

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: P904085

Luminaire Tested: DFN2DIP-SQ4F0-100D070US830-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P904085
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-SQ4F0-100D070US830-FLLONL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

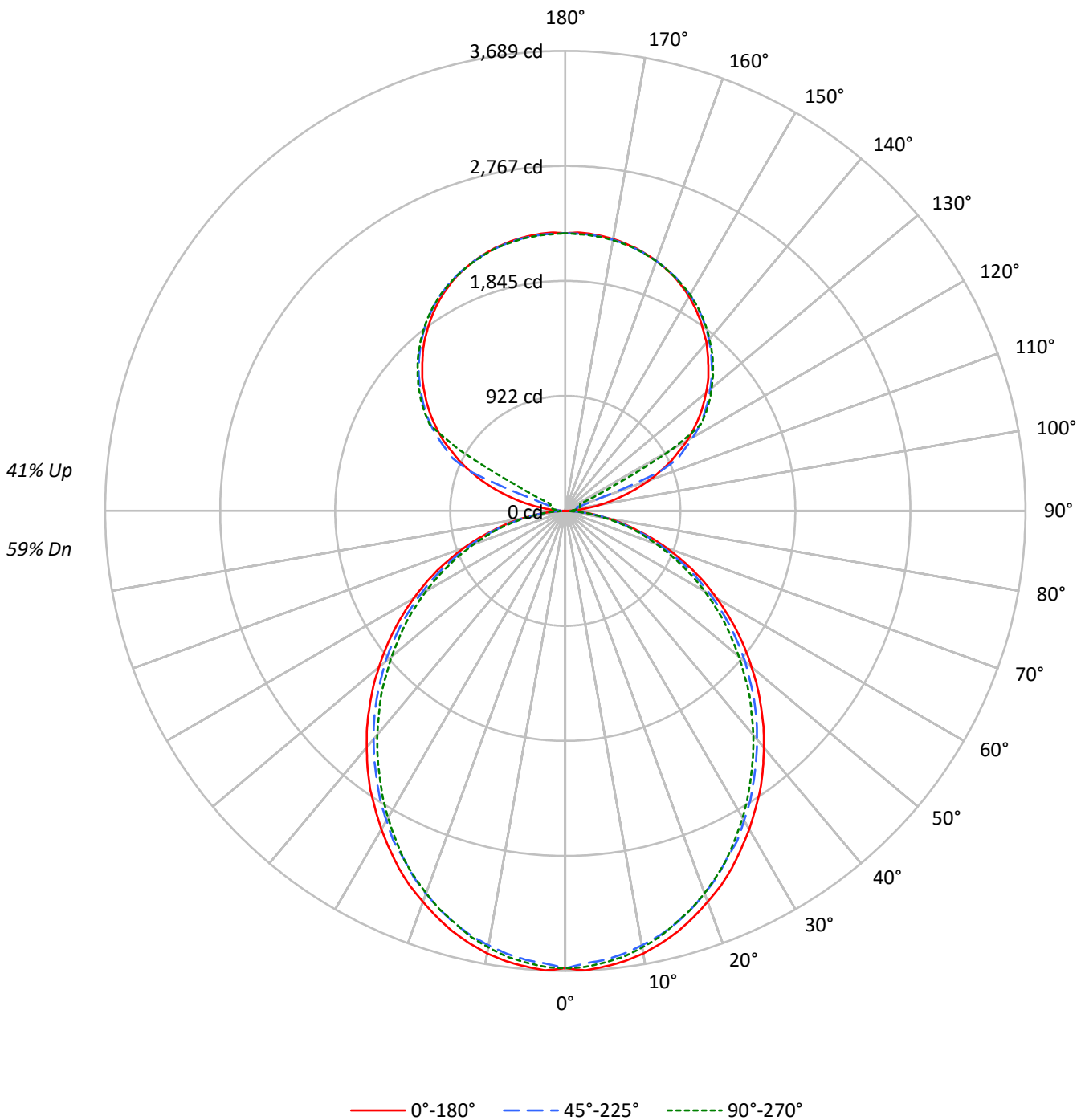
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 15863.0 lumens
Efficiency: N/A
Efficacy: 109.5 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

TEST NUMBER: P904085
CATALOG NUMBER: DFN2DIP-SQ4F0-100D070US830-FLLONL

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	109	109	109	109	102	102	102	102	88	88	88	76	76	76	64	64	64	59			
1	100	95	91	88	93	89	86	83	77	75	73	67	65	63	57	56	54	50			
2	91	83	77	72	85	78	72	68	68	64	60	59	55	53	50	48	46	42			
3	83	73	66	60	77	69	62	57	60	55	51	52	48	45	44	41	39	35			
4	76	65	57	51	71	61	54	48	53	48	43	46	42	38	40	36	34	30			
5	70	58	50	44	65	54	47	41	48	42	37	42	37	33	36	32	29	26			
6	64	52	44	38	60	49	41	36	43	37	33	38	33	29	32	29	26	23			
7	59	47	39	33	55	44	37	32	39	33	29	34	29	26	30	26	23	20			
8	55	43	35	29	51	40	33	28	36	30	26	31	27	23	27	23	21	18			
9	51	39	31	26	48	37	30	25	33	27	23	29	24	21	25	21	19	17			
10	48	36	29	24	45	34	27	23	30	25	21	27	22	19	23	20	17	15			

