

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: P906938

Luminaire Tested: DFN2DIP-SQ4F0-140D110US835-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P906938
REPORT IS A COMBINATION OF REPORTS P900164 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-140D110US835-RLFL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

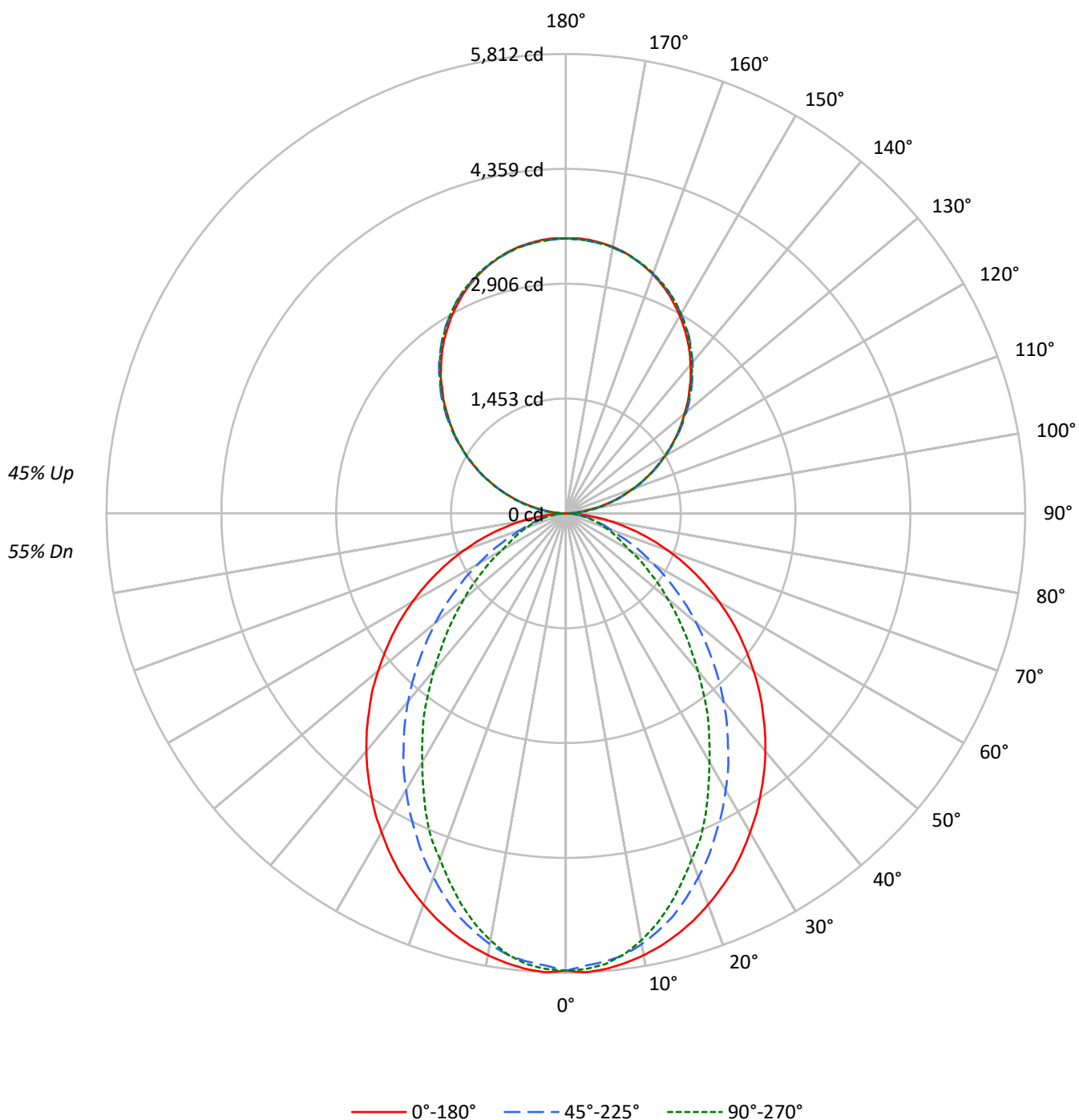
Lumens per Lamp: N/A
Luminaire Lumens: 21635.0 lumens
Efficiency: N/A
Efficacy: 95.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 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	101	101	101	101	86	86	86	73	73	73	61	61	61
1	99	95	92	88	92	89	85	83	76	74	72	65	63	62	55	53	52
2	91	84	78	73	84	78	73	69	68	64	60	58	55	52	49	47	45
3	83	74	67	61	77	69	63	58	60	55	51	51	48	45	44	41	39
4	77	66	58	52	71	62	55	50	54	48	44	46	42	39	39	36	34
5	70	59	51	45	65	55	48	43	48	43	39	42	38	34	36	32	30
6	65	53	45	40	60	50	43	38	44	38	34	38	34	30	33	29	27
7	60	48	40	35	56	45	38	33	40	34	30	35	30	27	30	26	24
8	56	44	36	31	52	41	35	30	37	31	27	32	27	24	28	24	22
9	52	40	33	28	49	38	31	27	34	28	24	29	25	22	26	22	20
10	49	37	30	25	46	35	29	24	31	26	22	27	23	20	24	20	18

