

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: P886669

Luminaire Tested: ML310LSFL9FS1E-TIR4D25AWW-TL3SWSL-1000LM-3500K

Issue Date: 7/8/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P886669  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2402-314-23)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 7/8/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO  
Catalog Number: ML310LSFL9FS1E-TIR4D25AWW-TL3SWSL-1000LM-3500K  
Description: 3IN SQUARE ML FLEX, SELECTABLE CCT, WITH WW TIR, METALLIC SILVER TRIM  
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 3500K CCT  
Ballast/Driver: -

**Summary**

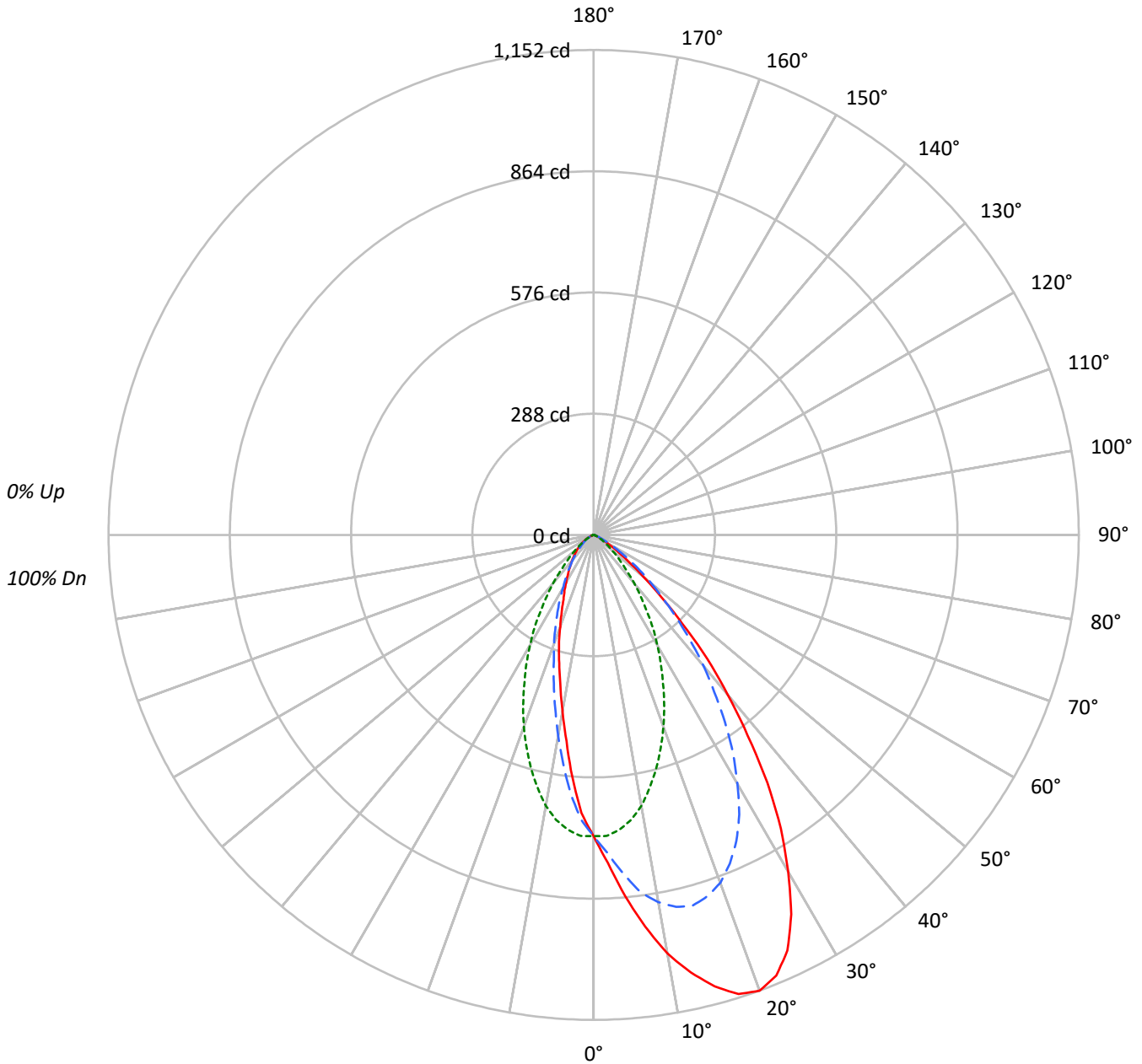
Lumens per Lamp: N/A  
Luminaire Lumens: 859.2 lumens  
Efficiency: N/A  
Efficacy: 62.3 lumens/watt  
Spacing Criteria (0/90/45): 1.13 / 0.81 / 0.99  
Luminous Opening: Rectangular (W 0.25' x L: 0.25' x H: 0')  
CIE Type: Direct

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



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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	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	107	105	103	103	101	99	100	98	96	96	95	94	92								
2	106	101	96	92	104	99	95	91	95	92	89	92	90	87	90	87	85	83								
3	100	92	87	82	98	91	86	81	88	84	80	86	82	79	83	80	78	76								
4	94	85	79	74	92	84	78	73	82	77	73	80	75	72	78	74	71	69								
5	88	79	72	67	86	78	71	67	76	70	66	74	69	65	72	68	65	63								
6	83	73	66	61	81	72	65	61	70	65	60	69	64	60	67	63	60	58								
7	78	68	61	56	77	67	60	56	66	60	56	64	59	55	63	58	55	53								
8	74	63	56	52	72	62	56	51	61	55	51	60	55	51	59	54	51	49								
9	70	59	52	48	68	58	52	48	57	52	48	56	51	47	55	51	47	46								
10	66	55	49	44	65	55	49	44	54	48	44	53	48	44	52	47	44	42								

