

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: P990905

Luminaire Tested: **ML4ALSFL9FS1E-TIR4D40FL-TL4RDMW-35°-1000LM-4000K**

Issue Date: 5/13/2025

Tested By:

Approved By:



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Test Information

Test Method: LM-79-08
 Report Number: P990905
 Test Lab: Cooper Lighting Solutions
 Issue Date: 5/13/2025
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
 Product Line: HALO
 Catalog Number: ML4ALSFL9FS1E-TIR4D40FL-TL4RDMW-35°-1000LM-4000K
 Description: 4IN ROUND ML FLEX ADJUSTABLE, SELECTABLE CCT, WITH 40D TIR, MATTE WHITE TRIM 35° Tilt
 Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 4000K CCT
 Ballast/Driver: -

Summary

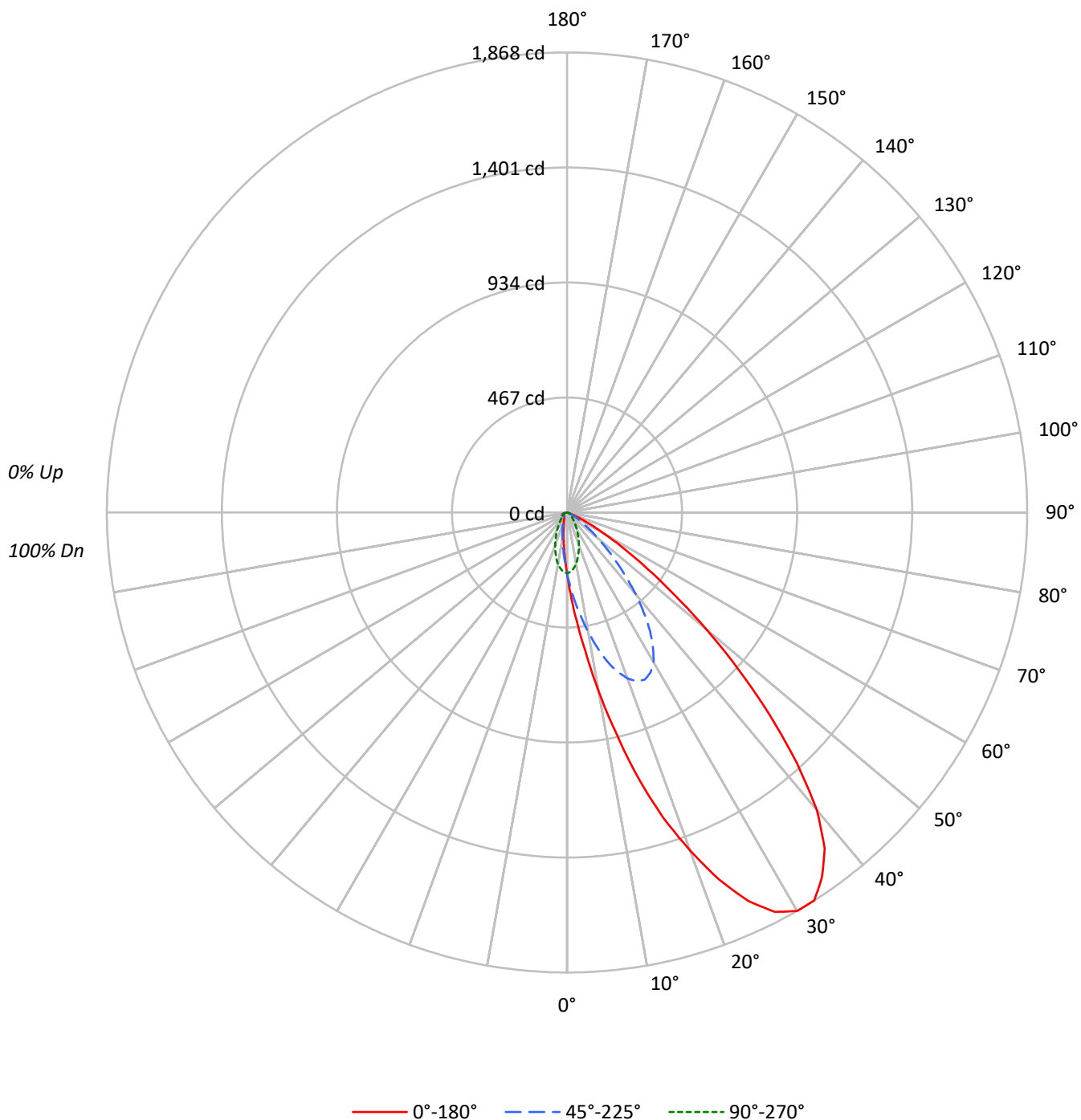
Lumens per Lamp: N/A
 Luminaire Lumens: 895.5 lumens
 Efficiency: N/A
 Efficacy: 68.9 lumens/watt
 Spacing Criteria (0/90/45): 2.28 / 0.7 / 1.37
 Luminous Opening: Circular (Dia: 0.33' x H: 0')
 CIE Type: Direct

