

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: P990880

Luminaire Tested: **ML4ALSFL9FS1E-TIR4D25NFL-TL4SDMB-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: P990880
 Test Lab: Cooper Lighting Solutions
 Issue Date: 5/13/2025
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
 Product Line: HALO
 Catalog Number: ML4ALSFL9FS1E-TIR4D25NFL-TL4SDMB-1000LM-4000K
 Description: 4IN SQUARE ML FLEX ADJUSTABLE, SELECTABLE CCT, WITH 25D TIR, MATTE BLACK TRIM
 Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 4000K CCT
 Ballast/Driver: -

Summary

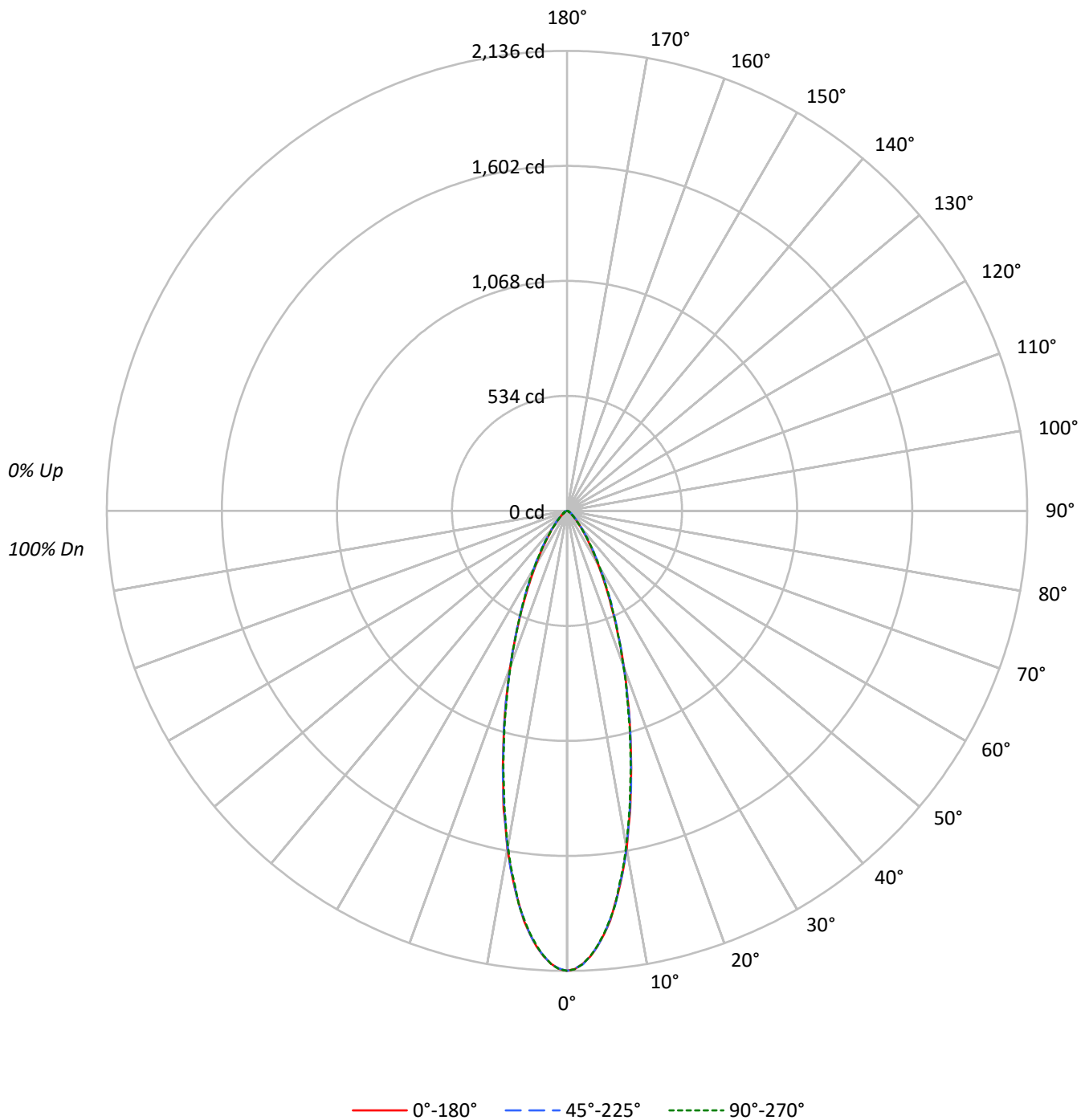
Lumens per Lamp: N/A
 Luminaire Lumens: 925.0 lumens
 Efficiency: N/A
 Efficacy: 71.2 lumens/watt
 Spacing Criteria (0/90/45): 0.52 / 0.52 / 0.56
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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	107	111	109	107	105	105	103	102		101	100	99		98
2	108	104	100	97	106	102	99	96	99	96	94		96	94	92		93
3	104	97	93	89	102	96	92	88	93	90	87		91	88	86		89
4	99	92	87	83	97	91	86	82	89	84	81		87	83	80		85
5	94	87	81	77	93	86	81	77	84	80	76		82	79	76		81
6	90	82	77	73	89	81	76	72	80	75	72		79	75	71		77
7	87	78	73	69	85	77	72	69	76	72	68		75	71	68		74
8	83	74	69	65	82	74	69	65	73	68	65		72	68	64		71
9	80	71	66	62	79	71	65	62	70	65	62		69	65	62		68
10	77	68	63	59	76	68	62	59	67	62	59		66	62	59		65

