

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: P990882

Luminaire Tested: **ML4ALSFL9FS1E-TIR4D25NFL-TL4SDMW-1000LM-2700K**

Issue Date: 5/13/2025

Tested By:

Approved By:



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Test Information

Test Method: LM-79-08
 Report Number: P990882
 Test Lab: Cooper Lighting Solutions
 Issue Date: 5/13/2025
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
 Product Line: HALO
 Catalog Number: ML4ALSFL9FS1E-TIR4D25NFL-TL4SDMW-1000LM-2700K
 Description: 4IN SQUARE ML FLEX ADJUSTABLE, SELECTABLE CCT, WITH 25D TIR, MATTE WHITE TRIM
 Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 2700K CCT
 Ballast/Driver: -

Summary

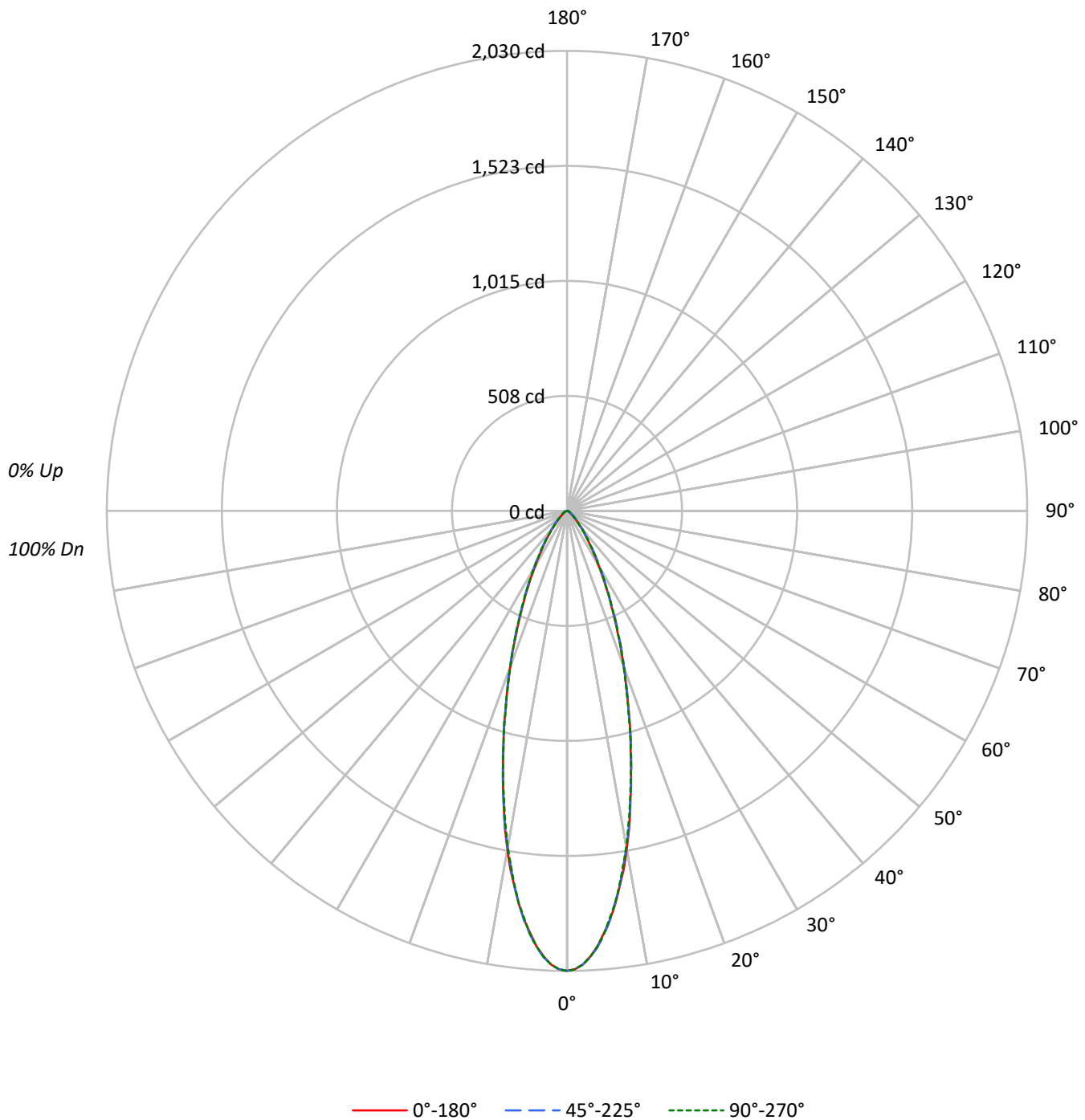
Lumens per Lamp: N/A
 Luminaire Lumens: 888.4 lumens
 Efficiency: N/A
 Efficacy: 68.3 lumens/watt
 Spacing Criteria (0/90/45): 0.52 / 0.52 / 0.57
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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			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	114	111	109	106	111	109	107	105	105	103	101		101	100	98		98	97	96	94
2	108	104	100	97	106	102	98	95	99	96	93		96	93	91		93	91	89	88
3	103	97	92	89	101	96	91	88	93	90	87		91	88	85		89	86	84	82
4	99	91	86	82	97	90	86	82	88	84	81		86	83	80		84	81	79	78
5	94	86	81	77	93	85	80	77	84	79	76		82	78	75		81	77	75	73
6	90	82	76	72	89	81	76	72	80	75	72		78	74	71		77	73	71	69
7	86	78	72	68	85	77	72	68	76	71	68		75	71	67		74	70	67	66
8	83	74	69	65	82	73	68	65	72	68	64		71	67	64		71	67	64	63
9	80	71	65	62	78	70	65	62	69	65	61		68	64	61		68	64	61	60
10	76	68	62	59	76	67	62	59	66	62	59		66	61	58		65	61	58	57

