

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: P990597

Luminaire Tested: **ML2ALSFL9FS1E-TIR1D40FL-TL2RDMW-20°-550LM-2700K**

Issue Date: 5/13/2025

Tested By:

Approved By:



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Test Information

Test Method: LM-79-08
 Report Number: P990597
 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-2700K
 Description: 2IN ROUND ML FLEX ADJUSTABLE, SELECTABLE CCT, WITH 40D TIR, MATTE WHITE TRIM 20° Tilt
 Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 2700K CCT
 Ballast/Driver: -

Summary

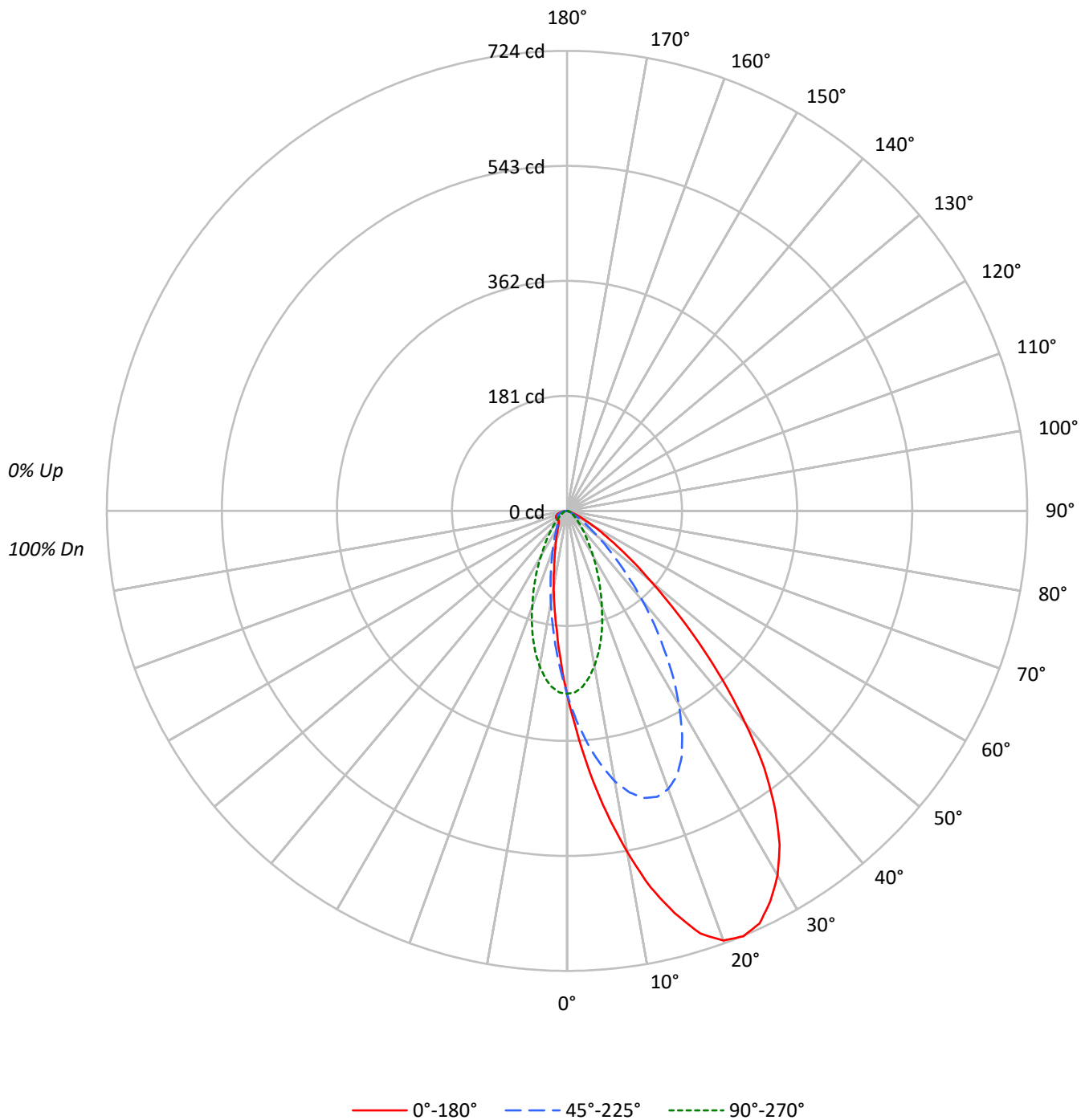
Lumens per Lamp: N/A
 Luminaire Lumens: 431.6 lumens
 Efficiency: N/A
 Efficacy: 56.8 lumens/watt
 Spacing Criteria (0/90/45): 1.48 / 0.69 / 1.03
 Luminous Opening: Circular (Dia: 0.17' x H: 0')
 CIE Type: Direct

