

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: P990827

Luminaire Tested: **ML3ALSFLD2W1E-TIR4D40FL-TL3RDMW-30°-600LM-3000K**

Issue Date: 5/13/2025

Tested By:

Approved By:



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Test Information

Test Method: LM-79-08
 Report Number: P990827
 Test Lab: Cooper Lighting Solutions
 Issue Date: 5/13/2025
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
 Product Line: HALO
 Catalog Number: ML3ALSFLD2W1E-TIR4D40FL-TL3RDMW-30°-600LM-3000K
 Description: 3IN ROUND ML FLEX ADJUSTABLE, SELECTABLE CCT, WITH 40D TIR, MATTE WHITE TRIM 30° Tilt
 Light Source: (1) D2W LED 90CRI / 3000K CCT
 Ballast/Driver: -

Summary

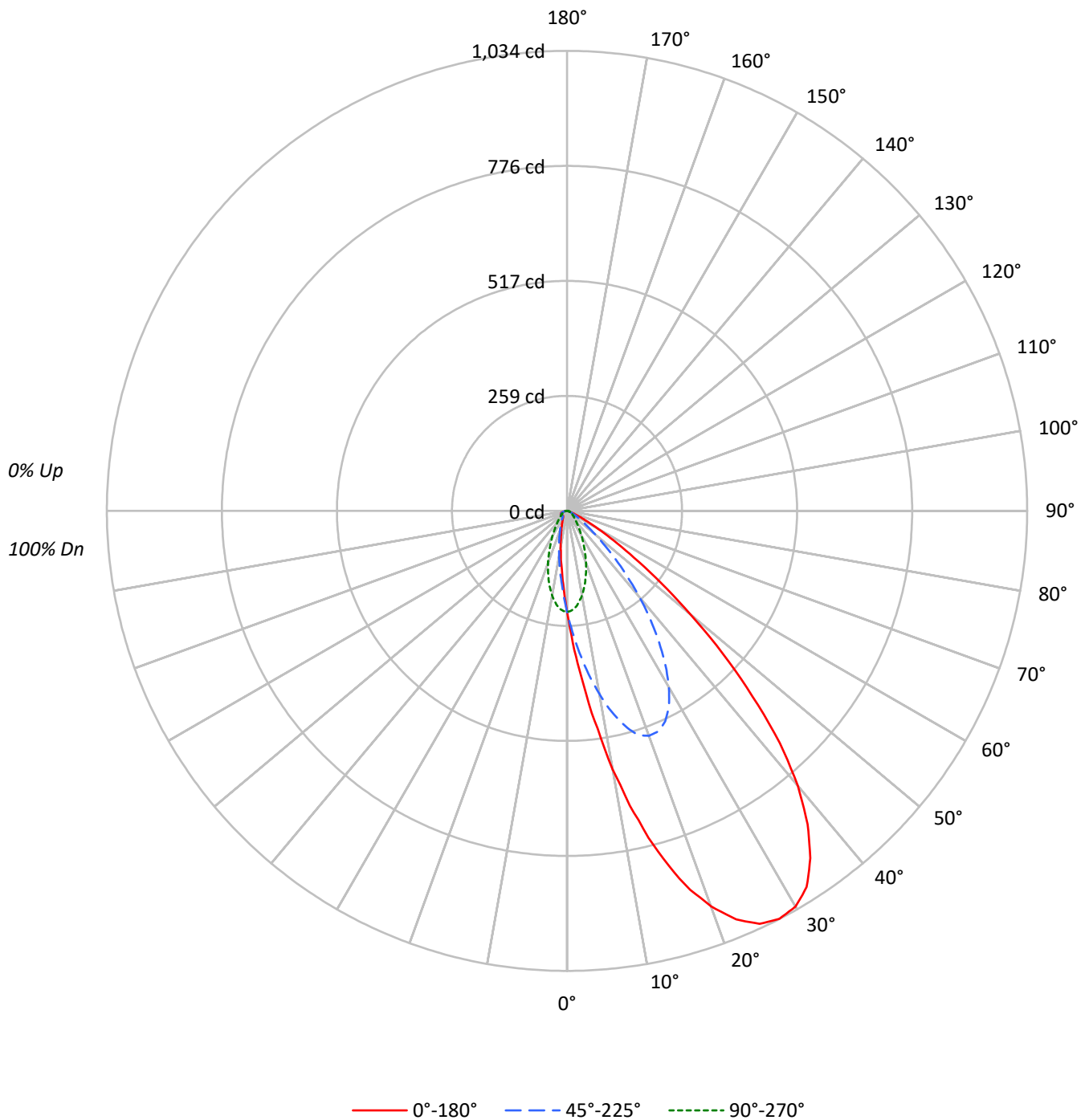
Lumens per Lamp: N/A
 Luminaire Lumens: 542.3 lumens
 Efficiency: N/A
 Efficacy: 57.7 lumens/watt
 Spacing Criteria (0/90/45): 1.97 / 0.68 / 1.21
 Luminous Opening: Circular (Dia: 0.25' x H: 0')
 CIE Type: Direct

