

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: P990620

Luminaire Tested: **ML2ALSFL9FS1E-TIR1D40FL-TL2SDMW-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: P990620
 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-4000K
 Description: 2IN SQUARE 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

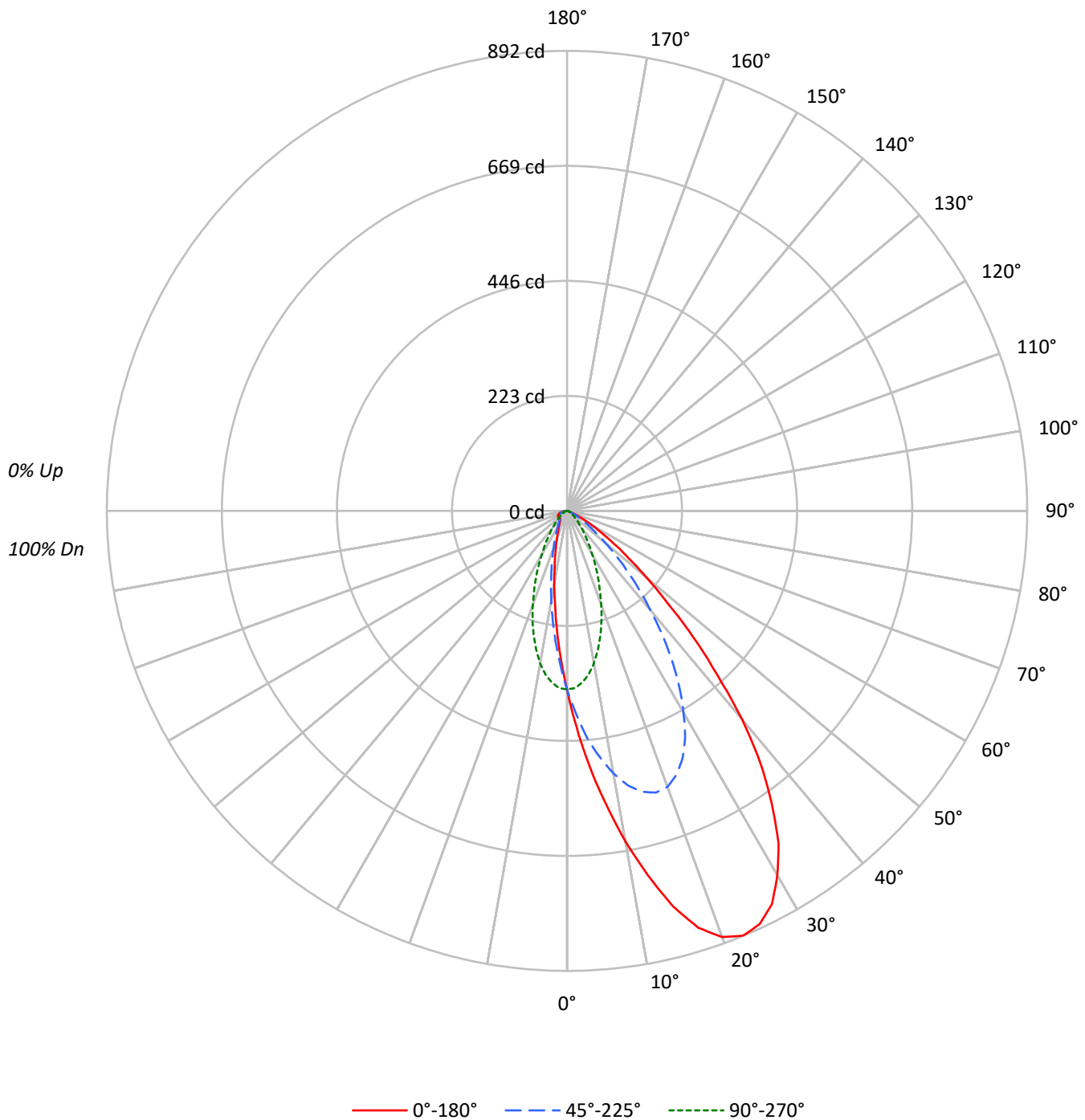
Lumens per Lamp: N/A
 Luminaire Lumens: 530.7 lumens
 Efficiency: N/A
 Efficacy: 69.8 lumens/watt
 Spacing Criteria (0/90/45): 1.48 / 0.69 / 1.07
 Luminous Opening: Rectangular (W 0.17' x L: 0.17' x H: 0')
 CIE Type: Direct

