

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: P886660

Luminaire Tested: ML310LSFL9FS1E-TIR4D25AWW-TL3SWMB-1000LM-4000K

Issue Date: 7/8/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P886660  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2402-314-24)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 7/8/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO  
Catalog Number: ML310LSFL9FS1E-TIR4D25AWW-TL3SWMB-1000LM-4000K  
Description: 3IN SQUARE ML FLEX, SELECTABLE CCT, WITH WW TIR, MATTE BLACK TRIM  
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 4000K CCT  
Ballast/Driver: -

**Summary**

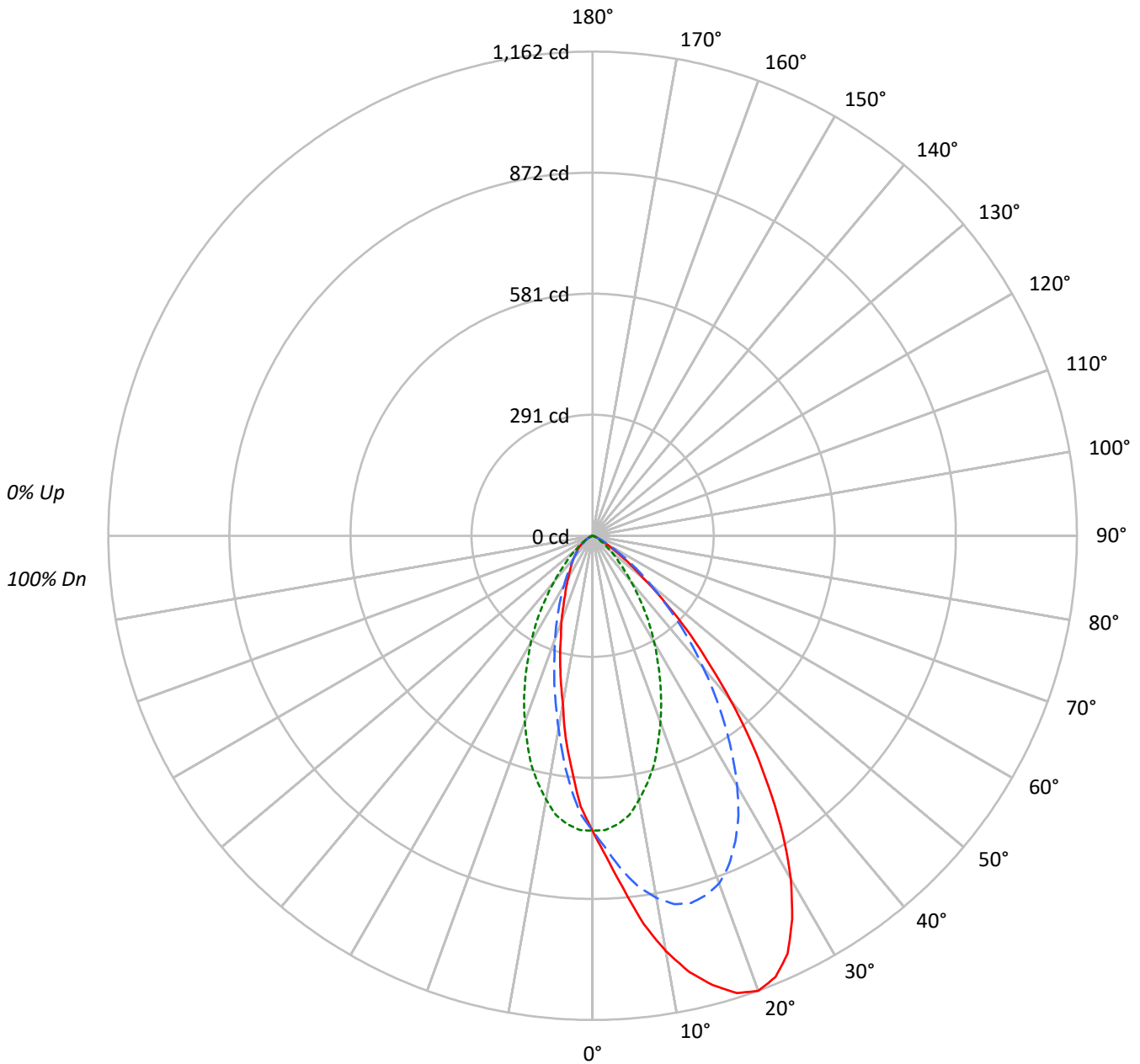
Lumens per Lamp: N/A  
Luminaire Lumens: 853.7 lumens  
Efficiency: N/A  
Efficacy: 61.9 lumens/watt  
Spacing Criteria (0/90/45): 1.14 / 0.8 / 1  
Luminous Opening: Rectangular (W 0.25' x L: 0.25' x H: 0')

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					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	104	110	107	105	103	103	101	100	100	98	97	96	95	94	92					92			
2	106	101	96	92	104	99	95	91	96	92	89	93	90	87	90	87	85	84					84			
3	100	92	87	82	98	91	86	82	88	84	80	86	82	79	83	80	78	76					76			
4	94	85	79	74	92	84	78	74	82	77	73	80	75	72	78	74	71	69					69			
5	88	79	72	67	86	78	71	67	76	70	66	74	69	65	72	68	65	63					63			
6	83	73	66	61	81	72	66	61	70	65	60	69	64	60	67	63	60	58					58			
7	78	68	61	56	77	67	60	56	66	60	56	64	59	55	63	58	55	53					53			
8	74	63	56	52	72	62	56	52	61	55	51	60	55	51	59	54	51	49					49			
9	70	59	52	48	69	58	52	48	57	52	48	56	51	47	56	51	47	46					46			
10	66	55	49	44	65	55	49	44	54	48	44	53	48	44	52	47	44	43					43			

