

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: P915093

Luminaire Tested: DFN2DIP-SQ4F0-120D140US927-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P915093
REPORT IS A COMBINATION OF REPORTS P901717 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-120D140US927-FLLONL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

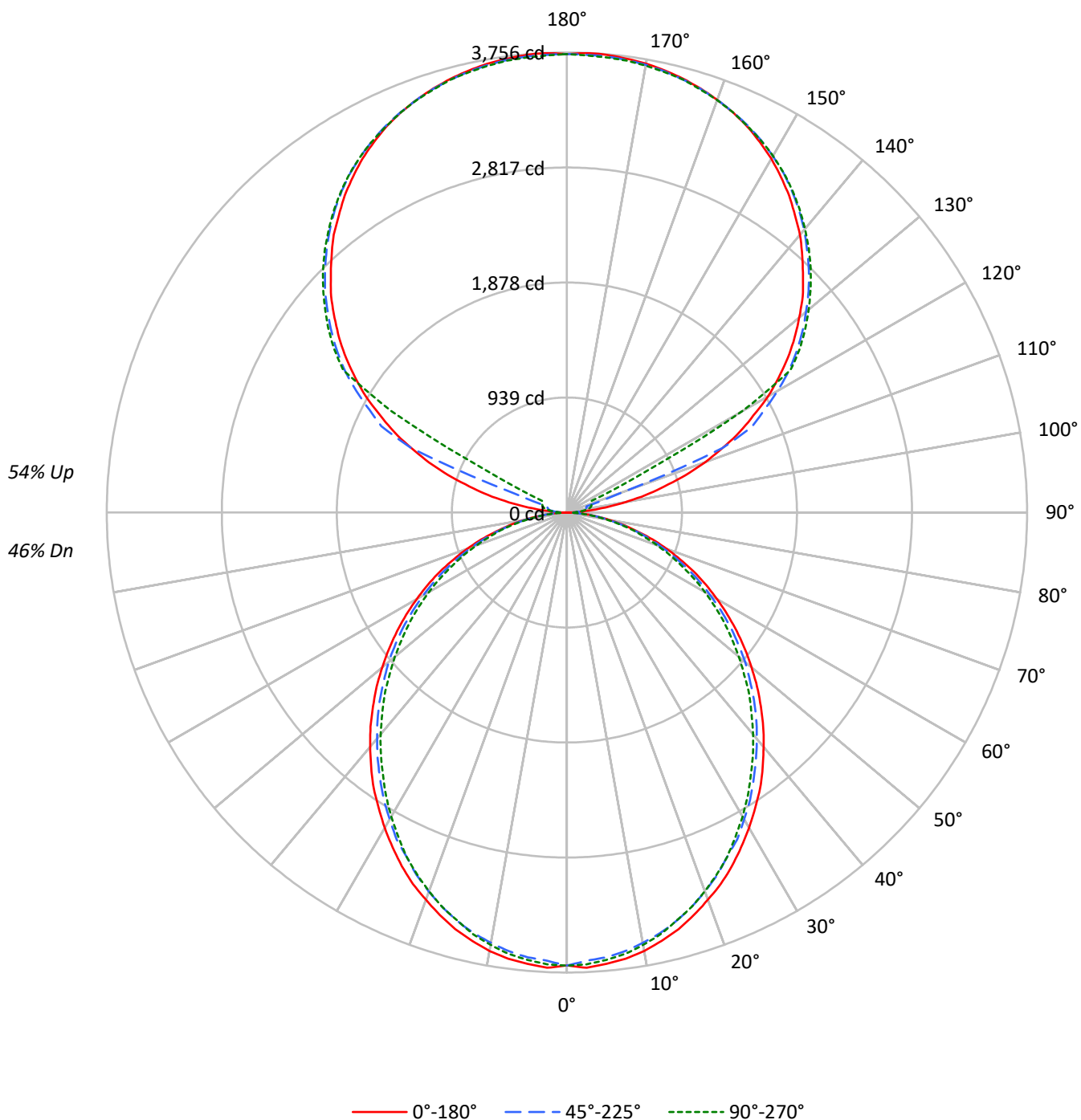
Lumens per Lamp: N/A
Luminaire Lumens: 20390.7 lumens
Efficiency: N/A
Efficacy: 91.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

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

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Luminous Intensity Polar Plot



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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	98	98	98	98	81	81	81	66	66	66	53	53	53			46
1	97	93	89	85	89	85	82	79	71	69	67	58	57	55	46	45	44			39
2	88	81	75	70	81	74	69	65	62	59	55	51	48	46	41	39	37			33
3	81	71	64	58	74	66	59	54	55	50	46	45	42	39	36	34	32			28
4	74	63	55	49	67	58	51	46	49	44	40	40	37	33	32	30	27			24
5	68	56	48	42	62	52	45	39	44	38	34	36	32	29	29	26	24			21
6	62	50	42	36	57	46	39	34	39	34	30	33	29	25	26	23	21			18
7	58	45	37	32	53	42	35	30	36	30	26	30	26	22	24	21	19			16
8	53	41	33	28	49	38	31	26	33	27	23	27	23	20	22	19	17			14
9	50	38	30	25	46	35	28	24	30	24	21	25	21	18	21	17	15			13
10	46	34	27	22	43	32	26	21	27	22	19	23	19	16	19	16	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: 0°