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	206877	206877	206877
5°	191904	191904	191496
10°	156546	156339	155405
15°	114534	114324	113792
20°	79536	79320	78773
25°	51756	53103	52430
30°	32496	34263	33905
35°	20164	21784	21039
40°	12912	13708	12773
45°	8069	8946	7782
50°	5079	6179	5079
55°	3564	4442	3733
60°	2848	3662	3061
65°	2659	3140	2659
70°	2096	2974	2379
75°	1572	2358	1572
80°	614	1172	614
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	175.7	19.0
10°-20°	314.6	34.0
20°-30°	228.8	24.7
30°-40°	115.9	12.5
40°-50°	49.6	5.4
50°-60°	22.2	2.4
60°-70°	12.5	1.4
70°-80°	5.5	0.6
80°-90°	0.2	0.0
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°	719.1	77.7
0°-40°	834.9	90.3
0°-60°	906.8	98.0
0°-90°	925.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	925.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2136	2136	2136	2136	2136	
5°	1973	1972	1973	1969	1969	176
15°	1142	1141	1140	1141	1135	316
25°	484	489	497	493	490	226
35°	170	175	184	182	178	111
45°	59	61	65	61	57	47
55°	21	23	26	24	22	20
65°	12	12	14	13	12	11
75°	4	5	6	5	4	4
85°	0	0	0	0	0	0
90°	0	0	0	0	0	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2135.5	2135.5	2135.5	2135.5	2135.5
1°	2127.1	2129.2	2125.0	2126.1	2128.2
2°	2104.0	2106.1	2107.1	2102.9	2105.0
3°	2071.3	2077.6	2069.2	2072.4	2069.2
4°	2027.1	2028.2	2027.1	2026.1	2024.0
5°	1973.4	1972.4	1973.4	1969.2	1969.2
6°	1913.5	1909.2	1908.2	1906.1	1907.1
7°	1835.6	1839.8	1840.8	1833.5	1839.8
8°	1759.8	1757.7	1753.5	1756.6	1749.3
9°	1675.6	1679.8	1678.7	1663.0	1669.3
10°	1591.4	1593.5	1589.3	1574.5	1579.8
11°	1495.6	1499.8	1494.6	1488.2	1489.3
12°	1414.6	1405.1	1405.1	1406.1	1398.8
13°	1314.6	1318.8	1320.9	1315.6	1304.1
14°	1231.4	1228.3	1227.2	1220.9	1222.0
15°	1142.0	1140.9	1139.9	1140.9	1134.6
16°	1063.0	1057.8	1064.1	1056.7	1054.6
17°	988.3	984.1	983.0	979.9	973.6
18°	909.4	907.3	909.4	902.0	897.8
19°	837.8	834.6	836.7	833.6	836.7
20°	771.5	769.4	769.4	766.2	764.1
22.5°	615.7	614.7	621.0	619.9	613.6
25°	484.2	489.4	496.8	492.6	490.5
27.5°	377.8	385.2	392.6	389.4	391.5
30°	290.5	296.8	306.3	305.2	303.1
32.5°	225.2	228.4	238.9	238.9	232.6
35°	170.5	174.7	184.2	182.1	177.9
37.5°	131.6	135.8	142.1	138.9	134.7
40°	102.1	103.1	108.4	105.3	101.0
42.5°	76.8	80.0	84.2	81.0	75.8
45°	58.9	61.0	65.3	61.0	56.8
47.5°	44.2	47.4	51.6	47.4	43.2
50°	33.7	36.8	41.0	36.8	33.7
52.5°	26.3	28.4	32.6	29.5	27.4
55°	21.1	23.2	26.3	24.2	22.1
57.5°	17.9	18.9	22.1	20.0	18.9
60°	14.7	15.8	18.9	16.8	15.8
62.5°	12.6	13.7	15.8	14.7	13.7
65°	11.6	11.6	13.7	12.6	11.6
67.5°	9.5	10.5	11.6	11.6	10.5
70°	7.4	8.4	10.5	9.5	8.4
72.5°	6.3	7.4	8.4	7.4	6.3
75°	4.2	5.3	6.3	5.3	4.2
77.5°	2.1	3.2	4.2	3.2	2.1
80°	1.1	1.1	2.1	1.1	1.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
82.5°	0.0	0.0	0.0	0.0	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)