

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: P990600

Luminaire Tested: **ML2ALSFL9FS1E-TIR1D40FL-TL2RDMW-20°-550LM-4000K**

Issue Date: 5/13/2025

Tested By:

Approved By:



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Test Information

Test Method: LM-79-08
 Report Number: P990600
 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-4000K
 Description: 2IN ROUND ML FLEX ADJUSTABLE, SELECTABLE CCT, WITH 40D TIR, MATTE WHITE TRIM 20° Tilt
 Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 4000K CCT
 Ballast/Driver: -

Summary

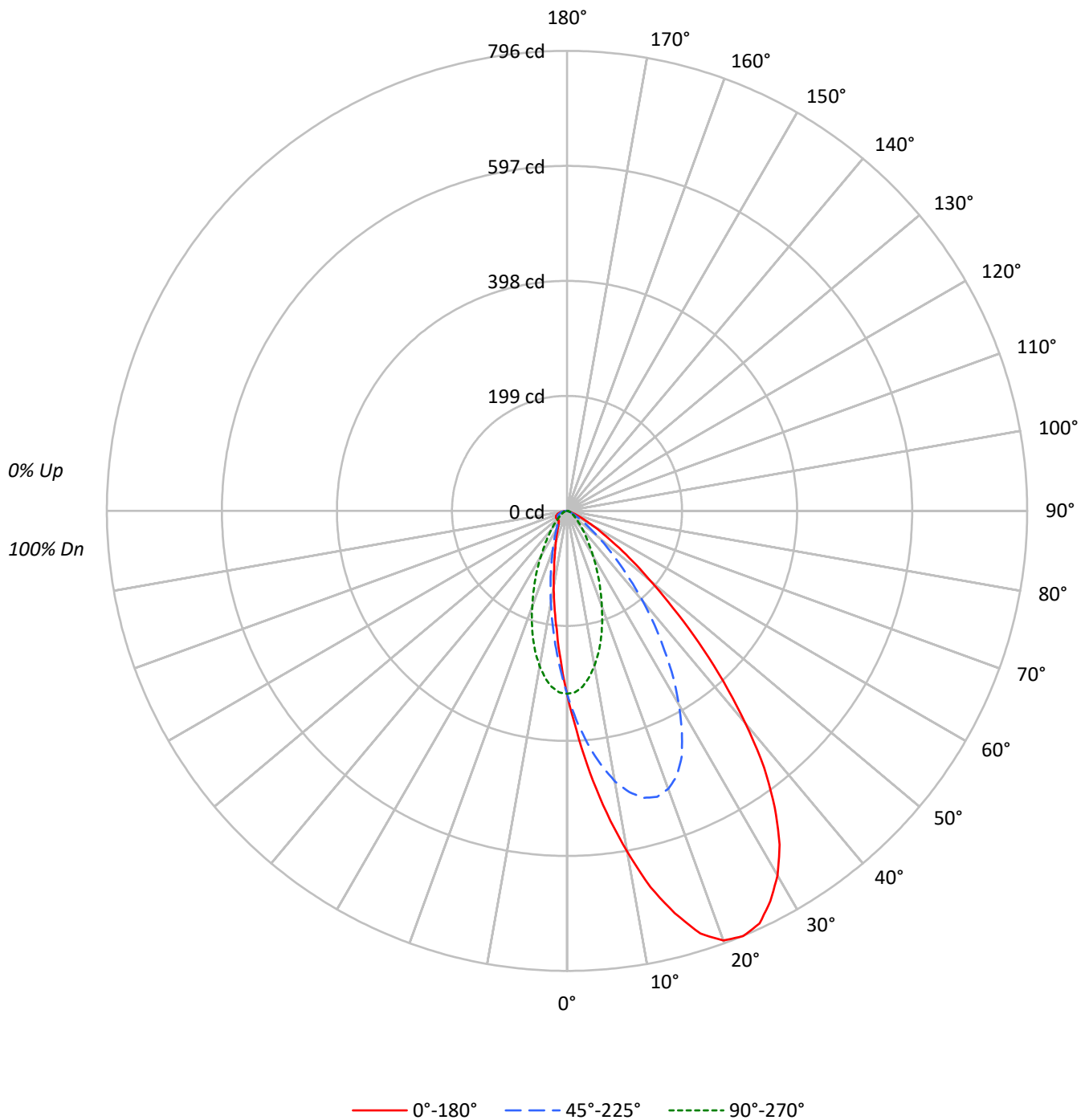
Lumens per Lamp: N/A
 Luminaire Lumens: 474.5 lumens
 Efficiency: N/A
 Efficacy: 62.4 lumens/watt
 Spacing Criteria (0/90/45): 1.48 / 0.69 / 1.03
 Luminous Opening: Circular (Dia: 0.17' x H: 0')
 CIE Type: Direct

