

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: P886645

Luminaire Tested: ML310LSFL9FS1E-TIR4D25AWW-TL3RWMB-1000LM-4000K

Issue Date: 7/5/2024

Test Information

Test Method: LM-79-2019
Report Number: P886645
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-4000K
Description: 3IN ROUND ML FLEX, SELECTABLE CCT, WITH WW TIR, MATTE BLACK TRIM
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 4000K CCT
Ballast/Driver: -

Summary

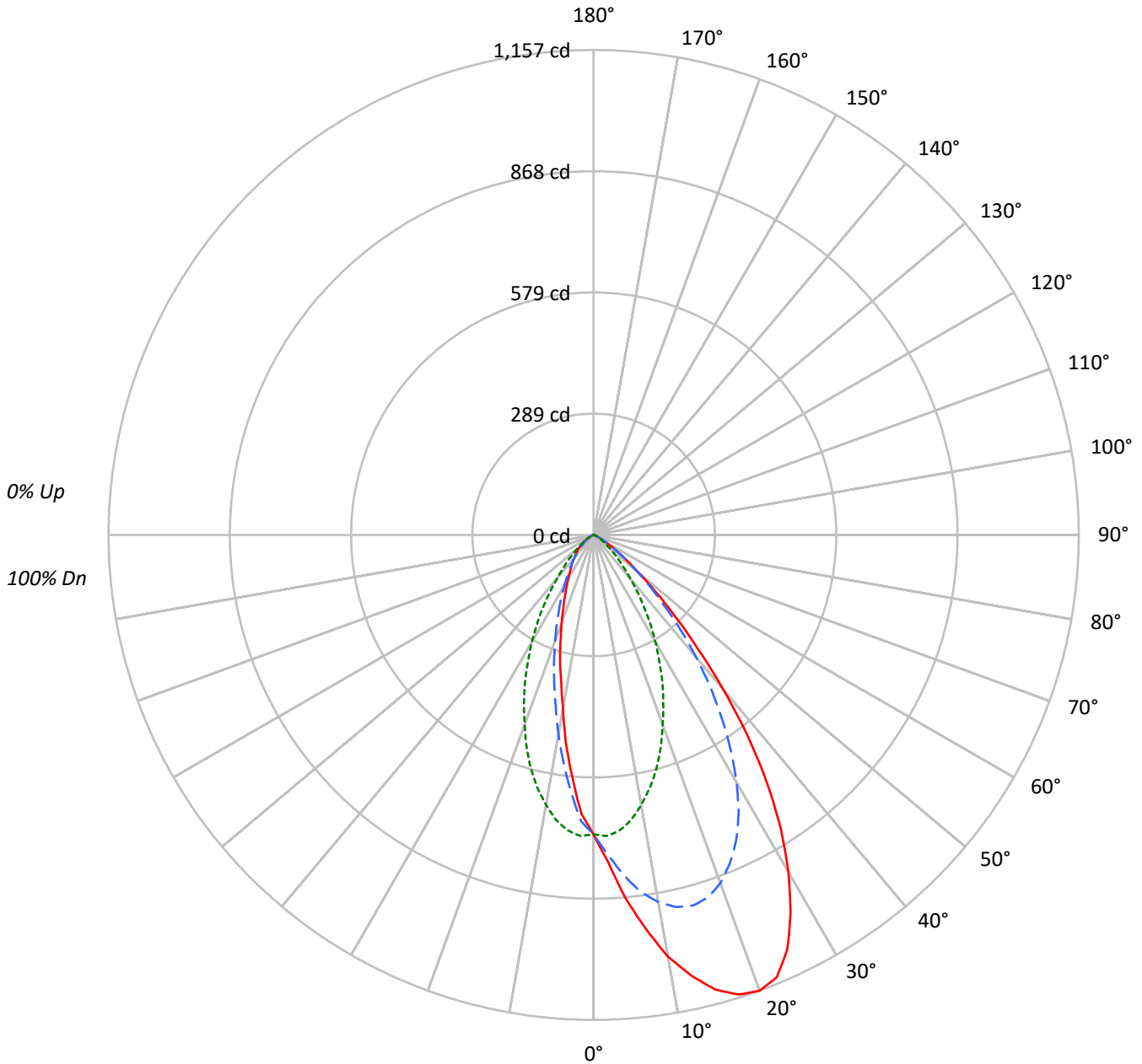
Lumens per Lamp: N/A
Luminaire Lumens: 827.4 lumens
Efficiency: N/A
Efficacy: 60.0 lumens/watt
Spacing Criteria (0/90/45): 1.12 / 0.8 / 0.98
Luminous Opening: Circular (Dia: 0.25' x H: 0')
CIE Type: Direct

