

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: P920453

Luminaire Tested: DFN2DIP-SQ4F0-100D070US935-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P920453
REPORT IS A COMBINATION OF REPORTS P901605 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-100D070US935-FLLONL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

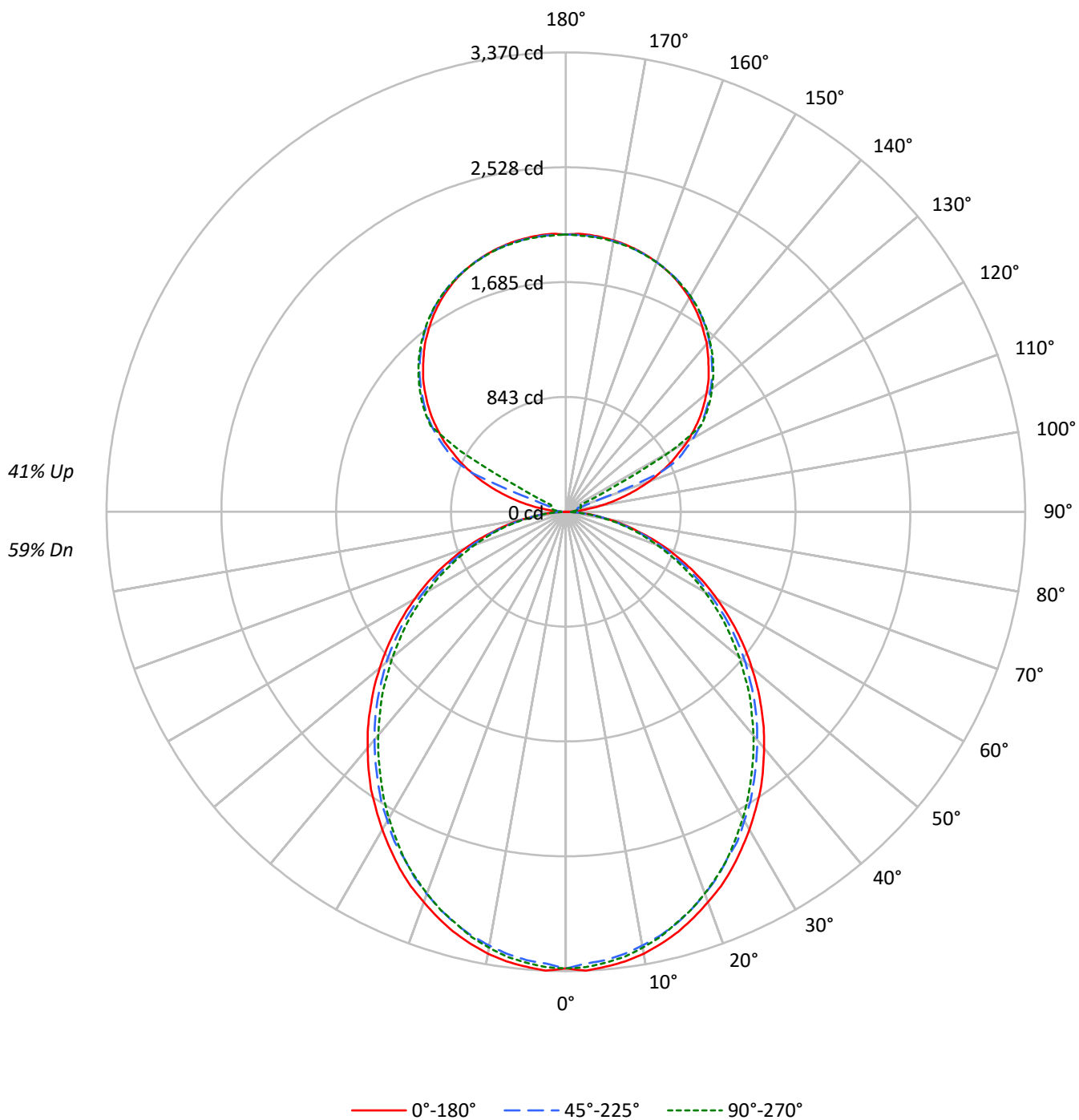
Lumens per Lamp: N/A
Luminaire Lumens: 14490.6 lumens
Efficiency: N/A
Efficacy: 100.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 144.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9968
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	109	109	109	109		102	102	102	102		88	88	88		76	76	76		64	64	64
1	100	95	91	88		93	89	86	83		77	75	73		67	65	63		57	56	54
2	91	83	77	72		85	78	72	68		68	64	60		59	55	53		50	48	46
3	83	73	66	60		77	69	62	57		60	55	51		52	48	45		44	41	39
4	76	65	57	51		71	61	54	48		53	48	43		46	42	38		40	36	34
5	70	58	50	44		65	54	47	41		48	42	37		42	37	33		36	32	29
6	64	52	44	38		60	49	41	36		43	37	33		38	33	29		32	29	26
7	59	47	39	33		55	44	37	32		39	33	29		34	29	26		30	26	23
8	55	43	35	29		51	40	33	28		36	30	26		31	27	23		27	23	21
9	51	39	31	26		48	37	30	25		33	27	23		29	24	21		25	21	19
10	48	36	29	24		45	34	27	23		30	25	21		27	22	19		23	20	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2351	2351	2351
5°	2354	2318	2334
10°	2335	2288	2303
15°	2301	2250	2255
20°	2254	2199	2205
25°	2208	2137	2147
30°	2150	2079	2073
35°	2096	2011	1995
40°	2028	1942	1921
45°	1961	1873	1845
50°	1887	1800	1758
55°	1810	1717	1677
60°	1723	1617	1585
65°	1628	1514	1476
70°	1507	1389	1359
75°	1339	1239	1252
80°	1138	1048	1046
85°	822	717	703

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1961 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	315.3	2.2
