

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: P990730

Luminaire Tested: **ML3ALSFL9FS1E-TIR4D25NFL-TL3SDMB-750LM-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: P990730
 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-4000K
 Description: 3IN 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

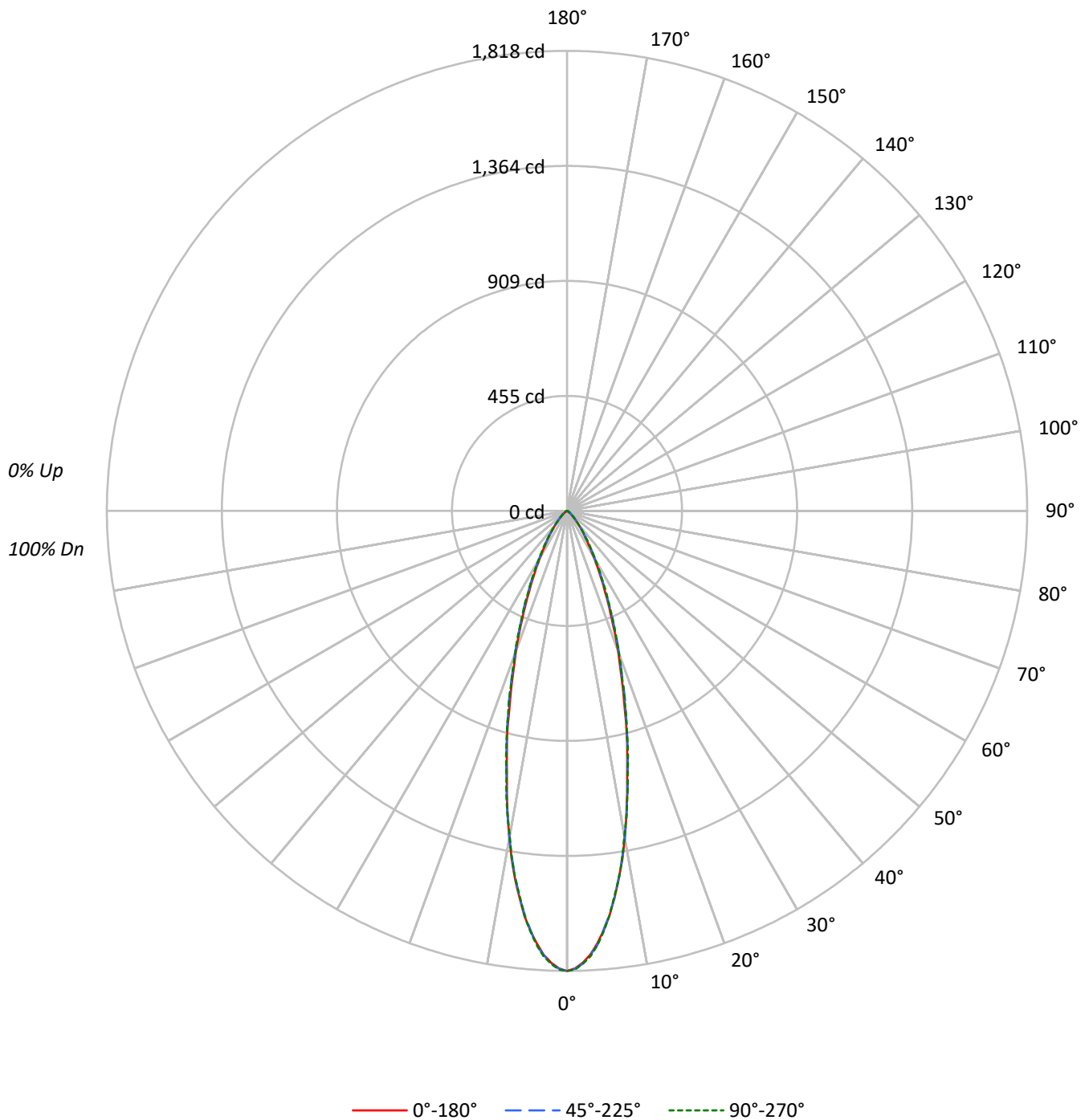
Lumens per Lamp: N/A
 Luminaire Lumens: 709.5 lumens
 Efficiency: N/A
 Efficacy: 73.1 lumens/watt
 Spacing Criteria (0/90/45): 0.49 / 0.5 / 0.54
 Luminous Opening: Rectangular (W 0.25' x L: 0.25' x H: 0')
 CIE Type: Direct

