

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: P886643

Luminaire Tested: ML310LSFL9FS1E-TIR4D25AWW-TL3RWMB-1000LM-3000K

Issue Date: 7/5/2024

Test Information

Test Method: LM-79-2019
Report Number: P886643
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-3000K
Description: 3IN ROUND ML FLEX, SELECTABLE CCT, WITH WW TIR, MATTE BLACK TRIM
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 3000K CCT
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 776.1 lumens
Efficiency: N/A
Efficacy: 56.2 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

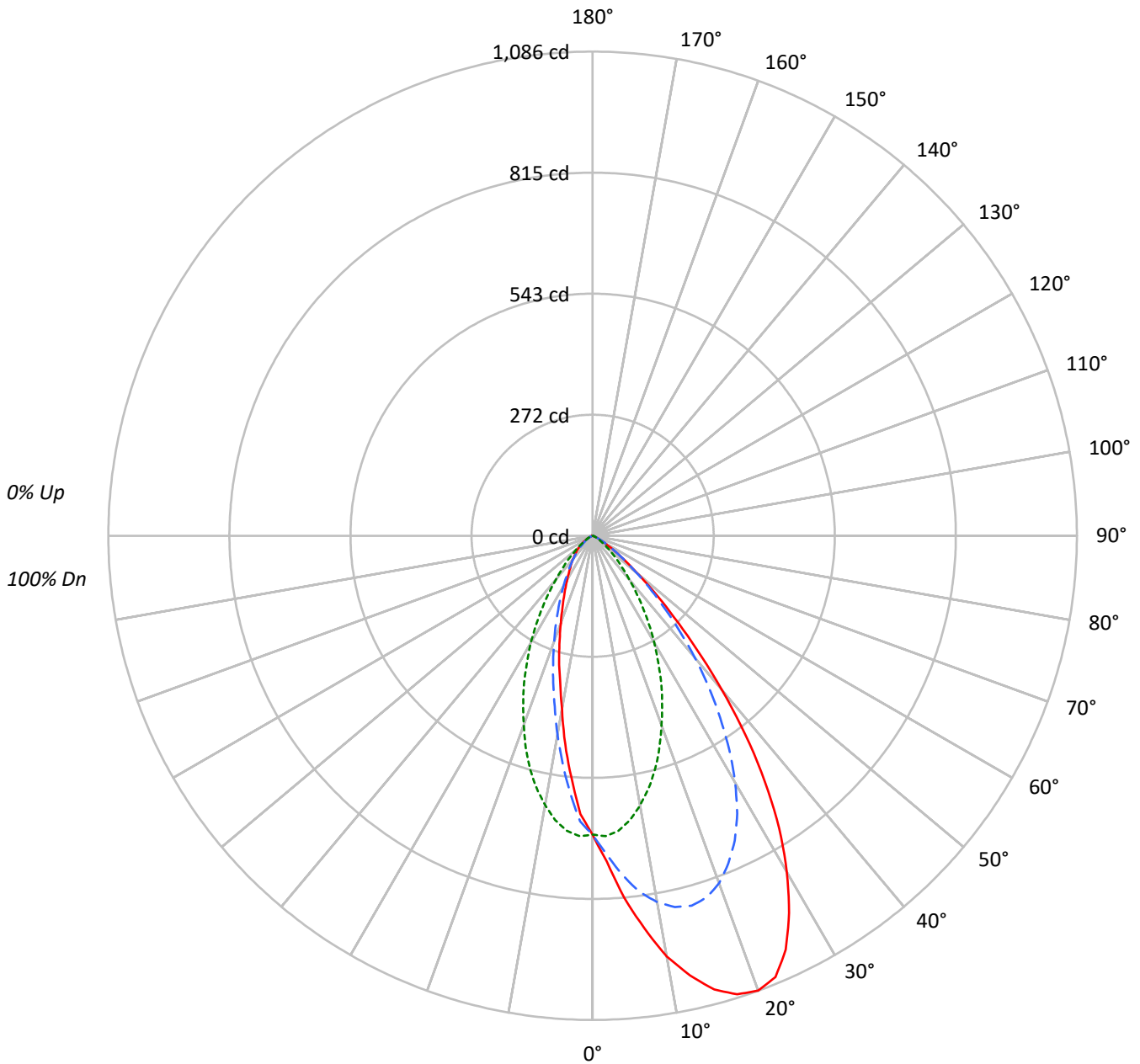
Input Watts (W): 13.8
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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					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°	146962	146962	146962	146962	146962
5°	179440	168049	146159	127448	119942
10°	213356	185790	136537	100800	87885
15°	239161	194950	122997	77367	65835
20°	253329	193508	105382	58502	48584
25°	247877	182466	87973	44107	36849
30°	220591	161835	70036	33043	28840
35°	180505	133512	52414	24949	23289
40°	128698	101848	36755	19265	19580
45°	79977	69061	25057	14141	16374
50°	44178	42762	16238	10234	13066
55°	24162	24353	9519	7531	9902
60°	11359	12039	6359	5438	6798
65°	5396	5370	4307	3217	3788
70°	1988	2308	2629	1346	1346
75°	847	847	847	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: 80629 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	63.3	8.2
10°-20°	169.0	21.8
20°-30°	215.5	27.8
30°-40°	182.0	23.4
40°-50°	99.7	12.8
50°-60°	36.2	4.7
60°-70°	9.4	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°	447.8	57.7
0°-40°	629.8	81.1
0°-60°	765.6	98.6
0°-90°	776.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	776.1	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	670	670	670	670	670	
5°	815	763	664	579	545	82
15°	1054	859	542	341	290	297
25°	1024	754	364	182	152	463
35°	674	499	196	93	87	415
45°	258	223	81	46	53	206
55°	63	64	25	20	26	60
65°	10	10	8	6	7	12
75°	1	1	1	0	0	1
85°	0	0	0	0	0	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°	670.2	670.2	670.2	670.2	670.2	670.2	670.2	670.2	670.2	670.2	670.2
2.5°	731.3	729.3	728.2	727.2	718.9	710.6	700.2	692.0	683.7	674.3	654.7
5°	815.2	814.2	802.8	792.4	773.8	753.1	732.4	708.5	684.7	664.0	618.4
7.5°	887.7	885.7	870.1	850.4	822.5	788.3	753.1	713.7	676.4	643.3	571.8
10°	958.2	950.9	929.2	897.1	857.7	811.1	761.4	709.6	657.8	613.2	526.2
12.5°	1010.0	1002.7	978.9	935.4	882.6	823.5	759.3	696.1	635.0	580.1	474.4
15°	1053.5	1040.0	1010.0	958.2	895.0	822.5	746.9	673.3	602.9	541.8	422.6
