

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: P958898

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

Issue Date: 1/31/2025

**Test Information**

Test Method: LM-79-2019  
Report Number: P958898  
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-ASYM-ID-X-X-1F-1-UNV-STD-X  
Description: iO LED MiniO-Graze LINEAR LIGHTING WITH ASYMMETRIC LAMBERTIAN 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**

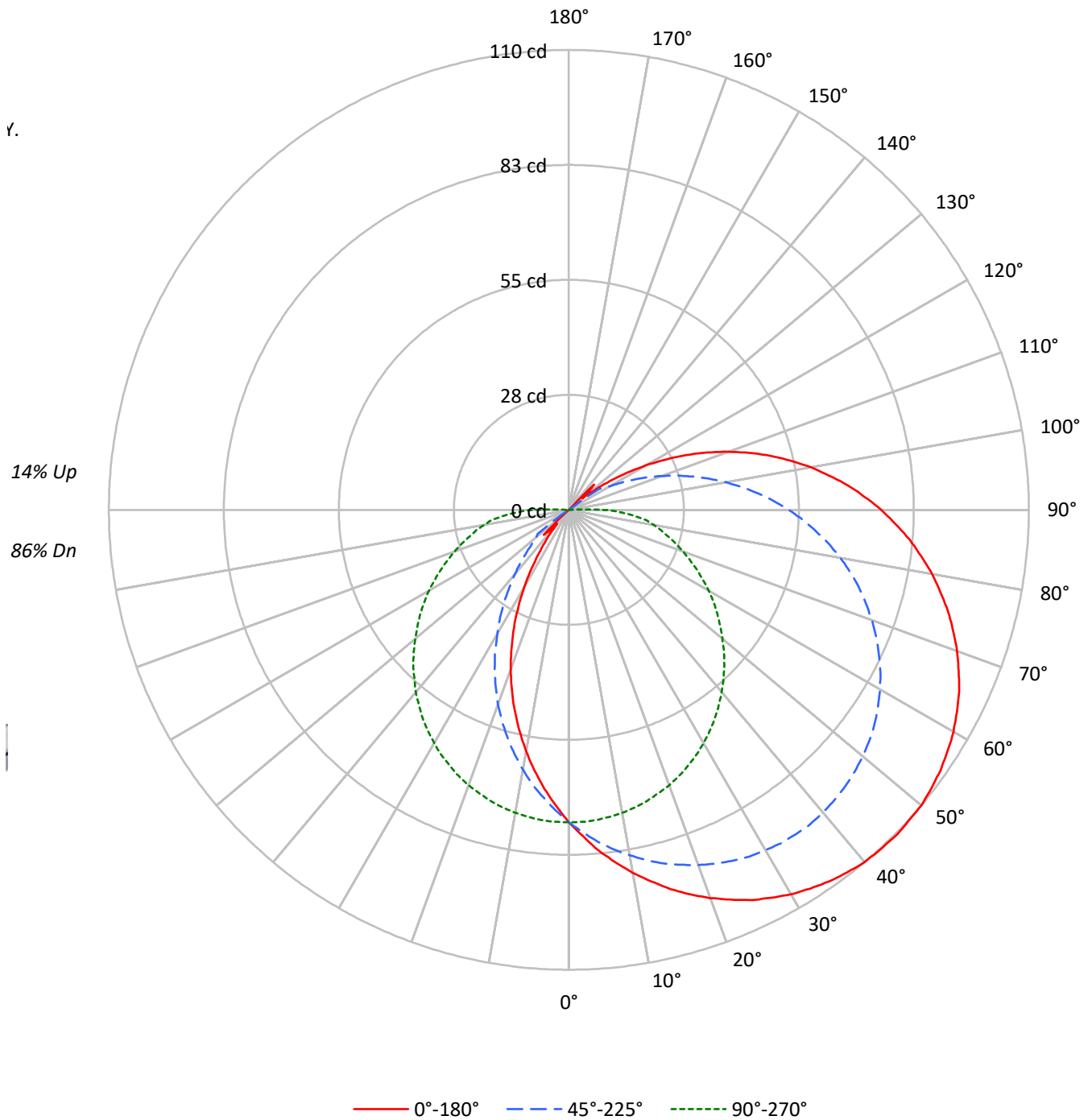
Lumens per Lamp: N/A  
Luminaire Lumens: 339.5 lumens  
Efficiency: N/A  
Efficacy: 75.5 lumens/watt  
Spacing Criteria (0/90/45): 1.27 / 1.28 / 1.46  
Luminous Opening: Rectangular w/ Sides (W: 1' x L: 0.07' x H: 0.09')  
CIE Type: Semi-Direct  
  
