

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: P906641

Luminaire Tested: DFN2DIP-SQ3F0-120D070US835-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P906641
REPORT IS A COMBINATION OF REPORTS P901451 AND P898289
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-120D070US835-FLLONL
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

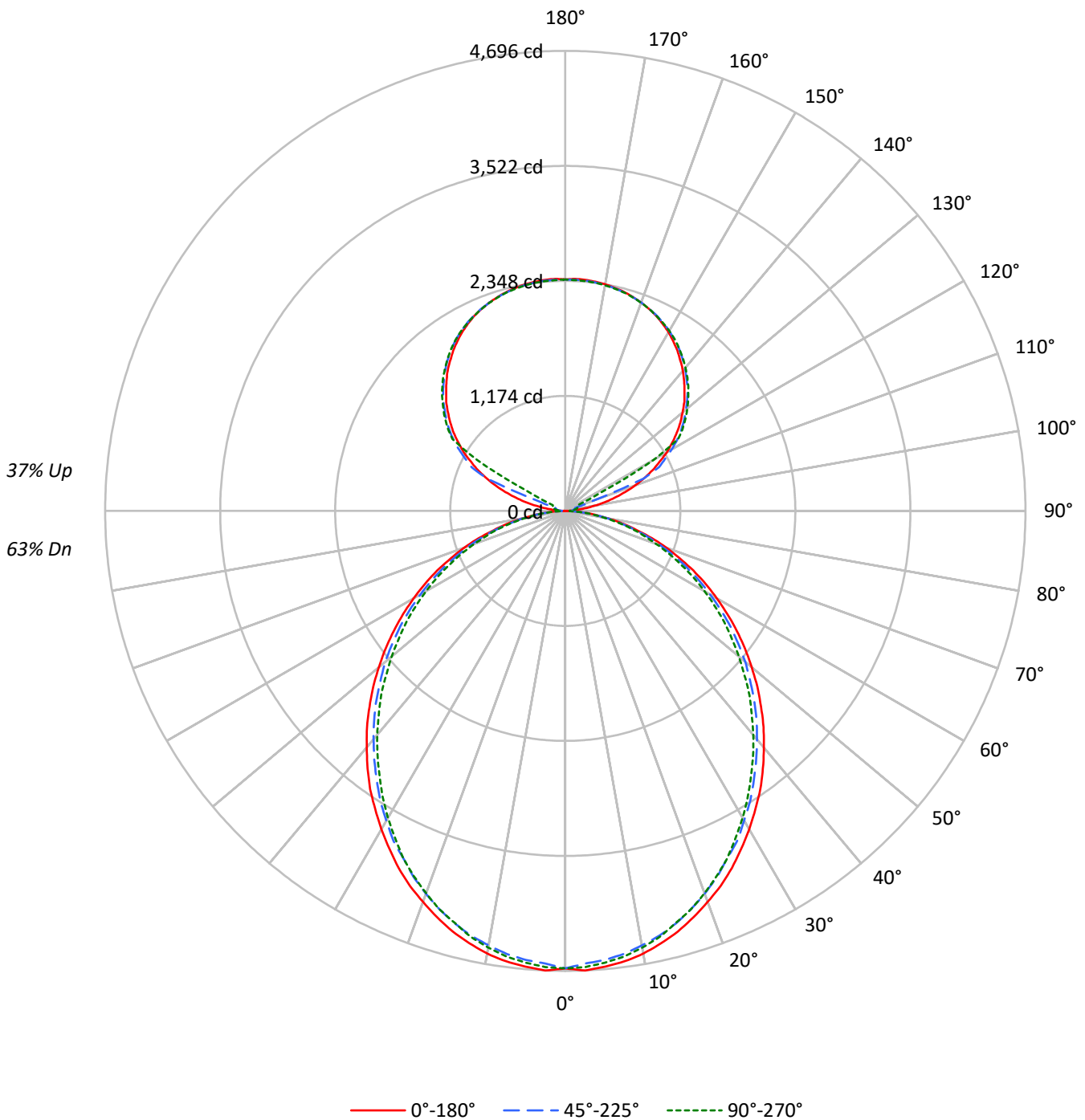
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 18810.0 lumens
Efficiency: N/A
Efficacy: 105.5 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-Direct

