

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: iO LED

Report Number: P958847

Luminaire Tested: MMG-05W-930-10x60-ID-X-X-4F-4-UNV-STD-X

Issue Date: 1/31/2025

**Test Information**

Test Method: LM-79-2019  
Report Number: P958847  
SCALED TEST REPORT  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 1/31/2025  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: iO LED  
Catalog Number: MMG-05W-930-10x60-ID-X-X-4F-4-UNV-STD-X  
Description: iO LED MiniO-Graze LINEAR LIGHTING WITH 10x60 DEGREE OPTICS  
5 WATTS PER FOOT  
Light Source: 3000K CCT, 90 CRI LEDS  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 559.9 lumens  
Efficiency: N/A  
Efficacy: 31.1 lumens/watt  
Spacing Criteria (0/90/45): 0.18 / 0.91 / 0.25  
Luminous Opening: Rectangular w/ Sides (W: 0.07' x L: 4' x H: 0.09')  
CIE Type: Direct

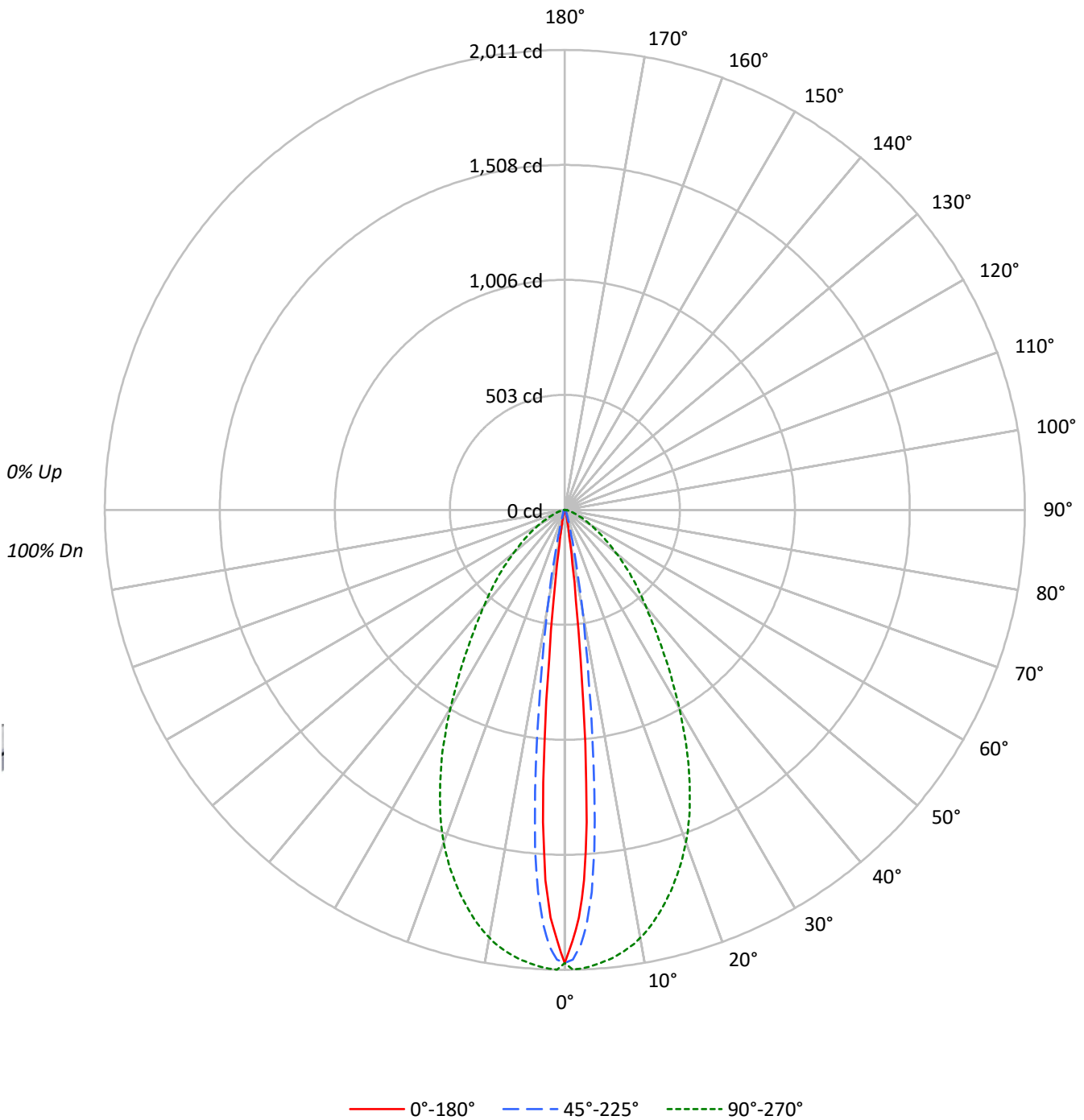
Input Watts (W): 18  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT



