

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: P886650

Luminaire Tested: ML310LSFL9FS1E-TIR4D25AWW-TL3RWMW-1000LM-4000K

Issue Date: 7/5/2024

Test Information

Test Method: LM-79-2019
Report Number: P886650
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2402-314-10)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 7/5/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO
Catalog Number: ML310LSFL9FS1E-TIR4D25AWW-TL3RMMW-1000LM-4000K
Description: 3IN ROUND ML FLEX, SELECTABLE CCT, WITH WW TIR, MATTE WHITE TRIM
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 4000K CCT
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 888.9 lumens
Efficiency: N/A
Efficacy: 64.4 lumens/watt
Spacing Criteria (0/90/45): 1.13 / 0.81 / 0.99
Luminous Opening: Circular (Dia: 0.25' x H: 0')
CIE Type: Direct

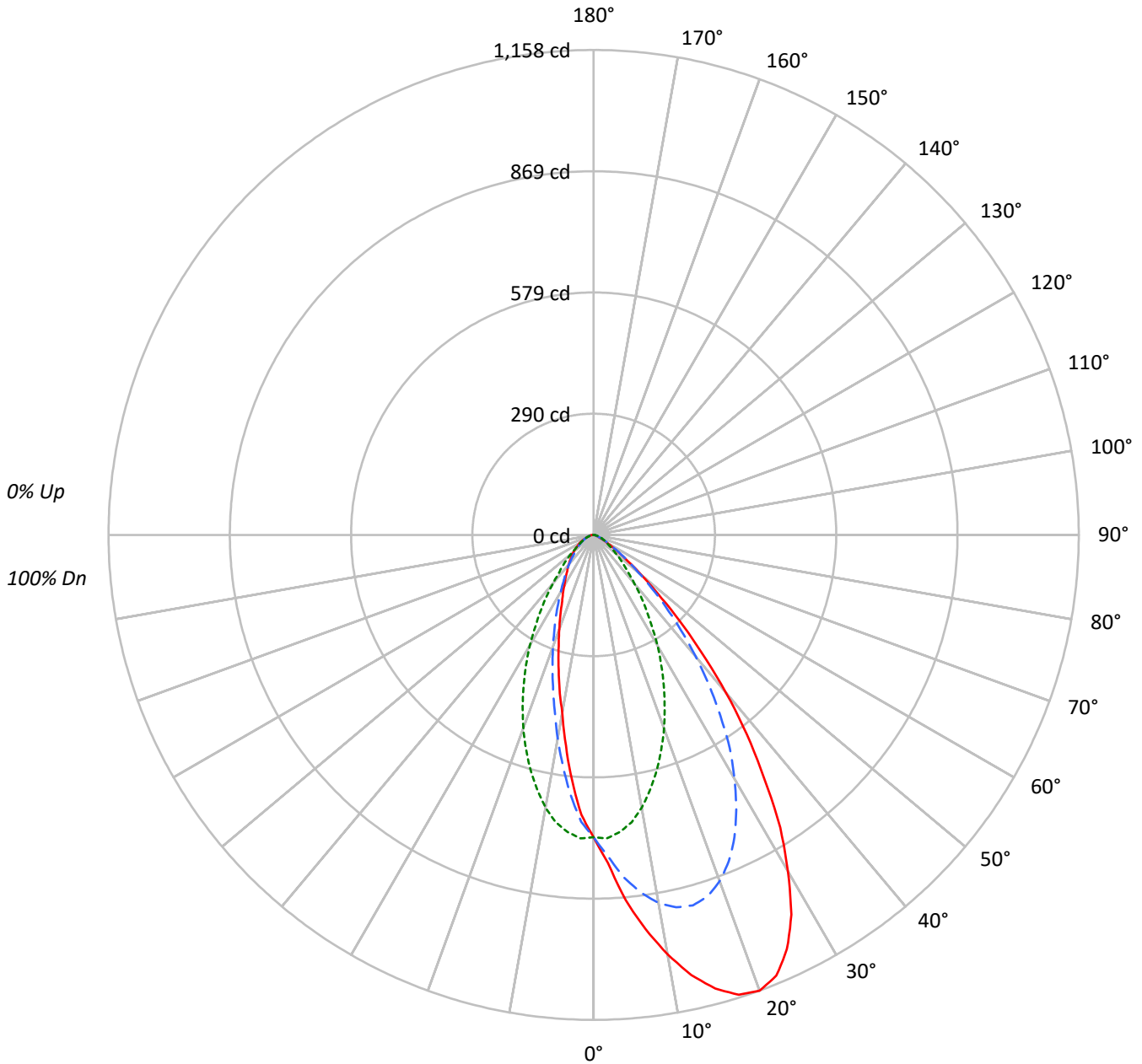
Input Watts (W): 13.8
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20					20					20					20										
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								
1	112	109	106	103	110	107	104	102	103	101	99	99	97	96	95	94	93	91								
2	105	100	95	91	103	98	93	90	95	91	88	91	88	86	89	86	84	82								
3	99	91	85	81	97	90	84	80	87	82	79	85	81	77	82	79	76	74								
4	93	84	77	72	91	83	77	72	80	75	71	78	74	70	76	73	69	68								
5	87	77	71	66	85	76	70	65	75	69	65	73	68	64	71	67	63	62								
6	82	72	65	60	80	71	64	60	69	63	59	68	63	59	66	62	58	57								
7	77	67	60	55	76	66	59	55	64	59	54	63	58	54	62	57	54	52								
8	73	62	55	50	72	61	55	50	60	54	50	59	54	50	58	53	50	48								
9	69	58	51	47	68	57	51	47	56	51	46	55	50	46	55	50	46	45								
10	65	54	48	43	64	54	48	43	53	47	43	52	47	43	51	46	43	41								