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°	141995	141995	141995
5°	204891	137584	92565
10°	272840	124146	60069
15°	334819	105681	38258
20°	377769	83954	26777
25°	390051	64183	19598
30°	377430	46659	15382
35°	343073	33729	13853
40°	281262	24474	12881
45°	204299	18141	13955
50°	131176	13816	15351
55°	80771	11182	17204
60°	48351	9868	19735
65°	25684	8172	22181
70°	12983	8655	23081
75°	3813	5719	24782
80°	0	5683	22730
85°	0	5661	22644

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	27.6	6.4
10°-20°	80.3	18.6
20°-30°	111.0	25.7
30°-40°	101.4	23.5
40°-50°	61.9	14.3
50°-60°	28.4	6.6
60°-70°	13.2	3.1
70°-80°	6.1	1.4
80°-90°	1.7	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°	218.9	50.7
0°-40°	320.3	74.2
0°-60°	410.7	95.1
0°-90°	431.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	431.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	288	288	288	288	288	
5°	414	367	278	211	187	43
15°	656	468	207	98	75	186
25°	716	427	118	46	36	326
35°	570	267	56	26	23	351
45°	293	114	26	18	20	227
55°	94	34	13	17	20	89
65°	22	8	7	15	19	24
75°	2	2	3	9	13	3
85°	0	0	1	3	4	0
90°	0	0	0	0	0	

