

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: P990959

Luminaire Tested: **ML4ALSFL9FS1E-TIR4D55WFL-TL4SDSL-1000LM-3500K**

Issue Date: 5/13/2025

Tested By:

Approved By:



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Test Information

Test Method: LM-79-08
 Report Number: P990959
 Test Lab: Cooper Lighting Solutions
 Issue Date: 5/13/2025
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
 Product Line: HALO
 Catalog Number: ML4ALSFL9FS1E-TIR4D55WFL-TL4SDSL-1000LM-3500K
 Description: 4IN SQUARE ML FLEX ADJUSTABLE, SELECTABLE CCT, WITH 55D TIR, METALLIC SILVER TRIM
 Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 3500K CCT
 Ballast/Driver: -

Summary

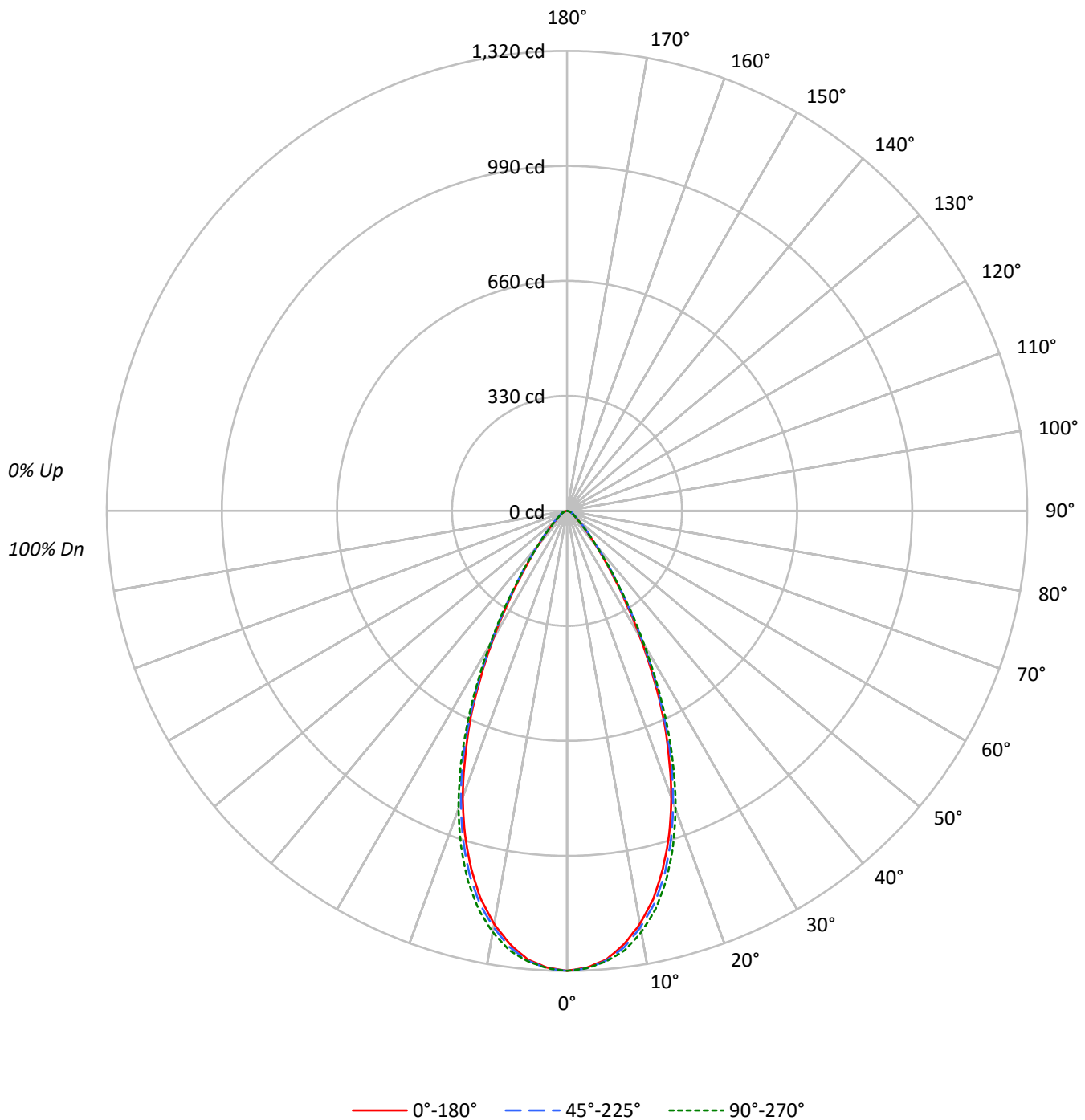
Lumens per Lamp: N/A
 Luminaire Lumens: 989.4 lumens
 Efficiency: N/A
 Efficacy: 76.1 lumens/watt
 Spacing Criteria (0/90/45): 0.78 / 0.8 / 0.78
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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	84		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	63	60		68	63	60		67
9	76	66	61	57	75	66	60	57	65	60	56		64	60	56		63
10	73	63	57	54	72	63	57	53	62	57	53		61	56	53		60

