

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: P922959

Luminaire Tested: DFN2DIP-SQ3F0-100D120US940-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P922959
REPORT IS A COMBINATION OF REPORTS P901538 AND P898289
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-100D120US940-RLLONL
Description: 3 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

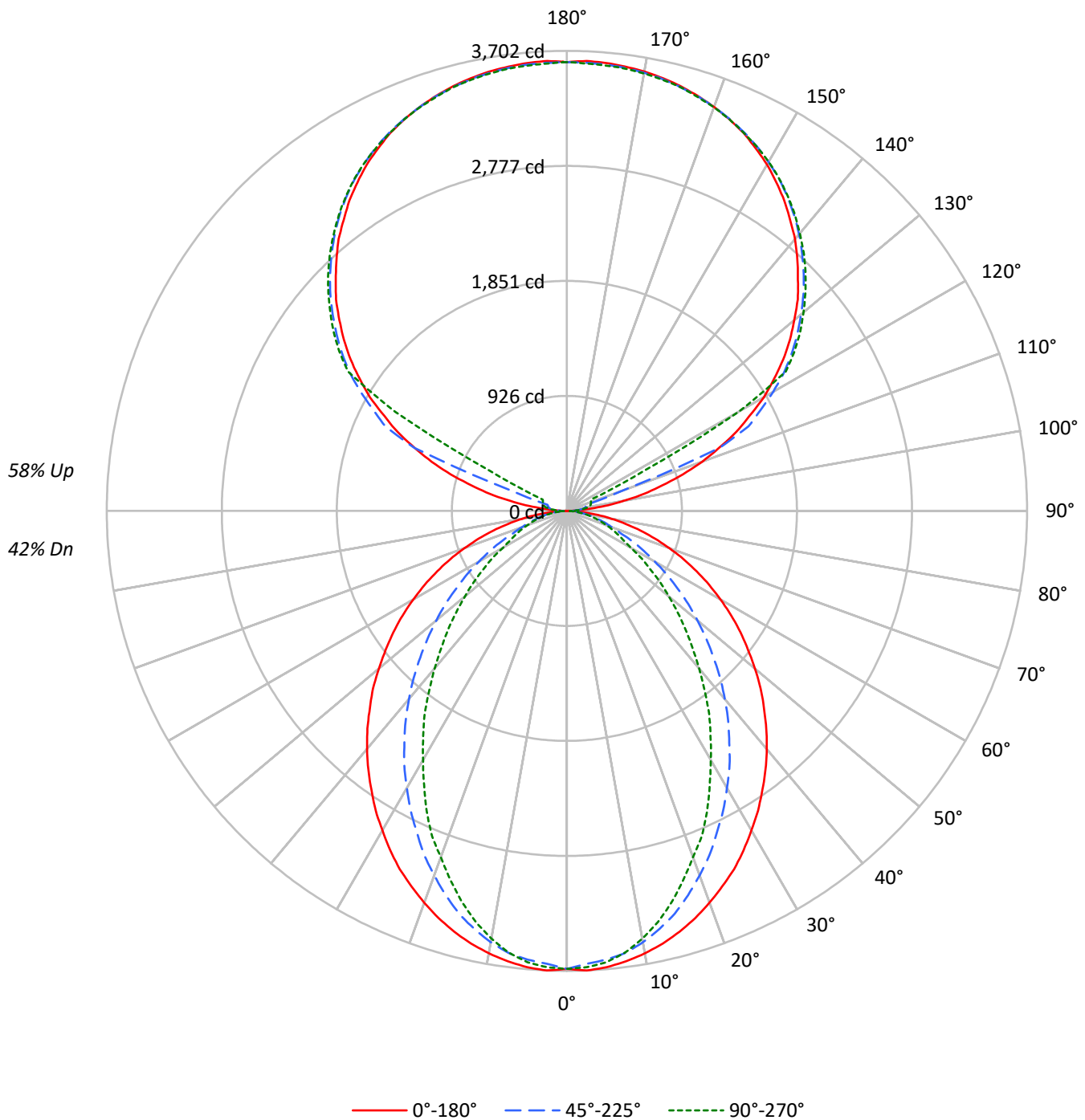
Lumens per Lamp: N/A
Luminaire Lumens: 18173.0 lumens
Efficiency: N/A
Efficacy: 94.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 192.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9781
Total Harmonic Distortion (THDi): 0.075
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	43	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	46	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	39	34	30	32	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	27	33	28	24	27	23	20	22	19	17
9	50	38	31	26	46	35	29	25	30	25	22	25	21	18	20	17	15
10	47	35	28	23	43	33	26	22	28	23	19	23	19	17	19	16	14

