

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: P923184

Luminaire Tested: DFN2DIP-SQ4F0-100D080US940-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P923184
REPORT IS A COMBINATION OF REPORTS P900103 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-100D080US940-FLLFLL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

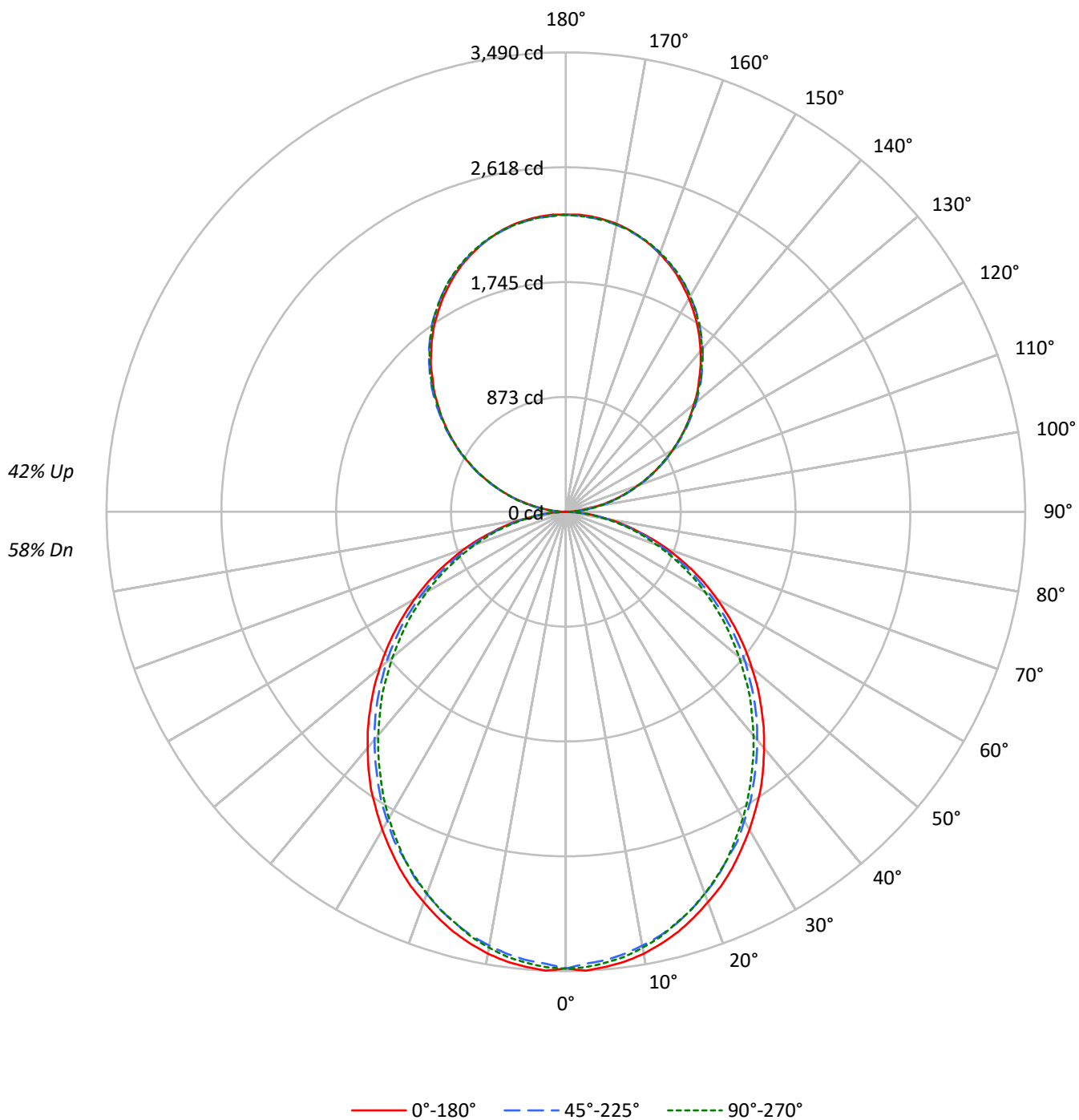
Lumens per Lamp: N/A
Luminaire Lumens: 15141.2 lumens
Efficiency: N/A
Efficacy: 99.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 152.2
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: P923184

