

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: P917707

Luminaire Tested: DFN2DIP-SQ4F0-090D110US930-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P917707
REPORT IS A COMBINATION OF REPORTS P901676 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-090D110US930-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

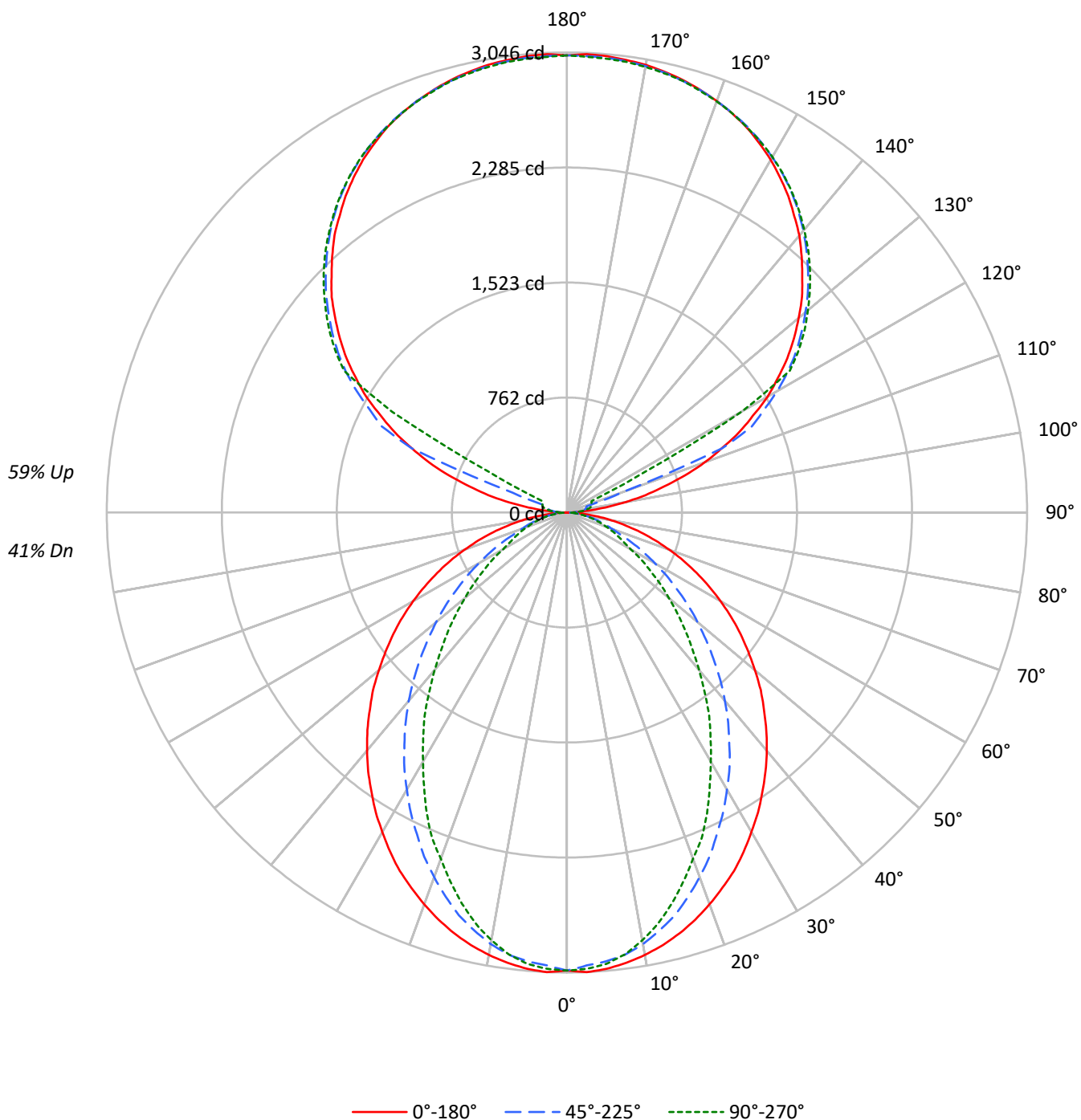
Lumens per Lamp: N/A
Luminaire Lumens: 15115.6 lumens
Efficiency: N/A
Efficacy: 91.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 165.5
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.983
Total Harmonic Distortion (THDi): 0.073
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	78	78	78	63	63	63	48	48	48
1	96	92	88	85	88	84	81	78	69	67	65	56	54	53	43	42	41
2	88	81	75	70	80	74	69	65	61	58	55	49	47	45	38	37	35
3	80	71	64	59	73	65	59	55	54	50	46	44	41	38	34	32	31
4	74	63	56	50	67	58	52	47	48	44	40	39	36	33	31	29	27
5	68	57	49	43	62	52	45	40	44	38	35	36	32	29	28	26	24
6	63	51	43	38	57	47	40	35	39	34	30	32	28	26	26	23	21
7	58	46	38	33	53	42	36	31	36	31	27	29	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	21	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°	2128	2128	2128
5°	2131	2095	2108
10°	2110	2054	2040
15°	2081	1986	1935
20°	2043	1893	1805
25°	2003	1789	1680
30°	1950	1681	1521
35°	1899	1566	1381
40°	1846	1447	1221
45°	1785	1314	1075
50°	1721	1181	933
55°	1655	1038	797
60°	1579	888	657
65°	1491	736	592
70°	1384	594	536
75°	1250	525	489
80°	1056	441	426
85°	735	297	325

