

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: P990919

Luminaire Tested: **ML4ALSFL9FS1E-TIR4D40FL-TL4SDMW-1000LM-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: P990919
 Test Lab: Cooper Lighting Solutions
 Issue Date: 5/13/2025
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
 Product Line: HALO
 Catalog Number: ML4ALSFL9FS1E-TIR4D40FL-TL4SDMW-1000LM-3500K
 Description: 4IN SQUARE ML FLEX ADJUSTABLE, SELECTABLE CCT, WITH 40D TIR, MATTE WHITE TRIM
 Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 3500K CCT
 Ballast/Driver: -

Summary

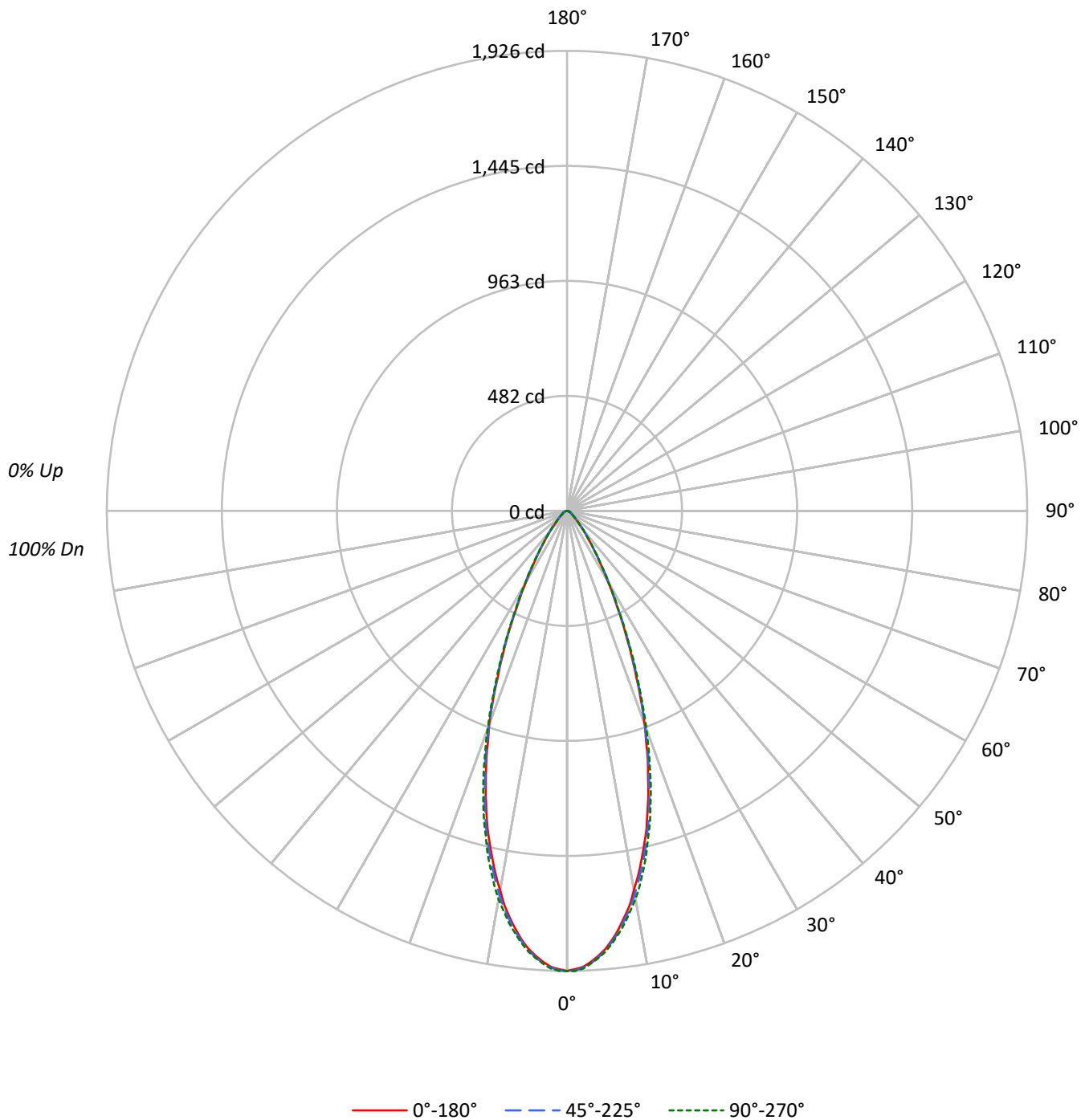
Lumens per Lamp: N/A
 Luminaire Lumens: 1038.9 lumens
 Efficiency: N/A
 Efficacy: 79.9 lumens/watt
 Spacing Criteria (0/90/45): 0.64 / 0.65 / 0.65
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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

