

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: P990918

Luminaire Tested: **ML4ALSFL9FS1E-TIR4D40FL-TL4SDMW-1000LM-3000K**

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: P990918
 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-3000K
 Description: 4IN SQUARE ML FLEX ADJUSTABLE, SELECTABLE CCT, WITH 40D TIR, MATTE WHITE TRIM
 Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 3000K CCT
 Ballast/Driver: -

Summary

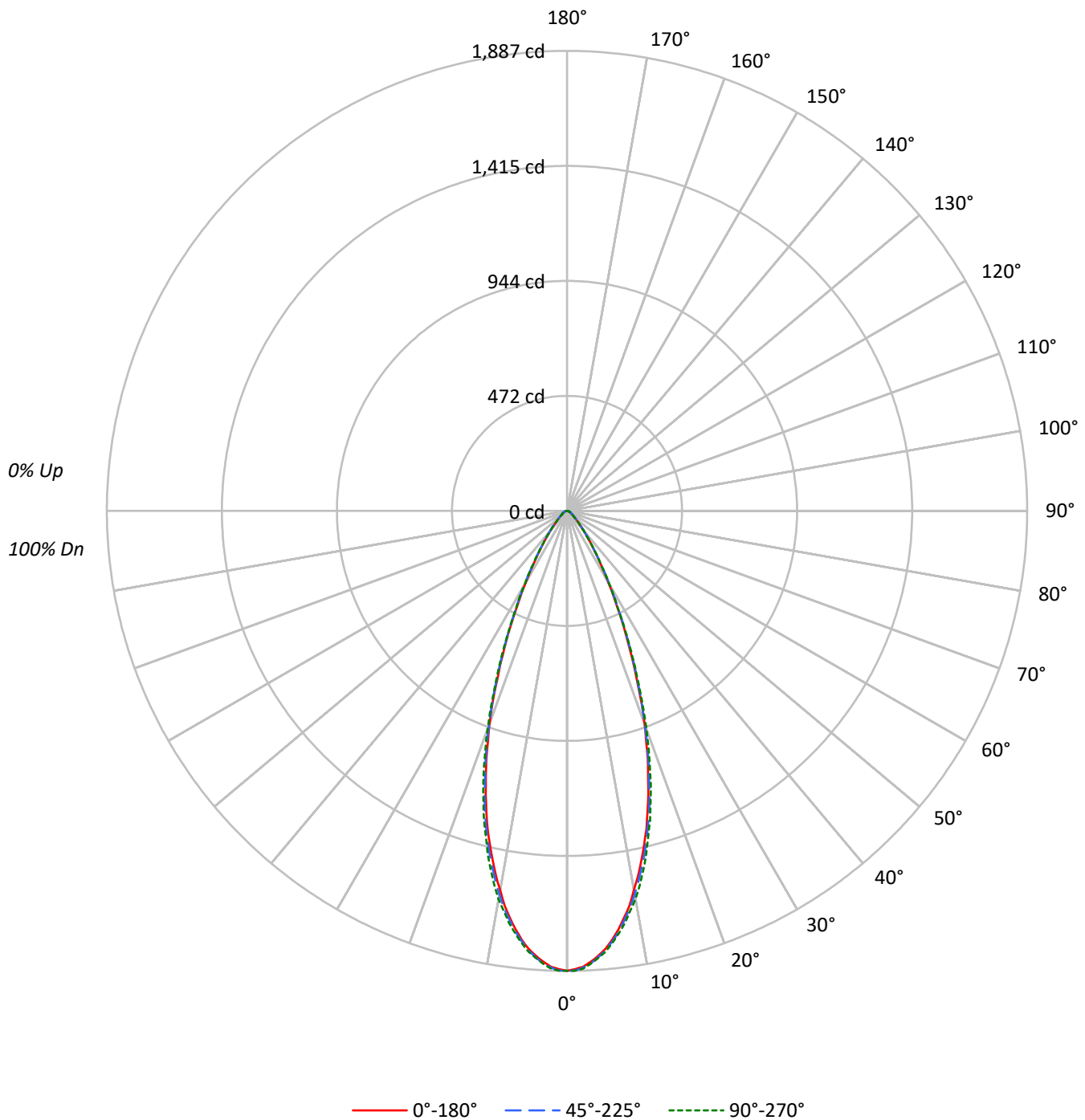
Lumens per Lamp: N/A
 Luminaire Lumens: 1017.6 lumens
 Efficiency: N/A
 Efficacy: 78.3 lumens/watt
 Spacing Criteria (0/90/45): 0.64 / 0.65 / 0.65
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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: P990918
CATALOG NUMBER: ML4ALSFL9FS1E-TIR4D40FL-TL4SDMW-1000LM-3000K

