

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: P990771

Luminaire Tested: **ML3ALSFL9FS1E-TIR4D40FL-TL3SDMW-30°-750LM-5000K**

Issue Date: 5/13/2025

Tested By:

Approved By:



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Test Information

Test Method: LM-79-08
 Report Number: P990771
 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-5000K
 Description: 3IN SQUARE ML FLEX ADJUSTABLE, SELECTABLE CCT, WITH 40D TIR, MATTE WHITE TRIM 30° Tilt
 Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 5000K CCT
 Ballast/Driver: -

Summary

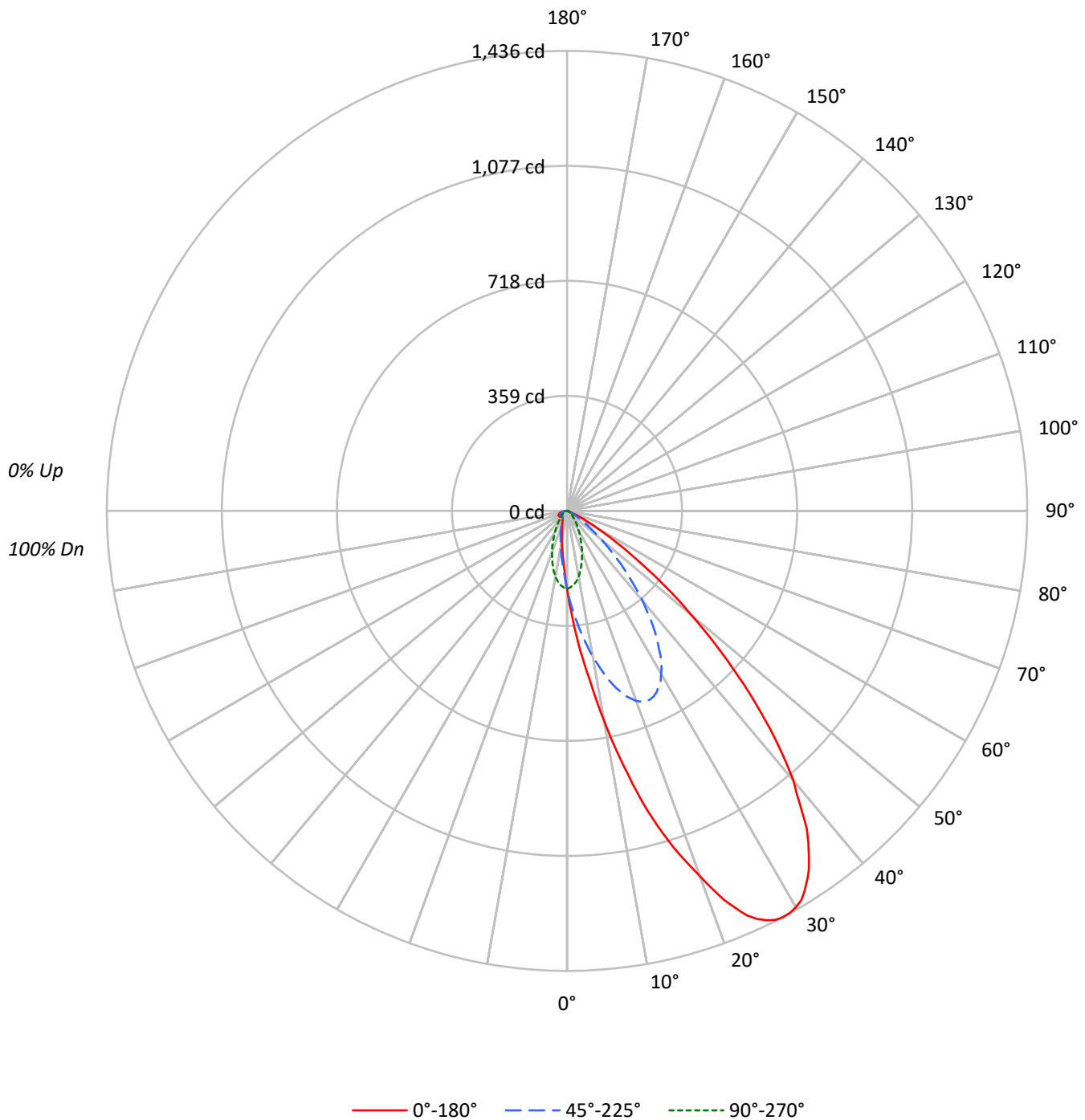
Lumens per Lamp: N/A
 Luminaire Lumens: 724.8 lumens
 Efficiency: N/A
 Efficacy: 74.7 lumens/watt
 Spacing Criteria (0/90/45): 2.1 / 0.69 / 1.32
 Luminous Opening: Rectangular (W 0.25' x L: 0.25' x H: 0')
 CIE Type: Direct

