

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: P920223

Luminaire Tested: DFN2DIP-SQ3F0-100D100US935-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P920223
REPORT IS A COMBINATION OF REPORTS P901502 AND P898289
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-100D100US935-RLLONL
Description: 3 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

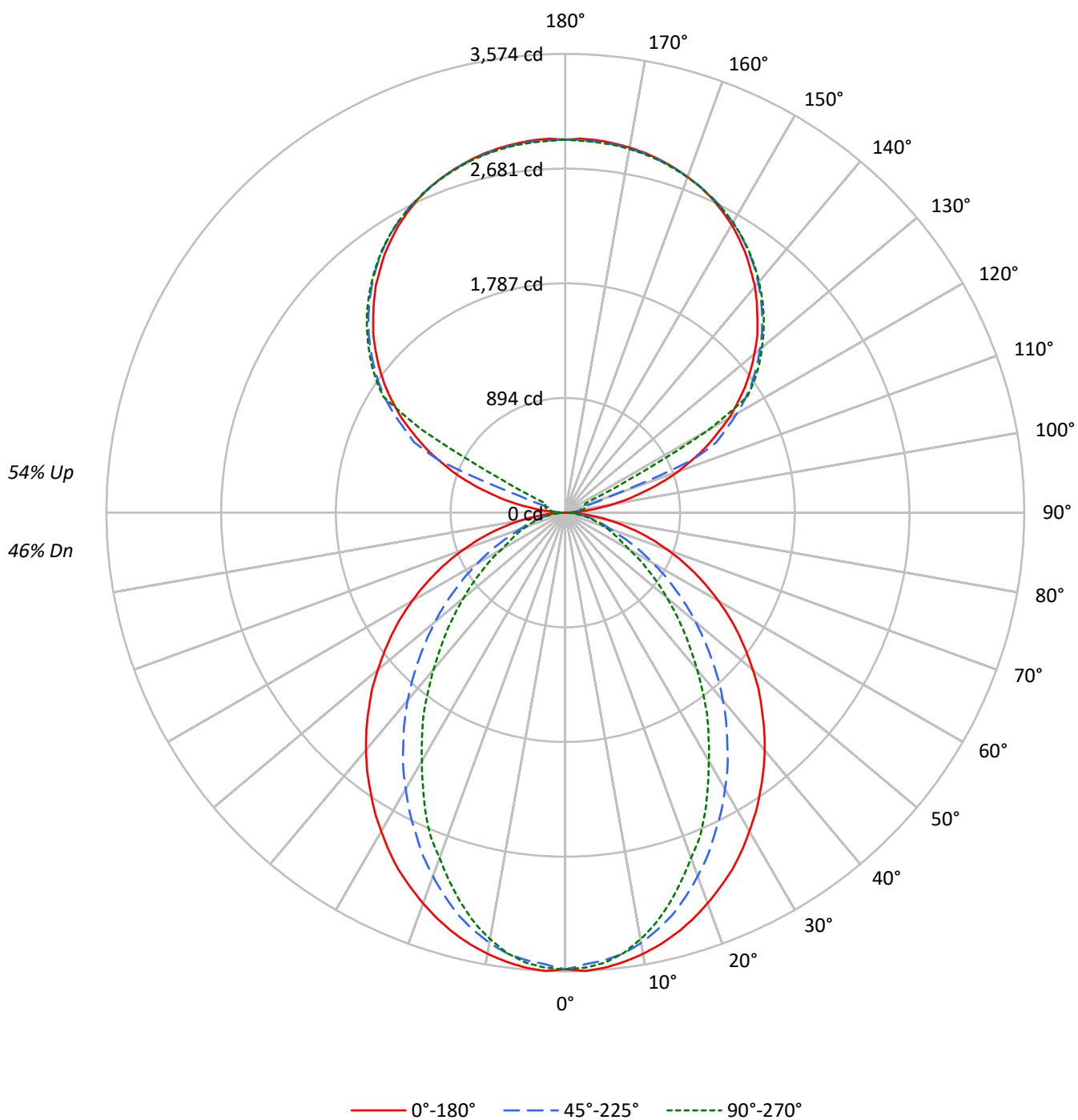
Lumens per Lamp: N/A
Luminaire Lumens: 15842.4 lumens
Efficiency: N/A
Efficacy: 90.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 176
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	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°	4077	4077	4077
5°	4081	4010	4037
10°	4038	3929	3904
15°	3980	3796	3700
20°	3904	3615	3450
25°	3826	3412	3208
30°	3722	3204	2902
35°	3620	2981	2633
40°	3516	2750	2325
45°	3396	2494	2047
50°	3271	2236	1774
55°	3141	1961	1512
60°	2990	1674	1244
65°	2815	1382	1118
70°	2604	1110	1010
75°	2338	973	916
80°	1954	808	790
85°	1325	526	585