Input Watts (W): 178.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9957
Total Harmonic Distortion (THDi): 0.049
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P906641
CATALOG NUMBER: DFN2DIP-SQ3F0-120D070US835-FLLONL

Luminous Intensity Polar Plot





TEST NUMBER: P906641

CATALOG NUMBER: DFN2DIP-SQ3F0-120D070US835-FLLONL

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	110	110	110	110	103	103	103	103	91	91	91	79	79	79	68	68	68	68	68	68	68
1	101	96	92	89	94	91	87	84	80	77	75	70	68	66	60	59	58	60	59	58	53
2	92	84	78	73	86	79	74	69	70	66	62	61	58	55	53	51	49	53	51	49	45
3	84	74	67	61	78	70	63	58	62	56	52	54	50	47	47	44	41	47	44	41	38
4	77	66	57	51	72	62	55	49	55	49	44	48	44	40	42	39	36	42	39	36	32
5	70	59	50	44	66	55	48	42	49	43	38	43	39	35	38	34	31	38	34	31	28
6	65	53	44	38	61	50	42	37	44	38	34	39	34	30	34	31	27	34	31	27	25
7	60	48	39	34	56	45	38	32	40	34	30	36	31	27	31	27	24	31	27	24	22
8	56	43	35	30	52	41	34	29	37	31	26	33	28	24	29	25	22	29	25	22	20
9	52	40	32	27	49	38	31	26	34	28	24	30	25	22	27	23	20	27	23	20	18
10	49	36	29	24	46	35	28	23	31	25	21	28	23	20	25	21	18	25	21	18	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	5350	5350	5350
5°	5355	5272	5309
10°	5308	5197	5236
15°	5227	5108	5122
20°	5118	4986	5005
25°	5010	4840	4870
30°	4875	4704	4699
35°	4746	4545	4519
40°	4589	4383	4347
45°	4432	4221	4171
50°	4260	4051	3967
55°	4080	3854	3780
60°	3876	3621	3565
65°	3653	3379	3311
70°	3368	3083	3038
75°	2976	2729	2782
80°	2501	2277	2300
85°	1761	1509	1505

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 4432 cd/sqm



TEST NUMBER: P906641

CATALOG NUMBER: DFN2DIP-SQ3F0-120D070US835-FLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	439.5	2.3
10°-20°	1236.5	6.6
20°-30°	1817.2	9.7
30°-40°	2110.5	11.2
40°-50°	2107.9	11.2
50°-60°	1838.0	9.8
60°-70°	1358.7	7.2
70°-80°	768.7	4.1
80°-90°	207.1	1.1
90°-100°	77.9	0.4
100°-110°	290.4	1.5
110°-120°	770.2	4.1
120°-130°	1277.4	6.8
130°-140°	1356.9	7.2
140°-150°	1261.1	6.7
150°-160°	1013.9	5.4
160°-170°	653.3	3.5
170°-180°	224.9	1.2
0°-30°	3493.1	18.6
0°-40°	5603.7	29.8
0°-60°	9549.6	50.8
0°-90°	11884.1	63.2
90°-120°	1138.5	6.1
90°-150°	5033.8	26.8
90°-180°	6926.0	36.8
0°-180°	18810.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4669	4669	4669	4669	4669	
5°	4669	4652	4602	4638	4629	443
15°	4445	4418	4360	4378	4355	1252
25°	4023	3987	3911	3920	3911	1851
35°	3471	3426	3354	3327	3304	2167
45°	2824	2793	2725	2676	2658	2180
55°	2137	2110	2056	2003	1980	1911
65°	1442	1414	1370	1329	1307	1425
75°	754	746	723	696	705	805
85°	184	180	175	162	157	205
90°	2	20	34	43	46	17
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	



