

Scaled data based on original data using
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

Brand: HALO

Report Number: P886663

Luminaire Tested: ML310LSFL9FS1E-TIR4D25AWW-TL3SWMW-1000LM-3000K

Issue Date: 7/8/2024

Test Information

Test Method: LM-79-2019
Report Number: P886663
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2402-314-22)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 7/8/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO
Catalog Number: ML310LSFL9FS1E-TIR4D25AWW-TL3SWMW-1000LM-3000K
Description: 3IN SQUARE ML FLEX, SELECTABLE CCT, WITH WW TIR, MATTE WHITE TRIM
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 3000K CCT
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 857.6 lumens
Efficiency: N/A
Efficacy: 62.1 lumens/watt
Spacing Criteria (0/90/45): 1.14 / 0.81 / 1.01
Luminous Opening: Rectangular (W 0.25' x L: 0.25' x H: 0')
CIE Type: Direct

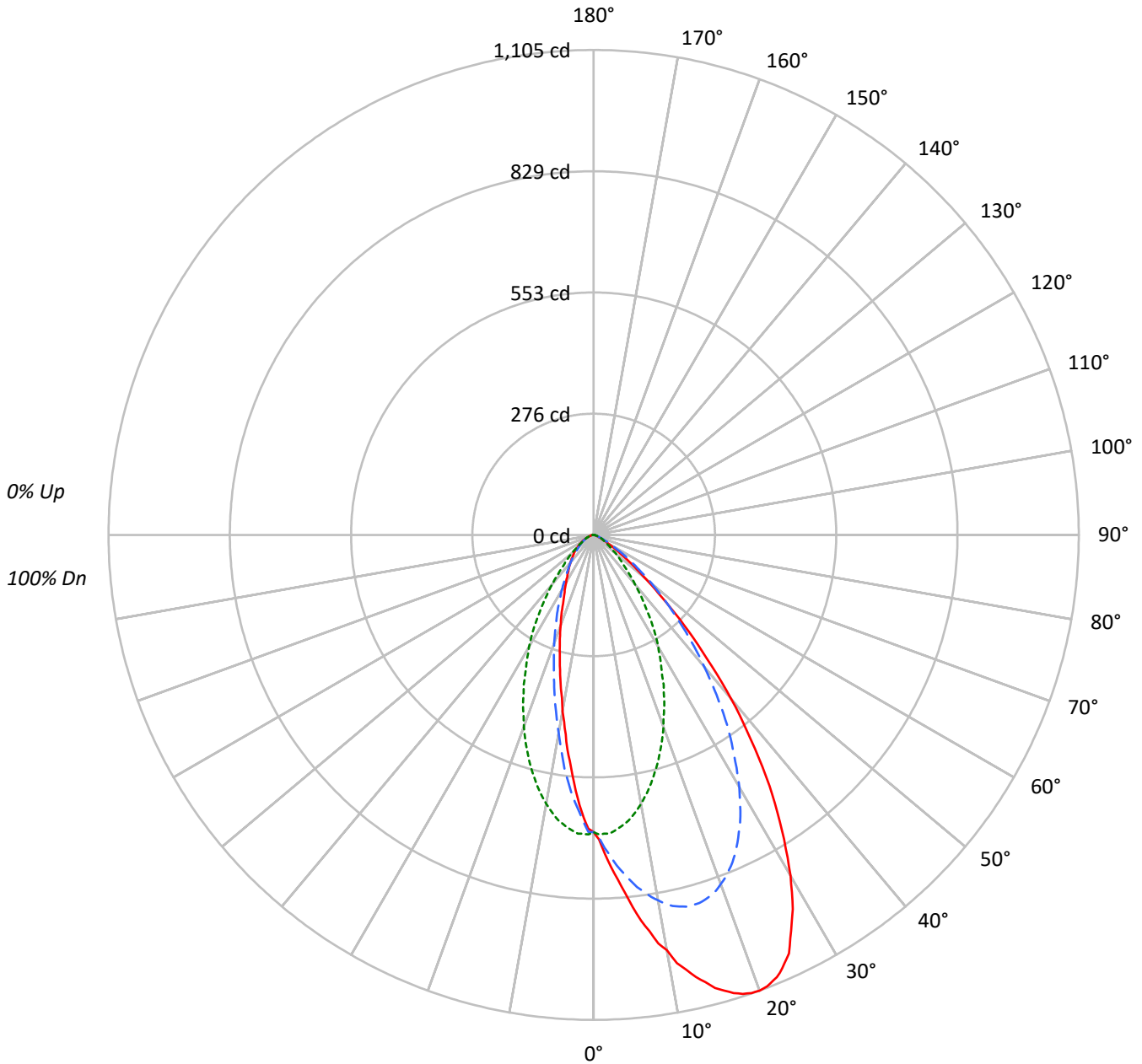
Input Watts (W): 13.8
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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					0
RW	70	50	30	10	70	50	30	10	50	30	10	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					100			
1	112	109	106	104	110	107	104	102	103	101	99	99	97	96	96	94	93	91					91			
2	105	100	95	91	103	98	94	90	95	91	88	92	89	86	89	86	84	82					82			
3	99	91	85	81	97	90	84	80	87	83	79	85	81	77	82	79	76	74					74			
4	93	84	77	72	91	83	77	72	80	75	71	78	74	70	76	73	69	68					68			
5	87	77	70	65	85	76	70	65	74	69	64	73	68	64	71	67	63	62					62			
6	82	72	65	60	80	71	64	59	69	63	59	68	62	58	66	62	58	56					56			
7	77	66	59	55	76	66	59	54	64	58	54	63	58	54	62	57	53	52					52			
8	73	62	55	50	71	61	55	50	60	54	50	59	54	50	58	53	49	48					48			
9	69	58	51	46	67	57	51	46	56	50	46	55	50	46	54	49	46	44					44			
10	65	54	47	43	64	54	47	43	53	47	43	52	47	43	51	46	43	41					41			

