

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: P990927

Luminaire Tested: **ML4ALSFL9FS1E-TIR4D40FL-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: P990927
Test Lab: Cooper Lighting Solutions
Issue Date: 5/13/2025
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO
Catalog Number: ML4ALSFL9FS1E-TIR4D40FL-TL4SDSL-1000LM-2700K
Description: 4IN SQUARE ML FLEX ADJUSTABLE, SELECTABLE CCT, WITH 40D TIR,
METALLIC SILVER TRIM
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 2700K CCT
Ballast/Driver: -

Summary

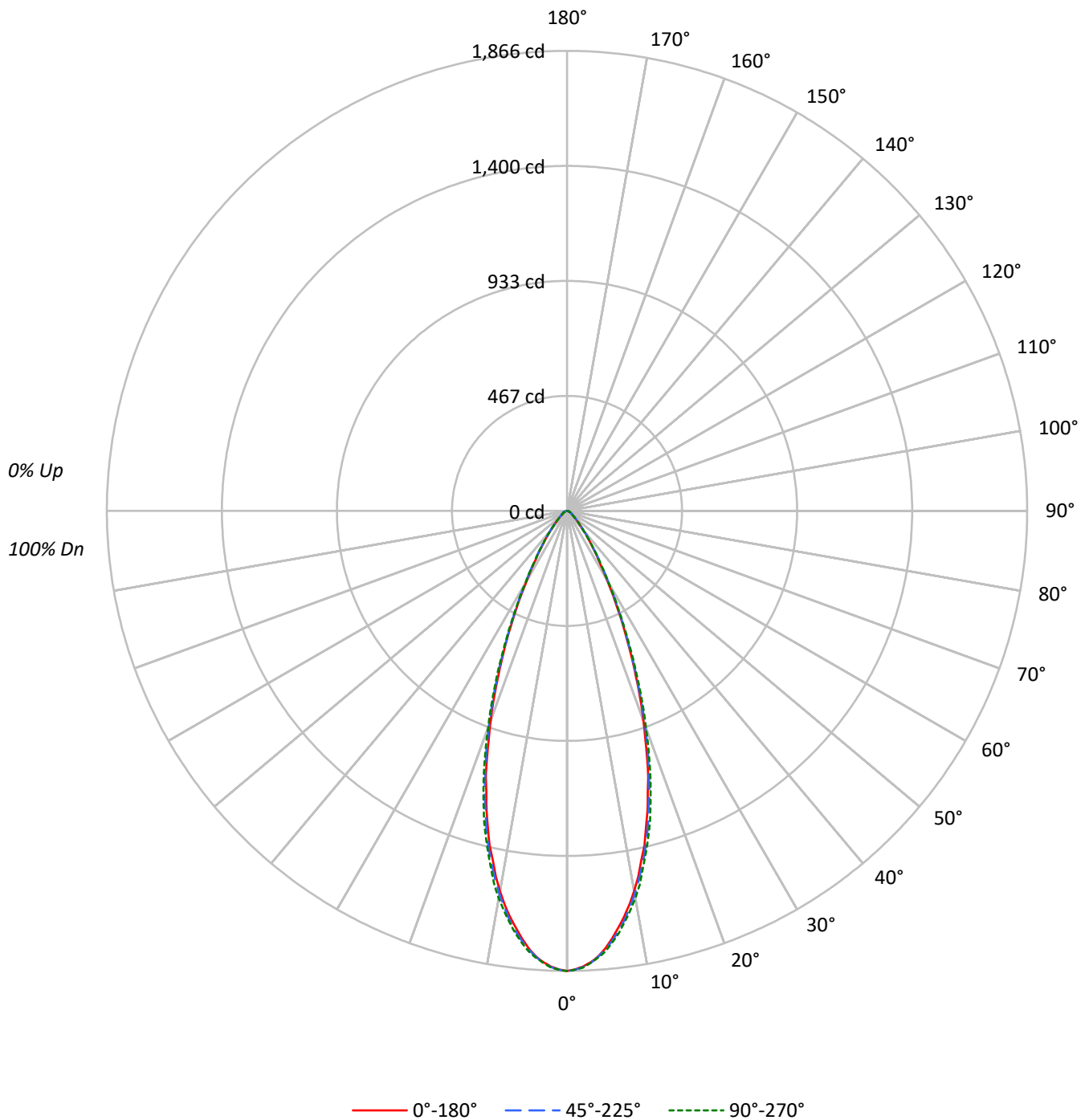
Lumens per Lamp: N/A
Luminaire Lumens: 1001.0 lumens
Efficiency: N/A
Efficacy: 77.0 lumens/watt
Spacing Criteria (0/90/45): 0.64 / 0.65 / 0.64
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

