

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: P958901

Luminaire Tested: MMG-05W-935-60x60-ID-X-X-1F-1-UNV-STD-X

Issue Date: 1/31/2025

Test Information

Test Method: LM-79-2019
Report Number: P958901
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-935-60x60-ID-X-X-1F-1-UNV-STD-X
Description: iO LED MiniO-Graze LINEAR LIGHTING WITH 60x60 DEGREE 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: 213.8 lumens
Efficiency: N/A
Efficacy: 47.5 lumens/watt
Spacing Criteria (0/90/45): 0.83 / 1.12 / 1.01
Luminous Opening: Rectangular w/ Sides (W: 0.07' x L: 1' x H: 0.09')
CIE Type: Direct

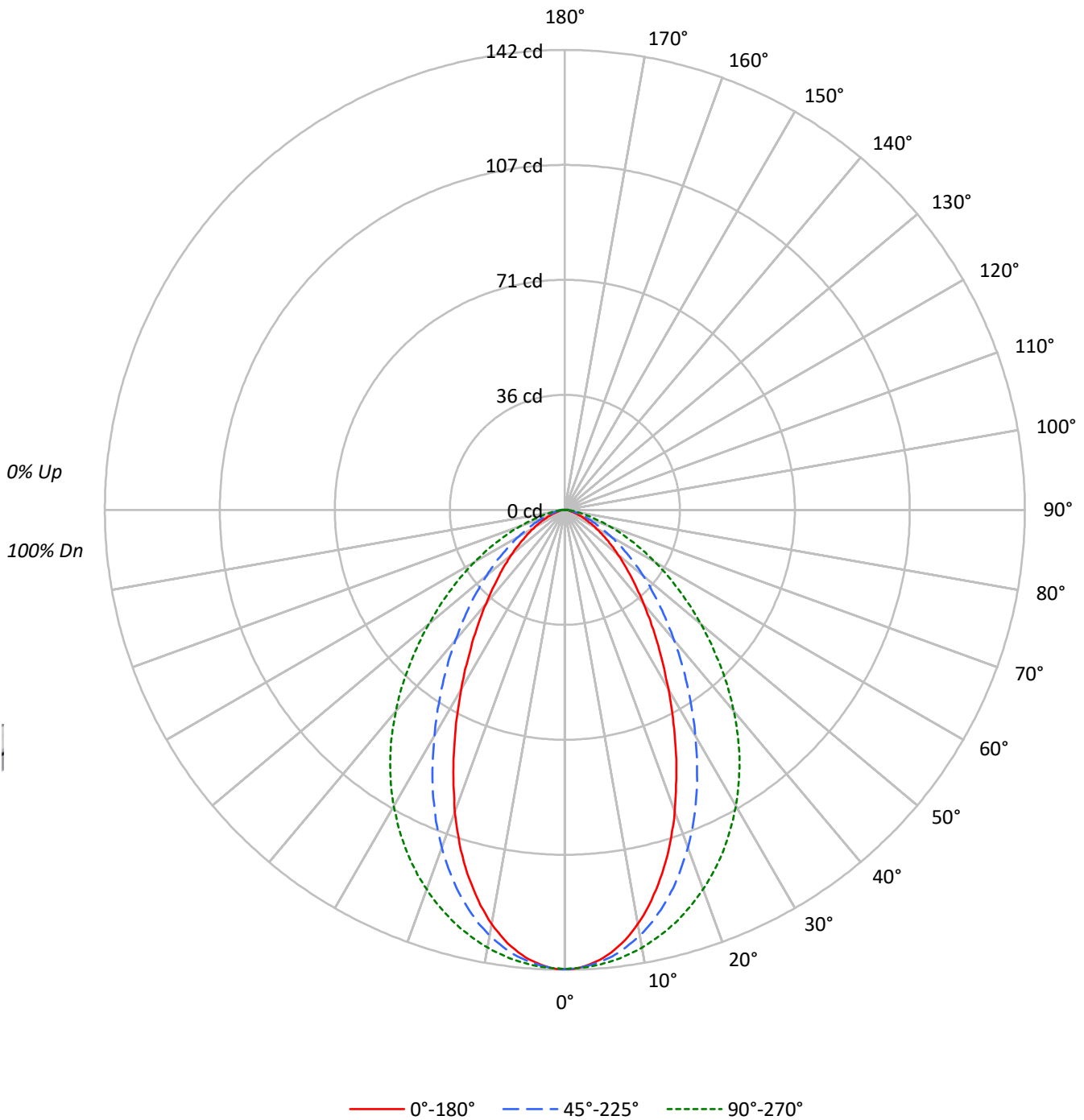
Input Watts (W): 4.5
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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	111	107	104	101	108	105	102	99	101	98	96	97	95	93	94	92	90	89				89
2	103	96	91	86	101	95	90	85	91	87	83	88	85	81	85	82	80	78				78
3	96	87	80	75	93	85	79	74	83	77	73	80	75	72	78	74	71	69				69
4	89	79	71	66	87	78	71	65	75	69	65	73	68	64	71	67	63	61				61
5	83	72	64	58	81	71	64	58	69	62	58	67	61	57	65	60	56	55				55
6	77	66	58	53	76	65	58	52	63	57	52	62	56	51	60	55	51	49				49
7	72	61	53	48	71	60	53	47	58	52	47	57	51	47	56	51	46	45				45
8	68	56	48	43	67	55	48	43	54	48	43	53	47	43	52	47	43	41				41
9	64	52	45	40	63	51	44	40	50	44	39	49	44	39	48	43	39	38				38
10	60	49	41	37	59	48	41	37	47	41	36	46	40	36	45	40	36	35				35

