

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: P886644

Luminaire Tested: ML310LSFL9FS1E-TIR4D25AWW-TL3RWMB-1000LM-3500K

Issue Date: 7/5/2024

Test Information

Test Method: LM-79-2019
Report Number: P886644
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2402-314-12)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 7/5/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO
Catalog Number: ML310LSFL9FS1E-TIR4D25AWW-TL3RWMB-1000LM-3500K
Description: 3IN ROUND ML FLEX, SELECTABLE CCT, WITH WW TIR, MATTE BLACK TRIM
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 3500K CCT
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 801.4 lumens
Efficiency: N/A
Efficacy: 58.1 lumens/watt
Spacing Criteria (0/90/45): 1.12 / 0.8 / 0.98
Luminous Opening: Circular (Dia: 0.25' x H: 0')CIE Type: Direct

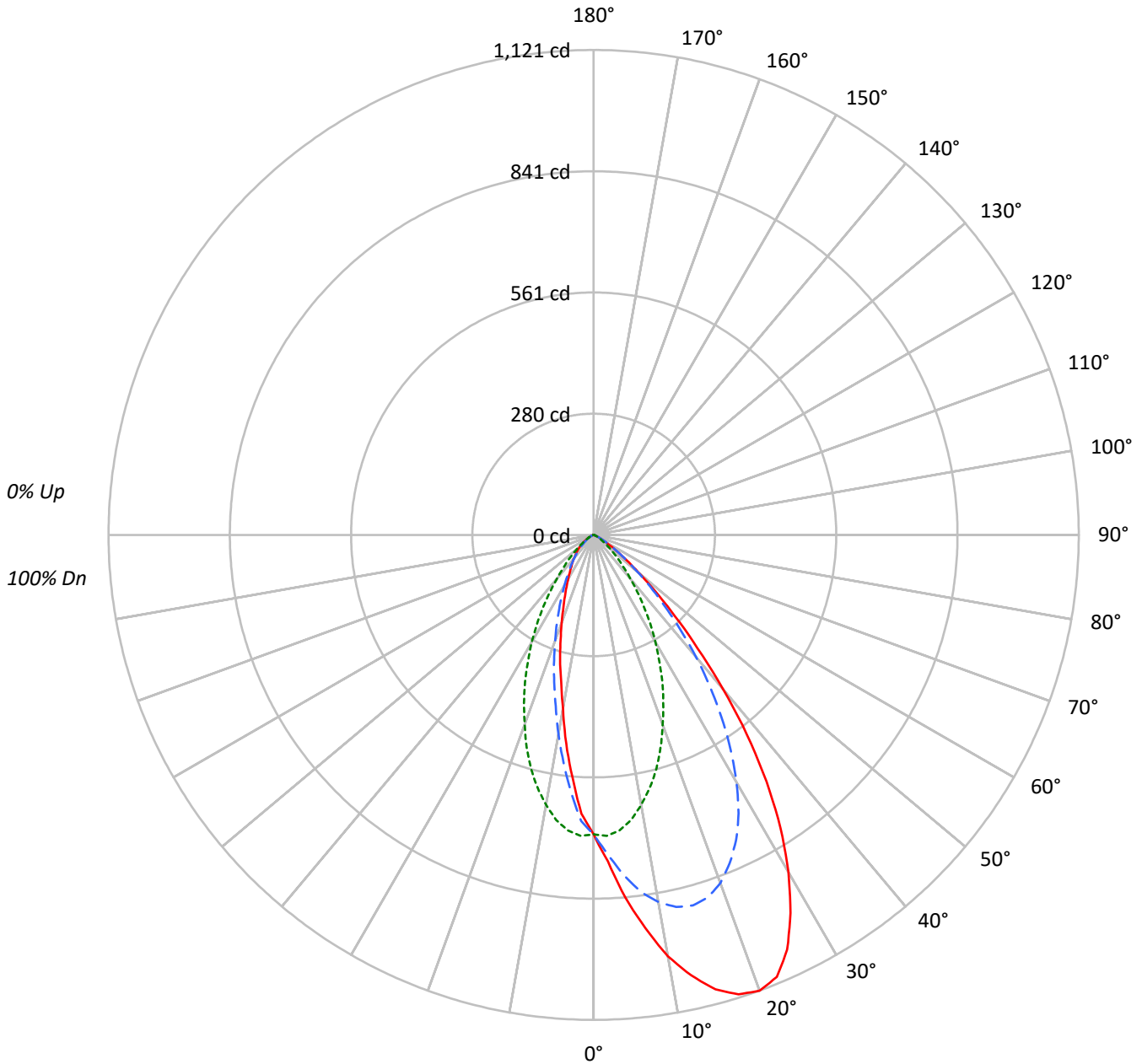
Input Watts (W): 13.8
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