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°	41936	41936	41936
5°	72316	40143	24756
10°	116330	36480	15966
15°	172468	30953	10662
20°	222533	24999	7844
25°	267158	19497	6214
30°	284060	14577	5389
35°	276619	11143	5214
40°	247123	8363	5576
45°	196065	6600	6308
50°	136538	5439	7556
55°	80230	4744	8798
60°	39990	4650	10092
65°	16993	4116	11492
70°	5690	3978	13042
75°	732	2994	14240
80°	0	2281	15670
85°	0	2174	13437

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	25.6	3.5
10°-20°	95.2	13.1
20°-30°	173.3	23.9
30°-40°	195.3	26.9
40°-50°	139.4	19.2
50°-60°	61.3	8.5
60°-70°	22.3	3.1
70°-80°	9.6	1.3
80°-90°	2.9	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°	294.1	40.6
0°-40°	489.4	67.5
0°-60°	690.0	95.2
0°-90°	724.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	724.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	244	244	244	244	244	
5°	418	347	232	164	143	47
15°	967	565	174	77	60	279
25°	1406	639	103	40	33	640
35°	1316	489	53	26	25	811
45°	805	242	27	22	26	617
55°	267	74	16	24	29	254
65°	42	18	10	22	28	49
75°	1	3	4	15	21	4
85°	0	1	1	4	7	0
90°	0	0	0	0	0	

