

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: P990960

Luminaire Tested: **ML4ALSFL9FS1E-TIR4D55WFL-TL4SDSL-1000LM-4000K**

Issue Date: 5/13/2025

Tested By:

Approved By:



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Test Information

Test Method: LM-79-08
 Report Number: P990960
 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-4000K
 Description: 4IN SQUARE ML FLEX ADJUSTABLE, SELECTABLE CCT, WITH 55D TIR,
 METALLIC SILVER TRIM
 Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 4000K CCT
 Ballast/Driver: -

Summary

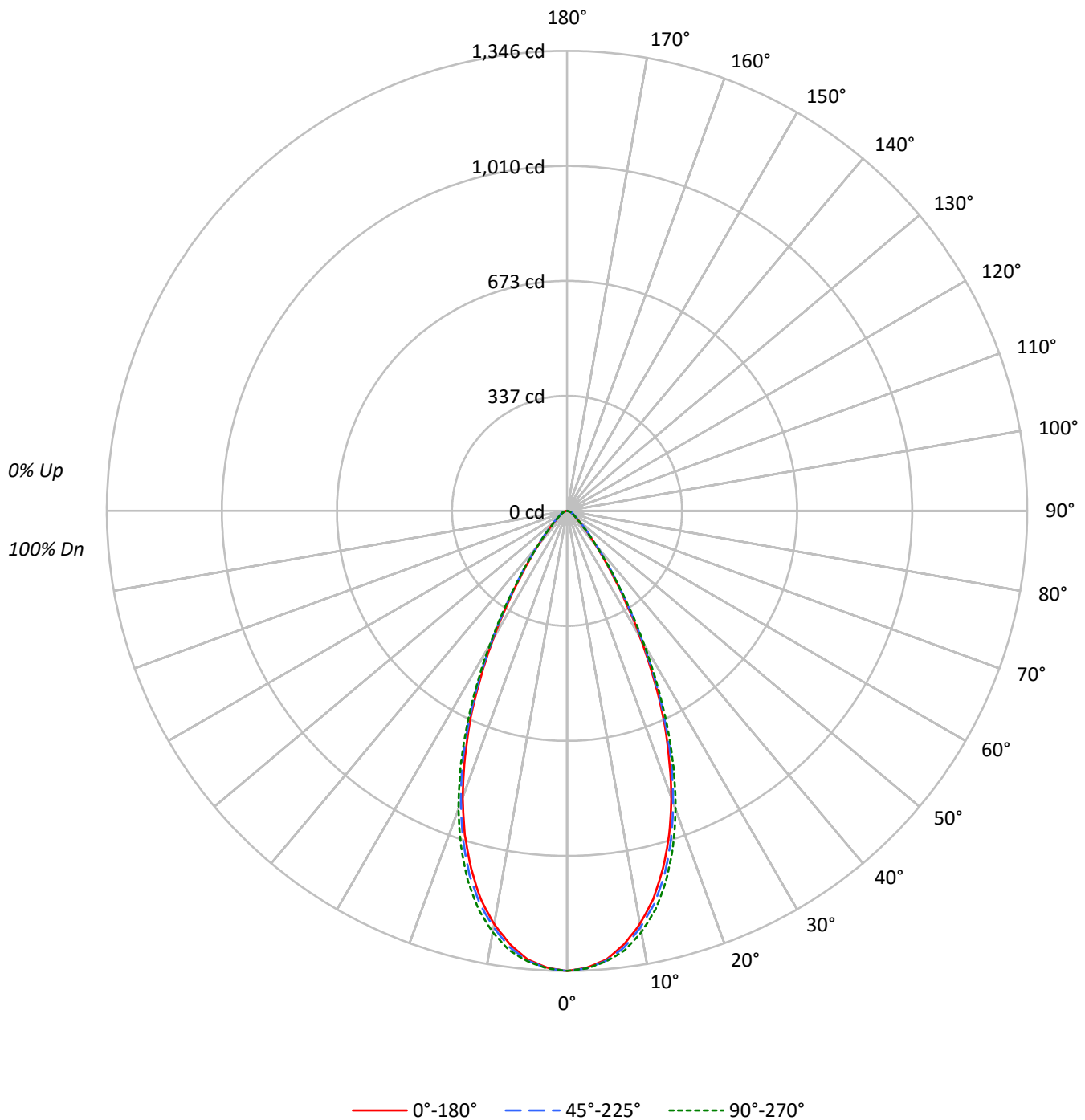
Lumens per Lamp: N/A
 Luminaire Lumens: 1009.1 lumens
 Efficiency: N/A
 Efficacy: 77.6 lumens/watt
 Spacing Criteria (0/90/45): 0.78 / 0.8 / 0.78
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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°	130404	130404	130404
5°	128140	128452	128656
10°	120720	121654	123100
15°	108617	110523	112308
20°	92010	93526	95701
25°	71210	72333	73915
30°	48034	49331	50271
35°	28383	29873	29743
40°	16503	17439	16908
45°	10097	10672	9659
50°	6345	7144	6179
55°	4628	5151	4628
60°	3875	4282	3875
65°	3370	3851	3622
70°	2974	3880	3286
75°	2358	3144	2358
80°	614	1172	614
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	123.4	12.2
10°-20°	304.6	30.2
20°-30°	306.9	30.4
30°-40°	162.6	16.1
40°-50°	61.2	6.1
50°-60°	26.8	2.7
60°-70°	16.1	1.6
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°	734.9	72.8
0°-40°	897.4	88.9
0°-60°	985.3	97.6
