

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: P990767

Luminaire Tested: **ML3ALSFL9FS1E-TIR4D40FL-TL3SDMW-30°-750LM-2700K**

Issue Date: 5/13/2025

Tested By:

Approved By:



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Test Information

Test Method: LM-79-08
 Report Number: P990767
 Test Lab: Cooper Lighting Solutions
 Issue Date: 5/13/2025
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
 Product Line: HALO
 Catalog Number: ML3ALSFL9FS1E-TIR4D40FL-TL3SDMW-30°-750LM-2700K
 Description: 3IN SQUARE ML FLEX ADJUSTABLE, SELECTABLE CCT, WITH 40D TIR, MATTE WHITE TRIM 30° Tilt
 Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 2700K CCT
 Ballast/Driver: -

Summary

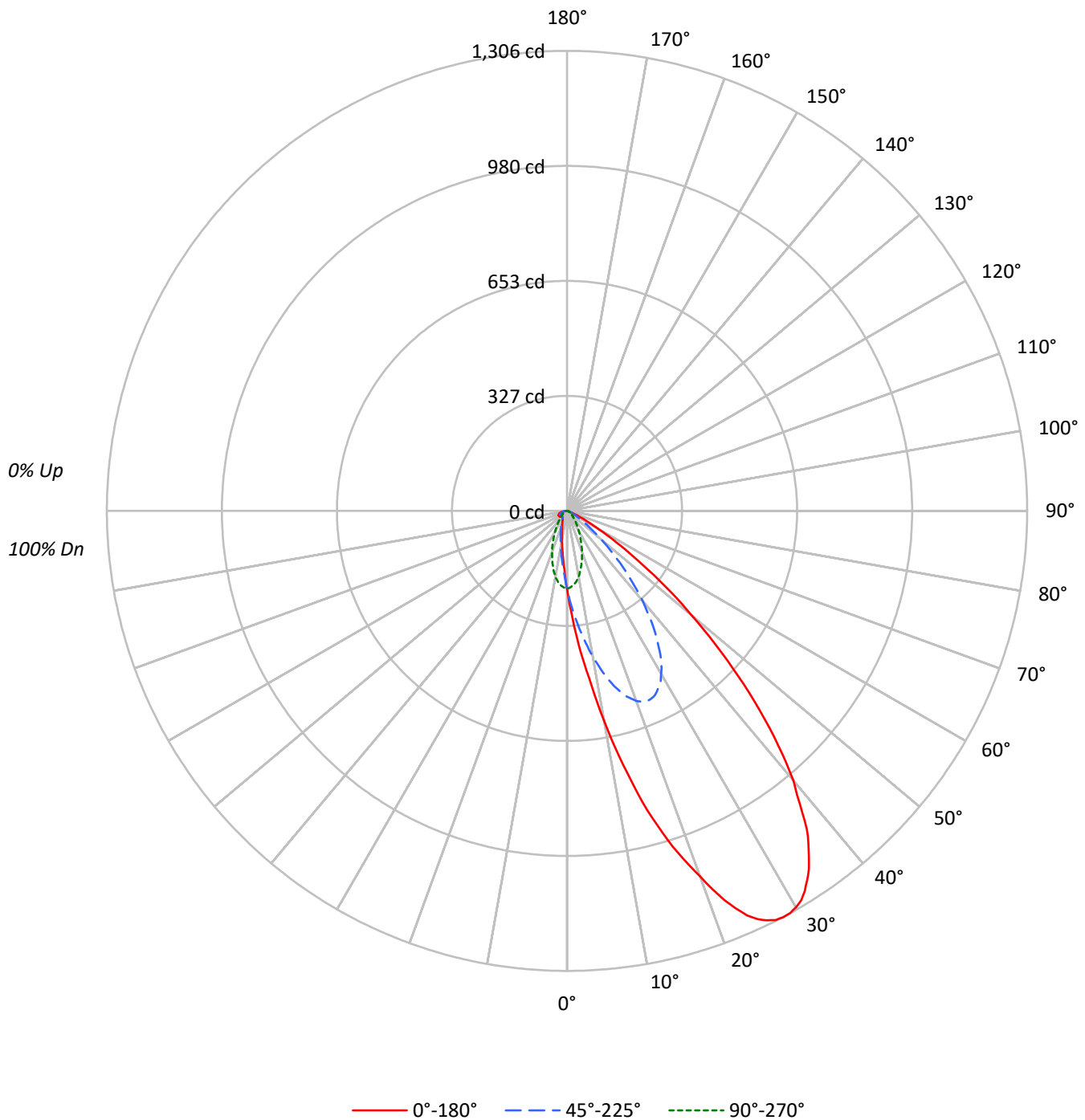
Lumens per Lamp: N/A
 Luminaire Lumens: 659.3 lumens
 Efficiency: N/A
 Efficacy: 68.0 lumens/watt
 Spacing Criteria (0/90/45): 2.1 / 0.69 / 1.32
 Luminous Opening: Rectangular (W 0.25' x L: 0.25' x H: 0')
 CIE Type: Direct

