

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: P886655

Luminaire Tested: ML310LSFL9FS1E-TIR4D25AWW-TL3RWSL-1000LM-4000K

Issue Date: 7/5/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P886655  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2402-314-11)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 7/5/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO  
Catalog Number: ML310LSFL9FS1E-TIR4D25AWW-TL3RWSL-1000LM-4000K  
Description: 3IN ROUND ML FLEX, SELECTABLE CCT, WITH WW TIR, METALLIC SILVER TRIM  
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 4000K CCT  
Ballast/Driver: -

**Summary**

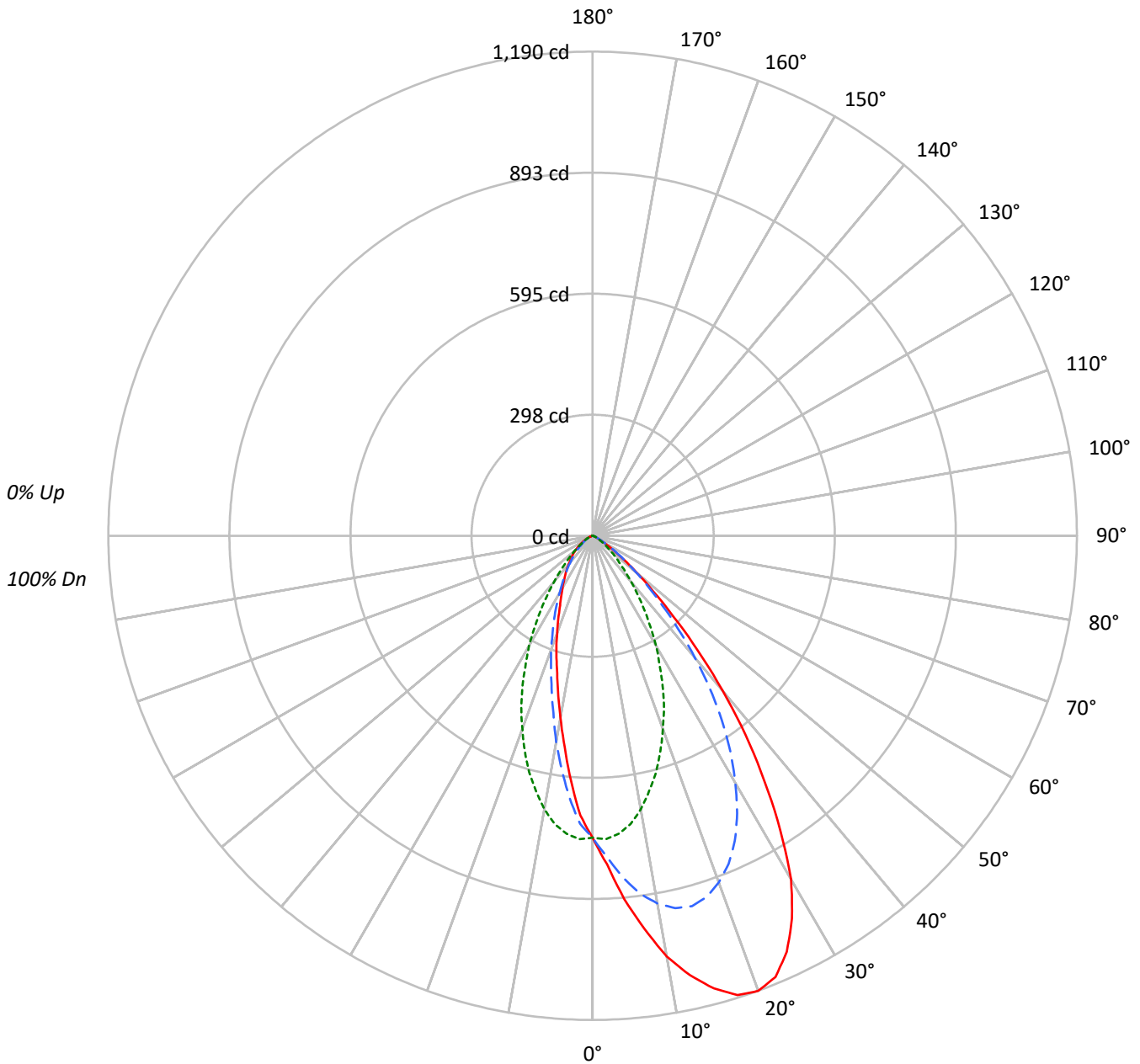
Lumens per Lamp: N/A  
Luminaire Lumens: 875.3 lumens  
Efficiency: N/A  
Efficacy: 63.4 lumens/watt  
Spacing Criteria (0/90/45): 1.14 / 0.81 / 0.99  
Luminous Opening: Circular (Dia: 0.25' x H: 0')  
CIE Type: Direct