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	116646	116646	116646	116646	116646
5°	141624	133645	115830	101688	95067
10°	168059	147869	108845	80410	71351
15°	190547	155654	98046	62048	53168
20°	202519	155161	85223	48201	40229
25°	199946	147100	71640	37397	30898
30°	178343	131898	58486	28617	25117
35°	146751	111588	44845	22433	21130
40°	109668	88130	32824	18390	18390
45°	70876	65578	23455	14881	16148
50°	40511	46057	17469	12218	14441
55°	22069	29230	12131	10869	12431
60°	11780	16585	9644	9644	10712
65°	6765	9719	8028	8028	8436
70°	4179	5992	6798	7301	6798
75°	2063	3793	5523	6188	4791
80°	992	2083	3075	5157	5157
85°	0	1976	4150	6126	6126

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 30°
 Vertical Angle: 45°
 Luminance: 73652 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	64.1	7.5
10°-20°	172.3	20.1
20°-30°	223.0	26.0
30°-40°	194.9	22.7
40°-50°	118.4	13.8
50°-60°	53.5	6.2
60°-70°	21.5	2.5
70°-80°	7.9	0.9
80°-90°	2.0	0.2
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°	459.4	53.6
0°-40°	654.2	76.3
0°-60°	826.2	96.3
0°-90°	857.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	857.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	677	677	677	677	677	
5°	819	773	670	588	550	83
15°	1069	873	550	348	298	302
25°	1052	774	377	197	163	474
35°	698	531	213	107	100	431
45°	291	269	96	61	66	229
55°	74	97	40	36	41	72
65°	17	24	20	20	21	18
75°	3	6	8	9	7	4
85°	0	1	2	3	3	0
90°	0	0	0	0	0	



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CANDELA DISTRIBUTION (FULL):

