

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: P915092

Luminaire Tested: DFN2DIP-SQ4F0-120D140US927-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P915092
REPORT IS A COMBINATION OF REPORTS P900197 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-120D140US927-FLLFLL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

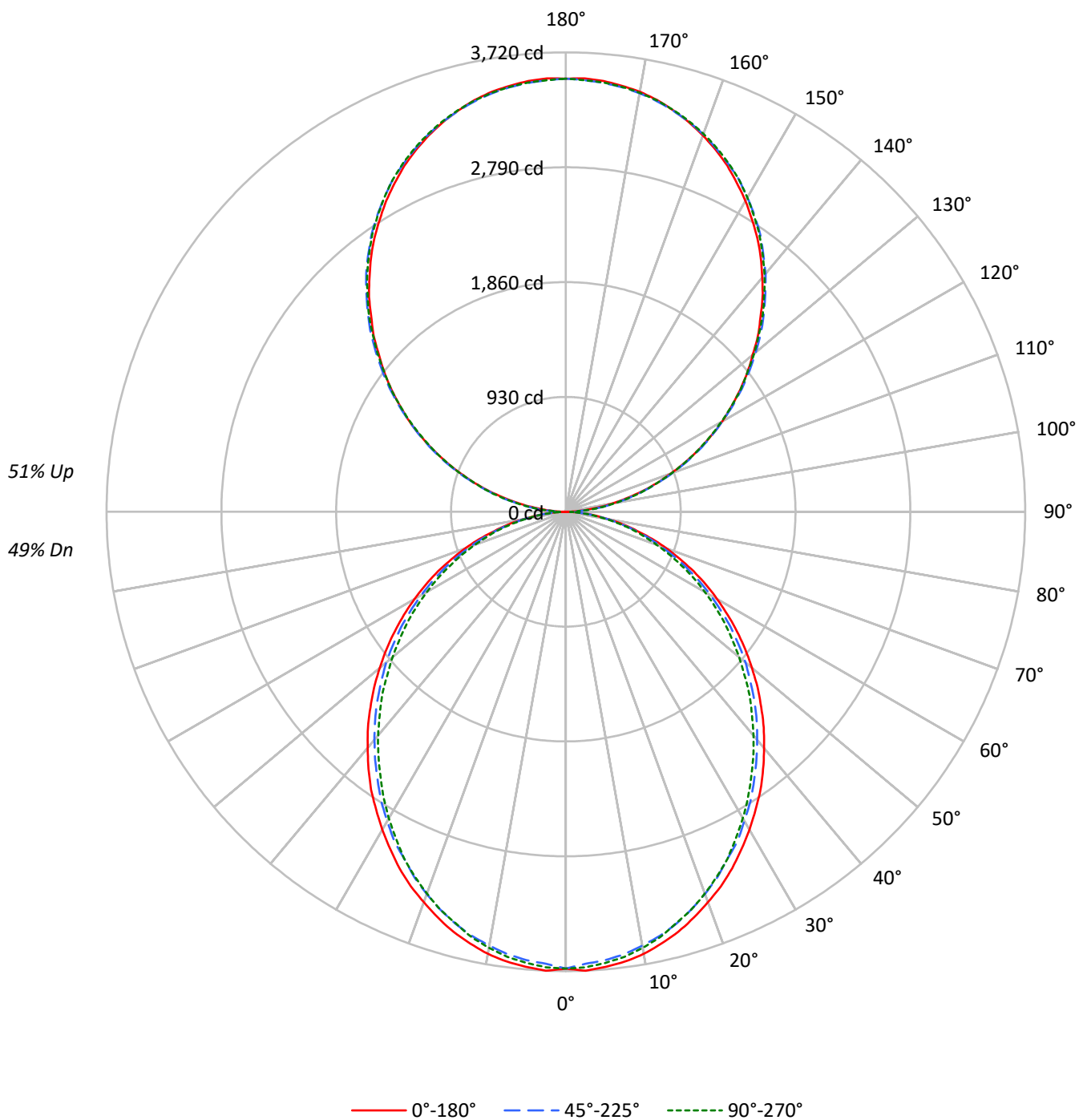
Lumens per Lamp: N/A
Luminaire Lumens: 19226.3 lumens
Efficiency: N/A
Efficacy: 86.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 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: P915092

