

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: P914053

Luminaire Tested: DFN2DIP-PN3F0-090D090US927-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P914053
REPORT IS A COMBINATION OF REPORTS P901127 AND P897955
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN3F0-090D090US927-FLLONL
Description: 3 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

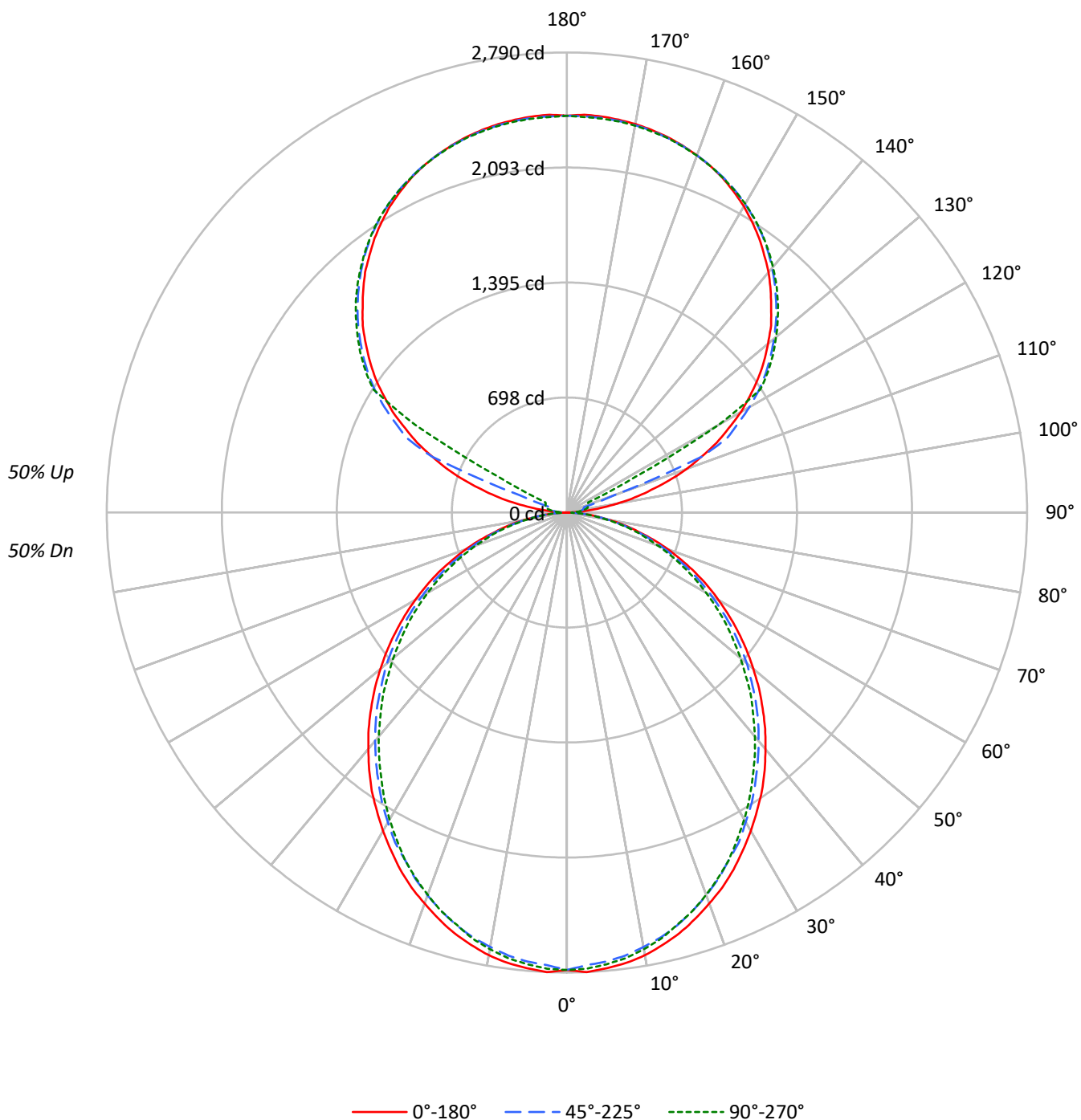
Lumens per Lamp: N/A
Luminaire Lumens: 14116.6 lumens
Efficiency: N/A
Efficacy: 86.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.96' x L: 3.11' x H: 0.1')
CIE Type: General Diffuse

