

LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-State
Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: HALO

Report Number: P990984

Luminaire Tested: **ML4ALSFLD2W1E-TIR4D40FL-TL4SDMW-35°-600LM-2700K**

Issue Date: 5/13/2025

Tested By:

Approved By:



Cooper Lighting Solutions laboratories have been accredited by National Voluntary Laboratory Accreditation Program (NVLAP) that it adheres to the requirements of ISO/IEC 17025:2005 and appropriate IESNA test methods. This report must not be used to claim product certification, approval or endorsement by NVLAP, NIST or any agency of the Federal Government. Results contained in this report are valid for luminaire sample tested, as supplied by requestor. Information related to the luminaire tested has been supplied by requestor and can affect the validity of the test results. Report shall not be reproduced except in full without approval of Cooper Lighting Solutions Lighting Laboratory. Test performed at address noted above.

Test Information

Test Method: LM-79-08
 Report Number: P990984
 Test Lab: Cooper Lighting Solutions
 Issue Date: 5/13/2025
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
 Product Line: HALO
 Catalog Number: ML4ALSFLD2W1E-TIR4D40FL-TL4SDMW-35°-600LM-2700K
 Description: 4IN SQUARE ML FLEX ADJUSTABLE, SELECTABLE CCT, WITH 40D TIR, MATTE WHITE TRIM 35° Tilt
 Light Source: (1) D2W LED 90CRI / 2700K CCT
 Ballast/Driver: -

Summary

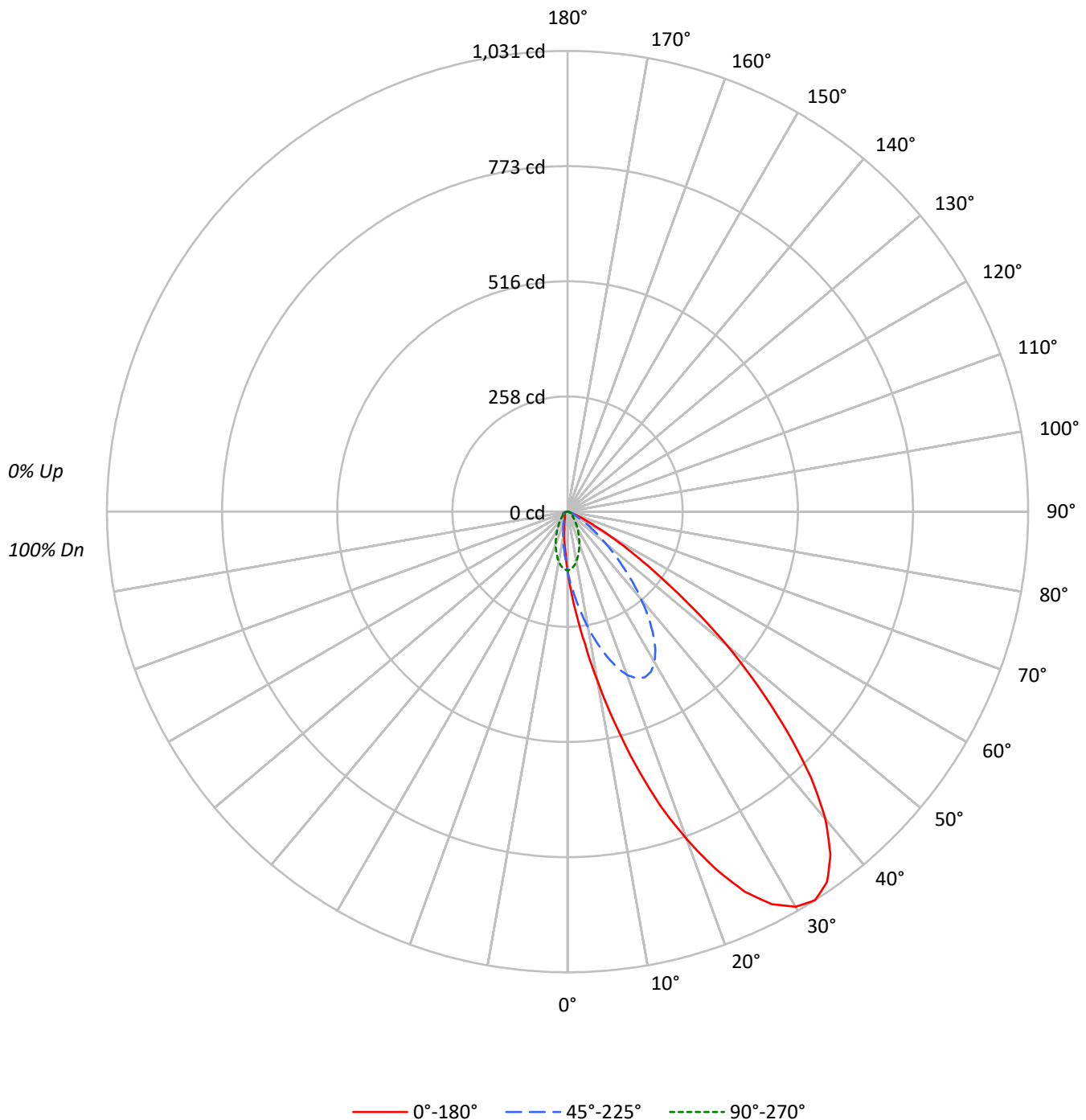
Lumens per Lamp: N/A
 Luminaire Lumens: 511.1 lumens
 Efficiency: N/A
 Efficacy: 61.6 lumens/watt
 Spacing Criteria (0/90/45): 2.36 / 0.72 / 1.42
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 8.3
 Input Voltage (V): NR
 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: 25 FT

Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	GONIO 1 IN0055	4/22/2021	10/22/2021
Power Meter	XITRON 2801 IN0197	12/1/2020	12/1/2021
AC Power Source	CHROMA 61505 IN0196	12/1/2020	12/1/2021
DC Power Supply	AGILENT E3634A IN0198	11/30/2020	11/30/2021
Room Thermometer	ONSET IN0143	12/1/2020	12/1/2021

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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
RW	70	50	30	10	70	50	30	10	50	30	10		50	30	10		50
RCR																	
0	119	119	119	119	116	116	116	116	111	111	111		106	106	106		102
1	111	108	105	102	109	106	103	100	102	99	97		98	96	94		94
2	104	97	92	87	101	95	90	86	92	88	84		89	85	82		86
3	96	87	81	75	94	86	80	75	83	78	73		80	76	72		78
4	89	79	71	66	87	77	71	65	75	69	64		73	68	64		71
5	82	71	63	58	80	70	63	57	68	62	57		66	61	56		64
6	76	65	57	51	75	64	56	51	62	55	50		60	54	50		59
7	71	59	51	45	69	58	51	45	57	50	45		55	49	45		54
8	66	54	46	41	65	53	46	41	52	45	40		51	45	40		50
9	62	49	42	37	60	49	41	36	48	41	36		47	41	36		46
10	58	45	38	33	57	45	38	33	44	37	33		43	37	33		42

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	12768	12768	12768
5°	22522	12253	7167
10°	37804	11194	4279
15°	58681	9608	2738
20°	80433	8021	1918
25°	100274	6392	1432
30°	114222	5067	1230
35°	119730	3985	1171
40°	113500	3162	1252
45°	95039	2466	1356
50°	70337	2095	1658
55°	41870	1959	1959
60°	21816	2015	2364
65°	9307	1994	2521
70°	3456	1813	2804
75°	861	1310	3032
80°	0	669	2566
85°	0	1334	1890

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	14.0	2.7
10°-20°	56.1	11.0
20°-30°	111.9	21.9
30°-40°	141.6	27.7
40°-50°	112.9	22.1
50°-60°	51.7	10.1
60°-70°	16.6	3.2
70°-80°	5.2	1.0
80°-90°	1.1	0.2
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°	182.0	35.6
0°-40°	323.6	63.3
0°-60°	488.2	95.5
0°-90°	511.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	511.1	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	132	132	132	132	132	
5°	232	192	126	86	74	27
15°	585	333	96	37	27	171
25°	938	409	60	18	13	431
35°	1012	333	34	11	10	622
45°	694	178	18	10	10	530
55°	248	66	12	10	12	234
65°	41	17	9	10	11	48
75°	2	4	4	6	8	4
85°	0	1	1	2	2	0
90°	0	0	0	0	0	

