

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: P990768

Luminaire Tested: **ML3ALSFL9FS1E-TIR4D40FL-TL3SDMW-30°-750LM-3000K**

Issue Date: 5/13/2025

Tested By:

Approved By:



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Test Information

Test Method: LM-79-08
 Report Number: P990768
 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-3000K
 Description: 3IN SQUARE ML FLEX ADJUSTABLE, SELECTABLE CCT, WITH 40D TIR, MATTE WHITE TRIM 30° Tilt
 Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 3000K CCT
 Ballast/Driver: -

Summary

Lumens per Lamp: N/A
 Luminaire Lumens: 673.6 lumens
 Efficiency: N/A
 Efficacy: 69.4 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

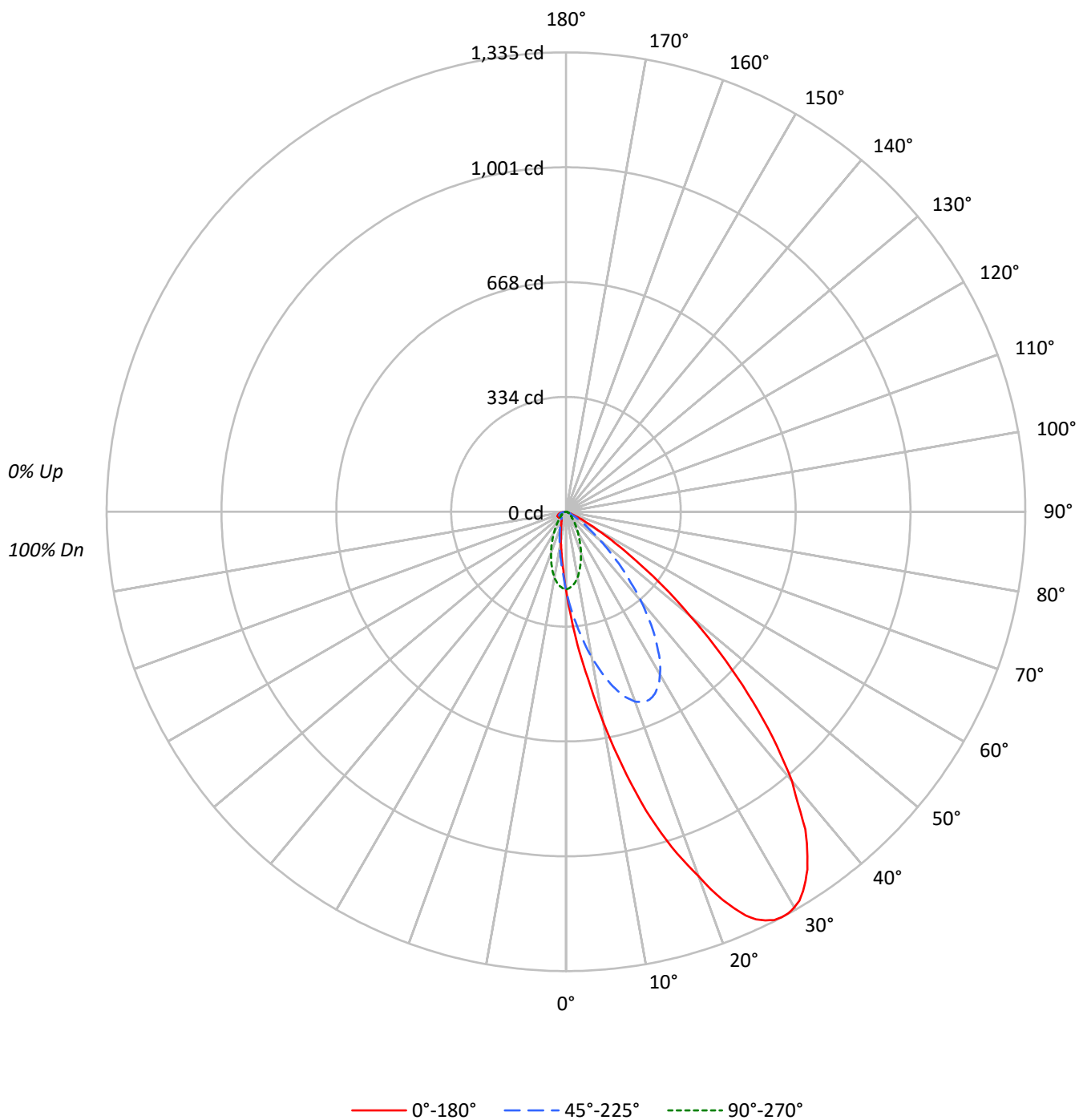
Input Watts (W): 9.7
 Input Voltage (V): NR
 Input Current (Ain): NR
 Voltage Rise (V): NR
 Power Factor: NR
 Total Harmonic Distortion (THDi): NR
 Frequency (hertz): 60
 Stabilization Time: NR
 Operation Time: NR
 Ambient Temperature (°C): NR
 Test Distance: 25 FT

