	2517.6	2541.2	2552.9	2537.3
157.5°	2576.6	2560.9	2578.7	2592.5	2576.6
160°	2612.2	2600.3	2612.2	2623.9	2610.1
162.5°	2643.6	2631.9	2641.7	2655.5	2637.8
165°	2671.3	2659.6	2665.4	2679.2	2665.4
167.5°	2693.0	2681.1	2687.2	2701.0	2683.2
170°	2710.9	2698.9	2702.9	2716.7	2698.9
172.5°	2722.6	2710.9	2714.8	2728.7	2710.9
175°	2732.4	2718.6	2722.6	2736.3	2716.7
177.5°	2736.3	2722.6	2724.6	2738.5	2720.7
180°	2726.5	2726.5	2726.5	2726.5	2726.5

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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	11.97	12.91	12.86	13.82	14.97	11.53	12.47	12.42	13.38	14.53
	3H	13.64	14.48	14.54	15.40	16.58	13.16	14.00	14.05	14.91	16.09
	4H	14.23	15.03	15.15	15.95	17.14	13.75	14.54	14.66	15.46	16.65
	6H	14.64	15.37	15.56	16.30	17.50	14.15	14.88	15.07	15.81	17.01
	8H	14.75	15.45	15.68	16.39	17.59	14.26	14.95	15.19	15.90	17.10
	12H	14.80	15.46	15.74	16.40	17.63	14.30	14.97	15.24	15.90	17.13
4H	2H	12.44	13.24	13.36	14.16	15.35	12.09	12.89	13.01	13.81	15.00
	3H	14.32	14.98	15.25	15.93	17.14	13.92	14.58	14.85	15.53	16.74
	4H	15.04	15.64	15.98	16.59	17.82	14.62	15.23	15.56	16.17	17.40
	6H	15.56	16.08	16.51	17.05	18.28	15.14	15.66	16.09	16.63	17.86
	8H	15.71	16.20	16.67	17.17	18.41	15.28	15.77	16.24	16.74	17.98
	12H	15.79	16.23	16.77	17.21	18.46	15.35	15.79	16.33	16.77	18.02
8H	4H	15.24	15.73	16.20	16.69	17.94	14.87	15.36	15.83	16.32	17.57
	6H	15.88	16.28	16.86	17.29	18.53	15.50	15.91	16.48	16.91	18.15
	8H	16.10	16.46	17.09	17.45	18.71	15.72	16.08	16.71	17.07	18.33
	12H	16.24	16.55	17.23	17.54	18.85	15.84	16.15	16.83	17.14	18.45
12H	4H	15.23	15.67	16.21	16.65	17.90	14.87	15.31	15.84	16.29	17.54
	6H	15.91	16.27	16.90	17.26	18.52	15.54	15.90	16.53	16.90	18.16
	8H	16.16	16.47	17.15	17.46	18.77	15.79	16.10	16.78	17.09	18.39