

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: P922773

Luminaire Tested: DFN2DIP-SQ3F0-050D110US940-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P922773
REPORT IS A COMBINATION OF REPORTS P901509 AND P898289
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-050D110US940-FLLONL
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

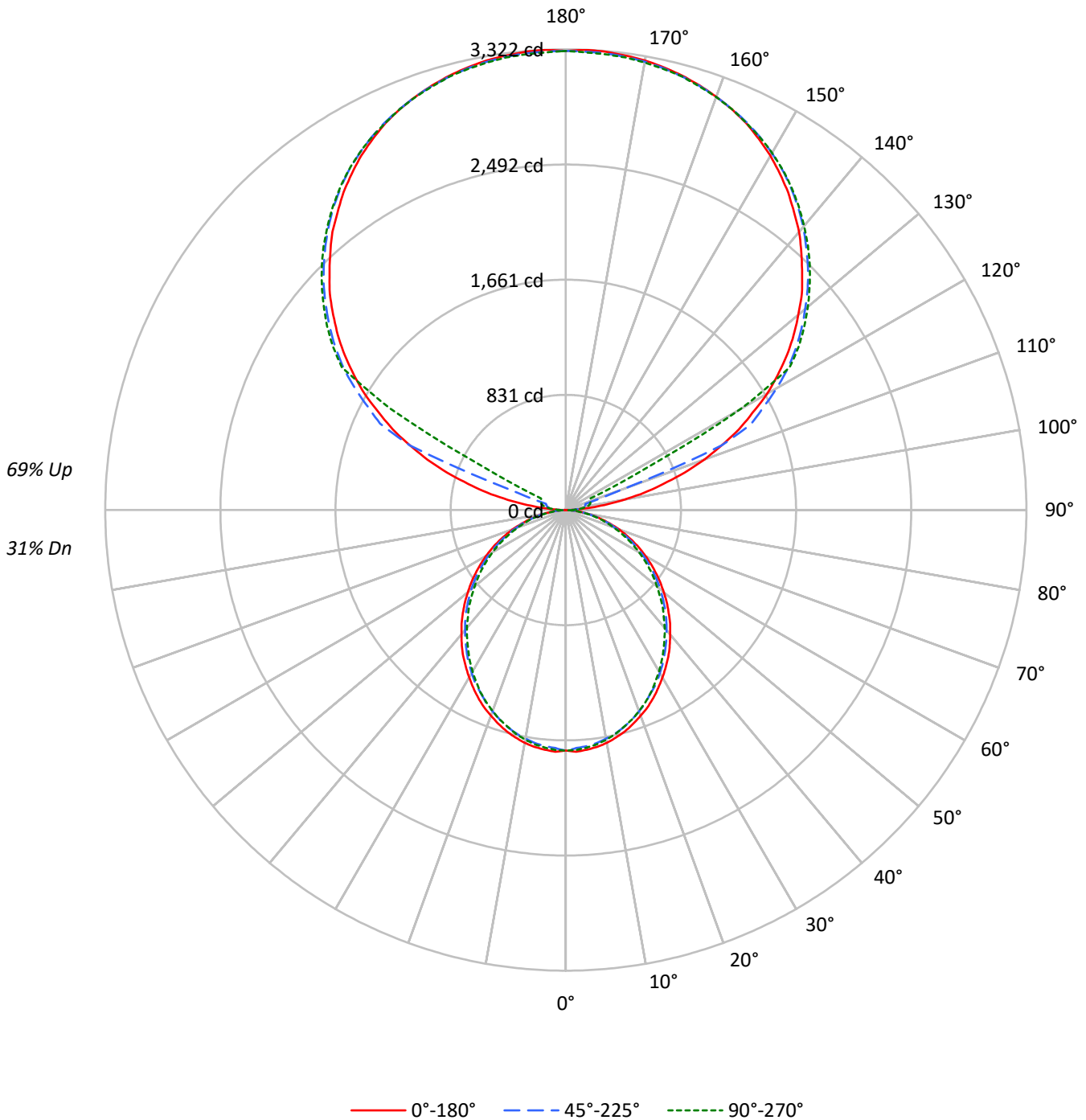
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 14124.7 lumens
Efficiency: N/A
Efficacy: 110.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 128.1
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9789
Total Harmonic Distortion (THDi): 0.074
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	103	103	103	103	92	92	92	92	73	73	73	55	55	55	39	39	39	39	39	39	31
1	94	89	86	82	84	80	77	74	64	62	60	48	47	46	34	34	33	34	34	33	26
2	85	78	72	67	76	70	65	61	56	52	49	43	40	38	30	29	28	30	29	28	22
3	78	69	61	56	70	62	56	51	49	45	41	38	35	32	27	25	24	27	25	24	19
4	71	61	53	47	64	55	48	43	44	39	35	33	30	28	24	22	20	24	22	20	16
5	65	54	46	40	58	49	42	37	39	34	30	30	27	24	22	19	18	22	19	18	14
6	60	48	40	35	54	44	37	32	35	30	26	27	24	21	20	17	15	20	17	15	12
7	55	43	36	30	50	39	33	28	32	27	23	25	21	18	18	15	14	18	15	14	11
8	51	39	32	27	46	36	29	24	29	24	20	22	19	16	16	14	12	16	14	12	10
9	48	36	28	24	43	32	26	22	26	22	18	21	17	15	15	13	11	15	13	11	9
10	44	33	26	21	40	30	24	19	24	19	16	19	16	13	14	12	10	14	12	10	8

