

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: P906939

Luminaire Tested: DFN2DIP-SQ4F0-140D110US835-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P906939
REPORT IS A COMBINATION OF REPORTS P901684 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-140D110US835-RLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

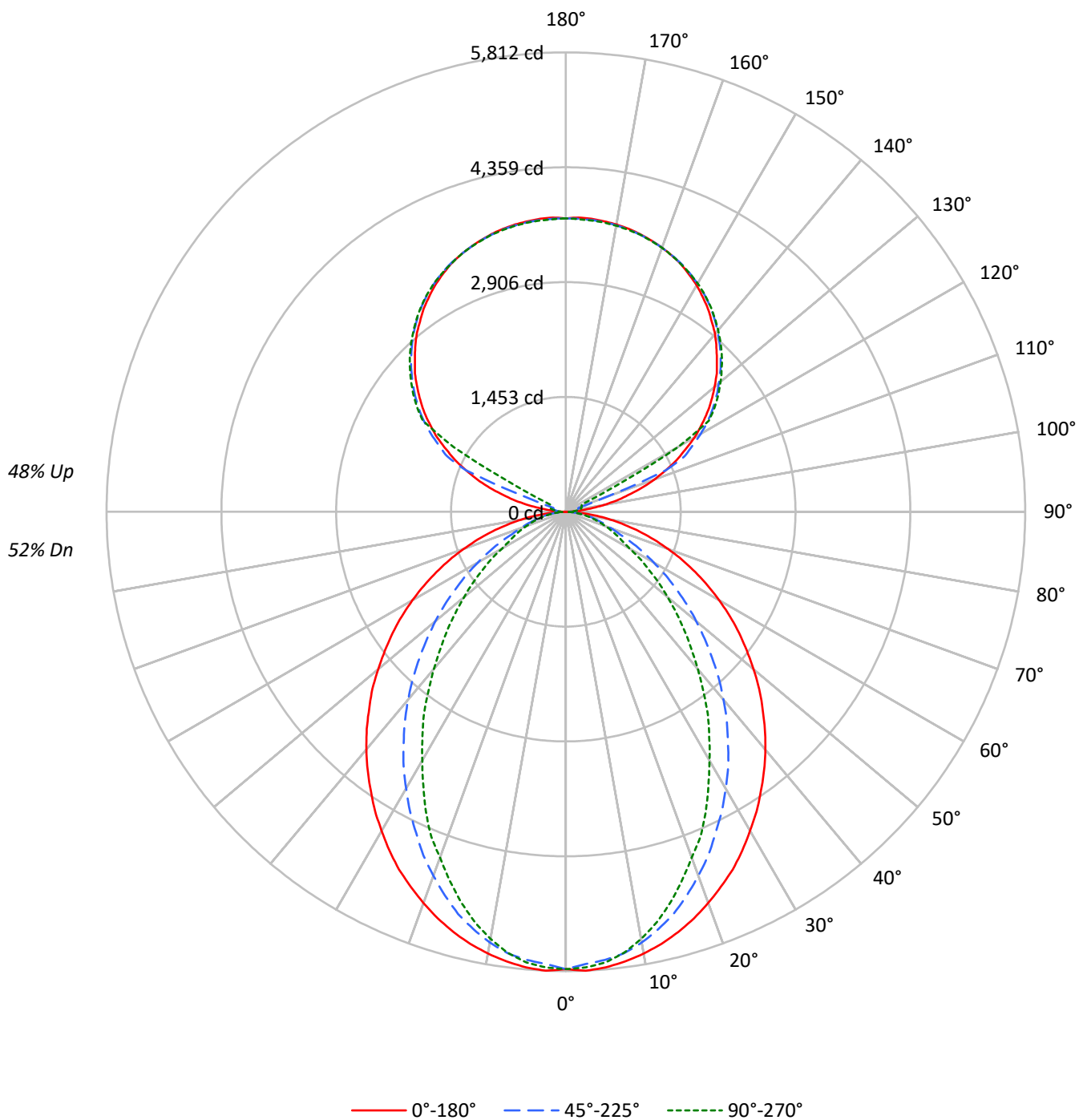
Lumens per Lamp: N/A
Luminaire Lumens: 22789.9 lumens
Efficiency: N/A
Efficacy: 100.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 226.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9789
Total Harmonic Distortion (THDi): 0.074
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	108	108	108	108	100	100	100	100	85	85	85	71	71	71	58	58	58
1	99	95	91	88	91	88	85	82	75	73	71	63	61	60	52	51	50
2	90	83	77	72	83	77	72	68	66	62	59	56	53	51	47	45	43
3	83	74	67	61	76	69	62	57	59	54	50	50	47	44	42	39	37
4	76	65	58	52	70	61	54	49	53	47	43	45	41	38	38	35	32
5	70	59	51	45	65	55	48	42	47	42	38	41	36	33	34	31	29
6	65	53	45	39	60	49	42	37	43	37	33	37	33	29	31	28	25
7	60	48	40	35	55	45	38	33	39	34	29	34	29	26	29	25	23
8	56	44	36	31	52	41	34	29	36	30	26	31	27	23	26	23	21
9	52	40	33	28	48	37	31	26	33	28	24	29	24	21	24	21	19
10	49	37	30	25	45	35	28	24	30	25	22	26	22	19	23	19	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4060	4060	4060
5°	4066	3996	4022
10°	4026	3919	3893
15°	3971	3790	3691
20°	3897	3612	3444
25°	3822	3413	3205
30°	3721	3208	2902
35°	3622	2988	2635
40°	3522	2760	2329
45°	3405	2508	2052
50°	3284	2252	1781
55°	3158	1980	1521
60°	3012	1694	1253
65°	2844	1404	1129
70°	2640	1133	1024
75°	2384	1001	934
80°	2014	842	814
85°	1402	566	619

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3405 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	542.3	2.4
10°-20°	1488.7	6.5
