

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: P916959

Luminaire Tested: DFN2DIP-PN4F0-080D110US930-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P916959
REPORT IS A COMBINATION OF REPORTS P901264 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-080D110US930-RLLONL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

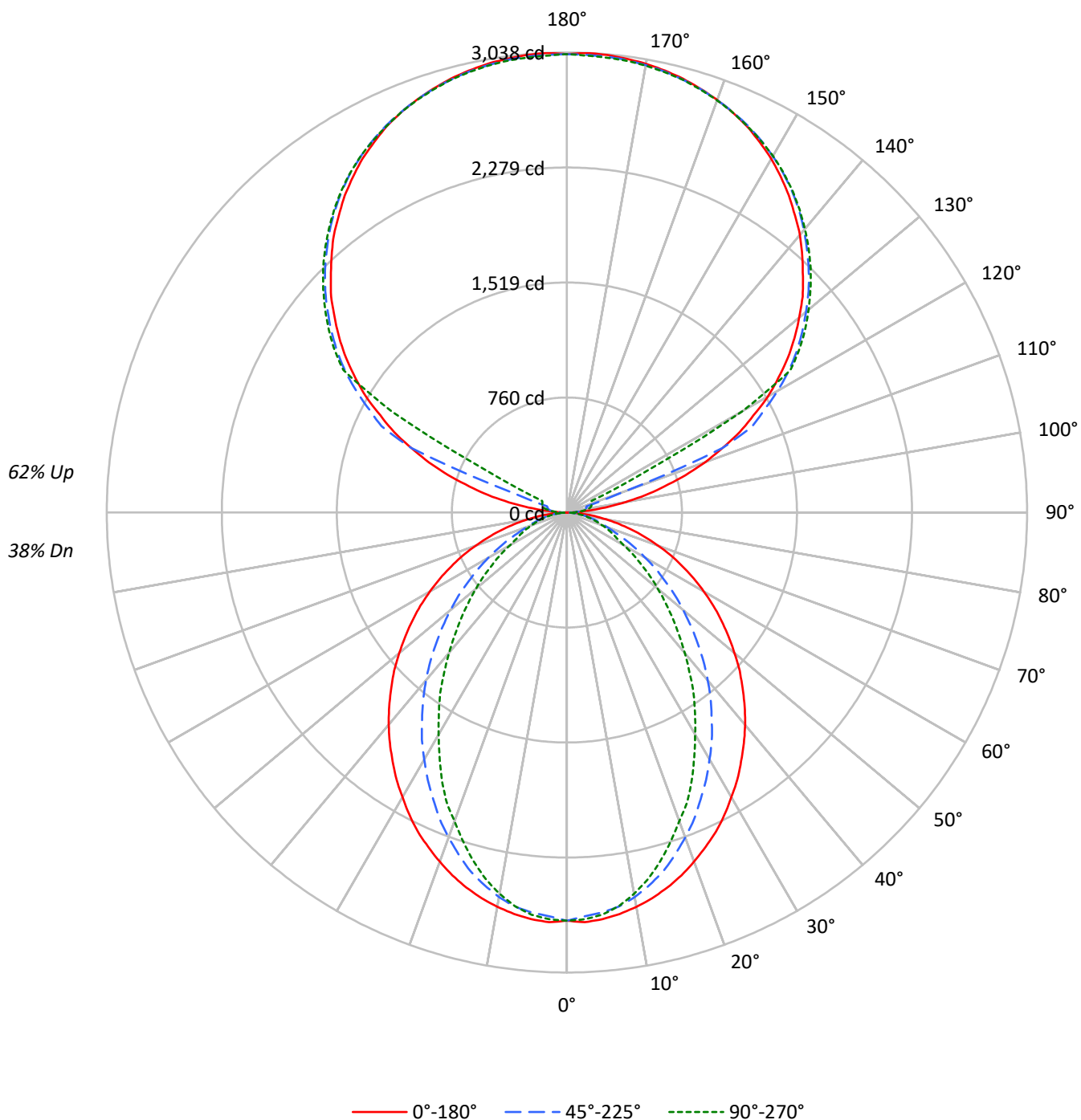
Lumens per Lamp: N/A
Luminaire Lumens: 14422.6 lumens
Efficiency: N/A
Efficacy: 85.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 168.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9971
Total Harmonic Distortion (THDi): 0.049
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	104	104	104	104	95	95	95	95	77	77	77	61	61	61	46	46	46
1	96	91	88	84	87	83	80	77	68	66	64	54	52	51	41	40	39
2	87	80	74	70	79	73	68	64	60	56	53	48	45	43	36	35	34
3	80	71	64	58	72	65	59	54	53	49	45	42	39	37	33	31	29
4	73	63	55	50	66	58	51	46	47	43	39	38	35	32	29	27	25
5	67	56	48	43	61	51	45	40	43	38	34	34	31	28	27	24	22
6	62	50	43	37	56	46	39	35	38	33	30	31	27	25	24	22	20
7	57	46	38	33	52	42	35	30	35	30	26	28	25	22	22	20	18
8	53	41	34	29	48	38	32	27	32	27	23	26	22	20	20	18	16
9	50	38	31	26	45	35	28	24	29	24	21	24	20	18	19	16	14
10	46	35	28	23	42	32	26	22	27	22	19	22	19	16	18	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1968	1968	1968
5°	1971	1937	1949
10°	1951	1899	1886
15°	1924	1837	1788
20°	1889	1750	1668
25°	1853	1653	1553
30°	1804	1554	1405
35°	1756	1448	1276
40°	1707	1337	1128
45°	1650	1214	993
50°	1592	1091	862
55°	1531	959	736
60°	1460	820	606
65°	1379	679	546
70°	1280	548	495
75°	1156	484	451
80°	977	407	392
85°	680	273	297