Input Watts (W): 4.5  
Input Voltage (V): 120  
Input 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
RCR																				
0	116	116	116	116	111	111	111	111	103	103	103	96	96	96	89	89	89	86	86	86
1	102	95	89	84	97	91	86	82	84	80	76	78	75	71	72	69	67	63	63	63
2	91	81	73	66	87	78	70	64	72	66	60	66	61	57	61	57	53	50	50	50
3	82	70	61	53	78	67	59	52	62	55	49	57	51	46	53	48	44	41	41	41
4	75	61	52	44	71	59	50	43	55	47	41	51	44	39	47	41	37	34	34	34
5	68	54	45	37	65	52	43	37	49	41	35	45	38	33	42	36	31	29	29	29
6	63	49	39	32	60	47	38	32	44	36	30	41	34	29	38	32	27	25	25	25
7	58	44	35	28	56	42	34	28	40	32	26	37	30	25	34	29	24	22	22	22
8	54	40	31	25	52	39	30	24	36	29	23	34	27	22	31	26	21	19	19	19
9	50	37	28	22	48	35	27	22	33	26	21	31	25	20	29	23	19	17	17	17
10	47	34	25	20	45	33	25	20	31	24	19	29	23	18	27	21	17	16	16	16

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

	0°	45°	90°	135°	180°
0°	11670	11670	11670	11670	11670
5°	11574	11553	11597	10016	9480
10°	11485	11425	11503	8592	7643
15°	11404	11328	11401	7306	6060
20°	11323	11211	11303	6139	4653
25°	11256	11113	11190	5040	3388
30°	11172	11009	11072	4005	2230
35°	11084	10911	10960	3099	1216
40°	11003	10796	10829	2285	430
45°	10899	10672	10708	1621	839
50°	10800	10537	10568	1161	0
55°	10676	10410	10513	0	0
60°	10553	10241	10508	0	0
65°	10417	10057	10531	0	0
70°	10253	9862	10731	0	0
75°	10085	9648	11263	0	0
80°	9893	9401	12430	0	0
85°	9678	9104	14068	0	0

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°  
 Vertical Angle: 90°  
 Luminance: 15568 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	7.1	2.1
10°-20°	20.3	6.0
20°-30°	31.0	9.1
30°-40°	38.1	11.2
40°-50°	42.0	12.4
50°-60°	42.8	12.6
60°-70°	41.5	12.2
70°-80°	36.9	10.9
80°-90°	31.1	9.2
90°-100°	22.8	6.7
100°-110°	15.3	4.5
110°-120°	7.5	2.2
120°-130°	2.7	0.8
130°-140°	0.5	0.2
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°	58.4	17.2
0°-40°	96.5	28.4
0°-60°	181.3	53.4
0°-90°	290.7	85.6
90°-120°	45.6	13.4
90°-150°	48.8	14.4
90°-180°	49.0	14.4
0°-180°	339.5	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	75	75	75	75	75	
5°	82	80	74	69	67	8
15°	94	88	72	56	50	27
25°	103	93	68	42	31	48
35°	108	95	61	27	12	68
45°	110	94	53	14	8	85
55°	108	89	43	0	0	97
65°	103	82	34	0	0	102
75°	94	72	25	0	0	99
85°	82	59	16	0	0	68
90°	75	53	8	0	0	41
95°	67	45	0	0	0	53
105°	50	31	0	0	0	53
115°	31	17	0	0	0	31
125°	12	9	0	0	0	11
135°	8	0	0	0	0	3
145°	0	0	0	0	0	0
155°	0	0	0	0	0	0
165°	0	0	0	0	0	0
175°	0	0	0	0	0	0
180°	0	0	0	0	0	0



