

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: P917535

Luminaire Tested: DFN2DIP-SQ3F0-110D110US930-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P917535
REPORT IS A COMBINATION OF REPORTS P901522 AND P898289
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-110D110US930-RLLONL
Description: 3 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

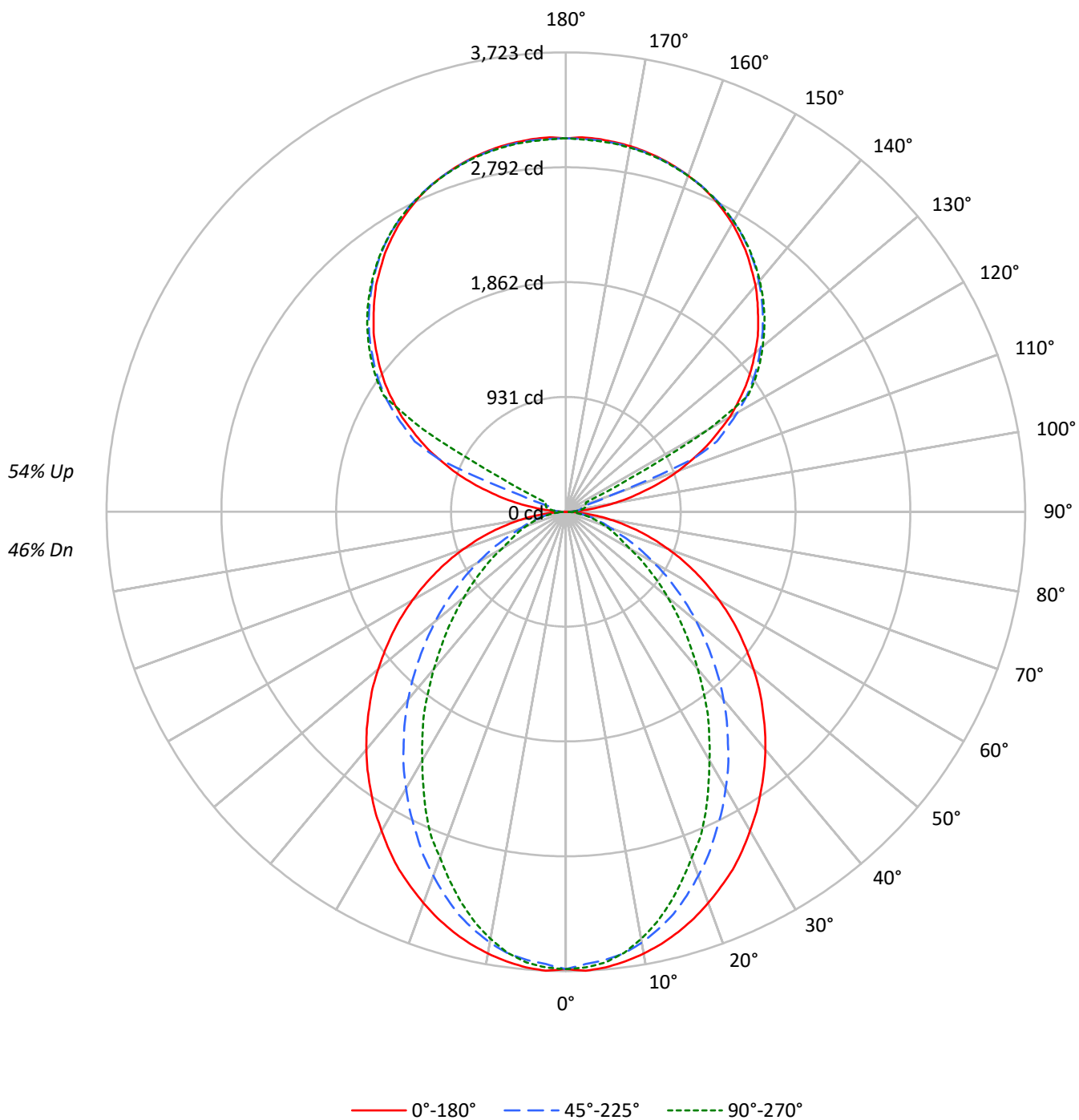
Lumens per Lamp: N/A
Luminaire Lumens: 16501.6 lumens
Efficiency: N/A
Efficacy: 83.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 197.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9977
Total Harmonic Distortion (THDi): 0.049
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	106	106	106	106	98	98	98	98	81	81	81	66	66	66	53	53	53
1	97	93	90	86	89	86	83	80	72	70	68	59	58	56	47	46	45
2	89	82	76	71	82	76	70	66	63	60	57	52	50	48	42	40	39
3	81	72	65	60	75	67	61	56	56	52	48	47	43	41	38	35	34
4	75	64	57	51	68	60	53	48	50	45	41	42	38	35	34	31	29
5	69	58	50	44	63	53	46	41	45	40	36	38	34	31	31	28	26
6	63	52	44	38	58	48	41	36	41	36	32	34	30	27	28	25	23
7	59	47	39	34	54	44	37	32	37	32	28	31	27	24	26	23	21
8	55	43	35	30	50	40	33	28	34	29	25	29	25	22	24	21	19
9	51	39	32	27	47	36	30	25	31	26	22	27	23	20	22	19	17
10	48	36	29	24	44	33	27	23	29	24	20	25	21	18	20	18	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4247	4247	4247
5°	4251	4177	4205
10°	4206	4092	4067
15°	4146	3954	3854
20°	4066	3765	3593
25°	3985	3554	3342
30°	3877	3337	3023
35°	3771	3105	2743
40°	3663	2864	2422
45°	3537	2598	2132
50°	3407	2330	1848
55°	3271	2043	1575
60°	3114	1744	1295
65°	2932	1440	1164
70°	2712	1157	1051
75°	2435	1013	954
80°	2035	841	822
85°	1380	548	610

