

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: P920381

Luminaire Tested: DFN2DIP-SQ4F0-080D070US935-FLLONL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P920381  
REPORT IS A COMBINATION OF REPORTS P901601 AND P898471  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-SQ4F0-080D070US935-FLLONL  
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

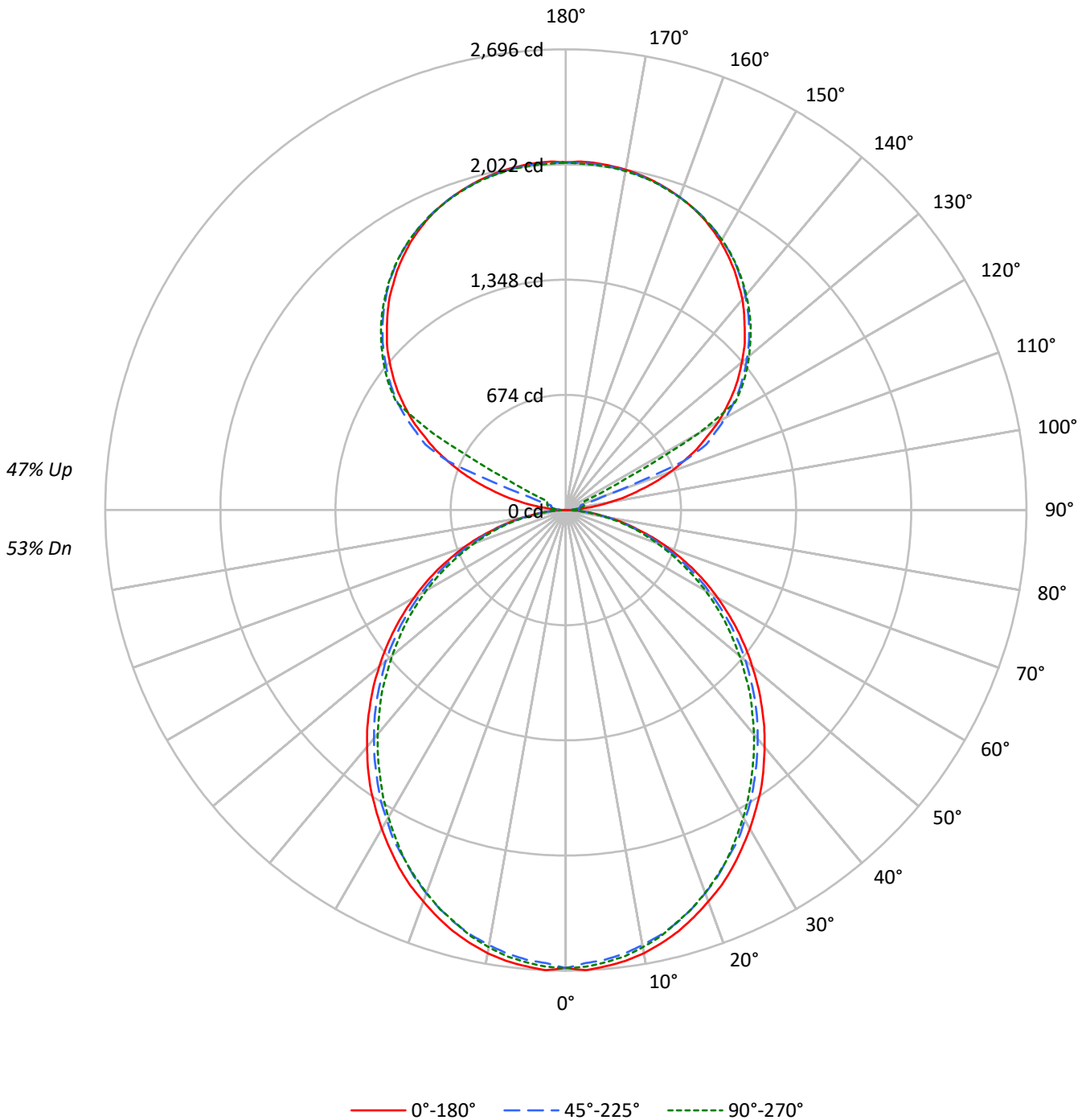
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 12785.8 lumens  
Efficiency: N/A  
Efficacy: 103.4 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): 123.6  
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				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	108	108	108	108	100	100	100	100	85	85	85	72	72	72	59	59	59	59	59	59	53
1	99	94	90	87	91	87	84	81	75	72	70	63	61	60	52	51	50	50	50	50	45
2	90	82	76	71	83	76	71	66	65	61	58	55	52	50	46	44	42	42	42	42	38
3	82	72	65	59	76	67	61	56	58	53	49	49	45	42	41	38	36	36	36	36	32
4	75	64	56	50	69	60	53	47	51	46	42	44	40	36	37	33	31	31	31	31	27
5	69	57	49	43	63	53	46	41	46	40	36	39	35	31	33	30	27	27	27	27	24
6	63	51	43	37	59	48	41	35	41	36	31	35	31	28	30	26	24	24	24	24	21
7	59	46	38	33	54	43	36	31	38	32	28	32	28	24	27	24	21	21	21	21	19
8	54	42	34	29	50	39	32	27	34	29	25	30	25	22	25	22	19	19	19	19	17
9	51	38	31	26	47	36	29	25	31	26	22	27	23	20	23	20	17	17	17	17	15
10	47	35	28	23	44	33	26	22	29	24	20	25	21	18	21	18	16	16	16	16	14

