

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: P915094

Luminaire Tested: DFN2DIP-SQ4F0-120D140US927-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P915094
REPORT IS A COMBINATION OF REPORTS P900198 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-120D140US927-RLLFLL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

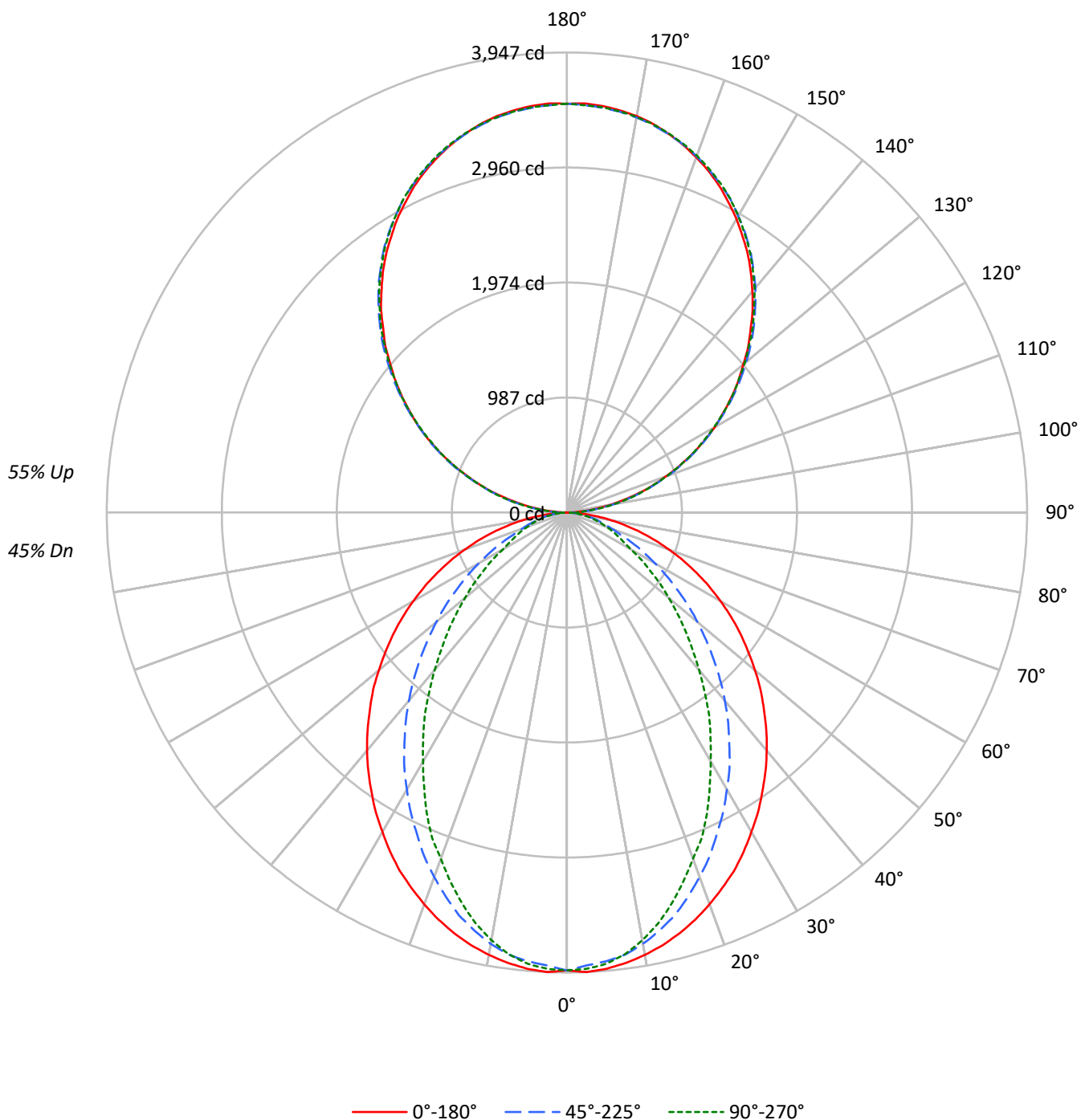
Lumens per Lamp: N/A
Luminaire Lumens: 17895.4 lumens
Efficiency: N/A
Efficacy: 80.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 223.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9933
Total Harmonic Distortion (THDi): 0.066
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P915094