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3537 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	347.4	2.1
10°-20°	953.6	5.8
20°-30°	1338.9	8.1
30°-40°	1459.5	8.8
40°-50°	1341.4	8.1
50°-60°	1053.5	6.4
60°-70°	685.7	4.2
70°-80°	353.0	2.1
80°-90°	95.4	0.6
90°-100°	99.8	0.6
100°-110°	372.1	2.3
110°-120°	986.7	6.0
120°-130°	1636.6	9.9
130°-140°	1738.4	10.5
140°-150°	1615.7	9.8
150°-160°	1298.9	7.9
160°-170°	837.0	5.1
170°-180°	288.1	1.7
0°-30°	2639.9	16.0
0°-40°	4099.4	24.8
0°-60°	6494.2	39.4
0°-90°	7628.4	46.2
90°-120°	1458.6	8.8
90°-150°	6449.2	39.1
90°-180°	8873.0	53.8
0°-180°	16501.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3707	3707	3707	3707	3707	
5°	3707	3690	3646	3676	3666	351
15°	3525	3488	3374	3311	3277	993
25°	3200	3093	2871	2734	2683	1472
35°	2757	2586	2291	2080	2006	1726
45°	2254	2029	1677	1439	1358	1741
55°	1714	1452	1090	889	825	1532
65°	1157	885	584	470	459	1147
75°	617	382	268	245	242	653
85°	144	74	64	64	64	165
90°	2	26	44	55	59	15
95°	142	70	85	96	94	169
105°	666	732	134	158	166	711
115°	1259	1296	1351	337	180	1240
125°	1780	1809	1851	1866	1872	1588
135°	2203	2238	2258	2280	2276	1702
145°	2556	2554	2591	2606	2595	1599
155°	2814	2795	2821	2834	2816	1297
165°	2965	2952	2959	2974	2959	838
175°	3033	3018	3022	3038	3016	289
180°	3027	3027	3027	3027	3027	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3706.6	3706.6	3706.6	3706.6	3706.6
2.5°	3723.3	3706.6	3669.6	3703.4	3696.6
5°	3706.6	3689.9	3646.1	3676.3	3666.4
7.5°	3676.3	3656.4	3609.4	3622.6	3605.8
10°	3636.1	3612.6	3545.7	3535.4	3515.5
12.5°	3585.9	3555.7	3464.9	3445.0	3407.9
15°	3525.4	3488.4	3374.5	3310.8	3277.3
17.5°	3455.0	3401.3	3260.3	3186.6	3132.9
20°	3374.5	3307.3	3139.6	3056.0	2982.0
22.5°	3287.4	3210.1	3015.5	2901.6	2851.3
25°	3200.1	3092.7	2871.3	2733.9	2683.4
27.5°	3096.3	2982.0	2737.1	2579.4	2502.2
30°	2985.5	2857.8	2589.5	2418.6	2327.8
32.5°	2878.1	2723.6	2448.8	2247.5	2163.5
35°	2757.4	2586.2	2291.2	2079.8	2005.8
37.5°	2640.0	2455.3	2143.5	1911.8	1828.2
40°	2515.8	2314.7	1989.1	1750.9	1663.8
42.5°	2388.3	2173.7	1835.0	1586.6	1502.9
45°	2254.2	2029.3	1677.3	1438.8	1358.4
47.5°	2126.8	1888.7	1526.4	1287.9	1214.3
50°	1985.8	1747.8	1378.8	1147.0	1076.9
52.5°	1848.1	1596.5	1237.8	1016.4	952.7
55°	1713.9	1452.4	1090.1	889.0	825.3
57.5°	1576.6	1308.2	959.4	771.6	717.8
60°	1435.7	1167.3	821.7	650.9	597.2
62.5°	1298.3	1030.0	704.3	543.5	516.7
65°	1157.3	885.4	583.7	469.8	459.4
67.5°	1023.2	751.3	469.8	412.5	402.5
70°	882.2	620.7	389.0	355.6	342.0
72.5°	748.0	499.7	325.3	298.6	291.8
75°	617.1	382.2	268.3	244.8	241.7
77.5°	486.5	271.6	211.4	197.9	191.1
80°	365.5	194.7	160.9	147.7	147.7
82.5°	254.8	130.9	110.7	104.0	104.0
85°	144.1	73.7	63.7	63.7	63.7
87.5°	53.7	26.7	26.7	23.5	23.5
90°	2.1	26.3	43.7	54.9	59.0
92.5°	54.9	46.1	52.5	57.0	59.0
95°	142.3	70.0	85.3	96.4	94.2
97.5°	256.2	76.7	111.5	118.3	120.4
100°	387.8	87.6	124.8	142.3	146.7
102.5°	532.1	527.9	129.2	153.2	160.0
105°	665.8	731.6	133.7	157.6	166.5
107.5°	821.3	875.9	138.1	162.0	170.9
110°	970.3	1016.1	383.4	164.4	172.9



