

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: P923191

Luminaire Tested: DFN2DIP-SQ4F0-100D090US940-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P923191
REPORT IS A COMBINATION OF REPORTS P901642 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-100D090US940-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

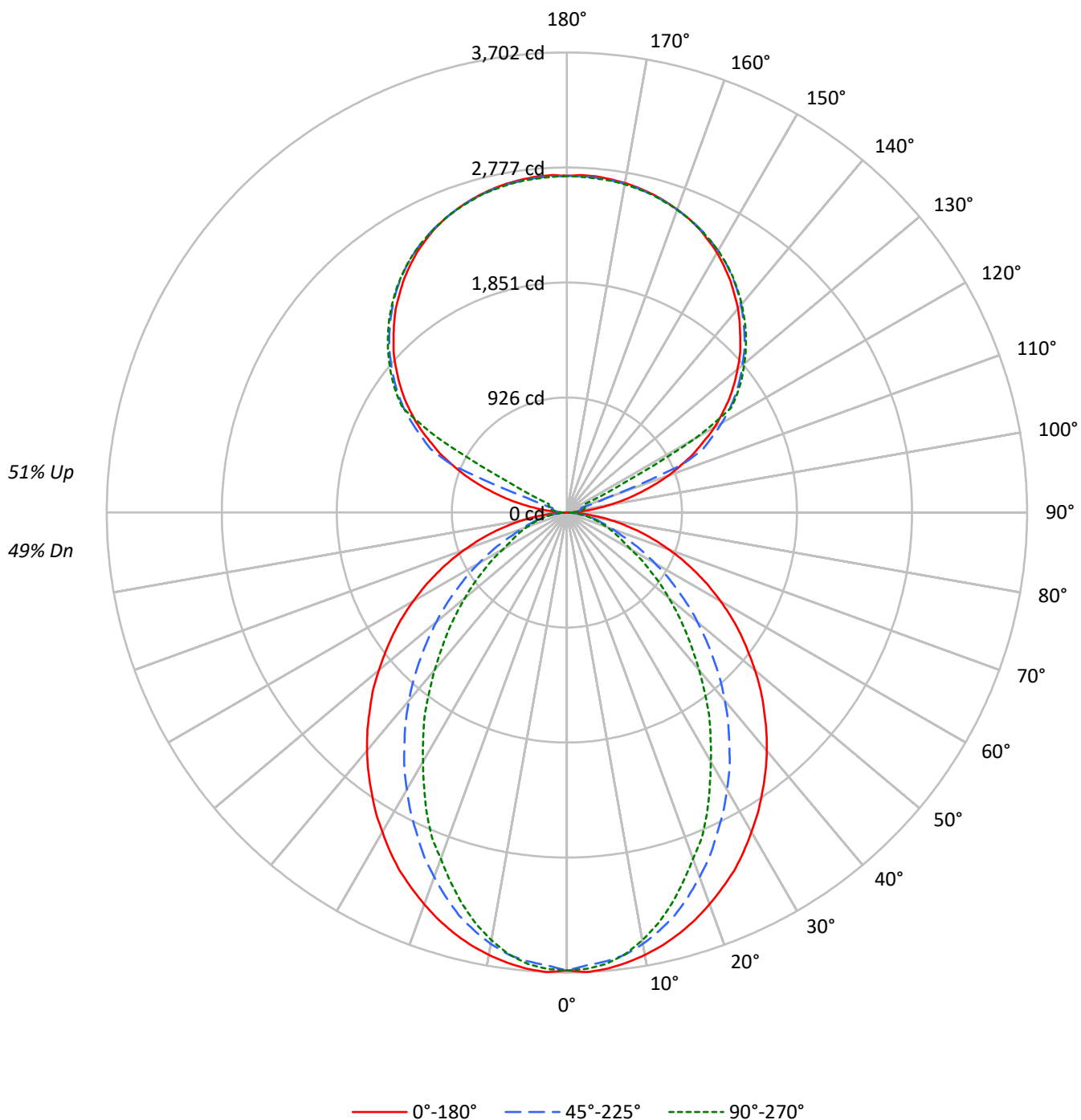
Lumens per Lamp: N/A
Luminaire Lumens: 15524.6 lumens
Efficiency: N/A
Efficacy: 97.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 159.4
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: P923191

