

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: P990951

Luminaire Tested: **ML4ALSFL9FS1E-TIR4D55WFL-TL4SDMB-1000LM-5000K**

Issue Date: 5/13/2025

Tested By:

Approved By:



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Test Information

Test Method: LM-79-08
 Report Number: P990951
 Test Lab: Cooper Lighting Solutions
 Issue Date: 5/13/2025
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
 Product Line: HALO
 Catalog Number: ML4ALSFL9FS1E-TIR4D55WFL-TL4SDMB-1000LM-5000K
 Description: 4IN SQUARE ML FLEX ADJUSTABLE, SELECTABLE CCT, WITH 55D TIR, MATTE BLACK TRIM
 Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 5000K CCT
 Ballast/Driver: -

Summary

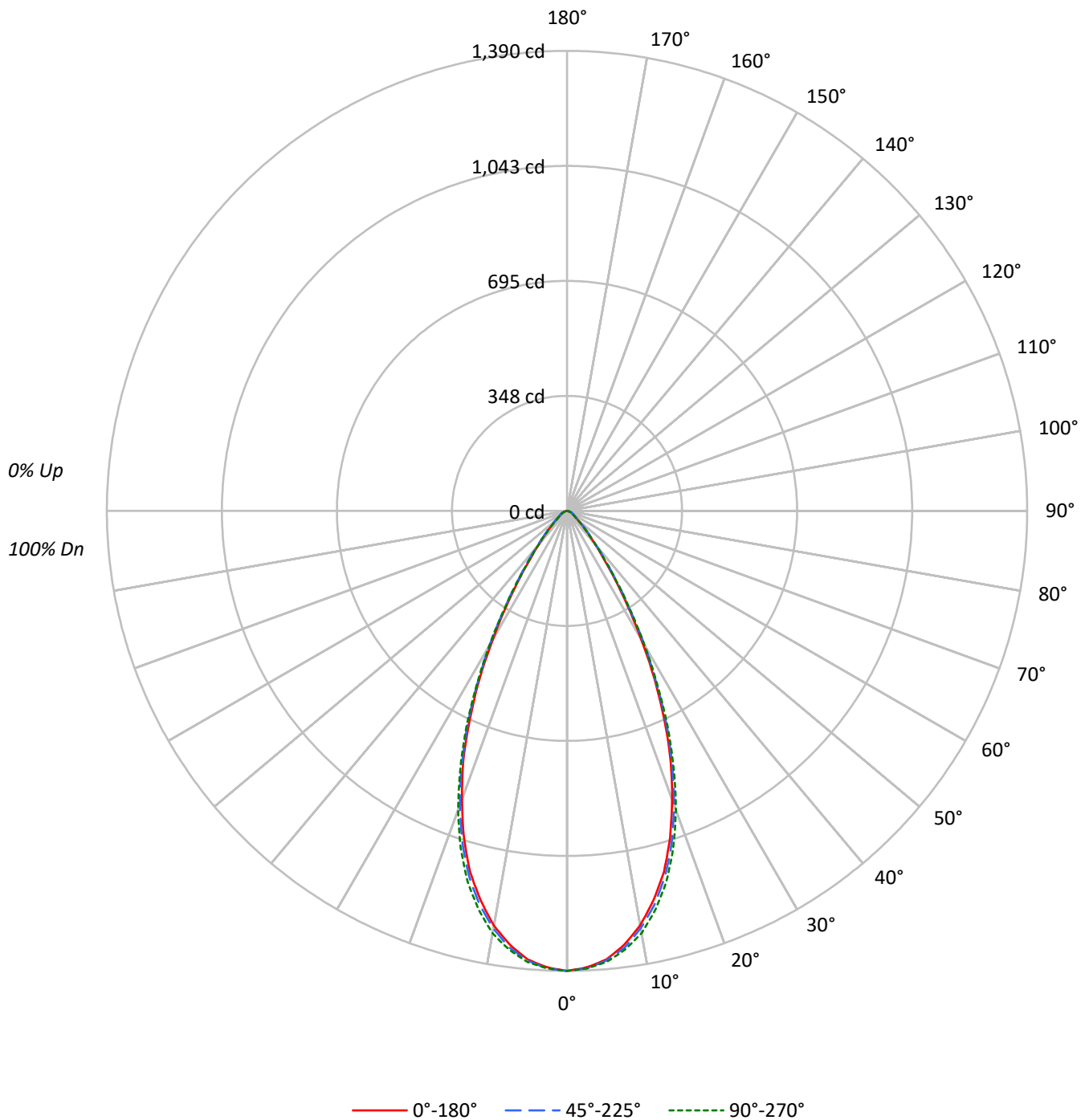
Lumens per Lamp: N/A
 Luminaire Lumens: 1045.7 lumens
 Efficiency: N/A
 Efficacy: 80.4 lumens/watt
 Spacing Criteria (0/90/45): 0.79 / 0.8 / 0.78
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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	111	108	106	111	108	106	104	104	102	101		101	99	98		97
2	108	103	99	95	105	101	97	94	98	95	92		95	92	90		92
3	102	96	91	87	100	94	90	86	92	88	85		89	86	83		87
4	97	89	84	80	95	88	83	79	86	82	78		84	80	77		82
5	92	84	78	74	91	83	77	73	81	76	73		79	75	72		78
6	88	79	73	69	86	78	72	68	77	72	68		75	71	67		74
7	84	74	68	64	82	74	68	64	72	67	64		71	67	63		70
8	80	70	64	60	78	70	64	60	69	64	60		68	63	60		67
9	76	67	61	57	75	66	60	57	65	60	56		64	60	56		63
10	73	63	57	54	72	63	57	54	62	57	53		61	57	53		60