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	158299	158299	158299	158299	158299
5°	192692	180530	156724	137530	129760
10°	226382	198716	147225	109862	95857
15°	254599	207879	132055	85199	73417
20°	270223	205305	114623	66202	55888
25°	264136	192568	95618	51269	43261
30°	234796	170077	77151	39702	35499
35°	190008	141101	58812	31614	30142
40°	140606	108217	43281	25906	26535
45°	89343	75481	32189	21212	23630
50°	50455	47640	23709	18080	21458
55°	27449	29342	17739	16019	18580
60°	14999	17411	14999	14034	16446
65°	8613	11181	12608	12608	13750
70°	5642	7405	11348	11348	11348
75°	3728	5592	9320	10252	10252
80°	2778	3473	6945	9723	11113
85°	2768	2768	8303	11070	11070

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 89343 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	68.0	7.7
10°-20°	181.9	20.5
20°-30°	232.7	26.2
30°-40°	199.4	22.4
40°-50°	117.1	13.2
50°-60°	52.7	5.9
60°-70°	23.6	2.7
70°-80°	10.3	1.2
80°-90°	3.1	0.3
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°	482.6	54.3
0°-40°	682.1	76.7
0°-60°	851.9	95.8
0°-90°	888.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	888.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	722	722	722	722	722	
5°	875	820	712	625	590	88
15°	1122	916	582	375	323	316
25°	1092	796	395	212	179	494
35°	710	527	220	118	113	442
45°	288	243	104	68	76	227
55°	72	77	46	42	49	70
65°	17	22	24	24	26	18
75°	4	7	11	12	12	5
85°	1	1	3	4	4	1
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°	721.9	721.9	721.9	721.9	721.9	721.9	721.9	721.9	721.9	721.9	721.9
2.5°	783.8	783.8	783.8	781.5	770.5	762.8	755.1	745.1	735.2	725.2	702.1
5°	875.4	873.2	858.8	847.8	831.2	809.1	786.0	760.6	736.3	712.0	663.4
7.5°	949.3	943.8	933.9	908.5	878.7	843.4	804.7	766.1	728.6	692.1	618.2
10°	1016.7	1014.5	992.4	961.5	917.3	867.6	814.7	760.6	707.6	661.2	565.2
12.5°	1076.3	1070.8	1043.2	997.9	942.7	878.7	811.4	745.1	681.1	622.6	515.5
15°	1121.5	1110.5	1075.2	1021.1	953.8	877.6	799.2	719.7	646.9	581.7	459.2
17.5°	1151.3	1135.9	1092.8	1028.8	949.3	861.0	772.7	685.5	606.0	536.5	408.4
20°	1158.0	1141.4	1092.8	1017.8	928.4	831.2	737.4	644.7	559.7	491.2	359.9
22.5°	1139.2	1119.3	1071.9	992.4	896.3	790.4	692.1	597.2	514.4	442.7	313.5
25°	1091.7	1076.3	1024.4	948.2	850.0	741.8	641.4	549.7	464.7	395.2	270.5
27.5°	1022.2	1006.7	953.8	885.3	787.1	687.7	586.2	496.7	415.1	348.8	235.1
30°	927.3	916.2	874.3	804.7	719.7	623.7	528.8	439.3	364.3	304.7	202.0
