

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: P906849

Luminaire Tested: DFN2DIP-SQ4F0-110D070US835-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P906849
REPORT IS A COMBINATION OF REPORTS P901607 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-110D070US835-FLLONL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

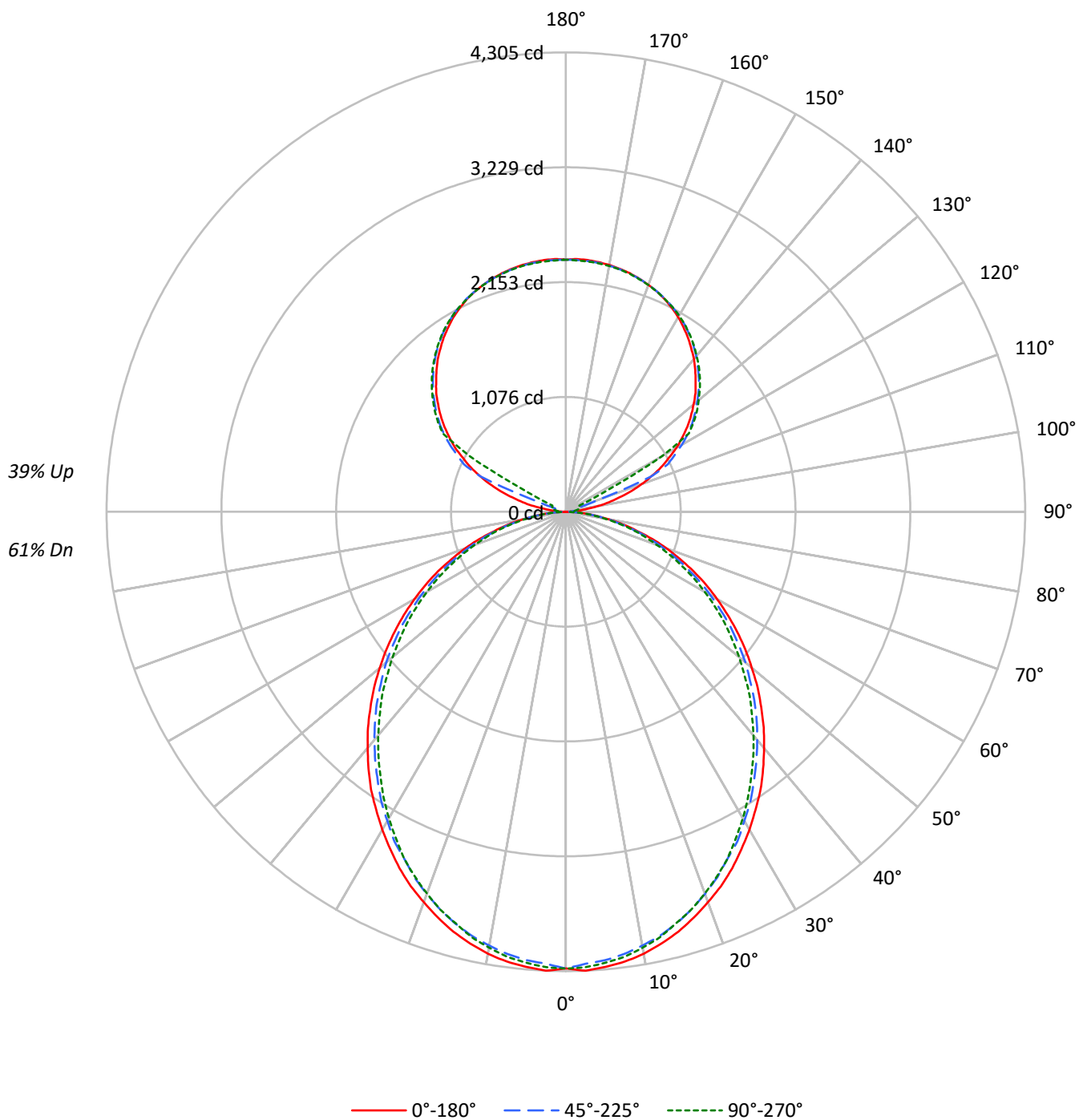
Lumens per Lamp: N/A
Luminaire Lumens: 17820.0 lumens
Efficiency: N/A
Efficacy: 113.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 157.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9951
Total Harmonic Distortion (THDi): 0.07
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	110	110	110	110		103	103	103	103		90	90	90		77	77	77		66	66	66
1	100	96	92	88		94	90	86	83		79	76	74		68	66	65		59	57	56
2	91	84	77	72		85	79	73	68		69	65	61		60	57	54		52	49	47
3	83	74	66	60		78	69	63	57		61	56	51		53	49	46		46	43	40
4	76	65	57	51		71	61	54	49		54	48	44		47	43	39		41	38	35
5	70	58	50	44		65	55	47	42		48	42	38		42	38	34		37	33	30
6	65	52	44	38		60	49	42	36		44	38	33		38	34	30		34	30	27
7	60	47	39	33		56	45	37	32		40	34	29		35	30	26		31	27	24
8	56	43	35	30		52	41	33	28		36	30	26		32	27	24		28	24	21
9	52	39	32	27		48	37	30	25		33	27	23		30	25	21		26	22	19
10	48	36	29	24		45	34	28	23		31	25	21		27	23	19		24	20	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3003	3003	3003
5°	3008	2962	2982
10°	2984	2923	2943
15°	2940	2875	2880
20°	2880	2809	2817
25°	2821	2730	2743
30°	2747	2656	2649
35°	2677	2569	2549
40°	2591	2481	2454
45°	2505	2393	2358
50°	2411	2300	2245
55°	2313	2193	2142
60°	2201	2066	2025
65°	2080	1935	1885
70°	1925	1774	1736
75°	1711	1583	1600
80°	1454	1339	1336
85°	1051	916	898