Vertical Angle: 45°

Luminance: 2165 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	348.1	1.7
10°-20°	979.5	4.8
20°-30°	1439.5	7.1
30°-40°	1671.9	8.2
40°-50°	1669.9	8.2
50°-60°	1456.0	7.1
60°-70°	1076.3	5.3
70°-80°	609.0	3.0
80°-90°	167.3	0.8
90°-100°	123.4	0.6
100°-110°	460.1	2.3
110°-120°	1220.2	6.0
120°-130°	2023.8	9.9
130°-140°	2149.8	10.5
140°-150°	1998.0	9.8
150°-160°	1606.3	7.9
160°-170°	1035.1	5.1
170°-180°	356.3	1.7
0°-30°	2767.2	13.6
0°-40°	4439.1	21.8
0°-60°	7565.0	37.1
0°-90°	9417.7	46.2
90°-120°	1803.7	8.8
90°-150°	7975.4	39.1
90°-180°	10973.0	53.8
0°-180°	20390.7	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°	2	32	54	68	73	19
95°	176	86	106	119	116	208
105°	823	905	165	195	206	880
115°	1557	1603	1671	417	222	1533
125°	2202	2237	2289	2308	2316	1964
135°	2725	2768	2792	2820	2814	2105
145°	3161	3158	3204	3223	3209	1977
155°	3480	3456	3488	3505	3483	1604
165°	3667	3651	3659	3678	3659	1036
175°	3751	3732	3737	3756	3729	357
180°	3743	3743	3743	3743	3743	

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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°	2.5	32.5	54.0	67.9	73.0
92.5°	67.9	57.0	65.0	70.4	73.0
95°	175.9	86.5	105.5	119.3	116.5
97.5°	316.8	94.9	138.0	146.3	148.9
100°	479.5	108.4	154.4	175.9	181.4
102.5°	658.0	652.8	159.9	189.4	197.8
105°	823.3	904.7	165.3	194.9	205.8
107.5°	1015.7	1083.1	170.8	200.3	211.3
110°	1199.9	1256.6	474.0	203.3	213.9

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1373.2	1421.8	1375.9	208.4	216.7
115°	1557.3	1603.2	1671.1	417.2	222.2
117.5°	1717.1	1771.1	1817.4	1429.9	720.4
120°	1895.9	1936.4	1985.3	2017.8	1652.1
122.5°	2047.4	2090.8	2145.1	2161.2	2164.2
125°	2201.8	2237.1	2288.6	2307.5	2315.6
127.5°	2342.6	2380.6	2421.4	2448.4	2451.0
130°	2475.4	2518.9	2548.4	2578.4	2575.8
132.5°	2610.9	2646.2	2675.8	2700.2	2697.7
135°	2724.7	2768.1	2792.2	2819.5	2814.1
137.5°	2843.7	2876.2	2903.5	2930.5	2922.5
140°	2960.1	2982.0	3011.6	3036.0	3022.5
142.5°	3057.9	3076.8	3111.9	3133.5	3119.9
145°	3160.8	3157.9	3203.9	3222.9	3209.4
147.5°	3249.9	3241.8	3287.9	3301.3	3290.7
150°	3336.7	3317.7	3361.1	3377.2	3363.8
152.5°	3409.7	3388.2	3428.7	3445.1	3426.1
155°	3480.1	3456.0	3488.5	3504.6	3483.1
157.5°	3537.1	3515.5	3540.0	3559.0	3537.1
160°	3586.0	3569.6	3586.0	3602.0	3583.1
162.5°	3629.1	3613.0	3626.5	3645.5	3621.1
165°	3667.0	3650.9	3659.0	3677.9	3659.0
167.5°	3697.0	3680.6	3688.9	3707.9	3683.4
170°	3721.4	3705.0	3710.4	3729.4	3705.0
172.5°	3737.4	3721.4	3726.8	3745.8	3721.4
175°	3751.0	3732.0	3737.4	3756.4	3729.4
177.5°	3756.4	3737.4	3740.4	3759.3	3734.9
180°	3742.9	3742.9	3742.9	3742.9	3742.9

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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	10.23	11.06	11.22	12.06	13.39	9.79	10.62	10.78	11.62	12.94
	3H	11.90	12.64	12.90	13.65	15.00	11.41	12.15	12.41	13.16	14.51
	4H	12.49	13.19	13.50	14.20	15.56	11.99	12.70	13.00	13.71	15.06
	6H	12.89	13.54	13.91	14.55	15.92	12.39	13.04	13.41	14.05	15.42
	8H	12.99	13.61	14.02	14.64	16.01	12.49	13.11	13.52	14.14	15.51
	12H	13.04	13.63	14.08	14.66	16.04	12.53	13.12	13.57	14.15	15.53
4H	2H	10.69	11.40	11.71	12.41	13.76	10.34	11.04	11.36	12.05	13.41
	3H	12.56	13.15	13.59	14.19	15.56	12.15	12.74	13.18	13.78	15.15
	4H	13.28	13.81	14.31	14.85	16.24	12.85	13.39	13.89	14.42	15.81
	6H	13.79	14.26	14.84	15.31	16.70	13.36	13.82	14.41	14.88	16.27
	8H	13.94	14.38	14.99	15.43	16.83	13.51	13.94	14.55	14.99	16.39
	12H	14.02	14.41	15.08	15.47	16.88	13.57	13.96	14.63	15.02	16.43
8H	4H	13.47	13.90	14.52	14.95	16.35	13.09	13.53	14.14	14.58	15.98
	6H	14.11	14.46	15.17	15.55	16.95	13.72	14.08	14.79	15.17	16.57
	8H	14.33	14.64	15.41	15.72	17.14	13.94	14.25	15.01	15.33	16.74
	12H	14.46	14.74	15.54	15.81	17.27	14.05	14.33	15.13	15.40	16.86
12H	4H	13.45	13.84	14.52	14.91	16.32	13.09	13.48	14.15	14.54	15.95
	6H	14.13	14.45	15.21	15.52	16.94	13.76	14.08	14.84	15.15	16.57
	8H	14.38	14.65	15.46	15.73	17.18	14.00	14.27	15.08	15.35	16.80