

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: P912311

Luminaire Tested: DFN2DIP-SQ4F0-110D080US850-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P912311
REPORT IS A COMBINATION OF REPORTS P901626 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-110D080US850-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

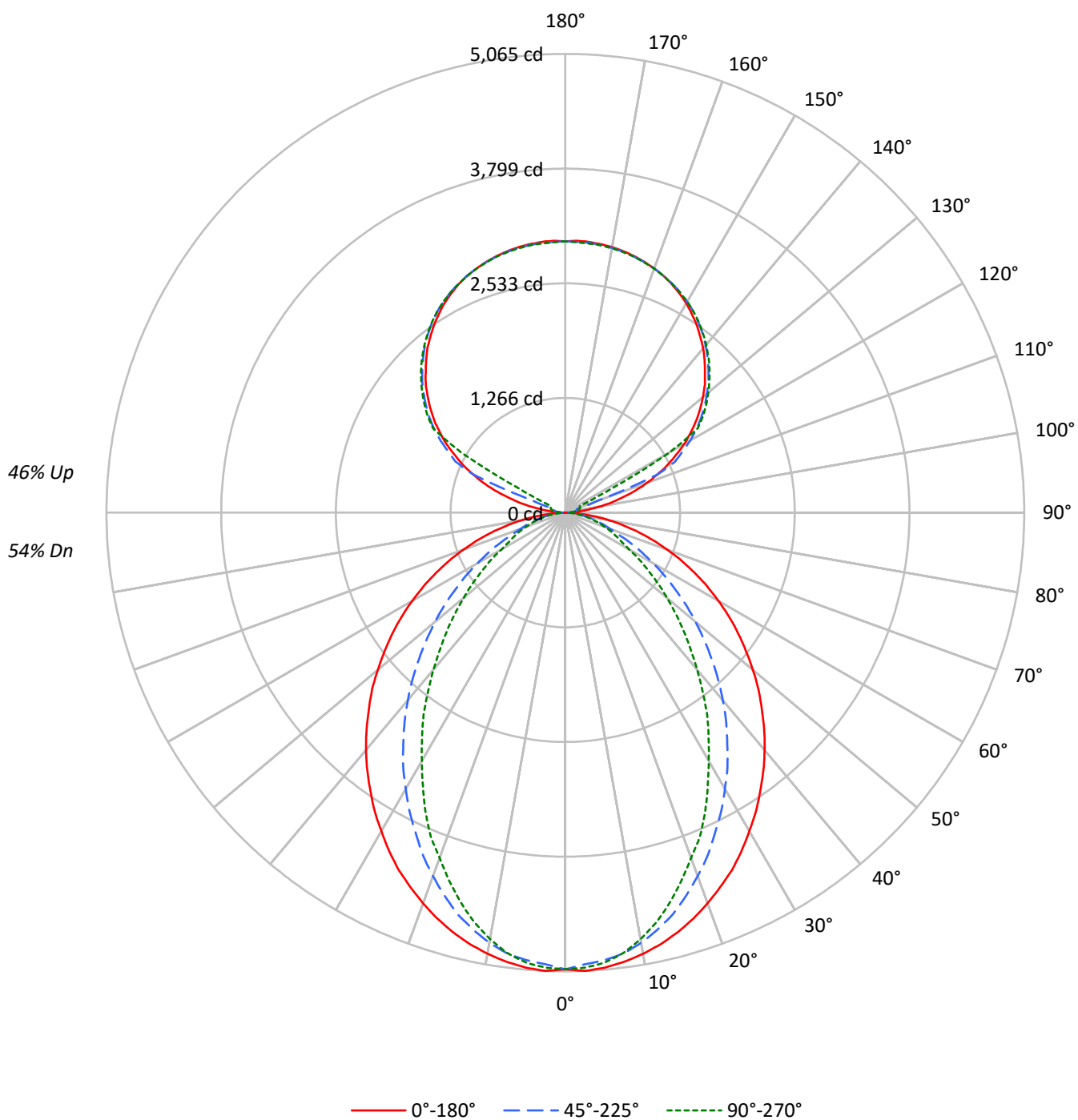
Lumens per Lamp: N/A
Luminaire Lumens: 19152.5 lumens
Efficiency: N/A
Efficacy: 116.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 164.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9951
Total Harmonic Distortion (THDi): 0.07
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	100	100	100	100	86	86	86	72	72	72	60	60	60
1	99	95	91	88	92	88	85	82	76	74	71	64	63	61	54	53	52
2	91	84	78	73	84	78	73	68	67	63	60	57	54	52	48	46	44
3	83	74	67	61	77	69	63	58	60	55	51	51	48	45	43	40	38
4	76	66	58	52	71	62	55	49	53	48	44	46	42	39	39	36	33
5	70	59	51	45	65	55	48	43	48	43	38	41	37	34	35	32	30
6	65	53	45	40	60	50	43	38	44	38	34	38	33	30	32	29	26
7	60	48	40	35	56	45	38	33	40	34	30	34	30	27	29	26	24
8	56	44	36	31	52	41	34	30	36	31	27	32	27	24	27	24	21
9	52	40	33	28	49	38	31	27	33	28	24	29	25	22	25	22	19
10	49	37	30	25	45	35	28	24	31	26	22	27	23	20	23	20	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3538	3538	3538
5°	3543	3482	3505
10°	3508	3415	3392
15°	3460	3303	3216
20°	3396	3148	3001
25°	3330	2974	2793
30°	3243	2796	2528
35°	3156	2604	2296
40°	3069	2405	2029
45°	2967	2185	1788
50°	2862	1963	1552
55°	2752	1725	1325
60°	2624	1476	1092
65°	2478	1223	984
70°	2301	988	892
75°	2078	872	814
80°	1755	734	709
85°	1222	494	540