Input Watts (W): 9.7
 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	112	108	105	102	109	106	103	100	102	99	97		98	96	94		94
2	104	98	92	88	102	96	91	87	92	88	85		89	86	83		86
3	97	88	82	76	94	87	81	76	84	79	75		81	77	73		79
4	90	80	73	67	88	79	72	67	76	71	66		74	69	65		72
5	83	73	65	60	82	72	65	59	70	63	59		68	62	58		66
6	78	66	59	53	76	65	58	53	64	57	52		62	56	52		61
7	72	61	53	48	71	60	53	48	58	52	47		57	51	47		56
8	68	56	48	43	66	55	48	43	54	47	43		53	47	42		52
9	63	51	44	39	62	51	44	39	50	43	39		49	43	39		48
10	60	48	40	36	58	47	40	36	46	40	35		45	39	35		44

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	38147	38147	38147
5°	65781	36530	22509
10°	105820	33175	14532
15°	156884	28153	9699
20°	202428	22744	7148
25°	243006	17729	5644
30°	258406	13264	4892
35°	251621	10134	4752
40°	224798	7599	5081
45°	178334	5992	5748
50°	124186	4957	6859
55°	72993	4324	8017
60°	36373	4237	9197
65°	15445	3749	10432
70°	5187	3626	11884
75°	665	2728	12976
80°	0	2083	14282
85°	0	1976	12251

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	23.3	3.5
10°-20°	86.6	13.1
20°-30°	157.7	23.9
30°-40°	177.7	26.9
40°-50°	126.8	19.2
50°-60°	55.8	8.5
60°-70°	20.3	3.1
70°-80°	8.8	1.3
80°-90°	2.6	0.4
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°	267.5	40.6
0°-40°	445.1	67.5
0°-60°	627.7	95.2
0°-90°	659.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	659.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	222	222	222	222	222	
5°	380	316	211	149	130	43
15°	880	514	158	70	54	254
25°	1279	582	93	36	30	582
35°	1197	445	48	24	23	738
45°	732	220	25	20	24	561
55°	243	68	14	22	27	231
65°	38	16	9	20	26	44
75°	1	3	4	13	20	3
85°	0	1	1	4	6	0
90°	0	0	0	0	0	