TEST NUMBER: P886644

CATALOG NUMBER: ML310LSFL9FS1E-TIR4D25AWW-TL3RWMB-1000LM-3500K

Luminous Intensity Polar Plot





TEST NUMBER: P886644

CATALOG NUMBER: ML310LSFL9FS1E-TIR4D25AWW-TL3RWMB-1000LM-3500K

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	113	110	107	105	110	108	105	103	104	102	100	100	98	97	96	95	94	92					92			
2	106	101	97	93	104	99	95	92	96	93	90	93	90	88	90	88	86	84					84			
3	100	93	87	83	98	92	86	82	89	85	81	86	83	80	84	81	78	77					77			
4	94	86	80	75	92	85	79	75	82	78	74	80	76	73	78	75	72	70					70			
5	89	79	73	68	87	78	72	68	77	71	67	75	70	67	73	69	66	64					64			
6	84	74	67	62	82	73	67	62	71	66	62	70	65	61	69	64	61	59					59			
7	79	69	62	57	78	68	62	57	67	61	57	65	60	56	64	60	56	55					55			
8	75	64	57	53	73	63	57	53	62	57	53	61	56	52	60	56	52	51					51			
9	71	60	53	49	69	59	53	49	58	53	49	58	52	49	57	52	48	47					47			
10	67	56	50	46	66	56	50	46	55	49	45	54	49	45	53	49	45	44					44			

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	151742	151742	151742	151742	151742
5°	185296	173519	150913	131609	123839
10°	220303	191847	140990	104073	90735
15°	246948	201306	126993	79887	67991
20°	261589	199809	108836	60415	50171
25°	255958	188406	90828	45559	38034
30°	227782	167114	72315	34132	29802
35°	186394	137862	54127	25779	24039
40°	132878	105168	37957	19894	20209
45°	82582	71310	25863	14606	16932
50°	45610	44144	16784	10575	13509
55°	24926	25156	9825	7761	10208
60°	11710	12433	6578	5614	7017
65°	5552	5552	4462	3321	3891
70°	2052	2404	2757	1346	1346
75°	932	932	932	0	0
80°	0	0	0	0	0
85°	0	0	0	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 10°
 Vertical Angle: 45°
 Luminance: 83264 cd/sqm



TEST NUMBER: P886644

CATALOG NUMBER: ML310LSFL9FS1E-TIR4D25AWW-TL3RWMB-1000LM-3500K

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	65.4	8.2
10°-20°	174.5	21.8
20°-30°	222.5	27.8
30°-40°	187.9	23.4
40°-50°	102.9	12.8
50°-60°	37.4	4.7
60°-70°	9.7	1.2
70°-80°	1.1	0.1
80°-90°	0.0	0.0
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°	462.4	57.7
0°-40°	650.3	81.1
0°-60°	790.6	98.6
0°-90°	801.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	801.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	692	692	692	692	692	
5°	842	788	686	598	563	85
15°	1088	887	559	352	300	307
25°	1058	779	375	188	157	478
35°	696	515	202	96	90	429
45°	266	230	83	47	55	212
55°	65	66	26	20	27	62
65°	11	11	9	6	8	12
75°	1	1	1	0	0	1
85°	0	0	0	0	0	0
90°	0	0	0	0	0	0



TEST NUMBER: P886644

CATALOG NUMBER: ML310LSFL9FS1E-TIR4D25AWW-TL3RWMB-1000LM-3500K

CANDELA DISTRIBUTION (FULL):