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1650 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	252.6	1.8
10°-20°	693.6	4.8
20°-30°	973.7	6.8
30°-40°	1061.4	7.4
40°-50°	975.6	6.8
50°-60°	766.2	5.3
60°-70°	498.7	3.5
70°-80°	256.7	1.8
80°-90°	70.9	0.5
90°-100°	99.8	0.7
100°-110°	372.1	2.6
110°-120°	986.7	6.8
120°-130°	1636.6	11.3
130°-140°	1738.4	12.1
140°-150°	1615.7	11.2
150°-160°	1298.9	9.0
160°-170°	837.0	5.8
170°-180°	288.1	2.0
0°-30°	1919.9	13.3
0°-40°	2981.4	20.7
0°-60°	4723.1	32.7
0°-90°	5549.4	38.5
90°-120°	1458.6	10.1
90°-150°	6449.2	44.7
90°-180°	8873.0	61.5
0°-180°	14422.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2696	2696	2696	2696	2696	
5°	2696	2684	2652	2674	2666	256
15°	2564	2537	2454	2408	2384	722
25°	2327	2249	2088	1988	1952	1070
35°	2005	1881	1666	1513	1459	1255
45°	1639	1476	1220	1046	988	1266
55°	1246	1056	793	646	600	1114
65°	842	644	424	342	334	834
75°	449	278	195	178	176	475
85°	105	54	46	46	46	120
90°	2	26	44	55	59	13
95°	142	70	85	96	94	169
105°	666	732	134	158	166	711
115°	1259	1296	1351	337	180	1240
125°	1780	1809	1851	1866	1872	1588
135°	2203	2238	2258	2280	2276	1702
145°	2556	2554	2591	2606	2595	1599
155°	2814	2795	2821	2834	2816	1297
165°	2965	2952	2959	2974	2959	838
175°	3033	3018	3022	3038	3016	289
180°	3027	3027	3027	3027	3027	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2695.7	2695.7	2695.7	2695.7	2695.7
2.5°	2707.9	2695.7	2668.8	2693.3	2688.4
5°	2695.7	2683.6	2651.7	2673.7	2666.4
7.5°	2673.7	2659.2	2625.0	2634.6	2622.4
10°	2644.4	2627.4	2578.7	2571.2	2556.7
12.5°	2608.0	2586.0	2519.9	2505.4	2478.5
15°	2563.9	2537.0	2454.2	2407.9	2383.5
17.5°	2512.7	2473.6	2371.1	2317.6	2278.4
20°	2454.2	2405.3	2283.4	2222.6	2168.7
22.5°	2390.8	2334.6	2193.1	2110.2	2073.7
25°	2327.4	2249.2	2088.2	1988.3	1951.6
27.5°	2251.8	2168.7	1990.6	1876.0	1819.8
30°	2171.3	2078.4	1883.3	1759.0	1693.0
32.5°	2093.1	1980.8	1781.0	1634.5	1573.4
35°	2005.4	1880.9	1666.3	1512.6	1458.7
37.5°	1919.9	1785.7	1558.9	1390.4	1329.6
40°	1829.7	1683.4	1446.6	1273.4	1210.0
42.5°	1737.0	1580.9	1334.5	1153.9	1093.0
45°	1639.4	1475.9	1219.8	1046.4	988.0
47.5°	1546.8	1373.6	1110.1	936.7	883.1
50°	1444.2	1271.1	1002.7	834.2	783.2
52.5°	1344.1	1161.1	900.2	739.2	692.9
55°	1246.5	1056.3	792.8	646.5	600.2
57.5°	1146.6	951.5	697.8	561.2	522.0
60°	1044.1	849.0	597.6	473.4	434.3
62.5°	944.2	749.0	512.3	395.3	375.9
65°	841.7	643.9	424.4	341.7	334.1
67.5°	744.1	546.4	341.7	299.9	292.8
70°	641.6	451.4	282.9	258.5	248.7
72.5°	544.0	363.4	236.6	217.2	212.2
75°	448.8	278.0	195.2	178.1	175.8
77.5°	353.8	197.5	153.8	143.9	139.0
80°	265.8	141.6	117.0	107.4	107.4
82.5°	185.3	95.2	80.5	75.6	75.6
85°	104.8	53.6	46.3	46.3	46.3
87.5°	39.1	19.4	19.4	17.1	17.1
90°	2.1	26.3	43.7	54.9	59.0
92.5°	54.9	46.1	52.5	57.0	59.0
95°	142.3	70.0	85.3	96.4	94.2
97.5°	256.2	76.7	111.5	118.3	120.4
100°	387.8	87.6	124.8	142.3	146.7
102.5°	532.1	527.9	129.2	153.2	160.0
105°	665.8	731.6	133.7	157.6	166.5
107.5°	821.3	875.9	138.1	162.0	170.9
110°	970.3	1016.1	383.4	164.4	172.9