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

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	180799	180799	180799
5°	173223	173612	174390
10°	154087	155267	156939
15°	126319	127723	130331
20°	93371	95124	96557
25°	61547	62509	63685
30°	36344	37798	38022
35°	21749	22340	22458
40°	13026	13658	13026
45°	8220	8631	8083
50°	5275	5878	5426
55°	3885	4560	4054
60°	3294	3875	3488
65°	3209	3668	3438
70°	2832	3399	2832
75°	1871	2994	1871
80°	558	1116	558
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	163.8	16.4
10°-20°	349.5	34.9
20°-30°	270.4	27.0
30°-40°	122.7	12.3
40°-50°	49.6	5.0
50°-60°	23.4	2.3
60°-70°	14.8	1.5
70°-80°	6.6	0.7
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°	783.8	78.3
0°-40°	906.5	90.6
0°-60°	979.5	97.8
0°-90°	1001.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1001.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1866	1866	1866	1866	1866	
5°	1781	1785	1785	1790	1793	163
15°	1260	1264	1274	1292	1300	344
25°	576	580	585	587	596	265
35°	184	185	189	190	190	119
45°	60	61	63	61	59	48
55°	23	25	27	25	24	22
65°	14	14	16	15	15	13
75°	5	6	8	6	5	5
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°	1866.3	1866.3	1866.3	1866.3	1866.3
1°	1860.3	1861.3	1861.3	1862.3	1861.3
2°	1849.3	1852.3	1852.3	1853.3	1854.3
3°	1833.3	1835.3	1836.3	1839.3	1836.3
4°	1811.3	1812.3	1813.3	1817.3	1816.3
5°	1781.3	1785.3	1785.3	1790.3	1793.3
6°	1744.3	1753.3	1753.3	1760.3	1760.3
7°	1703.4	1711.4	1716.4	1721.4	1725.4
8°	1662.4	1670.4	1675.4	1678.4	1682.4
9°	1616.4	1620.4	1626.4	1635.4	1640.4
10°	1566.4	1571.4	1578.4	1587.4	1595.4
11°	1511.4	1518.4	1525.4	1534.4	1544.4
12°	1447.5	1458.5	1467.4	1481.4	1481.4
13°	1394.5	1394.5	1408.5	1421.5	1422.5
14°	1324.5	1331.5	1346.5	1355.5	1362.5
15°	1259.5	1264.5	1273.5	1292.5	1299.5
16°	1186.6	1196.6	1209.5	1226.5	1228.5
17°	1125.6	1129.6	1137.6	1151.6	1157.6
18°	1049.6	1054.6	1065.6	1079.6	1085.6
19°	973.6	982.6	994.6	1006.6	1011.6
20°	905.7	916.7	922.7	931.6	936.6
22.5°	732.7	738.7	744.7	755.7	759.7
25°	575.8	579.8	584.8	586.8	595.8
27.5°	438.8	439.8	447.8	452.8	452.8
30°	324.9	331.9	337.9	338.9	339.9
32.5°	241.9	247.9	250.9	254.9	251.9
35°	183.9	184.9	188.9	189.9	189.9
37.5°	137.9	137.9	143.9	142.9	139.9
40°	103.0	104.0	108.0	107.0	103.0
42.5°	78.0	79.0	82.0	80.0	78.0
45°	60.0	61.0	63.0	61.0	59.0
47.5°	46.0	47.0	49.0	48.0	45.0
50°	35.0	37.0	39.0	38.0	36.0
52.5°	28.0	30.0	32.0	30.0	29.0
55°	23.0	25.0	27.0	25.0	24.0
57.5°	20.0	21.0	23.0	22.0	21.0
60°	17.0	18.0	20.0	19.0	18.0
62.5°	15.0	16.0	18.0	17.0	16.0
65°	14.0	14.0	16.0	15.0	15.0
67.5°	12.0	13.0	14.0	14.0	13.0
70°	10.0	11.0	12.0	12.0	10.0
72.5°	8.0	9.0	10.0	9.0	8.0
75°	5.0	6.0	8.0	6.0	5.0
77.5°	2.0	3.0	5.0	4.0	3.0
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)