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CATALOG NUMBER: ML4ALSFLD2W1E-TIR4D40FL-TL4SDMW-35°-600LM-2700K

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	45°	67.5°	90°	112.5°	135°
0°	131.8	131.8	131.8	131.8	131.8	131.8	131.8	131.8	131.8	131.8	131.8
2.5°	175.9	175.9	174.2	173.6	170.7	171.2	161.4	145.1	130.0	115.5	105.7
5°	231.6	228.1	226.4	225.8	219.4	218.9	191.6	156.7	126.0	102.2	86.5
7.5°	298.4	298.4	292.6	290.3	279.2	278.1	224.7	167.2	120.7	89.4	70.2
10°	384.3	383.7	380.2	369.8	355.3	346.6	263.0	174.2	113.8	77.2	56.3
12.5°	480.1	478.9	473.1	458.6	436.5	427.3	298.4	178.2	105.1	66.2	45.9
15°	585.1	585.7	571.8	552.1	523.6	509.1	333.2	178.8	95.8	55.7	37.2
17.5°	688.5	684.4	665.8	641.5	607.8	591.0	364.6	176.5	86.5	47.6	30.8
20°	780.2	777.9	757.0	729.7	682.7	662.9	388.9	170.7	77.8	40.1	25.5
22.5°	864.4	859.7	838.2	801.7	753.5	727.4	403.5	161.4	68.5	34.2	21.5
25°	938.1	926.5	903.3	860.9	805.2	775.0	409.3	150.4	59.8	29.0	18.0
27.5°	990.3	979.9	949.7	904.4	841.7	807.5	404.0	137.0	51.7	25.0	15.7
30°	1021.1	1010.7	978.1	928.8	860.3	822.6	389.5	123.6	45.3	21.5	13.9
32.5°	1031.0	1019.4	986.3	931.7	859.7	819.7	365.7	108.6	38.9	18.6	12.2
35°	1012.4	1002.0	967.1	911.4	836.5	795.3	333.2	94.0	33.7	16.3	11.0
37.5°	966.5	956.7	922.4	869.0	795.3	754.7	297.2	80.1	28.4	14.5	10.4
40°	897.5	888.2	856.2	801.7	732.6	696.0	256.6	67.9	25.0	13.4	10.4
42.5°	806.3	793.0	767.4	721.6	657.1	617.7	218.3	56.3	20.9	12.2	9.9
45°	693.7	688.5	661.2	620.0	560.2	527.1	177.6	46.4	18.0	11.0	9.9
47.5°	578.8	570.6	550.9	514.9	460.3	430.7	143.4	37.7	16.3	10.4	9.9
50°	466.7	452.8	434.8	402.3	359.9	331.5	112.6	30.8	13.9	10.4	9.9
52.5°	348.9	341.9	322.2	300.1	266.5	242.7	87.1	25.0	12.8	10.4	10.4
55°	247.9	245.0	231.6	211.9	186.3	172.4	65.6	20.3	11.6	10.4	10.4
57.5°	171.2	170.1	156.2	141.1	124.8	116.1	48.2	16.8	10.4	9.9	11.0
60°	112.6	109.7	103.3	92.9	81.9	76.0	34.2	13.9	10.4	9.9	11.0
62.5°	69.1	66.8	62.7	58.6	51.7	48.2	24.4	12.2	9.3	9.3	10.4
65°	40.6	40.1	37.7	34.8	31.9	30.8	17.4	10.4	8.7	8.7	10.4
67.5°	23.8	22.6	22.1	20.9	19.2	18.6	12.8	8.7	7.5	8.1	9.9
70°	12.2	12.2	12.2	11.6	11.6	11.0	9.3	7.0	6.4	7.5	8.7
72.5°	6.4	5.8	5.8	5.8	5.8	6.4	6.4	5.2	4.6	5.8	7.5
75°	2.3	2.3	2.3	2.9	2.9	2.9	4.1	3.5	3.5	4.6	6.4
77.5°	0.6	0.6	0.6	0.6	0.6	1.2	2.3	1.7	2.3	3.5	5.2
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.6	1.2	1.2	2.3	3.5
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.6	1.2	1.2	1.7	2.3
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6	1.2	1.2	1.7
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.6	0.6	0.6
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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CANDELA DISTRIBUTION (continued):

	157.5°	180°
0°	131.8	131.8
2.5°	99.3	96.4
5°	76.6	73.7
7.5°	59.2	56.3
10°	46.4	43.5
12.5°	36.6	33.7
15°	29.0	27.3
17.5°	23.8	22.1
20°	19.7	18.6
22.5°	16.8	15.7
25°	14.5	13.4
27.5°	12.8	12.2
30°	11.6	11.0
32.5°	10.4	10.4
35°	9.9	9.9
37.5°	9.9	9.9
40°	9.9	9.9
42.5°	9.9	9.9
45°	9.9	9.9
47.5°	10.4	10.4
50°	10.4	11.0
52.5°	11.0	11.6
55°	11.6	11.6
57.5°	11.6	11.6
60°	11.6	12.2
62.5°	11.6	11.6
65°	11.0	11.0
67.5°	10.4	11.0
70°	9.9	9.9
72.5°	8.7	8.7
75°	8.1	8.1
77.5°	6.4	7.0
80°	4.6	4.6
82.5°	3.5	3.5
85°	1.7	1.7
87.5°	1.2	0.6
90°	0.0	0.0

(END OF REPORT)