

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: P990729

Luminaire Tested: **ML3ALSFL9FS1E-TIR4D25NFL-TL3SDMB-750LM-3500K**

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: P990729
Test Lab: Cooper Lighting Solutions
Issue Date: 5/13/2025
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO
Catalog Number: ML3ALSFL9FS1E-TIR4D25NFL-TL3SDMB-750LM-3500K
Description: 3IN SQUARE ML FLEX ADJUSTABLE, SELECTABLE CCT, WITH 25D TIR, MATTE BLACK TRIM
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 3500K CCT
Ballast/Driver: -

Summary

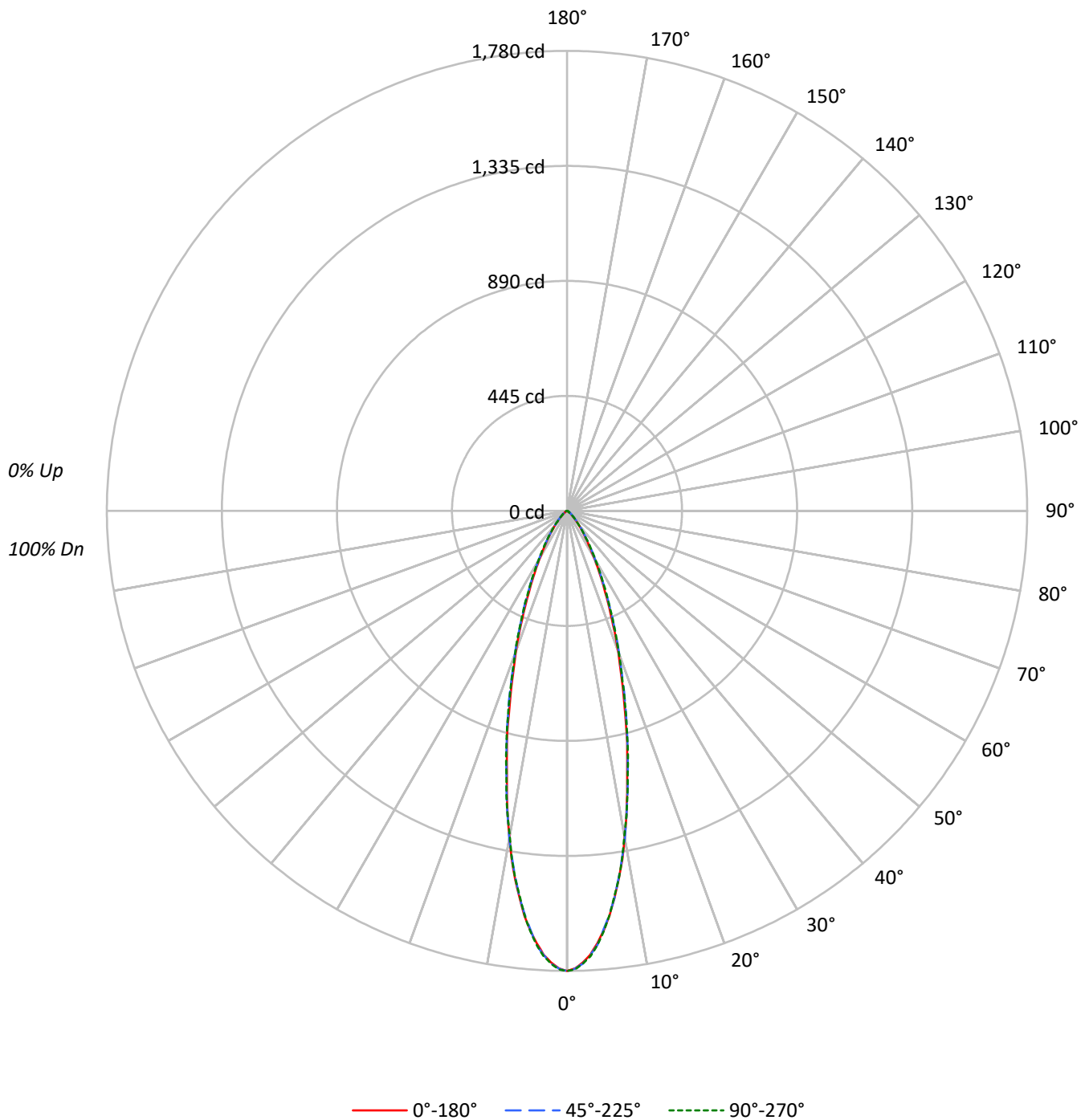
Lumens per Lamp: N/A
Luminaire Lumens: 694.6 lumens
Efficiency: N/A
Efficacy: 71.6 lumens/watt
Spacing Criteria (0/90/45): 0.49 / 0.5 / 0.54
Luminous Opening: Rectangular (W 0.25' x L: 0.25' x H: 0')
CIE Type: Direct