CATALOG NUMBER: DFN2DIP-SQ4F0-100D090US940-RLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P923191

CATALOG NUMBER: DFN2DIP-SQ4F0-100D090US940-RLLONL

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	107	107	107	107	98	98	98	98	83	83	83	68	68	68	55	55	55
1	98	94	90	87	90	87	83	81	73	71	69	61	59	58	49	48	47
2	90	83	77	72	82	76	71	67	65	61	58	54	51	49	44	42	41
3	82	73	66	60	75	68	61	56	57	53	49	48	45	42	39	37	35
4	75	65	57	51	69	60	53	48	51	46	42	43	39	36	36	33	31
5	69	58	50	44	64	54	47	42	46	41	37	39	35	32	32	29	27
6	64	52	44	39	59	49	42	37	42	36	32	35	31	28	29	26	24
7	59	47	40	34	55	44	37	32	38	33	29	32	28	25	27	24	22
8	55	43	35	30	51	40	33	29	35	29	26	30	26	22	25	22	19
9	51	39	32	27	47	37	30	26	32	27	23	27	23	20	23	20	18
10	48	36	29	24	44	34	28	23	30	24	21	25	21	18	21	18	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2586	2586	2586
5°	2590	2545	2562
10°	2564	2496	2479
15°	2529	2414	2351
20°	2482	2301	2194
25°	2434	2174	2041
30°	2370	2043	1848
35°	2307	1903	1678
40°	2243	1758	1484
45°	2169	1597	1307
50°	2092	1435	1134
55°	2011	1261	969
60°	1918	1079	798
65°	1811	894	719
70°	1682	722	652
75°	1519	637	595
80°	1283	537	519
85°	893	361	394

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2169 cd/sqm

TEST NUMBER: P923191

CATALOG NUMBER: DFN2DIP-SQ4F0-100D090US940-RLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	345.4	2.2
10°-20°	948.2	6.1
20°-30°	1331.2	8.6
30°-40°	1451.1	9.3
40°-50°	1333.8	8.6
50°-60°	1047.4	6.7
60°-70°	681.8	4.4
70°-80°	351.0	2.3
80°-90°	94.4	0.6
90°-100°	89.3	0.6
100°-110°	332.9	2.1
110°-120°	883.0	5.7
120°-130°	1464.5	9.4
130°-140°	1555.6	10.0
140°-150°	1445.8	9.3
150°-160°	1162.4	7.5
160°-170°	749.0	4.8
170°-180°	257.8	1.7
0°-30°	2624.8	16.9
0°-40°	4076.0	26.3
0°-60°	6457.2	41.6
0°-90°	7584.3	48.9
90°-120°	1305.2	8.4
90°-150°	5771.2	37.2
90°-180°	7940.0	51.1
0°-180°	15524.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3685	3685	3685	3685	3685	
5°	3685	3669	3625	3655	3645	349
15°	3505	3468	3355	3292	3259	988
25°	3182	3075	2855	2718	2668	1463
35°	2742	2572	2278	2068	1994	1716
45°	2241	2018	1668	1431	1351	1731
55°	1704	1444	1084	884	821	1523
65°	1151	880	580	467	457	1141
75°	614	380	267	243	240	649
85°	143	73	63	63	63	164
90°	2	24	39	49	53	15
95°	127	63	76	86	84	151
105°	596	655	120	141	149	637
115°	1127	1160	1209	302	161	1109
125°	1593	1619	1656	1670	1676	1421
135°	1972	2003	2020	2040	2036	1523
145°	2287	2285	2318	2332	2322	1431
155°	2518	2501	2524	2536	2520	1161
165°	2654	2642	2648	2662	2648	750
175°	2714	2700	2705	2718	2699	258
180°	2708	2708	2708	2708	2708	

