

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: P990887

Luminaire Tested: **ML4ALSFL9FS1E-TIR4D25NFL-TL4SDSL-1000LM-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: P990887
 Test Lab: Cooper Lighting Solutions
 Issue Date: 5/13/2025
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
 Product Line: HALO
 Catalog Number: ML4ALSFL9FS1E-TIR4D25NFL-TL4SDSL-1000LM-2700K
 Description: 4IN SQUARE ML FLEX ADJUSTABLE, SELECTABLE CCT, WITH 25D TIR, METALLIC SILVER TRIM
 Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 2700K CCT
 Ballast/Driver: -

Summary

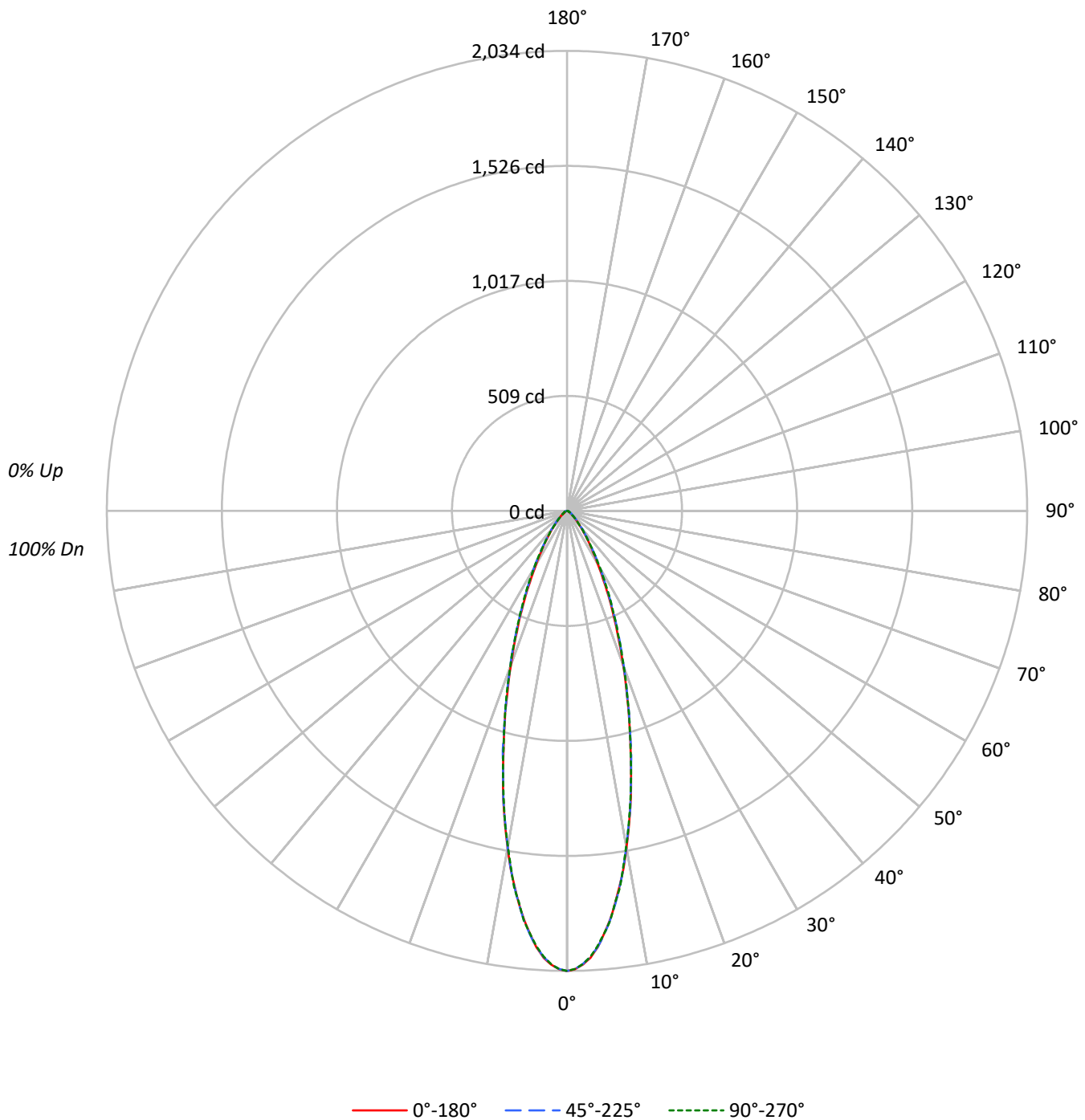
Lumens per Lamp: N/A
 Luminaire Lumens: 882.7 lumens
 Efficiency: N/A
 Efficacy: 67.9 lumens/watt
 Spacing Criteria (0/90/45): 0.52 / 0.52 / 0.56
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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	103	97	93	89	102	96	92	88	93	90	87		91	88	85		89
4	99	92	87	83	97	91	86	82	88	84	81		86	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		78	74	71		77
7	87	78	72	69	85	77	72	68	76	71	68		75	71	68		74
8	83	74	69	65	82	74	69	65	73	68	65		72	67	64		71
9	80	71	66	62	79	70	65	62	70	65	62		69	64	61		68
10	77	68	63	59	76	67	62	59	67	62	59		66	62	59		65

