

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: P886652

Luminaire Tested: ML310LSFL9FS1E-TIR4D25AWW-TL3RWSL-1000LM-2700K

Issue Date: 7/5/2024

Test Information

Test Method: LM-79-2019
Report Number: P886652
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-2700K
Description: 3IN ROUND ML FLEX, SELECTABLE CCT, WITH WW TIR, METALLIC SILVER TRIM
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 2700K CCT
Ballast/Driver: -

Summary

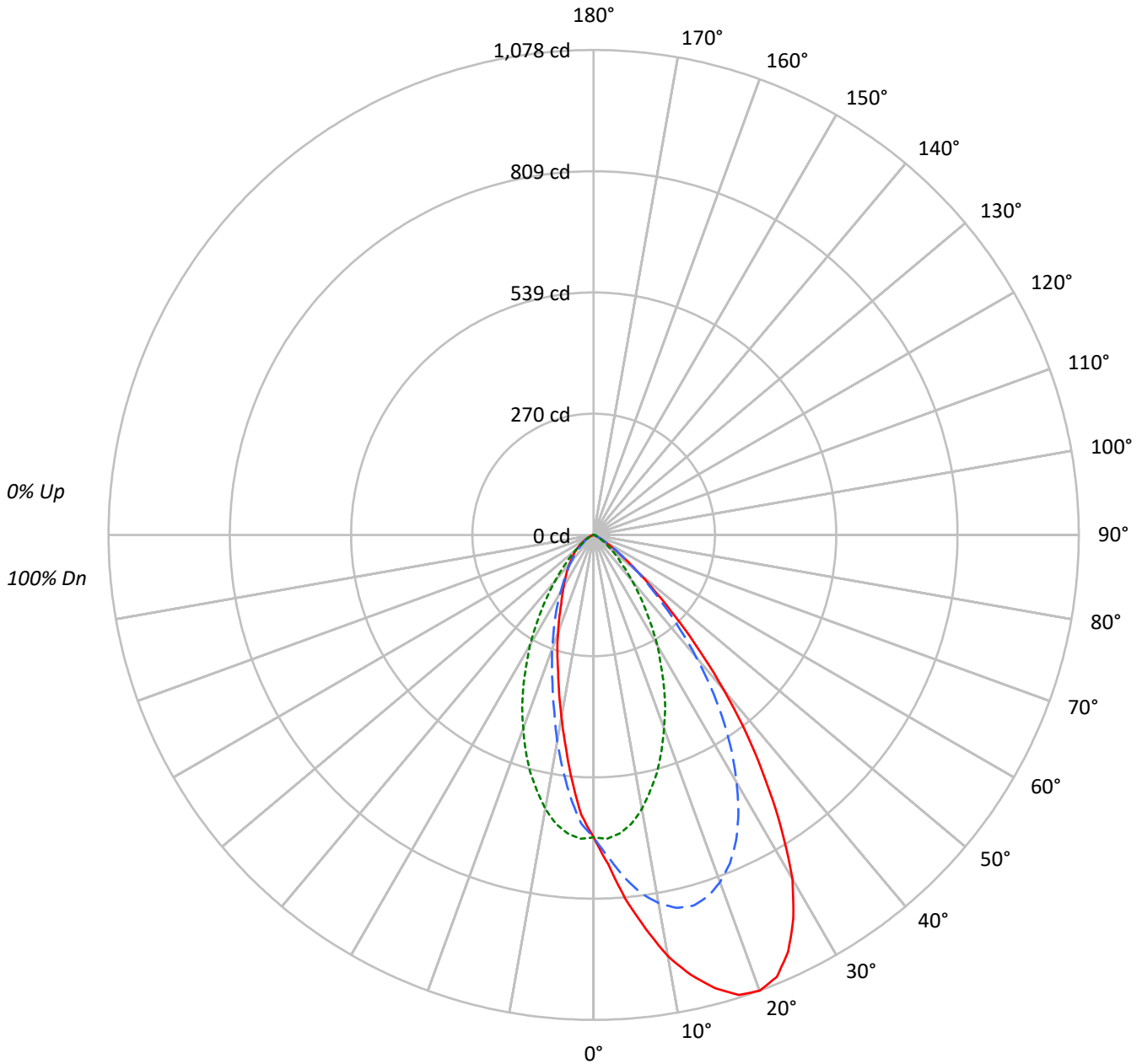
Lumens per Lamp: N/A
Luminaire Lumens: 792.9 lumens
Efficiency: N/A
Efficacy: 57.5 lumens/watt
Spacing Criteria (0/90/45): 1.14 / 0.81 / 0.99
Luminous Opening: Circular (Dia: 0.25' x H: 0')
CIE Type: Direct