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 2967 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	472.5	2.5
10°-20°	1297.2	6.8
20°-30°	1821.2	9.5
30°-40°	1985.2	10.4
40°-50°	1824.6	9.5
50°-60°	1433.0	7.5
60°-70°	932.7	4.9
70°-80°	480.1	2.5
80°-90°	127.8	0.7
90°-100°	98.7	0.5
100°-110°	368.1	1.9
110°-120°	976.2	5.1
120°-130°	1619.0	8.5
130°-140°	1719.8	9.0
140°-150°	1598.3	8.3
150°-160°	1285.0	6.7
160°-170°	828.0	4.3
170°-180°	285.0	1.5
0°-30°	3590.9	18.7
0°-40°	5576.1	29.1
0°-60°	8833.7	46.1
0°-90°	10374.4	54.2
90°-120°	1442.9	7.5
90°-150°	6380.0	33.3
90°-180°	8778.0	45.8
0°-180°	19152.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	5042	5042	5042	5042	5042	
5°	5042	5019	4960	5001	4987	478
15°	4795	4745	4590	4504	4458	1351
25°	4353	4207	3906	3719	3650	2002
35°	3751	3518	3117	2829	2728	2348
45°	3066	2760	2282	1957	1848	2368
55°	2331	1976	1483	1209	1123	2083
65°	1574	1204	794	639	625	1561
75°	839	520	365	333	329	888
85°	196	100	87	87	87	225
90°	2	26	43	54	58	18
95°	141	69	84	96	93	167
105°	659	724	132	156	165	704
115°	1246	1283	1337	334	178	1226
125°	1761	1790	1831	1846	1852	1571
135°	2180	2214	2234	2256	2251	1684
145°	2528	2526	2563	2578	2567	1581
155°	2784	2765	2791	2804	2786	1283
165°	2934	2921	2927	2942	2927	829
175°	3001	2985	2990	3005	2983	286
180°	2994	2994	2994	2994	2994	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	5041.8	5041.8	5041.8	5041.8	5041.8
2.5°	5064.6	5041.8	4991.5	5037.5	5028.3
5°	5041.8	5019.1	4959.6	5000.7	4987.2
7.5°	5000.7	4973.5	4909.7	4927.6	4904.8
10°	4946.0	4914.0	4823.0	4809.0	4781.9
12.5°	4877.7	4836.6	4713.1	4686.0	4635.6
15°	4795.4	4745.1	4590.2	4503.5	4458.0
17.5°	4699.6	4626.5	4434.8	4334.5	4261.4
20°	4590.2	4498.7	4270.6	4156.9	4056.2
22.5°	4471.6	4366.5	4101.7	3946.8	3878.5
25°	4352.9	4206.8	3905.7	3718.8	3650.1
27.5°	4211.6	4056.2	3723.1	3508.7	3403.6
30°	4061.0	3887.3	3522.3	3289.8	3166.4
32.5°	3914.9	3704.7	3331.0	3057.1	2942.8
35°	3750.7	3517.9	3116.6	2829.1	2728.4
37.5°	3591.1	3339.8	2915.7	2600.5	2486.8
40°	3422.0	3148.6	2705.6	2381.7	2263.1
42.5°	3248.7	2956.8	2496.0	2158.1	2044.3
45°	3066.3	2760.3	2281.5	1957.2	1847.8
47.5°	2892.9	2569.1	2076.3	1751.9	1651.7
50°	2701.2	2377.4	1875.4	1560.3	1464.9
52.5°	2513.9	2171.6	1683.7	1382.6	1295.9
55°	2331.3	1975.6	1482.7	1209.3	1122.6
57.5°	2144.6	1779.5	1305.1	1049.6	976.4
60°	1952.8	1587.9	1117.8	885.4	812.3
62.5°	1766.0	1401.0	958.1	739.3	702.9
65°	1574.2	1204.4	793.9	639.0	624.9
67.5°	1391.8	1021.9	639.0	561.0	547.5
70°	1200.0	844.3	529.1	483.6	465.2
72.5°	1017.5	679.7	442.5	406.1	396.9
75°	839.4	519.9	365.0	333.0	328.7
77.5°	661.7	369.4	287.6	269.2	259.9
80°	497.2	264.8	218.8	201.0	201.0
82.5°	346.6	178.1	150.6	141.4	141.4
85°	196.1	100.3	86.6	86.6	86.6
87.5°	73.1	36.3	36.3	31.9	31.9
90°	2.1	26.0	43.3	54.2	58.4
92.5°	54.2	45.6	52.0	56.3	58.4
95°	140.7	69.2	84.4	95.5	93.2
97.5°	253.4	75.9	110.3	117.1	119.1
100°	383.6	86.7	123.5	140.7	145.1
102.5°	526.4	522.2	127.9	151.5	158.3
105°	658.6	723.7	132.2	155.9	164.7
107.5°	812.5	866.5	136.6	160.3	169.0
110°	960.0	1005.2	379.3	162.6	171.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1098.6	1137.4	1100.7	166.7	173.4
115°	1245.7	1282.6	1336.8	333.7	177.8
117.5°	1373.6	1416.9	1453.9	1143.8	576.3
120°	1516.7	1549.1	1588.2	1614.1	1321.6
122.5°	1637.8	1672.6	1716.1	1728.9	1731.3
125°	1761.3	1789.6	1830.7	1845.9	1852.4
127.5°	1874.0	1904.4	1937.1	1958.6	1960.7
130°	1980.2	2014.9	2038.7	2062.6	2060.5
132.5°	2088.6	2116.9	2140.6	2160.1	2158.0
135°	2179.6	2214.3	2233.6	2255.6	2251.2
137.5°	2274.9	2300.8	2322.7	2344.3	2337.9
140°	2367.9	2385.5	2409.2	2428.7	2417.8
142.5°	2446.2	2461.3	2489.4	2506.7	2495.8
145°	2528.5	2526.2	2563.0	2578.2	2567.3
147.5°	2599.8	2593.4	2630.1	2641.0	2632.4
150°	2669.3	2654.1	2688.8	2701.6	2690.9
152.5°	2727.7	2710.4	2742.8	2756.0	2740.8
155°	2784.0	2764.7	2790.7	2803.6	2786.4
157.5°	2829.5	2812.3	2831.8	2847.0	2829.5
160°	2868.7	2855.6	2868.7	2881.5	2866.3
162.5°	2903.1	2890.3	2901.0	2916.2	2896.7
165°	2933.5	2920.7	2927.1	2942.2	2927.1
167.5°	2957.4	2944.3	2950.9	2966.1	2946.6
170°	2977.0	2963.8	2968.2	2983.4	2963.8
172.5°	2989.9	2977.0	2981.3	2996.5	2977.0
175°	3000.6	2985.4	2989.9	3004.9	2983.4
177.5°	3004.9	2989.9	2992.1	3007.3	2987.8
180°	2994.2	2994.2	2994.2	2994.2	2994.2

