

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: P908599

Luminaire Tested: DFN2DIP-PN3F0-090D090US840-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P908599
REPORT IS A COMBINATION OF REPORTS P901128 AND P897955
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN3F0-090D090US840-RLLONL
Description: 3 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

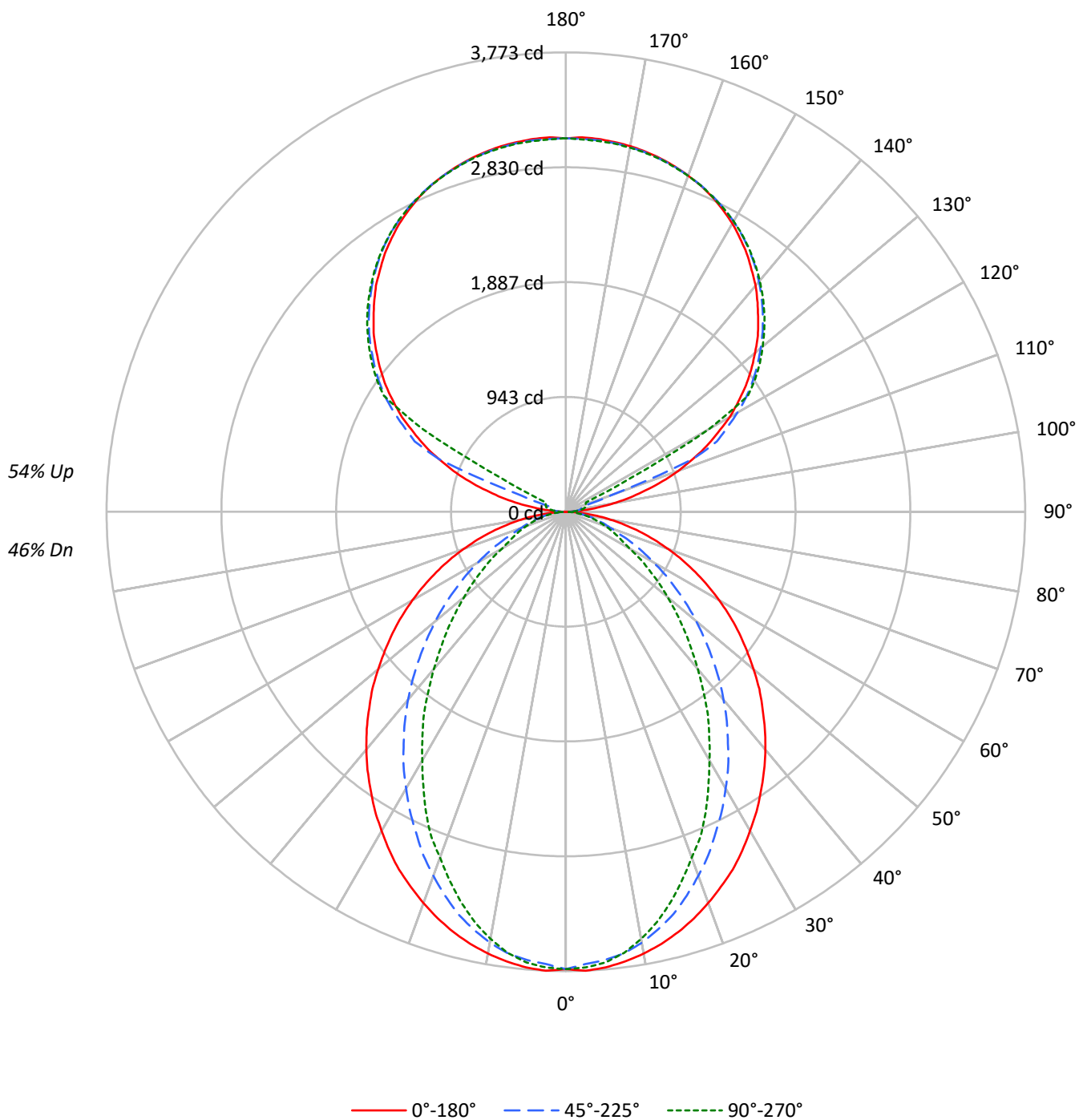
Lumens per Lamp: N/A
Luminaire Lumens: 16723.4 lumens
Efficiency: N/A
Efficacy: 101.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 2.96' x L: 3.11' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 164.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9954
Total Harmonic Distortion (THDi): 0.076
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	106	106	106	106	98	98	98	98	81	81	81	66	66	66	53	53	53
1	97	93	90	86	89	86	83	80	72	70	68	59	58	56	47	46	45
2	89	82	76	71	82	76	70	66	63	60	57	52	50	48	42	40	39
3	81	72	65	60	75	67	61	56	56	52	48	47	43	41	38	35	34
4	75	64	57	51	68	60	53	48	50	45	41	42	38	35	34	31	29
5	69	58	50	44	63	53	46	41	45	40	36	38	34	31	31	28	26
6	63	52	44	38	58	48	41	36	41	36	32	34	30	27	28	25	23
7	59	47	39	34	54	44	37	32	37	32	28	31	27	24	26	23	21
8	55	43	35	30	50	40	33	28	34	29	25	29	25	22	24	21	19
9	51	39	32	27	47	36	30	25	31	26	22	27	23	20	22	19	17
10	48	36	29	24	44	33	27	23	29	24	20	25	21	18	20	18	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4391	4391	4391
5°	4396	4318	4347
10°	4350	4231	4204
15°	4287	4088	3984
20°	4205	3892	3714
25°	4121	3673	3453
30°	4010	3449	3123
35°	3900	3209	2834
40°	3789	2960	2502
45°	3659	2685	2201
50°	3525	2407	1908
55°	3385	2111	1626
60°	3222	1802	1337
65°	3035	1487	1201
70°	2808	1195	1084
75°	2522	1046	982
80°	2109	868	846
85°	1432	564	624