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	2.5
10°-20°	1488.7	6.9
20°-30°	2090.1	9.7
30°-40°	2278.3	10.5
40°-50°	2094.0	9.7
50°-60°	1644.5	7.6
60°-70°	1070.4	4.9
70°-80°	551.0	2.5
80°-90°	150.6	0.7
90°-100°	215.3	1.0
100°-110°	684.0	3.2
110°-120°	1170.5	5.4
120°-130°	1539.4	7.1
130°-140°	1727.9	8.0
140°-150°	1694.4	7.8
150°-160°	1421.4	6.6
160°-170°	942.6	4.4
170°-180°	329.5	1.5
0°-30°	4121.0	19.0
0°-40°	6399.4	29.6
0°-60°	10137.9	46.9
0°-90°	11909.9	55.0
90°-120°	2069.8	9.6
90°-150°	7031.6	32.5
90°-180°	9725.0	45.0
0°-180°	21635.0	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	38	103	96	100	21
95°	153	182	188	188	182	170
105°	631	640	646	651	651	666
115°	1175	1191	1186	1183	1175	1162
125°	1708	1735	1726	1717	1714	1527
135°	2210	2242	2249	2246	2237	1708
145°	2683	2704	2721	2724	2712	1676
155°	3068	3076	3086	3100	3091	1412
165°	3337	3334	3334	3355	3340	941
175°	3473	3464	3458	3479	3461	330
180°	3479	3479	3479	3479	3479	

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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°	3.1	37.8	102.8	96.5	99.6
92.5°	65.0	88.1	91.2	94.4	94.4
95°	153.1	182.5	187.7	187.7	182.5
97.5°	254.9	282.1	293.7	293.7	293.7
100°	372.3	396.4	404.8	404.8	401.7
102.5°	496.1	513.9	525.5	528.6	525.5
105°	631.4	639.8	646.1	651.3	651.3
107.5°	765.6	778.2	778.2	780.3	765.6
110°	895.7	912.5	912.5	912.5	904.1



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1036.2	1054.0	1050.9	1042.5	1036.2
115°	1174.7	1191.4	1186.2	1183.1	1174.7
117.5°	1312.1	1335.1	1320.4	1312.1	1303.7
120°	1450.5	1473.6	1450.5	1450.5	1441.1
122.5°	1576.4	1605.7	1591.0	1582.6	1576.4
125°	1708.5	1734.7	1726.3	1716.9	1713.7
127.5°	1837.5	1870.0	1858.5	1845.9	1837.5
130°	1958.1	1995.9	1990.6	1984.3	1972.8
132.5°	2093.4	2122.8	2124.9	2110.2	2101.8
135°	2209.8	2242.3	2248.6	2245.5	2237.1
137.5°	2339.9	2366.1	2371.3	2369.2	2356.7
140°	2454.2	2480.4	2495.1	2495.1	2483.6
142.5°	2571.7	2597.9	2606.3	2609.4	2597.9
145°	2682.8	2703.8	2720.6	2723.7	2712.2
147.5°	2782.5	2808.7	2821.3	2826.5	2815.0
150°	2885.3	2903.1	2914.6	2924.1	2914.6
152.5°	2976.5	2994.3	3009.0	3020.6	3009.0
155°	3067.8	3076.1	3085.6	3100.3	3090.8
157.5°	3146.4	3152.7	3157.9	3178.9	3164.2
160°	3216.7	3223.0	3226.1	3244.0	3231.4
162.5°	3281.7	3281.7	3284.9	3304.8	3290.1
165°	3337.3	3334.1	3334.1	3355.1	3340.4
167.5°	3387.6	3378.2	3378.2	3399.2	3384.5
170°	3425.4	3417.0	3413.9	3434.8	3417.0
172.5°	3451.6	3443.2	3440.1	3461.1	3443.2
175°	3472.6	3464.2	3457.9	3478.9	3461.1
177.5°	3484.1	3475.7	3469.4	3487.3	3469.4
180°	3478.9	3478.9	3478.9	3478.9	3478.9

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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	12.49	13.36	13.41	14.29	15.49	8.45	9.32	9.37	10.25	11.45
	3H	14.17	14.95	15.10	15.89	17.12	9.64	10.42	10.57	11.36	12.59
	4H	14.78	15.52	15.73	16.47	17.70	10.09	10.83	11.04	11.78	13.01
	6H	15.21	15.89	16.17	16.84	18.09	10.42	11.09	11.37	12.05	13.29
	8H	15.34	15.99	16.31	16.96	18.20	10.51	11.15	11.47	12.12	13.37
	12H	15.41	16.02	16.38	16.98	18.25	10.55	11.17	11.52	12.13	13.40
4H	2H	12.51	13.25	13.46	14.19	15.43	9.05	9.79	10.00	10.73	11.97
	3H	14.35	14.96	15.31	15.94	17.19	10.40	11.02	11.37	12.00	13.24
	4H	15.04	15.60	16.01	16.57	17.85	10.96	11.51	11.93	12.49	13.76
	6H	15.57	16.05	16.55	17.04	18.31	11.38	11.86	12.36	12.85	14.12
	8H	15.74	16.19	16.73	17.18	18.47	11.51	11.96	12.49	12.95	14.23
	12H	15.84	16.25	16.85	17.25	18.54	11.58	11.98	12.58	12.98	14.27
8H	4H	15.02	15.46	16.00	16.45	17.74	11.24	11.69	12.23	12.68	13.96
	6H	15.59	15.96	16.60	16.99	18.27	11.76	12.13	12.77	13.16	14.45
	8H	15.81	16.13	16.83	17.15	18.45	11.95	12.28	12.97	13.30	14.60
	12H	15.95	16.24	16.97	17.25	18.60	12.08	12.36	13.10	13.38	14.72
12H	4H	14.97	15.37	15.97	16.38	17.67	11.25	11.65	12.25	12.66	13.95
	6H	15.56	15.89	16.58	16.91	18.21	11.81	12.14	12.83	13.16	14.46
	8H	15.79	16.08	16.81	17.09	18.44	12.03	12.31	13.05	13.33	14.67