

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: P906903

Luminaire Tested: DFN2DIP-SQ4F0-120D110US835-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P906903
REPORT IS A COMBINATION OF REPORTS P901682 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-120D110US835-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

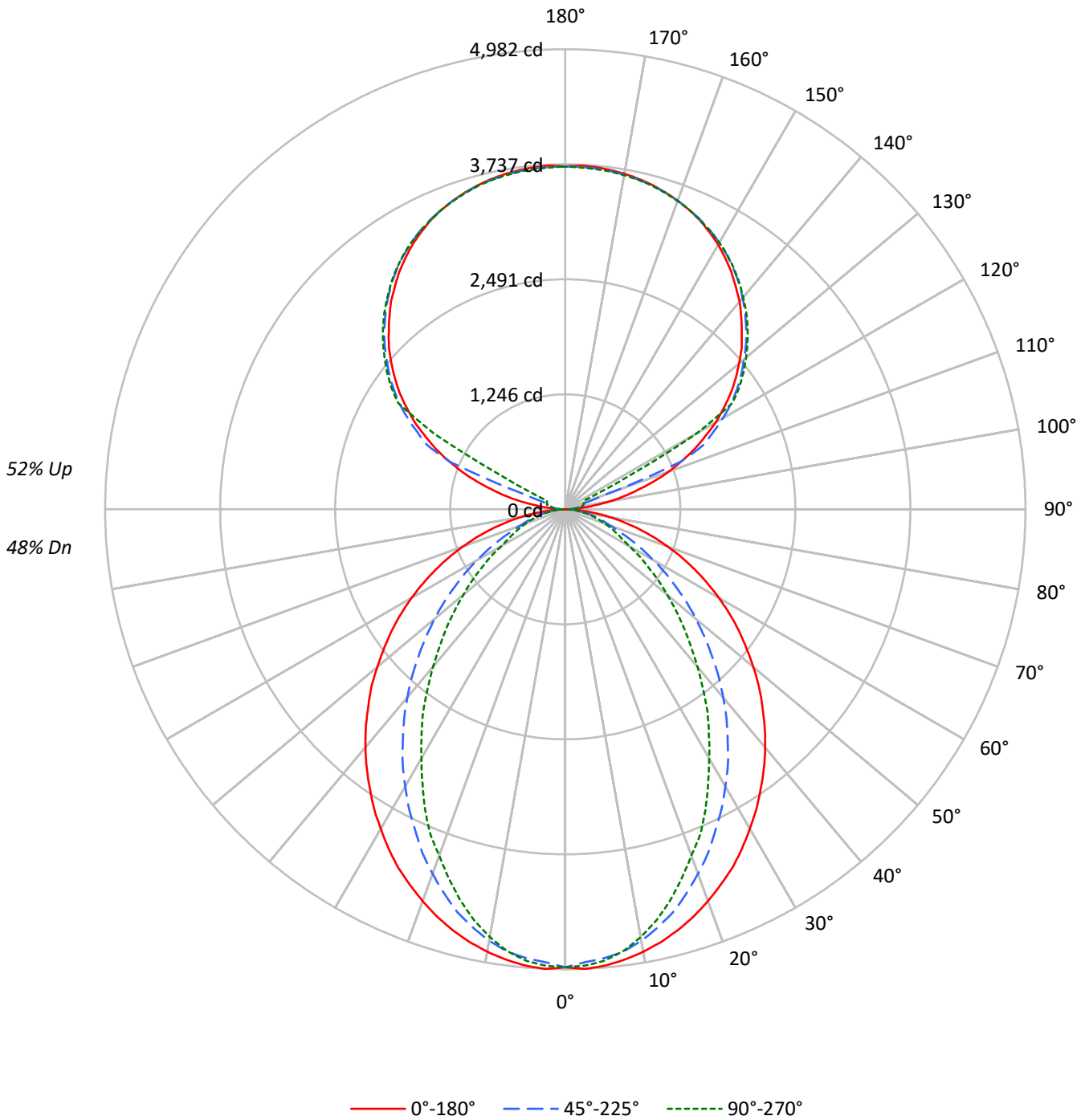
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 21090.0 lumens
Efficiency: N/A
Efficacy: 105.2 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): 200.4
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				20	
RC	80				70				50				30				10				0	
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0	
RCR																						
0	107	107	107	107	98	98	98	98	82	82	82	68	68	68	55	55	55	48				48
1	98	94	90	87	90	87	83	80	73	71	69	60	59	58	49	48	47	42				42
2	90	82	77	72	82	76	71	67	64	61	58	54	51	49	44	42	40	36				36
3	82	73	66	60	75	67	61	56	57	53	49	48	45	42	39	37	35	31				31
4	75	65	57	51	69	60	53	48	51	46	42	43	39	36	35	33	30	27				27
5	69	58	50	44	64	54	47	42	46	41	37	39	35	32	32	29	27	24				24
6	64	52	44	39	59	49	42	36	42	36	32	35	31	28	29	26	24	21				21
7	59	47	39	34	54	44	37	32	38	32	29	32	28	25	27	24	21	19				19
8	55	43	35	30	51	40	33	29	35	29	25	30	25	22	25	22	19	17				17
9	51	39	32	27	47	37	30	26	32	27	23	27	23	20	23	20	18	15				15
10	48	36	29	24	44	34	27	23	29	24	21	25	21	18	21	18	16	14				14