Luminous Intensity Polar Plot



TEST NUMBER: P990918

CATALOG NUMBER: ML4ALSFL9FS1E-TIR4D40FL-TL4SDMW-1000LM-3000K

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°	182775	182775	182775
5°	175421	175810	176501
10°	155375	157166	159054
15°	128014	129939	131865
20°	96051	96268	98247
25°	62755	63621	64380
30°	37418	38660	38660
35°	21867	22707	22707
40°	13418	13797	13418
45°	8302	8864	8302
50°	5486	6089	5486
55°	4104	4780	4104
60°	3526	4108	3720
65°	3232	3713	3484
70°	3144	3711	3144
75°	2283	3406	2283
80°	558	1674	558
85°	0	0	0

TEST NUMBER: P990918

CATALOG NUMBER: ML4ALSFL9FS1E-TIR4D40FL-TL4SDMW-1000LM-3000K

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	165.8	16.3
10°-20°	353.9	34.8
20°-30°	274.7	27.0
30°-40°	124.8	12.3
40°-50°	50.8	5.0
50°-60°	24.2	2.4
60°-70°	15.4	1.5
70°-80°	7.4	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°	794.4	78.1
0°-40°	919.2	90.3
0°-60°	994.2	97.7
0°-90°	1017.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1017.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1887	1887	1887	1887	1887	
5°	1804	1800	1808	1810	1815	165
15°	1276	1279	1296	1308	1315	350
25°	587	589	595	597	602	271
35°	185	187	192	193	192	122
45°	61	63	65	63	61	49
55°	24	25	28	26	24	23
65°	14	15	16	16	15	14
75°	6	7	9	7	6	6
85°	0	0	0	0	0	0
90°	0	0	0	0	0	

TEST NUMBER: P990918

CATALOG NUMBER: ML4ALSFL9FS1E-TIR4D40FL-TL4SDMW-1000LM-3000K

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1886.7	1886.7	1886.7	1886.7	1886.7
1°	1879.7	1880.7	1885.7	1883.7	1886.7
2°	1871.6	1871.6	1874.6	1873.6	1878.7
3°	1852.4	1854.4	1858.4	1856.4	1860.5
4°	1830.1	1831.2	1836.2	1835.2	1838.2
5°	1803.9	1799.8	1807.9	1809.9	1815.0
6°	1769.5	1770.5	1775.6	1777.6	1781.6
7°	1729.1	1731.1	1738.2	1740.2	1745.3
8°	1684.6	1686.6	1693.7	1702.8	1706.9
9°	1639.1	1639.1	1650.3	1657.3	1660.4
10°	1579.5	1587.6	1597.7	1608.8	1616.9
11°	1526.0	1531.0	1542.1	1553.2	1564.4
12°	1466.3	1471.4	1483.5	1497.7	1504.7
13°	1404.7	1410.8	1424.9	1434.0	1445.1
14°	1345.1	1349.1	1361.2	1372.4	1375.4
15°	1276.4	1279.4	1295.6	1307.7	1314.8
16°	1209.7	1210.7	1225.8	1235.9	1244.0
17°	1136.9	1143.0	1150.0	1165.2	1174.3
18°	1071.2	1070.2	1082.3	1093.4	1099.5
19°	993.4	1000.5	1007.5	1019.7	1026.7
20°	931.7	928.7	933.8	944.9	953.0
22.5°	746.8	750.9	756.9	763.0	765.0
25°	587.1	589.2	595.2	597.2	602.3
27.5°	447.7	451.7	456.8	453.7	456.8
30°	334.5	336.5	345.6	344.6	345.6
32.5°	248.6	252.6	256.7	256.7	257.7
35°	184.9	187.0	192.0	193.0	192.0
37.5°	139.5	141.5	146.5	144.5	141.5
40°	106.1	106.1	109.1	109.1	106.1
42.5°	79.8	80.8	83.9	82.9	79.8
45°	60.6	62.7	64.7	62.7	60.6
47.5°	46.5	48.5	50.5	48.5	46.5
50°	36.4	38.4	40.4	38.4	36.4
52.5°	29.3	31.3	33.3	31.3	29.3
55°	24.3	25.3	28.3	26.3	24.3
57.5°	20.2	22.2	24.3	22.2	21.2
60°	18.2	19.2	21.2	19.2	19.2
62.5°	16.2	17.2	18.2	17.2	16.2
65°	14.1	15.2	16.2	16.2	15.2
67.5°	13.1	13.1	15.2	14.1	13.1
70°	11.1	11.1	13.1	12.1	11.1
72.5°	9.1	9.1	11.1	10.1	8.1
75°	6.1	7.1	9.1	7.1	6.1
77.5°	3.0	4.0	6.1	4.0	3.0
80°	1.0	2.0	3.0	2.0	1.0

TEST NUMBER: P990918
CATALOG NUMBER: ML4ALSFL9FS1E-TIR4D40FL-TL4SDMW-1000LM-3000K

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)