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3659 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	352.1	2.1
10°-20°	966.5	5.8
20°-30°	1356.9	8.1
30°-40°	1479.1	8.8
40°-50°	1359.4	8.1
50°-60°	1067.6	6.4
60°-70°	694.9	4.2
70°-80°	357.7	2.1
80°-90°	96.7	0.6
90°-100°	101.2	0.6
100°-110°	377.0	2.3
110°-120°	1000.0	6.0
120°-130°	1658.6	9.9
130°-140°	1761.8	10.5
140°-150°	1637.4	9.8
150°-160°	1316.4	7.9
160°-170°	848.2	5.1
170°-180°	292.0	1.7
0°-30°	2675.4	16.0
0°-40°	4154.5	24.8
0°-60°	6581.5	39.4
0°-90°	7730.9	46.2
90°-120°	1478.2	8.8
90°-150°	6535.9	39.1
90°-180°	8992.0	53.8
0°-180°	16723.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3756	3756	3756	3756	3756	
5°	3756	3739	3695	3726	3716	356
15°	3573	3535	3420	3355	3321	1007
25°	3243	3134	2910	2771	2720	1492
35°	2794	2621	2322	2108	2033	1749
45°	2284	2057	1700	1458	1377	1764
55°	1737	1472	1105	901	836	1552
65°	1173	897	592	476	466	1163
75°	625	387	272	248	245	661
85°	146	75	64	64	64	168
90°	2	27	44	56	60	16
95°	144	71	86	98	95	171
105°	675	741	135	160	169	721
115°	1276	1314	1370	342	182	1256
125°	1804	1833	1876	1891	1898	1609
135°	2233	2268	2288	2311	2306	1725
145°	2590	2588	2626	2641	2630	1620
155°	2852	2832	2859	2872	2854	1314
165°	3005	2992	2999	3014	2999	849
175°	3074	3058	3063	3078	3056	293
180°	3067	3067	3067	3067	3067	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3756.4	3756.4	3756.4	3756.4	3756.4
2.5°	3773.4	3756.4	3718.8	3753.2	3746.3
5°	3756.4	3739.4	3695.1	3725.7	3715.6
7.5°	3725.7	3705.5	3657.9	3671.3	3654.3
10°	3685.0	3661.2	3593.4	3582.9	3562.7
12.5°	3634.1	3603.5	3511.5	3491.3	3453.7
15°	3572.8	3535.3	3419.9	3355.3	3321.4
17.5°	3501.4	3447.0	3304.1	3229.4	3175.0
20°	3419.9	3351.7	3181.8	3097.1	3022.0
22.5°	3331.5	3253.3	3056.0	2940.5	2889.7
25°	3243.2	3134.2	2909.9	2770.7	2719.5
27.5°	3137.9	3022.0	2773.9	2614.1	2535.9
30°	3025.7	2896.2	2624.2	2451.1	2359.1
32.5°	2916.7	2760.2	2481.7	2277.7	2192.5
35°	2794.5	2621.0	2322.0	2107.8	2032.8
37.5°	2675.4	2488.3	2172.3	1937.5	1852.8
40°	2549.6	2345.8	2015.8	1774.5	1686.2
42.5°	2420.4	2203.0	1859.6	1607.9	1523.1
45°	2284.5	2056.6	1699.8	1458.1	1376.6
47.5°	2155.4	1914.1	1546.9	1305.3	1230.6
50°	2012.6	1771.2	1397.2	1162.5	1091.4
52.5°	1873.0	1618.0	1254.5	1030.1	965.5
55°	1737.0	1471.9	1104.7	901.0	836.4
57.5°	1597.8	1325.9	972.4	781.9	727.5
60°	1454.9	1183.0	832.8	659.6	605.2
62.5°	1315.8	1043.8	713.8	550.8	523.7
65°	1172.9	897.4	591.5	476.1	465.6
67.5°	1036.9	761.3	476.1	418.0	407.9
70°	894.1	629.0	394.3	360.3	346.6
72.5°	758.1	506.3	329.6	302.6	295.8
75°	625.4	387.4	272.0	248.1	244.9
77.5°	493.0	275.2	214.2	200.6	193.7
80°	370.4	197.3	163.0	149.7	149.7
82.5°	258.2	132.7	112.2	105.3	105.3
85°	146.0	74.6	64.5	64.5	64.5
87.5°	54.4	27.1	27.1	23.8	23.8
90°	2.1	26.7	44.2	55.6	59.8
92.5°	55.6	46.7	53.2	57.8	59.8
95°	144.2	70.9	86.4	97.8	95.4
97.5°	259.6	77.8	113.1	119.9	122.0
100°	392.9	88.9	126.5	144.2	148.7
102.5°	539.3	535.0	131.0	155.2	162.1
105°	674.7	741.4	135.4	159.8	168.6
107.5°	832.3	887.7	140.0	164.2	173.2
110°	983.3	1029.8	388.5	166.5	175.3