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			0
RW	70	50	30	10	70	50	30	10	50	30	10		50	30	10		50	30	10	0
RCR																				
0	119	119	119	119	116	116	116	116	111	111	111		106	106	106		102	102	102	100
1	112	109	106	103	109	106	104	101	102	100	98		99	97	95		95	94	92	90
2	105	99	94	90	103	97	93	89	94	90	87		91	88	85		88	85	83	81
3	98	90	84	79	96	89	83	79	86	81	77		84	79	76		81	78	75	73
4	92	83	76	71	90	81	75	70	79	74	69		77	72	69		75	71	68	66
5	86	76	69	64	84	75	68	63	73	67	63		71	66	62		70	65	62	60
6	81	70	63	58	79	69	62	58	68	62	57		66	61	57		65	60	56	55
7	76	65	58	53	74	64	57	53	63	57	52		61	56	52		60	55	52	50
8	71	60	53	48	70	60	53	48	58	52	48		57	52	48		56	51	48	46
9	67	56	49	45	66	56	49	44	55	48	44		54	48	44		53	48	44	42
10	64	52	46	41	63	52	45	41	51	45	41		50	45	41		49	44	41	39

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	156105	156105	156105
5°	225246	151254	101727
10°	299943	136470	66031
15°	368071	116152	42089
20°	415309	92303	29402
25°	428811	70552	21503
30°	414917	51330	16920
35°	377164	37042	15238
40°	309214	26857	14169
45°	224604	19955	15350
50°	144225	15198	16886
55°	88857	12301	18924
60°	53088	10854	21709
65°	28252	8989	24399
70°	14281	9521	25389
75°	4194	6291	27260
80°	0	6251	25003
85°	0	6227	24908

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	30.4	6.4
10°-20°	88.2	18.6
20°-30°	122.0	25.7
30°-40°	111.4	23.5
40°-50°	68.1	14.3
50°-60°	31.3	6.6
60°-70°	14.5	3.1
70°-80°	6.7	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°	240.7	50.7
0°-40°	352.1	74.2
0°-60°	451.4	95.1
0°-90°	474.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	474.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	316	316	316	316	316	
5°	455	403	305	232	205	48
15°	721	514	227	108	82	205
25°	788	469	130	50	40	358
35°	626	293	62	29	25	386
45°	322	125	29	20	22	249
55°	103	37	14	19	22	98
65°	24	9	8	16	21	26
75°	2	2	3	10	14	4
85°	0	0	1	3	4	0
90°	0	0	0	0	0	

