

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: P914327

Luminaire Tested: DFN2DIP-PN4F0-110D080US927-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P914327
REPORT IS A COMBINATION OF REPORTS P901216 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-110D080US927-RLLONL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

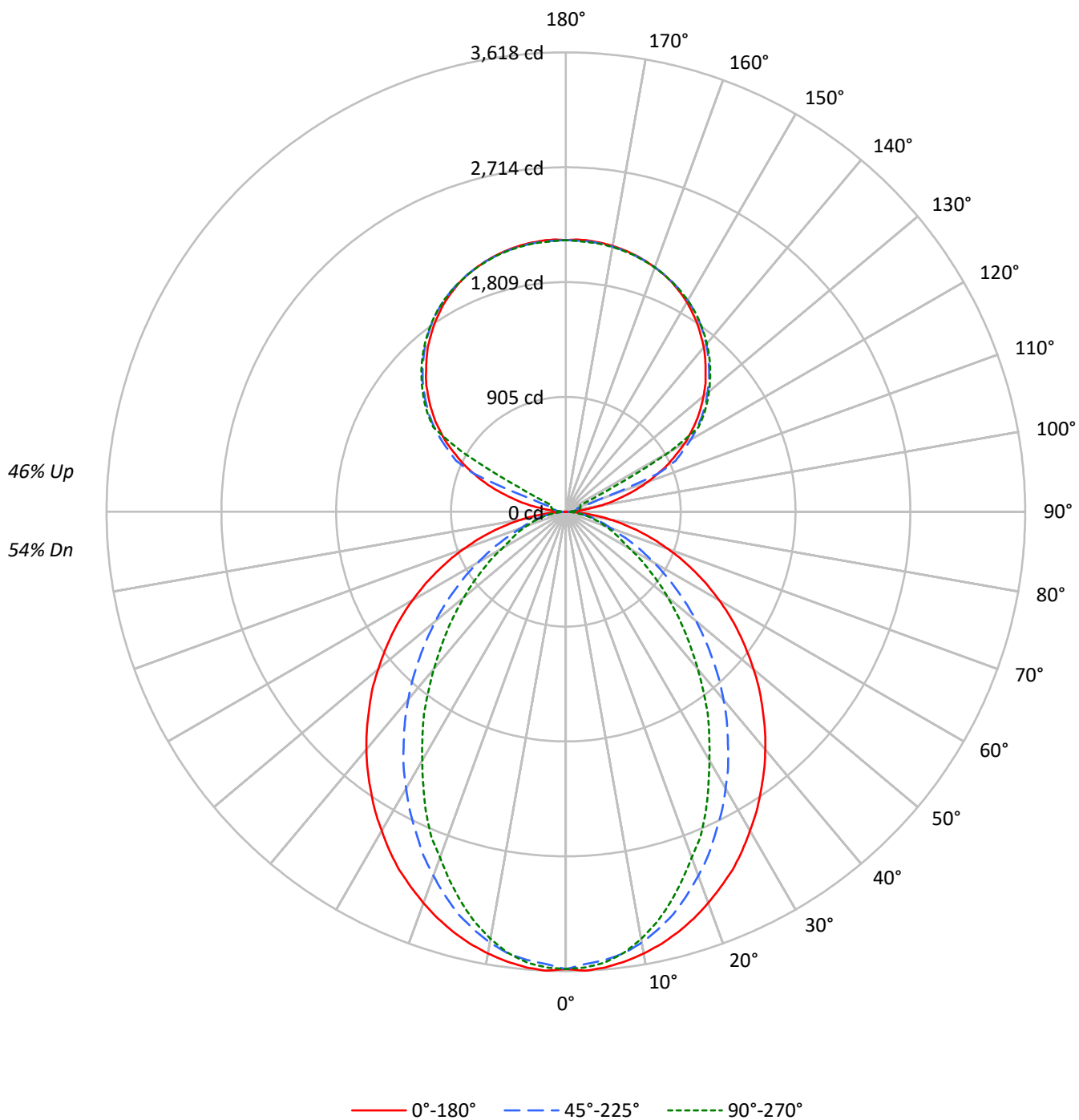
Lumens per Lamp: N/A
Luminaire Lumens: 13681.0 lumens
Efficiency: N/A
Efficacy: 79.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: General Diffuse

