

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: P914976

Luminaire Tested: DFN2DIP-SQ4F0-090D110US927-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P914976
REPORT IS A COMBINATION OF REPORTS P900155 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-090D110US927-FLLFLL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

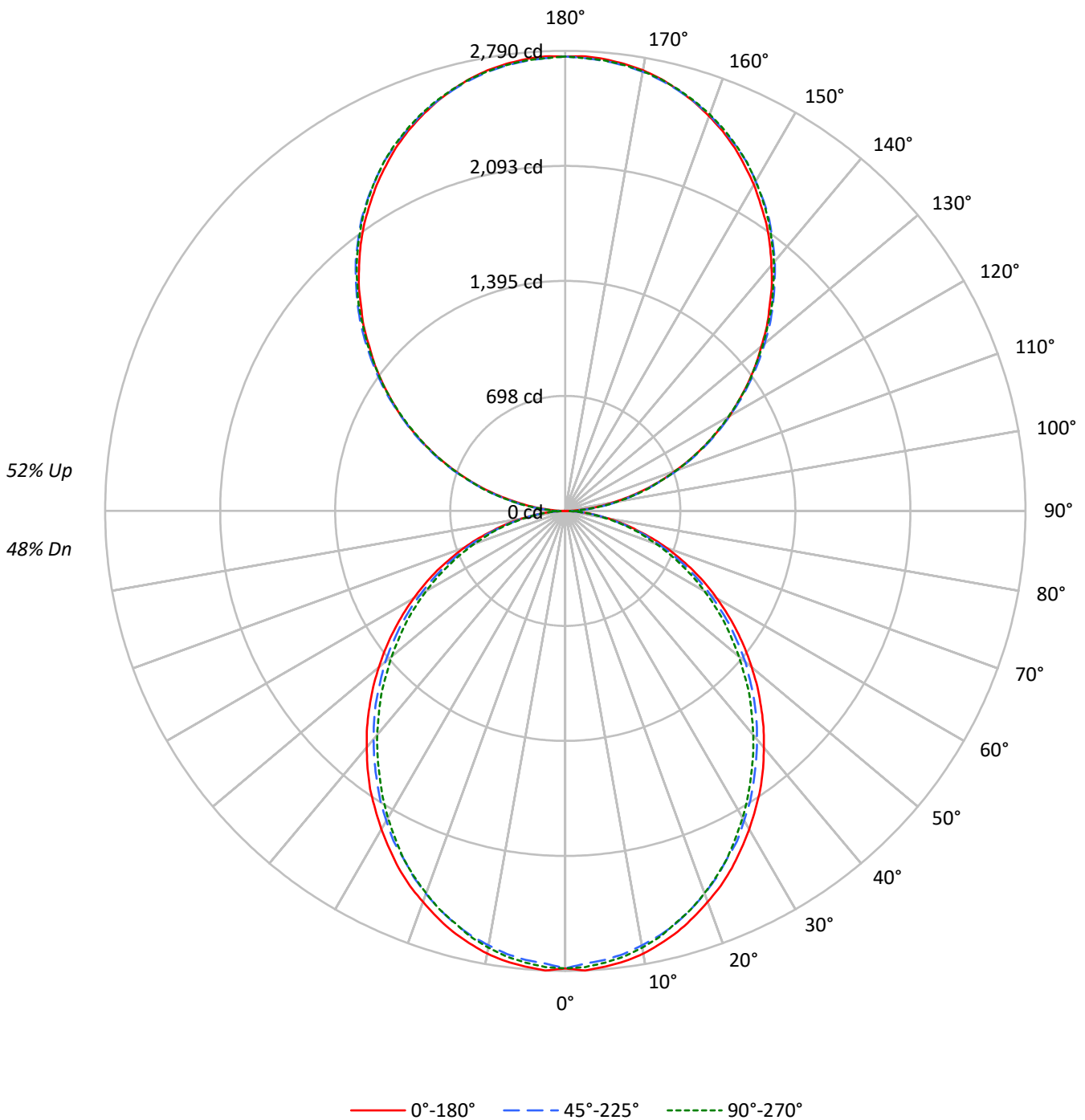
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 14770.2 lumens
Efficiency: N/A
Efficacy: 89.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 165.5
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.983
Total Harmonic Distortion (THDi): 0.073
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				20
RC	80				70				50				30				10				0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																					
0	107	107	107	107	98	98	98	98	82	82	82	68	68	68	54	54	54	48	48	48	48
1	97	93	89	86	89	86	82	79	72	70	67	59	58	56	48	47	46	40	40	40	40
2	89	81	75	70	81	75	70	65	63	59	56	52	49	47	42	40	38	34	34	34	34
3	81	71	64	58	74	66	60	54	56	51	47	46	43	40	37	35	33	29	29	29	29
4	74	63	55	49	68	58	51	46	49	44	40	41	37	34	33	31	28	25	25	25	25
5	68	56	48	42	62	52	45	40	44	39	34	37	33	29	30	27	25	21	21	21	21
6	62	50	42	37	57	47	40	34	40	34	30	33	29	26	27	24	22	19	19	19	19
7	58	46	38	32	53	42	35	30	36	31	26	30	26	23	25	22	19	17	17	17	17
8	54	41	34	28	49	38	32	27	33	27	24	28	23	20	23	20	17	15	15	15	15
9	50	38	30	25	46	35	28	24	30	25	21	26	21	18	21	18	16	13	13	13	13
10	47	35	27	23	43	32	26	21	28	23	19	24	19	17	20	16	14	12	12	12	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1947	1947	1947
5°	1950	1920	1933
10°	1934	1894	1907
15°	1905	1864	1867
20°	1867	1821	1826
25°	1829	1769	1778
30°	1781	1721	1717
35°	1735	1665	1652
40°	1679	1608	1591
45°	1624	1551	1528
50°	1563	1491	1455
55°	1499	1421	1389
60°	1427	1339	1312
65°	1348	1254	1222
70°	1248	1150	1125
75°	1109	1026	1037
80°	942	867	866
85°	681	594	582