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1785 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	284.2	1.9
10°-20°	780.3	5.2
20°-30°	1095.5	7.2
30°-40°	1194.1	7.9
40°-50°	1097.5	7.3
50°-60°	861.9	5.7
60°-70°	561.0	3.7
70°-80°	288.8	1.9
80°-90°	79.0	0.5
90°-100°	99.8	0.7
100°-110°	372.1	2.5
110°-120°	986.7	6.5
120°-130°	1636.6	10.8
130°-140°	1738.4	11.5
140°-150°	1615.7	10.7
150°-160°	1298.9	8.6
160°-170°	837.0	5.5
170°-180°	288.1	1.9
0°-30°	2159.9	14.3
0°-40°	3354.0	22.2
0°-60°	5313.5	35.2
0°-90°	6242.4	41.3
90°-120°	1458.6	9.6
90°-150°	6449.2	42.7
90°-180°	8873.0	58.7
0°-180°	15115.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3033	3033	3033	3033	3033	
5°	3033	3019	2983	3008	3000	288
15°	2884	2854	2761	2709	2682	813
25°	2618	2530	2349	2237	2196	1204
35°	2256	2116	1875	1702	1641	1412
45°	1844	1660	1372	1177	1111	1424
55°	1402	1188	892	727	675	1253
65°	947	724	478	384	376	939
75°	505	313	220	200	198	534
85°	118	60	52	52	52	135
90°	2	26	44	55	59	14
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°	3032.7	3032.7	3032.7	3032.7	3032.7
2.5°	3046.4	3032.7	3002.3	3030.1	3024.5
5°	3032.7	3019.0	2983.2	3007.9	2999.7
7.5°	3007.9	2991.6	2953.2	2963.9	2950.2
10°	2975.0	2955.8	2901.1	2892.6	2876.3
12.5°	2933.9	2909.2	2835.0	2818.6	2788.3
15°	2884.4	2854.2	2761.0	2708.8	2681.5
17.5°	2826.8	2782.9	2667.5	2607.2	2563.3
20°	2761.0	2706.0	2568.8	2500.4	2439.8
22.5°	2689.7	2626.5	2467.2	2374.0	2333.0
25°	2618.3	2530.4	2349.3	2236.9	2195.5
27.5°	2533.3	2439.8	2239.5	2110.5	2047.3
30°	2442.7	2338.2	2118.6	1978.9	1904.6
32.5°	2354.7	2228.4	2003.6	1838.8	1770.1
35°	2256.1	2116.0	1874.6	1701.7	1641.1
37.5°	2160.0	2008.9	1753.8	1564.2	1495.8
40°	2058.4	1893.9	1627.4	1432.6	1361.3
42.5°	1954.1	1778.6	1501.3	1298.1	1229.6
45°	1844.4	1660.4	1372.3	1177.2	1111.4
47.5°	1740.1	1545.3	1248.9	1053.8	993.5
50°	1624.8	1430.0	1128.0	938.5	881.1
52.5°	1512.1	1306.3	1012.8	831.6	779.5
55°	1402.3	1188.3	891.9	727.4	675.2
57.5°	1290.0	1070.4	785.1	631.3	587.3
60°	1174.6	955.0	672.4	532.6	488.6
62.5°	1062.3	842.7	576.3	444.7	422.8
65°	946.9	724.5	477.5	384.3	375.9
67.5°	837.1	614.7	384.3	337.5	329.3
70°	721.9	507.8	318.3	290.9	279.8
72.5°	612.0	408.8	266.1	244.3	238.8
75°	504.9	312.7	219.6	200.3	197.7
77.5°	398.0	222.2	172.9	161.9	156.4
80°	299.1	159.3	131.6	120.8	120.8
82.5°	208.5	107.1	90.6	85.0	85.0
85°	117.9	60.3	52.1	52.1	52.1
87.5°	43.9	21.8	21.8	19.2	19.2
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	8.91	9.68	9.95	10.71	12.11	4.87	5.64	5.91	6.67	8.07
	3H	10.59	11.27	11.63	12.32	13.73	6.06	6.74	7.10	7.79	9.20
	4H	11.20	11.85	12.25	12.89	14.31	6.51	7.15	7.56	8.20	9.62
	6H	11.62	12.22	12.69	13.27	14.70	6.82	7.42	7.89	8.47	9.90
	8H	11.75	12.31	12.82	13.38	14.81	6.91	7.48	7.98	8.55	9.97
	12H	11.81	12.35	12.88	13.41	14.86	6.95	7.49	8.03	8.55	10.00
4H	2H	8.92	9.57	9.99	10.62	12.04	5.46	6.11	6.53	7.16	8.58
	3H	10.75	11.29	11.82	12.36	13.80	6.81	7.35	7.88	8.42	9.85
	4H	11.44	11.94	12.52	13.00	14.46	7.35	7.85	8.43	8.91	10.37
	6H	11.96	12.38	13.04	13.47	14.92	7.77	8.19	8.86	9.28	10.73
	8H	12.14	12.53	13.22	13.61	15.08	7.90	8.29	8.98	9.38	10.84
	12H	12.23	12.59	13.33	13.68	15.15	7.96	8.32	9.06	9.41	10.88
8H	4H	11.41	11.80	12.49	12.88	14.35	7.63	8.03	8.72	9.11	10.57
	6H	11.98	12.30	13.08	13.43	14.89	8.15	8.47	9.26	9.60	11.06
	8H	12.19	12.48	13.31	13.59	15.07	8.34	8.63	9.45	9.73	11.21
	12H	12.33	12.58	13.45	13.69	15.21	8.46	8.71	9.57	9.81	11.33
12H	4H	11.36	11.71	12.46	12.81	14.28	7.63	7.99	8.74	9.09	10.56
	6H	11.95	12.24	13.06	13.34	14.82	8.20	8.48	9.31	9.59	11.07
	8H	12.17	12.42	13.29	13.52	15.04	8.41	8.66	9.53	9.76	11.28

END OF REPORT