

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: P990886

Luminaire Tested: **ML4ALSFL9FS1E-TIR4D25NFL-TL4SDMW-1000LM-5000K**

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: P990886
 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-5000K
 Description: 4IN SQUARE ML FLEX ADJUSTABLE, SELECTABLE CCT, WITH 25D TIR, MATTE WHITE TRIM
 Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 5000K CCT
 Ballast/Driver: -

Summary

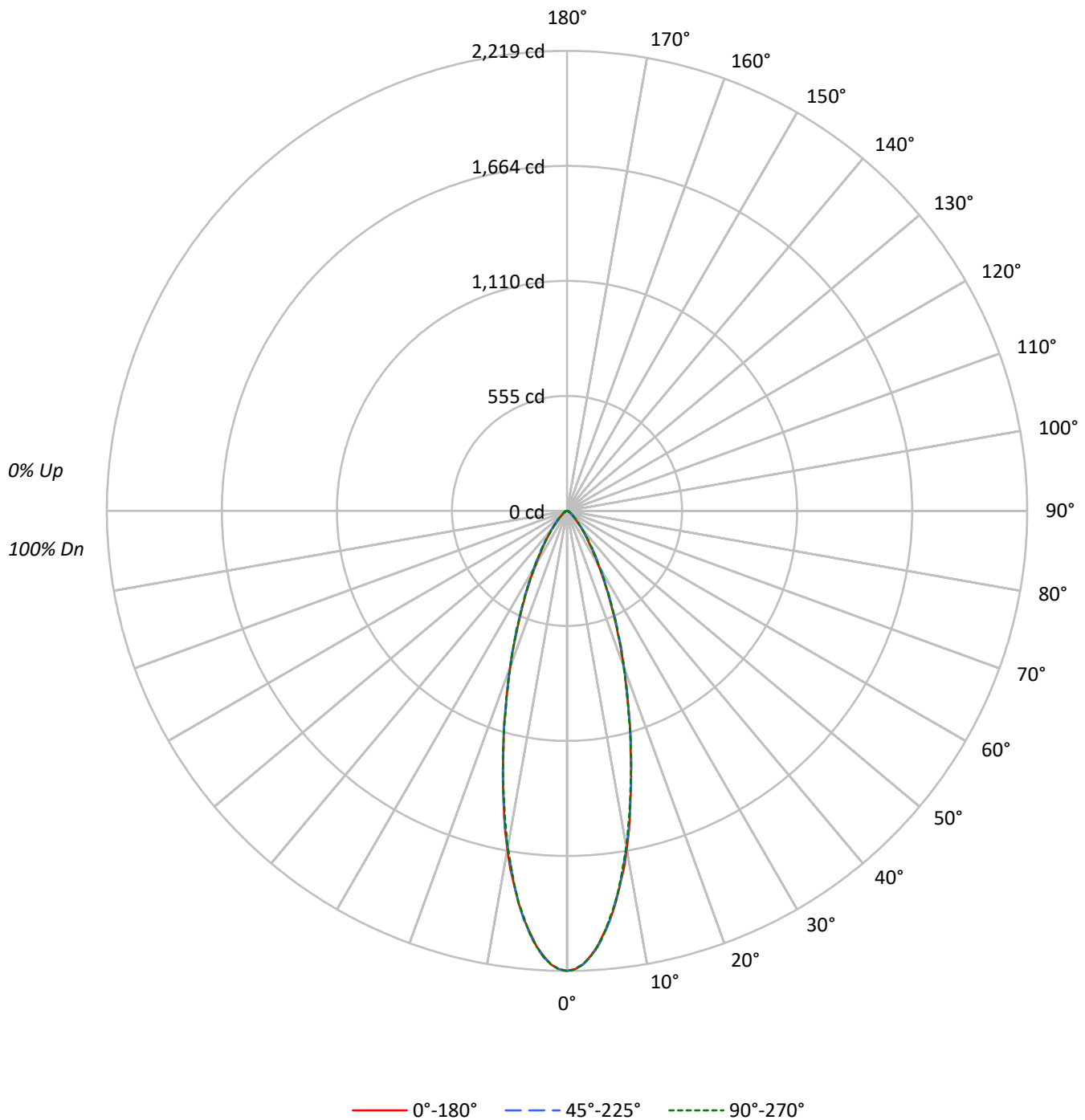
Lumens per Lamp: N/A
 Luminaire Lumens: 971.1 lumens
 Efficiency: N/A
 Efficacy: 74.7 lumens/watt
 Spacing Criteria (0/90/45): 0.52 / 0.52 / 0.57
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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