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2505 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	402.8	2.3
10°-20°	1133.5	6.4
20°-30°	1665.7	9.3
30°-40°	1934.7	10.9
40°-50°	1932.3	10.8
50°-60°	1684.9	9.5
60°-70°	1245.5	7.0
70°-80°	704.7	4.0
80°-90°	190.1	1.1
90°-100°	77.9	0.4
100°-110°	290.4	1.6
110°-120°	770.2	4.3
120°-130°	1277.4	7.2
130°-140°	1356.9	7.6
140°-150°	1261.1	7.1
150°-160°	1013.9	5.7
160°-170°	653.3	3.7
170°-180°	224.9	1.3
0°-30°	3202.1	18.0
0°-40°	5136.7	28.8
0°-60°	8753.8	49.1
0°-90°	10894.2	61.1
90°-120°	1138.5	6.4
90°-150°	5033.8	28.2
90°-180°	6926.0	38.9
0°-180°	17820.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4280	4280	4280	4280	4280	
5°	4280	4264	4219	4251	4244	406
15°	4074	4050	3996	4013	3992	1148
25°	3688	3655	3585	3593	3585	1697
35°	3182	3140	3074	3050	3029	1987
45°	2589	2560	2498	2453	2437	1998
55°	1959	1934	1885	1836	1815	1752
65°	1321	1296	1255	1218	1198	1306
75°	691	683	662	638	646	738
85°	169	165	161	148	144	188
90°	2	20	34	43	46	16
95°	111	55	67	75	74	131
105°	520	571	104	123	130	555
115°	983	1012	1055	263	140	968
125°	1390	1412	1444	1456	1462	1239
135°	1720	1747	1762	1780	1776	1328
145°	1995	1993	2022	2034	2026	1248
155°	2197	2181	2202	2212	2198	1012
165°	2314	2304	2309	2321	2309	654
175°	2368	2356	2359	2371	2354	225
180°	2362	2362	2362	2362	2362	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4280.2	4280.2	4280.2	4280.2	4280.2
2.5°	4305.0	4284.5	4239.1	4280.2	4272.3
5°	4280.2	4264.0	4218.6	4251.3	4243.5
7.5°	4251.3	4226.9	4181.5	4214.7	4206.4
10°	4206.4	4177.5	4128.2	4160.9	4148.7
12.5°	4144.4	4119.9	4070.6	4091.1	4082.8
15°	4074.5	4050.0	3996.3	4012.9	3992.4
17.5°	3988.0	3963.6	3909.9	3930.4	3909.9
20°	3893.3	3868.8	3811.2	3823.4	3807.3
22.5°	3799.0	3761.8	3708.1	3708.1	3699.8
25°	3687.6	3654.9	3585.0	3592.9	3585.0
27.5°	3564.0	3535.2	3481.9	3469.7	3449.2
30°	3440.9	3407.7	3346.1	3333.9	3317.3
32.5°	3309.0	3284.6	3218.6	3193.7	3177.1
35°	3181.5	3140.5	3074.5	3049.6	3029.1
37.5°	3037.4	3000.3	2934.4	2905.5	2885.0
40°	2889.4	2856.2	2790.3	2753.6	2737.0
42.5°	2745.3	2712.1	2646.6	2605.1	2580.7
45°	2589.0	2560.1	2498.1	2453.2	2436.6
47.5°	2436.6	2407.8	2341.8	2296.4	2271.9
50°	2275.9	2255.4	2197.7	2140.1	2119.6
52.5°	2119.6	2090.7	2037.5	1992.0	1963.2
55°	1959.3	1934.4	1885.1	1835.7	1815.2
57.5°	1798.6	1778.1	1724.4	1675.0	1658.4
60°	1637.9	1621.8	1564.1	1518.7	1506.5
62.5°	1481.6	1452.8	1411.7	1370.7	1354.1
65°	1321.3	1296.4	1255.4	1218.3	1197.8
67.5°	1156.7	1135.8	1099.1	1070.3	1053.7
70°	1004.3	987.7	950.6	921.8	905.6
72.5°	848.0	831.4	810.9	782.1	769.8
75°	691.2	683.4	662.4	638.0	646.3
77.5°	551.5	534.9	526.6	514.4	502.2
80°	411.8	407.4	399.1	386.9	378.6
82.5°	279.9	279.9	276.0	259.4	259.4
85°	168.6	164.6	160.7	148.0	144.1
87.5°	74.2	65.9	57.6	45.4	41.0
90°	1.6	20.5	34.1	42.8	46.1
92.5°	42.8	35.9	41.0	44.5	46.1
95°	111.0	54.6	66.6	75.3	73.5
97.5°	199.9	59.9	87.1	92.4	94.0
100°	302.7	68.4	97.4	111.0	114.5
102.5°	415.3	412.1	100.9	119.6	124.8
105°	519.7	571.0	104.3	123.0	129.9
107.5°	641.0	683.7	107.8	126.5	133.4
110°	757.4	793.1	299.2	128.3	135.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	866.8	897.4	868.4	131.5	136.8
115°	982.9	1011.9	1054.7	263.3	140.3
117.5°	1083.8	1117.9	1147.1	902.5	454.7
120°	1196.6	1222.2	1253.1	1273.6	1042.8
122.5°	1292.2	1319.6	1354.0	1364.1	1365.9
125°	1389.7	1412.0	1444.5	1456.5	1461.5
127.5°	1478.6	1502.5	1528.3	1545.4	1547.0
130°	1562.4	1589.8	1608.5	1627.4	1625.8
132.5°	1647.9	1670.2	1688.9	1704.3	1702.7
135°	1719.7	1747.1	1762.4	1779.6	1776.2
137.5°	1794.8	1815.4	1832.6	1849.7	1844.6
140°	1868.3	1882.1	1900.8	1916.2	1907.7
142.5°	1930.0	1942.0	1964.1	1977.7	1969.2
145°	1995.0	1993.2	2022.2	2034.2	2025.7
147.5°	2051.2	2046.2	2075.2	2083.7	2077.0
150°	2106.0	2094.1	2121.5	2131.6	2123.1
152.5°	2152.1	2138.5	2164.1	2174.4	2162.5
155°	2196.6	2181.3	2201.8	2212.0	2198.4
157.5°	2232.5	2218.9	2234.3	2246.3	2232.5
160°	2263.4	2253.0	2263.4	2273.5	2261.5
162.5°	2290.6	2280.4	2288.9	2300.9	2285.5
165°	2314.5	2304.4	2309.4	2321.4	2309.4
167.5°	2333.4	2323.0	2328.3	2340.3	2324.9
170°	2348.8	2338.5	2341.9	2353.9	2338.5
172.5°	2359.0	2348.8	2352.3	2364.2	2348.8
175°	2367.5	2355.5	2359.0	2370.9	2353.9
177.5°	2370.9	2359.0	2360.8	2372.8	2357.3
180°	2362.4	2362.4	2362.4	2362.4	2362.4

