

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: P990950

Luminaire Tested: **ML4ALSFL9FS1E-TIR4D55WFL-TL4SDMB-1000LM-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: P990950
 Test Lab: Cooper Lighting Solutions
 Issue Date: 5/13/2025
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
 Product Line: HALO
 Catalog Number: ML4ALSFL9FS1E-TIR4D55WFL-TL4SDMB-1000LM-4000K
 Description: 4IN SQUARE ML FLEX ADJUSTABLE, SELECTABLE CCT, WITH 55D TIR, MATTE BLACK TRIM
 Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 4000K CCT
 Ballast/Driver: -

Summary

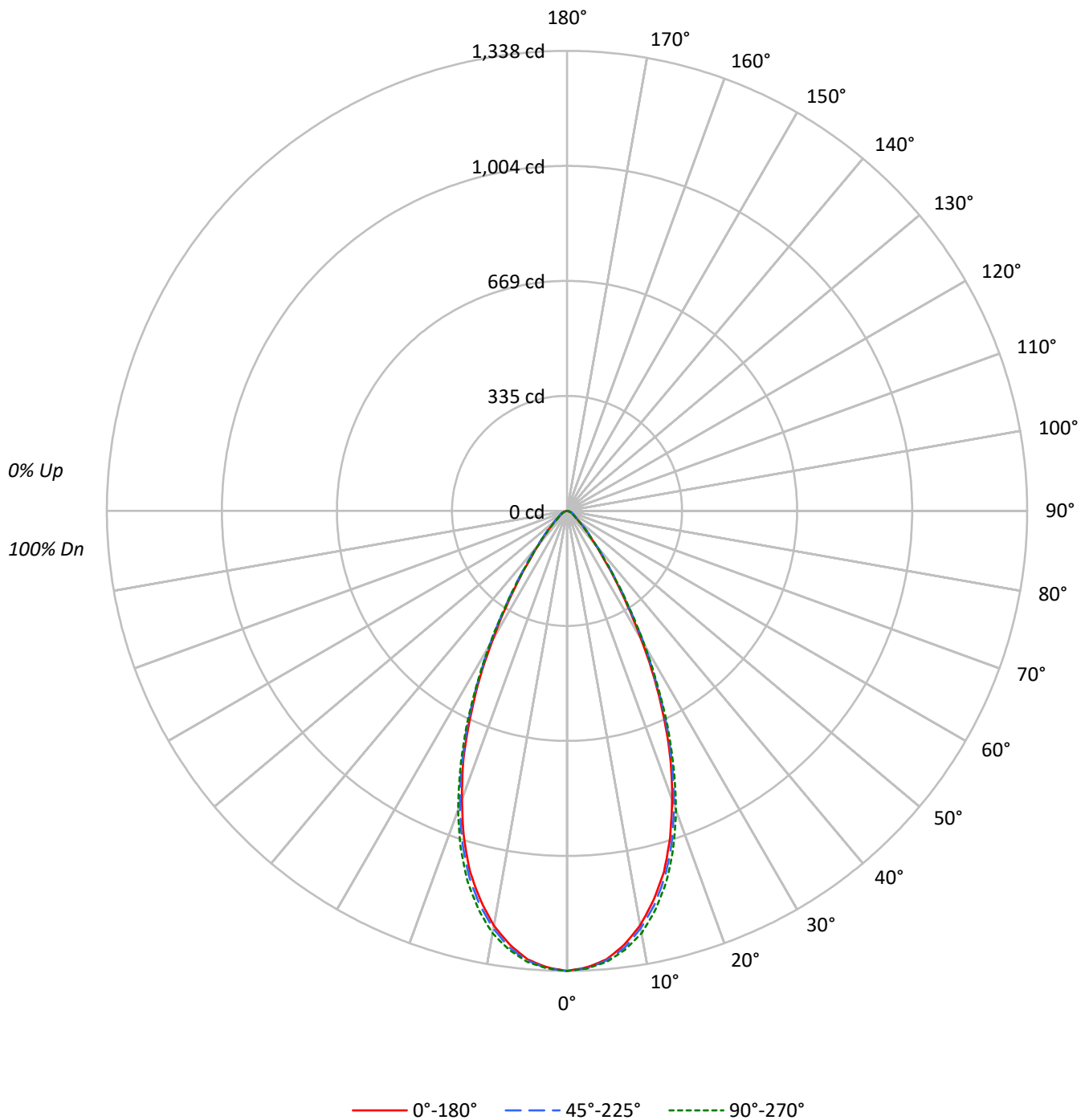
Lumens per Lamp: N/A
 Luminaire Lumens: 1006.7 lumens
 Efficiency: N/A
 Efficacy: 77.4 lumens/watt
 Spacing Criteria (0/90/45): 0.79 / 0.8 / 0.78
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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: P990950
CATALOG NUMBER: ML4ALSFL9FS1E-TIR4D55WFL-TL4SDMB-1000LM-4000K