CATALOG NUMBER: DFN2DIP-SQ4F0-100D080US940-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P923184

CATALOG NUMBER: DFN2DIP-SQ4F0-100D080US940-FLLFL

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	75	75	75	64	64	64
1	100	95	91	88	93	89	86	82	77	75	72	66	65	63	56	55	54
2	91	83	77	72	84	78	72	68	68	64	60	58	55	52	50	47	45
3	83	73	66	60	77	69	62	57	60	55	50	52	48	44	44	41	39
4	76	65	57	51	70	61	54	48	53	47	43	46	42	38	39	36	33
5	70	58	50	43	65	54	47	41	48	42	37	41	37	33	35	32	29
6	64	52	44	38	60	49	41	36	43	37	32	37	33	29	32	29	26
7	59	47	39	33	55	44	37	32	39	33	29	34	29	26	29	26	23
8	55	43	35	29	51	40	33	28	36	30	26	31	26	23	27	23	20
9	51	39	31	26	48	37	30	25	33	27	23	29	24	21	25	21	18
10	48	36	28	24	45	34	27	23	30	25	21	27	22	19	23	19	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2435	2435	2435
5°	2438	2401	2418
10°	2419	2369	2386
15°	2383	2331	2335
20°	2335	2277	2283
25°	2287	2213	2224
30°	2227	2153	2147
35°	2170	2082	2066
40°	2100	2011	1990
45°	2031	1940	1911
50°	1954	1864	1820
55°	1875	1778	1737
60°	1784	1675	1641
65°	1686	1568	1528
70°	1561	1438	1407
75°	1387	1283	1297
80°	1178	1085	1083
85°	851	743	728

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2031 cd/sqm

TEST NUMBER: P923184

CATALOG NUMBER: DFN2DIP-SQ4F0-100D080US940-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	326.6	2.2
10°-20°	918.8	6.1
20°-30°	1350.3	8.9
30°-40°	1568.3	10.4
40°-50°	1566.4	10.3
50°-60°	1365.8	9.0
60°-70°	1009.7	6.7
70°-80°	571.3	3.8
80°-90°	157.2	1.0
90°-100°	139.6	0.9
100°-110°	443.6	2.9
110°-120°	759.1	5.0
120°-130°	998.3	6.6
130°-140°	1120.6	7.4
140°-150°	1098.9	7.3
150°-160°	921.8	6.1
160°-170°	611.3	4.0
170°-180°	213.7	1.4
0°-30°	2595.7	17.1
0°-40°	4164.0	27.5
0°-60°	7096.2	46.9
0°-90°	8834.3	58.3
90°-120°	1342.3	8.9
90°-150°	4560.1	30.1
90°-180°	6307.0	41.7
0°-180°	15141.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3470	3470	3470	3470	3470	
5°	3470	3457	3420	3446	3440	329
15°	3303	3283	3240	3253	3236	930
25°	2989	2963	2906	2912	2906	1376
35°	2579	2546	2492	2472	2456	1611
45°	2099	2075	2025	1989	1975	1620
55°	1588	1568	1528	1488	1472	1420
65°	1071	1051	1018	988	971	1059
75°	560	554	537	517	524	598
85°	137	134	130	120	117	152
90°	2	24	67	63	65	15
95°	99	118	122	122	118	111
105°	410	415	419	422	422	432
115°	762	773	769	767	762	753
125°	1108	1125	1120	1113	1111	990
135°	1433	1454	1458	1456	1451	1108
145°	1740	1754	1764	1766	1759	1087
155°	1990	1995	2001	2010	2004	916
165°	2164	2162	2162	2176	2166	611
175°	2252	2247	2242	2256	2244	214
180°	2256	2256	2256	2256	2256	

