

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: P990955

Luminaire Tested: **ML4ALSFL9FS1E-TIR4D55WFL-TL4SDMW-1000LM-4000K**

Issue Date: 5/13/2025

Tested By:

Approved By:



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Test Information

Test Method: LM-79-08
 Report Number: P990955
 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-4000K
 Description: 4IN SQUARE ML FLEX ADJUSTABLE, SELECTABLE CCT, WITH 55D TIR, MATTE WHITE TRIM
 Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 4000K CCT
 Ballast/Driver: -

Summary

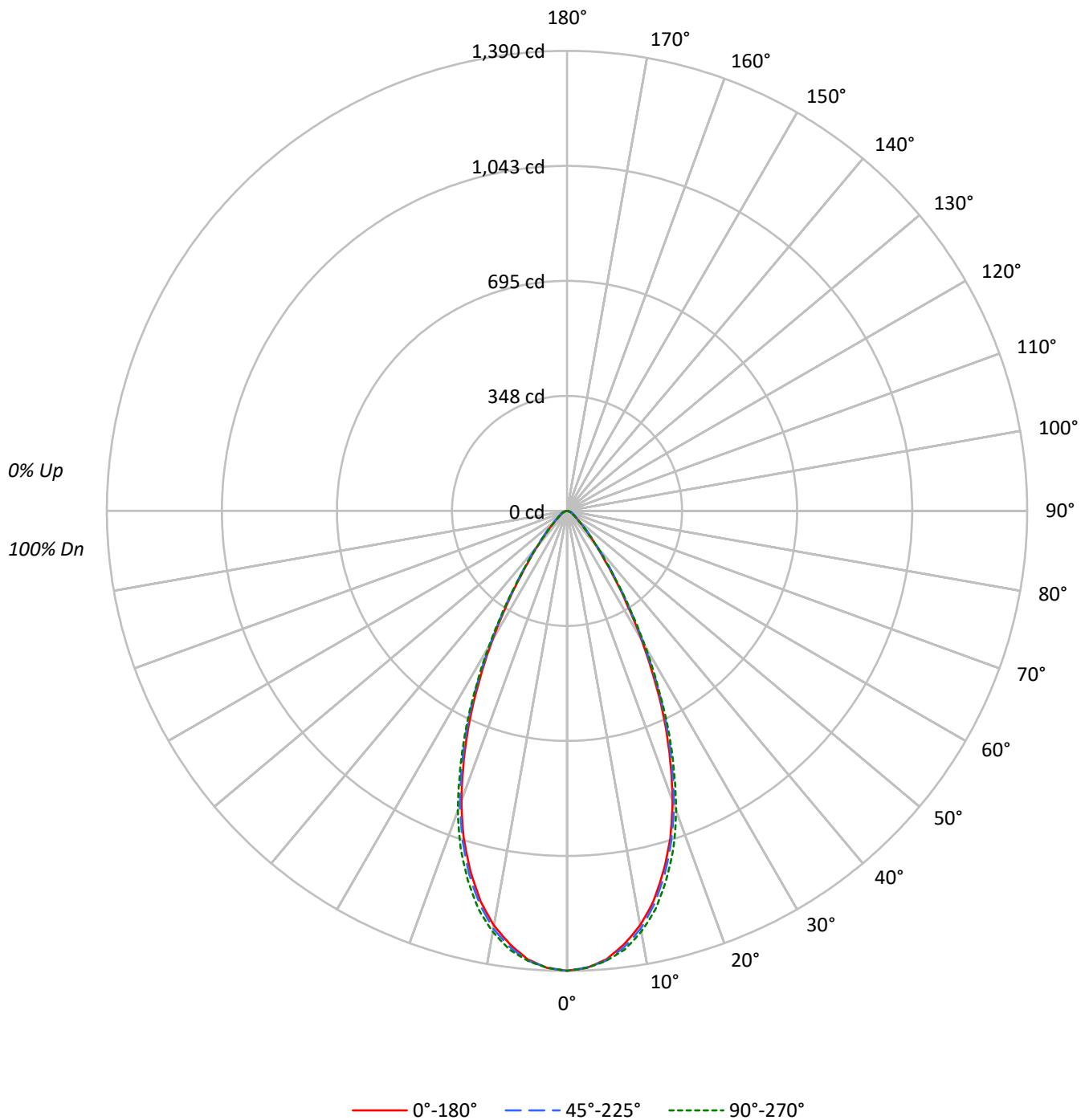
Lumens per Lamp: N/A
 Luminaire Lumens: 1051.6 lumens
 Efficiency: N/A
 Efficacy: 80.9 lumens/watt
 Spacing Criteria (0/90/45): 0.79 / 0.81 / 0.78
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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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CATALOG NUMBER: ML4ALSFL9FS1E-TIR4D55WFL-TL4SDMW-1000LM-4000K