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	112	108	105	102	109	106	103	100	102	99	97		98	96	94		94
2	104	97	92	88	101	96	91	87	92	88	85		89	86	83		86
3	96	88	81	76	94	86	80	75	84	78	74		81	77	73		79
4	89	79	72	67	87	78	71	66	76	70	65		74	69	64		72
5	83	72	64	59	81	71	64	58	69	63	58		67	62	57		65
6	77	65	58	52	75	65	57	52	63	56	51		61	55	51		60
7	72	60	52	47	70	59	52	46	58	51	46		56	50	46		55
8	67	55	47	42	65	54	47	42	53	46	41		52	46	41		51
9	63	50	43	38	61	50	43	38	49	42	37		48	42	37		47
10	59	46	39	34	57	46	39	34	45	38	34		44	38	34		43

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	30368	30368	30368
5°	54318	29184	17198
10°	92108	26490	10671
15°	142407	22564	6985
20°	191537	18364	4975
25°	236822	14467	3729
30°	266125	11238	3148
35°	271852	8553	2846
40°	253939	6602	3043
45°	202975	5320	3297
50°	141731	4644	4030
55°	85524	4516	4753
60°	44898	4416	5699
65°	20255	4611	6129
70°	7573	3787	6816
75°	1525	2526	7006
80°	0	1492	5256
85°	0	2972	4529

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	26.4	2.9
10°-20°	105.3	11.8
20°-30°	206.5	23.1
30°-40°	251.1	28.0
40°-50°	186.6	20.8
50°-60°	82.0	9.2
60°-70°	27.7	3.1
70°-80°	8.3	0.9
80°-90°	1.7	0.2
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°	338.2	37.8
0°-40°	589.3	65.8
0°-60°	857.8	95.8
0°-90°	895.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	895.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	246	246	246	246	246	
5°	439	360	236	162	139	51
15°	1115	624	177	73	55	324
25°	1740	748	106	36	27	798
35°	1805	587	57	21	19	1114
45°	1164	284	30	19	19	891
55°	398	88	21	21	22	372
65°	69	23	16	20	21	81
75°	3	3	5	12	15	6
85°	0	1	2	2	3	0
90°	0	0	0	0	0	

