

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: P958902

Luminaire Tested: MMG-05W-935-ASYM-ID-X-X-1F-1-UNV-STD-X

Issue Date: 1/31/2025

**Test Information**

Test Method: LM-79-2019  
Report Number: P958902  
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-935-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: 3500K CCT, 90 CRI LEDS  
Ballast/Driver: -

**Summary**

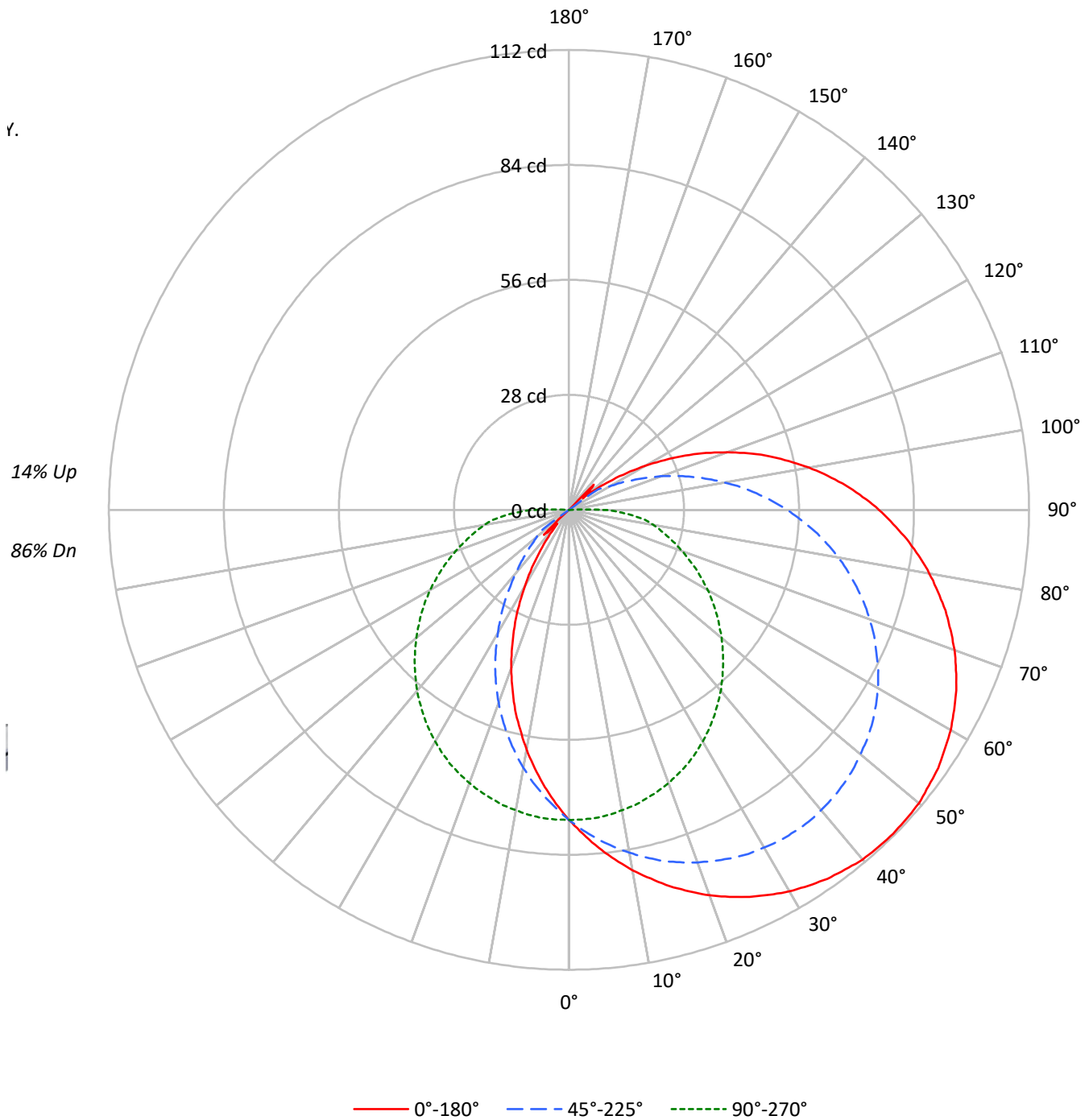
Lumens per Lamp: N/A  
Luminaire Lumens: 343.1 lumens  
Efficiency: N/A  
Efficacy: 76.2 lumens/watt  
Spacing Criteria (0/90/45): 1.27 / 1.28 / 1.46  
Luminous Opening: Rectangular w/ Sides (W: 1' x L: 0.07' x H: 0.09')  
CIE Type: Semi-Direct  
  