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	113	110	108	106	111	108	106	104	104	102	101		101	99	98		97	96	95	93
2	108	103	98	95	105	101	97	94	98	94	92		95	92	90		92	90	88	86
3	102	96	90	86	100	94	89	86	91	88	84		89	86	83		87	84	82	80
4	97	89	84	79	95	88	83	79	86	81	78		84	80	77		82	79	76	75
5	92	84	78	73	90	83	77	73	81	76	72		79	75	72		78	74	71	70
6	88	79	73	68	86	78	72	68	76	71	68		75	71	67		74	70	67	65
7	83	74	68	64	82	73	68	64	72	67	63		71	66	63		70	66	63	61
8	79	70	64	60	78	69	64	60	68	63	60		67	63	59		66	62	59	58
9	76	66	60	57	75	66	60	56	65	60	56		64	59	56		63	59	56	55
10	73	63	57	53	72	62	57	53	62	57	53		61	56	53		60	56	53	52

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	134618	134618	134618
5°	132264	132584	132691
10°	125097	126061	127035
15°	112980	114183	115939
20°	96103	97340	99371
25°	74214	75839	77014
30°	50304	51647	52631
35°	29956	31375	31375
40°	17389	18362	17389
45°	10467	11221	10015
50°	6752	7400	6420
55°	4797	5523	4797
60°	4011	4650	4011
65°	3759	4264	3759
70°	3399	4022	3399
75°	2845	3668	2433
80°	614	1841	614
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	127.5	12.1
10°-20°	315.6	30.0
20°-30°	320.0	30.4
30°-40°	170.2	16.2
40°-50°	63.9	6.1
50°-60°	28.2	2.7
60°-70°	17.3	1.6
70°-80°	8.3	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°	763.0	72.6
0°-40°	933.2	88.7
0°-60°	1025.4	97.5
0°-90°	1051.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1051.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1390	1390	1390	1390	1390	
5°	1360	1359	1363	1366	1364	127
15°	1126	1129	1138	1153	1156	312
25°	694	701	710	717	720	314
35°	253	255	265	268	265	165
45°	76	79	82	78	73	62
55°	28	31	33	30	28	27
65°	16	18	19	18	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°	1389.6	1389.6	1389.6	1389.6	1389.6
2.5°	1382.0	1379.8	1380.9	1383.1	1382.0
5°	1360.1	1359.0	1363.4	1365.6	1364.5
7.5°	1320.8	1323.0	1328.5	1335.0	1336.1
10°	1271.7	1272.8	1281.5	1290.3	1291.4
12.5°	1207.3	1209.5	1217.1	1227.0	1233.5
15°	1126.5	1128.7	1138.5	1152.7	1156.0
17.5°	1037.0	1037.0	1046.8	1059.9	1068.7
20°	932.2	933.3	944.2	957.3	963.9
22.5°	814.3	817.6	827.4	839.4	842.7
25°	694.3	700.8	709.5	717.2	720.5
27.5°	568.7	574.2	585.1	589.5	590.6
30°	449.7	454.1	461.7	467.2	470.5
32.5°	341.7	343.9	355.9	360.2	359.1
35°	253.3	255.4	265.3	268.5	265.3
37.5°	185.6	189.9	197.6	197.6	191.0
40°	137.5	137.5	145.2	143.0	137.5
42.5°	101.5	102.6	108.1	104.8	100.4
45°	76.4	78.6	81.9	77.5	73.1
47.5°	57.9	60.0	62.2	58.9	54.6
50°	44.8	46.9	49.1	45.8	42.6
52.5°	34.9	37.1	39.3	36.0	33.8
55°	28.4	30.6	32.7	29.5	28.4
57.5°	24.0	25.1	27.3	25.1	24.0
60°	20.7	21.8	24.0	21.8	20.7
62.5°	18.6	19.6	20.7	19.6	18.6
65°	16.4	17.5	18.6	17.5	16.4
67.5°	14.2	15.3	16.4	15.3	14.2
70°	12.0	13.1	14.2	13.1	12.0
72.5°	9.8	10.9	12.0	10.9	9.8
75°	7.6	7.6	9.8	7.6	6.5
77.5°	3.3	5.5	6.5	4.4	3.3
80°	1.1	2.2	3.3	2.2	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)