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°	134191	134191	134191
5°	192856	129997	88493
10°	255642	118083	55795
15°	318408	100092	35263
20°	362637	79793	23587
25°	377876	60628	16931
30°	364937	43760	13289
35°	327066	31221	10927
40°	266884	22814	10572
45°	189775	16276	10851
50°	120629	11936	11936
55°	74990	9661	13377
60°	44330	7672	15345
65°	23198	7060	17146
70°	11216	6231	18694
75°	3294	4941	21410
80°	0	4909	22092
85°	0	4891	24453

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	33.2	6.3
10°-20°	96.8	18.2
20°-30°	136.4	25.7
30°-40°	126.4	23.8
40°-50°	78.0	14.7
50°-60°	35.4	6.7
60°-70°	15.5	2.9
70°-80°	7.0	1.3
80°-90°	2.1	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°	266.4	50.2
0°-40°	392.8	74.0
0°-60°	506.2	95.4
0°-90°	530.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	530.7	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	346	346	346	346	346	
5°	496	441	334	254	228	52
15°	794	564	250	115	88	225
25°	884	530	142	52	40	402
35°	691	355	66	28	23	427
45°	346	166	30	19	20	268
55°	111	54	14	18	20	105
65°	25	14	8	15	19	28
75°	2	3	3	10	14	4
85°	0	1	1	3	6	0
90°	0	0	0	0	0	