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2573	2573	2573
5°	2577	2538	2555
10°	2557	2504	2522
15°	2519	2464	2468
20°	2468	2407	2413
25°	2418	2339	2350
30°	2354	2276	2270
35°	2294	2201	2184
40°	2220	2126	2103
45°	2147	2050	2020
50°	2066	1971	1924
55°	1982	1879	1836
60°	1886	1770	1735
65°	1782	1658	1616
70°	1650	1520	1488
75°	1466	1356	1371
80°	1245	1147	1145
85°	900	785	770

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2147 cd/sqm



TEST NUMBER: P904085
 CATALOG NUMBER: DFN2DIP-SQ4F0-100D070US830-FLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	345.2	2.2
10°-20°	971.2	6.1
20°-30°	1427.3	9.0
30°-40°	1657.7	10.5
40°-50°	1655.7	10.4
50°-60°	1443.7	9.1
60°-70°	1067.2	6.7
70°-80°	603.8	3.8
80°-90°	163.3	1.0
90°-100°	73.4	0.5
100°-110°	273.7	1.7
110°-120°	725.9	4.6
120°-130°	1204.0	7.6
130°-140°	1278.9	8.1
140°-150°	1188.6	7.5
150°-160°	955.6	6.0
160°-170°	615.8	3.9
170°-180°	211.9	1.3
0°-30°	2743.7	17.3
0°-40°	4401.4	27.7
0°-60°	7500.8	47.3
0°-90°	9335.1	58.8
90°-120°	1073.0	6.8
90°-150°	4744.6	29.9
90°-180°	6528.0	41.2
0°-180°	15863.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3668	3668	3668	3668	3668	
5°	3668	3654	3615	3643	3636	348
15°	3491	3470	3424	3438	3421	983
25°	3160	3132	3072	3078	3072	1454
35°	2726	2691	2634	2613	2596	1702
45°	2218	2194	2140	2102	2088	1712
55°	1679	1658	1615	1573	1555	1501
65°	1132	1111	1076	1044	1026	1119
75°	592	586	568	547	554	632
85°	144	141	138	127	124	161
90°	2	19	32	40	44	15
95°	105	52	63	71	69	124
105°	490	538	98	116	122	523
115°	926	954	994	248	132	912
125°	1310	1331	1362	1373	1378	1168
135°	1621	1647	1661	1677	1674	1252
145°	1880	1879	1906	1917	1909	1176
155°	2070	2056	2075	2085	2072	954
165°	2182	2172	2177	2188	2177	616
175°	2232	2220	2224	2235	2219	212
180°	2227	2227	2227	2227	2227	



TEST NUMBER: P904085

CATALOG NUMBER: DFN2DIP-SQ4F0-100D070US830-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3667.5	3667.5	3667.5	3667.5	3667.5
2.5°	3688.8	3671.2	3632.3	3667.5	3660.7
5°	3667.5	3653.7	3614.7	3642.8	3636.0
7.5°	3642.8	3621.8	3582.9	3611.4	3604.3
10°	3604.3	3579.6	3537.3	3565.4	3554.9
12.5°	3551.1	3530.2	3487.9	3505.5	3498.3
15°	3491.3	3470.3	3424.3	3438.5	3421.0
17.5°	3417.2	3396.3	3350.2	3367.8	3350.2
20°	3335.9	3315.0	3265.6	3276.1	3262.2
22.5°	3255.2	3223.4	3177.3	3177.3	3170.2
25°	3159.8	3131.7	3071.8	3078.5	3071.8
27.5°	3053.8	3029.1	2983.5	2973.1	2955.4
30°	2948.4	2919.9	2867.1	2856.7	2842.4
32.5°	2835.4	2814.4	2757.9	2736.6	2722.3
35°	2726.1	2691.0	2634.4	2613.1	2595.5
37.5°	2602.6	2570.8	2514.3	2489.6	2472.0
40°	2475.8	2447.3	2390.9	2359.5	2345.2
42.5°	2352.3	2323.8	2267.8	2232.2	2211.3
45°	2218.4	2193.7	2140.5	2102.0	2087.8
47.5°	2087.8	2063.1	2006.6	1967.7	1946.7
50°	1950.1	1932.5	1883.1	1833.7	1816.2
52.5°	1816.2	1791.5	1745.8	1706.9	1682.2
55°	1678.9	1657.6	1615.2	1572.9	1555.4
57.5°	1541.2	1523.5	1477.5	1435.3	1421.1
60°	1403.4	1389.6	1340.2	1301.3	1290.8
62.5°	1269.5	1244.8	1209.7	1174.5	1160.3
65°	1132.2	1110.9	1075.7	1043.9	1026.3
67.5°	991.2	973.2	941.8	917.1	902.9
70°	860.5	846.3	814.5	789.9	776.0
72.5°	726.6	712.4	694.8	670.1	659.6
75°	592.3	585.6	567.6	546.7	553.7
77.5°	472.6	458.4	451.2	440.7	430.3
80°	352.8	349.1	342.0	331.5	324.4
82.5°	239.9	239.9	236.5	222.3	222.3
85°	144.4	141.1	137.7	126.9	123.5
87.5°	63.6	56.5	49.4	38.9	35.2
90°	1.5	19.3	32.1	40.3	43.5
92.5°	40.3	33.8	38.6	41.9	43.5
95°	104.6	51.5	62.8	71.0	69.3
97.5°	188.4	56.5	82.1	87.1	88.6
100°	285.3	64.5	91.8	104.6	107.9
102.5°	391.4	388.4	95.1	112.7	117.6
105°	489.8	538.2	98.3	115.9	122.4
107.5°	604.2	644.4	101.6	119.2	125.7
110°	713.9	747.5	282.0	120.9	127.2