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

	0°	45°	90°	135°	180°
0°	123243	123243	123243	123243	123243
5°	149058	139618	121500	106892	100046
10°	176593	154891	114301	84747	74271
15°	197964	162501	102414	65043	56271
20°	211133	161154	88815	50382	42538
25°	206920	152458	73996	38613	32115
30°	183573	135726	59998	28935	25952
35°	151124	114247	45644	22265	21361
40°	111354	91142	33678	17311	18031
45°	72435	68002	22675	13030	15101
50°	40993	47585	15486	9753	12325
55°	21829	30206	10269	7717	9969
60°	10333	16223	6992	5890	7371
65°	5216	8273	5216	3912	4360
70°	3223	3777	3223	2165	2165
75°	1397	1397	1397	1397	732
80°	0	1091	1091	0	0
85°	0	0	0	0	0

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 22.5°  
 Vertical Angle: 45°  
 Luminance: 76332 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	67.1	7.8
10°-20°	179.6	20.9
20°-30°	230.5	26.8
30°-40°	198.9	23.1
40°-50°	117.9	13.7
50°-60°	48.2	5.6
60°-70°	14.4	1.7
70°-80°	2.6	0.3
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°	477.2	55.5
0°-40°	676.1	78.7
0°-60°	842.1	98.0
0°-90°	859.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	859.2	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	716	716	716	716	716	
5°	862	808	703	618	579	87
15°	1110	911	574	365	316	314
25°	1089	802	389	203	169	492
35°	719	543	217	106	102	443
45°	297	279	93	54	62	236
55°	73	101	34	26	33	70
65°	13	20	13	10	11	15
75°	2	2	2	2	1	3
85°	0	0	0	0	0	0
90°	0	0	0	0	0	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°
0°	715.6	715.6	715.6	715.6	715.6	715.6	715.6	715.6	715.6
2.5°	779.8	773.4	756.3	734.9	715.6	692.1	677.1	668.6	661.1
5°	862.2	849.3	807.6	757.3	702.8	653.6	618.3	591.5	578.7
7.5°	938.1	913.5	856.8	767.0	682.5	611.9	549.8	511.3	494.2
10°	1009.8	974.5	885.7	765.9	653.6	559.4	484.6	435.4	424.7
12.5°	1064.3	1025.8	905.0	754.1	615.1	510.2	421.5	380.8	364.8
15°	1110.3	1055.8	911.4	734.9	574.4	452.5	364.8	325.2	315.6
17.5°	1143.5	1071.8	899.6	706.0	529.5	401.1	314.5	282.4	273.8
20°	1152.0	1074.0	879.3	667.5	484.6	351.9	274.9	240.7	232.1
22.5°	1132.8	1052.6	845.0	622.6	437.5	305.9	236.4	206.4	197.9
25°	1088.9	1005.5	802.3	573.4	389.4	264.2	203.2	175.4	169.0
27.5°	1016.2	945.6	748.8	520.9	345.5	224.6	173.3	150.8	149.8
30°	923.1	860.0	682.5	469.6	301.7	192.5	145.5	131.6	130.5
32.5°	826.9	776.6	616.1	416.1	262.1	164.7	124.1	115.5	115.5
35°	718.8	684.6	543.4	359.4	217.1	136.9	105.9	100.6	101.6
37.5°	601.2	580.8	470.7	305.9	181.8	112.3	89.9	86.6	89.9
40°	495.3	487.8	405.4	254.6	149.8	93.1	77.0	75.9	80.2
42.5°	400.1	392.6	338.0	211.8	117.7	74.9	63.1	67.4	70.6
45°	297.4	313.4	279.2	166.9	93.1	58.8	53.5	59.9	62.0
47.5°	217.1	236.4	222.5	128.4	75.9	49.2	43.9	52.4	53.5
50°	153.0	174.4	177.6	100.6	57.8	39.6	36.4	44.9	46.0
52.5°	105.9	124.1	138.0	75.9	43.9	31.0	31.0	38.5	38.5
55°	72.7	89.9	100.6	53.5	34.2	23.5	25.7	32.1	33.2
57.5°	47.1	61.0	70.6	39.6	24.6	18.2	21.4	25.7	26.7
60°	30.0	40.6	47.1	27.8	20.3	16.0	17.1	20.3	21.4
62.5°	20.3	27.8	30.0	20.3	15.0	12.8	12.8	16.0	16.0
65°	12.8	18.2	20.3	16.0	12.8	9.6	9.6	11.8	10.7
67.5°	8.6	10.7	12.8	11.8	9.6	7.5	6.4	7.5	6.4
70°	6.4	6.4	7.5	8.6	6.4	5.3	4.3	5.3	4.3
72.5°	4.3	3.2	4.3	5.3	4.3	4.3	3.2	2.1	2.1
75°	2.1	2.1	2.1	3.2	2.1	2.1	2.1	1.1	1.1
77.5°	1.1	1.1	1.1	1.1	1.1	1.1	1.1	0.0	0.0
80°	0.0	0.0	1.1	0.0	1.1	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
85°	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
90°	0.0	0.0	0.0	0.0	0.0	0.0	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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Scaled Data Report







— 0°-180°    - - 45°-225°    - - - - 90°-270°

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