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 2168 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	261.1	1.8
10°-20°	734.7	5.0
20°-30°	1079.6	7.3
30°-40°	1253.9	8.5
40°-50°	1252.4	8.5
50°-60°	1092.1	7.4
60°-70°	807.3	5.5
70°-80°	456.7	3.1
80°-90°	128.4	0.9
90°-100°	170.5	1.2
100°-110°	541.8	3.7
110°-120°	927.3	6.3
120°-130°	1219.5	8.3
130°-140°	1368.8	9.3
140°-150°	1342.3	9.1
150°-160°	1126.0	7.6
160°-170°	746.7	5.1
170°-180°	261.0	1.8
0°-30°	2075.4	14.1
0°-40°	3329.4	22.5
0°-60°	5673.8	38.4
0°-90°	7066.2	47.8
90°-120°	1639.7	11.1
90°-150°	5570.3	37.7
90°-180°	7704.0	52.2
0°-180°	14770.2	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	30	81	76	79	14
95°	121	145	149	149	145	135
105°	500	507	512	516	516	528
115°	931	944	940	937	931	920
125°	1353	1374	1368	1360	1358	1209
135°	1751	1776	1781	1779	1772	1353
145°	2125	2142	2155	2158	2149	1328
155°	2430	2437	2444	2456	2448	1119
165°	2644	2641	2641	2658	2646	746
175°	2751	2744	2739	2756	2742	261
180°	2756	2756	2756	2756	2756	



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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°	2.5	29.9	81.4	76.4	78.9
92.5°	51.5	69.8	72.2	74.8	74.8
95°	121.3	144.6	148.7	148.7	144.6
97.5°	201.9	223.5	232.7	232.7	232.7
100°	294.9	314.0	320.7	320.7	318.2
102.5°	393.0	407.1	416.3	418.7	416.3
105°	500.2	506.8	511.8	515.9	515.9
107.5°	606.5	616.5	616.5	618.1	606.5
110°	709.6	722.9	722.9	722.9	716.2



