

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: P958895

Luminaire Tested: MMG-05W-930-10x60-ID-X-X-1F-1-UNV-STD-X

Issue Date: 1/31/2025

**Test Information**

Test Method: LM-79-2019  
Report Number: P958895  
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-1F-1-UNV-STD-X  
Description: iO LED MiniO-Graze LINEAR LIGHTING WITH 10x60 DEGREE OPTICS. INPUT WATTAGE IN IES FILE REPRESENTS CONSUMPTION IN A RUN, INDIVIDUAL FIXTURE MAY VARY.  
5 WATTS PER FOOT  
Light Source: 3000K CCT, 90 CRI LEDS  
Ballast/Driver: -

**Summary**

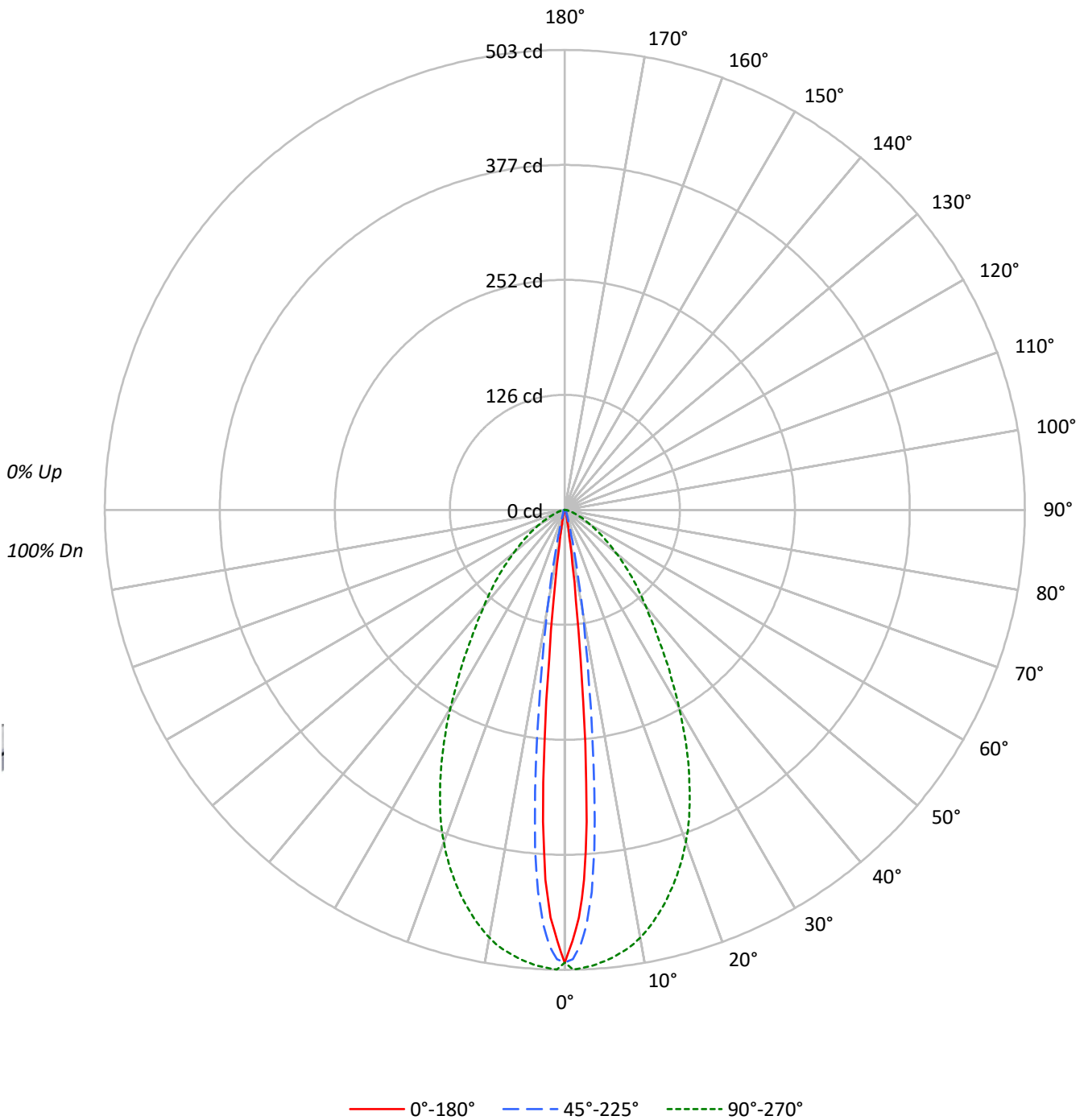
Lumens per Lamp: N/A  
Luminaire Lumens: 140.0 lumens  
Efficiency: N/A  
Efficacy: 31.1 lumens/watt  
Spacing Criteria (0/90/45): 0.18 / 0.91 / 0.25  
Luminous Opening: Rectangular w/ Sides (W: 0.07' x L: 1' x H: 0.09')  
CIE Type: Direct  
  
