

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: P990883

Luminaire Tested: **ML4ALSFL9FS1E-TIR4D25NFL-TL4SDMW-1000LM-3000K**

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: P990883
 Test Lab: Cooper Lighting Solutions
 Issue Date: 5/13/2025
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
 Product Line: HALO
 Catalog Number: ML4ALSFL9FS1E-TIR4D25NFL-TL4SDMW-1000LM-3000K
 Description: 4IN SQUARE ML FLEX ADJUSTABLE, SELECTABLE CCT, WITH 25D TIR, MATTE WHITE TRIM
 Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 3000K CCT
 Ballast/Driver: -

Summary

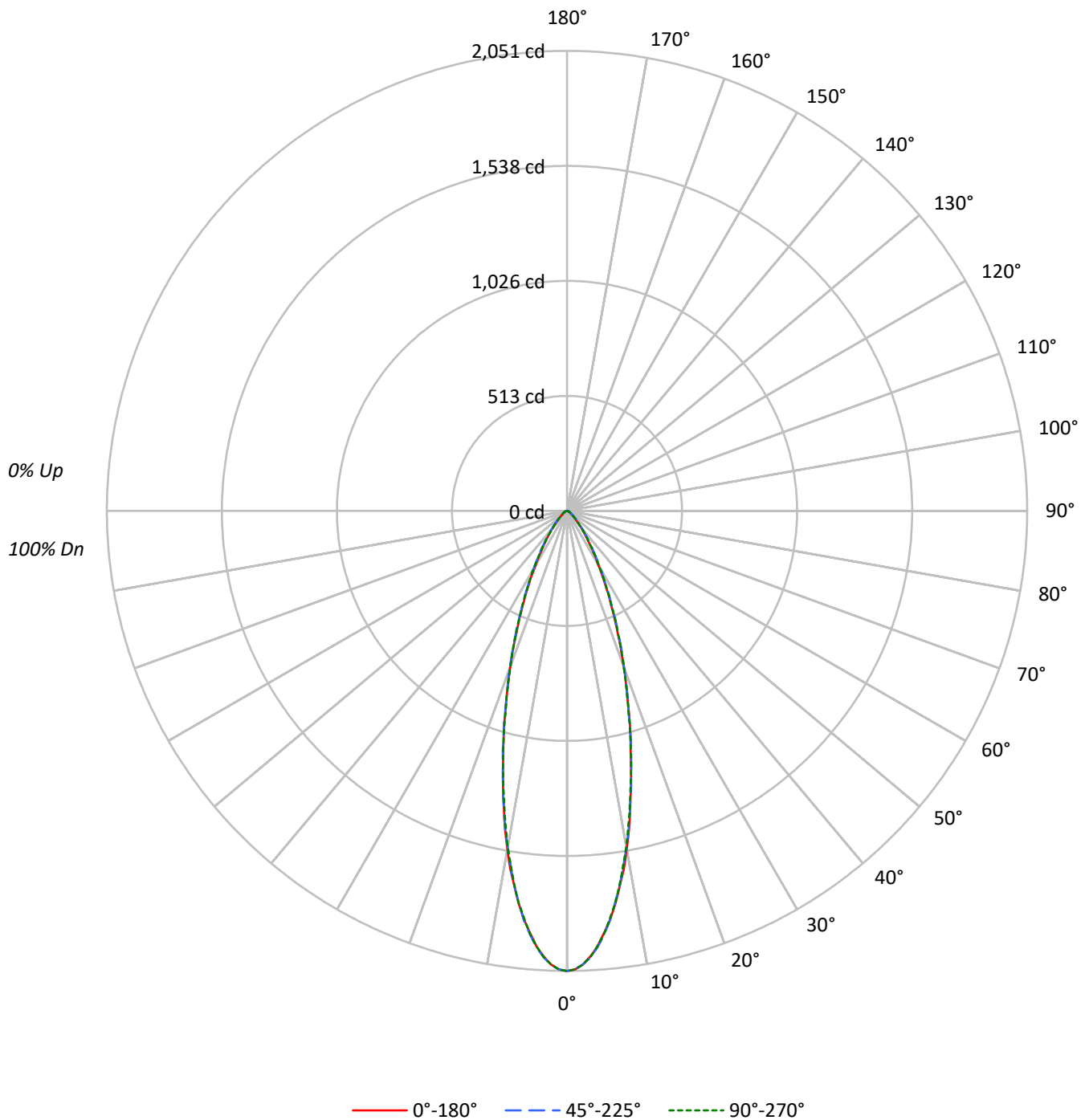
Lumens per Lamp: N/A
 Luminaire Lumens: 897.8 lumens
 Efficiency: N/A
 Efficacy: 69.1 lumens/watt
 Spacing Criteria (0/90/45): 0.52 / 0.52 / 0.57
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 13
 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

TEST NUMBER: P990883
CATALOG NUMBER: ML4ALSFL9FS1E-TIR4D25NFL-TL4SDMW-1000LM-3000K

Luminous Intensity Polar Plot



TEST NUMBER: P990883

CATALOG NUMBER: ML4ALSFL9FS1E-TIR4D25NFL-TL4SDMW-1000LM-3000K

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	114	111	109	106	111	109	107	105	105	103	101		101	100	98		98
2	108	104	100	97	106	102	98	95	99	96	93		96	93	91		93
3	103	97	92	89	101	96	91	88	93	90	87		91	88	85		89
4	99	91	86	82	97	90	86	82	88	84	81		86	83	80		84
5	94	86	81	77	93	85	80	77	84	79	76		82	78	75		81
6	90	82	76	72	89	81	76	72	80	75	72		78	74	71		77
7	86	78	72	68	85	77	72	68	76	71	68		75	71	67		74
8	83	74	69	65	82	73	68	65	72	68	64		71	67	64		71
9	80	71	65	62	78	70	65	62	69	65	61		68	64	61		68
10	76	68	62	59	76	67	62	59	66	62	59		66	61	58		65