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4223	4223	4223
5°	4227	4153	4181
10°	4182	4069	4044
15°	4122	3931	3832
20°	4043	3744	3573
25°	3962	3533	3323
30°	3855	3318	3006
35°	3749	3087	2727
40°	3642	2848	2408
45°	3517	2583	2120
50°	3388	2316	1837
55°	3253	2031	1566
60°	3096	1734	1288
65°	2916	1432	1157
70°	2697	1150	1046
75°	2422	1008	948
80°	2023	837	818
85°	1372	545	606

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3517 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	345.4	1.9
10°-20°	948.2	5.2
20°-30°	1331.2	7.3
30°-40°	1451.1	8.0
40°-50°	1333.8	7.3
50°-60°	1047.4	5.8
60°-70°	681.8	3.8
70°-80°	351.0	1.9
80°-90°	96.0	0.5
90°-100°	119.1	0.7
100°-110°	443.9	2.4
110°-120°	1177.3	6.5
120°-130°	1952.7	10.7
130°-140°	2074.2	11.4
140°-150°	1927.7	10.6
150°-160°	1549.8	8.5
160°-170°	998.7	5.5
170°-180°	343.7	1.9
0°-30°	2624.8	14.4
0°-40°	4076.0	22.4
0°-60°	6457.2	35.5
0°-90°	7585.9	41.7
90°-120°	1740.3	9.6
90°-150°	7694.9	42.3
90°-180°	10587.0	58.3
0°-180°	18173.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3685	3685	3685	3685	3685	
5°	3685	3669	3625	3655	3645	349
15°	3505	3468	3355	3292	3259	988
25°	3182	3075	2855	2718	2668	1463
35°	2742	2572	2278	2068	1994	1716
45°	2241	2018	1668	1431	1351	1731
55°	1704	1444	1084	884	821	1523
65°	1151	880	580	467	457	1141
75°	614	380	267	243	240	649
85°	143	73	63	63	63	164
90°	2	31	52	66	70	17
95°	170	84	102	115	112	201
105°	794	873	160	188	199	849
115°	1502	1547	1612	402	214	1479
125°	2124	2158	2208	2226	2234	1895
135°	2629	2671	2694	2720	2715	2031
145°	3050	3047	3091	3110	3096	1907
155°	3358	3334	3366	3381	3361	1547
165°	3538	3522	3530	3549	3530	1000
175°	3619	3601	3606	3624	3598	344
180°	3611	3611	3611	3611	3611	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3685.4	3685.4	3685.4	3685.4	3685.4
2.5°	3702.0	3685.4	3648.6	3682.2	3675.5
5°	3685.4	3668.8	3625.2	3655.4	3645.4
7.5°	3655.4	3635.5	3588.8	3601.9	3585.3
10°	3615.4	3592.0	3525.5	3515.2	3495.4
12.5°	3565.5	3535.4	3445.1	3425.3	3388.5
15°	3505.3	3468.5	3355.2	3291.9	3258.7
17.5°	3435.2	3381.8	3241.7	3168.4	3115.0
20°	3355.2	3288.4	3121.7	3038.6	2964.9
22.5°	3268.6	3191.8	2998.2	2885.0	2835.1
25°	3181.9	3075.1	2854.9	2718.3	2668.1
27.5°	3078.5	2964.9	2721.5	2564.7	2488.0
30°	2968.5	2841.4	2574.6	2404.9	2314.6
32.5°	2861.7	2708.0	2434.9	2234.6	2151.1
35°	2741.7	2571.5	2278.1	2068.0	1994.3
37.5°	2624.9	2441.2	2131.3	1900.9	1817.8
40°	2501.4	2301.5	1977.7	1741.0	1654.3
42.5°	2374.7	2161.3	1824.5	1577.5	1494.3
45°	2241.3	2017.7	1667.8	1430.7	1350.7
47.5°	2114.7	1877.9	1517.7	1280.6	1207.4
50°	1974.5	1737.8	1370.8	1140.5	1070.8
52.5°	1837.5	1587.4	1230.7	1010.6	947.3
55°	1704.1	1444.1	1083.9	884.0	820.6
57.5°	1567.6	1300.7	954.0	767.1	713.7
60°	1427.4	1160.7	817.1	647.2	593.8
62.5°	1290.8	1024.0	700.3	540.4	513.8
65°	1150.8	880.4	580.3	467.1	456.8
67.5°	1017.4	747.0	467.1	410.1	400.2
70°	877.2	617.2	386.7	353.5	340.1
72.5°	743.8	496.8	323.4	296.9	290.2
75°	613.6	380.0	266.8	243.4	240.2
77.5°	483.8	270.0	210.2	196.7	190.0
80°	363.4	193.6	160.0	146.9	146.9
82.5°	253.3	130.2	110.0	103.3	103.3
85°	143.3	73.2	63.3	63.3	63.3
87.5°	53.4	26.6	26.6	23.4	23.4
90°	2.5	31.3	52.2	65.5	70.4
92.5°	65.5	54.9	62.7	67.9	70.4
95°	169.7	83.5	101.7	115.1	112.4
97.5°	305.7	91.6	133.1	141.2	143.7
100°	462.6	104.6	148.9	169.7	175.0
102.5°	634.9	629.9	154.2	182.8	190.8
105°	794.3	872.9	159.5	188.1	198.6
107.5°	979.9	1045.1	164.8	193.3	203.8
110°	1157.7	1212.4	457.4	196.1	206.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1325.0	1371.8	1327.5	201.1	209.1
115°	1502.4	1546.8	1612.3	402.4	214.5
117.5°	1656.7	1708.9	1753.5	1379.6	695.1
120°	1829.3	1868.3	1915.5	1946.9	1594.0
122.5°	1975.4	2017.3	2069.7	2085.3	2088.0
125°	2124.3	2158.5	2208.1	2226.4	2234.2
127.5°	2260.2	2296.9	2336.3	2362.3	2364.8
130°	2388.4	2430.3	2458.8	2487.7	2485.2
132.5°	2519.0	2553.1	2581.7	2605.3	2602.8
135°	2628.9	2670.8	2694.0	2720.4	2715.2
137.5°	2743.7	2775.0	2801.4	2827.4	2819.7
140°	2856.1	2877.1	2905.6	2929.3	2916.2
142.5°	2950.3	2968.7	3002.5	3023.3	3010.2
145°	3049.6	3046.9	3091.2	3109.6	3096.5
147.5°	3135.6	3127.9	3172.3	3185.3	3175.0
150°	3219.3	3201.1	3243.0	3258.5	3245.5
152.5°	3289.8	3269.0	3308.2	3323.9	3305.7
155°	3357.7	3334.5	3365.8	3381.4	3360.6
157.5°	3412.7	3391.9	3415.5	3433.8	3412.7
160°	3459.8	3444.1	3459.8	3475.4	3457.1
162.5°	3501.5	3486.0	3499.0	3517.3	3493.7
165°	3538.0	3522.5	3530.3	3548.7	3530.3
167.5°	3566.9	3551.1	3559.2	3577.5	3553.9
170°	3590.5	3574.7	3579.9	3598.2	3574.7
172.5°	3606.0	3590.5	3595.8	3614.1	3590.5
175°	3619.0	3600.7	3606.0	3624.4	3598.2
177.5°	3624.4	3606.0	3608.8	3627.1	3603.6
180°	3611.3	3611.3	3611.3	3611.3	3611.3