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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	0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0	
RCR																						
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100				100
1	113	110	107	104	110	107	105	103	103	101	99	100	98	96	96	95	94	92				92
2	106	101	96	93	104	99	95	92	96	93	90	93	90	88	90	88	86	84				84
3	100	93	88	84	98	92	87	83	89	85	82	87	83	80	85	82	79	77				77
4	95	87	81	76	93	86	80	76	84	79	75	81	77	74	80	76	73	72				72
5	90	81	75	70	88	80	74	70	78	73	69	77	72	69	75	71	68	67				67
6	86	76	70	65	84	75	70	65	74	69	65	73	68	64	71	67	64	62				62
7	82	72	66	61	80	71	65	61	70	65	61	69	64	60	68	63	60	59				59
8	78	68	62	58	77	68	62	58	66	61	57	65	61	57	64	60	57	55				55
9	75	65	59	55	73	64	59	55	63	58	54	62	58	54	62	57	54	53				53
10	72	62	56	52	71	61	56	52	61	55	52	60	55	52	59	55	52	50				50

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	77398	77398	77398
5°	40095	54169	70125
10°	3991	14962	61873
15°	1049	2941	53082
20°	528	1017	44345
25°	384	521	35165
30°	388	346	26295
35°	291	279	18935
40°	250	257	13766
45°	238	242	10153
50°	231	224	7165
55°	218	189	4942
60°	211	154	3197
65°	256	124	1967
70°	248	106	1131
75°	252	84	585
80°	301	74	278
85°	432	68	101

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°  
 Vertical Angle: 45°  
 Luminance: 10153 cd/sqm



TEST NUMBER: P958847

CATALOG NUMBER: MMG-05W-930-10x60-ID-X-X-4F-4-UNV-STD-X

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	114.4	20.4
10°-20°	128.0	22.9
20°-30°	107.0	19.1
30°-40°	80.1	14.3
40°-50°	60.2	10.8
50°-60°	40.1	7.2
60°-70°	20.2	3.6
70°-80°	7.4	1.3
80°-90°	2.5	0.4
90°-100°	0.0	0.0
100°-110°	0.0	0.0
110°-120°	0.0	0.0
120°-130°	0.0	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	349.4	62.4
0°-40°	429.6	76.7
0°-60°	530.0	94.6
0°-90°	559.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	559.9	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1982	1982	1982	1982	1982	
5°	1025	1131	1489	1853	1982	61
15°	26	32	90	767	1748	9
25°	9	10	17	252	1287	4
35°	6	8	10	114	741	4
45°	4	5	8	91	411	3
55°	3	4	6	68	201	3
65°	3	3	4	33	78	3
75°	2	2	2	10	22	2
85°	1	1	2	3	3	1
90°	2	2	2	2	2	