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°	38974	38974	38974
5°	67199	37325	23010
10°	108110	33909	14847
15°	160290	28777	9896
20°	206826	23239	7294
25°	248308	18129	5777
30°	264014	13543	4992
35°	257088	10344	4857
40°	229677	7779	5193
45°	182231	6113	5870
50°	126892	5064	7020
55°	74555	4414	8167
60°	37166	4340	9369
65°	15812	3831	10677
70°	5287	3676	12135
75°	665	2795	13242
80°	0	2083	14579
85°	0	1976	12449

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	23.8	3.5
10°-20°	88.5	13.1
20°-30°	161.1	23.9
30°-40°	181.5	26.9
40°-50°	129.5	19.2
50°-60°	57.0	8.5
60°-70°	20.7	3.1
70°-80°	8.9	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°	273.3	40.6
0°-40°	454.8	67.5
0°-60°	641.3	95.2
0°-90°	673.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	673.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	226	226	226	226	226	
5°	389	323	216	152	133	44
15°	899	525	161	71	56	259
25°	1307	594	95	37	30	595
35°	1223	455	49	24	23	754
45°	748	225	25	21	24	573
55°	248	69	15	22	27	236
65°	39	17	9	21	26	45
75°	1	3	4	14	20	3
85°	0	1	1	4	6	0
90°	0	0	0	0	0	

