

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: P990621

Luminaire Tested: **ML2ALSFL9FS1E-TIR1D40FL-TL2SDMW-20°-550LM-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: P990621
 Test Lab: Cooper Lighting Solutions
 Issue Date: 5/13/2025
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
 Product Line: HALO
 Catalog Number: ML2ALSFL9FS1E-TIR1D40FL-TL2SDMW-20°-550LM-5000K
 Description: 2IN SQUARE ML FLEX ADJUSTABLE, SELECTABLE CCT, WITH 40D TIR, MATTE WHITE TRIM 20° Tilt
 Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 5000K CCT
 Ballast/Driver: -

Summary

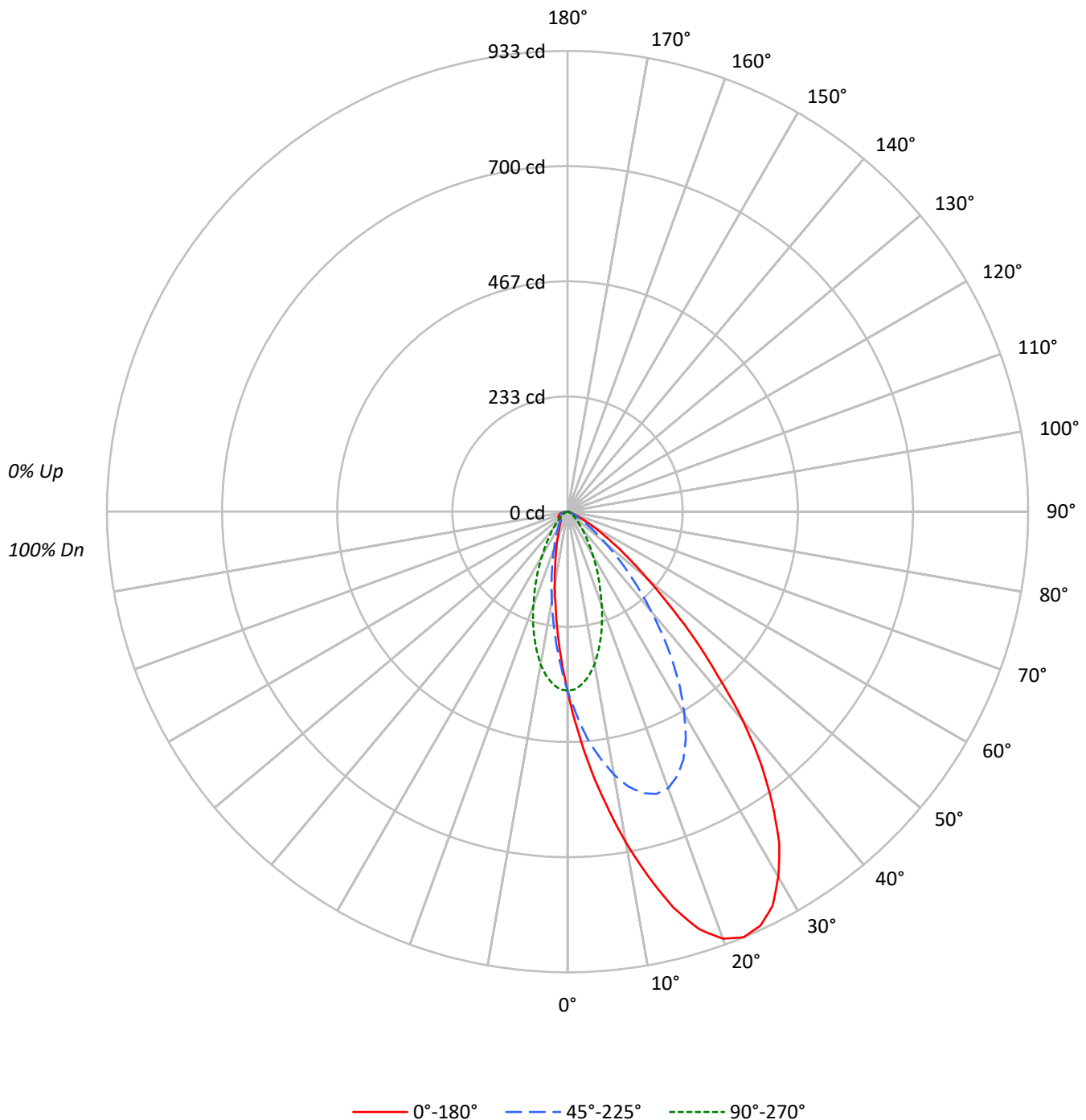
Lumens per Lamp: N/A
 Luminaire Lumens: 555.4 lumens
 Efficiency: N/A
 Efficacy: 73.1 lumens/watt
 Spacing Criteria (0/90/45): 1.48 / 0.69 / 1.07
 Luminous Opening: Rectangular (W 0.17' x L: 0.17' x H: 0')
 CIE Type: Direct

