

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: P990885

Luminaire Tested: **ML4ALSFL9FS1E-TIR4D25NFL-TL4SDMW-1000LM-4000K**

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: P990885
 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-4000K
 Description: 4IN SQUARE ML FLEX ADJUSTABLE, SELECTABLE CCT, WITH 25D TIR, MATTE WHITE TRIM
 Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 4000K CCT
 Ballast/Driver: -

Summary

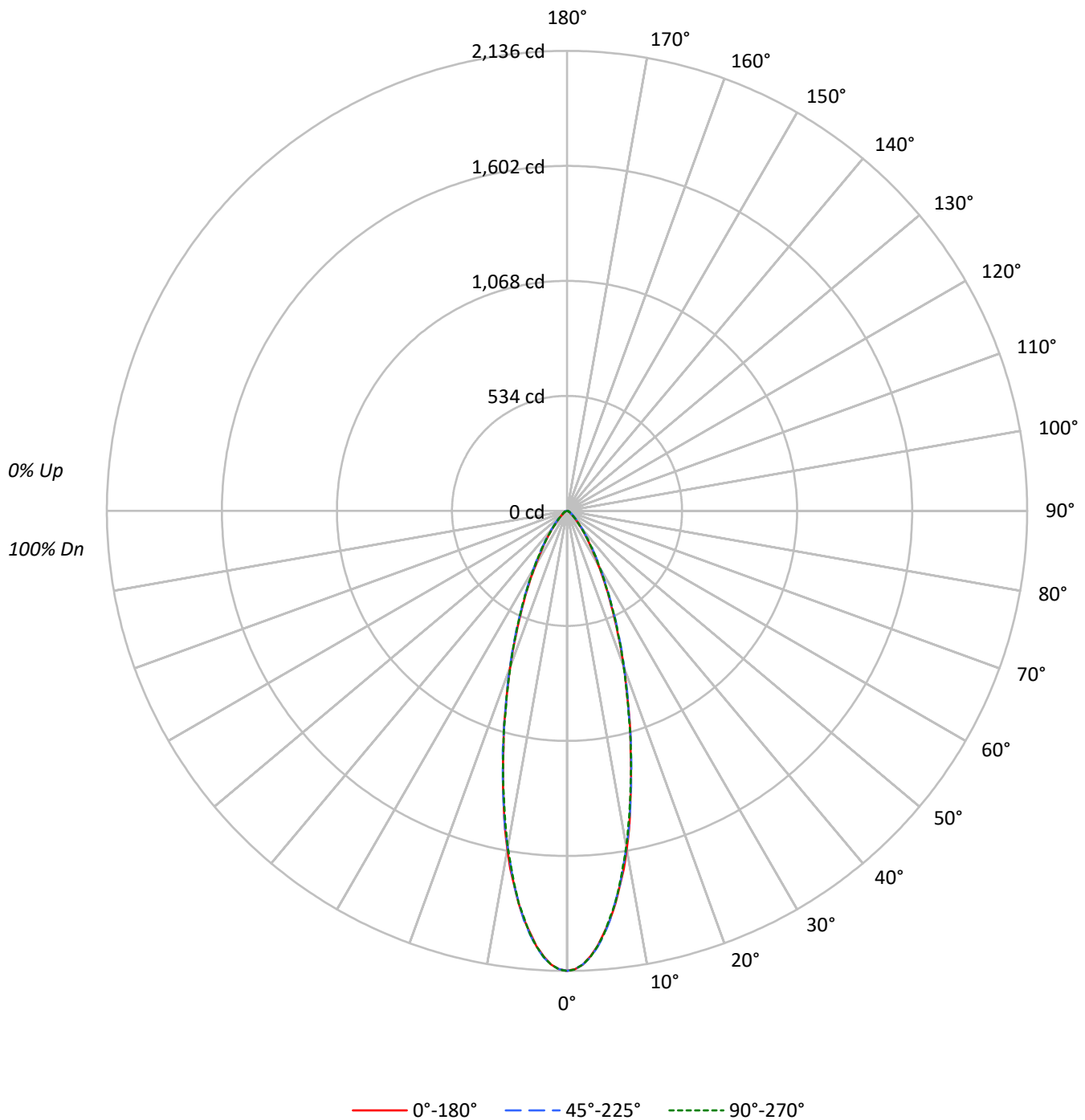
Lumens per Lamp: N/A
 Luminaire Lumens: 934.8 lumens
 Efficiency: N/A
 Efficacy: 71.9 lumens/watt
 Spacing Criteria (0/90/45): 0.52 / 0.52 / 0.57
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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°	206916	206916	206916
5°	191243	191953	191749
10°	156939	156005	155798
15°	114334	115287	114645
20°	79361	80010	79144
25°	52045	52943	53060
30°	32585	34588	33995
35°	20519	22139	21145
40°	12899	14101	12899
45°	8206	9220	8069
50°	5395	6345	5395
55°	3902	4797	4087
60°	3255	3875	3468
65°	2888	3370	3140
70°	2691	3286	2691
75°	1984	2770	1984
80°	1172	1172	614
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	175.7	18.8
10°-20°	315.5	33.7
20°-30°	230.1	24.6
30°-40°	117.3	12.6
40°-50°	51.2	5.5
50°-60°	23.9	2.6
60°-70°	14.0	1.5
70°-80°	6.6	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°	721.3	77.2
0°-40°	838.6	89.7
0°-60°	913.6	97.7
0°-90°	934.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	934.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2136	2136	2136	2136	2136	
5°	1967	1975	1974	1970	1972	176
15°	1140	1148	1150	1145	1143	315
25°	487	491	495	496	496	227
35°	174	179	187	185	179	112
45°	60	63	67	63	59	48
