

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: P990954

Luminaire Tested: **ML4ALSFL9FS1E-TIR4D55WFL-TL4SDMW-1000LM-3500K**

Issue Date: 5/13/2025

Tested By:

Approved By:



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Test Information

Test Method: LM-79-08
Report Number: P990954
Test Lab: Cooper Lighting Solutions
Issue Date: 5/13/2025
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: HALO
Catalog Number: ML4ALSFL9FS1E-TIR4D55WFL-TL4SDMW-1000LM-3500K
Description: 4IN SQUARE ML FLEX ADJUSTABLE, SELECTABLE CCT, WITH 55D TIR, MATTE WHITE TRIM
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 3500K CCT
Ballast/Driver: -

Summary

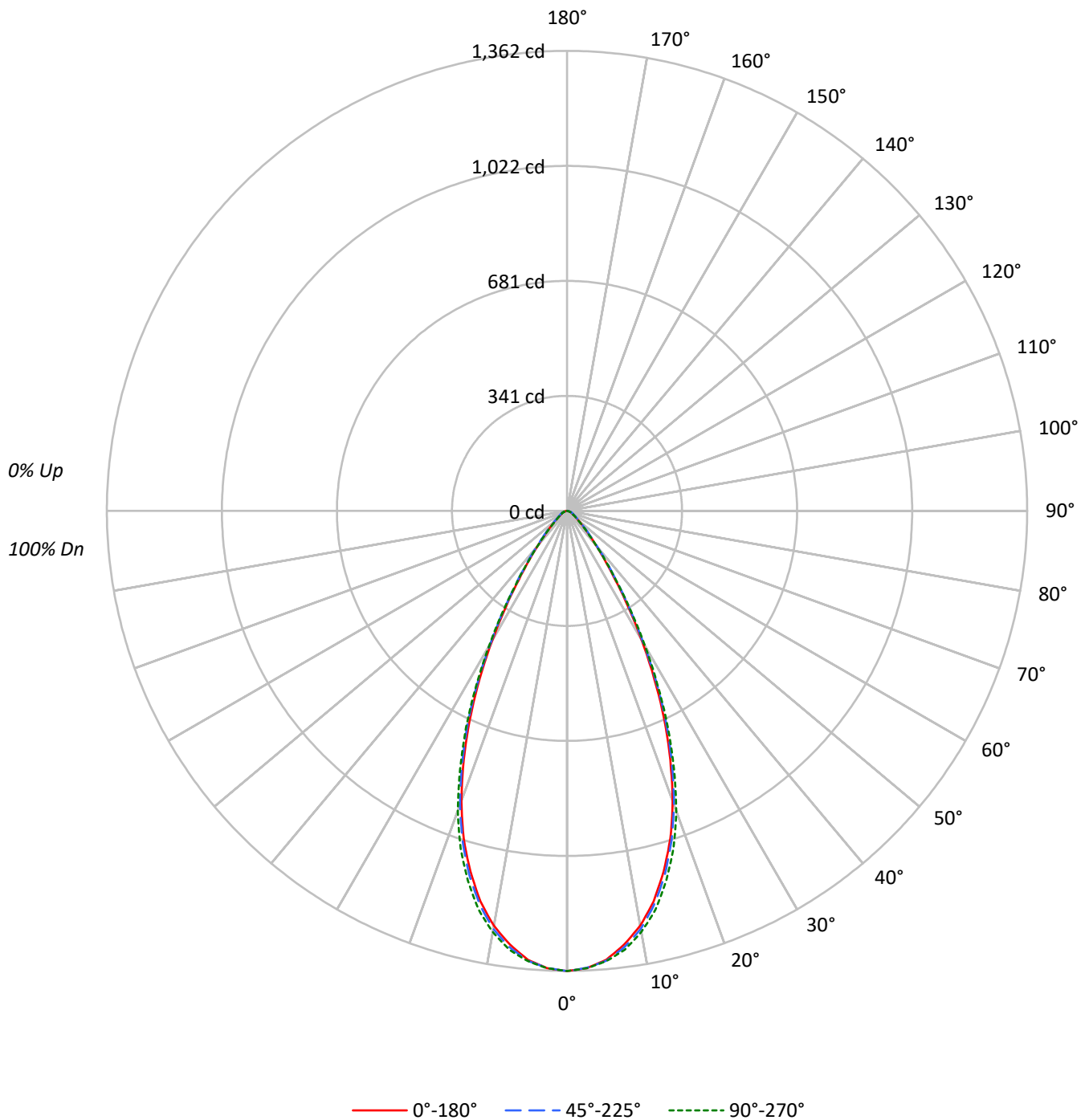
Lumens per Lamp: N/A
Luminaire Lumens: 1031.1 lumens
Efficiency: N/A
Efficacy: 79.3 lumens/watt
Spacing Criteria (0/90/45): 0.79 / 0.81 / 0.78
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

