

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: P958858

Luminaire Tested: MMG-05W-940-ASYM-ID-X-X-4F-4-UNV-STD-X

Issue Date: 1/31/2025

Test Information

Test Method: LM-79-2019
Report Number: P958858
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-940-ASYM-ID-X-X-4F-4-UNV-STD-X
Description: iO LED MiniO-Graze LINEAR LIGHTING WITH ASYMMETRIC LAMBERTIAN OPTICS
5 WATTS PER FOOT
Light Source: 4000K CCT, 90 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1468.9 lumens
Efficiency: N/A
Efficacy: 81.6 lumens/watt
Spacing Criteria (0/90/45): 1.27 / 1.28 / 1.46
Luminous Opening: Rectangular w/ Sides (W: 4' x L: 0.07' x H: 0.09')
CIE Type: Semi-Direct

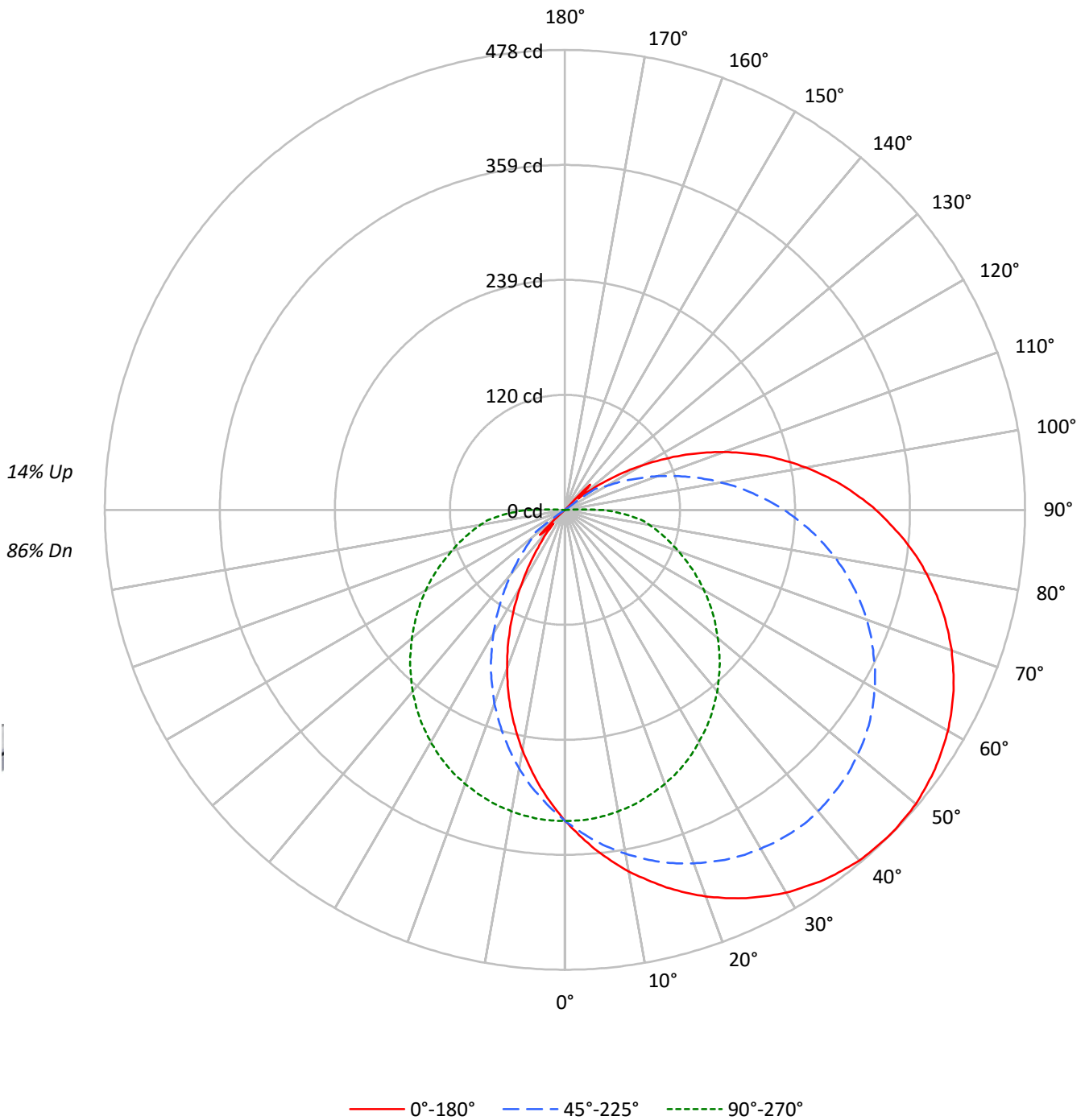
Input Watts (W): 18
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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
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°	12623	12623	12623	12623	12623
5°	12512	12534	12612	10875	10255
10°	12422	12439	12572	9361	8265
15°	12333	12366	12536	7975	6561
20°	12252	12276	12501	6727	5028
25°	12169	12201	12468	5539	3661
30°	12085	12111	12407	4414	2409
35°	11991	12035	12379	3412	1315
40°	11901	11932	12332	2527	468
45°	11790	11812	12303	1797	911
50°	11681	11691	12289	1291	0