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 3396 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	333.5	2.1
10°-20°	915.5	5.8
20°-30°	1285.4	8.1
30°-40°	1401.2	8.8
40°-50°	1287.8	8.1
50°-60°	1011.4	6.4
60°-70°	658.3	4.2
70°-80°	338.9	2.1
80°-90°	91.6	0.6
90°-100°	95.8	0.6
100°-110°	357.2	2.3
110°-120°	947.3	6.0
120°-130°	1571.2	9.9
130°-140°	1669.0	10.5
140°-150°	1551.1	9.8
150°-160°	1247.1	7.9
160°-170°	803.6	5.1
170°-180°	276.6	1.7
0°-30°	2534.4	16.0
0°-40°	3935.6	24.8
0°-60°	6234.8	39.4
0°-90°	7323.6	46.2
90°-120°	1400.3	8.8
90°-150°	6191.6	39.1
90°-180°	8519.0	53.8
0°-180°	15842.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3558	3558	3558	3558	3558	
5°	3558	3542	3500	3530	3520	337
15°	3385	3349	3240	3178	3146	954
25°	3072	2969	2757	2625	2576	1413
35°	2647	2483	2200	1997	1926	1657
45°	2164	1948	1610	1381	1304	1671
55°	1646	1394	1046	854	792	1470
65°	1111	850	560	451	441	1102
75°	592	367	258	235	232	627
85°	138	71	61	61	61	159
90°	2	25	42	53	57	15
95°	137	67	82	93	90	162
105°	639	702	128	151	160	683
115°	1209	1245	1297	324	172	1190
125°	1709	1737	1777	1792	1798	1524
135°	2115	2149	2168	2189	2185	1634
145°	2454	2452	2487	2502	2492	1535
155°	2702	2683	2708	2721	2704	1245
165°	2847	2834	2841	2855	2841	804
175°	2912	2897	2902	2916	2895	277
180°	2906	2906	2906	2906	2906	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3558.5	3558.5	3558.5	3558.5	3558.5
2.5°	3574.5	3558.5	3522.9	3555.4	3548.9
5°	3558.5	3542.4	3500.4	3529.5	3519.8
7.5°	3529.5	3510.3	3465.2	3477.8	3461.8
10°	3490.8	3468.3	3404.0	3394.1	3375.0
12.5°	3442.7	3413.6	3326.5	3307.4	3271.8
15°	3384.6	3349.0	3239.7	3178.5	3146.4
17.5°	3316.9	3265.3	3130.1	3059.3	3007.7
20°	3239.7	3175.1	3014.2	2933.9	2862.8
22.5°	3156.0	3081.9	2894.9	2785.7	2737.5
25°	3072.3	2969.2	2756.6	2624.7	2576.2
27.5°	2972.5	2862.8	2627.8	2476.4	2402.3
30°	2866.3	2743.6	2486.0	2322.0	2234.9
32.5°	2763.1	2614.8	2351.0	2157.7	2077.0
35°	2647.2	2482.9	2199.7	1996.7	1925.6
37.5°	2534.5	2357.2	2057.9	1835.5	1755.1
40°	2415.3	2222.2	1909.6	1681.0	1597.3
42.5°	2292.9	2086.9	1761.7	1523.2	1442.9
45°	2164.1	1948.2	1610.3	1381.4	1304.2
47.5°	2041.9	1813.3	1465.4	1236.5	1165.8
50°	1906.5	1677.9	1323.6	1101.2	1033.9
52.5°	1774.3	1532.7	1188.3	975.8	914.6
55°	1645.5	1394.4	1046.5	853.5	792.3
57.5°	1513.6	1255.9	921.2	740.7	689.1
60°	1378.3	1120.7	788.9	624.9	573.3
62.5°	1246.4	988.8	676.1	521.8	496.1
65°	1111.1	850.1	560.3	451.0	441.1
67.5°	982.3	721.3	451.0	396.0	386.4
70°	847.0	595.9	373.4	341.3	328.4
72.5°	718.2	479.7	312.3	286.6	280.2
75°	592.5	367.0	257.6	235.1	232.0
77.5°	467.1	260.7	202.9	189.9	183.5
80°	350.9	186.9	154.5	141.8	141.8
82.5°	244.6	125.7	106.2	99.8	99.8
85°	138.4	70.7	61.1	61.1	61.1
87.5°	51.6	25.7	25.7	22.6	22.6
90°	2.0	25.2	41.9	52.7	56.7
92.5°	52.7	44.2	50.5	54.7	56.7
95°	136.6	67.2	81.9	92.6	90.4
97.5°	245.9	73.6	107.1	113.6	115.6
100°	372.3	84.1	119.9	136.6	140.9
102.5°	510.8	506.9	124.1	147.1	153.5
105°	639.2	702.3	128.4	151.3	159.8
107.5°	788.5	840.9	132.6	155.6	164.0
110°	931.5	975.5	368.0	157.8	166.0