CATALOG NUMBER: DFN2DIP-SQ4F0-120D140US927-RLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P915094

CATALOG NUMBER: DFN2DIP-SQ4F0-120D140US927-RLFL

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	50	30	10
RCR																				
0	106	106	106	106	97	97	97	97	81	81	81	66	66	66	52	52	52	45	45	45
1	97	93	89	86	89	85	82	79	71	69	67	58	57	55	46	45	44	39	39	39
2	89	82	76	71	81	75	70	66	63	59	56	52	49	47	41	40	38	33	33	33
3	81	72	65	60	74	67	60	56	56	51	48	46	43	40	37	35	33	29	29	29
4	75	64	57	51	68	59	53	47	50	45	41	41	38	35	33	31	29	25	25	25
5	69	57	50	44	63	53	46	41	45	40	36	37	33	30	30	28	25	22	22	22
6	63	52	44	38	58	48	41	36	41	35	31	34	30	27	28	25	23	20	20	20
7	59	47	39	34	54	43	36	32	37	32	28	31	27	24	25	22	20	18	18	18
8	54	42	35	30	50	39	33	28	34	28	25	28	24	21	23	20	18	16	16	16
9	51	39	32	27	47	36	30	25	31	26	22	26	22	19	22	19	17	14	14	14
10	47	36	29	24	44	33	27	23	29	24	20	24	20	18	20	17	15	13	13	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2757	2757	2757
5°	2761	2714	2731
10°	2734	2661	2643
15°	2696	2573	2506
20°	2646	2453	2338
25°	2595	2317	2176
30°	2527	2178	1970
35°	2460	2029	1789
40°	2391	1874	1582
45°	2312	1703	1393
50°	2230	1529	1209
55°	2144	1344	1033
60°	2045	1150	851
65°	1931	953	767
70°	1793	770	695
75°	1619	680	634
80°	1368	572	552
85°	952	385	421

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2759 cd/sqm

TEST NUMBER: P915094

CATALOG NUMBER: DFN2DIP-SQ4F0-120D140US927-RLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	368.2	2.1
10°-20°	1010.8	5.6
20°-30°	1419.2	7.9
30°-40°	1547.0	8.6
40°-50°	1421.9	7.9
50°-60°	1116.7	6.2
60°-70°	726.9	4.1
70°-80°	374.2	2.1
80°-90°	105.5	0.6
90°-100°	217.0	1.2
100°-110°	689.6	3.9
110°-120°	1180.2	6.6
120°-130°	1552.1	8.7
130°-140°	1742.2	9.7
140°-150°	1708.4	9.5
150°-160°	1433.1	8.0
160°-170°	950.4	5.3
170°-180°	332.2	1.9
0°-30°	2798.2	15.6
0°-40°	4345.2	24.3
0°-60°	6883.7	38.5
0°-90°	8090.2	45.2
90°-120°	2086.8	11.7
90°-150°	7089.5	39.6
90°-180°	9805.0	54.8
0°-180°	17895.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3929	3929	3929	3929	3929	
5°	3929	3911	3865	3897	3886	373
15°	3737	3698	3577	3509	3474	1053
25°	3392	3278	3044	2898	2844	1560
35°	2923	2741	2429	2205	2126	1829
45°	2389	2151	1778	1525	1440	1845
55°	1817	1540	1156	942	875	1623
65°	1227	939	619	498	487	1216
75°	654	405	284	260	256	692
85°	153	78	68	68	68	175
90°	3	38	104	97	100	18
95°	154	184	189	189	184	172
105°	637	645	651	657	657	672
115°	1184	1201	1196	1193	1184	1171
125°	1723	1749	1740	1731	1728	1539
135°	2228	2261	2267	2264	2256	1722
145°	2705	2726	2743	2746	2734	1690
155°	3093	3102	3111	3126	3116	1424
165°	3365	3362	3362	3383	3368	949
175°	3501	3493	3486	3508	3490	333
180°	3508	3508	3508	3508	3508	