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	108	108	108	108	100	100	100	100	86	86	86	72	72	72	60	60	60
1	99	95	91	88	92	88	85	82	76	74	71	64	63	61	54	53	52
2	91	84	78	73	84	78	73	68	67	63	60	57	54	52	48	46	44
3	83	74	67	61	77	69	63	58	60	55	51	51	48	45	43	40	38
4	76	66	58	52	71	62	55	49	53	48	44	46	42	39	39	36	33
5	70	59	51	45	65	55	48	43	48	43	38	41	37	34	35	32	30
6	65	53	45	40	60	50	43	38	44	38	34	38	33	30	32	29	26
7	60	48	40	35	56	45	38	33	40	34	30	34	30	27	29	26	24
8	56	44	36	31	52	41	34	30	36	31	27	32	27	24	27	24	21
9	52	40	33	28	49	38	31	27	33	28	24	29	25	22	25	22	19
10	49	37	30	25	45	35	28	24	31	26	22	27	23	20	23	20	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2629	2629	2629
5°	2633	2588	2604
10°	2607	2537	2520
15°	2571	2454	2389
20°	2524	2338	2229
25°	2475	2209	2074
30°	2410	2077	1877
35°	2346	1934	1705
40°	2281	1786	1507
45°	2205	1623	1327
50°	2127	1457	1152
55°	2045	1280	983
60°	1951	1096	810
65°	1842	908	729
70°	1710	732	661
75°	1545	646	602
80°	1305	543	524
85°	909	365	397

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2205 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	337.5	2.5
10°-20°	926.6	6.8
20°-30°	1300.9	9.5
30°-40°	1418.1	10.4
40°-50°	1303.4	9.5
50°-60°	1023.6	7.5
60°-70°	666.3	4.9
70°-80°	343.0	2.5
80°-90°	91.3	0.7
90°-100°	70.5	0.5
100°-110°	262.9	1.9
110°-120°	697.3	5.1
120°-130°	1156.5	8.5
130°-140°	1228.4	9.0
140°-150°	1141.7	8.3
150°-160°	917.9	6.7
160°-170°	591.5	4.3
170°-180°	203.6	1.5
0°-30°	2565.1	18.7
0°-40°	3983.1	29.1
0°-60°	6310.1	46.1
0°-90°	7410.7	54.2
90°-120°	1030.7	7.5
90°-150°	4557.3	33.3
90°-180°	6270.0	45.8
0°-180°	13681.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3602	3602	3602	3602	3602	
5°	3602	3585	3543	3572	3562	341
15°	3426	3390	3279	3217	3184	965
25°	3109	3005	2790	2656	2607	1430
35°	2679	2513	2226	2021	1949	1677
45°	2190	1972	1630	1398	1320	1691
55°	1665	1411	1059	864	802	1488
65°	1124	860	567	456	446	1115
75°	600	371	261	238	235	634
85°	140	72	62	62	62	161
90°	2	18	31	39	42	13
95°	100	49	60	68	66	119
105°	470	517	94	111	118	503
115°	890	916	955	238	127	876
125°	1258	1278	1308	1319	1323	1122
135°	1557	1582	1596	1611	1608	1203
145°	1806	1804	1831	1842	1834	1130
155°	1989	1975	1993	2003	1990	916
165°	2096	2086	2091	2102	2091	592
175°	2143	2133	2136	2146	2131	204
180°	2139	2139	2139	2139	2139	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3601.5	3601.5	3601.5	3601.5	3601.5
2.5°	3617.7	3601.5	3565.5	3598.4	3591.8
5°	3601.5	3585.3	3542.7	3572.1	3562.4
7.5°	3572.1	3552.7	3507.1	3519.9	3503.6
10°	3533.0	3510.2	3445.2	3435.1	3415.8
12.5°	3484.3	3454.9	3366.7	3347.3	3311.3
15°	3425.5	3389.5	3278.8	3217.0	3184.4
17.5°	3357.0	3304.8	3167.9	3096.2	3044.0
20°	3278.8	3213.5	3050.6	2969.3	2897.4
22.5°	3194.2	3119.1	2930.0	2819.3	2770.5
25°	3109.4	3005.0	2789.9	2656.4	2607.3
27.5°	3008.5	2897.4	2659.5	2506.3	2431.3
30°	2900.9	2776.8	2516.0	2350.0	2261.8
32.5°	2796.5	2646.4	2379.4	2183.7	2102.1
35°	2679.2	2512.9	2226.3	2020.9	1948.9
37.5°	2565.2	2385.7	2082.7	1857.6	1776.4
40°	2444.4	2249.1	1932.7	1701.3	1616.6
42.5°	2320.6	2112.1	1783.0	1541.6	1460.3
45°	2190.3	1971.7	1629.8	1398.0	1319.9
47.5°	2066.5	1835.2	1483.1	1251.4	1179.9
50°	1929.5	1698.2	1339.7	1114.5	1046.4
52.5°	1795.7	1551.2	1202.7	987.6	925.7
55°	1665.3	1411.2	1059.1	863.8	801.9
57.5°	1531.9	1271.1	932.2	749.7	697.4
60°	1395.0	1134.2	798.4	632.5	580.3
62.5°	1261.5	1000.8	684.4	528.1	502.1
65°	1124.5	860.3	567.1	456.5	446.4
67.5°	994.2	730.0	456.5	400.8	391.1
70°	857.2	603.1	377.9	345.5	332.3
72.5°	726.8	485.5	316.1	290.1	283.5
75°	599.6	371.4	260.7	237.9	234.8
77.5°	472.7	263.9	205.4	192.3	185.7
80°	355.1	189.2	156.3	143.5	143.5
82.5°	247.6	127.2	107.6	101.0	101.0
85°	140.1	71.6	61.9	61.9	61.9
87.5°	52.2	25.9	25.9	22.8	22.8
90°	1.5	18.5	30.9	38.7	41.7
92.5°	38.7	32.6	37.2	40.2	41.7
95°	100.5	49.4	60.3	68.2	66.5
97.5°	181.0	54.2	78.8	83.7	85.1
100°	274.0	61.9	88.2	100.5	103.6
102.5°	376.0	373.0	91.3	108.2	113.0
105°	470.5	517.0	94.4	111.4	117.6
107.5°	580.4	618.9	97.6	114.5	120.7
110°	685.7	718.0	270.9	116.1	122.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	784.7	812.5	786.2	119.1	123.9
115°	889.9	916.2	954.9	238.4	127.0
117.5°	981.2	1012.1	1038.5	817.1	411.7
120°	1083.4	1106.5	1134.5	1153.0	944.0
122.5°	1169.9	1194.8	1225.8	1235.0	1236.7
125°	1258.1	1278.3	1307.7	1318.6	1323.2
127.5°	1338.6	1360.3	1383.7	1399.1	1400.6
130°	1414.5	1439.3	1456.3	1473.4	1471.9
132.5°	1491.9	1512.1	1529.1	1543.0	1541.5
135°	1557.0	1581.7	1595.5	1611.2	1608.0
137.5°	1625.0	1643.5	1659.1	1674.6	1670.0
140°	1691.5	1704.0	1720.9	1734.9	1727.1
142.5°	1747.4	1758.2	1778.2	1790.6	1782.8
145°	1806.2	1804.5	1830.8	1841.7	1833.9
147.5°	1857.1	1852.5	1878.7	1886.5	1880.4
150°	1906.7	1895.8	1920.6	1929.8	1922.1
152.5°	1948.4	1936.1	1959.2	1968.6	1957.8
155°	1988.7	1974.9	1993.4	2002.6	1990.4
157.5°	2021.2	2008.9	2022.8	2033.7	2021.2
160°	2049.1	2039.8	2049.1	2058.3	2047.5
162.5°	2073.8	2064.6	2072.3	2083.1	2069.2
165°	2095.5	2086.3	2090.9	2101.7	2090.9
167.5°	2112.5	2103.2	2107.9	2118.8	2104.8
170°	2126.5	2117.1	2120.3	2131.1	2117.1
172.5°	2135.7	2126.5	2129.6	2140.5	2126.5
175°	2143.4	2132.6	2135.7	2146.5	2131.1
177.5°	2146.5	2135.7	2137.3	2148.2	2134.2
180°	2138.8	2138.8	2138.8	2138.8	2138.8