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	77		82
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°	313170	313170	313170
5°	287673	287120	288226
10°	229372	229739	227885
15°	162679	163820	163998
20°	108096	110442	110039
25°	68182	71203	71203
30°	41921	44248	44884
35°	25734	27311	27752
40°	15558	16996	16524
45°	9328	10619	9864
50°	5707	7127	6002
55°	3513	4474	3843
60°	2583	3307	2583
65°	1752	2160	2160
70°	1611	1611	1611
75°	732	1397	732
80°	0	0	0
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	147.4	20.8
10°-20°	252.1	35.5
20°-30°	173.1	24.4
30°-40°	83.4	11.8
40°-50°	33.6	4.7
50°-60°	12.8	1.8
60°-70°	5.3	0.8
70°-80°	1.7	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°	572.7	80.7
0°-40°	656.1	92.5
0°-60°	702.5	99.0
0°-90°	709.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	709.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1818	1818	1818	1818	1818	
5°	1664	1666	1661	1669	1667	148
15°	912	911	919	921	920	250
25°	359	365	375	378	375	168
35°	122	124	130	134	132	79
45°	38	40	44	43	40	31
55°	12	13	15	14	13	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°	1818.4	1818.4	1818.4	1818.4	1818.4
1°	1808.8	1808.8	1809.8	1808.8	1813.0
2°	1786.4	1787.5	1790.7	1790.7	1790.7
3°	1756.6	1755.5	1757.7	1760.9	1763.0
4°	1713.0	1711.9	1720.4	1718.3	1720.4
5°	1664.0	1666.1	1660.8	1669.3	1667.2
6°	1608.6	1605.4	1603.3	1609.7	1606.5
7°	1539.4	1542.6	1539.4	1546.9	1534.1
8°	1470.2	1468.1	1463.8	1466.0	1469.2
9°	1395.7	1393.6	1389.3	1389.3	1392.5
10°	1311.6	1307.3	1313.7	1308.4	1303.1
11°	1227.5	1224.3	1230.7	1226.4	1229.6
12°	1141.3	1146.6	1148.7	1147.6	1149.8
13°	1056.1	1065.7	1065.7	1067.8	1064.6
14°	982.6	990.1	990.1	992.2	995.4
15°	912.4	911.3	918.8	920.9	919.8
16°	832.5	838.9	847.4	848.5	847.4
17°	763.3	769.7	783.6	782.5	779.3
18°	700.5	706.9	715.4	713.3	711.2
19°	638.8	643.0	655.8	657.9	651.5
20°	589.8	589.8	602.6	600.4	600.4
22.5°	461.0	465.2	476.9	479.1	476.9
25°	358.8	365.2	374.7	377.9	374.7
27.5°	276.8	280.0	290.6	292.8	293.8
30°	210.8	212.9	222.5	230.0	225.7
32.5°	159.7	163.9	171.4	175.7	174.6
35°	122.4	123.5	129.9	134.1	132.0
37.5°	91.6	94.8	99.0	101.1	97.9
40°	69.2	70.3	75.6	75.6	73.5
42.5°	51.1	53.2	57.5	57.5	54.3
45°	38.3	40.5	43.6	42.6	40.5
47.5°	27.7	30.9	33.0	31.9	29.8
50°	21.3	22.4	26.6	24.5	22.4
52.5°	16.0	17.0	20.2	18.1	17.0
55°	11.7	12.8	14.9	13.8	12.8
57.5°	8.5	9.6	11.7	10.6	9.6
60°	7.5	7.5	9.6	8.5	7.5
62.5°	5.3	6.4	7.5	6.4	6.4
65°	4.3	5.3	5.3	5.3	5.3
67.5°	3.2	4.3	4.3	4.3	4.3
70°	3.2	3.2	3.2	3.2	3.2
72.5°	2.1	2.1	3.2	2.1	2.1
75°	1.1	1.1	2.1	1.1	1.1
77.5°	0.0	1.1	1.1	1.1	1.1
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)