	0°	10°	20°	30°	40°	50°	60°	70°	80°	90°	112.5°
0°	692.0	692.0	692.0	692.0	692.0	692.0	692.0	692.0	692.0	692.0	692.0
2.5°	755.2	753.0	751.9	750.9	742.3	733.8	723.1	714.5	706.0	696.3	676.0
5°	841.8	840.7	829.0	818.3	799.0	777.6	756.2	731.6	707.0	685.6	638.6
7.5°	916.7	914.5	898.5	878.2	849.3	814.0	777.6	737.0	698.5	664.2	590.4
10°	989.4	981.9	959.5	926.3	885.7	837.5	786.2	732.7	679.2	633.2	543.4
12.5°	1042.9	1035.4	1010.8	965.9	911.3	850.4	784.0	718.8	655.7	599.0	489.9
15°	1087.8	1073.9	1042.9	989.4	924.2	849.3	771.2	695.3	622.5	559.4	436.4
17.5°	1113.5	1100.6	1060.0	998.0	921.0	835.4	748.7	663.2	584.0	514.5	384.0
20°	1121.0	1104.9	1061.1	990.5	902.8	809.7	716.7	623.6	541.2	466.4	338.0
22.5°	1106.0	1087.8	1038.6	966.9	871.7	771.2	674.9	580.8	493.1	420.4	290.9
25°	1057.9	1045.0	993.7	921.0	831.1	726.3	625.7	531.6	447.1	375.4	249.2
27.5°	985.1	973.4	928.4	860.0	773.3	677.1	573.3	479.2	396.8	327.3	213.9
30°	899.6	886.7	850.4	790.5	709.2	610.8	516.6	426.8	348.7	285.6	181.8
32.5°	804.4	791.5	754.1	704.9	633.2	545.5	459.9	373.3	300.6	242.8	154.0
35°	696.3	686.7	660.0	610.8	551.9	478.1	396.8	319.8	252.4	202.2	128.4
37.5°	581.9	571.2	555.1	523.0	473.8	408.6	338.0	267.4	209.6	164.7	102.7
40°	464.2	459.9	451.4	426.8	394.7	340.1	283.5	221.4	170.1	132.6	83.4
42.5°	355.1	354.0	353.0	338.0	315.5	277.0	226.8	175.4	136.9	103.8	66.3
45°	266.3	268.5	266.3	261.0	242.8	217.1	178.6	139.1	105.9	83.4	50.3
47.5°	193.6	195.7	196.8	199.0	189.3	164.7	132.6	105.9	80.2	64.2	40.6
50°	133.7	139.1	142.3	144.4	136.9	121.9	98.4	75.9	58.8	49.2	33.2
52.5°	96.3	97.3	102.7	104.8	100.5	85.6	68.5	51.3	43.9	36.4	25.7
55°	65.2	65.2	72.7	75.9	71.7	59.9	46.0	36.4	31.0	25.7	19.3
57.5°	40.6	42.8	48.1	51.3	48.1	39.6	31.0	25.7	22.5	20.3	13.9
60°	26.7	28.9	31.0	34.2	32.1	24.6	20.3	18.2	17.1	15.0	10.7
62.5°	17.1	18.2	20.3	22.5	19.3	15.0	13.9	12.8	11.8	11.8	8.6
65°	10.7	10.7	12.8	13.9	11.8	9.6	9.6	9.6	9.6	8.6	6.4
67.5°	6.4	6.4	7.5	7.5	6.4	6.4	6.4	6.4	6.4	6.4	4.3
70°	3.2	3.2	4.3	4.3	3.2	4.3	4.3	4.3	4.3	4.3	3.2
72.5°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	3.2	2.1	2.1
75°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P886644

CATALOG NUMBER: ML310LSFL9FS1E-TIR4D25AWW-TL3RWMB-1000LM-3500K

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
0°	692.0	692.0	692.0
2.5°	662.1	651.4	645.0
5°	597.9	572.3	562.6
7.5°	531.6	498.4	486.7
10°	467.4	423.6	407.5
12.5°	405.4	363.7	346.6
15°	351.9	311.3	299.5
17.5°	303.8	266.3	253.5
20°	258.9	226.8	215.0
22.5°	222.5	193.6	182.9
25°	188.3	162.6	157.2
27.5°	159.4	139.1	135.8
30°	134.8	118.7	117.7
32.5°	113.4	103.8	102.7
35°	96.3	88.8	89.8
37.5°	82.4	78.1	80.2
40°	69.5	67.4	70.6
42.5°	57.8	58.8	62.0
45°	47.1	51.3	54.6
47.5°	38.5	44.9	47.1
50°	31.0	38.5	39.6
52.5°	24.6	32.1	32.1
55°	20.3	25.7	26.7
57.5°	16.0	20.3	20.3
60°	12.8	16.0	16.0
62.5°	9.6	10.7	11.8
65°	6.4	7.5	7.5
67.5°	4.3	5.3	5.3
70°	2.1	3.2	2.1
72.5°	1.1	1.1	1.1
75°	0.0	0.0	0.0
77.5°	0.0	0.0	0.0
80°	0.0	0.0	0.0
82.5°	0.0	0.0	0.0
85°	0.0	0.0	0.0
87.5°	0.0	0.0	0.0
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

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

Scaled Data Report





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

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

Scaled Data Report



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

Scaled Data Report



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

Scaled Data Report



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

Scaled Data Report



(END OF REPORT)