TEST NUMBER: P923191

CATALOG NUMBER: DFN2DIP-SQ4F0-100D090US940-RLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3685.4	3685.4	3685.4	3685.4	3685.4
2.5°	3702.0	3685.4	3648.6	3682.2	3675.5
5°	3685.4	3668.8	3625.2	3655.4	3645.4
7.5°	3655.4	3635.5	3588.8	3601.9	3585.3
10°	3615.4	3592.0	3525.5	3515.2	3495.4
12.5°	3565.5	3535.4	3445.1	3425.3	3388.5
15°	3505.3	3468.5	3355.2	3291.9	3258.7
17.5°	3435.2	3381.8	3241.7	3168.4	3115.0
20°	3355.2	3288.4	3121.7	3038.6	2964.9
22.5°	3268.6	3191.8	2998.2	2885.0	2835.1
25°	3181.9	3075.1	2854.9	2718.3	2668.1
27.5°	3078.5	2964.9	2721.5	2564.7	2488.0
30°	2968.5	2841.4	2574.6	2404.9	2314.6
32.5°	2861.7	2708.0	2434.9	2234.6	2151.1
35°	2741.7	2571.5	2278.1	2068.0	1994.3
37.5°	2624.9	2441.2	2131.3	1900.9	1817.8
40°	2501.4	2301.5	1977.7	1741.0	1654.3
42.5°	2374.7	2161.3	1824.5	1577.5	1494.3
45°	2241.3	2017.7	1667.8	1430.7	1350.7
47.5°	2114.7	1877.9	1517.7	1280.6	1207.4
50°	1974.5	1737.8	1370.8	1140.5	1070.8
52.5°	1837.5	1587.4	1230.7	1010.6	947.3
55°	1704.1	1444.1	1083.9	884.0	820.6
57.5°	1567.6	1300.7	954.0	767.1	713.7
60°	1427.4	1160.7	817.1	647.2	593.8
62.5°	1290.8	1024.0	700.3	540.4	513.8
65°	1150.8	880.4	580.3	467.1	456.8
67.5°	1017.4	747.0	467.1	410.1	400.2
70°	877.2	617.2	386.7	353.5	340.1
72.5°	743.8	496.8	323.4	296.9	290.2
75°	613.6	380.0	266.8	243.4	240.2
77.5°	483.8	270.0	210.2	196.7	190.0
80°	363.4	193.6	160.0	146.9	146.9
82.5°	253.3	130.2	110.0	103.3	103.3
85°	143.3	73.2	63.3	63.3	63.3
87.5°	53.4	26.6	26.6	23.4	23.4
90°	1.9	23.5	39.1	49.1	52.8
92.5°	49.1	41.2	47.0	51.0	52.8
95°	127.3	62.6	76.3	86.3	84.3
97.5°	229.3	68.7	99.9	105.8	107.7
100°	347.0	78.5	111.7	127.3	131.3
102.5°	476.2	472.4	115.7	137.1	143.1
105°	595.8	654.7	119.6	141.1	148.9
107.5°	734.9	783.8	123.6	145.0	152.9
110°	868.3	909.3	343.0	147.0	154.8