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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	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°	214947	214947	214947
5°	198663	199402	199188
10°	163019	162055	161838
15°	118767	119750	119098
20°	82443	83113	82216
25°	54065	54995	55113
30°	33849	35930	35315
35°	21323	23002	21961
40°	13405	14644	13405
45°	8535	9576	8385
50°	5591	6586	5591
55°	4054	4982	4239
60°	3391	4030	3604
65°	3003	3507	3255
70°	2776	3399	2776
75°	2059	2845	2059
80°	1227	1227	614
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	182.6	18.8
10°-20°	327.7	33.7
20°-30°	239.0	24.6
30°-40°	121.9	12.6
40°-50°	53.2	5.5
50°-60°	24.8	2.6
60°-70°	14.5	1.5
70°-80°	6.9	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°	749.2	77.2
0°-40°	871.1	89.7
0°-60°	949.1	97.7
0°-90°	971.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	971.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2219	2219	2219	2219	2219	
5°	2043	2052	2050	2046	2048	183
15°	1184	1193	1194	1190	1188	328
25°	506	510	514	516	516	236
35°	180	186	194	192	186	117
45°	62	66	70	66	61	50
55°	24	26	30	26	25	22
65°	13	14	15	15	14	13
75°	6	7	8	7	6	6
85°	0	0	0	0	0	1
90°	0	0	0	0	0	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2218.8	2218.8	2218.8	2218.8	2218.8
1°	2211.1	2208.9	2211.1	2211.1	2212.2
2°	2189.3	2187.1	2188.2	2187.1	2189.3
3°	2151.0	2153.2	2156.5	2154.3	2154.3
4°	2105.2	2110.6	2108.4	2105.2	2105.2
5°	2042.9	2051.6	2050.5	2046.2	2048.3
6°	1982.8	1985.0	1985.0	1979.5	1975.1
7°	1908.5	1908.5	1903.0	1908.5	1907.4
8°	1826.6	1833.1	1826.6	1825.5	1821.1
9°	1747.9	1742.5	1734.8	1735.9	1730.4
10°	1657.2	1651.8	1647.4	1648.5	1645.2
11°	1566.6	1554.6	1562.2	1555.6	1549.1
12°	1462.8	1462.8	1465.0	1455.1	1455.1
13°	1369.9	1369.9	1369.9	1363.4	1363.4
14°	1274.9	1279.3	1279.3	1277.1	1276.0
15°	1184.2	1193.0	1194.0	1189.7	1187.5
16°	1104.5	1111.0	1105.6	1099.0	1103.4
17°	1022.5	1028.0	1019.3	1020.3	1013.8
18°	940.6	946.1	945.0	942.8	940.6
19°	868.5	874.0	875.1	867.4	866.3
20°	799.7	804.0	806.2	801.9	797.5
22.5°	638.0	646.7	650.0	643.5	644.5
25°	505.8	510.2	514.5	515.6	515.6
27.5°	397.7	398.7	409.7	409.7	404.2
30°	302.6	310.3	321.2	321.2	315.7
32.5°	236.0	240.3	250.2	250.2	244.7
35°	180.3	185.7	194.5	192.3	185.7
37.5°	138.7	142.0	148.6	147.5	142.0
40°	106.0	110.3	115.8	112.5	106.0
42.5°	81.9	85.2	90.7	85.2	79.7
45°	62.3	65.5	69.9	65.5	61.2
47.5°	48.1	51.3	55.7	51.3	47.0
50°	37.1	40.4	43.7	40.4	37.1
52.5°	29.5	31.7	36.1	32.8	30.6
55°	24.0	26.2	29.5	26.2	25.1
57.5°	19.7	21.8	24.0	22.9	20.8
60°	17.5	18.6	20.8	19.7	18.6
62.5°	15.3	16.4	17.5	16.4	15.3
65°	13.1	14.2	15.3	15.3	14.2
67.5°	10.9	12.0	14.2	13.1	12.0
70°	9.8	10.9	12.0	10.9	9.8
72.5°	7.6	8.7	9.8	8.7	7.6
75°	5.5	6.6	7.6	6.6	5.5
77.5°	3.3	4.4	5.5	4.4	3.3
80°	2.2	2.2	2.2	2.2	1.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
82.5°	1.1	1.1	1.1	1.1	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)