TEST NUMBER: P990768

CATALOG NUMBER: ML3ALSFL9FS1E-TIR4D40FL-TL3SDMW-30°-750LM-3000K

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°
0°	226.3	226.3	226.3	226.3	226.3	226.3	226.3	226.3	226.3	226.3	226.3
2.5°	295.5	297.6	296.5	294.4	289.2	273.5	248.3	222.1	200.1	182.3	173.9
5°	388.7	383.5	380.4	377.2	370.9	322.7	266.2	215.9	178.1	151.9	138.3
7.5°	487.2	491.4	485.2	477.8	462.1	375.1	280.8	206.4	156.1	125.7	110.0
10°	618.2	616.1	609.8	597.3	564.8	428.6	291.3	193.9	135.2	104.8	88.0
12.5°	755.5	749.2	739.8	718.8	672.7	478.9	294.4	178.1	115.3	84.9	71.3
15°	899.0	887.5	865.5	840.4	779.6	525.0	292.3	161.4	99.5	71.3	58.7
17.5°	1021.6	1014.3	992.3	959.8	883.3	562.7	284.0	143.6	83.8	59.7	49.2
20°	1128.5	1129.6	1099.2	1061.5	968.2	586.8	270.3	126.8	71.3	50.3	41.9
21°	1174.6	1171.5	1142.1	1098.1	998.6	592.0	264.1	120.5	66.0	47.2	39.8
22°	1217.6	1208.2	1178.8	1129.6	1025.8	597.3	255.7	114.2	61.8	44.0	37.7
23°	1252.2	1240.6	1210.3	1158.9	1047.8	598.3	248.3	107.9	57.6	40.9	35.6
24°	1284.7	1267.9	1238.5	1186.2	1068.8	597.3	238.9	100.6	54.5	38.8	33.5
25°	1306.7	1293.0	1259.5	1207.1	1083.5	594.1	229.5	95.4	51.3	36.7	31.4
26°	1321.3	1311.9	1274.2	1220.7	1096.0	588.9	220.0	89.1	48.2	34.6	30.4
27°	1331.8	1323.4	1285.7	1229.1	1103.4	580.5	210.6	83.8	45.1	32.5	29.3
28°	1334.9	1326.6	1288.8	1231.2	1104.4	573.2	201.2	78.6	41.9	31.4	28.3
29°	1333.9	1324.5	1286.7	1224.9	1100.2	560.6	190.7	73.3	39.8	30.4	27.2
30°	1327.6	1317.1	1279.4	1213.4	1090.8	545.9	181.3	68.1	37.7	28.3	26.2
31°	1318.2	1305.6	1267.9	1200.8	1077.2	532.3	171.8	65.0	35.6	27.2	25.1
32°	1300.4	1287.8	1248.0	1182.0	1056.2	515.5	161.4	59.7	33.5	26.2	24.1
33°	1278.4	1266.8	1223.9	1162.1	1035.3	496.7	151.9	56.6	31.4	25.1	24.1
34°	1254.3	1240.6	1197.7	1135.9	1009.1	474.7	142.5	52.4	30.4	24.1	24.1
35°	1222.8	1211.3	1168.3	1108.6	982.9	454.8	133.1	49.2	28.3	24.1	23.1
36°	1191.4	1175.7	1135.9	1074.0	948.3	433.8	123.6	46.1	27.2	23.1	23.1
37°	1155.8	1135.9	1100.2	1040.5	915.8	411.8	115.3	43.0	26.2	23.1	23.1
38°	1106.5	1095.0	1058.3	998.6	878.1	385.6	107.9	39.8	25.1	22.0	23.1
39°	1060.4	1049.9	1015.4	954.6	833.0	362.6	99.5	36.7	24.1	22.0	23.1
40°	1021.6	1008.0	973.4	909.5	791.1	340.5	92.2	34.6	23.1	22.0	23.1
42.5°	889.6	878.1	845.6	788.0	675.9	278.7	74.4	29.3	21.0	21.0	22.0
45°	748.2	741.9	707.3	655.9	557.5	225.3	60.8	25.1	19.9	21.0	23.1
47.5°	606.7	599.4	569.0	530.2	439.0	173.9	48.2	22.0	18.9	21.0	24.1
50°	473.6	463.1	442.2	404.5	329.0	132.0	37.7	18.9	17.8	21.0	24.1
52.5°	358.4	347.9	330.1	294.4	236.8	95.4	29.3	16.8	17.8	21.0	25.1
55°	248.3	247.3	230.5	208.5	162.4	69.2	23.1	14.7	16.8	22.0	26.2
57.5°	169.8	166.6	155.1	139.4	111.1	47.2	17.8	13.6	16.8	22.0	26.2
60°	107.9	107.9	99.5	90.1	72.3	32.5	14.7	12.6	16.8	22.0	26.2
62.5°	66.0	63.9	60.8	55.5	46.1	23.1	11.5	10.5	15.7	21.0	26.2
65°	38.8	36.7	35.6	32.5	28.3	16.8	9.4	9.4	14.7	21.0	25.1
67.5°	21.0	19.9	19.9	18.9	16.8	11.5	7.3	8.4	13.6	19.9	24.1
70°	10.5	10.5	10.5	10.5	9.4	8.4	6.3	7.3	12.6	18.9	23.1
72.5°	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	10.5	16.8	21.0
75°	1.0	2.1	2.1	2.1	2.1	3.1	3.1	4.2	8.4	13.6	18.9
77.5°	1.0	1.0	1.0	1.0	1.0	2.1	2.1	3.1	6.3	11.5	16.8
80°	0.0	0.0	0.0	0.0	0.0	1.0	2.1	2.1	5.2	8.4	13.6

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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	6.3	9.4
85°	0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0	2.1	4.2	6.3
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°	226.3
2.5°	169.8
5°	133.1
7.5°	105.8
10°	84.9
12.5°	68.1
15°	55.5
17.5°	47.2
20°	39.8
21°	37.7
22°	35.6
23°	33.5
24°	32.5
25°	30.4
26°	29.3
27°	28.3
28°	27.2
29°	26.2
30°	25.1
31°	25.1
32°	24.1
33°	24.1
34°	24.1
35°	23.1
36°	23.1
37°	23.1
38°	23.1
39°	23.1
40°	23.1
42.5°	23.1
45°	24.1
47.5°	25.1
50°	26.2
52.5°	26.2
55°	27.2
57.5°	27.2
60°	27.2
62.5°	27.2
65°	26.2
67.5°	25.1
70°	24.1
72.5°	22.0
75°	19.9
77.5°	17.8
80°	14.7

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



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CATALOG NUMBER: ML3ALSFL9FS1E-TIR4D40FL-TL3SDMW-30°-750LM-3000K

CANDELA DISTRIBUTION (continued):

	180°
82.5°	10.5
85°	6.3
87.5°	3.1
90°	0.0

(END OF REPORT)