Input Watts (W): 4.5  
Input Voltage (V): 120  
Input Current (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°	77394	77394	77394
5°	39880	53967	70125
10°	3938	14856	61876
15°	1028	2910	53085
20°	516	1005	44342
25°	381	516	35168
30°	378	340	26289
35°	288	277	18940
40°	228	251	13764
45°	224	240	10148
50°	221	218	7167
55°	194	187	4940
60°	191	143	3200
65°	219	123	1962
70°	222	102	1131
75°	229	81	591
80°	243	71	280
85°	272	61	106

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°  
 Vertical Angle: 45°  
 Luminance: 10148 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	28.6	20.4
10°-20°	32.0	22.9
20°-30°	26.7	19.1
30°-40°	20.0	14.3
40°-50°	15.1	10.8
50°-60°	10.0	7.2
60°-70°	5.0	3.6
70°-80°	1.8	1.3
80°-90°	0.6	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°	87.4	62.4
0°-40°	107.4	76.7
0°-60°	132.5	94.7
0°-90°	140.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	140.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	495	495	495	495	495	
5°	256	283	372	463	496	15
15°	6	8	22	192	437	2
25°	2	2	4	63	322	1
35°	2	2	2	29	185	1
45°	1	1	2	23	103	1
55°	1	1	2	17	50	1
65°	1	1	1	8	19	1
75°	0	0	1	3	6	0
85°	0	0	0	1	1	0
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	495.4	495.4	495.4	495.4	495.4
1°	471.7	481.8	491.7	499.1	502.8
2°	446.1	456.7	477.7	495.8	501.8
3°	405.2	419.2	453.9	487.7	500.3
4°	342.1	360.0	419.2	476.5	498.1
5°	256.2	282.8	372.3	463.3	495.6
6°	164.0	196.7	309.6	447.4	492.9
7°	100.1	132.0	247.2	427.2	489.2
8°	60.4	86.8	189.6	404.8	485.3
9°	37.8	54.3	144.4	377.0	480.8
10°	25.2	34.6	109.1	341.9	475.2
11°	17.9	24.2	78.3	312.8	468.8
12°	13.4	17.6	57.6	281.0	461.7
13°	10.0	12.9	40.6	244.8	454.0
14°	8.0	10.1	28.8	219.0	445.9
15°	6.5	8.1	22.5	191.8	437.1
16°	5.4	6.8	17.4	173.4	428.1
17°	4.5	5.7	13.7	153.1	418.5
18°	3.9	4.7	11.2	137.5	408.7
19°	3.4	4.2	9.4	121.3	398.1
20°	3.2	3.6	8.1	109.6	386.9
21°	2.9	3.3	6.9	97.9	375.3
22°	2.7	3.0	6.2	86.1	362.9
23°	2.5	2.8	5.4	78.2	349.2
24°	2.4	2.7	4.7	69.8	335.4
25°	2.3	2.5	4.3	63.0	321.8
26°	2.2	2.4	3.9	56.7	308.0
27°	2.1	2.3	3.6	51.6	293.6
28°	2.1	2.2	3.3	46.9	278.8
29°	2.1	2.1	3.1	42.6	264.3
30°	2.2	2.1	2.9	39.0	249.9
31°	2.1	2.1	2.8	36.4	235.7
32°	2.0	2.1	2.7	33.9	222.2
33°	1.9	2.1	2.6	31.7	209.8
34°	1.7	2.1	2.5	30.0	197.5
35°	1.6	2.0	2.4	28.6	185.4
36°	1.5	1.9	2.3	27.3	174.0
37°	1.4	1.8	2.3	26.6	164.2
38°	1.3	1.6	2.3	25.7	154.8
39°	1.3	1.6	2.2	25.1	145.6
40°	1.2	1.5	2.2	24.6	137.6
41°	1.2	1.4	2.2	24.1	130.2
42°	1.2	1.4	2.1	23.8	122.7
43°	1.2	1.3	2.1	23.4	116.0
44°	1.1	1.3	2.1	23.1	109.6

