

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: P990917

Luminaire Tested: **ML4ALSFL9FS1E-TIR4D40FL-TL4SDMW-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: P990917
 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-2700K
 Description: 4IN SQUARE ML FLEX ADJUSTABLE, SELECTABLE CCT, WITH 40D TIR, MATTE WHITE TRIM
 Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 2700K CCT
 Ballast/Driver: -

Summary

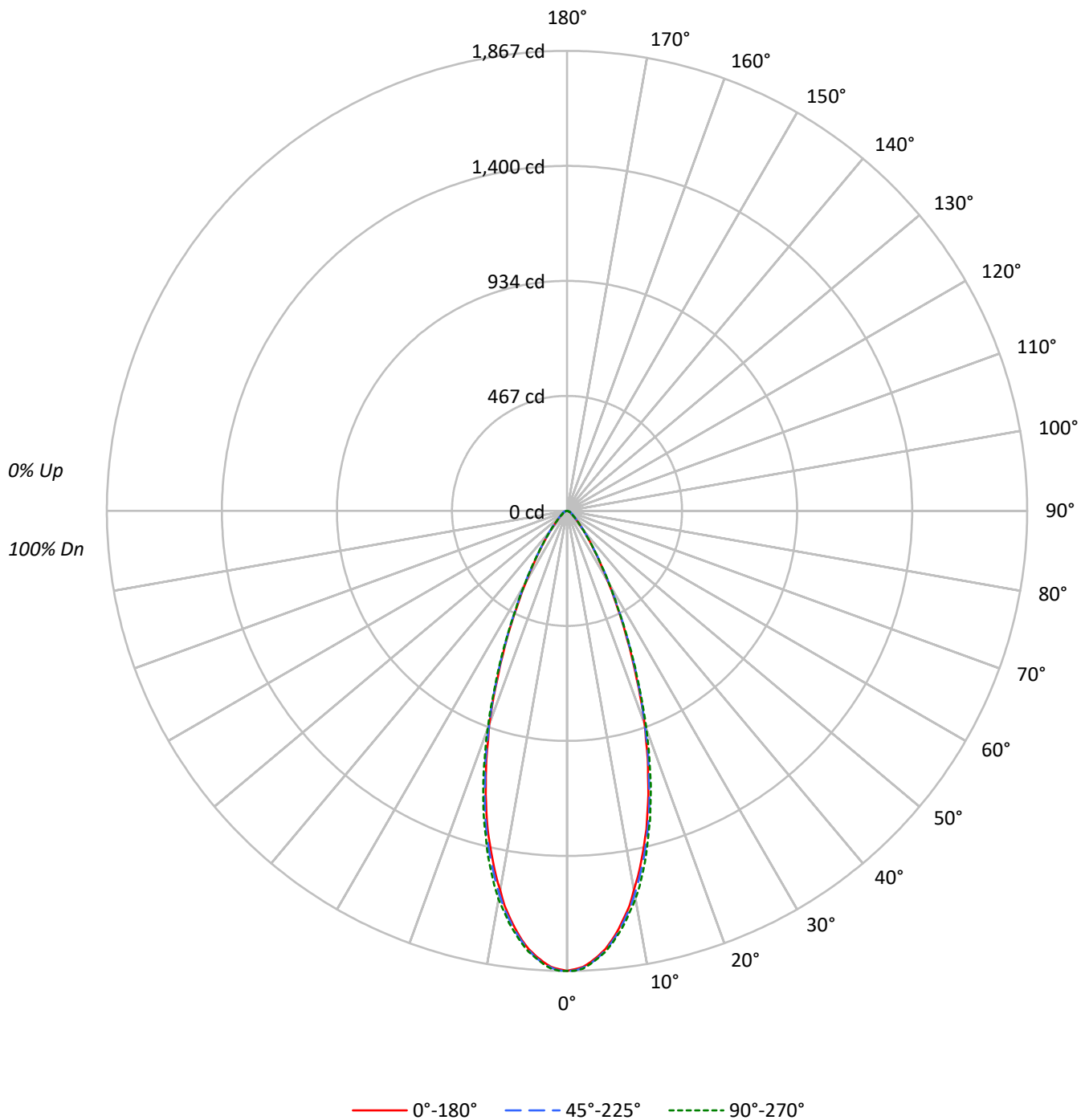
Lumens per Lamp: N/A
 Luminaire Lumens: 1007.0 lumens
 Efficiency: N/A
 Efficacy: 77.5 lumens/watt
 Spacing Criteria (0/90/45): 0.64 / 0.65 / 0.65
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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: P990917
CATALOG NUMBER: ML4ALSFL9FS1E-TIR4D40FL-TL4SDMW-1000LM-2700K