20°-30°	2090.1	9.2
30°-40°	2278.3	10.0
40°-50°	2094.0	9.2
50°-60°	1644.5	7.2
60°-70°	1070.4	4.7
70°-80°	551.0	2.4
80°-90°	147.2	0.6
90°-100°	122.4	0.5
100°-110°	456.3	2.0
110°-120°	1210.3	5.3
120°-130°	2007.3	8.8
130°-140°	2132.2	9.4
140°-150°	1981.7	8.7
150°-160°	1593.2	7.0
160°-170°	1026.6	4.5
170°-180°	353.3	1.6
0°-30°	4121.0	18.1
0°-40°	6399.4	28.1
0°-60°	10137.9	44.5
0°-90°	11906.5	52.2
90°-120°	1789.0	7.8
90°-150°	7910.3	34.7
90°-180°	10883.0	47.8
0°-180°	22789.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	5786	5786	5786	5786	5786	
5°	5786	5760	5692	5739	5723	549
15°	5503	5446	5268	5168	5116	1551
25°	4996	4828	4482	4268	4189	2297
35°	4304	4037	3577	3247	3131	2694
45°	3519	3168	2618	2246	2121	2718
55°	2676	2267	1702	1388	1288	2391
65°	1807	1382	911	733	717	1791
75°	963	597	419	382	377	1019
85°	225	115	99	99	99	258
90°	3	32	54	67	72	21
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°	5786.2	5786.2	5786.2	5786.2	5786.2
2.5°	5812.3	5786.2	5728.4	5781.2	5770.6
5°	5786.2	5760.1	5691.7	5739.0	5723.4
7.5°	5739.0	5707.8	5634.5	5655.1	5629.0
10°	5676.2	5639.5	5535.1	5518.9	5487.8
12.5°	5597.8	5550.6	5408.9	5377.8	5320.1
15°	5503.4	5445.6	5267.8	5168.4	5116.2
17.5°	5393.4	5309.5	5089.5	4974.5	4890.6
20°	5267.8	5162.8	4901.2	4770.6	4655.1
22.5°	5131.7	5011.2	4707.3	4529.5	4451.2
25°	4995.6	4827.8	4482.3	4267.8	4188.9
27.5°	4833.4	4655.1	4272.8	4026.7	3906.2
30°	4660.6	4461.2	4042.3	3775.6	3633.9
32.5°	4492.8	4251.7	3822.8	3508.4	3377.3
35°	4304.5	4037.3	3576.7	3246.7	3131.1
37.5°	4121.2	3832.8	3346.1	2984.5	2853.9
40°	3927.3	3613.4	3105.0	2733.4	2597.3
42.5°	3728.4	3393.4	2864.5	2476.7	2346.1
45°	3518.9	3167.8	2618.4	2246.1	2120.6
47.5°	3320.0	2948.4	2382.8	2010.6	1895.6
50°	3100.0	2728.4	2152.2	1790.6	1681.1
52.5°	2885.0	2492.2	1932.2	1586.7	1487.2