32.5°	829.0	812.5	777.1	721.9	651.3	558.6	469.1	387.5	315.7	258.3	172.2
35°	709.8	706.5	673.4	631.4	565.2	489.0	404.0	330.1	269.3	219.7	147.9
37.5°	600.5	595.0	572.9	536.5	486.8	419.5	346.6	280.4	228.5	184.3	123.6
40°	491.2	487.9	471.4	441.6	406.2	349.9	293.6	231.8	185.5	151.2	102.7
42.5°	379.7	375.3	372.0	358.8	329.0	287.0	239.5	189.9	153.4	122.5	86.1
45°	288.1	285.9	283.7	272.7	258.3	228.5	189.9	151.2	124.7	103.8	72.9
47.5°	206.4	209.7	208.6	209.7	200.9	174.4	145.7	119.2	101.6	86.1	64.0
50°	147.9	146.8	154.5	157.9	149.0	130.3	109.3	92.7	79.5	69.5	54.1
52.5°	103.8	106.0	114.8	117.0	110.4	98.2	82.8	70.6	62.9	56.3	46.4
55°	71.8	72.9	81.7	86.1	80.6	72.9	61.8	54.1	50.8	46.4	38.6
57.5°	48.6	51.9	57.4	60.7	58.5	50.8	45.3	43.1	40.8	39.7	34.2
60°	34.2	35.3	40.8	44.2	41.9	37.5	35.3	34.2	34.2	34.2	30.9
62.5°	23.2	24.3	28.7	30.9	29.8	27.6	26.5	28.7	28.7	28.7	26.5
65°	16.6	16.6	19.9	22.1	22.1	21.0	22.1	23.2	24.3	24.3	23.2
67.5°	11.0	12.1	13.2	15.5	15.5	16.6	17.7	19.9	21.0	21.0	21.0
70°	8.8	8.8	9.9	11.0	11.0	12.1	14.4	15.5	16.6	17.7	17.7
72.5°	6.6	6.6	6.6	7.7	8.8	8.8	11.0	12.1	13.2	14.4	14.4
75°	4.4	4.4	4.4	5.5	6.6	6.6	7.7	8.8	9.9	11.0	12.1
77.5°	3.3	3.3	3.3	3.3	4.4	4.4	5.5	6.6	7.7	7.7	8.8
80°	2.2	2.2	2.2	2.2	2.2	3.3	3.3	4.4	5.5	5.5	6.6
82.5°	1.1	1.1	1.1	2.2	2.2	2.2	3.3	3.3	4.4	4.4	5.5
85°	1.1	1.1	1.1	1.1	1.1	1.1	2.2	2.2	2.2	3.3	4.4
87.5°	0.0	0.0	0.0	0.0	1.1	1.1	1.1	1.1	1.1	1.1	2.2
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°	721.9	721.9	721.9
2.5°	685.5	675.6	668.9
5°	624.8	597.2	589.5
7.5°	558.6	519.9	507.8
10°	493.4	448.2	430.5
12.5°	429.4	385.3	376.4
15°	375.3	334.5	323.4
17.5°	325.6	290.3	278.2
20°	283.7	249.5	239.5
22.5°	244.0	215.3	207.5
25°	211.9	186.6	178.8
27.5°	182.1	160.1	159.0
30°	156.8	142.4	140.2
32.5°	135.8	125.8	125.8
35°	118.1	111.5	112.6
37.5°	103.8	99.3	101.6
40°	90.5	90.5	92.7
42.5°	79.5	81.7	83.9
45°	68.4	75.1	76.2
47.5°	59.6	67.3	69.5
50°	53.0	60.7	62.9
52.5°	47.5	54.1	56.3
55°	41.9	48.6	48.6
57.5°	36.4	41.9	43.1
60°	32.0	36.4	37.5
62.5°	27.6	30.9	32.0
65°	24.3	26.5	26.5
67.5°	21.0	22.1	22.1
70°	17.7	18.8	17.7
72.5°	15.5	15.5	14.4
75°	12.1	12.1	12.1
77.5°	9.9	9.9	9.9
80°	7.7	8.8	8.8
82.5°	6.6	6.6	6.6
85°	4.4	4.4	4.4
87.5°	2.2	2.2	2.2
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



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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°

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