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°	180866	180866	180866
5°	173583	173972	174653
10°	153752	155523	157392
15°	126670	128575	130481
20°	95051	95258	97216
25°	62103	62958	63707
30°	37026	38257	38257
35°	21642	22470	22470
40°	13278	13658	13278
45°	8220	8768	8220
50°	5426	6028	5426
55°	4054	4729	4054
60°	3488	4069	3681
65°	3209	3668	3438
70°	3116	3682	3116
75°	2246	3369	2246
80°	558	1674	558
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	164.1	16.3
10°-20°	350.2	34.8
20°-30°	271.8	27.0
30°-40°	123.5	12.3
40°-50°	50.3	5.0
50°-60°	24.0	2.4
60°-70°	15.3	1.5
70°-80°	7.4	0.7
80°-90°	0.5	0.1
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°	786.1	78.1
0°-40°	909.6	90.3
0°-60°	983.9	97.7
0°-90°	1007.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1007.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1867	1867	1867	1867	1867	
5°	1785	1781	1789	1791	1796	163
15°	1263	1266	1282	1294	1301	346
25°	581	583	589	591	596	268
35°	183	185	190	191	190	121
45°	60	62	64	62	60	49
55°	24	25	28	26	24	22
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: P990917

CATALOG NUMBER: ML4ALSFL9FS1E-TIR4D40FL-TL4SDMW-1000LM-2700K

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1867	1867	1867	1867	1867
1°	1860	1861	1866	1864	1867
2°	1852	1852	1855	1854	1859
3°	1833	1835	1839	1837	1841
4°	1811	1812	1817	1816	1819
5°	1785	1781	1789	1791	1796
6°	1751	1752	1757	1759	1763
7°	1711	1713	1720	1722	1727
8°	1667	1669	1676	1685	1689
9°	1622	1622	1633	1640	1643
10°	1563	1571	1581	1592	1600
11°	1510	1515	1526	1537	1548
12°	1451	1456	1468	1482	1489
13°	1390	1396	1410	1419	1430
14°	1331	1335	1347	1358	1361
15°	1263	1266	1282	1294	1301
16°	1197	1198	1213	1223	1231
17°	1125	1131	1138	1153	1162
18°	1060	1059	1071	1082	1088
19°	983	990	997	1009	1016
20°	922	919	924	935	943
22.5°	739	743	749	755	757
25°	581	583	589	591	596
27.5°	443	447	452	449	452
30°	331	333	342	341	342
32.5°	246	250	254	254	255
35°	183	185	190	191	190
37.5°	138	140	145	143	140
40°	105	105	108	108	105
42.5°	79	80	83	82	79
45°	60	62	64	62	60
47.5°	46	48	50	48	46
50°	36	38	40	38	36
52.5°	29	31	33	31	29
55°	24	25	28	26	24
57.5°	20	22	24	22	21
60°	18	19	21	19	19
62.5°	16	17	18	17	16
65°	14	15	16	16	15
67.5°	13	13	15	14	13
70°	11	11	13	12	11
72.5°	9	9	11	10	8
75°	6	7	9	7	6
77.5°	3	4	6	4	3
80°	1	2	3	2	1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
82.5°	1	1	1	1	0
85°	0	0	0	0	0
87.5°	0	0	0	0	0
90°	0	0	0	0	0

(END OF REPORT)