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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	11.29	12.06	12.33	13.10	14.48	7.26	8.02	8.29	9.06	10.44
	3H	12.96	13.65	14.00	14.69	16.10	8.43	9.12	9.47	10.16	11.57
	4H	13.57	14.22	14.62	15.26	16.67	8.88	9.52	9.93	10.57	11.98
	6H	13.98	14.58	15.04	15.63	17.05	9.19	9.78	10.25	10.83	12.26
	8H	14.10	14.67	15.17	15.74	17.16	9.27	9.84	10.34	10.91	12.33
	12H	14.16	14.70	15.23	15.76	17.20	9.31	9.85	10.38	10.91	12.35
4H	2H	11.30	11.95	12.36	13.00	14.41	7.84	8.49	8.90	9.54	10.95
	3H	13.12	13.66	14.19	14.73	16.16	9.18	9.72	10.24	10.79	12.22
	4H	13.81	14.30	14.88	15.37	16.81	9.72	10.21	10.79	11.28	12.72
	6H	14.32	14.74	15.40	15.83	17.27	10.13	10.55	11.21	11.64	13.08
	8H	14.49	14.88	15.57	15.96	17.42	10.25	10.65	11.33	11.73	13.18
	12H	14.58	14.93	15.67	16.03	17.49	10.31	10.67	11.41	11.76	13.22
8H	4H	13.77	14.17	14.85	15.24	16.70	9.99	10.39	11.07	11.47	12.92
	6H	14.33	14.65	15.43	15.78	17.23	10.50	10.82	11.60	11.95	13.40
	8H	14.54	14.83	15.65	15.93	17.41	10.68	10.97	11.79	12.07	13.55
	12H	14.67	14.92	15.79	16.02	17.54	10.79	11.05	11.91	12.15	13.66
12H	4H	13.72	14.08	14.82	15.17	16.63	9.99	10.35	11.09	11.44	12.91
	6H	14.30	14.59	15.41	15.69	17.17	10.55	10.83	11.66	11.94	13.41
	8H	14.52	14.77	15.63	15.87	17.38	10.75	11.00	11.86	12.10	13.61