0°-90°	1009.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1009.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1346	1346	1346	1346	1346	
5°	1318	1317	1321	1323	1323	123
15°	1083	1090	1102	1114	1120	300
25°	666	669	677	689	692	300
35°	240	245	253	256	252	157
45°	74	75	78	75	70	59
55°	27	28	30	28	27	25
65°	15	16	17	17	16	15
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°	1346.1	1346.1	1346.1	1346.1	1346.1
2.5°	1337.7	1336.7	1339.8	1338.8	1339.8
5°	1317.7	1316.7	1320.9	1323.0	1323.0
7.5°	1278.8	1283.0	1287.2	1291.4	1296.7
10°	1227.2	1231.4	1236.7	1246.1	1251.4
12.5°	1164.1	1166.2	1177.7	1187.2	1194.6
15°	1083.0	1090.4	1102.0	1113.5	1119.8
17.5°	993.5	999.9	1010.4	1024.1	1030.4
20°	892.5	896.7	907.2	923.0	928.3
22.5°	778.8	785.2	798.8	807.3	814.6
25°	666.2	669.4	676.7	689.4	691.5
27.5°	544.1	547.3	556.8	566.2	568.3
30°	429.4	435.7	441.0	448.4	449.4
32.5°	325.2	330.5	338.9	343.1	345.2
35°	240.0	245.2	252.6	255.8	251.5
37.5°	177.9	180.0	187.3	187.3	185.2
40°	130.5	133.7	137.9	136.8	133.7
42.5°	96.8	98.9	103.1	100.0	96.8
45°	73.7	74.7	77.9	74.7	70.5
47.5°	54.7	56.8	60.0	55.8	52.6
50°	42.1	44.2	47.4	43.2	41.0
52.5°	32.6	34.7	37.9	34.7	32.6
55°	27.4	28.4	30.5	28.4	27.4
57.5°	22.1	23.2	26.3	24.2	23.2
60°	20.0	20.0	22.1	21.0	20.0
62.5°	16.8	17.9	18.9	18.9	17.9
65°	14.7	15.8	16.8	16.8	15.8
67.5°	12.6	13.7	15.8	14.7	13.7
70°	10.5	11.6	13.7	12.6	11.6
72.5°	8.4	9.5	11.6	10.5	9.5
75°	6.3	7.4	8.4	7.4	6.3
77.5°	2.1	3.2	5.3	4.2	3.2
80°	1.1	1.1	2.1	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)