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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	11.93	12.80	12.86	13.74	14.95	7.89	8.76	8.82	9.70	10.91
	3H	13.62	14.39	14.55	15.34	16.58	9.08	9.86	10.02	10.81	12.04
	4H	14.23	14.96	15.18	15.91	17.16	9.54	10.27	10.49	11.22	12.47
	6H	14.66	15.33	15.62	16.29	17.55	9.86	10.53	10.82	11.49	12.75
	8H	14.79	15.42	15.76	16.40	17.66	9.95	10.59	10.92	11.57	12.82
	12H	14.85	15.46	15.83	16.43	17.71	10.00	10.60	10.97	11.58	12.86
4H	2H	11.95	12.68	12.91	13.64	14.88	8.49	9.22	9.45	10.18	11.43
	3H	13.79	14.40	14.76	15.38	16.64	9.85	10.46	10.82	11.44	12.70
	4H	14.49	15.04	15.47	16.02	17.30	10.40	10.95	11.38	11.93	13.21
	6H	15.01	15.48	16.00	16.49	17.77	10.82	11.30	11.81	12.30	13.58
	8H	15.19	15.63	16.18	16.63	17.92	10.95	11.40	11.94	12.39	13.69
	12H	15.29	15.69	16.30	16.70	18.00	11.02	11.42	12.03	12.43	13.73
8H	4H	14.46	14.90	15.45	15.90	17.19	10.68	11.13	11.67	12.12	13.42
	6H	15.03	15.40	16.05	16.43	17.73	11.20	11.57	12.22	12.61	13.90
	8H	15.25	15.57	16.27	16.60	17.91	11.40	11.72	12.42	12.74	14.06
	12H	15.39	15.68	16.42	16.70	18.05	11.52	11.80	12.55	12.82	14.18
12H	4H	14.41	14.81	15.42	15.82	17.13	10.69	11.09	11.70	12.10	13.40
	6H	15.01	15.33	16.03	16.35	17.67	11.25	11.58	12.28	12.60	13.92
	8H	15.23	15.52	16.26	16.53	17.89	11.47	11.75	12.50	12.77	14.13