55°	11549	11573	12383	0	0
60°	11415	11414	12565	0	0
65°	11262	11234	12894	0	0
70°	11094	11056	13527	0	0
75°	10906	10834	14844	0	0
80°	10700	10591	17838	0	0
85°	10462	10307	24140	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 67582 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	30.6	2.1
10°-20°	87.9	6.0
20°-30°	134.2	9.1
30°-40°	164.7	11.2
40°-50°	181.5	12.4
50°-60°	185.2	12.6
60°-70°	179.3	12.2
70°-80°	159.8	10.9
80°-90°	134.5	9.2
90°-100°	98.6	6.7
100°-110°	66.2	4.5
110°-120°	32.6	2.2
120°-130°	11.5	0.8
130°-140°	2.3	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°	252.7	17.2
0°-40°	417.4	28.4
0°-60°	784.1	53.4
0°-90°	1257.8	85.6
90°-120°	197.3	13.4
90°-150°	211.1	14.4
90°-180°	211.0	14.4
0°-180°	1468.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	323	323	323	323	323	
5°	354	345	322	299	290	35
15°	406	379	312	244	216	116
25°	445	401	292	182	134	206
35°	470	410	264	116	52	295
45°	478	404	228	62	37	369
55°	470	386	187	0	0	420
65°	445	354	146	0	0	441
75°	406	310	106	0	0	429
85°	354	257	67	0	0	294
90°	323	228	37	0	0	177
95°	290	196	0	0	0	229
105°	216	133	0	0	0	228
115°	134	73	0	0	0	133
125°	52	37	0	0	0	48
135°	37	0	0	0	0	15
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