Input Watts (W): 13.8
Input Voltage (V): NR
Input Current (A_{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	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°	147379	147379	147379	147379	147379
5°	178758	167752	146621	129011	120867
10°	211775	185056	137628	103783	91537
15°	236823	193781	123746	79932	69467
20°	251602	191607	106666	62772	53905
25°	247321	181244	89304	48874	41373
30°	223604	160936	71657	37221	33929
35°	178578	134274	53271	28375	28375
40°	128555	101504	38071	22041	23759
45°	79078	68379	25739	17056	20157
50°	43666	42301	17398	12622	16375
55°	21791	24276	11087	9558	12998
60°	10087	12060	7894	7017	9648
65°	4670	5707	5707	4670	5707
70°	1923	2885	3847	2565	3206
75°	847	1694	1694	1694	1694
80°	0	0	1263	1263	1263
85°	0	0	0	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 20°
 Vertical Angle: 45°
 Luminance: 79388 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	63.5	8.0
10°-20°	170.2	21.5
20°-30°	218.6	27.6
30°-40°	185.8	23.4
40°-50°	102.4	12.9
50°-60°	38.5	4.9
60°-70°	11.2	1.4
70°-80°	2.3	0.3
80°-90°	0.2	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°	452.4	57.1
0°-40°	638.2	80.5
0°-60°	779.1	98.3
0°-90°	792.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	792.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	672	672	672	672	672	
5°	812	762	666	586	549	82
15°	1043	854	545	352	306	295
25°	1022	749	369	202	171	463
35°	667	502	199	106	106	414
45°	255	220	83	55	65	204
55°	57	64	29	25	34	57
65°	9	11	11	9	11	10
75°	1	2	2	2	2	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°	672.1	672.1	672.1	672.1	672.1	672.1	672.1	672.1	672.1	672.1	672.1
2.5°	732.1	732.1	730.1	725.1	718.1	712.1	702.1	694.1	685.1	676.1	656.1
5°	812.1	809.1	800.1	788.1	773.1	751.1	730.1	710.1	687.1	666.1	620.1
7.5°	882.1	878.1	866.1	843.1	819.1	787.1	751.1	715.1	680.1	647.1	578.1
10°	951.1	942.1	924.1	893.1	854.1	808.1	759.1	711.1	662.1	618.1	534.1
12.5°	1002.2	994.2	969.2	931.1	878.1	820.1	757.1	695.1	636.1	582.1	484.1
15°	1043.2	1033.2	1001.2	952.1	888.1	819.1	743.1	673.1	605.1	545.1	433.1
17.5°	1072.2	1057.2	1018.2	957.1	883.1	803.1	724.1	641.1	569.1	502.1	384.1
20°	1078.2	1065.2	1020.2	952.1	865.1	777.1	688.1	603.1	526.1	457.1	338.1
22.5°	1063.2	1049.2	1001.2	929.1	839.1	742.1	650.1	563.1	481.1	415.1	296.0
25°	1022.2	1008.2	960.1	889.1	799.1	699.1	600.1	514.1	437.1	369.1	255.0
27.5°	961.1	940.1	902.1	832.1	745.1	648.1	549.1	464.1	386.1	322.1	217.0
30°	883.1	856.1	824.1	763.1	681.1	590.1	495.1	411.1	339.1	283.0	186.0
32.5°	778.1	768.1	734.1	683.1	614.1	527.1	439.1	361.1	293.0	238.0	159.0
35°	667.1	657.1	639.1	597.1	539.1	464.1	382.1	307.0	248.0	199.0	131.0
37.5°	559.1	549.1	533.1	507.1	457.1	399.1	326.1	261.0	208.0	164.0	109.0
40°	449.1	445.1	432.1	413.1	378.1	331.1	272.0	216.0	169.0	133.0	88.0
42.5°	346.1	344.1	335.1	324.1	302.0	264.0	224.0	174.0	134.0	106.0	70.0
45°	255.0	250.0	256.0	247.0	234.0	207.0	172.0	135.0	103.0	83.0	55.0
47.5°	182.0	183.0	186.0	188.0	178.0	156.0	129.0	99.0	80.0	68.0	45.0
50°	128.0	127.0	134.0	140.0	131.0	117.0	93.0	76.0	61.0	51.0	36.0
52.5°	88.0	89.0	97.0	101.0	99.0	83.0	66.0	53.0	45.0	38.0	28.0
55°	57.0	60.0	66.0	71.0	70.0	57.0	46.0	38.0	34.0	29.0	22.0
57.5°	37.0	38.0	44.0	48.0	47.0	38.0	31.0	28.0	25.0	22.0	16.0
60°	23.0	24.0	28.0	32.0	30.0	25.0	21.0	20.0	19.0	18.0	14.0
62.5°	14.0	15.0	18.0	21.0	19.0	16.0	14.0	15.0	15.0	14.0	11.0
65°	9.0	9.0	11.0	13.0	12.0	10.0	10.0	11.0	12.0	11.0	9.0
67.5°	5.0	6.0	7.0	8.0	7.0	7.0	8.0	9.0	9.0	9.0	7.0
70°	3.0	4.0	4.0	4.0	4.0	5.0	5.0	6.0	7.0	6.0	5.0
72.5°	2.0	2.0	2.0	3.0	3.0	3.0	3.0	4.0	4.0	4.0	4.0
75°	1.0	1.0	1.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
77.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0	1.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0
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°	672.1	672.1	672.1
2.5°	642.1	632.1	623.1
5°	586.1	562.1	549.1
7.5°	525.1	488.1	475.1
10°	466.1	421.1	411.1
12.5°	404.1	367.1	355.1
15°	352.1	317.0	306.0
17.5°	307.0	275.0	268.0
20°	269.0	240.0	231.0
22.5°	232.0	206.0	199.0
25°	202.0	179.0	171.0
27.5°	173.0	154.0	151.0
30°	147.0	135.0	134.0
32.5°	125.0	117.0	119.0
35°	106.0	103.0	106.0
37.5°	92.0	91.0	94.0
40°	77.0	79.0	83.0
42.5°	65.0	70.0	74.0
45°	55.0	62.0	65.0
47.5°	45.0	54.0	57.0
50°	37.0	47.0	48.0
52.5°	30.0	39.0	41.0
55°	25.0	32.0	34.0
57.5°	21.0	26.0	27.0
60°	16.0	20.0	22.0
62.5°	12.0	16.0	16.0
65°	9.0	11.0	11.0
67.5°	6.0	8.0	8.0
70°	4.0	5.0	5.0
72.5°	3.0	3.0	3.0
75°	2.0	2.0	2.0
77.5°	1.0	1.0	1.0
80°	1.0	1.0	1.0
82.5°	1.0	1.0	1.0
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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