TEST NUMBER: P990767

CATALOG NUMBER: ML3ALSFL9FS1E-TIR4D40FL-TL3SDMW-30°-750LM-2700K

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°
0°	221.5	221.5	221.5	221.5	221.5	221.5	221.5	221.5	221.5	221.5	221.5
2.5°	289.2	291.3	290.2	288.2	283.0	267.7	243.1	217.4	195.9	178.4	170.2
5°	380.5	375.3	372.3	369.2	363.0	315.9	260.5	211.3	174.3	148.7	135.4
7.5°	476.9	481.0	474.8	467.6	452.3	367.1	274.8	202.0	152.8	123.1	107.7
10°	605.1	603.0	596.9	584.6	552.8	419.4	285.1	189.7	132.3	102.6	86.1
12.5°	739.4	733.3	724.0	703.5	658.4	468.7	288.2	174.3	112.8	83.1	69.7
15°	879.9	868.6	847.1	822.5	763.0	513.8	286.1	157.9	97.4	69.7	57.4
17.5°	999.9	992.7	971.2	939.4	864.5	550.7	277.9	140.5	82.0	58.5	48.2
20°	1104.5	1105.5	1075.8	1038.9	947.6	574.3	264.6	124.1	69.7	49.2	41.0
21°	1149.6	1146.5	1117.8	1074.8	977.3	579.4	258.4	117.9	64.6	46.1	39.0
22°	1191.7	1182.4	1153.7	1105.5	1004.0	584.6	250.2	111.8	60.5	43.1	36.9
23°	1225.5	1214.2	1184.5	1134.2	1025.5	585.6	243.1	105.6	56.4	40.0	34.9
24°	1257.3	1240.9	1212.2	1160.9	1046.0	584.6	233.8	98.5	53.3	37.9	32.8
25°	1278.8	1265.5	1232.7	1181.4	1060.4	581.5	224.6	93.3	50.3	35.9	30.8
26°	1293.2	1284.0	1247.0	1194.7	1072.7	576.3	215.4	87.2	47.2	33.8	29.7
27°	1303.5	1295.2	1258.3	1203.0	1079.9	568.1	206.1	82.0	44.1	31.8	28.7
28°	1306.5	1298.3	1261.4	1205.0	1080.9	561.0	196.9	76.9	41.0	30.8	27.7
29°	1305.5	1296.3	1259.4	1198.8	1076.8	548.7	186.6	71.8	39.0	29.7	26.7
30°	1299.4	1289.1	1252.2	1187.6	1067.6	534.3	177.4	66.7	36.9	27.7	25.6
31°	1290.1	1277.8	1240.9	1175.3	1054.2	521.0	168.2	63.6	34.9	26.7	24.6
32°	1272.7	1260.4	1221.4	1156.8	1033.7	504.6	157.9	58.5	32.8	25.6	23.6
33°	1251.2	1239.9	1197.8	1137.3	1013.2	486.1	148.7	55.4	30.8	24.6	23.6
34°	1227.6	1214.2	1172.2	1111.7	987.6	464.6	139.5	51.3	29.7	23.6	23.6
35°	1196.8	1185.5	1143.5	1085.0	961.9	445.1	130.2	48.2	27.7	23.6	22.6
36°	1166.0	1150.6	1111.7	1051.2	928.1	424.6	121.0	45.1	26.7	22.6	22.6
37°	1131.2	1111.7	1076.8	1018.4	896.3	403.0	112.8	42.0	25.6	22.6	22.6
38°	1083.0	1071.7	1035.8	977.3	859.4	377.4	105.6	39.0	24.6	21.5	22.6
39°	1037.8	1027.6	993.7	934.3	815.3	354.8	97.4	35.9	23.6	21.5	22.6
40°	999.9	986.6	952.7	890.2	774.3	333.3	90.2	33.8	22.6	21.5	22.6
42.5°	870.7	859.4	827.6	771.2	661.5	272.8	72.8	28.7	20.5	20.5	21.5
45°	732.2	726.1	692.2	642.0	545.6	220.5	59.5	24.6	19.5	20.5	22.6
47.5°	593.8	586.6	556.9	518.9	429.7	170.2	47.2	21.5	18.5	20.5	23.6
50°	463.5	453.3	432.8	395.9	322.0	129.2	36.9	18.5	17.4	20.5	23.6
52.5°	350.7	340.5	323.0	288.2	231.8	93.3	28.7	16.4	17.4	20.5	24.6
55°	243.1	242.0	225.6	204.1	159.0	67.7	22.6	14.4	16.4	21.5	25.6
57.5°	166.1	163.1	151.8	136.4	108.7	46.1	17.4	13.3	16.4	21.5	25.6
60°	105.6	105.6	97.4	88.2	70.8	31.8	14.4	12.3	16.4	21.5	25.6
62.5°	64.6	62.6	59.5	54.4	45.1	22.6	11.3	10.3	15.4	20.5	25.6
65°	37.9	35.9	34.9	31.8	27.7	16.4	9.2	9.2	14.4	20.5	24.6
67.5°	20.5	19.5	19.5	18.5	16.4	11.3	7.2	8.2	13.3	19.5	23.6
70°	10.3	10.3	10.3	10.3	9.2	8.2	6.2	7.2	12.3	18.5	22.6
72.5°	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	10.3	16.4	20.5
75°	1.0	2.1	2.1	2.1	2.1	3.1	3.1	4.1	8.2	13.3	18.5
77.5°	1.0	1.0	1.0	1.0	1.0	2.1	2.1	3.1	6.2	11.3	16.4
80°	0.0	0.0	0.0	0.0	0.0	1.0	2.1	2.1	5.1	8.2	13.3

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CANDELA DISTRIBUTION (continued):

	0°	5°	10°	15°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°
82.5°	0.0	0.0	0.0	0.0	0.0	1.0	1.0	2.1	3.1	6.2	9.2
85°	0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0	2.1	4.1	6.2
87.5°	0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	2.1	3.1
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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CANDELA DISTRIBUTION (continued):

	180°
0°	221.5
2.5°	166.1
5°	130.2
7.5°	103.6
10°	83.1
12.5°	66.7
15°	54.4
17.5°	46.1
20°	39.0
21°	36.9
22°	34.9
23°	32.8
24°	31.8
25°	29.7
26°	28.7
27°	27.7
28°	26.7
29°	25.6
30°	24.6
31°	24.6
32°	23.6
33°	23.6
34°	23.6
35°	22.6
36°	22.6
37°	22.6
38°	22.6
39°	22.6
40°	22.6
42.5°	22.6
45°	23.6
47.5°	24.6
50°	25.6
52.5°	25.6
55°	26.7
57.5°	26.7
60°	26.7
62.5°	26.7
65°	25.6
67.5°	24.6
70°	23.6
72.5°	21.5
75°	19.5
77.5°	17.4
80°	14.4

Signify Classified - Internal
Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



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CANDELA DISTRIBUTION (continued):

	180°
82.5°	10.3
85°	6.2
87.5°	3.1
90°	0.0

(END OF REPORT)