Input Watts (W): 13.8  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): 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: P886655  
CATALOG NUMBER: ML310LSFL9FS1E-TIR4D25AWW-TL3RWSL-1000LM-4000K

### Luminous Intensity Polar Plot





TEST NUMBER: P886655  
 CATALOG NUMBER: ML310LSFL9FS1E-TIR4D25AWW-TL3RWSL-1000LM-4000K

**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20					20					20					20				
RC	80					70					50					30				
RW	70	50	30	10	70	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		
1	113	110	107	104	110	108	105	103	103	101	100	100	98	97	96	95	94	92		
2	106	101	96	92	104	99	95	91	96	92	89	93	90	87	90	88	86	84		
3	100	93	87	83	98	91	86	82	89	84	81	86	82	79	84	81	78	76		
4	94	86	79	75	92	84	79	74	82	77	73	80	76	72	78	74	71	70		
5	89	79	73	68	87	78	72	67	76	71	67	75	70	66	73	69	66	64		
6	83	73	67	62	82	73	66	62	71	65	61	70	65	61	68	64	60	59		
7	79	68	62	57	77	68	61	57	66	61	56	65	60	56	64	59	56	54		
8	74	64	57	52	73	63	57	52	62	56	52	61	56	52	60	55	52	50		
9	70	60	53	49	69	59	53	49	58	52	48	57	52	48	56	51	48	47		
10	67	56	50	45	66	55	49	45	55	49	45	54	49	45	53	48	45	43		

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°	135°	180°
0°	162706	162706	162706	162706	162706
5°	197358	185197	161875	142417	133436
10°	233819	204316	151946	114560	101045
15°	261432	213940	136618	88241	76709
20°	277761	211535	117750	69306	59529
25°	273016	200092	98570	53955	45680
30°	246873	177673	79126	41095	37474
35°	197155	148221	58812	31320	31320
40°	141923	112053	42050	24331	26221
45°	87327	75512	28406	18824	22266
50°	48203	46702	19206	13953	18080
55°	24047	26800	12234	10552	14336
60°	11139	13310	8727	7763	10657
65°	5137	6278	6278	5137	6278
70°	2116	3174	4231	2821	3526
75°	932	1864	1864	1864	1864
80°	0	0	1389	1389	1389
85°	0	0	0	0	0

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 20°  
 Vertical Angle: 45°  
 Luminance: 87668 cd/sqm



TEST NUMBER: P886655

CATALOG NUMBER: ML310LSFL9FS1E-TIR4D25AWW-TL3RWSL-1000LM-4000K

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	70.1	8.0
10°-20°	188.0	21.5
20°-30°	241.4	27.6
30°-40°	205.2	23.4
40°-50°	113.1	12.9
50°-60°	42.5	4.9
60°-70°	12.4	1.4
70°-80°	2.5	0.3
80°-90°	0.3	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°	499.4	57.1
0°-40°	704.6	80.5
0°-60°	860.1	98.3
0°-90°	875.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	875.3	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	742	742	742	742	742	
5°	897	841	735	647	606	90
15°	1152	942	602	389	338	325
25°	1128	827	407	223	189	511
35°	736	554	220	117	117	457
45°	282	244	92	61	72	225
55°	63	70	32	28	38	63
65°	10	12	12	10	12	11
75°	1	2	2	2	2	2
85°	0	0	0	0	0	0
90°	0	0	0	0	0	