55°	2675.6	2267.2	1701.7	1387.8	1288.3
57.5°	2461.1	2042.2	1497.8	1204.5	1120.6
60°	2241.1	1822.2	1282.8	1016.1	932.2
62.5°	2026.7	1607.8	1099.5	848.3	806.7
65°	1806.7	1382.2	911.1	733.3	717.2
67.5°	1597.2	1172.8	733.3	643.9	628.3
70°	1377.2	968.9	607.2	555.0	533.9
72.5°	1167.8	780.0	507.8	466.1	455.6
75°	963.3	596.7	418.9	382.2	377.2
77.5°	759.5	423.9	330.0	308.9	298.3
80°	570.6	303.9	251.1	230.6	230.6
82.5°	397.8	204.4	172.8	162.2	162.2
85°	225.0	115.0	99.4	99.4	99.4
87.5°	83.9	41.7	41.7	36.7	36.7
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	12.24	13.08	13.18	14.04	15.28	8.20	9.05	9.14	10.00	11.24
	3H	13.92	14.68	14.87	15.64	16.91	9.39	10.15	10.34	11.11	12.38
	4H	14.53	15.25	15.50	16.22	17.49	9.84	10.56	10.81	11.53	12.80
	6H	14.96	15.62	15.94	16.59	17.88	10.16	10.82	11.14	11.80	13.08
	8H	15.09	15.71	16.07	16.71	17.99	10.25	10.88	11.24	11.87	13.16
	12H	15.15	15.75	16.14	16.73	18.04	10.30	10.89	11.29	11.88	13.19
4H	2H	12.26	12.97	13.23	13.94	15.22	8.80	9.51	9.77	10.48	11.76
	3H	14.09	14.69	15.08	15.69	16.97	10.15	10.75	11.13	11.74	13.03
	4H	14.79	15.33	15.78	16.32	17.64	10.70	11.24	11.69	12.24	13.55
	6H	15.31	15.78	16.31	16.79	18.10	11.12	11.59	12.13	12.60	13.91
	8H	15.49	15.92	16.49	16.93	18.26	11.25	11.69	12.26	12.70	14.02
	12H	15.59	15.98	16.61	17.00	18.33	11.32	11.71	12.34	12.73	14.06
8H	4H	14.76	15.19	15.76	16.20	17.53	10.98	11.42	11.99	12.43	13.75
	6H	15.33	15.69	16.36	16.74	18.06	11.50	11.86	12.53	12.91	14.24
	8H	15.55	15.87	16.59	16.90	18.24	11.70	12.01	12.73	13.05	14.39
	12H	15.69	15.97	16.73	17.00	18.39	11.82	12.10	12.86	13.13	14.51
12H	4H	14.71	15.10	15.73	16.13	17.46	10.99	11.38	12.01	12.41	13.74
	6H	15.30	15.62	16.34	16.66	18.00	11.55	11.87	12.59	12.91	14.25
	8H	15.53	15.81	16.57	16.84	18.22	11.77	12.05	12.81	13.08	14.46