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°
0°	74.7	74.7	74.7	74.7	74.7	74.7	74.7	74.7	74.7
2.5°	78.2	78.0	77.2	76.1	74.7	73.2	72.0	71.1	70.8
5°	81.8	81.2	79.7	77.2	74.5	71.5	69.1	67.5	67.0
7.5°	85.0	84.2	81.9	78.3	74.1	69.9	66.3	63.8	62.8
10°	88.2	87.1	83.9	79.1	73.6	68.0	63.1	59.9	58.7
12.5°	91.0	89.8	85.8	79.9	72.9	65.9	59.9	55.8	54.3
15°	93.9	92.2	87.6	80.4	72.1	63.6	56.5	51.7	49.9
17.5°	96.4	94.5	89.0	80.8	71.1	61.3	53.0	47.4	45.3
20°	98.8	96.6	90.4	81.1	70.1	58.9	49.5	43.0	40.6
22.5°	100.9	98.5	91.6	81.2	68.9	56.4	45.7	38.6	35.8
25°	103.0	100.2	92.6	81.1	67.5	53.8	42.0	34.0	31.0
27.5°	104.6	101.7	93.5	80.9	66.1	51.1	38.1	29.5	26.1
30°	106.2	103.1	94.0	80.5	64.4	48.4	34.2	25.1	21.2
32.5°	107.4	104.1	94.5	79.9	62.7	45.5	30.6	20.7	16.5
35°	108.5	104.8	94.7	79.1	60.9	42.6	26.9	16.5	11.9
37.5°	109.3	105.5	94.8	78.3	58.9	39.7	23.3	12.6	8.1
40°	110.0	105.9	94.5	77.2	56.9	36.8	20.0	9.4	4.3
42.5°	110.2	106.1	94.1	76.1	54.7	33.9	16.9	7.0	6.4
45°	110.4	106.1	93.5	74.6	52.6	31.2	14.2	7.8	8.5
47.5°	110.2	105.8	92.7	73.1	50.3	28.6	11.7	0.0	0.0
50°	110.0	105.2	91.7	71.4	47.9	25.9	10.1	0.0	0.0
52.5°	109.3	104.4	90.6	69.7	45.6	23.5	9.4	0.0	0.0
55°	108.5	103.6	89.3	67.7	43.3	21.1	0.0	0.0	0.0
57.5°	107.4	102.3	87.7	65.5	41.0	19.0	0.0	0.0	0.0
60°	106.2	100.9	85.9	63.3	38.6	17.0	0.0	0.0	0.0
62.5°	104.6	99.4	84.0	61.1	36.1	15.1	0.0	0.0	0.0
65°	103.0	97.5	81.8	58.7	33.7	12.8	0.0	0.0	0.0
67.5°	100.9	95.5	79.6	56.3	31.3	10.2	0.0	0.0	0.0
70°	98.8	93.3	77.1	53.7	29.0	0.0	0.0	0.0	0.0
72.5°	96.4	90.7	74.5	51.0	26.8	0.0	0.0	0.0	0.0
75°	93.9	88.2	71.8	48.3	24.6	0.0	0.0	0.0	0.0
77.5°	91.0	85.4	68.9	45.4	22.6	0.0	0.0	0.0	0.0
80°	88.2	82.5	65.9	42.7	20.5	0.0	0.0	0.0	0.0
82.5°	85.0	79.2	62.7	39.8	18.5	0.0	0.0	0.0	0.0
85°	81.8	76.0	59.4	37.0	15.5	0.0	0.0	0.0	0.0
87.5°	78.2	72.5	56.0	34.1	12.0	0.0	0.0	0.0	0.0
90°	74.7	68.9	52.6	31.3	8.5	0.0	0.0	0.0	0.0
92.5°	70.8	65.1	49.0	28.7	0.0	0.0	0.0	0.0	0.0
95°	67.0	61.2	45.3	26.0	0.0	0.0	0.0	0.0	0.0
97.5°	62.8	57.2	41.7	23.3	0.0	0.0	0.0	0.0	0.0
100°	58.7	53.1	38.0	20.9	0.0	0.0	0.0	0.0	0.0
102.5°	54.3	48.8	34.4	18.3	0.0	0.0	0.0	0.0	0.0
105°	49.9	44.5	30.7	15.7	0.0	0.0	0.0	0.0	0.0
107.5°	45.3	39.9	27.1	12.5	0.0	0.0	0.0	0.0	0.0
110°	40.6	35.4	23.6	9.6	0.0	0.0	0.0	0.0	0.0



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°
112.5°	35.8	31.0	20.2	0.0	0.0	0.0	0.0	0.0	0.0
115°	31.0	26.4	17.0	0.0	0.0	0.0	0.0	0.0	0.0
117.5°	26.0	22.1	14.0	0.0	0.0	0.0	0.0	0.0	0.0
120°	21.2	18.0	11.3	0.0	0.0	0.0	0.0	0.0	0.0
122.5°	16.5	13.9	9.9	0.0	0.0	0.0	0.0	0.0	0.0
125°	11.9	10.6	8.6	0.0	0.0	0.0	0.0	0.0	0.0
127.5°	8.1	7.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130°	4.3	7.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
132.5°	6.4	8.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
135°	8.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
137.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
142.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
145°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
147.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
152.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
155°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
157.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
162.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
165°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
167.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
172.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
175°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
177.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)