Luminous Intensity Polar Plot



TEST NUMBER: P990950

CATALOG NUMBER: ML4ALSFL9FS1E-TIR4D55WFL-TL4SDMB-1000LM-4000K

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	113	111	108	106	111	108	106	104	104	102	101		101	99	98		97
2	108	103	99	95	105	101	97	94	98	95	92		95	92	90		92
3	102	96	91	87	100	94	90	86	92	88	85		89	86	83		87
4	97	89	84	80	95	88	83	79	86	82	78		84	80	77		82
5	92	84	78	74	91	83	77	73	81	76	73		79	75	72		78
6	88	79	73	69	86	78	72	68	77	72	68		75	71	67		74
7	84	74	68	64	82	74	68	64	72	67	64		71	67	63		70
8	80	70	64	60	78	70	64	60	69	64	60		68	63	60		67
9	76	67	61	57	75	66	60	57	65	60	56		64	60	56		63
10	73	63	57	54	72	63	57	54	62	57	53		61	57	53		60

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	129629	129629	129629
5°	127362	127674	128082
10°	120454	121280	122726
15°	109089	110362	111937
20°	92072	93814	95433
25°	71403	72974	73872
30°	48134	50125	50360
35°	28490	30110	29861
40°	16225	17426	16630
45°	9796	10522	9508
50°	6179	6978	6028
55°	4442	5151	4442
60°	3662	4282	3662
65°	3370	3851	3370
70°	2974	3569	2974
75°	2358	3144	1984
80°	614	1172	614
85°	0	0	0

TEST NUMBER: P990950

CATALOG NUMBER: ML4ALSFL9FS1E-TIR4D55WFL-TL4SDMB-1000LM-4000K

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	122.9	12.2
10°-20°	304.1	30.2
20°-30°	308.1	30.6
30°-40°	162.5	16.1
40°-50°	60.2	6.0
50°-60°	26.0	2.6
60°-70°	15.5	1.5
70°-80°	7.2	0.7
80°-90°	0.2	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°	735.1	73.0
0°-40°	897.6	89.2
0°-60°	983.8	97.7
0°-90°	1006.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1006.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1338	1338	1338	1338	1338	
5°	1310	1312	1313	1317	1317	122
15°	1088	1088	1100	1110	1116	300
25°	668	673	683	691	691	302
35°	241	243	255	255	252	157
45°	72	74	77	73	69	58
55°	26	27	30	27	26	24
65°	15	15	17	16	15	15
75°	6	7	8	7	5	6
85°	0	0	0	0	0	0
90°	0	0	0	0	0	

TEST NUMBER: P990950

CATALOG NUMBER: ML4ALSFL9FS1E-TIR4D55WFL-TL4SDMB-1000LM-4000K

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1338.1	1338.1	1338.1	1338.1	1338.1
2.5°	1328.6	1331.8	1331.8	1332.8	1331.8
5°	1309.7	1311.8	1312.9	1317.1	1317.1
7.5°	1272.9	1276.0	1281.3	1288.7	1287.6
10°	1224.5	1226.6	1232.9	1242.4	1247.6
12.5°	1160.3	1164.5	1172.9	1183.5	1187.7
15°	1087.7	1087.7	1100.4	1109.8	1116.1
17.5°	996.2	999.4	1012.0	1021.5	1027.8
20°	893.1	903.6	910.0	921.5	925.7
22.5°	787.9	791.1	798.4	807.9	811.1
25°	668.0	673.3	682.7	691.1	691.1
27.5°	550.2	552.3	560.7	567.0	566.0
30°	430.3	436.6	448.1	447.1	450.2
32.5°	327.2	332.4	339.8	345.0	341.9
35°	240.9	243.0	254.6	254.6	252.5
37.5°	174.6	179.9	187.3	186.2	180.9
40°	128.3	131.5	137.8	136.8	131.5
42.5°	95.7	97.8	102.0	98.9	93.6
45°	71.5	73.6	76.8	72.6	69.4
47.5°	53.7	55.8	58.9	54.7	51.5
50°	41.0	43.1	46.3	42.1	40.0
52.5°	31.6	33.7	36.8	33.7	31.6
55°	26.3	27.4	30.5	27.4	26.3
57.5°	22.1	23.1	25.2	23.1	22.1
60°	18.9	20.0	22.1	20.0	18.9
62.5°	16.8	16.8	18.9	17.9	16.8
65°	14.7	14.7	16.8	15.8	14.7
67.5°	12.6	13.7	14.7	13.7	12.6
70°	10.5	11.6	12.6	11.6	10.5
72.5°	8.4	9.5	10.5	9.5	8.4
75°	6.3	7.4	8.4	7.4	5.3
77.5°	2.1	4.2	5.3	4.2	3.2
80°	1.1	1.1	2.1	1.1	1.1
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)