Input Watts (W): 4.5  
Input Voltage (V): 120  
Input 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	0
RCR																		
0	116	116	116	116	111	111	111	111	103	103	103	96	96	96	89	89	89	86
1	102	95	89	84	97	91	86	82	84	80	76	78	75	71	72	69	67	63
2	91	81	73	66	87	78	70	64	72	66	60	66	61	57	61	57	53	50
3	82	70	61	53	78	67	59	52	62	55	49	57	51	46	53	48	44	41
4	75	61	52	44	71	59	50	43	55	47	41	51	44	39	47	41	37	34
5	68	54	45	37	65	52	43	37	49	41	35	45	38	33	42	36	31	29
6	63	49	39	32	60	47	38	32	44	36	30	41	34	29	38	32	27	25
7	58	44	35	28	56	42	34	28	40	32	26	37	30	25	34	29	24	22
8	54	40	31	25	52	39	30	24	36	29	23	34	27	22	31	26	21	19
9	50	37	28	22	48	35	27	22	33	26	21	31	25	20	29	23	19	17
10	47	34	25	20	45	33	25	20	31	24	19	29	23	18	27	21	17	16

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

	0°	45°	90°	135°	180°
0°	11795	11795	11795	11795	11795
5°	11688	11669	11721	10132	9579
10°	11602	11547	11612	8688	7721
15°	11525	11444	11511	7384	6133
20°	11449	11335	11416	6201	4699
25°	11366	11233	11323	5100	3421
30°	11288	11126	11192	4052	2251
35°	11207	11027	11068	3134	1226
40°	11123	10910	10943	2308	440
45°	11017	10786	10810	1644	849
50°	10918	10640	10700	1172	0
55°	10794	10515	10634	0	0
60°	10662	10348	10617	0	0
65°	10519	10155	10656	0	0
70°	10367	9965	10842	0	0
75°	10192	9742	11355	0	0
80°	9994	9500	12612	0	0
85°	9772	9211	14249	0	0