TEST NUMBER: P990905

CATALOG NUMBER: ML4ALSFL9FS1E-TIR4D40FL-TL4RDMW-35°-1000LM-4000K

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	45°	67.5°	90°	112.5°	135°
0°	246.2	246.2	246.2	246.2	246.2	246.2	246.2	246.2	246.2	246.2	246.2
2.5°	329.3	329.3	330.4	328.2	327.2	321.9	299.8	271.4	243.0	216.7	198.8
5°	438.7	436.6	429.2	424.0	419.8	413.5	359.8	294.6	235.7	191.5	162.0
7.5°	566.0	569.2	566.0	547.1	533.4	526.0	422.9	313.5	225.1	167.3	131.5
10°	735.4	725.9	716.5	695.4	677.5	658.6	490.3	326.1	211.5	144.1	108.4
12.5°	914.3	906.9	894.3	861.6	828.0	805.9	558.7	331.4	195.7	123.1	88.4
15°	1115.2	1098.4	1072.1	1041.6	985.8	964.8	623.9	333.5	176.7	104.2	72.6
17.5°	1299.3	1294.1	1255.1	1205.7	1137.3	1111.0	677.5	326.1	158.9	88.4	60.0
20°	1459.2	1466.6	1430.8	1367.7	1286.7	1243.6	716.5	312.5	139.9	74.7	49.4
22.5°	1613.9	1607.6	1568.6	1504.5	1407.7	1351.9	742.8	295.6	124.1	63.1	42.1
25°	1740.1	1723.3	1678.1	1601.3	1492.9	1439.2	748.0	272.5	106.3	53.7	35.8
27.5°	1828.5	1807.5	1753.8	1668.6	1553.9	1489.7	733.3	246.2	91.5	46.3	30.5
30°	1868.5	1847.4	1794.8	1695.9	1572.8	1501.3	702.8	217.8	78.9	38.9	26.3
32.5°	1867.4	1843.2	1784.3	1682.3	1552.9	1481.3	649.1	188.3	67.3	33.7	23.1
35°	1805.4	1784.3	1725.4	1627.6	1490.8	1412.9	587.1	161.0	56.8	29.5	21.0
37.5°	1718.0	1690.7	1628.6	1525.5	1399.3	1321.4	511.3	135.7	48.4	26.3	20.0
40°	1577.1	1550.8	1484.5	1392.9	1266.7	1186.7	434.5	111.5	41.0	23.1	18.9
42.5°	1382.4	1359.3	1311.9	1217.2	1097.3	1026.8	354.5	91.5	34.7	21.0	18.9
45°	1163.6	1151.0	1104.7	1023.7	918.5	854.3	284.1	73.6	30.5	20.0	18.9
47.5°	945.8	944.8	897.4	820.6	739.6	680.7	217.8	60.0	27.4	20.0	18.9
50°	738.6	728.0	696.5	631.2	556.5	518.7	166.2	48.4	24.2	18.9	18.9
52.5°	547.1	545.0	512.4	470.3	413.5	374.5	122.0	40.0	22.1	20.0	20.0
55°	397.7	390.3	371.4	333.5	291.4	267.2	88.4	32.6	21.0	20.0	21.0
57.5°	275.6	272.5	255.7	227.2	199.9	184.1	63.1	27.4	20.0	18.9	21.0
60°	182.0	177.8	169.4	151.5	132.6	123.1	46.3	22.1	17.9	18.9	21.0
62.5°	117.8	113.6	106.3	97.8	86.3	78.9	32.6	17.9	16.8	18.9	20.0
65°	69.4	69.4	66.3	60.0	53.7	49.4	23.1	14.7	15.8	17.9	20.0
67.5°	41.0	40.0	38.9	35.8	31.6	29.5	15.8	11.6	13.7	16.8	18.9
70°	21.0	21.0	20.0	18.9	16.8	16.8	10.5	9.5	10.5	13.7	16.8
72.5°	8.4	8.4	8.4	7.4	7.4	7.4	6.3	6.3	8.4	11.6	14.7
75°	3.2	3.2	3.2	3.2	3.2	3.2	3.2	4.2	5.3	8.4	11.6
77.5°	1.1	0.0	1.1	1.1	0.0	1.1	1.1	2.1	3.2	5.3	8.4
80°	0.0	0.0	0.0	0.0	0.0	0.0	1.1	2.1	2.1	4.2	5.3
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	1.1	1.1	2.1	2.1	3.2
85°	0.0	0.0	0.0	0.0	0.0	0.0	1.1	1.1	2.1	2.1	2.1
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	1.1	1.1	1.1	1.1	1.1
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):

	157.5°	180°
0°	246.2	246.2
2.5°	185.2	183.1
5°	144.1	138.9
7.5°	114.7	108.4
10°	90.5	85.2
12.5°	72.6	68.4
15°	58.9	54.7
17.5°	48.4	45.2
20°	40.0	37.9
22.5°	33.7	31.6
25°	29.5	27.4
27.5°	25.2	24.2
30°	22.1	22.1
32.5°	20.0	20.0
35°	18.9	18.9
37.5°	18.9	18.9
40°	17.9	18.9
42.5°	17.9	18.9
45°	18.9	18.9
47.5°	20.0	20.0
50°	20.0	21.0
52.5°	21.0	22.1
55°	22.1	22.1
57.5°	22.1	22.1
60°	22.1	23.1
62.5°	22.1	22.1
65°	21.0	21.0
67.5°	20.0	21.0
70°	18.9	18.9
72.5°	16.8	16.8
75°	14.7	14.7
77.5°	10.5	11.6
80°	7.4	7.4
82.5°	4.2	5.3
85°	3.2	3.2
87.5°	1.1	1.1
90°	0.0	0.0

(END OF REPORT)