TEST NUMBER: P958847

CATALOG NUMBER: MMG-05W-930-10x60-ID-X-X-4F-4-UNV-STD-X

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1981.7	1981.7	1981.7	1981.7	1981.7
1°	1886.6	1927.3	1966.8	1996.5	2011.2
2°	1784.3	1826.7	1911.0	1983.2	2007.3
3°	1620.8	1676.9	1815.6	1951.0	2001.3
4°	1368.4	1439.9	1676.9	1905.9	1992.3
5°	1024.6	1131.3	1489.3	1853.2	1982.4
6°	656.2	786.6	1238.2	1789.8	1971.5
7°	400.4	528.2	988.8	1708.8	1956.8
8°	241.5	347.2	758.3	1619.1	1941.2
9°	151.2	217.1	577.4	1507.9	1923.1
10°	101.0	138.3	436.5	1367.5	1900.7
11°	71.4	96.9	313.3	1251.2	1875.0
12°	53.4	70.2	230.4	1124.0	1847.0
13°	40.0	51.7	162.3	979.3	1815.9
14°	32.1	40.2	115.1	876.1	1783.5
15°	26.1	32.4	90.1	767.4	1748.3
16°	21.5	27.3	69.7	693.7	1712.5
17°	17.8	22.7	54.6	612.3	1673.9
18°	15.6	18.9	44.9	550.0	1635.0
19°	13.8	16.7	37.6	485.2	1592.3
20°	12.8	14.5	32.4	438.5	1547.7
21°	11.6	13.3	27.8	391.7	1501.2
22°	10.7	12.2	24.9	344.5	1451.6
23°	10.1	11.2	21.5	313.0	1396.8
24°	9.5	10.7	18.8	279.2	1341.6
25°	9.0	10.0	17.1	251.9	1287.1
26°	8.7	9.5	15.7	226.8	1232.0
27°	8.5	9.0	14.4	206.4	1174.3
28°	8.5	8.8	13.3	187.5	1115.1
29°	8.5	8.3	12.4	170.2	1057.2
30°	8.7	8.3	11.6	156.1	999.8
31°	8.3	8.3	11.2	145.6	942.7
32°	8.0	8.3	10.6	135.5	888.7
33°	7.4	8.3	10.2	126.8	839.2
34°	6.7	8.3	9.9	120.0	790.2
35°	6.2	8.0	9.5	114.2	741.4
36°	5.9	7.7	9.3	109.1	695.9
37°	5.6	7.1	9.1	106.3	656.7
38°	5.4	6.6	9.0	102.9	619.4
39°	5.1	6.2	8.9	100.6	582.4
40°	5.0	6.0	8.8	98.5	550.5
41°	4.9	5.7	8.8	96.4	520.7
42°	4.8	5.5	8.5	95.1	490.9
43°	4.6	5.4	8.5	93.6	464.0
44°	4.5	5.2	8.5	92.3	438.5



TEST NUMBER: P958847

CATALOG NUMBER: MMG-05W-930-10x60-ID-X-X-4F-4-UNV-STD-X

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
45°	4.4	5.1	8.3	91.0	411.4
46°	4.3	4.9	8.3	89.5	385.0
47°	4.1	4.8	8.0	88.3	359.7
48°	4.1	4.6	7.8	86.2	336.0
49°	4.0	4.4	7.7	84.6	312.6
50°	3.9	4.4	7.6	82.7	291.9
51°	3.9	4.1	7.3	80.2	270.8
52°	3.7	4.1	7.1	77.3	251.0
53°	3.5	4.0	6.8	74.2	232.5
54°	3.4	3.9	6.6	71.2	216.0
55°	3.3	3.7	6.3	67.5	200.9
56°	3.2	3.7	6.1	64.1	183.9
57°	2.9	3.4	5.9	60.6	167.5
58°	2.9	3.3	5.5	56.8	153.9
59°	2.8	3.2	5.4	53.2	141.3
60°	2.8	3.0	5.0	49.5	128.7
61°	2.8	2.9	4.8	46.1	117.3
62°	2.7	2.8	4.5	42.4	106.2
63°	2.8	2.8	4.4	39.3	96.0
64°	2.8	2.7	4.1	36.1	86.4
65°	2.9	2.7	3.9	32.8	77.8
66°	2.8	2.7	3.8	29.7	69.9
67°	2.7	2.7	3.5	26.9	62.4
68°	2.6	2.6	3.4	24.1	55.6
69°	2.3	2.4	3.2	21.7	49.4
70°	2.3	2.3	3.2	19.3	43.6
71°	2.2	2.2	2.9	17.1	38.6
72°	2.1	2.2	2.9	15.1	33.8
73°	2.0	2.1	2.7	13.4	29.3
74°	2.0	2.0	2.7	11.7	25.2
75°	1.8	2.0	2.4	10.2	21.8
76°	1.7	1.8	2.4	9.0	18.8
77°	1.6	1.6	2.3	7.8	16.1
78°	1.6	1.6	2.2	6.8	13.7
79°	1.5	1.5	2.2	5.9	11.7
80°	1.5	1.5	2.0	5.2	9.9
81°	1.3	1.3	2.0	4.6	8.2
82°	1.2	1.2	2.0	4.1	6.7
83°	1.2	1.2	1.7	3.8	5.5
84°	1.2	1.2	1.7	3.5	4.4
85°	1.2	1.1	1.7	3.3	3.4
86°	1.1	1.1	1.7	3.2	2.7
87°	1.1	1.0	1.7	2.9	2.2
88°	1.0	1.0	1.6	2.7	1.7
89°	1.0	1.0	1.6	2.6	1.6



TEST NUMBER: P958847

CATALOG NUMBER: MMG-05W-930-10x60-ID-X-X-4F-4-UNV-STD-X

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
90°	1.5	1.5	1.5	1.5	1.5

(END OF REPORT)