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CATALOG NUMBER: ML2ALSFL9FS1E-TIR1D40FL-TL2RDMW-20°-550LM-2700K

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	67.5°
0°	287.8	287.8	287.8	287.8	287.8	287.8	287.8	287.8	287.8	287.8	287.8
2.5°	345.8	347.8	346.8	345.8	343.8	340.8	338.8	335.8	332.8	328.8	307.8
5°	413.7	410.7	411.7	408.7	401.7	397.7	391.7	382.7	375.7	366.7	323.8
7.5°	479.7	476.7	472.7	467.7	461.7	449.7	442.7	429.7	416.7	401.7	331.8
10°	544.6	541.6	537.6	530.6	518.6	506.6	488.7	470.7	451.7	431.7	333.8
12.5°	606.6	601.6	594.6	584.6	568.6	551.6	532.6	507.6	480.7	453.7	329.8
15°	655.5	653.5	644.5	632.6	613.6	591.6	564.6	532.6	500.6	467.7	319.8
17.5°	697.5	690.5	683.5	667.5	644.5	616.6	584.6	549.6	510.6	471.7	303.8
20°	719.5	716.5	704.5	686.5	662.5	631.6	594.6	552.6	510.6	465.7	282.8
22.5°	724.5	721.5	709.5	689.5	663.5	628.6	589.6	545.6	497.7	451.7	258.8
25°	716.5	712.5	699.5	677.5	649.5	612.6	570.6	523.6	475.7	426.7	230.8
27.5°	692.5	688.5	674.5	651.5	622.6	583.6	537.6	490.7	441.7	391.7	202.9
30°	662.5	657.5	640.6	617.6	585.6	544.6	499.6	450.7	400.7	351.8	175.9
32.5°	622.6	616.6	599.6	575.6	540.6	499.6	454.7	404.7	356.7	310.8	148.9
35°	569.6	564.6	547.6	522.6	488.7	444.7	403.7	355.8	311.8	266.8	122.9
37.5°	509.6	500.6	487.7	460.7	426.7	388.7	345.8	304.8	263.8	225.8	99.9
40°	436.7	431.7	414.7	393.7	360.7	326.8	289.8	251.8	216.8	184.9	79.9
42.5°	363.7	360.7	343.8	320.8	296.8	266.8	234.8	202.9	174.9	146.9	63.0
45°	292.8	286.8	275.8	255.8	235.8	209.9	184.9	159.9	136.9	113.9	49.0
47.5°	225.8	223.8	213.8	200.9	182.9	162.9	142.9	121.9	103.9	86.9	37.0
50°	170.9	170.9	161.9	151.9	137.9	122.9	106.9	92.9	76.9	65.0	29.0
52.5°	129.9	126.9	121.9	112.9	101.9	90.9	78.9	68.0	57.0	47.0	22.0
55°	93.9	93.9	89.9	82.9	75.9	66.0	58.0	49.0	41.0	34.0	17.0
57.5°	68.0	67.0	64.0	60.0	54.0	48.0	41.0	35.0	29.0	24.0	13.0
60°	49.0	48.0	45.0	42.0	38.0	33.0	29.0	24.0	20.0	17.0	10.0
62.5°	33.0	33.0	31.0	29.0	26.0	23.0	19.0	17.0	14.0	12.0	8.0
65°	22.0	22.0	21.0	19.0	17.0	15.0	13.0	11.0	10.0	8.0	6.0
67.5°	14.0	14.0	14.0	12.0	11.0	10.0	9.0	8.0	7.0	6.0	5.0
70°	9.0	9.0	8.0	8.0	7.0	6.0	6.0	5.0	5.0	4.0	4.0
72.5°	5.0	5.0	5.0	4.0	4.0	4.0	3.0	3.0	3.0	3.0	3.0
75°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
77.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	2.0
80°	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	1.0	1.0	1.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
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°	287.8	287.8	287.8	287.8	287.8
2.5°	285.8	264.8	247.8	237.8	233.8
5°	277.8	238.8	210.9	193.9	186.9
7.5°	264.8	212.9	176.9	155.9	150.9
10°	247.8	185.9	145.9	124.9	119.9
12.5°	228.8	158.9	119.9	98.9	93.9
15°	206.9	135.9	97.9	80.9	74.9
17.5°	183.9	113.9	78.9	66.0	61.0
20°	159.9	94.9	66.0	54.0	51.0
22.5°	137.9	78.9	55.0	45.0	43.0
25°	117.9	66.0	46.0	39.0	36.0
27.5°	98.9	55.0	39.0	33.0	31.0
30°	81.9	46.0	33.0	29.0	27.0
32.5°	67.0	39.0	29.0	26.0	25.0
35°	56.0	33.0	26.0	23.0	23.0
37.5°	46.0	29.0	23.0	21.0	21.0
40°	38.0	25.0	21.0	20.0	20.0
42.5°	32.0	22.0	19.0	19.0	20.0
45°	26.0	19.0	18.0	19.0	20.0
47.5°	21.0	17.0	18.0	19.0	20.0
50°	18.0	16.0	17.0	19.0	20.0
52.5°	15.0	15.0	17.0	19.0	20.0
55°	13.0	14.0	17.0	19.0	20.0
57.5°	11.0	13.0	17.0	19.0	20.0
60°	10.0	12.0	16.0	19.0	20.0
62.5°	9.0	12.0	16.0	18.0	19.0
65°	7.0	11.0	15.0	18.0	19.0
67.5°	7.0	10.0	14.0	17.0	17.0
70°	6.0	9.0	13.0	15.0	16.0
72.5°	5.0	8.0	11.0	14.0	15.0
75°	3.0	6.0	9.0	12.0	13.0
77.5°	3.0	5.0	8.0	10.0	11.0
80°	2.0	4.0	6.0	8.0	8.0
82.5°	1.0	3.0	4.0	6.0	6.0
85°	1.0	2.0	3.0	4.0	4.0
87.5°	1.0	1.0	1.0	1.0	2.0
90°	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)