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1125.4	1165.2	1127.5	170.8	177.6
115°	1276.2	1313.8	1369.5	341.8	182.1
117.5°	1407.1	1451.5	1489.3	1171.8	590.4
120°	1553.7	1586.9	1627.0	1653.6	1353.9
122.5°	1677.9	1713.4	1758.0	1771.1	1773.5
125°	1804.3	1833.3	1875.5	1891.1	1897.6
127.5°	1919.8	1950.9	1984.4	2006.5	2008.6
130°	2028.6	2064.3	2088.5	2112.9	2110.9
132.5°	2139.6	2168.6	2192.8	2212.9	2210.8
135°	2232.9	2268.5	2288.3	2310.7	2306.2
137.5°	2330.5	2357.0	2379.4	2401.6	2395.0
140°	2425.8	2443.8	2468.0	2488.0	2477.0
142.5°	2506.0	2521.5	2550.2	2567.9	2556.9
145°	2590.3	2587.9	2625.7	2641.2	2630.1
147.5°	2663.3	2656.8	2694.4	2705.5	2696.7
150°	2734.5	2719.0	2754.5	2767.6	2756.6
152.5°	2794.3	2776.6	2809.8	2823.3	2807.7
155°	2852.1	2832.3	2858.8	2872.1	2854.4
157.5°	2898.7	2881.0	2901.0	2916.6	2898.7
160°	2938.7	2925.3	2938.7	2951.9	2936.4
162.5°	2974.1	2960.8	2971.9	2987.5	2967.5
165°	3005.2	2991.9	2998.6	3014.1	2998.6
167.5°	3029.7	3016.3	3023.0	3038.6	3018.6
170°	3049.7	3036.3	3040.7	3056.3	3036.3
172.5°	3062.9	3049.7	3054.1	3069.7	3049.7
175°	3073.9	3058.4	3062.9	3078.4	3056.3
177.5°	3078.4	3062.9	3065.2	3080.8	3060.8
180°	3067.4	3067.4	3067.4	3067.4	3067.4

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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	11.89	12.69	12.88	13.69	15.02	7.85	8.65	8.85	9.65	10.98
	3H	13.56	14.27	14.56	15.28	16.63	9.03	9.75	10.04	10.76	12.11
	4H	14.16	14.84	15.18	15.85	17.21	9.48	10.15	10.50	11.17	12.52
	6H	14.57	15.20	15.60	16.22	17.58	9.79	10.41	10.82	11.43	12.80
	8H	14.70	15.29	15.73	16.32	17.69	9.88	10.47	10.91	11.51	12.87
	12H	14.75	15.32	15.79	16.35	17.73	9.92	10.48	10.96	11.51	12.90
4H	2H	11.90	12.58	12.92	13.59	14.95	8.44	9.12	9.47	10.13	11.49
	3H	13.72	14.28	14.75	15.32	16.69	9.78	10.34	10.81	11.39	12.76
	4H	14.40	14.92	15.44	15.95	17.35	10.32	10.84	11.36	11.87	13.26
	6H	14.91	15.35	15.96	16.41	17.80	10.73	11.18	11.78	12.23	13.62
	8H	15.08	15.50	16.13	16.55	17.95	10.86	11.27	11.91	12.32	13.72
	12H	15.17	15.55	16.24	16.61	18.02	10.92	11.29	11.99	12.36	13.76
8H	4H	14.37	14.78	15.42	15.83	17.23	10.60	11.01	11.65	12.06	13.46
	6H	14.93	15.27	16.00	16.36	17.76	11.11	11.45	12.18	12.54	13.94
	8H	15.14	15.44	16.22	16.51	17.93	11.29	11.59	12.37	12.67	14.09
	12H	15.27	15.53	16.36	16.61	18.07	11.40	11.67	12.49	12.74	14.20
12H	4H	14.32	14.69	15.39	15.76	17.16	10.60	10.97	11.67	12.04	13.44
	6H	14.90	15.20	15.98	16.28	17.70	11.15	11.45	12.23	12.53	13.95
	8H	15.12	15.38	16.20	16.45	17.91	11.36	11.62	12.44	12.69	14.15