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	107	107	107	107	99	99	99	99	83	83	83	69	69	69	56	56	56
1	98	93	90	86	90	86	83	80	73	71	68	61	59	58	50	48	47
2	89	82	75	70	82	76	70	66	64	60	57	53	51	48	44	42	40
3	81	72	64	59	75	66	60	55	56	52	48	47	44	41	39	36	34
4	74	64	56	50	68	59	52	47	50	45	41	42	38	35	35	32	29
5	68	57	48	42	63	53	45	40	45	39	35	38	34	30	31	28	26
6	63	51	43	37	58	47	40	35	40	35	31	34	30	27	28	25	23
7	58	46	38	32	53	43	36	30	37	31	27	31	27	23	26	23	20
8	54	42	34	29	50	39	32	27	33	28	24	28	24	21	24	20	18
9	50	38	30	25	46	35	29	24	31	25	21	26	22	19	22	19	16
10	47	35	28	23	43	33	26	22	28	23	19	24	20	17	20	17	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3243	3243	3243
5°	3246	3196	3218
10°	3218	3150	3173
15°	3169	3096	3104
20°	3103	3022	3032
25°	3037	2933	2951
30°	2956	2851	2847
35°	2878	2754	2737
40°	2783	2656	2632
45°	2688	2557	2526
50°	2584	2454	2402
55°	2475	2335	2287
60°	2351	2193	2157
65°	2216	2046	2002
70°	2044	1867	1836
75°	1807	1652	1680
80°	1520	1377	1386
85°	1071	912	904

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2688 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	261.1	1.8
10°-20°	734.7	5.2
20°-30°	1079.6	7.6
30°-40°	1253.9	8.9
40°-50°	1252.4	8.9
50°-60°	1092.1	7.7
60°-70°	807.3	5.7
70°-80°	456.7	3.2
80°-90°	124.8	0.9
90°-100°	79.3	0.6
100°-110°	295.8	2.1
110°-120°	784.4	5.6
120°-130°	1301.0	9.2
130°-140°	1382.0	9.8
140°-150°	1284.4	9.1
150°-160°	1032.6	7.3
160°-170°	665.4	4.7
170°-180°	229.0	1.6
0°-30°	2075.4	14.7
0°-40°	3329.4	23.6
0°-60°	5673.8	40.2
0°-90°	7062.6	50.0
90°-120°	1159.5	8.2
90°-150°	5127.0	36.3
90°-180°	7054.0	50.0
0°-180°	14116.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2774	2774	2774	2774	2774	
5°	2774	2764	2734	2756	2750	263
15°	2641	2625	2590	2601	2588	744
25°	2390	2369	2324	2329	2324	1100
35°	2062	2036	1993	1977	1963	1288
45°	1678	1659	1619	1590	1579	1295
55°	1270	1254	1222	1190	1176	1135
65°	856	840	814	790	776	847
75°	448	443	429	414	419	478
85°	109	107	104	96	93	122
90°	2	21	35	44	47	13
95°	113	56	68	77	75	134
105°	529	582	106	125	132	566
115°	1001	1031	1074	268	143	986
125°	1415	1438	1471	1483	1489	1262
135°	1752	1780	1795	1813	1809	1353
145°	2032	2030	2060	2072	2063	1271
155°	2237	2222	2243	2253	2239	1031
165°	2357	2347	2352	2364	2352	666
175°	2411	2399	2403	2415	2398	229
180°	2406	2406	2406	2406	2406	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2774.1	2774.1	2774.1	2774.1	2774.1
2.5°	2790.3	2777.0	2747.6	2774.1	2769.1
5°	2774.1	2763.7	2734.3	2755.5	2750.4
7.5°	2755.5	2739.7	2710.2	2731.8	2726.4
10°	2726.4	2707.7	2675.7	2696.9	2689.0
12.5°	2686.1	2670.3	2638.4	2651.6	2646.3
15°	2640.9	2625.1	2590.2	2601.0	2587.7
17.5°	2584.8	2569.0	2534.2	2547.5	2534.2
20°	2523.4	2507.6	2470.2	2478.1	2467.6
22.5°	2462.3	2438.3	2403.4	2403.4	2398.0
25°	2390.1	2368.9	2323.6	2328.7	2323.6
27.5°	2310.0	2291.3	2256.8	2248.9	2235.6
30°	2230.2	2208.7	2168.8	2160.8	2150.1
32.5°	2144.8	2128.9	2086.1	2070.0	2059.3
35°	2062.1	2035.5	1992.7	1976.7	1963.3
37.5°	1968.7	1944.6	1901.9	1883.3	1869.9
40°	1872.7	1851.2	1808.5	1784.7	1774.0
42.5°	1779.3	1757.8	1715.4	1688.5	1672.7
45°	1678.0	1659.4	1619.1	1590.0	1579.3
47.5°	1579.3	1560.6	1517.8	1488.4	1472.6
50°	1475.1	1461.8	1424.4	1387.1	1373.8
52.5°	1373.8	1355.1	1320.6	1291.2	1272.5
55°	1269.9	1253.8	1221.8	1189.9	1176.5
57.5°	1165.8	1152.5	1117.7	1085.7	1074.9
60°	1061.6	1051.1	1013.8	984.4	976.4
62.5°	960.3	941.6	915.0	888.4	877.7
65°	856.4	840.3	813.6	789.6	776.3
67.5°	749.7	736.2	712.3	693.7	682.9
70°	650.9	640.2	616.2	597.5	587.0
72.5°	549.6	538.8	525.5	506.9	499.0
75°	448.1	442.9	429.4	413.5	418.9
77.5°	357.4	346.7	341.4	333.4	325.5
80°	266.9	264.0	258.6	250.7	245.4
82.5°	181.4	181.4	178.9	168.1	168.1
85°	109.2	106.7	104.2	95.9	93.4
87.5°	48.1	42.7	37.4	29.5	26.6
90°	1.7	20.9	34.7	43.6	46.9
92.5°	43.6	36.6	41.7	45.3	46.9
95°	113.1	55.6	67.8	76.7	74.9
97.5°	203.7	61.0	88.7	94.0	95.7
100°	308.2	69.7	99.3	113.1	116.6
102.5°	423.0	419.7	102.7	121.8	127.1
105°	529.3	581.6	106.2	125.3	132.3
107.5°	652.9	696.3	109.8	128.8	135.9
110°	771.3	807.8	304.8	130.6	137.5



