

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: P990601

Luminaire Tested: **ML2ALSFL9FS1E-TIR1D40FL-TL2RDMW-20°-550LM-5000K**

Issue Date: 5/13/2025

Tested By:

Approved By:



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Test Information

Test Method: LM-79-08
Report Number: P990601
Test Lab: Cooper Lighting Solutions
Issue Date: 5/13/2025
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO
Catalog Number: ML2ALSFL9FS1E-TIR1D40FL-TL2RDMW-20°-550LM-5000K
Description: 2IN ROUND 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: 496.4 lumens
Efficiency: N/A
Efficacy: 65.3 lumens/watt
Spacing Criteria (0/90/45): 1.48 / 0.69 / 1.03
Luminous Opening: Circular (Dia: 0.17' x H: 0')
CIE Type: Direct

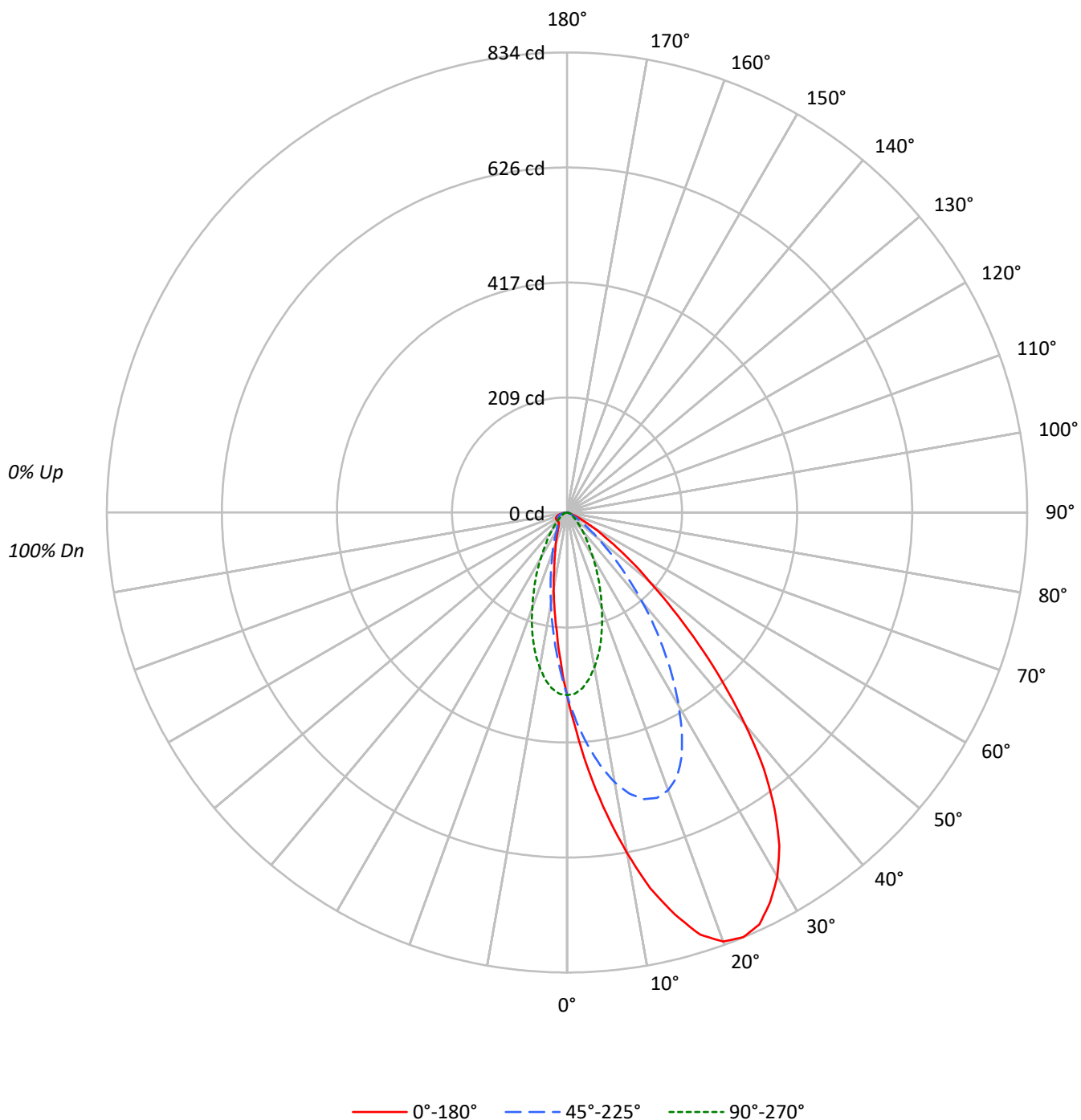
Input Watts (W): 7.6
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT

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		84	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		70
6	81	70	63	58	79	69	62	58	68	62	57		66	61	57		65
7	76	65	58	53	74	64	57	53	63	57	52		61	56	52		60
8	71	60	53	48	70	60	53	48	58	52	48		57	52	48		56
9	67	56	49	45	66	56	49	44	55	48	44		54	48	44		53
10	64	52	46	41	63	52	45	41	51	45	41		50	45	41		49

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	163358	163358	163358
5°	235696	158286	106482
10°	313871	142832	69137
15°	385182	121567	44030
20°	434579	96556	30768
25°	448736	73873	22538
30°	434230	53723	17661
35°	394691	38788	15901
40°	323576	28145	14813
45°	235000	20863	16048
50°	150903	15889	17654
55°	92986	12817	19784
60°	55555	11348	22695
65°	29536	9339	25450
70°	14858	9954	26543
75°	4384	6481	28403
80°	0	6535	26140
85°	0	6227	26040

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	31.8	6.4
10°-20°	92.3	18.6
20°-30°	127.7	25.7
30°-40°	116.6	23.5
40°-50°	71.2	14.3
50°-60°	32.7	6.6
60°-70°	15.1	3.0
70°-80°	7.0	1.4
80°-90°	1.9	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°	251.8	50.7
0°-40°	368.4	74.2
0°-60°	472.4	95.2
0°-90°	496.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	496.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	331	331	331	331	331	
5°	476	422	320	243	215	50
15°	754	538	238	113	86	214
25°	824	491	136	53	41	375
35°	655	307	64	30	26	404
45°	337	131	30	21	23	261
55°	108	39	15	20	23	102
65°	25	9	8	17	22	28
75°	2	2	3	10	15	4
85°	0	0	1	3	5	0
90°	0	0	0	0	0	