TEST NUMBER: P906641

CATALOG NUMBER: DFN2DIP-SQ3F0-120D070US835-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4669.3	4669.3	4669.3	4669.3	4669.3
2.5°	4696.4	4674.0	4624.5	4669.3	4660.7
5°	4669.3	4651.6	4602.1	4637.8	4629.2
7.5°	4637.8	4611.1	4561.6	4597.8	4588.8
10°	4588.8	4557.3	4503.5	4539.2	4525.9
12.5°	4521.1	4494.4	4440.6	4463.0	4453.9
15°	4444.9	4418.2	4359.6	4377.7	4355.3
17.5°	4350.6	4323.9	4265.3	4287.7	4265.3
20°	4247.2	4220.5	4157.7	4171.0	4153.4
22.5°	4144.3	4103.8	4045.2	4045.2	4036.2
25°	4022.8	3987.1	3910.9	3919.5	3910.9
27.5°	3888.0	3856.6	3798.5	3785.1	3762.8
30°	3753.7	3717.5	3650.3	3637.0	3618.9
32.5°	3609.8	3583.2	3511.2	3484.1	3466.0
35°	3470.7	3426.0	3354.0	3326.9	3304.5
37.5°	3313.5	3273.1	3201.1	3169.7	3147.3
40°	3152.1	3115.9	3043.9	3003.9	2985.8
42.5°	2994.9	2958.7	2887.2	2842.0	2815.3
45°	2824.3	2792.9	2725.2	2676.2	2658.1
47.5°	2658.1	2626.6	2554.7	2505.2	2478.5
50°	2482.8	2460.4	2397.5	2334.6	2312.2
52.5°	2312.2	2280.8	2222.7	2173.1	2141.7
55°	2137.4	2110.3	2056.4	2002.6	1980.2
57.5°	1962.1	1939.7	1881.1	1827.3	1809.2
60°	1786.8	1769.2	1706.3	1656.8	1643.4
62.5°	1616.3	1584.8	1540.1	1495.3	1477.2
65°	1441.5	1414.3	1369.5	1329.0	1306.7
67.5°	1261.9	1239.0	1199.0	1167.6	1149.5
70°	1095.6	1077.5	1037.0	1005.6	988.0
72.5°	925.1	907.0	884.6	853.2	839.8
75°	754.1	745.5	722.6	696.0	705.0
77.5°	601.6	583.5	574.5	561.1	547.8
80°	449.2	444.4	435.4	422.1	413.0
82.5°	305.3	305.3	301.1	283.0	283.0
85°	183.9	179.6	175.3	161.5	157.2
87.5°	81.0	71.9	62.9	49.5	44.8
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



TEST NUMBER: P906641

CATALOG NUMBER: DFN2DIP-SQ3F0-120D070US835-FLLONL

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



TEST NUMBER: P906641
 CATALOG NUMBER: DFN2DIP-SQ3F0-120D070US835-FLLONL

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	14.20	15.19	15.03	16.05	17.12	13.75	14.75	14.59	15.61	16.68
	3H	15.86	16.76	16.71	17.62	18.72	15.37	16.27	16.22	17.13	18.23
	4H	16.46	17.30	17.32	18.17	19.28	15.96	16.80	16.83	17.68	18.79
	6H	16.86	17.64	17.74	18.52	19.64	16.36	17.14	17.23	18.02	19.14
	8H	16.97	17.71	17.85	18.61	19.73	16.46	17.20	17.35	18.10	19.22
	12H	17.02	17.72	17.91	18.61	19.76	16.51	17.21	17.40	18.11	19.25
4H	2H	14.67	15.52	15.54	16.39	17.50	14.32	15.16	15.19	16.03	17.14
	3H	16.54	17.25	17.42	18.15	19.28	16.14	16.84	17.02	17.75	18.87
	4H	17.26	17.90	18.15	18.80	19.95	16.84	17.48	17.73	18.38	19.53
	6H	17.78	18.33	18.69	19.26	20.41	17.35	17.90	18.25	18.83	19.98
	8H	17.93	18.45	18.84	19.37	20.53	17.49	18.01	18.40	18.93	20.10
	12H	18.01	18.47	18.94	19.41	20.58	17.56	18.02	18.49	18.96	20.13
8H	4H	17.46	17.98	18.37	18.90	20.07	17.09	17.60	18.00	18.53	19.69
	6H	18.09	18.52	19.03	19.49	20.65	17.71	18.14	18.65	19.10	20.27
	8H	18.31	18.69	19.26	19.65	20.83	17.92	18.30	18.87	19.25	20.43
	12H	18.45	18.78	19.40	19.73	20.96	18.04	18.37	18.99	19.32	20.55
12H	4H	17.45	17.92	18.38	18.86	20.03	17.09	17.55	18.02	18.49	19.66
	6H	18.12	18.50	19.07	19.46	20.64	17.75	18.13	18.70	19.09	20.27
	8H	18.37	18.70	19.32	19.65	20.88	17.99	18.32	18.94	19.27	20.50