

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: P990881

Luminaire Tested: **ML4ALSFL9FS1E-TIR4D25NFL-TL4SDMB-1000LM-5000K**

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: P990881
 Test Lab: Cooper Lighting Solutions
 Issue Date: 5/13/2025
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
 Product Line: HALO
 Catalog Number: ML4ALSFL9FS1E-TIR4D25NFL-TL4SDMB-1000LM-5000K
 Description: 4IN SQUARE ML FLEX ADJUSTABLE, SELECTABLE CCT, WITH 25D TIR, MATTE BLACK TRIM
 Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 5000K CCT
 Ballast/Driver: -

Summary

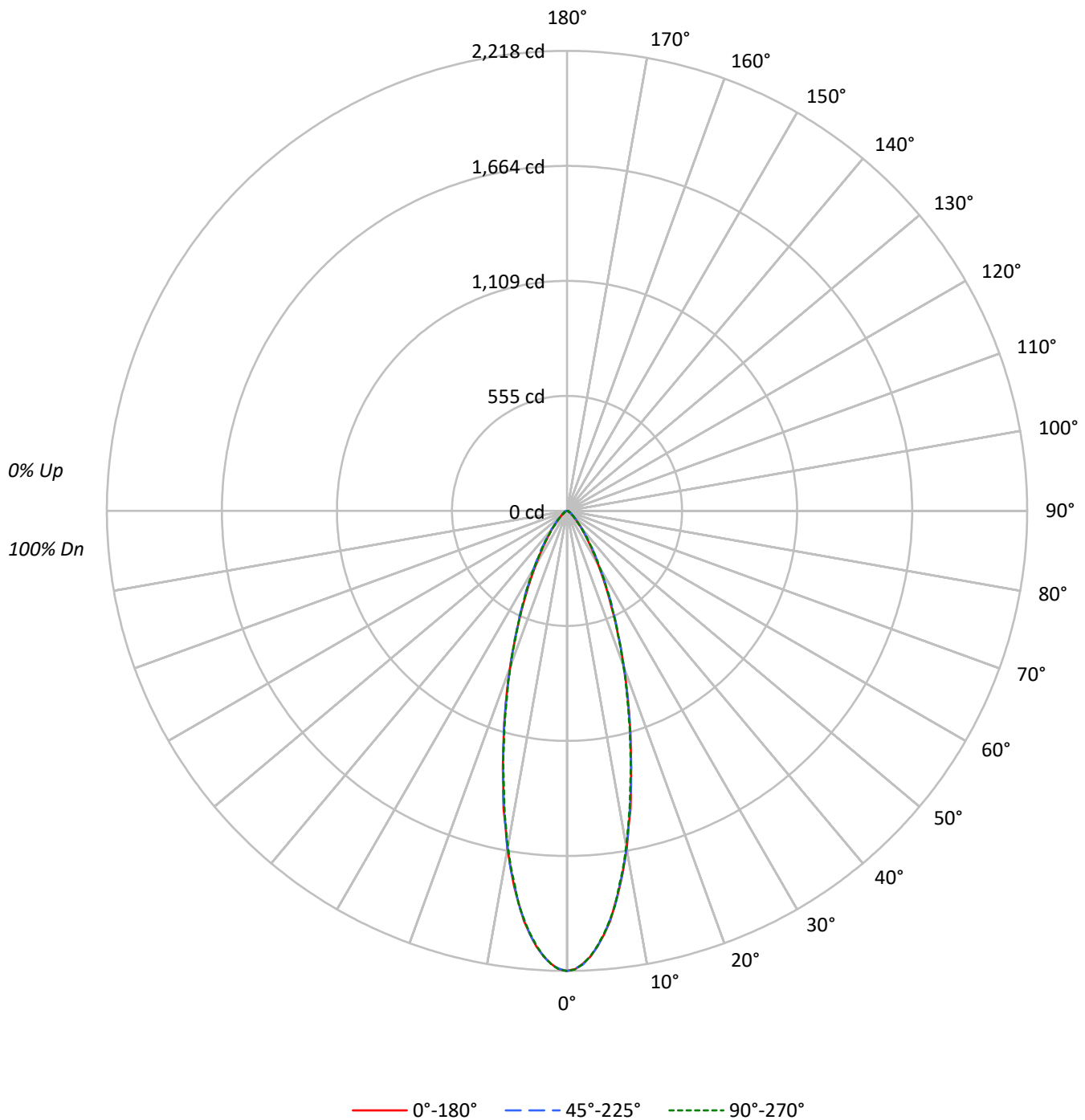
Lumens per Lamp: N/A
 Luminaire Lumens: 960.9 lumens
 Efficiency: N/A
 Efficacy: 73.9 lumens/watt
 Spacing Criteria (0/90/45): 0.52 / 0.52 / 0.56
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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