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	1881	1881	1881
5°	1884	1855	1867
10°	1868	1830	1843
15°	1841	1800	1804
20°	1804	1759	1764
25°	1767	1709	1718
30°	1720	1663	1659
35°	1677	1608	1596
40°	1623	1553	1537
45°	1569	1498	1476
50°	1510	1440	1406
55°	1448	1373	1342
60°	1378	1294	1268
65°	1302	1211	1181
70°	1206	1111	1087
75°	1071	991	1002
80°	910	838	837
85°	658	574	562

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 1569 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	252.3	2.0
10°-20°	709.8	5.6
20°-30°	1043.1	8.2
30°-40°	1211.4	9.5
40°-50°	1209.9	9.5
50°-60°	1055.0	8.3
60°-70°	779.9	6.1
70°-80°	441.2	3.5
80°-90°	120.1	0.9
90°-100°	67.1	0.5
100°-110°	250.0	2.0
110°-120°	663.1	5.2
120°-130°	1099.8	8.6
130°-140°	1168.3	9.1
140°-150°	1085.8	8.5
150°-160°	872.9	6.8
160°-170°	562.5	4.4
170°-180°	193.6	1.5
0°-30°	2005.1	15.7
0°-40°	3216.5	25.2
0°-60°	5481.5	42.9
0°-90°	6822.7	53.4
90°-120°	980.2	7.7
90°-150°	4334.1	33.9
90°-180°	5963.0	46.6
0°-180°	12785.8	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2680	2680	2680	2680	2680	
5°	2680	2670	2642	2662	2657	254
15°	2551	2536	2502	2513	2500	719
25°	2309	2289	2245	2250	2245	1063
35°	1992	1966	1925	1910	1897	1244
45°	1621	1603	1564	1536	1526	1251
55°	1227	1211	1180	1150	1137	1097
65°	827	812	786	763	750	818
75°	433	428	415	400	405	462
85°	106	103	101	93	90	118
90°	1	18	29	37	40	12
95°	96	47	57	65	63	113
105°	448	492	90	106	112	478
115°	846	871	908	227	121	833
125°	1196	1216	1244	1254	1258	1067
135°	1481	1504	1517	1532	1529	1144
145°	1718	1716	1741	1751	1744	1074
155°	1891	1878	1896	1904	1893	872
165°	1993	1984	1988	1999	1988	563
175°	2038	2028	2031	2041	2027	194
180°	2034	2034	2034	2034	2034	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2680.1	2680.1	2680.1	2680.1	2680.1
2.5°	2695.7	2682.9	2654.5	2680.1	2675.2
5°	2680.1	2670.0	2641.6	2662.1	2657.2
7.5°	2662.1	2646.8	2618.4	2639.1	2634.0
10°	2634.0	2615.9	2585.0	2605.5	2597.9
12.5°	2595.1	2579.8	2548.9	2561.7	2556.6
15°	2551.4	2536.1	2502.4	2512.8	2500.0
17.5°	2497.2	2481.9	2448.2	2461.2	2448.2
20°	2437.9	2422.6	2386.5	2394.2	2384.0
22.5°	2378.9	2355.6	2321.9	2321.9	2316.8
25°	2309.1	2288.6	2244.9	2249.8	2244.9
27.5°	2231.7	2213.7	2180.3	2172.6	2159.8
30°	2154.6	2133.8	2095.3	2087.7	2077.2
32.5°	2072.1	2056.8	2015.4	1999.8	1989.5
35°	1992.2	1966.5	1925.2	1909.6	1896.8
37.5°	1901.9	1878.7	1837.5	1819.4	1806.5
40°	1809.3	1788.5	1747.2	1724.2	1713.8
42.5°	1719.1	1698.2	1657.2	1631.2	1616.0
45°	1621.2	1603.1	1564.3	1536.1	1525.8
47.5°	1525.8	1507.7	1466.4	1438.0	1422.6
50°	1425.1	1412.3	1376.1	1340.1	1327.2
52.5°	1327.2	1309.1	1275.8	1247.4	1229.3
55°	1226.8	1211.3	1180.4	1149.5	1136.6
57.5°	1126.3	1113.4	1079.8	1048.9	1038.4
60°	1025.6	1015.5	979.4	951.0	943.3
62.5°	927.7	909.7	884.0	858.3	847.9
65°	827.4	811.8	786.1	762.8	750.0
67.5°	724.3	711.2	688.2	670.2	659.8
70°	628.9	618.5	595.3	577.2	567.1
72.5°	531.0	520.6	507.7	489.7	482.1
75°	432.8	427.9	414.8	399.5	404.7
77.5°	345.3	334.9	329.8	322.1	314.4
80°	257.9	255.1	249.9	242.3	237.0
82.5°	175.3	175.3	172.8	162.4	162.4
85°	105.6	103.1	100.7	92.7	90.2
87.5°	46.5	41.3	36.1	28.4	25.7
90°	1.4	17.7	29.4	36.9	39.7
92.5°	36.9	30.9	35.3	38.3	39.7
95°	95.6	47.0	57.3	64.8	63.3
97.5°	172.1	51.6	75.0	79.6	80.9
100°	260.6	58.9	83.9	95.6	98.6
102.5°	357.6	354.8	86.9	103.0	107.5
105°	447.5	491.6	89.8	105.9	111.8
107.5°	551.9	588.7	92.8	108.9	114.9
110°	652.1	682.9	257.6	110.5	116.2