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	196647	196647	196647
5°	181752	182433	182238
10°	149148	148263	148066
15°	108657	109560	108958
20°	75423	76041	75216
25°	49469	50313	50420
30°	30975	32865	32306
35°	19502	21039	20093
40°	12254	13392	12254
45°	7809	8768	7672
50°	5124	6028	5124
55°	3716	4560	3885
60°	3100	3681	3294
65°	2751	3209	2980
70°	2549	3116	2549
75°	1871	2620	1871
80°	1116	1116	558
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	167.0	18.8
10°-20°	299.8	33.7
20°-30°	218.6	24.6
30°-40°	111.5	12.6
40°-50°	48.7	5.5
50°-60°	22.7	2.6
60°-70°	13.3	1.5
70°-80°	6.3	0.7
80°-90°	0.5	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°	685.5	77.2
0°-40°	797.0	89.7
0°-60°	868.3	97.7
0°-90°	888.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	888.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2030	2030	2030	2030	2030	
5°	1869	1877	1876	1872	1874	167
15°	1083	1091	1092	1088	1086	300
25°	463	467	471	472	472	215
35°	165	170	178	176	170	107
45°	57	60	64	60	56	46
55°	22	24	27	24	23	20
65°	12	13	14	14	13	12
75°	5	6	7	6	5	5
85°	0	0	0	0	0	1
90°	0	0	0	0	0	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2029.9	2029.9	2029.9	2029.9	2029.9
1°	2022.9	2020.9	2022.9	2022.9	2023.9
2°	2002.9	2000.9	2001.9	2000.9	2002.9
3°	1967.9	1969.9	1972.9	1970.9	1970.9
4°	1926.0	1931.0	1929.0	1926.0	1926.0
5°	1869.0	1877.0	1876.0	1872.0	1874.0
6°	1814.0	1816.0	1816.0	1811.0	1807.0
7°	1746.1	1746.1	1741.1	1746.1	1745.1
8°	1671.1	1677.1	1671.1	1670.1	1666.1
9°	1599.1	1594.1	1587.2	1588.2	1583.2
10°	1516.2	1511.2	1507.2	1508.2	1505.2
11°	1433.2	1422.2	1429.2	1423.2	1417.2
12°	1338.3	1338.3	1340.3	1331.3	1331.3
13°	1253.3	1253.3	1253.3	1247.3	1247.3
14°	1166.4	1170.4	1170.4	1168.4	1167.4
15°	1083.4	1091.4	1092.4	1088.4	1086.4
16°	1010.5	1016.5	1011.5	1005.5	1009.5
17°	935.5	940.5	932.5	933.5	927.5
18°	860.5	865.5	864.5	862.5	860.5
19°	794.6	799.6	800.6	793.6	792.6
20°	731.6	735.6	737.6	733.6	729.6
22.5°	583.7	591.7	594.7	588.7	589.7
25°	462.8	466.8	470.7	471.7	471.7
27.5°	363.8	364.8	374.8	374.8	369.8
30°	276.9	283.8	293.8	293.8	288.8
32.5°	215.9	219.9	228.9	228.9	223.9
35°	164.9	169.9	177.9	175.9	169.9
37.5°	126.9	129.9	135.9	134.9	129.9
40°	96.9	100.9	105.9	102.9	96.9
42.5°	75.0	78.0	83.0	78.0	73.0
45°	57.0	60.0	64.0	60.0	56.0
47.5°	44.0	47.0	51.0	47.0	43.0
50°	34.0	37.0	40.0	37.0	34.0
52.5°	27.0	29.0	33.0	30.0	28.0
55°	22.0	24.0	27.0	24.0	23.0
57.5°	18.0	20.0	22.0	21.0	19.0
60°	16.0	17.0	19.0	18.0	17.0
62.5°	14.0	15.0	16.0	15.0	14.0
65°	12.0	13.0	14.0	14.0	13.0
67.5°	10.0	11.0	13.0	12.0	11.0
70°	9.0	10.0	11.0	10.0	9.0
72.5°	7.0	8.0	9.0	8.0	7.0
75°	5.0	6.0	7.0	6.0	5.0
77.5°	3.0	4.0	5.0	4.0	3.0
80°	2.0	2.0	2.0	2.0	1.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
82.5°	1.0	1.0	1.0	1.0	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)