Input Watts (W): 13
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	113	110	108	106	111	108	106	104	104	102	101		101	99	98		97
2	108	103	98	95	105	101	97	94	98	94	92		95	92	90		92
3	102	96	90	86	100	94	89	86	91	88	84		89	86	83		87
4	97	89	84	79	95	88	83	79	86	81	78		84	80	77		82
5	92	84	78	73	90	83	77	73	81	76	72		79	75	72		78
6	88	79	73	68	86	78	72	68	76	71	68		75	71	67		74
7	83	74	68	64	82	73	68	64	72	67	63		71	66	63		70
8	79	70	64	60	78	69	64	60	68	63	60		67	63	59		66
9	76	66	60	57	75	66	60	56	65	60	56		64	59	56		63
10	73	63	57	53	72	62	57	53	62	57	53		61	56	53		60

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	131993	131993	131993
5°	129687	129998	130105
10°	122657	123602	124556
15°	110773	111957	113672
20°	94227	95443	97433
25°	72760	74364	75507
30°	49331	50640	51602
35°	29365	30760	30760
40°	17060	17996	17060
45°	10261	11001	9823
50°	6616	7264	6285
55°	4695	5422	4695
60°	3933	4553	3933
65°	3691	4172	3691
70°	3342	3937	3342
75°	2807	3593	2396
80°	614	1785	614
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	125.0	12.1
10°-20°	309.4	30.0
20°-30°	313.7	30.4
30°-40°	166.9	16.2
40°-50°	62.7	6.1
50°-60°	27.6	2.7
60°-70°	17.0	1.6
70°-80°	8.1	0.8
80°-90°	0.6	0.1
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°	748.1	72.6
0°-40°	915.0	88.7
0°-60°	1005.4	97.5
0°-90°	1031.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1031.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1362	1362	1362	1362	1362	
5°	1334	1332	1337	1339	1338	124
15°	1104	1107	1116	1130	1133	306
25°	681	687	696	703	706	308
35°	248	250	260	263	260	162
45°	75	77	80	76	72	61
55°	28	30	32	29	28	26
65°	16	17	18	17	16	16
75°	8	8	10	8	6	7
85°	0	0	0	0	0	0
90°	0	0	0	0	0	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1362.5	1362.5	1362.5	1362.5	1362.5
2.5°	1355.0	1352.9	1353.9	1356.1	1355.0
5°	1333.6	1332.5	1336.8	1338.9	1337.9
7.5°	1295.1	1297.2	1302.6	1309.0	1310.0
10°	1246.9	1248.0	1256.5	1265.1	1266.2
12.5°	1183.8	1185.9	1193.4	1203.0	1209.4
15°	1104.5	1106.7	1116.3	1130.2	1133.4
17.5°	1016.8	1016.8	1026.4	1039.3	1047.8
20°	914.0	915.1	925.8	938.7	945.1
22.5°	798.4	801.7	811.3	823.1	826.3
25°	680.7	687.1	695.7	703.2	706.4
27.5°	557.6	563.0	573.7	578.0	579.0
30°	441.0	445.2	452.7	458.1	461.3
32.5°	335.0	337.1	348.9	353.2	352.1
35°	248.3	250.5	260.1	263.3	260.1
37.5°	182.0	186.2	193.7	193.7	187.3
40°	134.9	134.9	142.3	140.2	134.9
42.5°	99.5	100.6	106.0	102.7	98.5
45°	74.9	77.1	80.3	76.0	71.7
47.5°	56.7	58.9	61.0	57.8	53.5
50°	43.9	46.0	48.2	45.0	41.7
52.5°	34.2	36.4	38.5	35.3	33.2
55°	27.8	30.0	32.1	28.9	27.8
57.5°	23.5	24.6	26.8	24.6	23.5
60°	20.3	21.4	23.5	21.4	20.3
62.5°	18.2	19.3	20.3	19.3	18.2
65°	16.1	17.1	18.2	17.1	16.1
67.5°	13.9	15.0	16.1	15.0	13.9
70°	11.8	12.8	13.9	12.8	11.8
72.5°	9.6	10.7	11.8	10.7	9.6
75°	7.5	7.5	9.6	7.5	6.4
77.5°	3.2	5.4	6.4	4.3	3.2
80°	1.1	2.1	3.2	2.1	1.1
82.5°	1.1	1.1	1.1	1.1	1.1
85°	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)