	0°	10°	20°	30°	40°	50°	60°	70°	80°	90°	112.5°
0°	677.3	677.3	677.3	677.3	677.3	677.3	677.3	677.3	677.3	677.3	677.3
1°	693.8	692.8	690.7	688.7	689.7	688.7	685.6	684.5	684.5	682.5	681.4
2°	727.0	722.8	718.7	720.8	716.6	710.4	702.1	694.9	687.6	681.4	665.9
3°	758.1	753.9	753.9	748.7	738.4	728.0	716.6	703.2	691.8	681.4	655.5
4°	787.0	785.0	780.8	769.4	763.2	746.7	729.1	711.4	693.8	676.2	640.0
5°	819.2	819.2	809.8	799.5	782.9	763.2	740.4	715.6	692.8	670.0	624.5
6°	852.3	852.3	839.9	824.3	804.7	776.7	749.8	722.8	690.7	662.8	606.9
7°	885.4	880.3	868.9	849.2	824.3	792.2	757.0	723.9	686.6	655.5	589.3
8°	911.3	906.1	891.6	870.9	838.8	802.6	764.3	723.9	682.5	645.2	570.6
9°	942.4	935.1	920.6	891.6	855.4	814.0	768.4	721.8	676.2	633.8	550.9
10°	961.0	961.0	943.4	912.4	869.9	821.2	771.5	720.8	670.0	622.4	531.3
11°	994.2	985.9	960.0	930.0	883.4	829.5	772.5	715.6	660.7	608.9	511.6
12°	1012.8	1004.5	981.7	944.5	893.7	834.7	771.5	709.4	649.3	595.5	492.9
13°	1033.5	1026.3	999.3	955.8	902.0	835.7	769.4	703.2	639.0	581.0	472.2
14°	1050.1	1043.9	1014.9	967.2	908.2	837.8	765.3	694.9	625.5	565.4	449.4
15°	1068.7	1057.3	1025.2	974.5	909.2	836.8	759.1	684.5	614.1	549.9	433.9
16°	1080.1	1069.8	1034.6	979.7	910.3	834.7	752.9	673.1	599.6	534.4	411.1
17°	1091.5	1081.2	1041.8	983.8	909.2	828.5	744.6	661.7	588.2	516.8	391.5
18°	1099.8	1088.4	1048.0	983.8	906.1	821.2	732.2	648.3	570.6	500.2	373.8
19°	1103.9	1090.5	1048.0	982.8	902.0	811.9	721.8	634.8	554.0	482.6	354.2
20°	1105.0	1090.5	1049.1	978.6	892.7	800.5	707.3	620.3	536.4	465.0	335.5
21°	1101.9	1087.4	1042.8	972.4	885.4	788.1	693.8	601.7	518.8	444.3	317.9
22.5°	1090.5	1074.9	1028.3	955.8	864.7	768.4	670.0	575.8	494.0	420.4	293.1
23°	1084.3	1070.8	1023.2	949.6	859.5	759.1	659.7	568.5	481.5	411.1	285.8
24°	1068.7	1056.3	1008.7	935.1	843.0	744.6	641.0	550.9	466.0	392.5	269.3
25°	1052.2	1032.5	990.0	916.5	824.3	723.9	624.5	531.3	448.4	377.0	253.7
26°	1022.1	1007.6	966.2	893.7	805.7	703.2	604.8	510.5	429.8	356.2	241.3
27°	993.1	982.8	943.4	870.9	786.0	683.5	585.1	492.9	407.0	339.7	224.7
28°	966.2	954.8	911.3	844.0	761.2	662.8	560.3	473.3	391.5	324.1	212.3
29°	931.0	922.7	882.3	822.3	735.3	639.0	540.6	452.6	373.8	307.6	199.9
30°	896.8	887.5	848.1	790.2	711.4	615.1	519.9	432.9	356.2	294.1	189.5
32.5°	798.4	795.3	760.1	710.4	639.0	552.0	465.0	382.1	311.7	255.8	163.6
35°	698.0	694.9	662.8	625.5	569.6	491.9	408.0	332.4	266.1	213.3	137.7
37.5°	588.2	585.1	569.6	536.4	495.0	424.6	352.1	284.8	221.6	179.2	116.0
40°	487.8	484.7	477.4	453.6	421.5	362.5	299.3	234.0	183.3	146.0	95.3
42.5°	381.1	385.2	383.2	374.9	354.2	302.4	250.6	194.7	151.2	118.1	78.7
45°	291.0	293.1	298.2	302.4	287.9	250.6	205.0	154.3	118.1	96.3	65.2
47.5°	211.3	216.4	227.8	236.1	232.0	204.0	162.6	123.2	96.3	79.7	55.9
50°	151.2	154.3	165.7	183.3	183.3	160.5	126.3	94.2	77.7	65.2	49.7
52.5°	108.7	110.8	121.2	134.6	138.8	122.2	97.3	74.6	61.1	50.7	41.4
55°	73.5	76.6	87.0	101.5	101.5	93.2	71.5	55.9	46.6	40.4	34.2
57.5°	49.7	52.8	60.1	72.5	72.5	66.3	53.9	41.4	36.2	32.1	29.0
60°	34.2	35.2	43.5	49.7	50.7	45.6	38.3	32.1	29.0	28.0	25.9