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CATALOG NUMBER: ML2ALSFL9FS1E-TIR1D40FL-TL2SDMW-20°-550LM-4000K

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	67.5°
0°	346.3	346.3	346.3	346.3	346.3	346.3	346.3	346.3	346.3	346.3	346.3
2.5°	418.8	415.5	415.5	413.3	412.2	408.9	406.7	402.3	397.9	392.4	370.4
5°	495.8	491.4	490.3	485.9	481.5	476.0	467.2	457.3	449.6	440.8	386.9
7.5°	571.6	572.7	568.3	561.7	550.7	543.0	529.8	514.4	499.1	480.4	397.9
10°	649.7	649.7	646.4	632.1	620.0	605.7	587.0	566.1	541.9	516.6	400.1
12.5°	723.3	723.3	715.6	704.6	687.0	665.0	638.7	610.1	579.3	545.2	397.9
15°	793.7	788.2	778.3	760.7	738.7	713.4	680.4	643.1	604.6	563.9	385.8
17.5°	847.5	839.8	829.9	810.1	780.5	747.5	710.1	666.1	620.0	572.7	368.2
20°	879.4	875.0	861.8	838.7	809.0	771.7	726.6	676.0	623.3	569.4	344.1
22.5°	891.5	887.1	873.9	849.7	816.7	773.9	726.6	671.6	613.4	554.0	316.6
25°	883.8	879.4	865.1	842.0	807.9	760.7	711.2	654.1	592.5	529.8	285.8
27.5°	859.6	853.0	837.6	811.2	776.1	733.2	680.4	620.0	558.4	495.8	251.7
30°	815.6	812.3	798.1	767.3	732.1	685.9	634.3	573.8	514.4	451.8	219.8
32.5°	762.9	755.2	739.8	713.4	676.0	628.8	578.2	522.1	463.9	405.6	188.0
35°	691.4	690.3	674.9	643.1	605.7	562.8	513.3	459.5	406.7	355.1	156.1
37.5°	615.6	607.9	592.5	566.1	533.1	493.6	445.2	395.7	349.6	303.4	130.8
40°	527.6	521.0	504.6	480.4	451.8	415.5	377.0	334.2	291.3	251.7	105.5
42.5°	429.8	425.4	418.8	395.7	373.7	341.9	310.0	272.6	239.6	206.7	83.5
45°	346.3	340.8	332.0	316.6	295.7	274.8	246.2	219.8	192.4	166.0	66.0
47.5°	263.8	264.9	257.2	244.0	229.7	213.3	193.5	172.6	150.6	129.7	52.8
50°	200.1	201.2	194.6	185.8	173.7	162.7	146.2	131.9	114.3	98.9	40.7
52.5°	151.7	149.5	144.0	138.5	129.7	118.7	108.8	97.8	84.6	72.6	31.9
55°	111.0	111.0	107.7	102.2	96.7	89.0	79.1	71.5	63.8	53.9	24.2
57.5°	80.2	79.1	76.9	73.6	69.3	63.8	58.3	51.7	45.1	39.6	18.7
60°	57.2	57.2	55.0	51.7	48.4	44.0	40.7	36.3	31.9	28.6	14.3
62.5°	39.6	38.5	37.4	35.2	34.1	30.8	27.5	25.3	23.1	20.9	12.1
65°	25.3	25.3	25.3	24.2	22.0	20.9	18.7	17.6	15.4	14.3	8.8
67.5°	16.5	16.5	16.5	15.4	15.4	14.3	13.2	12.1	11.0	9.9	7.7
70°	9.9	9.9	9.9	9.9	8.8	8.8	8.8	7.7	7.7	7.7	5.5
72.5°	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	4.4
75°	2.2	2.2	2.2	2.2	3.3	3.3	3.3	3.3	3.3	3.3	3.3
77.5°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	2.2	2.2	2.2
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	1.1	1.1
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	1.1	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	1.1	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°	346.3	346.3	346.3	346.3	346.3
2.5°	344.1	319.9	297.9	286.9	283.6
5°	334.2	288.0	253.9	234.1	227.5
7.5°	319.9	258.3	212.2	191.3	179.2
10°	300.1	224.2	175.9	149.5	141.8
12.5°	275.9	192.4	142.9	118.7	111.0
15°	249.5	162.7	115.4	94.5	87.9
17.5°	222.0	135.2	94.5	75.8	70.4
20°	193.5	113.2	75.8	60.5	57.2
22.5°	166.0	92.3	61.6	49.5	46.2
25°	141.8	76.9	51.7	41.8	39.6
27.5°	118.7	63.8	42.9	36.3	34.1
30°	97.8	52.8	36.3	30.8	29.7
32.5°	81.3	44.0	31.9	27.5	26.4
35°	66.0	36.3	27.5	24.2	23.1
37.5°	53.9	31.9	24.2	22.0	22.0
40°	45.1	27.5	22.0	20.9	20.9
42.5°	36.3	23.1	19.8	19.8	19.8
45°	29.7	20.9	18.7	18.7	19.8
47.5°	24.2	18.7	17.6	18.7	19.8
50°	19.8	16.5	17.6	19.8	19.8
52.5°	16.5	15.4	16.5	18.7	19.8
55°	14.3	14.3	17.6	19.8	19.8
57.5°	12.1	13.2	16.5	19.8	20.9
60°	9.9	13.2	16.5	18.7	19.8
62.5°	8.8	12.1	16.5	18.7	19.8
65°	7.7	11.0	15.4	17.6	18.7
67.5°	6.6	9.9	14.3	17.6	17.6
70°	5.5	8.8	13.2	16.5	16.5
72.5°	4.4	7.7	12.1	15.4	15.4
75°	3.3	6.6	9.9	13.2	14.3
77.5°	2.2	5.5	8.8	12.1	12.1
80°	2.2	3.3	6.6	9.9	9.9
82.5°	1.1	3.3	4.4	7.7	7.7
85°	1.1	2.2	3.3	5.5	5.5
87.5°	1.1	1.1	1.1	2.2	2.2
90°	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)