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	746.3	772.7	747.7	113.2	117.8
115°	846.3	871.2	908.1	226.7	120.8
117.5°	933.1	962.5	987.7	777.1	391.5
120°	1030.3	1052.3	1078.9	1096.6	897.8
122.5°	1112.6	1136.2	1165.8	1174.5	1176.0
125°	1196.5	1215.7	1243.7	1254.0	1258.3
127.5°	1273.1	1293.6	1315.9	1330.6	1332.0
130°	1345.2	1368.8	1384.9	1401.2	1399.8
132.5°	1418.8	1438.0	1454.1	1467.4	1466.0
135°	1480.7	1504.2	1517.4	1532.2	1529.3
137.5°	1545.3	1563.1	1577.9	1592.6	1588.2
140°	1608.6	1620.5	1636.6	1649.8	1642.5
142.5°	1661.7	1672.1	1691.1	1702.8	1695.5
145°	1717.7	1716.1	1741.1	1751.4	1744.1
147.5°	1766.1	1761.8	1786.7	1794.1	1788.3
150°	1813.3	1803.0	1826.6	1835.3	1828.0
152.5°	1853.0	1841.2	1863.3	1872.2	1861.9
155°	1891.3	1878.1	1895.7	1904.5	1892.8
157.5°	1922.2	1910.5	1923.7	1934.1	1922.2
160°	1948.8	1939.8	1948.8	1957.5	1947.1
162.5°	1972.2	1963.4	1970.7	1981.1	1967.8
165°	1992.8	1984.1	1988.4	1998.7	1988.4
167.5°	2009.1	2000.1	2004.7	2015.0	2001.7
170°	2022.3	2013.4	2016.4	2026.7	2013.4
172.5°	2031.1	2022.3	2025.3	2035.6	2022.3
175°	2038.4	2028.1	2031.1	2041.3	2026.7
177.5°	2041.3	2031.1	2032.6	2043.0	2029.6
180°	2034.0	2034.0	2034.0	2034.0	2034.0



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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	9.78	10.68	10.71	11.62	12.84	9.34	10.23	10.27	11.18	12.40
	3H	11.45	12.25	12.39	13.21	14.45	10.96	11.76	11.90	12.72	13.96
	4H	12.04	12.80	13.00	13.76	15.01	11.55	12.31	12.50	13.27	14.52
	6H	12.45	13.15	13.41	14.11	15.38	11.95	12.65	12.91	13.61	14.88
	8H	12.56	13.22	13.53	14.20	15.47	12.05	12.72	13.03	13.70	14.97
	12H	12.61	13.24	13.58	14.22	15.51	12.10	12.73	13.07	13.71	15.00
4H	2H	10.25	11.01	11.21	11.97	13.22	9.89	10.65	10.85	11.61	12.87
	3H	12.12	12.76	13.09	13.74	15.01	11.72	12.35	12.68	13.34	14.61
	4H	12.84	13.42	13.82	14.40	15.70	12.42	13.00	13.40	13.98	15.27
	6H	13.36	13.86	14.35	14.87	16.16	12.93	13.43	13.92	14.44	15.73
	8H	13.52	13.98	14.51	14.98	16.29	13.08	13.54	14.07	14.54	15.85
	12H	13.59	14.01	14.60	15.03	16.34	13.14	13.56	14.15	14.58	15.89
8H	4H	13.04	13.51	14.03	14.51	15.81	12.67	13.13	13.66	14.13	15.44
	6H	13.68	14.06	14.70	15.11	16.41	13.30	13.68	14.31	14.72	16.03
	8H	13.90	14.24	14.93	15.27	16.59	13.51	13.85	14.54	14.88	16.20
	12H	14.04	14.34	15.07	15.36	16.73	13.63	13.93	14.66	14.95	16.32
12H	4H	13.03	13.45	14.04	14.46	15.78	12.66	13.08	13.67	14.10	15.41
	6H	13.71	14.05	14.73	15.08	16.40	13.34	13.68	14.36	14.71	16.03
	8H	13.96	14.25	14.99	15.28	16.64	13.58	13.87	14.61	14.90	16.26