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	22153	22153	22153
5°	21590	20236	19880
10°	20301	18178	17865
15°	18374	15996	16019
20°	15996	13766	14292
25°	13379	11557	12666
30°	11003	9428	11109
35°	8944	7582	9603
40°	7213	5986	8122
45°	5822	4702	6693
50°	4699	3608	5380
55°	3763	2705	4211
60°	2940	1967	3190
65°	2250	1352	2286
70°	1628	883	1505
75°	1099	564	881
80°	910	342	415
85°	1089	215	154

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 45°
 Luminance: 6693 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	13.1	6.1
10°-20°	34.6	16.2
20°-30°	44.6	20.8
30°-40°	42.9	20.1
40°-50°	34.5	16.2
50°-60°	23.8	11.1
60°-70°	13.2	6.2
70°-80°	5.3	2.5
80°-90°	1.7	0.8
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°	92.4	43.2
0°-40°	135.3	63.3
0°-60°	193.6	90.5
0°-90°	213.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	213.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	142	142	142	142	142	
5°	139	139	140	140	140	13
15°	116	118	124	129	132	32
25°	81	85	96	110	116	37
35°	50	54	66	84	94	31
45°	29	32	41	58	68	22
55°	16	17	23	36	43	14
65°	7	8	11	19	23	7
75°	2	3	4	7	8	3
85°	1	1	1	2	1	1
90°	1	1	1	1	1	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	141.8	141.8	141.8	141.8	141.8
1°	141.8	141.7	141.7	141.6	141.6
2°	141.4	141.4	141.4	141.4	141.5
3°	140.7	140.7	140.9	141.1	141.3
4°	139.8	140.0	140.3	140.8	140.9
5°	138.7	138.9	139.6	140.3	140.5
6°	137.4	137.7	138.7	139.7	140.1
7°	135.8	136.3	137.6	138.9	139.5
8°	134.1	134.7	136.3	138.1	138.8
9°	132.0	132.9	134.9	137.1	138.1
10°	129.9	130.9	133.5	136.1	137.2
11°	127.4	128.7	131.8	135.0	136.3
12°	124.9	126.3	130.0	133.7	135.3
13°	122.0	123.8	128.0	132.4	134.2
14°	119.1	121.0	125.9	131.0	133.1
15°	116.2	118.2	123.7	129.4	131.9
16°	113.0	115.4	121.4	127.8	130.6
17°	109.8	112.3	118.9	126.2	129.2
18°	106.3	109.2	116.3	124.4	127.8
19°	102.8	105.9	113.7	122.5	126.3
20°	99.2	102.5	111.0	120.6	124.7
21°	95.3	99.1	108.2	118.5	123.1
22°	91.7	95.4	105.4	116.4	121.4
23°	88.1	91.8	102.4	114.2	119.6
24°	84.5	88.4	99.3	112.0	117.8
25°	80.7	84.9	96.3	109.7	115.9
26°	77.2	81.4	93.2	107.3	113.9
27°	73.9	77.8	89.9	104.9	111.9
28°	70.5	74.7	86.8	102.3	109.9
29°	67.2	71.3	83.6	99.7	107.7
30°	64.0	68.2	80.5	97.1	105.6
31°	60.8	65.2	77.6	94.4	103.4
32°	58.0	62.1	74.5	91.7	101.1
33°	54.9	59.1	71.5	89.0	98.7
34°	52.1	56.4	68.6	86.3	96.4
35°	49.7	53.5	65.8	83.6	94.0
36°	47.1	50.8	63.0	80.9	91.5
37°	44.5	48.4	60.3	78.2	89.0
38°	42.3	46.0	57.7	75.5	86.4
39°	40.0	43.6	55.0	72.9	83.8
40°	37.9	41.3	52.4	70.3	81.2
41°	35.9	39.1	50.0	67.7	78.5
42°	33.9	37.1	47.7	65.2	75.9
43°	32.0	35.2	45.4	62.7	73.2
44°	30.3	33.3	43.2	60.3	70.5