Input Watts (W): 9.7
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	112	109	107	105	105	104	102		102	100	99		98
2	109	105	101	98	107	103	100	97	100	97	95		97	95	93		94
3	104	99	94	90	102	97	93	90	95	91	88		92	89	87		90
4	100	93	88	84	98	92	87	84	90	86	83		88	85	82		86
5	96	88	83	79	94	87	82	79	86	81	78		84	80	78		83
6	92	84	79	75	90	83	78	74	82	77	74		80	76	74		79
7	88	80	75	71	87	79	74	71	78	74	70		77	73	70		76
8	85	76	71	67	83	76	71	67	75	70	67		74	70	67		73
9	81	73	68	64	80	72	68	64	72	67	64		71	67	64		70
10	78	70	65	61	78	70	65	61	69	64	61		68	64	61		67

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	306591	306591	306591
5°	281622	281086	282176
10°	224545	224912	223094
15°	159256	160379	160557
20°	105823	108114	107729
25°	66737	69721	69721
30°	41046	43313	43949
35°	25208	26743	27164
40°	15220	16637	16165
45°	9133	10400	9645
50°	5573	6993	5868
55°	3453	4384	3753
60°	2514	3238	2514
65°	1712	2119	2119
70°	1561	1561	1561
75°	665	1397	665
80°	0	0	0
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	144.3	20.8
10°-20°	246.8	35.5
20°-30°	169.5	24.4
30°-40°	81.7	11.8
40°-50°	32.9	4.7
50°-60°	12.5	1.8
60°-70°	5.2	0.8
70°-80°	1.6	0.2
80°-90°	0.0	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°	560.6	80.7
0°-40°	642.3	92.5
0°-60°	687.8	99.0
0°-90°	694.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	694.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1780	1780	1780	1780	1780	
5°	1629	1631	1626	1634	1632	144
15°	893	892	900	902	900	245
25°	351	358	367	370	367	165
35°	120	121	127	131	129	77
45°	38	40	43	42	40	30
55°	12	12	15	14	12	11
65°	4	5	5	5	5	4
75°	1	1	2	1	1	1
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°	1780.2	1780.2	1780.2	1780.2	1780.2
1°	1770.8	1770.8	1771.8	1770.8	1774.9
2°	1748.9	1749.9	1753.1	1753.1	1753.1
3°	1719.7	1718.7	1720.7	1723.9	1726.0
4°	1677.0	1675.9	1684.3	1682.2	1684.3
5°	1629.0	1631.1	1625.9	1634.2	1632.2
6°	1574.8	1571.7	1569.6	1575.9	1572.7
7°	1507.1	1510.2	1507.1	1514.4	1501.9
8°	1439.3	1437.3	1433.1	1435.2	1438.3
9°	1366.4	1364.3	1360.1	1360.1	1363.3
10°	1284.0	1279.9	1286.1	1280.9	1275.7
11°	1201.7	1198.6	1204.8	1200.7	1203.8
12°	1117.3	1122.5	1124.6	1123.5	1125.6
13°	1033.9	1043.3	1043.3	1045.4	1042.2
14°	962.0	969.3	969.3	971.4	974.5
15°	893.2	892.2	899.5	901.5	900.5
16°	815.0	821.3	829.6	830.7	829.6
17°	747.3	753.5	767.1	766.0	762.9
18°	685.8	692.0	700.4	698.3	696.2
19°	625.3	629.5	642.0	644.1	637.9
20°	577.4	577.4	589.9	587.8	587.8
22.5°	451.3	455.5	466.9	469.0	466.9
25°	351.2	357.5	366.9	370.0	366.9
27.5°	271.0	274.1	284.5	286.6	287.7
30°	206.4	208.4	217.8	225.1	221.0
32.5°	156.3	160.5	167.8	172.0	170.9
35°	119.9	120.9	127.2	131.3	129.2
37.5°	89.6	92.8	96.9	99.0	95.9
40°	67.7	68.8	74.0	74.0	71.9
42.5°	50.0	52.1	56.3	56.3	53.2
45°	37.5	39.6	42.7	41.7	39.6
47.5°	27.1	30.2	32.3	31.3	29.2
50°	20.8	21.9	26.1	24.0	21.9
52.5°	15.6	16.7	19.8	17.7	16.7
55°	11.5	12.5	14.6	13.5	12.5
57.5°	8.3	9.4	11.5	10.4	9.4
60°	7.3	7.3	9.4	8.3	7.3
62.5°	5.2	6.3	7.3	6.3	6.3
65°	4.2	5.2	5.2	5.2	5.2
67.5°	3.1	4.2	4.2	4.2	4.2
70°	3.1	3.1	3.1	3.1	3.1
72.5°	2.1	2.1	3.1	2.1	2.1
75°	1.0	1.0	2.1	1.0	1.0
77.5°	0.0	1.0	1.0	1.0	1.0
80°	0.0	0.0	0.0	0.0	0.0

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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)