CATALOG NUMBER: DFN2DIP-SQ4F0-120D140US927-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P915092

CATALOG NUMBER: DFN2DIP-SQ4F0-120D140US927-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	50	30	10
RCR																				
0	107	107	107	107	98	98	98	98	83	83	83	68	68	68	55	55	55	49		
1	98	93	89	86	90	86	83	80	73	70	68	60	59	57	49	48	47	41		
2	89	81	75	70	82	75	70	65	64	60	56	53	50	48	43	41	39	35		
3	81	72	64	58	74	66	60	55	56	51	47	47	43	40	38	36	33	29		
4	74	63	55	49	68	59	52	46	50	45	40	42	38	34	34	31	29	25		
5	68	56	48	42	62	52	45	40	45	39	35	37	33	30	31	28	25	22		
6	63	51	43	37	58	47	40	35	40	35	30	34	29	26	28	25	22	19		
7	58	46	38	32	53	42	35	30	36	31	27	31	26	23	25	22	20	17		
8	54	41	34	28	49	39	32	27	33	28	24	28	24	21	23	20	18	15		
9	50	38	30	25	46	35	29	24	30	25	21	26	22	19	22	18	16	14		
10	47	35	28	23	43	32	26	22	28	23	19	24	20	17	20	17	14	12		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2595	2595	2595
5°	2600	2560	2577
10°	2578	2526	2543
15°	2541	2485	2489
20°	2489	2428	2434
25°	2438	2359	2370
30°	2374	2295	2289
35°	2314	2220	2203
40°	2239	2144	2121
45°	2165	2068	2038
50°	2084	1988	1940
55°	1998	1895	1852
60°	1902	1785	1750
65°	1797	1672	1629
70°	1664	1533	1501
75°	1479	1368	1382
80°	1256	1157	1155
85°	908	792	776

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2759 cd/sqm

TEST NUMBER: P915092

CATALOG NUMBER: DFN2DIP-SQ4F0-120D140US927-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	348.1	1.8
10°-20°	979.5	5.1
20°-30°	1439.5	7.5
30°-40°	1671.9	8.7
40°-50°	1669.9	8.7
50°-60°	1456.0	7.6
60°-70°	1076.3	5.6
70°-80°	609.0	3.2
80°-90°	170.7	0.9
90°-100°	217.0	1.1
100°-110°	689.6	3.6
110°-120°	1180.2	6.1
120°-130°	1552.1	8.1
130°-140°	1742.2	9.1
140°-150°	1708.4	8.9
150°-160°	1433.1	7.5
160°-170°	950.4	4.9
170°-180°	332.2	1.7
0°-30°	2767.2	14.4
0°-40°	4439.1	23.1
0°-60°	7565.0	39.3
0°-90°	9421.1	49.0
90°-120°	2086.8	10.9
90°-150°	7089.5	36.9
90°-180°	9805.0	51.0
0°-180°	19226.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3699	3699	3699	3699	3699	
5°	3699	3685	3646	3674	3667	351
15°	3521	3500	3454	3468	3450	992
25°	3187	3158	3098	3105	3098	1466
35°	2749	2714	2657	2636	2618	1717
45°	2237	2212	2159	2120	2106	1727
55°	1693	1672	1629	1586	1569	1514
65°	1142	1120	1085	1053	1035	1129
75°	597	591	572	551	558	638
85°	146	142	139	128	124	162
90°	3	38	104	97	100	19
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: P915092