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1066.1	1103.8	1068.2	161.8	168.3
115°	1208.9	1244.7	1297.4	323.8	172.5
117.5°	1333.0	1375.0	1410.9	1110.1	559.3
120°	1471.9	1503.3	1541.3	1566.5	1282.6
122.5°	1589.5	1623.2	1665.3	1677.8	1680.1
125°	1709.3	1736.8	1776.8	1791.5	1797.7
127.5°	1818.7	1848.1	1879.8	1900.8	1902.8
130°	1921.7	1955.5	1978.5	2001.6	1999.7
132.5°	2026.9	2054.3	2077.3	2096.3	2094.3
135°	2115.3	2149.0	2167.7	2188.9	2184.7
137.5°	2207.7	2232.9	2254.1	2275.1	2268.8
140°	2298.0	2315.1	2338.0	2357.0	2346.5
142.5°	2373.9	2388.7	2415.9	2432.6	2422.2
145°	2453.8	2451.6	2487.3	2502.1	2491.6
147.5°	2523.0	2516.8	2552.4	2562.9	2554.8
150°	2590.4	2575.7	2609.4	2621.9	2611.4
152.5°	2647.1	2630.3	2661.9	2674.5	2659.8
155°	2701.8	2683.0	2708.3	2720.8	2704.0
157.5°	2746.0	2729.3	2748.2	2762.9	2746.0
160°	2784.0	2771.2	2784.0	2796.4	2781.7
162.5°	2817.4	2804.9	2815.4	2830.1	2811.2
165°	2846.8	2834.3	2840.6	2855.3	2840.6
167.5°	2870.1	2857.3	2863.9	2878.6	2859.5
170°	2889.0	2876.3	2880.6	2895.3	2876.3
172.5°	2901.5	2889.0	2893.3	2908.0	2889.0
175°	2912.0	2897.3	2901.5	2916.3	2895.3
177.5°	2916.3	2901.5	2903.8	2918.5	2899.5
180°	2905.8	2905.8	2905.8	2905.8	2905.8

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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	11.63	12.43	12.63	13.44	14.76	7.59	8.39	8.59	9.40	10.72
	3H	13.30	14.02	14.31	15.03	16.38	8.77	9.49	9.78	10.50	11.85
	4H	13.91	14.58	14.93	15.60	16.96	9.22	9.89	10.24	10.91	12.26
	6H	14.32	14.95	15.35	15.97	17.33	9.53	10.15	10.56	11.17	12.54
	8H	14.45	15.04	15.48	16.08	17.44	9.62	10.21	10.65	11.25	12.61
	12H	14.51	15.07	15.55	16.10	17.49	9.66	10.22	10.70	11.25	12.64
4H	2H	11.65	12.32	12.67	13.34	14.69	8.18	8.86	9.21	9.87	11.23
	3H	13.47	14.03	14.50	15.07	16.44	9.52	10.09	10.56	11.13	12.50
	4H	14.15	14.67	15.19	15.70	17.10	10.06	10.58	11.10	11.61	13.01
	6H	14.66	15.10	15.71	16.16	17.55	10.48	10.92	11.53	11.98	13.36
	8H	14.84	15.25	15.89	16.30	17.70	10.60	11.01	11.65	12.06	13.47
	12H	14.93	15.30	15.99	16.36	17.77	10.66	11.03	11.73	12.10	13.50
8H	4H	14.12	14.53	15.17	15.58	16.98	10.34	10.75	11.39	11.80	13.20
	6H	14.68	15.02	15.75	16.11	17.51	10.85	11.19	11.92	12.28	13.68
	8H	14.89	15.19	15.97	16.27	17.69	11.03	11.33	12.12	12.41	13.83
	12H	15.02	15.29	16.11	16.36	17.82	11.15	11.41	12.23	12.48	13.94
12H	4H	14.07	14.44	15.14	15.51	16.91	10.34	10.71	11.41	11.78	13.19
	6H	14.65	14.95	15.73	16.03	17.45	10.90	11.19	11.98	12.27	13.69
	8H	14.87	15.13	15.95	16.20	17.66	11.10	11.36	12.18	12.43	13.89