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1110.5	1149.7	1112.6	168.5	175.3
115°	1259.2	1296.4	1351.4	337.3	179.7
117.5°	1388.5	1432.2	1469.7	1156.3	582.5
120°	1533.1	1565.9	1605.4	1631.7	1335.9
122.5°	1655.6	1690.7	1734.6	1747.7	1750.0
125°	1780.4	1809.1	1850.6	1866.0	1872.5
127.5°	1894.3	1925.0	1958.0	1979.9	1982.0
130°	2001.7	2036.9	2060.7	2085.0	2082.9
132.5°	2111.2	2139.8	2163.8	2183.5	2181.5
135°	2203.3	2238.4	2257.9	2280.1	2275.6
137.5°	2299.5	2325.8	2347.9	2369.7	2363.2
140°	2393.7	2411.3	2435.3	2455.0	2444.1
142.5°	2472.7	2488.0	2516.4	2533.9	2522.9
145°	2556.0	2553.6	2590.8	2606.2	2595.3
147.5°	2628.0	2621.5	2658.7	2669.6	2661.1
150°	2698.2	2682.9	2718.0	2731.0	2720.1
152.5°	2757.3	2739.8	2772.6	2785.9	2770.5
155°	2814.2	2794.7	2820.9	2834.0	2816.5
157.5°	2860.2	2842.8	2862.6	2877.9	2860.2
160°	2899.8	2886.5	2899.8	2912.7	2897.4
162.5°	2934.6	2921.6	2932.5	2947.9	2928.1
165°	2965.3	2952.3	2958.8	2974.1	2958.8
167.5°	2989.5	2976.2	2983.0	2998.3	2978.6
170°	3009.3	2996.0	3000.4	3015.8	2996.0
172.5°	3022.2	3009.3	3013.7	3029.0	3009.3
175°	3033.2	3017.8	3022.2	3037.6	3015.8
177.5°	3037.6	3022.2	3024.6	3039.9	3020.2
180°	3026.7	3026.7	3026.7	3026.7	3026.7

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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	11.77	12.57	12.77	13.58	14.90	7.74	8.54	8.73	9.54	10.86
	3H	13.45	14.16	14.45	15.17	16.52	8.92	9.63	9.92	10.64	11.99
	4H	14.05	14.73	15.07	15.74	17.10	9.36	10.04	10.38	11.05	12.41
	6H	14.47	15.09	15.49	16.11	17.48	9.67	10.30	10.70	11.32	12.68
	8H	14.59	15.18	15.62	16.22	17.58	9.76	10.35	10.79	11.39	12.75
	12H	14.65	15.21	15.69	16.24	17.63	9.80	10.36	10.84	11.39	12.78
4H	2H	11.79	12.46	12.81	13.48	14.83	8.32	9.00	9.35	10.02	11.37
	3H	13.61	14.17	14.64	15.21	16.58	9.67	10.23	10.70	11.27	12.64
	4H	14.30	14.81	15.34	15.85	17.24	10.21	10.72	11.25	11.76	13.15
	6H	14.80	15.25	15.86	16.30	17.69	10.62	11.06	11.67	12.12	13.50
	8H	14.98	15.39	16.03	16.44	17.84	10.74	11.15	11.79	12.21	13.61
	12H	15.07	15.44	16.14	16.51	17.91	10.80	11.17	11.87	12.24	13.65
8H	4H	14.26	14.67	15.31	15.72	17.13	10.48	10.89	11.53	11.94	13.35
	6H	14.82	15.16	15.89	16.25	17.65	10.99	11.33	12.06	12.42	13.82
	8H	15.03	15.33	16.11	16.41	17.83	11.18	11.48	12.26	12.55	13.97
	12H	15.17	15.43	16.25	16.50	17.96	11.29	11.55	12.37	12.62	14.08
12H	4H	14.21	14.58	15.28	15.65	17.05	10.48	10.86	11.55	11.92	13.33
	6H	14.79	15.09	15.88	16.17	17.59	11.04	11.34	12.12	12.41	13.83
	8H	15.01	15.27	16.09	16.34	17.80	11.24	11.50	12.33	12.58	14.04