TEST NUMBER: P990919
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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	108	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	88	101	96	91	88	93	89	86		91	88	85		88
4	98	91	86	82	97	90	85	81	88	84	81		86	82	80		84
5	94	86	81	76	92	85	80	76	83	79	75		82	78	75		80
6	90	81	76	72	88	81	75	72	79	75	71		78	74	71		77
7	86	77	72	68	85	77	71	68	75	71	67		74	70	67		73
8	82	73	68	64	81	73	68	64	72	67	64		71	67	63		70
9	79	70	65	61	78	70	64	61	69	64	61		68	63	60		67
10	76	67	61	58	75	66	61	58	66	61	58		65	61	58		64

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	186601	186601	186601
5°	179087	179486	180186
10°	158621	160451	162379
15°	130682	132647	134613
20°	98062	98278	100299
25°	64070	64957	65727
30°	38201	39465	39465
35°	22328	23180	23180
40°	13696	14088	13696
45°	8480	9042	8480
50°	5591	6224	5591
55°	4189	4881	4189
60°	3604	4204	3798
65°	3301	3782	3553
70°	3201	3795	3201
75°	2321	3481	2321
80°	558	1729	558
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	169.3	16.3
10°-20°	361.3	34.8
20°-30°	280.4	27.0
30°-40°	127.4	12.3
40°-50°	51.8	5.0
50°-60°	24.7	2.4
60°-70°	15.7	1.5
70°-80°	7.6	0.7
80°-90°	0.5	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°	811.0	78.1
0°-40°	938.5	90.3
0°-60°	1015.0	97.7
0°-90°	1038.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1038.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1926	1926	1926	1926	1926	
5°	1842	1837	1846	1848	1853	168
15°	1303	1306	1323	1335	1342	357
25°	599	602	608	610	615	277
35°	189	191	196	197	196	124
45°	62	64	66	64	62	50
55°	25	26	29	27	25	23
65°	14	16	16	16	16	15
75°	6	7	9	7	6	7
85°	0	0	0	0	0	0
90°	0	0	0	0	0	

TEST NUMBER: P990919

CATALOG NUMBER: ML4ALSFL9FS1E-TIR4D40FL-TL4SDMW-1000LM-3500K

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1926.2	1926.2	1926.2	1926.2	1926.2
1°	1918.9	1920.0	1925.1	1923.1	1926.2
2°	1910.7	1910.7	1913.8	1912.8	1917.9
3°	1891.1	1893.2	1897.3	1895.2	1899.3
4°	1868.4	1869.4	1874.6	1873.6	1876.6
5°	1841.6	1837.4	1845.7	1847.8	1852.9
6°	1806.5	1807.5	1812.7	1814.7	1818.9
7°	1765.2	1767.3	1774.5	1776.6	1781.7
8°	1719.8	1721.9	1729.1	1738.4	1742.5
9°	1673.4	1673.4	1684.8	1692.0	1695.1
10°	1612.5	1620.8	1631.1	1642.5	1650.7
11°	1557.9	1563.0	1574.4	1585.7	1597.1
12°	1497.0	1502.1	1514.5	1529.0	1536.2
13°	1434.1	1440.2	1454.7	1464.0	1475.3
14°	1373.2	1377.3	1389.7	1401.0	1404.1
15°	1303.0	1306.1	1322.6	1335.0	1342.2
16°	1234.9	1236.0	1251.4	1261.8	1270.0
17°	1160.7	1166.8	1174.1	1189.5	1198.8
18°	1093.6	1092.6	1104.9	1116.3	1122.5
19°	1014.2	1021.4	1028.6	1041.0	1048.2
20°	951.2	948.1	953.3	964.6	972.9
22.5°	762.4	766.5	772.7	778.9	781.0
25°	599.4	601.5	607.7	609.7	614.9
27.5°	457.0	461.2	466.3	463.2	466.3
30°	341.5	343.6	352.8	351.8	352.8
32.5°	253.8	257.9	262.1	262.1	263.1
35°	188.8	190.9	196.0	197.1	196.0
37.5°	142.4	144.4	149.6	147.5	144.4
40°	108.3	108.3	111.4	111.4	108.3
42.5°	81.5	82.5	85.6	84.6	81.5
45°	61.9	64.0	66.0	64.0	61.9
47.5°	47.5	49.5	51.6	49.5	47.5
50°	37.1	39.2	41.3	39.2	37.1
52.5°	29.9	32.0	34.0	32.0	29.9
55°	24.8	25.8	28.9	26.8	24.8
57.5°	20.6	22.7	24.8	22.7	21.7
60°	18.6	19.6	21.7	19.6	19.6
62.5°	16.5	17.5	18.6	17.5	16.5
65°	14.4	15.5	16.5	16.5	15.5
67.5°	13.4	13.4	15.5	14.4	13.4
70°	11.3	11.3	13.4	12.4	11.3
72.5°	9.3	9.3	11.3	10.3	8.3
75°	6.2	7.2	9.3	7.2	6.2
77.5°	3.1	4.1	6.2	4.1	3.1
80°	1.0	2.1	3.1	2.1	1.0

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CATALOG NUMBER: ML4ALSFL9FS1E-TIR4D40FL-TL4SDMW-1000LM-3500K

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
82.5°	1.0	1.0	1.0	1.0	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)