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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
45°	1.1	1.3	2.1	22.7	102.8
46°	1.1	1.2	2.1	22.4	96.3
47°	1.0	1.2	2.0	22.1	89.9
48°	1.0	1.2	2.0	21.5	84.0
49°	1.0	1.1	1.9	21.2	78.2
50°	1.0	1.1	1.9	20.7	73.0
51°	1.0	1.0	1.8	20.1	67.7
52°	0.9	1.0	1.8	19.3	62.8
53°	0.9	1.0	1.7	18.6	58.1
54°	0.9	1.0	1.6	17.8	54.0
55°	0.8	0.9	1.6	16.9	50.2
56°	0.8	0.9	1.5	16.0	46.0
57°	0.7	0.9	1.5	15.1	41.9
58°	0.7	0.8	1.4	14.2	38.5
59°	0.7	0.8	1.3	13.3	35.3
60°	0.7	0.8	1.2	12.4	32.2
61°	0.7	0.7	1.2	11.5	29.3
62°	0.7	0.7	1.1	10.6	26.5
63°	0.7	0.7	1.1	9.8	24.0
64°	0.7	0.7	1.0	9.0	21.6
65°	0.7	0.7	1.0	8.2	19.4
66°	0.7	0.7	0.9	7.4	17.5
67°	0.7	0.7	0.9	6.7	15.6
68°	0.6	0.6	0.9	6.0	13.9
69°	0.6	0.6	0.8	5.4	12.3
70°	0.6	0.6	0.8	4.8	10.9
71°	0.5	0.5	0.7	4.3	9.7
72°	0.5	0.5	0.7	3.8	8.4
73°	0.5	0.5	0.7	3.4	7.3
74°	0.5	0.5	0.7	2.9	6.3
75°	0.5	0.5	0.6	2.6	5.5
76°	0.4	0.5	0.6	2.3	4.7
77°	0.4	0.4	0.6	2.0	4.0
78°	0.4	0.4	0.5	1.7	3.4
79°	0.4	0.4	0.5	1.5	2.9
80°	0.4	0.4	0.5	1.3	2.5
81°	0.3	0.3	0.5	1.2	2.0
82°	0.3	0.3	0.5	1.0	1.7
83°	0.3	0.3	0.4	0.9	1.4
84°	0.3	0.3	0.4	0.9	1.1
85°	0.3	0.3	0.4	0.8	0.9
86°	0.3	0.3	0.4	0.8	0.7
87°	0.3	0.2	0.4	0.7	0.5
88°	0.2	0.2	0.4	0.7	0.4
89°	0.2	0.2	0.4	0.6	0.4



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
90°	0.4	0.4	0.4	0.4	0.4

(END OF REPORT)