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3480	3480	3480
5°	3486	3425	3448
10°	3451	3359	3337
15°	3403	3249	3164
20°	3341	3096	2952
25°	3276	2925	2747
30°	3190	2750	2487
35°	3105	2561	2259
40°	3019	2366	1996
45°	2919	2149	1759
50°	2815	1931	1527
55°	2707	1697	1303
60°	2582	1452	1074
65°	2438	1204	968
70°	2263	971	877
75°	2044	858	800
80°	1726	722	697
85°	1202	486	531

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2919 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	464.8	2.2
10°-20°	1276.0	6.1
20°-30°	1791.5	8.5
30°-40°	1952.8	9.3
40°-50°	1794.9	8.5
50°-60°	1409.6	6.7
60°-70°	917.5	4.4
70°-80°	472.3	2.2
80°-90°	127.1	0.6
90°-100°	122.4	0.6
100°-110°	456.3	2.2
110°-120°	1210.3	5.7
120°-130°	2007.3	9.5
130°-140°	2132.2	10.1
140°-150°	1981.7	9.4
150°-160°	1593.2	7.6
160°-170°	1026.6	4.9
170°-180°	353.3	1.7
0°-30°	3532.3	16.7
0°-40°	5485.2	26.0
0°-60°	8689.6	41.2
0°-90°	10206.5	48.4
90°-120°	1789.0	8.5
90°-150°	7910.3	37.5
90°-180°	10883.0	51.6
0°-180°	21090.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4960	4960	4960	4960	4960	
5°	4960	4937	4879	4919	4906	470
15°	4717	4668	4515	4430	4385	1329
25°	4282	4138	3842	3658	3590	1969
35°	3690	3460	3066	2783	2684	2309
45°	3016	2715	2244	1925	1818	2329
55°	2293	1943	1459	1190	1104	2049
65°	1549	1185	781	629	615	1535
75°	826	511	359	328	323	873
85°	193	99	85	85	85	221
90°	3	32	54	67	72	20
95°	174	86	105	118	116	207
105°	817	897	164	193	204	873
115°	1544	1590	1658	414	220	1521
125°	2184	2219	2270	2289	2297	1948
135°	2702	2746	2769	2797	2791	2088
145°	3135	3132	3178	3197	3183	1961
155°	3452	3428	3460	3476	3455	1591
165°	3637	3621	3629	3648	3629	1028
175°	3720	3702	3707	3726	3699	354
180°	3712	3712	3712	3712	3712	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4959.6	4959.6	4959.6	4959.6	4959.6
2.5°	4982.0	4959.6	4910.1	4955.3	4946.2
5°	4959.6	4937.2	4878.6	4919.1	4905.8
7.5°	4919.1	4892.4	4829.6	4847.2	4824.8
10°	4865.3	4833.9	4744.3	4730.5	4703.9
12.5°	4798.1	4757.7	4636.2	4609.6	4560.1
15°	4717.2	4667.7	4515.3	4430.0	4385.3
17.5°	4622.9	4551.0	4362.4	4263.9	4192.0
20°	4515.3	4425.3	4201.0	4089.1	3990.0
22.5°	4398.6	4295.3	4034.8	3882.4	3815.3
25°	4282.0	4138.1	3841.9	3658.1	3590.5
27.5°	4142.9	3990.0	3662.4	3451.5	3348.1
30°	3994.8	3823.9	3464.8	3236.2	3114.8
32.5°	3851.0	3644.3	3276.7	3007.2	2894.8
35°	3689.6	3460.5	3065.7	2782.9	2683.8
37.5°	3532.4	3285.3	2868.1	2558.1	2446.2
40°	3366.2	3097.2	2661.5	2342.9	2226.2
42.5°	3195.7	2908.6	2455.3	2122.9	2011.0
45°	3016.2	2715.3	2244.3	1925.3	1817.6
47.5°	2845.7	2527.2	2042.4	1723.4	1624.8
50°	2657.2	2338.6	1844.8	1534.8	1441.0
52.5°	2472.9	2136.2	1656.2	1360.0	1274.8
55°	2293.4	1943.4	1458.6	1189.5	1104.3
57.5°	2109.5	1750.5	1283.8	1032.4	960.5
60°	1921.0	1561.9	1099.5	871.0	799.1
62.5°	1737.2	1378.1	942.4	727.2	691.4
65°	1548.6	1184.8	781.0	628.6	614.8
67.5°	1369.1	1005.2	628.6	551.9	538.6
70°	1180.5	830.5	520.5	475.7	457.6
72.5°	1001.0	668.6	435.2	399.5	390.5
75°	825.7	511.4	359.1	327.6	323.3
77.5°	651.0	363.3	282.9	264.8	255.7
80°	489.1	260.5	215.2	197.6	197.6
82.5°	341.0	175.2	148.1	139.0	139.0
85°	192.9	98.6	85.2	85.2	85.2
87.5°	71.9	35.7	35.7	31.4	31.4
90°	2.6	32.2	53.6	67.3	72.4
92.5°	67.3	56.5	64.4	69.9	72.4
95°	174.5	85.8	104.6	118.3	115.5
97.5°	314.2	94.1	136.8	145.1	147.7
100°	475.6	107.5	153.1	174.5	179.9
102.5°	652.6	647.5	158.5	187.9	196.2
105°	816.6	897.3	164.0	193.3	204.2
107.5°	1007.4	1074.3	169.4	198.7	209.6
110°	1190.1	1246.3	470.2	201.6	212.1



