

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: P915098

Luminaire Tested: DFN2DIP-SQ4F0-120D160US927-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P915098
REPORT IS A COMBINATION OF REPORTS P900216 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-120D160US927-RLLFLL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

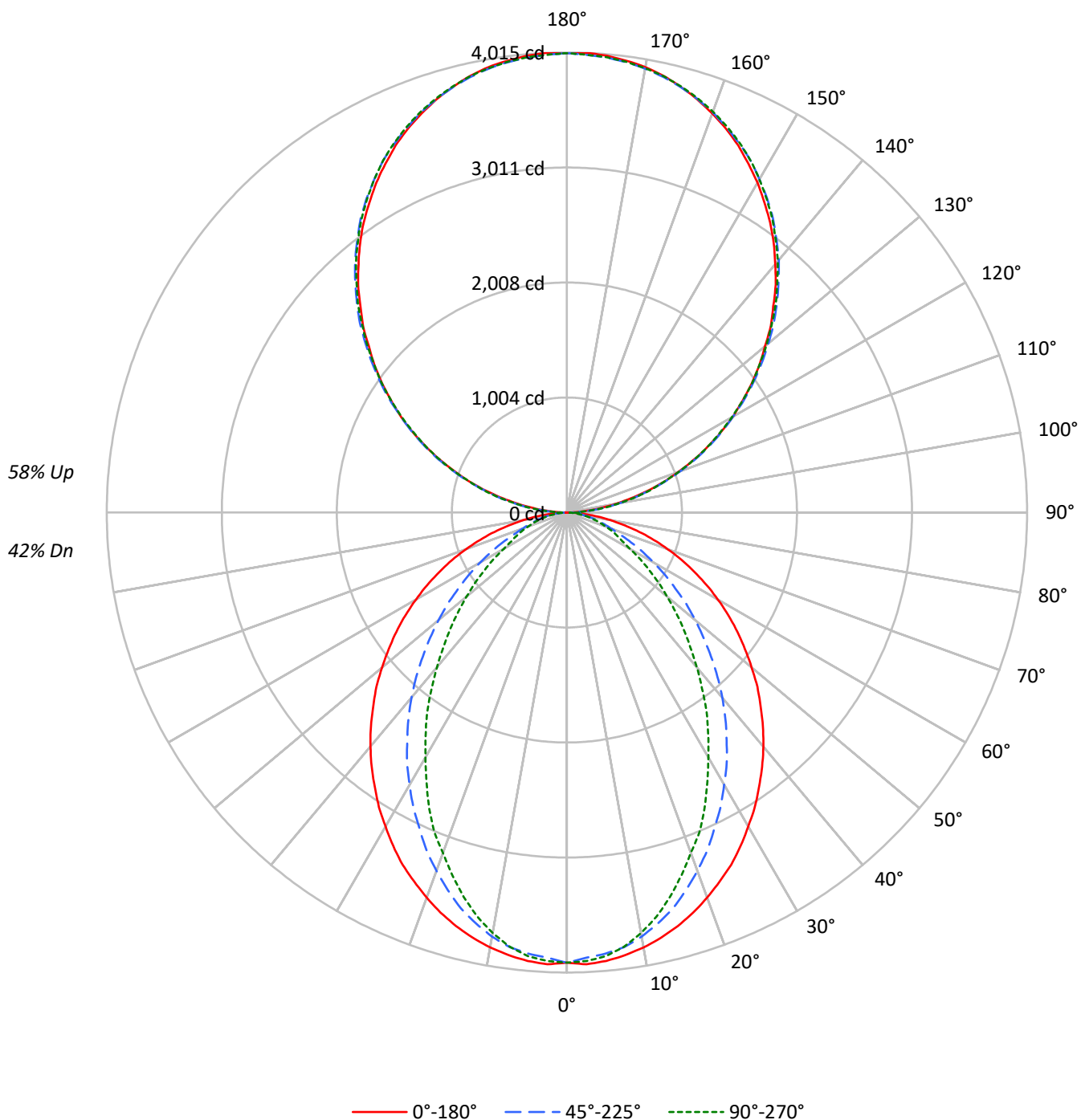
Lumens per Lamp: N/A
Luminaire Lumens: 19298.3 lumens
Efficiency: N/A
Efficacy: 80.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 239.7
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
RCR																	
0	105	105	105	105	96	96	96	96	79	79	79	63	63	63	49	49	49
1	96	92	89	85	88	84	81	78	70	67	65	56	55	53	44	43	42
2	88	81	75	70	80	74	69	65	61	58	55	50	47	45	39	37	36
3	81	72	65	59	73	66	60	55	55	50	47	44	41	39	35	33	31
4	74	64	56	50	67	58	52	47	49	44	40	40	36	33	31	29	27
5	68	57	49	43	62	52	45	40	44	39	35	36	32	29	28	26	24
6	63	51	43	38	57	47	40	35	40	34	30	33	29	26	26	23	21
7	58	46	38	33	53	43	36	31	36	31	27	30	26	23	24	21	19
8	54	42	34	29	49	39	32	28	33	28	24	27	23	21	22	19	17
9	50	38	31	26	46	36	29	25	30	25	22	25	21	19	20	18	16
10	47	35	28	24	43	33	26	22	28	23	19	23	19	17	19	16	14