TEST NUMBER: P923191

CATALOG NUMBER: DFN2DIP-SQ4F0-100D090US940-RLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	993.7	1028.9	995.6	150.8	156.9
115°	1126.9	1160.1	1209.2	301.8	160.8
117.5°	1242.5	1281.7	1315.1	1034.7	521.3
120°	1371.9	1401.2	1436.6	1460.1	1195.5
122.5°	1481.6	1513.0	1552.3	1563.9	1566.0
125°	1593.2	1618.8	1656.1	1669.8	1675.6
127.5°	1695.1	1722.6	1752.2	1771.7	1773.6
130°	1791.3	1822.7	1844.1	1865.7	1863.9
132.5°	1889.3	1914.9	1936.3	1954.0	1952.1
135°	1971.7	2003.0	2020.5	2040.3	2036.4
137.5°	2057.8	2081.3	2101.0	2120.6	2114.8
140°	2142.0	2157.8	2179.3	2196.9	2187.2
142.5°	2212.8	2226.5	2251.8	2267.4	2257.7
145°	2287.2	2285.1	2318.4	2332.2	2322.4
147.5°	2351.7	2345.9	2379.2	2389.0	2381.2
150°	2414.6	2400.8	2432.2	2443.8	2434.1
152.5°	2467.4	2451.8	2481.1	2493.0	2479.2
155°	2518.4	2500.9	2524.3	2536.0	2520.4
157.5°	2559.6	2544.0	2561.6	2575.3	2559.6
160°	2594.9	2583.0	2594.9	2606.6	2592.8
162.5°	2626.1	2614.4	2624.2	2637.9	2620.3
165°	2653.6	2641.9	2647.8	2661.5	2647.8
167.5°	2675.2	2663.4	2669.3	2683.1	2665.4
170°	2692.9	2681.0	2684.9	2698.7	2681.0
172.5°	2704.6	2692.9	2696.8	2710.5	2692.9
175°	2714.3	2700.5	2704.6	2718.2	2698.7
177.5°	2718.2	2704.6	2706.6	2720.3	2702.7
180°	2708.5	2708.5	2708.5	2708.5	2708.5

TEST NUMBER: P923191

CATALOG NUMBER: DFN2DIP-SQ4F0-100D090US940-RLONL

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	10.35	11.17	11.33	12.16	13.45	6.31	7.13	7.29	8.12	9.41
	3H	12.03	12.77	13.02	13.76	15.07	7.50	8.24	8.49	9.23	10.54
	4H	12.64	13.34	13.64	14.33	15.65	7.95	8.65	8.95	9.64	10.96
	6H	13.07	13.71	14.08	14.71	16.04	8.27	8.91	9.28	9.91	11.24
	8H	13.20	13.81	14.21	14.82	16.15	8.36	8.97	9.38	9.99	11.32
	12H	13.26	13.84	14.28	14.85	16.20	8.41	8.98	9.43	9.99	11.35
4H	2H	10.37	11.06	11.37	12.06	13.38	6.91	7.60	7.91	8.60	9.92
	3H	12.20	12.78	13.22	13.80	15.14	8.26	8.84	9.27	9.86	11.19
	4H	12.90	13.42	13.92	14.44	15.80	8.81	9.34	9.83	10.35	11.71
	6H	13.42	13.87	14.45	14.91	16.26	9.23	9.68	10.26	10.72	12.07
	8H	13.59	14.02	14.63	15.05	16.42	9.36	9.78	10.39	10.81	12.18
	12H	13.69	14.07	14.74	15.12	16.49	9.42	9.80	10.47	10.85	12.22
8H	4H	12.86	13.29	13.90	14.32	15.69	9.09	9.51	10.12	10.55	11.91
	6H	13.44	13.78	14.49	14.86	16.23	9.61	9.96	10.67	11.03	12.40
	8H	13.65	13.96	14.72	15.02	16.41	9.80	10.11	10.86	11.17	12.55
	12H	13.80	14.07	14.86	15.12	16.55	9.92	10.19	10.99	11.25	12.67
12H	4H	12.82	13.20	13.87	14.25	15.62	9.10	9.48	10.14	10.52	11.90
	6H	13.41	13.72	14.47	14.78	16.16	9.66	9.97	10.72	11.03	12.41
	8H	13.63	13.90	14.70	14.96	16.39	9.87	10.14	10.94	11.20	12.62

END OF REPORT