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	127866	127866	127866
5°	125641	125943	126147
10°	118368	119273	120700
15°	106501	108366	110122
20°	90216	91701	93835
25°	69821	70922	72472
30°	47094	48369	49286
35°	27827	29294	29164
40°	16187	17098	16579
45°	9892	10467	9467
50°	6224	6993	6059
55°	4526	5050	4526
60°	3798	4204	3798
65°	3301	3782	3553
70°	2917	3795	3229
75°	2321	3107	2321
80°	558	1172	558
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	121.0	12.2
10°-20°	298.6	30.2
20°-30°	300.9	30.4
30°-40°	159.4	16.1
40°-50°	60.0	6.1
50°-60°	26.2	2.7
60°-70°	15.8	1.6
70°-80°	7.2	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°	720.5	72.8
0°-40°	879.9	88.9
0°-60°	966.1	97.6
0°-90°	989.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	989.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1320	1320	1320	1320	1320	
5°	1292	1291	1295	1297	1297	120
15°	1062	1069	1080	1092	1098	294
25°	653	656	664	676	678	294
35°	235	240	248	251	247	154
45°	72	73	76	73	69	58
55°	27	28	30	28	27	25
65°	14	16	16	16	16	14
75°	6	7	8	7	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°	1319.9	1319.9	1319.9	1319.9	1319.9
2.5°	1311.6	1310.6	1313.7	1312.6	1313.7
5°	1292.0	1291.0	1295.1	1297.2	1297.2
7.5°	1253.8	1258.0	1262.1	1266.2	1271.4
10°	1203.3	1207.4	1212.5	1221.8	1227.0
12.5°	1141.3	1143.4	1154.8	1164.0	1171.3
15°	1061.9	1069.1	1080.5	1091.8	1098.0
17.5°	974.2	980.4	990.7	1004.1	1010.3
20°	875.1	879.2	889.5	905.0	910.2
22.5°	763.6	769.8	783.3	791.5	798.7
25°	653.2	656.3	663.5	675.9	678.0
27.5°	533.5	536.6	545.9	555.2	557.3
30°	421.0	427.2	432.4	439.6	440.6
32.5°	318.9	324.0	332.3	336.4	338.5
35°	235.3	240.4	247.7	250.8	246.6
37.5°	174.4	176.5	183.7	183.7	181.6
40°	128.0	131.1	135.2	134.2	131.1
42.5°	94.9	97.0	101.1	98.0	94.9
45°	72.2	73.3	76.4	73.3	69.1
47.5°	53.7	55.7	58.8	54.7	51.6
50°	41.3	43.3	46.4	42.3	40.2
52.5°	32.0	34.1	37.2	34.1	32.0
55°	26.8	27.9	29.9	27.9	26.8
57.5°	21.7	22.7	25.8	23.7	22.7
60°	19.6	19.6	21.7	20.6	19.6
62.5°	16.5	17.5	18.6	18.6	17.5
65°	14.4	15.5	16.5	16.5	15.5
67.5°	12.4	13.4	15.5	14.4	13.4
70°	10.3	11.4	13.4	12.4	11.4
72.5°	8.3	9.3	11.4	10.3	9.3
75°	6.2	7.2	8.3	7.2	6.2
77.5°	2.1	3.1	5.2	4.1	3.1
80°	1.0	1.0	2.1	1.0	1.0
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)