TEST NUMBER: P915094

CATALOG NUMBER: DFN2DIP-SQ4F0-120D140US927-RLFL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3928.9	3928.9	3928.9	3928.9	3928.9
2.5°	3946.6	3928.9	3889.7	3925.5	3918.3
5°	3928.9	3911.2	3864.7	3896.8	3886.3
7.5°	3896.8	3875.7	3825.9	3839.9	3822.1
10°	3854.2	3829.3	3758.3	3747.4	3726.3
12.5°	3801.0	3769.0	3672.7	3651.6	3612.4
15°	3736.9	3697.7	3576.9	3509.4	3474.0
17.5°	3662.2	3605.2	3455.8	3377.8	3320.8
20°	3576.9	3505.6	3328.0	3239.3	3160.8
22.5°	3484.5	3402.7	3196.3	3075.6	3022.4
25°	3392.1	3278.1	3043.5	2897.9	2844.3
27.5°	3281.9	3160.8	2901.3	2734.2	2652.3
30°	3164.6	3029.2	2744.7	2563.7	2467.5
32.5°	3050.7	2886.9	2595.7	2382.2	2293.2
35°	2922.8	2741.3	2428.6	2204.6	2126.1
37.5°	2798.3	2602.6	2272.1	2026.5	1937.8
40°	2666.6	2453.5	2108.4	1856.0	1763.6
42.5°	2531.6	2304.1	1945.0	1681.7	1593.1
45°	2389.4	2151.0	1777.9	1525.2	1439.9
47.5°	2254.3	2002.0	1618.0	1365.2	1287.1
50°	2105.0	1852.6	1461.4	1215.8	1141.5
52.5°	1959.0	1692.3	1312.0	1077.4	1009.9
55°	1816.8	1539.5	1155.5	942.3	874.8
57.5°	1671.1	1386.7	1017.0	817.8	760.9
60°	1521.8	1237.3	871.0	690.0	633.0
62.5°	1376.2	1091.7	746.6	576.1	547.7
65°	1226.8	938.6	618.7	498.0	487.0
67.5°	1084.6	796.3	498.0	437.2	426.7
70°	935.2	657.9	412.3	376.8	362.5
72.5°	793.0	529.7	344.8	316.5	309.3
75°	654.1	405.1	284.5	259.5	256.1
77.5°	515.7	287.8	224.1	209.8	202.6
80°	387.5	206.4	170.5	156.5	156.5
82.5°	270.1	138.8	117.3	110.1	110.1
85°	152.8	78.1	67.5	67.5	67.5
87.5°	57.0	28.3	28.3	24.9	24.9
90°	3.2	38.1	103.6	97.3	100.4
92.5°	65.6	88.8	92.0	95.1	95.1
95°	154.4	184.0	189.3	189.3	184.0
97.5°	257.0	284.5	296.1	296.1	296.1
100°	375.4	399.7	408.1	408.1	405.0
102.5°	500.2	518.2	529.8	533.0	529.8
105°	636.6	645.1	651.4	656.6	656.6
107.5°	771.9	784.7	784.7	786.7	771.9
110°	903.1	920.0	920.0	920.0	911.5