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CATALOG NUMBER: ML2ALSFL9FS1E-TIR1D40FL-TL2RDMW-20°-550LM-5000K

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	67.5°
0°	331.1	331.1	331.1	331.1	331.1	331.1	331.1	331.1	331.1	331.1	331.1
2.5°	397.8	400.1	398.9	397.8	395.5	392.0	389.7	386.3	382.8	378.2	354.1
5°	475.9	472.5	473.6	470.2	462.1	457.5	450.6	440.3	432.3	421.9	372.5
7.5°	551.8	548.4	543.8	538.0	531.1	517.3	509.3	494.3	479.4	462.1	381.7
10°	626.5	623.1	618.5	610.4	596.6	582.9	562.2	541.5	519.6	496.6	384.0
12.5°	697.8	692.1	684.0	672.5	654.1	634.6	612.7	584.0	553.0	521.9	379.4
15°	754.1	751.8	741.5	727.7	705.9	680.6	649.5	612.7	576.0	538.0	367.9
17.5°	802.4	794.4	786.3	767.9	741.5	709.3	672.5	632.3	587.5	542.6	349.5
20°	827.7	824.3	810.5	789.8	762.2	726.6	684.0	635.7	587.5	535.7	325.3
22.5°	833.5	830.0	816.2	793.2	763.3	723.1	678.3	627.7	572.5	519.6	297.7
25°	824.3	819.7	804.7	779.4	747.2	704.7	656.4	602.4	547.2	490.9	265.6
27.5°	796.7	792.1	776.0	749.5	716.2	671.4	618.5	564.5	508.1	450.6	233.4
30°	762.2	756.4	736.9	710.5	673.7	626.5	574.8	518.5	461.0	404.7	202.3
32.5°	716.2	709.3	689.8	662.2	621.9	574.8	523.1	465.6	410.4	357.5	171.3
35°	655.3	649.5	630.0	601.2	562.2	511.6	464.4	409.3	358.7	306.9	141.4
37.5°	586.3	576.0	561.0	530.0	490.9	447.2	397.8	350.6	303.5	259.8	115.0
40°	502.4	496.6	477.1	452.9	415.0	375.9	333.4	289.7	249.5	212.7	92.0
42.5°	418.5	415.0	395.5	369.0	341.4	306.9	270.2	233.4	201.2	169.0	72.4
45°	336.8	329.9	317.3	294.3	271.3	241.4	212.7	183.9	157.5	131.1	56.3
47.5°	259.8	257.5	246.0	231.1	210.4	187.4	164.4	140.3	119.6	100.0	42.5
50°	196.6	196.6	186.2	174.7	158.6	141.4	123.0	106.9	88.5	74.7	33.3
52.5°	149.4	146.0	140.3	129.9	117.3	104.6	90.8	78.2	65.5	54.0	25.3
55°	108.1	108.1	103.5	95.4	87.4	75.9	66.7	56.3	47.1	39.1	19.5
57.5°	78.2	77.0	73.6	69.0	62.1	55.2	47.1	40.2	33.3	27.6	14.9
60°	56.3	55.2	51.7	48.3	43.7	37.9	33.3	27.6	23.0	19.5	11.5
62.5°	37.9	37.9	35.6	33.3	29.9	26.4	21.8	19.5	16.1	13.8	9.2
65°	25.3	25.3	24.1	21.8	19.5	17.2	14.9	12.6	11.5	9.2	6.9
67.5°	16.1	16.1	16.1	13.8	12.6	11.5	10.3	9.2	8.0	6.9	5.7
70°	10.3	10.3	9.2	9.2	8.0	6.9	6.9	5.7	5.7	4.6	4.6
72.5°	5.7	5.7	5.7	4.6	4.6	4.6	3.4	3.4	3.4	3.4	3.4
75°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
77.5°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	2.3
80°	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	1.1	1.1	1.1
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	1.1	1.1	1.1
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1
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°	331.1	331.1	331.1	331.1	331.1
2.5°	328.8	304.6	285.1	273.6	269.0
5°	319.6	274.8	242.6	223.0	215.0
7.5°	304.6	244.9	203.5	179.3	173.6
10°	285.1	213.8	167.8	143.7	138.0
12.5°	263.3	182.8	138.0	113.8	108.1
15°	238.0	156.3	112.7	93.1	86.2
17.5°	211.5	131.1	90.8	75.9	70.1
20°	183.9	109.2	75.9	62.1	58.6
22.5°	158.6	90.8	63.2	51.7	49.4
25°	135.7	75.9	52.9	44.8	41.4
27.5°	113.8	63.2	44.8	37.9	35.6
30°	94.3	52.9	37.9	33.3	31.0
32.5°	77.0	44.8	33.3	29.9	28.7
35°	64.4	37.9	29.9	26.4	26.4
37.5°	52.9	33.3	26.4	24.1	24.1
40°	43.7	28.7	24.1	23.0	23.0
42.5°	36.8	25.3	21.8	21.8	23.0
45°	29.9	21.8	20.7	21.8	23.0
47.5°	24.1	19.5	20.7	21.8	23.0
50°	20.7	18.4	19.5	21.8	23.0
52.5°	17.2	17.2	19.5	21.8	23.0
55°	14.9	16.1	19.5	21.8	23.0
57.5°	12.6	14.9	19.5	21.8	23.0
60°	11.5	13.8	18.4	21.8	23.0
62.5°	10.3	13.8	18.4	20.7	21.8
65°	8.0	12.6	17.2	20.7	21.8
67.5°	8.0	11.5	16.1	19.5	19.5
70°	6.9	10.3	14.9	17.2	18.4
72.5°	5.7	9.2	12.6	16.1	17.2
75°	3.4	6.9	10.3	13.8	14.9
77.5°	3.4	5.7	9.2	11.5	12.6
80°	2.3	4.6	6.9	9.2	9.2
82.5°	1.1	3.4	4.6	6.9	6.9
85°	1.1	2.3	3.4	4.6	4.6
87.5°	1.1	1.1	1.1	1.1	2.3
90°	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)