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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	12.07	13.04	12.93	13.92	15.02	11.63	12.60	12.48	13.48	14.58
	3H	13.75	14.62	14.61	15.50	16.63	13.26	14.13	14.12	15.01	16.14
	4H	14.34	15.17	15.23	16.06	17.20	13.85	14.67	14.73	15.56	16.70
	6H	14.75	15.51	15.65	16.41	17.56	14.25	15.01	15.15	15.91	17.06
	8H	14.86	15.58	15.76	16.50	17.65	14.36	15.08	15.26	16.00	17.15
	12H	14.91	15.60	15.82	16.52	17.69	14.40	15.09	15.31	16.01	17.18
4H	2H	12.55	13.37	13.44	14.27	15.40	12.19	13.02	13.08	13.91	15.05
	3H	14.43	15.12	15.33	16.04	17.20	14.02	14.71	14.92	15.63	16.79
	4H	15.15	15.78	16.06	16.70	17.88	14.73	15.35	15.64	16.27	17.45
	6H	15.68	16.22	16.60	17.16	18.34	15.24	15.79	16.17	16.73	17.91
	8H	15.83	16.34	16.76	17.28	18.47	15.39	15.90	16.32	16.84	18.03
	12H	15.91	16.37	16.86	17.32	18.53	15.46	15.92	16.41	16.88	18.08
8H	4H	15.36	15.86	16.28	16.80	18.00	14.98	15.49	15.91	16.42	17.62
	6H	16.00	16.42	16.95	17.40	18.59	15.61	16.03	16.57	17.01	18.21
	8H	16.22	16.59	17.19	17.56	18.78	15.83	16.20	16.79	17.17	18.38
	12H	16.36	16.69	17.33	17.65	18.91	15.95	16.28	16.92	17.24	18.50
12H	4H	15.35	15.80	16.30	16.76	17.96	14.98	15.44	15.93	16.39	17.59
	6H	16.03	16.40	16.99	17.37	18.58	15.66	16.03	16.62	17.00	18.21
	8H	16.28	16.61	17.25	17.57	18.83	15.90	16.23	16.87	17.19	18.45