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

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	156676	156676	156676	156676	156676
5°	191305	179154	155822	135879	127867
10°	227451	198070	145577	107457	93697
15°	254962	207822	131124	82475	70193
20°	270060	206296	112360	62352	51805
25°	264257	194515	93780	47035	39268
30°	235150	172533	74670	35221	30764
35°	192444	142332	55867	26609	24842
40°	137200	108589	39188	20553	20868
45°	85280	73636	26700	15071	17459
50°	47077	45593	17330	10916	13953
55°	25767	25958	10131	8028	10552
60°	12104	12828	6798	5833	7280
65°	5707	5707	4566	3424	3995
70°	2116	2468	2821	1410	1410
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: 85962 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	67.5	8.2
10°-20°	180.2	21.8
20°-30°	229.7	27.8
30°-40°	194.0	23.4
40°-50°	106.3	12.8
50°-60°	38.6	4.7
60°-70°	10.0	1.2
70°-80°	1.2	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°	477.4	57.7
0°-40°	671.4	81.1
0°-60°	816.2	98.6
0°-90°	827.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	827.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	714	714	714	714	714	
5°	869	814	708	617	581	87
15°	1123	915	578	363	309	317
25°	1092	804	388	194	162	494
35°	719	532	209	99	93	443
45°	275	237	86	49	56	219
55°	67	68	26	21	28	64
65°	11	11	9	7	8	12
75°	1	1	1	0	0	1
85°	0	0	0	0	0	0
90°	0	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°	714.5	714.5	714.5	714.5	714.5	714.5	714.5	714.5	714.5	714.5	714.5
2.5°	779.7	777.5	776.3	775.2	766.4	757.6	746.5	737.7	728.9	718.9	697.9
5°	869.1	868.0	855.9	844.8	824.9	802.9	780.8	755.4	730.0	707.9	659.3
7.5°	946.4	944.2	927.6	906.7	876.8	840.4	802.9	760.9	721.1	685.8	609.6
10°	1021.5	1013.8	990.6	956.4	914.4	864.7	811.7	756.5	701.3	653.8	561.0
12.5°	1076.7	1069.0	1043.6	997.2	940.9	877.9	809.5	742.1	677.0	618.4	505.8
15°	1123.1	1108.8	1076.7	1021.5	954.1	876.8	796.2	717.8	642.7	577.6	450.6
17.5°	1149.6	1136.4	1094.4	1030.3	950.8	862.5	773.0	684.7	603.0	531.2	396.5
20°	1157.3	1140.8	1095.5	1022.6	932.1	836.0	739.9	643.8	558.8	481.5	349.0
22.5°	1141.9	1123.1	1072.3	998.3	900.0	796.2	696.8	599.7	509.1	434.0	300.4
25°	1092.2	1078.9	1025.9	950.8	858.1	749.8	646.0	548.9	461.6	387.6	257.3
27.5°	1017.1	1004.9	958.6	887.9	798.4	699.0	591.9	494.7	409.7	337.9	220.9
30°	928.7	915.5	877.9	816.1	732.2	630.6	533.4	440.6	360.0	294.9	187.7
32.5°	830.5	817.2	778.6	727.8	653.8	563.2	474.9	385.4	310.3	250.7	159.0
35°	718.9	709.0	681.4	630.6	569.8	493.6	409.7	330.2	260.6	208.7	132.5
37.5°	600.8	589.7	573.2	540.0	489.2	421.9	349.0	276.1	216.4	170.1	106.0
40°	479.3	474.9	466.0	440.6	407.5	351.2	292.6	228.6	175.6	136.9	86.1
42.5°	366.6	365.5	364.4	349.0	325.8	286.0	234.1	181.1	141.4	107.1	68.5
45°	275.0	277.2	275.0	269.5	250.7	224.2	184.4	143.6	109.3	86.1	51.9
47.5°	199.9	202.1	203.2	205.4	195.5	170.1	136.9	109.3	82.8	66.3	42.0
50°	138.0	143.6	146.9	149.1	141.4	125.9	101.6	78.4	60.7	50.8	34.2
52.5°	99.4	100.5	106.0	108.2	103.8	88.3	70.7	53.0	45.3	37.5	26.5
55°	67.4	67.4	75.1	78.4	74.0	61.8	47.5	37.5	32.0	26.5	19.9
57.5°	42.0	44.2	49.7	53.0	49.7	40.9	32.0	26.5	23.2	21.0	14.4
60°	27.6	29.8	32.0	35.3	33.1	25.4	21.0	18.8	17.7	15.5	11.0
62.5°	17.7	18.8	21.0	23.2	19.9	15.5	14.4	13.3	12.1	12.1	8.8
65°	11.0	11.0	13.3	14.4	12.1	9.9	9.9	9.9	9.9	8.8	6.6
67.5°	6.6	6.6	7.7	7.7	6.6	6.6	6.6	6.6	6.6	6.6	4.4
70°	3.3	3.3	4.4	4.4	3.3	4.4	4.4	4.4	4.4	4.4	3.3
72.5°	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	3.3	2.2	2.2
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



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CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
0°	714.5	714.5	714.5
2.5°	683.6	672.5	665.9
5°	617.3	590.8	580.9
7.5°	548.9	514.6	502.5
10°	482.6	437.3	420.8
12.5°	418.5	375.5	357.8
15°	363.3	321.4	309.2
17.5°	313.6	275.0	261.7
20°	267.2	234.1	222.0
22.5°	229.7	199.9	188.8
25°	194.4	167.9	162.3
27.5°	164.5	143.6	140.3
30°	139.1	122.6	121.5
32.5°	117.1	107.1	106.0
35°	99.4	91.7	92.8
37.5°	85.0	80.6	82.8
40°	71.8	69.6	72.9
42.5°	59.6	60.7	64.1
45°	48.6	53.0	56.3
47.5°	39.8	46.4	48.6
50°	32.0	39.8	40.9
52.5°	25.4	33.1	33.1
55°	21.0	26.5	27.6
57.5°	16.6	21.0	21.0
60°	13.3	16.6	16.6
62.5°	9.9	11.0	12.1
65°	6.6	7.7	7.7
67.5°	4.4	5.5	5.5
70°	2.2	3.3	2.2
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



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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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