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: 3155 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	368.2	1.9
10°-20°	1010.8	5.2
20°-30°	1419.2	7.4
30°-40°	1547.0	8.0
40°-50°	1421.9	7.4
50°-60°	1116.7	5.8
60°-70°	726.9	3.8
70°-80°	374.2	1.9
80°-90°	106.9	0.6
90°-100°	248.1	1.3
100°-110°	788.2	4.1
110°-120°	1348.9	7.0
120°-130°	1774.0	9.2
130°-140°	1991.2	10.3
140°-150°	1952.6	10.1
150°-160°	1637.9	8.5
160°-170°	1086.2	5.6
170°-180°	379.7	2.0
0°-30°	2798.2	14.5
0°-40°	4345.2	22.5
0°-60°	6883.7	35.7
0°-90°	8091.6	41.9
90°-120°	2385.1	12.4
90°-150°	8102.8	42.0
90°-180°	11207.0	58.1
0°-180°	19298.3	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°	4	44	118	111	115	19
95°	176	210	216	216	210	196
105°	728	737	744	750	750	768
115°	1354	1373	1367	1363	1354	1339
125°	1969	1999	1989	1978	1975	1759
135°	2546	2584	2591	2588	2578	1968
145°	3092	3116	3135	3139	3125	1932
155°	3535	3545	3556	3573	3562	1627
165°	3846	3842	3842	3866	3849	1085
175°	4002	3992	3985	4009	3988	380
180°	4009	4009	4009	4009	4009	

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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°	3.6	43.5	118.4	111.2	114.8
92.5°	74.9	101.6	105.1	108.8	108.8
95°	176.4	210.3	216.3	216.3	210.3
97.5°	293.7	325.1	338.4	338.4	338.4
100°	429.0	456.9	466.5	466.5	462.9
102.5°	571.6	592.2	605.5	609.1	605.5
105°	727.5	737.2	744.5	750.5	750.5
107.5°	882.3	896.7	896.7	899.2	882.3
110°	1032.1	1051.5	1051.5	1051.5	1041.8

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1194.1	1214.7	1211.0	1201.3	1194.1
115°	1353.6	1372.9	1366.9	1363.3	1353.6
117.5°	1512.0	1538.5	1521.6	1512.0	1502.3
120°	1671.5	1698.0	1671.5	1671.5	1660.6
122.5°	1816.5	1850.4	1833.4	1823.8	1816.5
125°	1968.8	1999.0	1989.3	1978.5	1974.8
127.5°	2117.4	2154.9	2141.6	2127.1	2117.4
130°	2256.4	2299.9	2293.9	2286.6	2273.3
132.5°	2412.4	2446.2	2448.6	2431.7	2422.0
135°	2546.5	2583.9	2591.2	2587.6	2577.9
137.5°	2696.3	2726.5	2732.6	2730.2	2715.7
140°	2828.1	2858.3	2875.2	2875.2	2861.9
142.5°	2963.5	2993.7	3003.3	3007.0	2993.7
145°	3091.6	3115.7	3135.1	3138.7	3125.4
147.5°	3206.4	3236.6	3251.1	3257.1	3243.8
150°	3324.8	3345.4	3358.7	3369.5	3358.7
152.5°	3430.0	3450.5	3467.5	3480.7	3467.5
155°	3535.1	3544.8	3555.6	3572.6	3561.7
157.5°	3625.7	3633.0	3639.0	3663.2	3646.3
160°	3706.7	3714.0	3717.6	3738.1	3723.6
162.5°	3781.6	3781.6	3785.3	3808.3	3791.3
165°	3845.7	3842.1	3842.1	3866.2	3849.4
167.5°	3903.7	3892.9	3892.9	3917.0	3900.1
170°	3947.2	3937.5	3934.0	3958.1	3937.5
172.5°	3977.5	3967.8	3964.2	3988.3	3967.8
175°	4001.6	3992.0	3984.7	4008.9	3988.3
177.5°	4014.9	4005.3	3998.0	4018.6	3998.0
180°	4008.9	4008.9	4008.9	4008.9	4008.9

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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	9.88	10.65	10.91	11.68	13.06	5.84	6.61	6.87	7.64	9.02
	3H	11.56	12.24	12.59	13.28	14.69	7.02	7.71	8.06	8.75	10.16
	4H	12.16	12.81	13.22	13.86	15.27	7.47	8.12	8.52	9.17	10.58
	6H	12.59	13.18	13.65	14.23	15.66	7.79	8.39	8.85	9.44	10.86
	8H	12.71	13.28	13.78	14.35	15.76	7.88	8.45	8.94	9.51	10.93
	12H	12.77	13.32	13.84	14.37	15.81	7.92	8.46	8.99	9.52	10.96
4H	2H	9.89	10.54	10.95	11.58	12.99	6.43	7.08	7.49	8.12	9.53
	3H	11.72	12.26	12.78	13.33	14.75	7.77	8.31	8.84	9.39	10.81
	4H	12.41	12.91	13.48	13.97	15.41	8.32	8.82	9.39	9.88	11.32
	6H	12.93	13.35	14.01	14.44	15.88	8.74	9.16	9.82	10.25	11.69
	8H	13.10	13.50	14.18	14.58	16.03	8.87	9.26	9.95	10.34	11.80
	12H	13.20	13.56	14.29	14.65	16.11	8.93	9.29	10.03	10.38	11.84
8H	4H	12.37	12.77	13.45	13.85	15.30	8.60	9.00	9.68	10.07	11.53
	6H	12.94	13.27	14.04	14.39	15.84	9.12	9.44	10.22	10.56	12.02
	8H	13.16	13.45	14.27	14.55	16.02	9.31	9.59	10.42	10.70	12.17
	12H	13.30	13.55	14.41	14.65	16.16	9.42	9.68	10.54	10.78	12.29
12H	4H	12.32	12.68	13.42	13.77	15.23	8.60	8.96	9.70	10.05	11.51
	6H	12.92	13.20	14.03	14.31	15.78	9.17	9.45	10.28	10.56	12.03
	8H	13.14	13.39	14.25	14.49	16.00	9.37	9.63	10.49	10.73	12.24

END OF REPORT