Input Watts (W): 9.4
 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



TEST NUMBER: P990827

CATALOG NUMBER: ML3ALSFLD2W1E-TIR4D40FL-TL3RDMW-30°-600LM-3000K

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	101	102	100	97		98	96	94		95
2	104	98	93	88	102	96	91	87	93	89	85		90	86	84		87
3	97	89	83	77	95	87	82	77	85	80	76		82	78	74		80
4	90	81	74	68	88	80	73	68	77	72	67		75	70	66		73
5	84	74	66	61	82	73	66	61	71	65	60		69	64	59		67
6	79	68	60	55	77	67	60	54	65	59	54		63	58	54		62
7	74	62	55	49	72	61	54	49	60	54	49		59	53	49		57
8	69	57	50	45	68	57	50	45	55	49	44		54	48	44		53
9	65	53	46	41	63	52	45	41	51	45	41		50	45	40		49
10	61	49	42	37	60	49	42	37	48	42	37		47	41	37		46

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	49755	49755	49755
5°	83051	47876	29342
10°	131371	42952	18325
15°	180092	36277	11601
20°	220659	29123	7934
25°	247780	22187	5710
30°	260015	16509	4558
35°	255138	12394	4042
40°	230890	9475	4065
45°	182686	7319	4683
50°	123561	6448	5151
55°	70115	5773	6155
60°	35655	5394	7061
65°	16189	5396	7835
70°	7245	5450	8463
75°	3219	4829	8811
80°	3536	4799	7198
85°	7045	7045	9561

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	23.4	4.3
10°-20°	81.4	15.0
20°-30°	133.1	24.5
30°-40°	141.5	26.1
40°-50°	96.8	17.8
50°-60°	40.5	7.5
60°-70°	15.8	2.9
70°-80°	6.8	1.3
80°-90°	3.1	0.6
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°	237.9	43.9
0°-40°	379.4	70.0
0°-60°	516.7	95.3
0°-90°	542.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	542.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	227	227	227	227	227	
5°	377	320	218	153	133	43
15°	793	499	160	68	51	228
25°	1024	522	92	32	24	468
35°	953	360	46	18	15	588
45°	589	155	24	14	15	451
55°	183	44	15	15	16	176
65°	31	13	10	14	15	36
75°	4	5	6	8	10	5
85°	3	3	3	4	4	2
90°	0	0	0	0	0	