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°  
 Vertical Angle: 90°  
 Luminance: 15751 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	7.1	2.1
10°-20°	20.5	6.0
20°-30°	31.4	9.1
30°-40°	38.5	11.2
40°-50°	42.4	12.4
50°-60°	43.3	12.6
60°-70°	41.9	12.2
70°-80°	37.3	10.9
80°-90°	31.4	9.2
90°-100°	23.0	6.7
100°-110°	15.5	4.5
110°-120°	7.6	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°	59.0	17.2
0°-40°	97.5	28.4
0°-60°	183.2	53.4
0°-90°	293.8	85.6
90°-120°	46.1	13.4
90°-150°	49.3	14.4
90°-180°	49.0	14.3
0°-180°	343.1	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	76	76	76	76	76	
5°	83	80	75	70	68	8
15°	95	88	73	57	50	27
25°	104	94	68	42	31	48
35°	110	96	62	27	12	69
45°	112	94	53	14	9	86
55°	110	90	44	0	0	98
65°	104	83	34	0	0	103
75°	95	72	25	0	0	100
85°	83	60	16	0	0	69
90°	76	53	9	0	0	41
95°	68	46	0	0	0	54
105°	50	31	0	0	0	53
115°	31	17	0	0	0	31
125°	12	9	0	0	0	11
135°	9	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°	75.5	75.5	75.5	75.5	75.5	75.5	75.5	75.5	75.5
2.5°	79.0	78.8	78.1	76.9	75.5	74.0	72.7	71.9	71.6
5°	82.6	82.1	80.5	78.1	75.3	72.3	69.9	68.3	67.7
7.5°	85.9	85.1	82.7	79.1	74.9	70.6	67.0	64.4	63.5
10°	89.1	88.1	84.8	80.0	74.3	68.7	63.8	60.5	59.3
12.5°	92.0	90.7	86.7	80.7	73.7	66.6	60.5	56.4	54.8
15°	94.9	93.2	88.5	81.2	72.8	64.3	57.1	52.3	50.5
17.5°	97.4	95.5	90.0	81.7	71.9	62.0	53.6	47.9	45.8
20°	99.9	97.6	91.4	82.0	70.8	59.5	50.0	43.4	41.0
22.5°	102.0	99.6	92.5	82.1	69.6	57.0	46.2	39.0	36.2
25°	104.0	101.3	93.6	82.0	68.3	54.4	42.5	34.4	31.3
27.5°	105.7	102.8	94.5	81.8	66.8	51.6	38.5	29.8	26.4
30°	107.3	104.1	95.0	81.4	65.1	48.9	34.6	25.3	21.4
32.5°	108.5	105.2	95.5	80.7	63.4	46.0	30.9	20.9	16.7
35°	109.7	106.0	95.7	80.0	61.5	43.0	27.2	16.7	12.0
37.5°	110.4	106.6	95.8	79.1	59.5	40.1	23.5	12.8	8.2
40°	111.2	107.0	95.5	78.1	57.5	37.2	20.2	9.5	4.4
42.5°	111.4	107.2	95.1	76.9	55.3	34.3	17.0	7.0	6.5
45°	111.6	107.2	94.5	75.4	53.1	31.5	14.4	7.9	8.6
47.5°	111.4	106.9	93.7	73.9	50.8	28.9	11.8	0.0	0.0
50°	111.2	106.3	92.6	72.2	48.5	26.2	10.2	0.0	0.0
52.5°	110.4	105.5	91.6	70.4	46.1	23.7	9.5	0.0	0.0
55°	109.7	104.7	90.2	68.4	43.8	21.3	0.0	0.0	0.0
57.5°	108.5	103.4	88.6	66.2	41.4	19.2	0.0	0.0	0.0
60°	107.3	102.0	86.8	64.0	39.0	17.1	0.0	0.0	0.0
62.5°	105.7	100.4	84.9	61.8	36.5	15.2	0.0	0.0	0.0
65°	104.0	98.5	82.6	59.3	34.1	12.9	0.0	0.0	0.0
67.5°	102.0	96.5	80.4	56.9	31.6	10.3	0.0	0.0	0.0
70°	99.9	94.2	77.9	54.3	29.3	0.0	0.0	0.0	0.0
72.5°	97.4	91.7	75.3	51.5	27.0	0.0	0.0	0.0	0.0
75°	94.9	89.1	72.5	48.8	24.8	0.0	0.0	0.0	0.0
77.5°	92.0	86.3	69.6	45.9	22.8	0.0	0.0	0.0	0.0
80°	89.1	83.4	66.6	43.1	20.8	0.0	0.0	0.0	0.0
82.5°	85.9	80.1	63.4	40.3	18.7	0.0	0.0	0.0	0.0
85°	82.6	76.8	60.1	37.4	15.7	0.0	0.0	0.0	0.0
87.5°	79.0	73.3	56.5	34.5	12.1	0.0	0.0	0.0	0.0
90°	75.5	69.6	53.1	31.6	8.6	0.0	0.0	0.0	0.0
92.5°	71.6	65.8	49.5	29.0	0.0	0.0	0.0	0.0	0.0
95°	67.7	61.9	45.8	26.3	0.0	0.0	0.0	0.0	0.0
97.5°	63.5	57.8	42.2	23.5	0.0	0.0	0.0	0.0	0.0
100°	59.3	53.7	38.4	21.1	0.0	0.0	0.0	0.0	0.0
102.5°	54.8	49.3	34.7	18.5	0.0	0.0	0.0	0.0	0.0
105°	50.5	44.9	31.0	15.9	0.0	0.0	0.0	0.0	0.0
107.5°	45.8	40.4	27.4	12.7	0.0	0.0	0.0	0.0	0.0
110°	41.0	35.8	23.9	9.7	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°	36.2	31.3	20.4	0.0	0.0	0.0	0.0	0.0	0.0
115°	31.3	26.7	17.1	0.0	0.0	0.0	0.0	0.0	0.0
117.5°	26.3	22.4	14.2	0.0	0.0	0.0	0.0	0.0	0.0
120°	21.4	18.2	11.4	0.0	0.0	0.0	0.0	0.0	0.0
122.5°	16.7	14.1	10.0	0.0	0.0	0.0	0.0	0.0	0.0
125°	12.0	10.8	8.7	0.0	0.0	0.0	0.0	0.0	0.0
127.5°	8.2	7.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130°	4.4	7.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
132.5°	6.5	8.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
135°	8.6	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)