CATALOG NUMBER: DFN2DIP-SQ4F0-120D140US927-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3698.9	3698.9	3698.9	3698.9	3698.9
2.5°	3720.4	3702.7	3663.4	3698.9	3692.1
5°	3698.9	3684.9	3645.7	3674.0	3667.2
7.5°	3674.0	3652.8	3613.6	3642.3	3635.2
10°	3635.2	3610.2	3567.6	3595.9	3585.3
12.5°	3581.5	3560.4	3517.8	3535.5	3528.3
15°	3521.2	3500.0	3453.6	3467.9	3450.2
17.5°	3446.5	3425.3	3378.9	3396.6	3378.9
20°	3364.6	3343.4	3293.7	3304.2	3290.2
22.5°	3283.0	3251.0	3204.5	3204.5	3197.4
25°	3186.8	3158.5	3098.1	3105.0	3098.1
27.5°	3080.0	3055.1	3009.1	2998.5	2980.8
30°	2973.6	2944.9	2891.7	2881.2	2866.8
32.5°	2859.6	2838.5	2781.5	2760.0	2745.7
35°	2749.4	2714.0	2657.0	2635.5	2617.8
37.5°	2624.9	2592.9	2535.9	2511.0	2493.2
40°	2497.0	2468.4	2411.3	2379.6	2365.3
42.5°	2372.5	2343.8	2287.2	2251.4	2230.2
45°	2237.4	2212.5	2158.9	2120.0	2105.7
47.5°	2105.7	2080.7	2023.8	1984.6	1963.4
50°	1966.8	1949.1	1899.3	1849.4	1831.7
52.5°	1831.7	1806.8	1760.8	1721.5	1696.6
55°	1693.2	1671.7	1629.0	1586.4	1568.7
57.5°	1554.3	1536.6	1490.2	1447.6	1433.2
60°	1415.5	1401.5	1351.7	1312.5	1301.9
62.5°	1280.4	1255.4	1220.0	1184.5	1170.2
65°	1141.9	1120.4	1084.9	1052.8	1035.1
67.5°	999.7	981.5	949.8	925.0	910.6
70°	867.9	853.6	821.5	796.6	782.7
72.5°	732.8	718.5	700.8	675.9	665.3
75°	597.4	590.6	572.4	551.4	558.5
77.5°	476.6	462.2	455.1	444.5	434.0
80°	355.8	352.0	344.9	334.4	327.2
82.5°	241.9	241.9	238.5	224.2	224.2
85°	145.7	142.3	138.9	127.9	124.5
87.5°	64.2	57.0	49.8	39.2	35.5
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: P915092

CATALOG NUMBER: DFN2DIP-SQ4F0-120D140US927-FLLFLL

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: P915092

CATALOG NUMBER: DFN2DIP-SQ4F0-120D140US927-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	10.50	11.36	11.47	12.34	13.62	10.06	10.91	11.02	11.89	13.18
	3H	12.17	12.93	13.14	13.92	15.23	11.68	12.44	12.65	13.43	14.74
	4H	12.76	13.48	13.75	14.47	15.79	12.26	12.99	13.25	13.98	15.30
	6H	13.16	13.83	14.16	14.83	16.15	12.66	13.33	13.66	14.33	15.65
	8H	13.27	13.90	14.27	14.92	16.24	12.77	13.40	13.77	14.41	15.74
	12H	13.32	13.92	14.33	14.93	16.28	12.81	13.41	13.82	14.42	15.77
4H	2H	10.96	11.69	11.96	12.68	14.00	10.61	11.33	11.61	12.33	13.64
	3H	12.83	13.44	13.84	14.46	15.79	12.43	13.03	13.43	14.05	15.38
	4H	13.55	14.10	14.56	15.12	16.47	13.13	13.68	14.14	14.69	16.05
	6H	14.07	14.55	15.09	15.58	16.93	13.64	14.11	14.66	15.15	16.50
	8H	14.22	14.67	15.25	15.70	17.06	13.78	14.23	14.81	15.26	16.62
	12H	14.30	14.70	15.34	15.74	17.11	13.85	14.25	14.89	15.29	16.66
8H	4H	13.75	14.19	14.77	15.22	16.59	13.37	13.82	14.40	14.85	16.21
	6H	14.38	14.75	15.43	15.82	17.19	14.00	14.37	15.05	15.44	16.80
	8H	14.61	14.93	15.66	15.99	17.37	14.21	14.54	15.27	15.60	16.98
	12H	14.74	15.03	15.80	16.08	17.50	14.33	14.61	15.39	15.67	17.09
12H	4H	13.73	14.13	14.78	15.18	16.55	13.36	13.77	14.41	14.81	16.18
	6H	14.41	14.74	15.47	15.79	17.18	14.04	14.37	15.10	15.42	16.80
	8H	14.66	14.94	15.72	16.00	17.42	14.28	14.56	15.34	15.62	17.04