10°-20°	887.2	6.1
20°-30°	1303.8	9.0
30°-40°	1514.3	10.5
40°-50°	1512.4	10.4
50°-60°	1318.8	9.1
60°-70°	974.9	6.7
70°-80°	551.6	3.8
80°-90°	149.2	1.0
90°-100°	67.1	0.5
100°-110°	250.0	1.7
110°-120°	663.1	4.6
120°-130°	1099.8	7.6
130°-140°	1168.3	8.1
140°-150°	1085.8	7.5
150°-160°	872.9	6.0
160°-170°	562.5	3.9
170°-180°	193.6	1.3
0°-30°	2506.3	17.3
0°-40°	4020.6	27.7
0°-60°	6851.8	47.3
0°-90°	8527.5	58.8
90°-120°	980.2	6.8
90°-150°	4334.1	29.9
90°-180°	5963.0	41.2
0°-180°	14490.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3350	3350	3350	3350	3350	
5°	3350	3338	3302	3328	3322	318
15°	3189	3170	3128	3141	3125	898
25°	2886	2861	2806	2812	2806	1328
35°	2490	2458	2406	2387	2371	1555
45°	2026	2004	1955	1920	1907	1564
55°	1534	1514	1476	1437	1421	1371
65°	1034	1015	983	954	938	1023
75°	541	535	518	499	506	578
85°	132	129	126	116	113	147
90°	1	18	29	37	40	13
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°	3350.2	3350.2	3350.2	3350.2	3350.2
2.5°	3369.7	3353.6	3318.0	3350.2	3344.0
5°	3350.2	3337.6	3302.0	3327.7	3321.5
7.5°	3327.7	3308.5	3272.9	3298.9	3292.5
10°	3292.5	3269.9	3231.2	3256.9	3247.3
12.5°	3243.9	3224.8	3186.1	3202.2	3195.7
15°	3189.2	3170.1	3128.0	3141.0	3125.0
17.5°	3121.5	3102.4	3060.3	3076.4	3060.3
20°	3047.3	3028.2	2983.1	2992.7	2980.0
22.5°	2973.5	2944.5	2902.4	2902.4	2896.0
25°	2886.4	2860.8	2806.1	2812.2	2806.1
27.5°	2789.6	2767.1	2725.4	2715.8	2699.7
30°	2693.3	2667.3	2619.1	2609.5	2596.5
32.5°	2590.1	2570.9	2519.3	2499.8	2486.8
35°	2490.3	2458.1	2406.5	2387.0	2370.9
37.5°	2377.5	2348.4	2296.8	2274.2	2258.1
40°	2261.6	2235.6	2184.0	2155.3	2142.3
42.5°	2148.8	2122.8	2071.6	2039.1	2020.0
45°	2026.4	2003.9	1955.3	1920.1	1907.2
47.5°	1907.2	1884.6	1833.0	1797.4	1778.3
50°	1781.4	1765.3	1720.2	1675.1	1659.1
52.5°	1659.1	1636.5	1594.7	1559.3	1536.7