TEST NUMBER: P990771

CATALOG NUMBER: ML3ALSFL9FS1E-TIR4D40FL-TL3SDMW-30°-750LM-5000K

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°
0°	243.5	243.5	243.5	243.5	243.5	243.5	243.5	243.5	243.5	243.5	243.5
2.5°	317.9	320.2	319.1	316.8	311.2	294.3	267.2	239.0	215.3	196.2	187.1
5°	418.3	412.6	409.2	405.9	399.1	347.2	286.4	232.2	191.7	163.5	148.8
7.5°	524.2	528.8	522.0	514.1	497.2	403.6	302.1	222.1	168.0	135.3	118.4
10°	665.2	662.9	656.1	642.6	607.7	461.1	313.4	208.6	145.4	112.7	94.7
12.5°	812.9	806.1	795.9	773.4	723.8	515.2	316.8	191.7	124.0	91.3	76.7
15°	967.3	954.9	931.2	904.2	838.8	564.8	314.5	173.6	107.1	76.7	63.1
17.5°	1099.2	1091.3	1067.6	1032.7	950.4	605.4	305.5	154.5	90.2	64.3	53.0
20°	1214.2	1215.3	1182.6	1142.1	1041.7	631.3	290.9	136.4	76.7	54.1	45.1
21°	1263.8	1260.4	1228.9	1181.5	1074.4	637.0	284.1	129.7	71.0	50.7	42.8
22°	1310.0	1299.9	1268.3	1215.3	1103.7	642.6	275.1	122.9	66.5	47.4	40.6
23°	1347.2	1334.8	1302.1	1246.9	1127.4	643.7	267.2	116.1	62.0	44.0	38.3
24°	1382.2	1364.2	1332.6	1276.2	1149.9	642.6	257.0	108.2	58.6	41.7	36.1
25°	1405.9	1391.2	1355.1	1298.8	1165.7	639.2	246.9	102.6	55.2	39.5	33.8
26°	1421.7	1411.5	1370.9	1313.4	1179.3	633.6	236.8	95.8	51.9	37.2	32.7
27°	1432.9	1423.9	1383.3	1322.4	1187.2	624.6	226.6	90.2	48.5	34.9	31.6
28°	1436.3	1427.3	1386.7	1324.7	1188.3	616.7	216.5	84.6	45.1	33.8	30.4
29°	1435.2	1425.0	1384.4	1317.9	1183.8	603.2	205.2	78.9	42.8	32.7	29.3
30°	1428.4	1417.1	1376.6	1305.5	1173.6	587.4	195.0	73.3	40.6	30.4	28.2
31°	1418.3	1404.7	1364.2	1292.0	1159.0	572.7	184.9	69.9	38.3	29.3	27.1
32°	1399.1	1385.6	1342.7	1271.7	1136.4	554.7	173.6	64.3	36.1	28.2	25.9
33°	1375.4	1363.0	1316.8	1250.3	1113.9	534.4	163.5	60.9	33.8	27.1	25.9
34°	1349.5	1334.8	1288.6	1222.1	1085.7	510.7	153.3	56.4	32.7	25.9	25.9
35°	1315.7	1303.3	1257.1	1192.8	1057.5	489.3	143.2	53.0	30.4	25.9	24.8
36°	1281.9	1264.9	1222.1	1155.6	1020.3	466.7	133.0	49.6	29.3	24.8	24.8
37°	1243.5	1222.1	1183.8	1119.5	985.3	443.1	124.0	46.2	28.2	24.8	24.8
38°	1190.5	1178.1	1138.7	1074.4	944.8	414.9	116.1	42.8	27.1	23.7	24.8
39°	1140.9	1129.7	1092.5	1027.1	896.3	390.1	107.1	39.5	25.9	23.7	24.8
40°	1099.2	1084.6	1047.4	978.6	851.2	366.4	99.2	37.2	24.8	23.7	24.8
42.5°	957.2	944.8	909.8	847.8	727.2	299.9	80.0	31.6	22.5	22.5	23.7
45°	805.0	798.2	761.0	705.8	599.8	242.4	65.4	27.1	21.4	22.5	24.8
47.5°	652.8	644.9	612.2	570.5	472.4	187.1	51.9	23.7	20.3	22.5	25.9
50°	509.6	498.3	475.8	435.2	354.0	142.1	40.6	20.3	19.2	22.5	25.9
52.5°	385.6	374.3	355.1	316.8	254.8	102.6	31.6	18.0	19.2	22.5	27.1
55°	267.2	266.1	248.0	224.4	174.7	74.4	24.8	15.8	18.0	23.7	28.2
57.5°	182.6	179.3	166.9	149.9	119.5	50.7	19.2	14.7	18.0	23.7	28.2
60°	116.1	116.1	107.1	97.0	77.8	34.9	15.8	13.5	18.0	23.7	28.2
62.5°	71.0	68.8	65.4	59.8	49.6	24.8	12.4	11.3	16.9	22.5	28.2
65°	41.7	39.5	38.3	34.9	30.4	18.0	10.1	10.1	15.8	22.5	27.1
67.5°	22.5	21.4	21.4	20.3	18.0	12.4	7.9	9.0	14.7	21.4	25.9
70°	11.3	11.3	11.3	11.3	10.1	9.0	6.8	7.9	13.5	20.3	24.8
72.5°	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	11.3	18.0	22.5
75°	1.1	2.3	2.3	2.3	2.3	3.4	3.4	4.5	9.0	14.7	20.3
77.5°	1.1	1.1	1.1	1.1	1.1	2.3	2.3	3.4	6.8	12.4	18.0
80°	0.0	0.0	0.0	0.0	0.0	1.1	2.3	2.3	5.6	9.0	14.7

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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	1.1	1.1	2.3	3.4	6.8	10.1
85°	0.0	0.0	0.0	0.0	0.0	1.1	1.1	1.1	2.3	4.5	6.8
87.5°	0.0	0.0	0.0	0.0	0.0	1.1	1.1	1.1	1.1	2.3	3.4
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°	243.5
2.5°	182.6
5°	143.2
7.5°	113.9
10°	91.3
12.5°	73.3
15°	59.8
17.5°	50.7
20°	42.8
21°	40.6
22°	38.3
23°	36.1
24°	34.9
25°	32.7
26°	31.6
27°	30.4
28°	29.3
29°	28.2
30°	27.1
31°	27.1
32°	25.9
33°	25.9
34°	25.9
35°	24.8
36°	24.8
37°	24.8
38°	24.8
39°	24.8
40°	24.8
42.5°	24.8
45°	25.9
47.5°	27.1
50°	28.2
52.5°	28.2
55°	29.3
57.5°	29.3
60°	29.3
62.5°	29.3
65°	28.2
67.5°	27.1
70°	25.9
72.5°	23.7
75°	21.4
77.5°	19.2
80°	15.8

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°	11.3
85°	6.8
87.5°	3.4
90°	0.0

(END OF REPORT)