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CATALOG NUMBER: ML2ALSFL9FS1E-TIR1D40FL-TL2RDMW-20°-550LM-4000K

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	67.5°
0°	316.4	316.4	316.4	316.4	316.4	316.4	316.4	316.4	316.4	316.4	316.4
2.5°	380.1	382.3	381.2	380.1	377.9	374.6	372.4	369.1	365.8	361.4	338.4
5°	454.8	451.5	452.6	449.3	441.6	437.2	430.6	420.7	413.1	403.2	355.9
7.5°	527.3	524.0	519.6	514.1	507.5	494.3	486.7	472.4	458.1	441.6	364.7
10°	598.7	595.4	591.0	583.3	570.1	557.0	537.2	517.4	496.5	474.6	366.9
12.5°	666.8	661.3	653.6	642.7	625.1	606.4	585.5	558.1	528.4	498.7	362.5
15°	720.6	718.5	708.6	695.4	674.5	650.3	620.7	585.5	550.4	514.1	351.5
17.5°	766.8	759.1	751.4	733.8	708.6	677.8	642.7	604.2	561.4	518.5	334.0
20°	791.0	787.7	774.5	754.7	728.3	694.3	653.6	607.5	561.4	511.9	310.9
22.5°	796.4	793.2	780.0	758.0	729.4	691.0	648.1	599.8	547.1	496.5	284.5
25°	787.7	783.3	769.0	744.8	714.1	673.4	627.3	575.6	522.9	469.1	253.8
27.5°	761.3	756.9	741.5	716.3	684.4	641.6	591.0	539.4	485.6	430.6	223.0
30°	728.3	722.8	704.2	678.9	643.8	598.7	549.3	495.4	440.5	386.7	193.3
32.5°	684.4	677.8	659.1	632.8	594.3	549.3	499.8	444.9	392.2	341.6	163.7
35°	626.2	620.7	602.0	574.5	537.2	488.9	443.8	391.1	342.7	293.3	135.1
37.5°	560.3	550.4	536.1	506.4	469.1	427.3	380.1	335.1	290.0	248.3	109.9
40°	480.1	474.6	455.9	432.8	396.6	359.2	318.6	276.8	238.4	203.2	87.9
42.5°	399.9	396.6	377.9	352.6	326.3	293.3	258.2	223.0	192.2	161.5	69.2
45°	321.9	315.3	303.2	281.2	259.3	230.7	203.2	175.8	150.5	125.2	53.8
47.5°	248.3	246.1	235.1	220.8	201.0	179.1	157.1	134.0	114.2	95.6	40.6
50°	187.9	187.9	178.0	167.0	151.6	135.1	117.5	102.2	84.6	71.4	31.9
52.5°	142.8	139.5	134.0	124.1	112.1	100.0	86.8	74.7	62.6	51.6	24.2
55°	103.3	103.3	98.9	91.2	83.5	72.5	63.7	53.8	45.0	37.4	18.7
57.5°	74.7	73.6	70.3	65.9	59.3	52.7	45.0	38.4	31.9	26.4	14.3
60°	53.8	52.7	49.4	46.1	41.7	36.3	31.9	26.4	22.0	18.7	11.0
62.5°	36.3	36.3	34.1	31.9	28.6	25.3	20.9	18.7	15.4	13.2	8.8
65°	24.2	24.2	23.1	20.9	18.7	16.5	14.3	12.1	11.0	8.8	6.6
67.5°	15.4	15.4	15.4	13.2	12.1	11.0	9.9	8.8	7.7	6.6	5.5
70°	9.9	9.9	8.8	8.8	7.7	6.6	6.6	5.5	5.5	4.4	4.4
72.5°	5.5	5.5	5.5	4.4	4.4	4.4	3.3	3.3	3.3	3.3	3.3
75°	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
77.5°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	2.2
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°	316.4	316.4	316.4	316.4	316.4
2.5°	314.2	291.1	272.4	261.5	257.1
5°	305.4	262.6	231.8	213.1	205.4
7.5°	291.1	234.0	194.4	171.4	165.9
10°	272.4	204.3	160.4	137.3	131.8
12.5°	251.6	174.7	131.8	108.8	103.3
15°	227.4	149.4	107.7	89.0	82.4
17.5°	202.1	125.2	86.8	72.5	67.0
20°	175.8	104.4	72.5	59.3	56.0
22.5°	151.6	86.8	60.4	49.4	47.2
25°	129.6	72.5	50.5	42.8	39.5
27.5°	108.8	60.4	42.8	36.3	34.1
30°	90.1	50.5	36.3	31.9	29.7
32.5°	73.6	42.8	31.9	28.6	27.5
35°	61.5	36.3	28.6	25.3	25.3
37.5°	50.5	31.9	25.3	23.1	23.1
40°	41.7	27.5	23.1	22.0	22.0
42.5°	35.2	24.2	20.9	20.9	22.0
45°	28.6	20.9	19.8	20.9	22.0
47.5°	23.1	18.7	19.8	20.9	22.0
50°	19.8	17.6	18.7	20.9	22.0
52.5°	16.5	16.5	18.7	20.9	22.0
55°	14.3	15.4	18.7	20.9	22.0
57.5°	12.1	14.3	18.7	20.9	22.0
60°	11.0	13.2	17.6	20.9	22.0
62.5°	9.9	13.2	17.6	19.8	20.9
65°	7.7	12.1	16.5	19.8	20.9
67.5°	7.7	11.0	15.4	18.7	18.7
70°	6.6	9.9	14.3	16.5	17.6
72.5°	5.5	8.8	12.1	15.4	16.5
75°	3.3	6.6	9.9	13.2	14.3
77.5°	3.3	5.5	8.8	11.0	12.1
80°	2.2	4.4	6.6	8.8	8.8
82.5°	1.1	3.3	4.4	6.6	6.6
85°	1.1	2.2	3.3	4.4	4.4
87.5°	1.1	1.1	1.1	1.1	2.2
90°	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)