17.5°	1078.3	1065.9	1026.5	966.5	891.9	809.0	725.1	642.2	565.6	498.3	371.9
20°	1085.6	1070.1	1027.6	959.2	874.3	784.2	694.0	603.9	524.1	451.6	327.3
22.5°	1071.1	1053.5	1005.8	936.4	844.2	746.9	653.6	562.5	477.5	407.1	281.8
25°	1024.5	1012.0	962.3	891.9	804.9	703.4	606.0	514.8	433.0	363.6	241.4
27.5°	954.0	942.6	899.1	832.8	748.9	655.7	555.2	464.1	384.3	317.0	207.2
30°	871.2	858.7	823.5	765.5	686.8	591.5	500.3	413.3	337.7	276.6	176.1
32.5°	779.0	766.5	730.3	682.6	613.2	528.3	445.4	361.5	291.1	235.1	149.2
35°	674.3	665.0	639.1	591.5	534.5	463.0	384.3	309.7	244.5	195.8	124.3
37.5°	563.5	553.2	537.6	506.5	458.9	395.7	327.3	259.0	203.0	159.5	99.4
40°	449.6	445.4	437.1	413.3	382.2	329.4	274.5	214.4	164.7	128.4	80.8
42.5°	343.9	342.9	341.8	327.3	305.6	268.3	219.6	169.9	132.6	100.5	64.2
45°	257.9	260.0	257.9	252.8	235.1	210.3	173.0	134.7	102.6	80.8	48.7
47.5°	187.5	189.6	190.6	192.7	183.3	159.5	128.4	102.6	77.7	62.2	39.4
50°	129.5	134.7	137.8	139.8	132.6	118.1	95.3	73.5	57.0	47.6	32.1
52.5°	93.2	94.3	99.4	101.5	97.4	82.9	66.3	49.7	42.5	35.2	24.9
55°	63.2	63.2	70.4	73.5	69.4	58.0	44.5	35.2	30.0	24.9	18.6
57.5°	39.4	41.4	46.6	49.7	46.6	38.3	30.0	24.9	21.8	19.7	13.5
60°	25.9	28.0	30.0	33.1	31.1	23.8	19.7	17.6	16.6	14.5	10.4
62.5°	16.6	17.6	19.7	21.8	18.6	14.5	13.5	12.4	11.4	11.4	8.3
65°	10.4	10.4	12.4	13.5	11.4	9.3	9.3	9.3	9.3	8.3	6.2
67.5°	6.2	6.2	7.3	7.3	6.2	6.2	6.2	6.2	6.2	6.2	4.1
70°	3.1	3.1	4.1	4.1	3.1	4.1	4.1	4.1	4.1	4.1	3.1
72.5°	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	3.1	2.1	2.1
75°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
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



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CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
0°	670.2	670.2	670.2
2.5°	641.2	630.8	624.6
5°	579.0	554.2	544.9
7.5°	514.8	482.7	471.3
10°	452.7	410.2	394.7
12.5°	392.6	352.2	335.6
15°	340.8	301.4	290.0
17.5°	294.2	257.9	245.5
20°	250.7	219.6	208.2
22.5°	215.5	187.5	177.1
25°	182.3	157.5	152.3
27.5°	154.3	134.7	131.6
30°	130.5	115.0	113.9
32.5°	109.8	100.5	99.4
35°	93.2	86.0	87.0
37.5°	79.8	75.6	77.7
40°	67.3	65.3	68.4
42.5°	55.9	57.0	60.1
45°	45.6	49.7	52.8
47.5°	37.3	43.5	45.6
50°	30.0	37.3	38.3
52.5°	23.8	31.1	31.1
55°	19.7	24.9	25.9
57.5°	15.5	19.7	19.7
60°	12.4	15.5	15.5
62.5°	9.3	10.4	11.4
65°	6.2	7.3	7.3
67.5°	4.1	5.2	5.2
70°	2.1	3.1	2.1
72.5°	1.0	1.0	1.0
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



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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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