TEST NUMBER: P958858

CATALOG NUMBER: MMG-05W-940-ASYM-ID-X-X-4F-4-UNV-STD-X

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°
0°	323.2	323.2	323.2	323.2	323.2	323.2	323.2	323.2	323.2
2.5°	338.2	337.3	334.1	329.1	323.2	316.8	311.4	307.7	306.3
5°	353.7	351.5	344.6	334.1	322.3	309.5	299.0	292.2	289.9
7.5°	367.9	364.2	354.2	338.7	320.5	302.2	286.7	275.8	271.7
10°	381.6	377.0	362.9	342.3	318.2	294.0	273.1	258.9	253.9
12.5°	393.9	388.4	371.1	345.5	315.5	284.9	258.9	241.6	234.8
15°	406.2	398.9	378.8	347.8	311.8	275.3	244.3	223.8	216.1
17.5°	417.1	408.9	385.2	349.6	307.7	265.3	229.3	205.1	196.0
20°	427.6	418.0	391.1	351.0	303.1	254.8	214.3	186.0	175.5
22.5°	436.7	426.2	396.1	351.5	298.1	243.9	197.8	166.8	155.0
25°	445.4	433.5	400.7	351.0	292.2	232.9	181.9	147.2	134.0
27.5°	452.7	439.9	404.3	350.1	285.8	221.1	165.0	127.6	113.1
30°	459.5	445.8	406.6	348.3	278.5	209.2	148.2	108.5	91.6
32.5°	464.5	450.4	408.9	345.5	271.2	196.9	132.2	89.3	71.6
35°	469.5	453.6	409.8	342.3	263.5	184.2	116.2	71.6	51.5
37.5°	472.7	456.3	410.3	338.7	254.8	171.9	100.7	54.7	35.1
40°	475.9	458.1	408.9	334.1	246.2	159.1	86.6	40.6	18.7
42.5°	476.8	459.0	407.1	329.1	236.6	146.8	72.9	30.1	27.8
45°	477.7	459.0	404.3	322.7	227.5	134.9	61.5	33.7	36.9
47.5°	476.8	457.7	401.2	316.4	217.4	123.5	50.6	0.0	0.0
50°	475.9	454.9	396.6	309.1	207.4	112.1	43.8	0.0	0.0
52.5°	472.7	451.8	392.0	301.3	197.4	101.7	40.6	0.0	0.0
55°	469.5	448.1	386.1	292.7	187.4	91.2	0.0	0.0	0.0
57.5°	464.5	442.6	379.3	283.5	177.3	82.1	0.0	0.0	0.0
60°	459.5	436.7	371.5	274.0	166.8	73.4	0.0	0.0	0.0
62.5°	452.7	429.9	363.3	264.4	156.4	65.2	0.0	0.0	0.0
65°	445.4	421.7	353.7	253.9	145.9	55.2	0.0	0.0	0.0
67.5°	436.7	413.0	344.2	243.4	135.4	44.2	0.0	0.0	0.0
70°	427.6	403.4	333.7	232.5	125.4	0.0	0.0	0.0	0.0
72.5°	417.1	392.5	322.3	220.6	115.8	0.0	0.0	0.0	0.0
75°	406.2	381.6	310.4	208.8	106.2	0.0	0.0	0.0	0.0
77.5°	393.9	369.2	298.1	196.5	97.6	0.0	0.0	0.0	0.0
80°	381.6	356.9	284.9	184.6	88.9	0.0	0.0	0.0	0.0
82.5°	367.9	342.8	271.2	172.3	80.2	0.0	0.0	0.0	0.0
85°	353.7	328.7	257.1	160.0	67.0	0.0	0.0	0.0	0.0
87.5°	338.2	313.6	242.1	147.7	52.0	0.0	0.0	0.0	0.0
90°	323.2	298.1	227.5	135.4	36.9	0.0	0.0	0.0	0.0
92.5°	306.3	281.7	212.0	124.0	0.0	0.0	0.0	0.0	0.0
95°	289.9	264.9	196.0	112.6	0.0	0.0	0.0	0.0	0.0
97.5°	271.7	247.5	180.5	100.7	0.0	0.0	0.0	0.0	0.0
100°	253.9	229.8	164.6	90.3	0.0	0.0	0.0	0.0	0.0
102.5°	234.8	211.1	148.6	79.3	0.0	0.0	0.0	0.0	0.0
105°	216.1	192.4	132.7	67.9	0.0	0.0	0.0	0.0	0.0
107.5°	196.0	172.8	117.2	54.2	0.0	0.0	0.0	0.0	0.0
110°	175.5	153.2	102.1	41.5	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°	155.0	134.0	87.5	0.0	0.0	0.0	0.0	0.0	0.0
115°	134.0	114.4	73.4	0.0	0.0	0.0	0.0	0.0	0.0
117.5°	112.6	95.7	60.6	0.0	0.0	0.0	0.0	0.0	0.0
120°	91.6	78.0	48.8	0.0	0.0	0.0	0.0	0.0	0.0
122.5°	71.6	60.2	42.9	0.0	0.0	0.0	0.0	0.0	0.0
125°	51.5	46.0	37.4	0.0	0.0	0.0	0.0	0.0	0.0
127.5°	35.1	31.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130°	18.7	33.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
132.5°	27.8	36.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
135°	36.9	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)