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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	111	109	107	105	105	103	102		101	100	99		98
2	108	104	100	97	106	102	99	96	99	96	94		96	94	92		93
3	104	97	93	89	102	96	92	88	93	90	87		91	88	86		89
4	99	92	87	83	97	91	86	82	89	84	81		87	83	80		85
5	94	87	81	77	93	86	81	77	84	80	76		82	79	76		81
6	90	82	77	73	89	81	76	72	80	75	72		79	75	71		77
7	87	78	73	69	85	77	72	69	76	72	68		75	71	68		74
8	83	74	69	65	82	74	69	65	73	68	65		72	68	64		71
9	80	71	66	62	79	71	65	62	70	65	62		69	65	62		68
10	77	68	63	59	76	68	62	59	67	62	59		66	62	59		65

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	214908	214908	214908
5°	199353	199353	198925
10°	162615	162399	161435
15°	118977	118757	118205
20°	82618	82392	81835
25°	53755	55166	54461
30°	33760	35595	35225
35°	20944	22624	21855
40°	13418	14240	13278
45°	8385	9289	8083
50°	5275	6420	5275
55°	3699	4611	3885
60°	2964	3817	3178
65°	2751	3255	2751
70°	2181	3087	2464
75°	1647	2470	1647
80°	614	1227	614
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	182.5	19.0
10°-20°	326.8	34.0
20°-30°	237.7	24.7
30°-40°	120.4	12.5
40°-50°	51.6	5.4
50°-60°	23.1	2.4
60°-70°	13.0	1.3
70°-80°	5.8	0.6
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°	747.0	77.7
0°-40°	867.3	90.3
0°-60°	942.0	98.0
0°-90°	960.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	960.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2218	2218	2218	2218	2218	
5°	2050	2049	2050	2046	2046	183
15°	1186	1185	1184	1185	1179	328
25°	503	508	516	512	510	235
35°	177	182	191	189	185	116
45°	61	63	68	63	59	49
55°	22	24	27	25	23	21
65°	12	12	14	13	12	11
75°	4	6	7	6	4	5
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°	2218.4	2218.4	2218.4	2218.4	2218.4
1°	2209.6	2211.8	2207.4	2208.5	2210.7
2°	2185.6	2187.8	2188.9	2184.5	2186.7
3°	2151.7	2158.2	2149.5	2152.8	2149.5
4°	2105.8	2106.9	2105.8	2104.7	2102.5
5°	2050.0	2048.9	2050.0	2045.6	2045.6
6°	1987.7	1983.3	1982.2	1980.0	1981.1
7°	1906.8	1911.2	1912.2	1904.6	1911.2
8°	1828.1	1825.9	1821.5	1824.8	1817.1
9°	1740.6	1745.0	1743.9	1727.5	1734.0
10°	1653.1	1655.3	1650.9	1635.6	1641.1
11°	1553.6	1558.0	1552.5	1546.0	1547.1
12°	1469.4	1459.6	1459.6	1460.7	1453.0
13°	1365.6	1370.0	1372.1	1366.7	1354.6
14°	1279.2	1275.9	1274.8	1268.3	1269.4
15°	1186.3	1185.2	1184.1	1185.2	1178.6
16°	1104.3	1098.8	1105.4	1097.7	1095.5
17°	1026.6	1022.3	1021.2	1017.9	1011.3
18°	944.6	942.5	944.6	937.0	932.6
19°	870.3	867.0	869.2	865.9	869.2
20°	801.4	799.2	799.2	795.9	793.8
22.5°	639.6	638.5	645.1	644.0	637.4
25°	502.9	508.4	516.1	511.7	509.5
27.5°	392.5	400.2	407.8	404.5	406.7
30°	301.8	308.3	318.2	317.1	314.9
32.5°	234.0	237.3	248.2	248.2	241.6
35°	177.1	181.5	191.3	189.1	184.8
37.5°	136.7	141.0	147.6	144.3	139.9
40°	106.1	107.1	112.6	109.3	105.0
42.5°	79.8	83.1	87.5	84.2	78.7
45°	61.2	63.4	67.8	63.4	59.0
47.5°	45.9	49.2	53.6	49.2	44.8
50°	35.0	38.3	42.6	38.3	35.0
52.5°	27.3	29.5	33.9	30.6	28.4
55°	21.9	24.1	27.3	25.1	23.0
57.5°	18.6	19.7	23.0	20.8	19.7
60°	15.3	16.4	19.7	17.5	16.4
62.5°	13.1	14.2	16.4	15.3	14.2
65°	12.0	12.0	14.2	13.1	12.0
67.5°	9.8	10.9	12.0	12.0	10.9
70°	7.7	8.7	10.9	9.8	8.7
72.5°	6.6	7.7	8.7	7.7	6.6
75°	4.4	5.5	6.6	5.5	4.4
77.5°	2.2	3.3	4.4	3.3	2.2
80°	1.1	1.1	2.2	1.1	1.1

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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)