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1988	1988	1988
5°	1990	1959	1973
10°	1972	1931	1945
15°	1942	1898	1903
20°	1902	1853	1860
25°	1861	1798	1809
30°	1811	1748	1746
35°	1763	1689	1679
40°	1705	1629	1615
45°	1647	1568	1550
50°	1583	1505	1474
55°	1516	1432	1404
60°	1440	1345	1324
65°	1357	1255	1230
70°	1252	1146	1129
75°	1106	1014	1034
80°	929	846	855
85°	654	560	559

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 2269 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	163.3	1.2
10°-20°	459.4	3.3
20°-30°	675.2	4.8
30°-40°	784.2	5.6
40°-50°	783.2	5.5
50°-60°	682.9	4.8
60°-70°	504.8	3.6
70°-80°	285.6	2.0
80°-90°	81.2	0.6
90°-100°	109.2	0.8
100°-110°	406.9	2.9
110°-120°	1079.2	7.6
120°-130°	1789.9	12.7
130°-140°	1901.3	13.5
140°-150°	1767.1	12.5
150°-160°	1420.7	10.1
160°-170°	915.4	6.5
170°-180°	315.1	2.2
0°-30°	1297.9	9.2
0°-40°	2082.0	14.7
0°-60°	3548.1	25.1
0°-90°	4419.8	31.3
90°-120°	1595.3	11.3
90°-150°	7053.7	49.9
90°-180°	9705.0	68.7
0°-180°	14124.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1735	1735	1735	1735	1735	
5°	1735	1728	1710	1723	1720	165
15°	1651	1642	1620	1627	1618	465
25°	1495	1481	1453	1456	1453	688
35°	1290	1273	1246	1236	1228	805
45°	1049	1038	1012	994	988	810
55°	794	784	764	744	736	710
65°	536	526	509	494	485	530
75°	280	277	268	259	262	299
85°	68	67	65	60	58	76
90°	2	29	48	60	65	13
95°	156	76	93	106	103	184
105°	728	800	146	172	182	778
115°	1377	1418	1478	369	196	1356
125°	1947	1979	2024	2041	2048	1737
135°	2410	2448	2470	2494	2489	1862
145°	2796	2793	2834	2850	2838	1748
155°	3078	3057	3085	3100	3080	1418
165°	3243	3229	3236	3253	3236	916
175°	3317	3301	3306	3322	3298	316
180°	3310	3310	3310	3310	3310	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1734.8	1734.8	1734.8	1734.8	1734.8
2.5°	1744.9	1736.6	1718.2	1734.8	1731.7
5°	1734.8	1728.3	1709.9	1723.1	1720.0
7.5°	1723.1	1713.2	1694.9	1708.3	1705.0
10°	1705.0	1693.3	1673.3	1686.5	1681.6
12.5°	1679.8	1669.9	1649.9	1658.2	1654.8
15°	1651.4	1641.5	1619.8	1626.6	1618.2
17.5°	1616.4	1606.5	1584.7	1593.0	1584.7
20°	1578.1	1568.2	1544.8	1549.7	1543.2
22.5°	1539.8	1524.7	1503.0	1503.0	1499.6
25°	1494.7	1481.4	1453.0	1456.3	1453.0
27.5°	1444.6	1432.9	1411.3	1406.3	1398.0
30°	1394.6	1381.3	1356.3	1351.3	1344.6
32.5°	1341.2	1331.3	1304.6	1294.5	1287.8
35°	1289.5	1272.9	1246.2	1236.1	1227.8
37.5°	1231.1	1216.1	1189.4	1177.7	1169.4
40°	1171.2	1157.7	1131.0	1116.1	1109.4
42.5°	1112.8	1099.3	1072.7	1055.9	1046.0
45°	1049.4	1037.7	1012.5	994.3	987.6
47.5°	987.6	975.9	949.2	930.8	920.9
50°	922.5	914.2	890.8	867.5	859.1
52.5°	859.1	847.4	825.8	807.4	795.8
55°	794.2	784.1	764.0	744.0	735.8
57.5°	729.0	720.7	698.9	678.9	672.2
60°	663.9	657.4	634.0	615.5	610.6
62.5°	600.6	588.9	572.2	555.5	548.8
65°	535.6	525.5	508.8	493.8	485.4
67.5°	468.9	460.4	445.5	433.8	427.0
70°	407.1	400.4	385.3	373.6	367.1
72.5°	343.8	337.0	328.7	317.0	312.0
75°	280.2	277.0	268.5	258.6	262.0
77.5°	223.6	216.8	213.5	208.5	203.6
80°	166.9	165.1	161.8	156.9	153.5
82.5°	113.4	113.4	111.8	105.1	105.1
85°	68.3	66.7	65.1	60.0	58.4
87.5°	30.1	26.8	23.4	18.4	16.7
90°	2.3	28.7	47.8	60.0	64.6
92.5°	60.0	50.4	57.4	62.3	64.6
95°	155.6	76.5	93.3	105.5	103.0
97.5°	280.2	83.9	122.0	129.4	131.7
100°	424.1	95.9	136.5	155.6	160.4
102.5°	581.9	577.4	141.3	167.6	175.0
105°	728.2	800.1	146.2	172.4	182.1
107.5°	898.3	958.0	151.1	177.2	186.9
110°	1061.2	1111.3	419.3	179.8	189.1