Input Watts (W): 7.6
 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	112	109	106	103	109	106	104	101	102	100	98		99	97	95		95
2	105	99	94	90	103	97	93	89	94	90	87		91	88	85		88
3	98	90	84	79	96	89	83	79	86	81	77		83	79	76		81
4	92	83	76	71	90	81	75	70	79	74	69		77	72	69		75
5	86	76	69	64	84	75	68	63	73	67	63		71	66	62		69
6	81	70	63	58	79	69	62	57	67	61	57		66	61	57		65
7	76	65	58	53	74	64	57	52	63	56	52		61	56	52		60
8	71	60	53	48	70	59	53	48	58	52	48		57	52	48		56
9	67	56	49	44	66	55	49	44	54	48	44		53	48	44		52
10	63	52	45	41	62	52	45	41	51	45	41		50	44	41		49

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	140430	140430	140430
5°	201803	136026	92616
10°	267525	123552	58392
15°	333171	104745	36908
20°	379502	83505	24660
25°	395449	63450	17701
30°	381940	45818	13916
35°	342299	32640	11448
40°	279327	23876	11078
45°	198598	17043	11344
50°	126235	12479	12479
55°	78503	10134	13985
60°	46345	8060	16042
65°	24298	7427	17971
70°	11783	6571	19600
75°	3444	5240	22458
80°	0	5132	23208
85°	0	5335	25787

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	34.8	6.3
10°-20°	101.3	18.2
20°-30°	142.7	25.7
30°-40°	132.3	23.8
40°-50°	81.6	14.7
50°-60°	37.0	6.7
60°-70°	16.2	2.9
70°-80°	7.3	1.3
80°-90°	2.2	0.4
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°	278.8	50.2
0°-40°	411.1	74.0
0°-60°	529.7	95.4
0°-90°	555.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	555.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	362	362	362	362	362	
5°	519	461	350	266	238	54
15°	830	590	261	121	92	236
25°	925	554	148	54	41	421
35°	724	372	69	29	24	447
45°	362	174	31	20	21	281
55°	116	56	15	18	21	109
65°	26	15	8	16	20	30
75°	2	4	4	10	15	4
85°	0	1	1	4	6	0
90°	0	0	0	0	0	