55°	1533.6	1514.2	1475.5	1436.8	1420.8
57.5°	1407.8	1391.7	1349.7	1311.1	1298.1
60°	1282.0	1269.4	1224.3	1188.7	1179.1
62.5°	1159.7	1137.1	1105.0	1072.9	1059.9
65°	1034.2	1014.8	982.7	953.6	937.5
67.5°	905.4	889.0	860.3	837.8	824.7
70°	786.1	773.1	744.1	721.5	708.9
72.5°	663.7	650.7	634.7	612.2	602.5
75°	541.1	534.9	518.5	499.4	505.8
77.5°	431.7	418.7	412.2	402.6	393.0
80°	322.3	318.9	312.4	302.8	296.4
82.5°	219.1	219.1	216.0	203.0	203.0
85°	131.9	128.9	125.8	115.9	112.8
87.5°	58.1	51.6	45.1	35.6	32.1
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	11.03	11.98	11.91	12.88	14.02	10.59	11.54	11.47	12.43	13.57
	3H	12.70	13.55	13.59	14.46	15.63	12.21	13.06	13.10	13.97	15.14
	4H	13.30	14.10	14.20	15.02	16.19	12.80	13.61	13.71	14.52	15.70
	6H	13.71	14.45	14.62	15.37	16.55	13.21	13.95	14.12	14.87	16.05
	8H	13.82	14.52	14.74	15.46	16.64	13.31	14.02	14.24	14.96	16.14
	12H	13.87	14.54	14.80	15.47	16.68	13.36	14.03	14.29	14.96	16.17
4H	2H	11.50	12.31	12.41	13.22	14.40	11.15	11.95	12.06	12.87	14.04
	3H	13.38	14.05	14.30	15.00	16.19	12.98	13.65	13.90	14.59	15.78
	4H	14.10	14.72	15.04	15.66	16.87	13.68	14.29	14.61	15.23	16.45
	6H	14.63	15.16	15.57	16.12	17.33	14.20	14.72	15.14	15.69	16.90
	8H	14.78	15.28	15.73	16.23	17.46	14.35	14.84	15.29	15.80	17.02
	12H	14.86	15.31	15.83	16.28	17.52	14.41	14.86	15.38	15.83	17.07
8H	4H	14.31	14.80	15.26	15.76	16.99	13.93	14.43	14.88	15.38	16.61
	6H	14.95	15.36	15.92	16.36	17.58	14.56	14.97	15.54	15.97	17.20
	8H	15.17	15.53	16.16	16.52	17.77	14.78	15.14	15.76	16.13	17.37
	12H	15.31	15.63	16.30	16.61	17.90	14.90	15.22	15.89	16.20	17.49
12H	4H	14.30	14.74	15.26	15.72	16.95	13.93	14.38	14.90	15.35	16.58
	6H	14.98	15.34	15.96	16.33	17.57	14.61	14.97	15.59	15.96	17.20
	8H	15.23	15.55	16.21	16.53	17.82	14.85	15.17	15.83	16.15	17.44