55°	23	25	28	25	24	22
65°	13	14	15	15	14	13
75°	5	6	7	6	5	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°	2135.9	2135.9	2135.9	2135.9	2135.9
1°	2128.5	2126.4	2128.5	2128.5	2129.6
2°	2107.5	2105.4	2106.5	2105.4	2107.5
3°	2070.7	2072.8	2076.0	2073.9	2073.9
4°	2026.5	2031.8	2029.7	2026.5	2026.5
5°	1966.6	1975.0	1973.9	1969.7	1971.8
6°	1908.7	1910.8	1910.8	1905.6	1901.4
7°	1837.2	1837.2	1832.0	1837.2	1836.2
8°	1758.4	1764.7	1758.4	1757.3	1753.1
9°	1682.6	1677.4	1670.0	1671.1	1665.8
10°	1595.4	1590.1	1585.9	1586.9	1583.8
11°	1508.1	1496.5	1503.9	1497.6	1491.2
12°	1408.2	1408.2	1410.3	1400.8	1400.8
13°	1318.8	1318.8	1318.8	1312.5	1312.5
14°	1227.3	1231.5	1231.5	1229.4	1228.3
15°	1140.0	1148.4	1149.5	1145.2	1143.1
16°	1063.2	1069.5	1064.3	1058.0	1062.2
17°	984.3	989.6	981.2	982.2	975.9
18°	905.5	910.7	909.7	907.6	905.5
19°	836.1	841.3	842.4	835.0	834.0
20°	769.8	774.0	776.1	771.9	767.7
22.5°	614.2	622.6	625.7	619.4	620.5
25°	486.9	491.1	495.3	496.4	496.4
27.5°	382.8	383.9	394.4	394.4	389.1
30°	291.3	298.7	309.2	309.2	303.9
32.5°	227.2	231.4	240.8	240.8	235.6
35°	173.5	178.8	187.2	185.1	178.8
37.5°	133.6	136.7	143.0	142.0	136.7
40°	102.0	106.2	111.5	108.3	102.0
42.5°	78.9	82.0	87.3	82.0	76.8
45°	59.9	63.1	67.3	63.1	58.9
47.5°	46.3	49.4	53.6	49.4	45.2
50°	35.8	38.9	42.1	38.9	35.8
52.5°	28.4	30.5	34.7	31.5	29.4
55°	23.1	25.2	28.4	25.2	24.2
57.5°	18.9	21.0	23.1	22.1	20.0
60°	16.8	17.9	20.0	18.9	17.9
62.5°	14.7	15.8	16.8	15.8	14.7
65°	12.6	13.7	14.7	14.7	13.7
67.5°	10.5	11.6	13.7	12.6	11.6
70°	9.5	10.5	11.6	10.5	9.5
72.5°	7.4	8.4	9.5	8.4	7.4
75°	5.3	6.3	7.4	6.3	5.3
77.5°	3.2	4.2	5.3	4.2	3.2
80°	2.1	2.1	2.1	2.1	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)