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

	0°	45°	90°	135°	180°
0°	121916	121916	121916	121916	121916
5°	147018	139186	120100	104627	97764
10°	176926	154314	112413	82088	71648
15°	199088	162661	101416	63403	53757
20°	212948	162749	87239	48183	39881
25°	210284	153827	72818	36523	29587
30°	189101	137933	58864	27225	23068
35°	154888	116329	45287	20436	19048
40°	115715	92626	32284	15895	15895
45°	77744	69658	21799	11837	13177
50°	43190	48522	15085	8869	10664
55°	22880	30176	9278	6966	8287
60°	11401	16361	6097	5339	5718
65°	5420	8110	4034	3138	3586
70°	2769	3323	2216	1662	1108
75°	732	1464	732	732	0
80°	0	0	0	0	0
85°	0	0	0	0	0

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 22.5°  
 Vertical Angle: 45°  
 Luminance: 78012 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	66.4	7.8
10°-20°	178.1	20.9
20°-30°	229.8	26.9
30°-40°	199.1	23.3
40°-50°	117.9	13.8
50°-60°	47.5	5.6
60°-70°	13.2	1.5
70°-80°	1.7	0.2
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°	474.3	55.6
0°-40°	673.4	78.9
0°-60°	838.7	98.2
0°-90°	853.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	853.7	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	708	708	708	708	708	
5°	850	805	695	605	566	86
15°	1117	912	569	356	302	316
25°	1107	810	383	192	156	500
35°	737	553	215	97	91	457
45°	319	286	90	49	54	247
55°	76	100	31	23	28	75
65°	13	20	10	8	9	15
75°	1	2	1	1	0	2
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°	707.9	707.9	707.9	707.9	707.9	707.9	707.9	707.9	707.9
2.5°	772.0	762.1	752.1	727.8	706.8	684.7	668.2	654.9	650.5
5°	850.4	842.7	805.1	751.0	694.7	643.9	605.2	578.7	565.5
7.5°	939.9	912.3	850.4	762.1	675.9	597.5	537.9	500.3	491.5
10°	1011.7	978.5	882.4	762.1	642.8	548.9	469.4	427.4	409.7
12.5°	1072.4	1028.2	905.6	751.0	607.4	495.9	409.7	363.4	352.3
15°	1116.6	1064.7	912.3	730.0	568.8	439.6	355.6	313.7	301.5
17.5°	1150.8	1083.4	904.5	702.4	521.3	388.8	303.7	267.3	252.9
20°	1161.9	1085.7	888.0	663.8	476.0	340.2	262.9	227.5	217.6
22.5°	1146.4	1066.9	854.8	625.1	429.6	294.9	225.3	193.3	183.3
25°	1106.6	1023.8	809.5	574.3	383.2	254.0	192.2	162.4	155.7
27.5°	1037.1	959.7	757.6	523.5	336.9	217.6	162.4	139.2	135.8
30°	950.9	881.3	693.6	470.5	296.0	185.5	136.9	120.4	116.0
32.5°	849.3	793.0	624.0	419.7	255.1	157.9	116.0	103.8	102.7
35°	736.7	696.9	553.3	361.1	215.4	131.4	97.2	89.5	90.6
37.5°	627.3	594.2	481.5	307.0	176.7	107.1	83.9	78.4	79.5
40°	514.7	495.9	412.0	254.0	143.6	87.2	70.7	68.5	70.7
42.5°	407.5	403.1	346.8	210.9	114.9	70.7	59.6	58.5	61.8
45°	319.2	320.3	286.0	169.0	89.5	55.2	48.6	51.9	54.1
47.5°	231.9	246.3	226.4	130.3	72.9	45.3	39.8	45.3	47.5
50°	161.2	182.2	181.1	100.5	56.3	37.6	33.1	39.8	39.8
52.5°	117.1	130.3	138.1	75.1	42.0	29.8	27.6	34.2	33.1
55°	76.2	92.8	100.5	54.1	30.9	22.1	23.2	28.7	27.6
57.5°	50.8	65.2	69.6	37.6	22.1	16.6	18.8	23.2	22.1
60°	33.1	44.2	47.5	26.5	17.7	13.3	15.5	17.7	16.6
62.5°	21.0	29.8	30.9	17.7	13.3	11.0	11.0	13.3	12.1
65°	13.3	18.8	19.9	13.3	9.9	7.7	7.7	9.9	8.8
67.5°	8.8	12.1	12.1	8.8	7.7	5.5	5.5	6.6	5.5
70°	5.5	6.6	6.6	6.6	4.4	4.4	3.3	3.3	2.2
72.5°	3.3	3.3	3.3	3.3	2.2	2.2	2.2	1.1	1.1
75°	1.1	1.1	2.2	1.1	1.1	1.1	1.1	0.0	0.0
77.5°	0.0	1.1	1.1	1.1	1.1	1.1	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
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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