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CANDELA DISTRIBUTION (FULL):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
0°	226.9	226.9	226.9	226.9	226.9	226.9	226.9	226.9	226.9	226.9	226.9
1°	252.5	254.4	249.6	248.7	246.8	244.0	239.2	237.3	232.6	227.9	226.0
2°	278.9	280.8	277.1	274.2	269.5	261.9	254.4	246.8	238.3	229.8	225.0
3°	313.0	308.3	307.3	300.7	292.2	279.9	266.7	255.3	242.1	229.8	223.2
4°	343.2	341.4	336.6	329.1	313.9	299.7	281.8	264.8	246.8	228.8	221.3
5°	377.3	378.2	368.8	355.5	338.5	319.6	295.0	272.3	248.7	227.9	217.5
6°	415.1	410.4	403.8	390.5	367.8	339.5	310.1	279.9	251.5	226.0	213.7
7°	457.7	451.0	442.5	422.7	395.3	359.3	323.4	287.5	253.4	223.2	209.0
8°	493.6	495.5	484.1	455.8	423.6	379.2	335.7	292.2	254.4	220.3	203.3
9°	540.9	538.0	522.9	489.8	452.0	398.1	348.0	297.9	255.3	216.5	198.6
10°	590.0	580.6	561.7	523.9	476.6	417.0	359.3	301.6	253.4	210.9	192.9
11°	626.9	628.8	606.1	560.7	504.0	435.9	369.7	305.4	251.5	206.1	187.2
12°	677.0	671.4	644.9	596.7	530.5	453.9	377.3	308.3	248.7	201.4	179.7
13°	713.0	711.1	684.6	629.8	556.0	470.0	385.8	308.3	244.9	193.8	174.0
14°	757.4	750.8	721.5	661.9	578.7	485.1	391.5	308.3	239.2	187.2	166.4
15°	793.3	788.6	754.6	692.2	601.4	499.3	397.1	307.3	234.5	180.6	159.8
16°	829.3	823.6	790.5	719.6	622.2	511.6	400.0	304.5	229.8	174.0	152.2
17°	864.3	853.9	817.9	744.2	642.0	522.0	401.9	300.7	224.1	166.4	145.6
18°	895.5	886.0	847.2	766.9	657.2	529.5	402.8	296.9	217.5	159.8	138.1
19°	919.1	912.5	869.0	783.9	670.4	534.3	401.9	291.2	209.9	152.2	131.4
20°	945.6	936.1	891.7	801.9	681.8	538.0	400.0	285.6	203.3	145.6	124.8
22.5°	993.8	986.2	931.4	832.1	695.9	536.1	385.8	265.7	181.6	126.7	106.9
25°	1024.1	1013.7	953.1	843.5	693.1	522.0	363.1	242.1	159.8	109.7	91.7
27.5°	1033.5	1021.2	957.9	835.9	674.2	496.4	332.8	214.6	139.0	93.6	77.5
30°	1026.9	1014.6	944.6	810.4	643.0	457.7	298.8	186.3	119.1	78.5	65.2
32.5°	1002.3	989.1	912.5	772.5	600.4	412.3	257.2	158.9	100.2	66.2	54.8
35°	953.1	941.8	862.4	720.5	544.7	360.3	220.3	133.3	84.2	55.8	46.3
37.5°	887.9	875.6	796.2	653.4	477.5	307.3	182.5	109.7	69.0	46.3	38.8
40°	806.6	795.2	718.6	575.9	406.6	253.4	148.5	88.9	56.7	38.8	33.1
42.5°	708.2	698.8	624.1	485.1	333.8	201.4	118.2	71.9	46.3	33.1	28.4
45°	589.1	576.8	506.8	386.7	261.0	155.1	91.7	57.7	37.8	27.4	23.6
47.5°	474.7	460.5	400.0	296.0	194.8	115.4	70.0	45.4	32.1	23.6	21.7
50°	362.2	349.9	297.9	217.5	139.0	84.2	53.0	35.9	26.5	20.8	18.9
52.5°	265.7	256.3	214.6	155.1	99.3	60.5	39.7	28.4	21.7	18.0	17.0
55°	183.4	177.8	148.5	105.9	68.1	44.4	30.3	22.7	18.0	16.1	15.1
57.5°	123.9	120.1	100.2	72.8	48.2	32.1	22.7	18.0	15.1	14.2	14.2
60°	81.3	77.5	65.2	48.2	33.1	23.6	18.0	15.1	13.2	13.2	12.3
62.5°	50.1	50.1	42.6	33.1	23.6	18.0	14.2	12.3	11.3	11.3	11.3
65°	31.2	30.3	27.4	21.7	16.1	13.2	11.3	10.4	10.4	10.4	10.4
67.5°	18.9	18.9	17.0	14.2	12.3	10.4	9.5	8.5	8.5	9.5	9.5
70°	11.3	11.3	10.4	9.5	8.5	7.6	7.6	7.6	7.6	7.6	8.5
72.5°	6.6	6.6	6.6	5.7	5.7	5.7	5.7	5.7	5.7	6.6	6.6
75°	3.8	3.8	3.8	3.8	3.8	4.7	3.8	4.7	4.7	5.7	5.7
77.5°	2.8	2.8	2.8	2.8	2.8	3.8	3.8	3.8	3.8	4.7	4.7
80°	2.8	2.8	2.8	2.8	2.8	2.8	2.8	3.8	3.8	3.8	3.8

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CANDELA DISTRIBUTION (continued):

	0°	5°	15°	25°	35°	45°	55°	65°	75°	85°	90°
82.5°	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	3.8	3.8	3.8
85°	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
87.5°	1.9	1.9	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
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):