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	197064	197064	197064
5°	182549	182938	182452
10°	148853	148558	148165
15°	108828	109931	108828
20°	74546	75577	75783
25°	49073	50356	50677
30°	30538	32440	32440
35°	19159	20696	20105
40°	12140	13152	12267
45°	7809	8631	7672
50°	4973	5878	5124
55°	3547	4391	3716
60°	2906	3488	3100
65°	2521	3209	2751
70°	2266	2832	2549
75°	1497	2246	1497
80°	558	1116	558
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	167.3	19.0
10°-20°	299.9	34.0
20°-30°	217.6	24.6
30°-40°	110.1	12.5
40°-50°	47.8	5.4
50°-60°	21.9	2.5
60°-70°	12.6	1.4
70°-80°	5.3	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°	684.8	77.6
0°-40°	794.9	90.1
0°-60°	864.6	97.9
0°-90°	882.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	882.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2034	2034	2034	2034	2034	
5°	1877	1879	1881	1875	1876	167
15°	1085	1086	1096	1090	1085	299
25°	459	462	471	472	474	213
35°	162	166	175	174	170	105
45°	57	59	63	59	56	46
55°	21	23	26	24	22	20
65°	11	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°	2034.2	2034.2	2034.2	2034.2	2034.2
1°	2027.2	2025.2	2025.2	2025.2	2025.2
2°	2007.2	2003.2	2005.2	2005.2	2005.2
3°	1979.2	1974.2	1975.2	1970.2	1973.2
4°	1934.2	1935.2	1933.2	1931.2	1930.2
5°	1877.2	1879.2	1881.2	1875.2	1876.2
6°	1818.2	1816.2	1820.2	1816.2	1822.2
7°	1747.2	1752.2	1749.2	1749.2	1744.2
8°	1672.2	1677.2	1675.2	1675.2	1680.2
9°	1598.2	1587.2	1595.2	1593.2	1590.2
10°	1513.2	1505.2	1510.2	1508.2	1506.2
11°	1427.2	1427.2	1422.2	1418.2	1425.2
12°	1345.2	1339.2	1344.2	1339.2	1339.2
13°	1257.2	1253.2	1254.2	1257.2	1254.2
14°	1168.1	1170.1	1170.1	1169.1	1170.1
15°	1085.1	1086.1	1096.1	1090.1	1085.1
16°	1004.1	1009.1	1009.1	1011.1	1008.1
17°	934.1	936.1	936.1	936.1	936.1
18°	856.1	858.1	862.1	865.1	866.1
19°	793.1	794.1	799.1	800.1	798.1
20°	723.1	728.1	733.1	737.1	735.1
22.5°	579.1	583.1	594.1	592.1	589.1
25°	459.1	462.1	471.1	472.1	474.1
27.5°	354.0	362.0	370.0	372.0	375.0
30°	273.0	280.0	290.0	292.0	290.0
32.5°	212.0	216.0	225.0	227.0	224.0
35°	162.0	166.0	175.0	174.0	170.0
37.5°	125.0	128.0	135.0	133.0	129.0
40°	96.0	99.0	104.0	101.0	97.0
42.5°	73.0	76.0	80.0	77.0	73.0
45°	57.0	59.0	63.0	59.0	56.0
47.5°	44.0	46.0	49.0	46.0	43.0
50°	33.0	36.0	39.0	36.0	34.0
52.5°	26.0	28.0	31.0	29.0	27.0
55°	21.0	23.0	26.0	24.0	22.0
57.5°	18.0	19.0	21.0	20.0	19.0
60°	15.0	16.0	18.0	17.0	16.0
62.5°	13.0	14.0	16.0	15.0	14.0
65°	11.0	12.0	14.0	13.0	12.0
67.5°	10.0	10.0	12.0	11.0	10.0
70°	8.0	9.0	10.0	10.0	9.0
72.5°	6.0	7.0	8.0	7.0	6.0
75°	4.0	5.0	6.0	5.0	4.0
77.5°	2.0	3.0	4.0	3.0	2.0
80°	1.0	1.0	2.0	1.0	1.0

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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)