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1362.1	1410.2	1364.6	206.7	215.0
115°	1544.5	1590.1	1657.5	413.7	220.4
117.5°	1703.1	1756.7	1802.6	1418.2	714.5
120°	1880.4	1920.6	1969.1	2001.3	1638.6
122.5°	2030.7	2073.7	2127.6	2143.6	2146.5
125°	2183.8	2218.9	2269.9	2288.7	2296.7
127.5°	2323.5	2361.1	2401.6	2428.4	2431.0
130°	2455.2	2498.3	2527.6	2557.3	2554.8
132.5°	2589.5	2624.6	2654.0	2678.2	2675.7
135°	2702.5	2745.5	2769.4	2796.6	2791.1
137.5°	2820.5	2852.7	2879.8	2906.6	2898.6
140°	2936.0	2957.6	2987.0	3011.2	2997.8
142.5°	3032.9	3051.7	3086.5	3107.9	3094.5
145°	3135.0	3132.1	3177.7	3196.6	3183.2
147.5°	3223.4	3215.4	3261.0	3274.4	3263.9
150°	3309.5	3290.7	3333.7	3349.7	3336.3
152.5°	3381.9	3360.5	3400.7	3417.0	3398.2
155°	3451.8	3427.8	3460.0	3476.0	3454.6
157.5°	3508.2	3486.8	3511.1	3529.9	3508.2
160°	3556.7	3540.4	3556.7	3572.6	3553.8
162.5°	3599.4	3583.5	3596.9	3615.7	3591.5
165°	3637.1	3621.1	3629.1	3647.9	3629.1
167.5°	3666.7	3650.5	3658.8	3677.6	3653.4
170°	3691.0	3674.7	3680.1	3699.0	3674.7
172.5°	3706.9	3691.0	3696.4	3715.2	3691.0
175°	3720.3	3701.5	3706.9	3725.8	3699.0
177.5°	3725.8	3706.9	3709.8	3728.6	3704.4
180°	3712.4	3712.4	3712.4	3712.4	3712.4



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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	11.34	12.16	12.32	13.14	14.44	7.30	8.12	8.28	9.10	10.40
	3H	13.02	13.75	14.01	14.75	16.07	8.49	9.22	9.48	10.22	11.53
	4H	13.63	14.32	14.63	15.32	16.65	8.94	9.63	9.94	10.63	11.96
	6H	14.06	14.69	15.07	15.70	17.04	9.26	9.90	10.27	10.90	12.24
	8H	14.19	14.79	15.20	15.81	17.14	9.35	9.96	10.37	10.98	12.31
	12H	14.25	14.82	15.27	15.84	17.20	9.39	9.97	10.42	10.98	12.34
4H	2H	11.36	12.05	12.36	13.05	14.37	7.90	8.59	8.91	9.59	10.91
	3H	13.19	13.76	14.21	14.79	16.13	9.25	9.82	10.26	10.85	12.19
	4H	13.88	14.41	14.91	15.43	16.79	9.80	10.32	10.82	11.34	12.70
	6H	14.40	14.85	15.44	15.90	17.26	10.21	10.67	11.25	11.71	13.07
	8H	14.58	15.00	15.62	16.04	17.41	10.34	10.76	11.38	11.80	13.18
	12H	14.68	15.06	15.73	16.11	17.49	10.41	10.79	11.46	11.84	13.22
8H	4H	13.85	14.27	14.89	15.31	16.68	10.08	10.50	11.11	11.53	12.91
	6H	14.42	14.77	15.48	15.85	17.22	10.60	10.94	11.66	12.02	13.39
	8H	14.64	14.95	15.71	16.01	17.40	10.79	11.09	11.85	12.16	13.55
	12H	14.78	15.05	15.85	16.11	17.54	10.91	11.18	11.98	12.23	13.67
12H	4H	13.80	14.18	14.86	15.23	16.61	10.08	10.46	11.14	11.51	12.89
	6H	14.40	14.70	15.46	15.77	17.16	10.65	10.95	11.71	12.02	13.41
	8H	14.62	14.89	15.69	15.95	17.38	10.86	11.13	11.93	12.18	13.62