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CANDELA DISTRIBUTION (continued):

	0°	10°	20°	30°	40°	50°	60°	70°	80°	90°	112.5°
67.5°	11.4	12.4	13.5	15.5	16.6	16.6	16.6	17.6	17.6	16.6	17.6
70°	8.3	8.3	9.3	10.4	11.4	12.4	12.4	14.5	13.5	13.5	14.5
72.5°	5.2	6.2	6.2	7.2	8.3	8.3	10.4	10.4	10.4	10.4	11.4
75°	3.1	4.1	4.1	4.1	5.2	6.2	7.2	7.2	7.2	8.3	9.3
77.5°	2.1	2.1	3.1	3.1	3.1	4.1	5.2	5.2	5.2	5.2	6.2
80°	1.0	1.0	1.0	2.1	2.1	2.1	3.1	3.1	3.1	3.1	4.1
82.5°	1.0	1.0	1.0	1.0	1.0	2.1	2.1	2.1	3.1	3.1	3.1
85°	0.0	0.0	0.0	1.0	1.0	1.0	1.0	2.1	2.1	2.1	2.1
87.5°	0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0	1.0	1.0
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):

	135°	157.5°	180°
0°	677.3	677.3	677.3
1°	677.3	676.2	670.0
2°	654.5	645.2	645.2
3°	631.7	619.3	616.2
4°	610.0	587.2	584.1
5°	588.2	559.2	549.9
6°	563.4	530.2	517.8
7°	539.5	501.2	491.9
8°	511.6	474.3	458.8
9°	483.6	446.3	430.8
10°	459.8	419.4	408.0
11°	436.0	394.6	379.0
12°	411.1	370.7	358.3
13°	391.5	348.0	336.6
14°	368.7	330.4	316.9
15°	348.0	308.6	298.2
16°	330.4	292.0	280.6
17°	309.6	275.5	264.1
18°	294.1	259.9	248.5
19°	277.5	244.4	235.1
20°	263.0	232.0	219.5
21°	248.5	216.4	208.2
22.5°	226.8	198.8	189.5
23°	219.5	190.5	183.3
24°	208.2	181.2	171.9
25°	196.8	169.8	162.6
26°	185.4	159.5	153.3
27°	175.0	151.2	146.0
28°	162.6	141.9	138.8
29°	153.3	134.6	132.6
30°	143.9	128.4	126.3
32.5°	124.3	112.9	111.8
35°	106.7	99.4	100.5
37.5°	93.2	89.1	91.1
40°	81.8	78.7	81.8
42.5°	70.4	70.4	74.6
45°	61.1	64.2	66.3
47.5°	52.8	58.0	60.1
50°	45.6	52.8	53.9
52.5°	40.4	47.6	46.6
55°	36.2	41.4	41.4
57.5°	32.1	36.2	35.2
60°	28.0	31.1	31.1



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CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
67.5°	16.6	18.6	16.6
70°	14.5	14.5	13.5
72.5°	11.4	11.4	10.4
75°	9.3	8.3	7.2
77.5°	7.2	6.2	6.2
80°	5.2	5.2	5.2
82.5°	4.1	4.1	4.1
85°	3.1	3.1	3.1
87.5°	2.1	2.1	2.1
90°	0.0	0.0	0.0

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

Scaled Data Report



Report Generated By 670245859 / DESKTOP-T8S5UU9

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Scaled Data Report





— 0°-180° - - 45°-225° - - - - 90°-270°

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62.5°	22.8	24.9	30.0	35.2	36.2	32.1	28.0	25.9	23.8	23.8	22.8
65°	16.6	17.6	20.7	23.8	24.9	22.8	20.7	20.7	20.7	19.7	19.7

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62.5°	23.8	25.9	25.9
65°	19.7	21.7	20.7

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Scaled Data Report



(END OF REPORT)