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	134657	134657	134657
5°	132302	132623	133051
10°	125126	125982	127487
15°	113321	114645	116280
20°	95649	97454	99134
25°	74171	75807	76747
30°	49991	52072	52318
35°	29589	31281	31020
40°	16857	18109	17275
45°	10179	10933	9878
50°	6420	7249	6255
55°	4611	5354	4611
60°	3817	4437	3817
65°	3507	4011	3507
70°	3087	3711	3087
75°	2470	3256	2059
80°	614	1227	614
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	127.7	12.2
10°-20°	315.9	30.2
20°-30°	320.0	30.6
30°-40°	168.8	16.1
40°-50°	62.5	6.0
50°-60°	27.0	2.6
60°-70°	16.1	1.5
70°-80°	7.4	0.7
80°-90°	0.2	0.0
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°	763.6	73.0
0°-40°	932.4	89.2
0°-60°	1022.0	97.7
0°-90°	1045.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1045.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1390	1390	1390	1390	1390	
5°	1360	1363	1364	1368	1368	127
15°	1130	1130	1143	1153	1159	312
25°	694	699	709	718	718	314
35°	250	252	264	264	262	163
45°	74	76	80	75	72	60
55°	27	28	32	28	27	25
65°	15	15	18	16	15	15
75°	7	8	9	8	6	6
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°	1390.0	1390.0	1390.0	1390.0	1390.0
2.5°	1380.2	1383.5	1383.5	1384.6	1383.5
5°	1360.5	1362.7	1363.8	1368.2	1368.2
7.5°	1322.3	1325.5	1331.0	1338.7	1337.6
10°	1272.0	1274.2	1280.7	1290.6	1296.0
12.5°	1205.3	1209.7	1218.5	1229.4	1233.8
15°	1129.9	1129.9	1143.1	1152.9	1159.4
17.5°	1034.9	1038.1	1051.3	1061.1	1067.6
20°	927.8	938.7	945.3	957.3	961.6
22.5°	818.5	821.8	829.4	839.3	842.5
25°	693.9	699.4	709.2	718.0	718.0
27.5°	571.5	573.7	582.5	589.0	587.9
30°	446.9	453.5	465.5	464.4	467.7
32.5°	339.9	345.3	353.0	358.4	355.2
35°	250.2	252.4	264.5	264.5	262.3
37.5°	181.4	186.9	194.5	193.4	188.0
40°	133.3	136.6	143.2	142.1	136.6
42.5°	99.4	101.6	106.0	102.7	97.3
45°	74.3	76.5	79.8	75.4	72.1
47.5°	55.7	57.9	61.2	56.8	53.5
50°	42.6	44.8	48.1	43.7	41.5
52.5°	32.8	35.0	38.2	35.0	32.8
55°	27.3	28.4	31.7	28.4	27.3
57.5°	22.9	24.0	26.2	24.0	22.9
60°	19.7	20.8	22.9	20.8	19.7
62.5°	17.5	17.5	19.7	18.6	17.5
65°	15.3	15.3	17.5	16.4	15.3
67.5°	13.1	14.2	15.3	14.2	13.1
70°	10.9	12.0	13.1	12.0	10.9
72.5°	8.7	9.8	10.9	9.8	8.7
75°	6.6	7.6	8.7	7.6	5.5
77.5°	2.2	4.4	5.5	4.4	3.3
80°	1.1	1.1	2.2	1.1	1.1
82.5°	0.0	0.0	0.0	0.0	0.0
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)