TEST NUMBER: P923184

CATALOG NUMBER: DFN2DIP-SQ4F0-100D080US940-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3469.7	3469.7	3469.7	3469.7	3469.7
2.5°	3489.9	3473.2	3436.4	3469.7	3463.3
5°	3469.7	3456.6	3419.8	3446.4	3440.0
7.5°	3446.4	3426.5	3389.7	3416.6	3409.9
10°	3409.9	3386.5	3346.5	3373.1	3363.2
12.5°	3359.6	3339.8	3299.8	3316.4	3309.7
15°	3303.0	3283.2	3239.6	3253.0	3236.5
17.5°	3232.9	3213.1	3169.5	3186.2	3169.5
20°	3156.0	3136.2	3089.5	3099.4	3086.3
22.5°	3079.6	3049.6	3006.0	3006.0	2999.3
25°	2989.4	2962.8	2906.2	2912.5	2906.2
27.5°	2889.1	2865.8	2822.6	2812.7	2796.0
30°	2789.4	2762.4	2712.5	2702.6	2689.1
32.5°	2682.4	2662.6	2609.1	2589.0	2575.5
35°	2579.1	2545.8	2492.3	2472.2	2455.5
37.5°	2462.3	2432.1	2378.7	2355.4	2338.7
40°	2342.3	2315.3	2261.9	2232.2	2218.8
42.5°	2225.4	2198.5	2145.5	2111.8	2092.0
45°	2098.7	2075.4	2025.1	1988.6	1975.2
47.5°	1975.2	1951.9	1898.4	1861.5	1841.7
50°	1844.9	1828.3	1781.5	1734.8	1718.2
52.5°	1718.2	1694.9	1651.6	1614.9	1591.5
55°	1588.3	1568.2	1528.1	1488.1	1471.5
57.5°	1458.0	1441.4	1397.8	1357.9	1344.4
60°	1327.8	1314.6	1267.9	1231.1	1221.2
62.5°	1201.0	1177.7	1144.4	1111.2	1097.7
65°	1071.1	1051.0	1017.7	987.6	971.0
67.5°	937.7	920.7	891.0	867.6	854.2
70°	814.1	800.7	770.6	747.3	734.1
72.5°	687.4	674.0	657.4	634.0	624.0
75°	560.4	554.0	537.0	517.2	523.9
77.5°	447.1	433.6	426.9	417.0	407.1
80°	333.8	330.3	323.5	313.6	306.9
82.5°	226.9	226.9	223.7	210.3	210.3
85°	136.6	133.5	130.3	120.0	116.8
87.5°	60.2	53.4	46.7	36.8	33.3
90°	2.1	24.5	66.7	62.6	64.6
92.5°	42.2	57.2	59.2	61.2	61.2
95°	99.3	118.3	121.7	121.7	118.3
97.5°	165.3	183.0	190.5	190.5	190.5
100°	241.5	257.1	262.5	262.5	260.5
102.5°	321.7	333.3	340.7	342.8	340.7
105°	409.5	414.9	419.0	422.4	422.4
107.5°	496.5	504.7	504.7	506.0	496.5
110°	580.9	591.7	591.7	591.7	586.3