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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	10.89	11.76	11.82	12.70	13.91	6.86	7.72	7.79	8.66	9.88
	3H	12.58	13.35	13.52	14.30	15.54	8.05	8.82	8.99	9.77	11.01
	4H	13.19	13.92	14.14	14.87	16.12	8.50	9.23	9.46	10.19	11.43
	6H	13.61	14.29	14.58	15.25	16.51	8.83	9.50	9.79	10.46	11.72
	8H	13.74	14.38	14.71	15.36	16.62	8.92	9.56	9.89	10.54	11.79
	12H	13.81	14.42	14.78	15.39	16.67	8.96	9.57	9.94	10.54	11.82
4H	2H	10.92	11.65	11.88	12.60	13.85	7.46	8.19	8.42	9.15	10.39
	3H	12.75	13.36	13.72	14.34	15.60	8.81	9.42	9.78	10.41	11.67
	4H	13.45	14.00	14.43	14.98	16.26	9.36	9.92	10.34	10.90	12.18
	6H	13.97	14.44	14.96	15.45	16.73	9.79	10.26	10.78	11.26	12.55
	8H	14.14	14.59	15.14	15.58	16.88	9.92	10.36	10.91	11.36	12.65
	12H	14.24	14.64	15.25	15.66	16.96	9.98	10.38	10.99	11.40	12.70
8H	4H	13.42	13.86	14.41	14.86	16.16	9.65	10.09	10.64	11.09	12.39
	6H	13.99	14.36	15.00	15.39	16.69	10.17	10.54	11.19	11.57	12.87
	8H	14.21	14.53	15.23	15.56	16.87	10.36	10.69	11.39	11.71	13.02
	12H	14.35	14.63	15.38	15.65	17.01	10.48	10.77	11.51	11.79	13.15
12H	4H	13.37	13.77	14.38	14.78	16.09	9.66	10.06	10.67	11.07	12.37
	6H	13.96	14.29	14.99	15.31	16.63	10.22	10.54	11.24	11.57	12.88
	8H	14.19	14.47	15.22	15.49	16.85	10.43	10.72	11.46	11.74	13.10