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
45°	28.6	31.5	41.2	57.8	67.8
46°	27.1	29.7	39.1	55.4	65.1
47°	25.6	28.1	37.0	53.1	62.5
48°	24.0	26.5	35.2	50.8	59.9
49°	22.7	25.0	33.3	48.6	57.3
50°	21.3	23.5	31.4	46.4	54.8
51°	20.1	22.1	29.8	44.3	52.3
52°	18.9	20.8	28.0	42.2	49.9
53°	17.7	19.5	26.4	40.1	47.5
54°	16.6	18.3	24.8	38.1	45.2
55°	15.5	17.2	23.2	36.2	42.8
56°	14.5	16.1	21.7	34.2	40.6
57°	13.5	15.0	20.4	32.3	38.4
58°	12.6	14.0	19.0	30.5	36.2
59°	11.6	12.9	17.7	28.6	34.1
60°	10.8	12.0	16.5	26.9	32.1
61°	10.0	11.2	15.3	25.2	30.1
62°	9.2	10.3	14.1	23.5	28.2
63°	8.5	9.5	13.0	21.9	26.2
64°	7.8	8.8	12.0	20.4	24.5
65°	7.2	8.1	11.0	18.9	22.6
66°	6.6	7.4	10.0	17.4	20.9
67°	6.0	6.7	9.2	16.0	19.2
68°	5.5	6.2	8.4	14.6	17.6
69°	4.9	5.6	7.6	13.4	16.0
70°	4.4	5.1	6.9	12.1	14.5
71°	3.9	4.6	6.3	11.0	13.1
72°	3.5	4.2	5.7	9.9	11.7
73°	3.1	3.8	5.1	8.8	10.4
74°	2.7	3.3	4.6	7.8	9.2
75°	2.4	3.0	4.2	7.0	8.2
76°	2.2	2.6	3.8	6.1	7.1
77°	2.0	2.4	3.4	5.4	6.2
78°	1.8	2.1	3.0	4.7	5.2
79°	1.6	1.9	2.7	4.1	4.4
80°	1.5	1.7	2.4	3.6	3.7
81°	1.4	1.6	2.2	3.1	3.1
82°	1.3	1.4	2.0	2.7	2.6
83°	1.3	1.3	1.8	2.4	2.1
84°	1.2	1.2	1.6	2.1	1.7
85°	1.2	1.2	1.4	1.9	1.3
86°	1.1	1.1	1.3	1.6	1.0
87°	1.1	1.0	1.2	1.4	0.8
88°	1.1	1.0	1.1	1.3	0.6
89°	1.1	1.0	1.0	1.2	0.5



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
90°	1.0	1.0	1.0	1.0	1.0

(END OF REPORT)