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1110.5	1149.7	1112.6	168.5	175.3
115°	1259.2	1296.4	1351.4	337.3	179.7
117.5°	1388.5	1432.2	1469.7	1156.3	582.5
120°	1533.1	1565.9	1605.4	1631.7	1335.9
122.5°	1655.6	1690.7	1734.6	1747.7	1750.0
125°	1780.4	1809.1	1850.6	1866.0	1872.5
127.5°	1894.3	1925.0	1958.0	1979.9	1982.0
130°	2001.7	2036.9	2060.7	2085.0	2082.9
132.5°	2111.2	2139.8	2163.8	2183.5	2181.5
135°	2203.3	2238.4	2257.9	2280.1	2275.6
137.5°	2299.5	2325.8	2347.9	2369.7	2363.2
140°	2393.7	2411.3	2435.3	2455.0	2444.1
142.5°	2472.7	2488.0	2516.4	2533.9	2522.9
145°	2556.0	2553.6	2590.8	2606.2	2595.3
147.5°	2628.0	2621.5	2658.7	2669.6	2661.1
150°	2698.2	2682.9	2718.0	2731.0	2720.1
152.5°	2757.3	2739.8	2772.6	2785.9	2770.5
155°	2814.2	2794.7	2820.9	2834.0	2816.5
157.5°	2860.2	2842.8	2862.6	2877.9	2860.2
160°	2899.8	2886.5	2899.8	2912.7	2897.4
162.5°	2934.6	2921.6	2932.5	2947.9	2928.1
165°	2965.3	2952.3	2958.8	2974.1	2958.8
167.5°	2989.5	2976.2	2983.0	2998.3	2978.6
170°	3009.3	2996.0	3000.4	3015.8	2996.0
172.5°	3022.2	3009.3	3013.7	3029.0	3009.3
175°	3033.2	3017.8	3022.2	3037.6	3015.8
177.5°	3037.6	3022.2	3024.6	3039.9	3020.2
180°	3026.7	3026.7	3026.7	3026.7	3026.7

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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	8.33	9.07	9.38	10.13	11.55	4.29	5.04	5.35	6.09	7.52
	3H	10.00	10.66	11.06	11.73	13.18	5.47	6.14	6.54	7.20	8.65
	4H	10.61	11.24	11.68	12.30	13.76	5.92	6.55	7.00	7.62	9.07
	6H	11.03	11.61	12.11	12.68	14.14	6.24	6.82	7.32	7.89	9.35
	8H	11.15	11.70	12.24	12.79	14.25	6.33	6.88	7.42	7.96	9.42
	12H	11.21	11.73	12.31	12.81	14.30	6.37	6.89	7.46	7.97	9.45
4H	2H	8.33	8.96	9.42	10.03	11.48	4.88	5.51	5.96	6.57	8.03
	3H	10.16	10.68	11.25	11.78	13.24	6.22	6.74	7.31	7.84	9.31
	4H	10.85	11.33	11.94	12.41	13.90	6.77	7.25	7.86	8.33	9.82
	6H	11.36	11.77	12.47	12.88	14.36	7.18	7.59	8.28	8.70	10.18
	8H	11.54	11.92	12.64	13.02	14.52	7.31	7.69	8.41	8.79	10.29
	12H	11.63	11.98	12.75	13.09	14.59	7.37	7.72	8.49	8.83	10.33
8H	4H	10.81	11.19	11.91	12.29	13.79	7.04	7.43	8.14	8.52	10.02
	6H	11.38	11.69	12.50	12.83	14.33	7.56	7.87	8.68	9.02	10.51
	8H	11.59	11.87	12.73	12.99	14.51	7.75	8.03	8.88	9.15	10.66
	12H	11.73	11.98	12.87	13.09	14.65	7.87	8.11	9.00	9.23	10.78
12H	4H	10.76	11.11	11.88	12.22	13.72	7.04	7.39	8.16	8.50	10.00
	6H	11.35	11.63	12.48	12.75	14.27	7.61	7.89	8.74	9.01	10.52
	8H	11.57	11.81	12.70	12.93	14.48	7.82	8.06	8.95	9.18	10.73

END OF REPORT