TEST NUMBER: P915094

CATALOG NUMBER: DFN2DIP-SQ4F0-120D140US927-RLFL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1044.7	1062.7	1059.5	1051.1	1044.7
115°	1184.3	1201.3	1196.0	1192.8	1184.3
117.5°	1322.9	1346.2	1331.3	1322.9	1314.4
120°	1462.4	1485.7	1462.4	1462.4	1452.9
122.5°	1589.4	1618.9	1604.2	1595.7	1589.4
125°	1722.6	1749.0	1740.5	1731.0	1727.8
127.5°	1852.6	1885.4	1873.7	1861.1	1852.6
130°	1974.2	2012.3	2007.0	2000.7	1989.0
132.5°	2110.6	2140.2	2142.4	2127.6	2119.1
135°	2228.0	2260.8	2267.1	2264.0	2255.5
137.5°	2359.1	2385.6	2390.9	2388.7	2376.1
140°	2474.4	2500.8	2515.7	2515.7	2504.0
142.5°	2592.8	2619.3	2627.7	2630.9	2619.3
145°	2704.9	2726.1	2743.0	2746.2	2734.5
147.5°	2805.4	2831.8	2844.5	2849.8	2838.1
150°	2909.0	2927.0	2938.6	2948.1	2938.6
152.5°	3001.0	3019.0	3033.8	3045.4	3033.8
155°	3093.0	3101.5	3111.0	3125.8	3116.3
157.5°	3172.3	3178.6	3183.9	3205.1	3190.3
160°	3243.2	3249.5	3252.7	3270.7	3257.9
162.5°	3308.7	3308.7	3311.9	3332.0	3317.2
165°	3364.8	3361.6	3361.6	3382.8	3368.0
167.5°	3415.5	3406.0	3406.0	3427.1	3412.3
170°	3453.6	3445.1	3441.9	3463.1	3445.1
172.5°	3480.1	3471.6	3468.4	3489.6	3471.6
175°	3501.2	3492.7	3486.4	3507.5	3489.6
177.5°	3512.8	3504.4	3498.0	3515.9	3498.0
180°	3507.5	3507.5	3507.5	3507.5	3507.5



TEST NUMBER: P915094

CATALOG NUMBER: DFN2DIP-SQ4F0-120D140US927-RLLFLL

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	10.22	11.01	11.22	12.02	13.36	6.18	6.97	7.18	7.98	9.32
	3H	11.90	12.60	12.91	13.62	14.98	7.36	8.07	8.38	9.09	10.45
	4H	12.50	13.18	13.53	14.20	15.57	7.81	8.48	8.84	9.50	10.87
	6H	12.93	13.55	13.97	14.57	15.95	8.13	8.75	9.17	9.77	11.16
	8H	13.06	13.64	14.10	14.69	16.06	8.22	8.81	9.26	9.85	11.23
	12H	13.12	13.68	14.17	14.71	16.11	8.26	8.82	9.31	9.86	11.26
4H	2H	10.23	10.90	11.26	11.92	13.29	6.77	7.44	7.80	8.46	9.83
	3H	12.06	12.62	13.10	13.67	15.05	8.12	8.68	9.16	9.73	11.11
	4H	12.75	13.26	13.80	14.31	15.71	8.66	9.17	9.71	10.22	11.62
	6H	13.27	13.71	14.33	14.77	16.18	9.08	9.52	10.14	10.59	11.99
	8H	13.45	13.86	14.51	14.92	16.33	9.21	9.62	10.27	10.68	12.09
	12H	13.54	13.91	14.62	14.99	16.41	9.28	9.64	10.35	10.72	12.14
8H	4H	12.72	13.13	13.78	14.19	15.60	8.94	9.35	10.00	10.41	11.83
	6H	13.29	13.63	14.37	14.73	16.14	9.46	9.80	10.54	10.90	12.31
	8H	13.51	13.80	14.60	14.89	16.32	9.65	9.95	10.74	11.03	12.47
	12H	13.65	13.91	14.74	14.99	16.46	9.77	10.03	10.86	11.11	12.58
12H	4H	12.67	13.04	13.75	14.11	15.53	8.95	9.32	10.02	10.39	11.81
	6H	13.26	13.56	14.35	14.64	16.08	9.51	9.81	10.60	10.89	12.32
	8H	13.49	13.75	14.58	14.83	16.30	9.72	9.98	10.81	11.06	12.53