TEST NUMBER: P923184

CATALOG NUMBER: DFN2DIP-SQ4F0-100D080US940-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	672.0	683.6	681.5	676.1	672.0
115°	761.8	772.7	769.3	767.2	761.8
117.5°	850.9	865.9	856.3	850.9	845.4
120°	940.7	955.6	940.7	940.7	934.5
122.5°	1022.3	1041.3	1031.8	1026.4	1022.3
125°	1108.0	1125.0	1119.5	1113.4	1111.4
127.5°	1191.7	1212.7	1205.2	1197.1	1191.7
130°	1269.9	1294.3	1290.9	1286.9	1279.4
132.5°	1357.6	1376.6	1378.0	1368.5	1363.1
135°	1433.1	1454.2	1458.3	1456.3	1450.8
137.5°	1517.4	1534.5	1537.8	1536.5	1528.3
140°	1591.6	1608.6	1618.1	1618.1	1610.6
142.5°	1667.8	1684.8	1690.2	1692.3	1684.8
145°	1739.9	1753.5	1764.3	1766.4	1758.9
147.5°	1804.5	1821.5	1829.6	1833.1	1825.6
150°	1871.2	1882.7	1890.2	1896.3	1890.2
152.5°	1930.3	1941.9	1951.4	1958.9	1951.4
155°	1989.5	1994.9	2001.1	2010.5	2004.5
157.5°	2040.5	2044.6	2048.0	2061.5	2052.1
160°	2086.1	2090.2	2092.2	2103.7	2095.6
162.5°	2128.2	2128.2	2130.3	2143.2	2133.7
165°	2164.3	2162.2	2162.2	2175.9	2166.3
167.5°	2196.9	2190.8	2190.8	2204.4	2194.9
170°	2221.4	2216.0	2213.9	2227.6	2216.0
172.5°	2238.5	2233.0	2231.0	2244.5	2233.0
175°	2252.0	2246.6	2242.5	2256.1	2244.5
177.5°	2259.5	2254.1	2250.0	2261.6	2250.0
180°	2256.1	2256.1	2256.1	2256.1	2256.1

TEST NUMBER: P923184

CATALOG NUMBER: DFN2DIP-SQ4F0-100D080US940-FLLFLL

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	11.11	12.05	11.99	12.96	14.10	10.67	11.61	11.55	12.51	13.66
	3H	12.78	13.63	13.68	14.54	15.71	12.29	13.14	13.19	14.05	15.22
	4H	13.38	14.18	14.29	15.09	16.27	12.88	13.68	13.79	14.60	15.78
	6H	13.78	14.52	14.71	15.44	16.64	13.28	14.02	14.20	14.94	16.14
	8H	13.89	14.59	14.82	15.54	16.73	13.39	14.09	14.32	15.03	16.23
	12H	13.95	14.61	14.88	15.55	16.77	13.44	14.10	14.37	15.04	16.26
4H	2H	11.58	12.38	12.50	13.30	14.48	11.23	12.03	12.14	12.94	14.13
	3H	13.46	14.13	14.39	15.08	16.27	13.05	13.72	13.98	14.67	15.87
	4H	14.18	14.79	15.12	15.73	16.96	13.76	14.37	14.69	15.31	16.53
	6H	14.71	15.23	15.65	16.20	17.42	14.27	14.80	15.22	15.77	16.99
	8H	14.86	15.35	15.81	16.31	17.55	14.42	14.91	15.37	15.87	17.11
	12H	14.94	15.38	15.91	16.36	17.60	14.49	14.93	15.46	15.91	17.15
8H	4H	14.38	14.88	15.34	15.84	17.07	14.01	14.50	14.96	15.46	16.70
	6H	15.02	15.43	16.00	16.43	17.67	14.64	15.05	15.62	16.05	17.28
	8H	15.25	15.61	16.24	16.60	17.85	14.86	15.22	15.84	16.21	17.46
	12H	15.39	15.70	16.38	16.69	17.99	14.98	15.29	15.97	16.28	17.58
12H	4H	14.37	14.82	15.35	15.80	17.04	14.01	14.45	14.98	15.43	16.67
	6H	15.06	15.42	16.04	16.41	17.66	14.68	15.04	15.67	16.04	17.29
	8H	15.30	15.62	16.29	16.61	17.91	14.92	15.24	15.91	16.23	17.53