TEST NUMBER: P886655

CATALOG NUMBER: ML310LSFL9FS1E-TIR4D25AWW-TL3RWSL-1000LM-4000K

**CANDELA DISTRIBUTION (FULL):**

	0°	10°	20°	30°	40°	50°	60°	70°	80°	90°	112.5°
0°	742.0	742.0	742.0	742.0	742.0	742.0	742.0	742.0	742.0	742.0	742.0
2.5°	808.2	808.2	806.0	800.5	792.8	786.2	775.1	766.3	756.3	746.4	724.3
5°	896.6	893.3	883.3	870.1	853.5	829.2	806.0	784.0	758.6	735.4	684.6
7.5°	973.9	969.4	956.2	930.8	904.3	869.0	829.2	789.5	750.8	714.4	638.2
10°	1050.1	1040.1	1020.2	986.0	943.0	892.2	838.1	785.1	731.0	682.4	589.6
12.5°	1106.4	1097.5	1069.9	1028.0	969.4	905.4	835.8	767.4	702.2	642.6	534.4
15°	1151.6	1140.6	1105.3	1051.2	980.5	904.3	820.4	743.1	668.0	601.8	478.1
17.5°	1183.7	1167.1	1124.0	1056.7	975.0	886.6	799.4	707.8	628.3	554.3	424.0
20°	1190.3	1175.9	1126.2	1051.2	955.1	857.9	759.7	665.8	580.8	504.6	373.2
22.5°	1173.7	1158.3	1105.3	1025.8	926.4	819.3	717.7	621.6	531.1	458.2	326.8
25°	1128.4	1113.0	1060.0	981.6	882.2	771.8	662.5	567.5	482.5	407.4	281.6
27.5°	1061.1	1037.9	995.9	918.7	822.6	715.5	606.2	512.3	426.2	355.5	239.6
30°	975.0	945.2	909.8	842.5	751.9	651.5	546.6	453.8	374.3	312.5	205.4
32.5°	859.0	848.0	810.5	754.1	678.0	581.9	484.7	398.6	323.5	262.8	175.6
35°	736.5	725.4	705.6	659.2	595.1	512.3	421.8	339.0	273.8	219.7	144.6
37.5°	617.2	606.2	588.5	559.8	504.6	440.6	360.0	288.2	229.7	181.1	120.4
40°	495.8	491.3	477.0	456.0	417.4	365.5	300.3	238.5	186.6	146.9	97.2
42.5°	382.0	379.8	369.9	357.7	333.5	291.5	247.3	192.1	148.0	117.0	77.3
45°	281.6	276.0	282.7	272.7	258.4	228.6	189.9	149.1	113.7	91.6	60.7
47.5°	201.0	202.1	205.4	207.6	196.5	172.2	142.4	109.3	88.3	75.1	49.7
50°	141.3	140.2	148.0	154.6	144.6	129.2	102.7	83.9	67.4	56.3	39.7
52.5°	97.2	98.3	107.1	111.5	109.3	91.6	72.9	58.5	49.7	42.0	30.9
55°	62.9	66.2	72.9	78.4	77.3	62.9	50.8	42.0	37.5	32.0	24.3
57.5°	40.9	42.0	48.6	53.0	51.9	42.0	34.2	30.9	27.6	24.3	17.7
60°	25.4	26.5	30.9	35.3	33.1	27.6	23.2	22.1	21.0	19.9	15.5
62.5°	15.5	16.6	19.9	23.2	21.0	17.7	15.5	16.6	16.6	15.5	12.1
65°	9.9	9.9	12.1	14.4	13.2	11.0	11.0	12.1	13.2	12.1	9.9
67.5°	5.5	6.6	7.7	8.8	7.7	7.7	8.8	9.9	9.9	9.9	7.7
70°	3.3	4.4	4.4	4.4	4.4	5.5	5.5	6.6	7.7	6.6	5.5
72.5°	2.2	2.2	2.2	3.3	3.3	3.3	3.3	4.4	4.4	4.4	4.4
75°	1.1	1.1	1.1	1.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2
77.5°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	1.1	1.1	1.1
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	1.1	1.1
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: P886655

CATALOG NUMBER: ML310LSFL9FS1E-TIR4D25AWW-TL3RWSL-100LM-4000K

**CANDELA DISTRIBUTION (continued):**

	135°	157.5°	180°
0°	742.0	742.0	742.0
2.5°	708.9	697.8	687.9
5°	647.0	620.5	606.2
7.5°	579.7	538.8	524.5
10°	514.5	464.9	453.8
12.5°	446.1	405.2	392.0
15°	388.7	350.0	337.9
17.5°	339.0	303.6	295.9
20°	297.0	265.0	255.1
22.5°	256.2	227.5	219.7
25°	223.0	197.6	188.8
27.5°	191.0	170.0	166.7
30°	162.3	149.1	148.0
32.5°	138.0	129.2	131.4
35°	117.0	113.7	117.0
37.5°	101.6	100.5	103.8
40°	85.0	87.2	91.6
42.5°	71.8	77.3	81.7
45°	60.7	68.5	71.8
47.5°	49.7	59.6	62.9
50°	40.9	51.9	53.0
52.5°	33.1	43.1	45.3
55°	27.6	35.3	37.5
57.5°	23.2	28.7	29.8
60°	17.7	22.1	24.3
62.5°	13.2	17.7	17.7
65°	9.9	12.1	12.1
67.5°	6.6	8.8	8.8
70°	4.4	5.5	5.5
72.5°	3.3	3.3	3.3
75°	2.2	2.2	2.2
77.5°	1.1	1.1	1.1
80°	1.1	1.1	1.1
82.5°	1.1	1.1	1.1
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)