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1214.6	1257.5	1216.8	184.3	191.7
115°	1377.2	1417.9	1478.0	368.9	196.5
117.5°	1518.7	1566.5	1607.4	1264.6	637.1
120°	1676.8	1712.6	1755.9	1784.6	1461.2
122.5°	1810.8	1849.1	1897.2	1911.5	1914.1
125°	1947.3	1978.6	2024.1	2040.9	2048.0
127.5°	2071.9	2105.4	2141.5	2165.4	2167.7
130°	2189.3	2227.8	2253.9	2280.4	2278.1
132.5°	2309.1	2340.4	2366.6	2388.2	2385.9
135°	2409.8	2448.2	2469.5	2493.8	2488.9
137.5°	2515.1	2543.8	2567.9	2591.8	2584.7
140°	2618.1	2637.3	2663.5	2685.1	2673.2
142.5°	2704.5	2721.2	2752.3	2771.3	2759.4
145°	2795.5	2792.9	2833.6	2850.4	2838.5
147.5°	2874.3	2867.2	2907.9	2919.8	2910.5
150°	2951.1	2934.4	2972.7	2987.0	2975.0
152.5°	3015.7	2996.6	3032.4	3047.0	3030.2
155°	3078.0	3056.6	3085.3	3099.6	3080.5
157.5°	3128.3	3109.2	3130.9	3147.6	3128.3
160°	3171.5	3157.0	3171.5	3185.7	3169.0
162.5°	3209.6	3195.4	3207.4	3224.2	3202.6
165°	3243.2	3229.0	3236.1	3252.9	3236.1
167.5°	3269.6	3255.2	3262.6	3279.4	3257.8
170°	3291.3	3276.8	3281.6	3298.4	3276.8
172.5°	3305.5	3291.3	3296.1	3312.9	3291.3
175°	3317.4	3300.7	3305.5	3322.3	3298.4
177.5°	3322.3	3305.5	3308.1	3324.8	3303.3
180°	3310.4	3310.4	3310.4	3310.4	3310.4



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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	7.58	8.30	8.69	9.40	10.91	7.14	7.85	8.24	8.95	10.47
	3H	9.23	9.87	10.34	10.98	12.51	8.74	9.38	9.85	10.49	12.02
	4H	9.81	10.42	10.93	11.52	13.06	9.31	9.92	10.43	11.03	12.57
	6H	10.20	10.76	11.33	11.87	13.42	9.70	10.26	10.83	11.37	12.92
	8H	10.29	10.83	11.43	11.95	13.50	9.79	10.33	10.93	11.45	12.99
	12H	10.34	10.84	11.47	11.96	13.53	9.83	10.33	10.96	11.45	13.02
4H	2H	8.02	8.63	9.15	9.74	11.28	7.67	8.28	8.80	9.39	10.92
	3H	9.87	10.38	11.01	11.51	13.06	9.46	9.97	10.60	11.10	12.66
	4H	10.58	11.04	11.71	12.17	13.74	10.15	10.62	11.29	11.74	13.31
	6H	11.08	11.48	12.22	12.62	14.19	10.65	11.05	11.79	12.19	13.75
	8H	11.22	11.59	12.37	12.73	14.31	10.78	11.16	11.93	12.30	13.87
	12H	11.29	11.62	12.45	12.77	14.36	10.84	11.17	12.00	12.32	13.91
8H	4H	10.76	11.13	11.90	12.27	13.85	10.38	10.75	11.52	11.89	13.47
	6H	11.37	11.68	12.54	12.86	14.44	10.99	11.30	12.16	12.48	14.05
	8H	11.59	11.86	12.76	13.02	14.61	11.20	11.47	12.37	12.63	14.22
	12H	11.71	11.95	12.89	13.11	14.73	11.30	11.54	12.48	12.69	14.32
12H	4H	10.73	11.07	11.89	12.22	13.81	10.36	10.70	11.53	11.85	13.44
	6H	11.40	11.67	12.57	12.83	14.43	11.03	11.30	12.20	12.46	14.05
	8H	11.63	11.87	12.81	13.03	14.65	11.25	11.49	12.43	12.65	14.27