	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
0°	226.9	226.9	226.9	226.9	226.9	226.9	226.9	226.9	226.9	226.9
1°	223.2	220.3	215.6	212.8	210.9	207.1	207.1	202.4	203.3	203.3
2°	221.3	213.7	207.1	200.5	194.8	189.1	188.2	186.3	184.4	184.4
3°	216.5	206.1	195.7	187.2	180.6	174.0	171.1	166.4	165.5	163.6
4°	213.7	198.6	186.3	175.9	165.5	159.8	156.0	151.3	149.4	149.4
5°	208.0	191.0	175.9	164.5	153.2	146.6	140.9	137.1	134.3	133.3
6°	202.4	183.4	167.4	153.2	142.8	134.3	128.6	123.9	122.0	121.0
7°	196.7	174.9	157.9	142.8	131.4	122.0	116.3	112.5	110.6	111.6
8°	190.1	166.4	147.5	132.4	120.1	112.5	105.0	101.2	99.3	100.2
9°	184.4	158.9	139.0	123.9	111.6	103.1	96.4	92.7	90.8	89.8
10°	176.8	150.3	129.5	114.4	103.1	93.6	87.9	83.2	82.3	82.3
11°	170.2	141.8	121.0	105.9	94.6	85.1	80.4	76.6	74.7	74.7
12°	163.6	136.2	114.4	98.3	87.0	79.4	73.8	70.0	68.1	67.1
13°	155.1	127.7	105.9	91.7	79.4	71.9	67.1	63.4	61.5	61.5
14°	147.5	121.0	99.3	84.2	73.8	66.2	61.5	57.7	55.8	55.8
15°	140.9	113.5	92.7	78.5	68.1	61.5	55.8	53.0	51.1	51.1
16°	135.2	106.9	87.0	72.8	62.4	55.8	51.1	48.2	47.3	46.3
17°	126.7	99.3	80.4	67.1	57.7	51.1	47.3	43.5	43.5	43.5
18°	120.1	93.6	74.7	62.4	53.0	47.3	43.5	40.7	39.7	39.7
19°	113.5	87.9	70.0	57.7	49.2	43.5	39.7	37.8	36.9	35.9
20°	106.9	82.3	65.2	53.0	45.4	40.7	36.9	35.0	34.0	34.0
22.5°	91.7	69.0	53.9	44.4	36.9	33.1	30.3	29.3	28.4	27.4
25°	78.5	57.7	45.4	36.9	32.1	28.4	25.5	24.6	23.6	23.6
27.5°	65.2	48.2	37.8	31.2	26.5	23.6	21.7	20.8	20.8	20.8
30°	55.8	41.6	32.1	26.5	23.6	20.8	19.9	18.9	18.0	18.0
32.5°	46.3	35.0	27.4	23.6	19.9	18.9	17.0	17.0	16.1	16.1
35°	39.7	30.3	24.6	20.8	18.0	17.0	16.1	15.1	15.1	15.1
37.5°	33.1	25.5	20.8	18.0	16.1	15.1	15.1	15.1	14.2	14.2
40°	28.4	22.7	18.9	17.0	16.1	15.1	15.1	14.2	14.2	14.2
42.5°	24.6	19.9	17.0	16.1	15.1	15.1	14.2	14.2	14.2	14.2
45°	21.7	18.0	16.1	15.1	14.2	14.2	14.2	14.2	14.2	15.1
47.5°	19.9	17.0	15.1	15.1	15.1	15.1	15.1	15.1	15.1	15.1
50°	18.0	16.1	15.1	14.2	15.1	15.1	15.1	15.1	15.1	15.1
52.5°	16.1	15.1	14.2	14.2	15.1	15.1	15.1	16.1	16.1	16.1
55°	15.1	14.2	14.2	14.2	15.1	15.1	16.1	16.1	16.1	16.1
57.5°	14.2	14.2	14.2	14.2	15.1	16.1	16.1	16.1	16.1	16.1
60°	12.3	13.2	13.2	14.2	15.1	15.1	16.1	16.1	16.1	16.1
62.5°	12.3	12.3	13.2	14.2	15.1	15.1	15.1	16.1	16.1	16.1
65°	10.4	11.3	12.3	13.2	14.2	14.2	15.1	15.1	15.1	15.1
67.5°	9.5	10.4	11.3	12.3	13.2	13.2	14.2	14.2	14.2	14.2
70°	8.5	9.5	10.4	11.3	12.3	12.3	13.2	13.2	13.2	13.2
72.5°	6.6	7.6	8.5	9.5	10.4	10.4	11.3	11.3	11.3	12.3
75°	5.7	6.6	6.6	7.6	8.5	8.5	9.5	9.5	9.5	10.4
77.5°	4.7	4.7	5.7	5.7	6.6	6.6	7.6	7.6	7.6	7.6
80°	3.8	3.8	3.8	4.7	4.7	4.7	4.7	5.7	4.7	5.7

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CANDELA DISTRIBUTION (continued):

	95°	105°	115°	125°	135°	145°	155°	165°	175°	180°
82.5°	3.8	3.8	3.8	3.8	3.8	3.8	4.7	4.7	4.7	4.7
85°	2.8	2.8	3.8	2.8	3.8	3.8	3.8	3.8	3.8	3.8
87.5°	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)