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	820.9	835.0	832.5	825.8	820.9
115°	930.6	943.8	939.7	937.2	930.6
117.5°	1039.4	1057.6	1046.0	1039.4	1032.8
120°	1149.1	1167.4	1149.1	1149.1	1141.6
122.5°	1248.8	1272.0	1260.4	1253.7	1248.8
125°	1353.4	1374.2	1367.5	1360.1	1357.6
127.5°	1455.6	1481.4	1472.3	1462.3	1455.6
130°	1551.2	1581.1	1576.9	1571.9	1562.8
132.5°	1658.4	1681.6	1683.3	1671.7	1665.0
135°	1750.6	1776.3	1781.3	1778.8	1772.2
137.5°	1853.6	1874.4	1878.5	1876.8	1866.9
140°	1944.2	1964.9	1976.6	1976.6	1967.5
142.5°	2037.3	2058.0	2064.7	2067.1	2058.0
145°	2125.3	2141.9	2155.2	2157.7	2148.6
147.5°	2204.2	2225.0	2235.0	2239.1	2230.0
150°	2285.7	2299.8	2308.9	2316.4	2308.9
152.5°	2357.9	2372.0	2383.7	2392.9	2383.7
155°	2430.3	2436.8	2444.4	2456.0	2448.5
157.5°	2492.5	2497.5	2501.6	2518.3	2506.6
160°	2548.2	2553.2	2555.7	2569.8	2559.9
162.5°	2599.7	2599.7	2602.2	2618.0	2606.4
165°	2643.7	2641.2	2641.2	2657.8	2646.2
167.5°	2683.6	2676.1	2676.1	2692.8	2681.1
170°	2713.5	2706.9	2704.4	2721.0	2706.9
172.5°	2734.3	2727.6	2725.2	2741.8	2727.6
175°	2750.9	2744.3	2739.3	2755.9	2741.8
177.5°	2760.0	2753.4	2748.4	2762.6	2748.4
180°	2755.9	2755.9	2755.9	2755.9	2755.9



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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	9.39	10.24	10.37	11.23	12.53	8.95	9.79	9.92	10.78	12.08
	3H	11.06	11.81	12.04	12.81	14.13	10.57	11.32	11.55	12.32	13.64
	4H	11.65	12.36	12.65	13.36	14.69	11.15	11.87	12.15	12.87	14.20
	6H	12.05	12.71	13.06	13.71	15.06	11.55	12.21	12.56	13.21	14.56
	8H	12.16	12.78	13.17	13.81	15.15	11.65	12.28	12.67	13.30	14.64
	12H	12.20	12.80	13.23	13.82	15.18	11.69	12.29	12.72	13.31	14.67
4H	2H	9.85	10.57	10.86	11.57	12.90	9.50	10.21	10.50	11.22	12.55
	3H	11.72	12.32	12.74	13.35	14.69	11.31	11.91	12.33	12.94	14.29
	4H	12.44	12.99	13.46	14.01	15.38	12.01	12.56	13.04	13.58	14.95
	6H	12.96	13.43	13.99	14.47	15.84	12.52	13.00	13.56	14.04	15.41
	8H	13.11	13.55	14.14	14.59	15.97	12.67	13.11	13.71	14.15	15.53
	12H	13.18	13.58	14.24	14.63	16.02	12.73	13.13	13.79	14.18	15.57
8H	4H	12.63	13.07	13.67	14.11	15.49	12.26	12.70	13.29	13.74	15.12
	6H	13.27	13.63	14.33	14.71	16.09	12.89	13.25	13.94	14.33	15.71
	8H	13.49	13.81	14.56	14.88	16.27	13.10	13.42	14.17	14.49	15.88
	12H	13.63	13.91	14.70	14.97	16.41	13.22	13.50	14.28	14.56	15.99
12H	4H	12.62	13.02	13.67	14.07	15.45	12.25	12.65	13.30	13.70	15.09
	6H	13.30	13.62	14.36	14.68	16.08	12.93	13.25	13.99	14.31	15.71
	8H	13.54	13.82	14.61	14.89	16.32	13.16	13.44	14.23	14.51	15.94