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	882.8	914.0	884.5	134.0	139.3
115°	1001.1	1030.6	1074.3	268.2	142.8
117.5°	1103.8	1138.6	1168.3	919.2	463.1
120°	1218.8	1244.8	1276.3	1297.1	1062.1
122.5°	1316.2	1344.1	1379.0	1389.3	1391.2
125°	1415.4	1438.1	1471.2	1483.4	1488.6
127.5°	1505.9	1530.3	1556.6	1574.0	1575.6
130°	1591.3	1619.3	1638.3	1657.5	1655.9
132.5°	1678.4	1701.1	1720.1	1735.9	1734.2
135°	1751.6	1779.5	1795.0	1812.6	1809.1
137.5°	1828.1	1849.0	1866.5	1883.9	1878.7
140°	1902.9	1917.0	1936.0	1951.7	1943.1
142.5°	1965.8	1978.0	2000.5	2014.4	2005.7
145°	2031.9	2030.0	2059.7	2071.9	2063.2
147.5°	2089.2	2084.1	2113.6	2122.3	2115.4
150°	2145.1	2132.9	2160.8	2171.1	2162.4
152.5°	2192.0	2178.1	2204.2	2214.7	2202.5
155°	2237.3	2221.8	2242.6	2253.0	2239.1
157.5°	2273.9	2260.0	2275.7	2287.9	2273.9
160°	2305.2	2294.7	2305.2	2315.6	2303.4
162.5°	2333.0	2322.6	2331.3	2343.5	2327.8
165°	2357.4	2347.0	2352.2	2364.4	2352.2
167.5°	2376.6	2366.1	2371.4	2383.6	2367.9
170°	2392.3	2381.8	2385.3	2397.5	2381.8
172.5°	2402.7	2392.3	2395.8	2408.0	2392.3
175°	2411.3	2399.1	2402.7	2414.8	2397.5
177.5°	2414.8	2402.7	2404.5	2416.7	2401.0
180°	2406.2	2406.2	2406.2	2406.2	2406.2

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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	11.32	12.19	12.28	13.16	14.43	10.88	11.75	11.84	12.72	13.99
	3H	12.98	13.75	13.95	14.73	16.03	12.50	13.27	13.46	14.25	15.54
	4H	13.56	14.29	14.54	15.28	16.58	13.08	13.81	14.06	14.79	16.09
	6H	13.96	14.63	14.95	15.62	16.94	13.47	14.14	14.46	15.13	16.45
	8H	14.06	14.70	15.06	15.71	17.02	13.57	14.21	14.57	15.22	16.53
	12H	14.11	14.72	15.11	15.72	17.05	13.61	14.22	14.61	15.22	16.56
4H	2H	11.78	12.51	12.77	13.50	14.80	11.43	12.16	12.42	13.15	14.45
	3H	13.64	14.25	14.64	15.26	16.58	13.24	13.85	14.24	14.86	16.18
	4H	14.35	14.91	15.35	15.92	17.25	13.93	14.49	14.94	15.50	16.84
	6H	14.86	15.34	15.88	16.37	17.71	14.44	14.92	15.45	15.95	17.28
	8H	15.01	15.45	16.02	16.48	17.83	14.58	15.03	15.60	16.05	17.40
	12H	15.08	15.48	16.11	16.52	17.88	14.64	15.04	15.67	16.08	17.44
8H	4H	14.54	14.99	15.56	16.02	17.37	14.17	14.62	15.19	15.65	17.00
	6H	15.17	15.54	16.21	16.60	17.95	14.79	15.16	15.83	16.23	17.58
	8H	15.38	15.71	16.43	16.76	18.13	15.00	15.33	16.05	16.38	17.75
	12H	15.51	15.80	16.56	16.84	18.25	15.11	15.40	16.16	16.44	17.85
12H	4H	14.53	14.93	15.56	15.97	17.33	14.17	14.57	15.20	15.61	16.97
	6H	15.19	15.52	16.24	16.57	17.94	14.83	15.16	15.88	16.21	17.58
	8H	15.43	15.72	16.48	16.76	18.17	15.06	15.35	16.11	16.39	17.80