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	198730	198730	198730
5°	183668	184358	184163
10°	150722	149827	149630
15°	109811	110723	110111
20°	76216	76845	76010
25°	49982	50848	50955
30°	31299	33212	32653
35°	19714	21264	20306
40°	12393	13544	12393
45°	7891	8850	7754
50°	5169	6089	5169
55°	3750	4611	3918
60°	3139	3720	3333
65°	2774	3232	3003
70°	2578	3144	2578
75°	1909	2658	1909
80°	1116	1116	558
85°	0	0	0

TEST NUMBER: P990883

CATALOG NUMBER: ML4ALSFL9FS1E-TIR4D25NFL-TL4SDMW-1000LM-3000K

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	168.8	18.8
10°-20°	303.0	33.7
20°-30°	220.9	24.6
30°-40°	112.7	12.6
40°-50°	49.2	5.5
50°-60°	22.9	2.6
60°-70°	13.4	1.5
70°-80°	6.4	0.7
80°-90°	0.5	0.1
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°	692.7	77.2
0°-40°	805.4	89.7
0°-60°	877.5	97.7
0°-90°	897.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	897.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2051	2051	2051	2051	2051	
5°	1889	1897	1896	1892	1894	169
15°	1095	1103	1104	1100	1098	303
25°	468	472	476	477	477	218
35°	167	172	180	178	172	108
45°	58	61	65	61	57	47
55°	22	24	27	24	23	21
65°	12	13	14	14	13	12
75°	5	6	7	6	5	5
85°	0	0	0	0	0	1
90°	0	0	0	0	0	

TEST NUMBER: P990883

CATALOG NUMBER: ML4ALSFL9FS1E-TIR4D25NFL-TL4SDMW-1000LM-3000K

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2051.4	2051.4	2051.4	2051.4	2051.4
1°	2044.3	2042.3	2044.3	2044.3	2045.3
2°	2024.1	2022.1	2023.1	2022.1	2024.1
3°	1988.7	1990.8	1993.8	1991.8	1991.8
4°	1946.3	1951.4	1949.3	1946.3	1946.3
5°	1888.7	1896.8	1895.8	1891.8	1893.8
6°	1833.2	1835.2	1835.2	1830.2	1826.1
7°	1764.5	1764.5	1759.5	1764.5	1763.5
8°	1688.8	1694.8	1688.8	1687.7	1683.7
9°	1616.0	1611.0	1603.9	1604.9	1599.9
10°	1532.2	1527.2	1523.1	1524.1	1521.1
11°	1448.4	1437.3	1444.3	1438.3	1432.2
12°	1352.4	1352.4	1354.4	1345.3	1345.3
13°	1266.6	1266.6	1266.6	1260.5	1260.5
14°	1178.7	1182.7	1182.7	1180.7	1179.7
15°	1094.9	1102.9	1104.0	1099.9	1097.9
16°	1021.1	1027.2	1022.1	1016.1	1020.1
17°	945.4	950.4	942.3	943.4	937.3
18°	869.6	874.7	873.7	871.6	869.6
19°	803.0	808.0	809.0	802.0	800.9
20°	739.3	743.4	745.4	741.4	737.3
22.5°	589.9	597.9	601.0	594.9	595.9
25°	467.6	471.7	475.7	476.7	476.7
27.5°	367.6	368.7	378.8	378.8	373.7
30°	279.8	286.8	296.9	296.9	291.9
32.5°	218.2	222.2	231.3	231.3	226.2
35°	166.7	171.7	179.8	177.8	171.7
37.5°	128.3	131.3	137.4	136.4	131.3
40°	98.0	102.0	107.1	104.0	98.0
42.5°	75.8	78.8	83.8	78.8	73.7
45°	57.6	60.6	64.6	60.6	56.6
47.5°	44.4	47.5	51.5	47.5	43.4
50°	34.3	37.4	40.4	37.4	34.3
52.5°	27.3	29.3	33.3	30.3	28.3
55°	22.2	24.2	27.3	24.2	23.2
57.5°	18.2	20.2	22.2	21.2	19.2
60°	16.2	17.2	19.2	18.2	17.2
62.5°	14.1	15.2	16.2	15.2	14.1
65°	12.1	13.1	14.1	14.1	13.1
67.5°	10.1	11.1	13.1	12.1	11.1
70°	9.1	10.1	11.1	10.1	9.1
72.5°	7.1	8.1	9.1	8.1	7.1
75°	5.1	6.1	7.1	6.1	5.1
77.5°	3.0	4.0	5.1	4.0	3.0
80°	2.0	2.0	2.0	2.0	1.0

TEST NUMBER: P990883

CATALOG NUMBER: ML4ALSFL9FS1E-TIR4D25NFL-TL4SDMW-1000LM-3000K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
82.5°	1.0	1.0	1.0	1.0	0.0
85°	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)