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	817.0	845.8	818.5	123.9	128.9
115°	926.4	953.8	994.1	248.2	132.2
117.5°	1021.5	1053.7	1081.2	850.6	428.6
120°	1127.8	1152.0	1181.1	1200.4	982.9
122.5°	1218.0	1243.8	1276.2	1285.7	1287.4
125°	1309.9	1330.9	1361.5	1372.8	1377.5
127.5°	1393.6	1416.2	1440.5	1456.6	1458.1
130°	1472.6	1498.5	1516.1	1533.9	1532.4
132.5°	1553.2	1574.2	1591.9	1606.4	1604.9
135°	1620.9	1646.7	1661.1	1677.3	1674.1
137.5°	1691.7	1711.1	1727.3	1743.4	1738.6
140°	1761.0	1774.0	1791.6	1806.1	1798.1
142.5°	1819.1	1830.4	1851.2	1864.1	1856.1
145°	1880.4	1878.7	1906.0	1917.3	1909.3
147.5°	1933.3	1928.6	1956.0	1964.0	1957.7
150°	1985.0	1973.8	1999.6	2009.1	2001.1
152.5°	2028.4	2015.6	2039.8	2049.5	2038.2
155°	2070.4	2056.0	2075.3	2084.9	2072.1
157.5°	2104.2	2091.4	2105.9	2117.2	2104.2
160°	2133.4	2123.5	2133.4	2142.9	2131.6
162.5°	2159.0	2149.4	2157.4	2168.7	2154.2
165°	2181.5	2172.0	2176.7	2188.0	2176.7
167.5°	2199.3	2189.5	2194.5	2205.8	2191.3
170°	2213.8	2204.1	2207.3	2218.7	2204.1
172.5°	2223.5	2213.8	2217.1	2228.4	2213.8
175°	2231.5	2220.2	2223.5	2234.7	2218.7
177.5°	2234.7	2223.5	2225.2	2236.5	2221.9
180°	2226.7	2226.7	2226.7	2226.7	2226.7



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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	11.35	12.29	12.22	13.19	14.33	10.90	11.85	11.78	12.75	13.89
	3H	13.02	13.87	13.91	14.78	15.94	12.53	13.38	13.42	14.29	15.45
	4H	13.61	14.42	14.52	15.33	16.50	13.12	13.92	14.02	14.84	16.01
	6H	14.02	14.76	14.94	15.68	16.87	13.52	14.26	14.44	15.18	16.37
	8H	14.13	14.84	15.05	15.77	16.96	13.63	14.33	14.55	15.27	16.46
	12H	14.18	14.85	15.11	15.79	17.00	13.67	14.34	14.60	15.28	16.49
4H	2H	11.82	12.62	12.73	13.54	14.71	11.46	12.27	12.37	13.18	14.36
	3H	13.70	14.37	14.62	15.31	16.50	13.29	13.96	14.21	14.91	16.09
	4H	14.42	15.03	15.35	15.97	17.18	14.00	14.61	14.93	15.55	16.76
	6H	14.94	15.47	15.89	16.43	17.65	14.51	15.04	15.46	16.00	17.22
	8H	15.10	15.59	16.04	16.55	17.78	14.66	15.15	15.61	16.11	17.34
	12H	15.18	15.62	16.14	16.60	17.83	14.73	15.17	15.69	16.15	17.38
8H	4H	14.62	15.12	15.57	16.07	17.30	14.25	14.74	15.19	15.70	16.93
	6H	15.26	15.67	16.24	16.67	17.90	14.88	15.29	15.85	16.29	17.51
	8H	15.49	15.85	16.47	16.84	18.08	15.09	15.46	16.08	16.44	17.69
	12H	15.63	15.94	16.61	16.93	18.22	15.21	15.53	16.20	16.51	17.81
12H	4H	14.61	15.06	15.58	16.03	17.27	14.24	14.69	15.21	15.66	16.90
	6H	15.29	15.65	16.28	16.64	17.89	14.92	15.28	15.90	16.27	17.52
	8H	15.54	15.86	16.53	16.84	18.14	15.16	15.48	16.15	16.46	17.75