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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	67.5°
0°	362.4	362.4	362.4	362.4	362.4	362.4	362.4	362.4	362.4	362.4	362.4
2.5°	438.3	434.8	434.8	432.5	431.4	427.9	425.6	421.0	416.4	410.7	387.7
5°	518.8	514.2	513.1	508.4	503.8	498.1	488.9	478.5	470.5	461.3	404.9
7.5°	598.2	599.3	594.7	587.8	576.3	568.3	554.5	538.4	522.3	502.7	416.4
10°	679.9	679.9	676.4	661.4	648.8	633.8	614.3	592.4	567.1	540.7	418.7
12.5°	756.9	756.9	748.9	737.4	719.0	696.0	668.3	638.4	606.2	570.6	416.4
15°	830.5	824.8	814.4	796.0	773.0	746.6	712.1	672.9	632.7	590.1	403.8
17.5°	886.9	878.9	868.5	847.8	816.7	782.2	743.1	697.1	648.8	599.3	385.4
20°	920.3	915.7	901.9	877.7	846.6	807.5	760.4	707.5	652.2	595.9	360.1
22.5°	932.9	928.3	914.5	889.2	854.7	809.8	760.4	702.9	641.9	579.8	331.3
25°	924.9	920.3	905.3	881.2	845.5	796.0	744.3	684.5	620.0	554.5	299.1
27.5°	899.6	892.7	876.6	849.0	812.1	767.3	712.1	648.8	584.4	518.8	263.4
30°	853.6	850.1	835.1	802.9	766.1	717.8	663.7	600.5	538.4	472.8	230.1
32.5°	798.3	790.3	774.2	746.6	707.5	658.0	605.1	546.4	485.4	424.5	196.7
35°	723.6	722.4	706.3	672.9	633.8	589.0	537.2	480.8	425.6	371.6	163.3
37.5°	644.2	636.1	620.0	592.4	557.9	516.5	465.9	414.1	365.8	317.5	136.9
40°	552.2	545.3	528.0	502.7	472.8	434.8	394.6	349.7	304.8	263.4	110.4
42.5°	449.8	445.2	438.3	414.1	391.1	357.8	324.4	285.3	250.8	216.3	87.4
45°	362.4	356.6	347.4	331.3	309.4	287.6	257.7	230.1	201.3	173.7	69.0
47.5°	276.1	277.2	269.2	255.4	240.4	223.2	202.5	180.6	157.6	135.7	55.2
50°	209.4	210.5	203.6	194.4	181.8	170.3	153.0	138.0	119.6	103.5	42.6
52.5°	158.7	156.4	150.7	144.9	135.7	124.2	113.9	102.4	88.6	75.9	33.4
55°	116.2	116.2	112.7	107.0	101.2	93.2	82.8	74.8	66.7	56.4	25.3
57.5°	84.0	82.8	80.5	77.1	72.5	66.7	61.0	54.1	47.2	41.4	19.6
60°	59.8	59.8	57.5	54.1	50.6	46.0	42.6	38.0	33.4	29.9	15.0
62.5°	41.4	40.3	39.1	36.8	35.7	32.2	28.8	26.5	24.2	21.9	12.7
65°	26.5	26.5	26.5	25.3	23.0	21.9	19.6	18.4	16.1	15.0	9.2
67.5°	17.3	17.3	17.3	16.1	16.1	15.0	13.8	12.7	11.5	10.4	8.1
70°	10.4	10.4	10.4	10.4	9.2	9.2	9.2	8.1	8.1	8.1	5.8
72.5°	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	4.6
75°	2.3	2.3	2.3	2.3	3.5	3.5	3.5	3.5	3.5	3.5	3.5
77.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	2.3	2.3	2.3
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	1.2	1.2
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	1.2	1.2	1.2	1.2	1.2
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	1.2
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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CANDELA DISTRIBUTION (continued):

	90°	112.5°	135°	157.5°	180°
0°	362.4	362.4	362.4	362.4	362.4
2.5°	360.1	334.7	311.7	300.2	296.8
5°	349.7	301.4	265.7	245.0	238.1
7.5°	334.7	270.3	222.0	200.2	187.5
10°	314.0	234.7	184.1	156.4	148.4
12.5°	288.7	201.3	149.5	124.2	116.2
15°	261.1	170.3	120.8	98.9	92.0
17.5°	232.4	141.5	98.9	79.4	73.6
20°	202.5	118.5	79.4	63.3	59.8
22.5°	173.7	96.6	64.4	51.8	48.3
25°	148.4	80.5	54.1	43.7	41.4
27.5°	124.2	66.7	44.9	38.0	35.7
30°	102.4	55.2	38.0	32.2	31.1
32.5°	85.1	46.0	33.4	28.8	27.6
35°	69.0	38.0	28.8	25.3	24.2
37.5°	56.4	33.4	25.3	23.0	23.0
40°	47.2	28.8	23.0	21.9	21.9
42.5°	38.0	24.2	20.7	20.7	20.7
45°	31.1	21.9	19.6	19.6	20.7
47.5°	25.3	19.6	18.4	19.6	20.7
50°	20.7	17.3	18.4	20.7	20.7
52.5°	17.3	16.1	17.3	19.6	20.7
55°	15.0	15.0	18.4	20.7	20.7
57.5°	12.7	13.8	17.3	20.7	21.9
60°	10.4	13.8	17.3	19.6	20.7
62.5°	9.2	12.7	17.3	19.6	20.7
65°	8.1	11.5	16.1	18.4	19.6
67.5°	6.9	10.4	15.0	18.4	18.4
70°	5.8	9.2	13.8	17.3	17.3
72.5°	4.6	8.1	12.7	16.1	16.1
75°	3.5	6.9	10.4	13.8	15.0
77.5°	2.3	5.8	9.2	12.7	12.7
80°	2.3	3.5	6.9	10.4	10.4
82.5°	1.2	3.5	4.6	8.1	8.1
85°	1.2	2.3	3.5	5.8	5.8
87.5°	1.2	1.2	1.2	2.3	2.3
90°	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)