

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: P886665

Luminaire Tested: ML310LSFL9FS1E-TIR4D25AWW-TL3SWMW-1000LM-4000K

Issue Date: 7/8/2024

Test Information

Test Method: LM-79-2019
Report Number: P886665
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2402-314-22)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 7/8/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO
Catalog Number: ML310LSFL9FS1E-TIR4D25AWW-TL3SWMW-1000LM-4000K
Description: 3IN SQUARE ML FLEX, SELECTABLE CCT, WITH WW TIR, MATTE WHITE TRIM
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 4000K CCT
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 914.3 lumens
Efficiency: N/A
Efficacy: 66.3 lumens/watt
Spacing Criteria (0/90/45): 1.14 / 0.81 / 1.01
Luminous Opening: Rectangular (W 0.25' x L: 0.25' x H: 0')
CIE Type: Direct

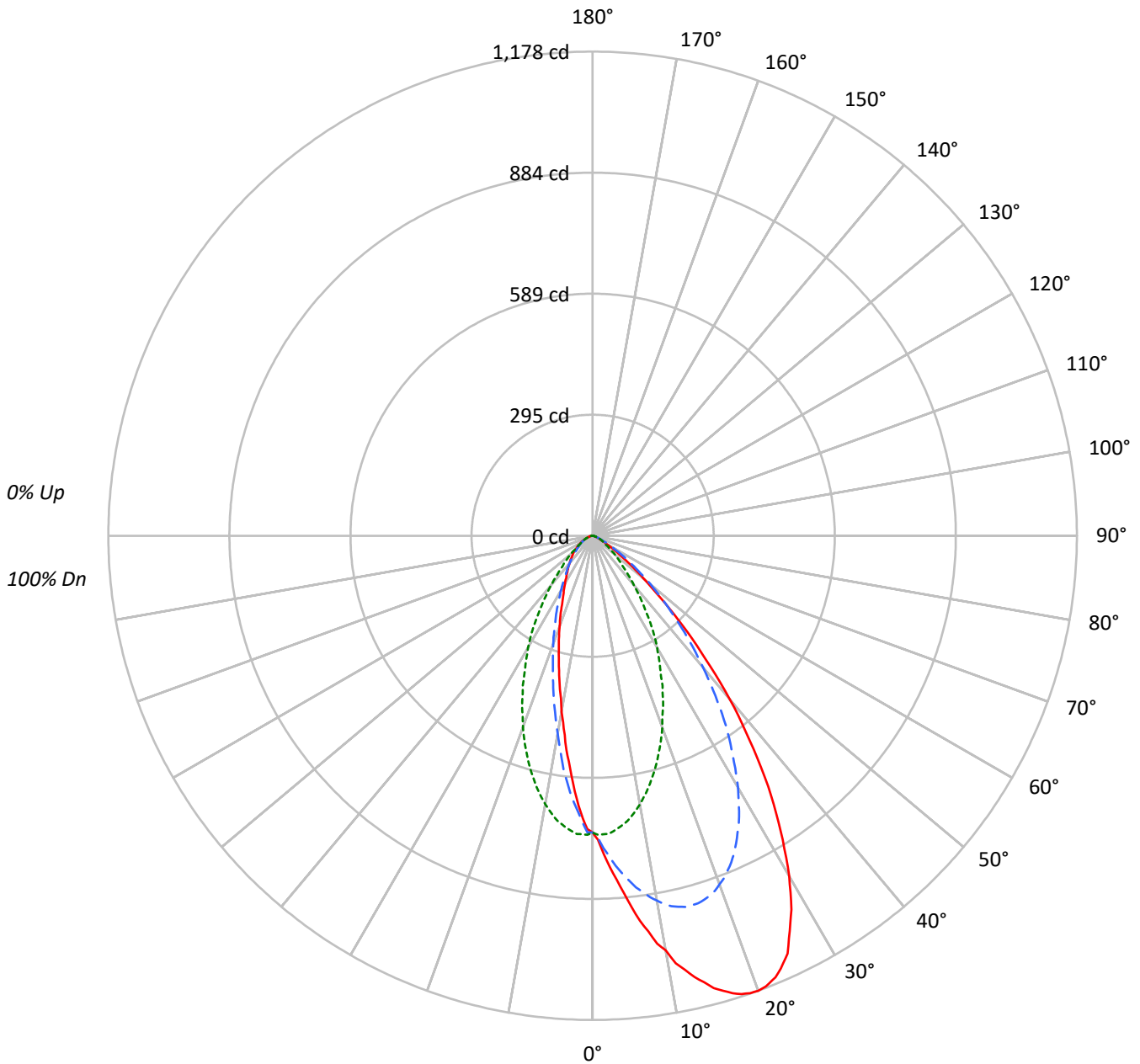
Input Watts (W): 13.8
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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	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	112	109	106	104	110	107	104	102	103	101	99	99	97	96	96	94	93	91					91			
2	105	100	95	91	103	98	94	90	95	91	88	92	89	86	89	86	84	82					82			
3	99	91	85	81	97	90	84	80	87	83	79	85	81	77	82	79	76	74					74			
4	93	84	77	72	91	83	77	72	80	75	71	78	74	70	76	73	69	68					68			
5	87	77	70	65	85	76	70	65	74	69	64	73	68	64	71	67	63	62					62			
6	82	72	65	60	80	71	64	59	69	63	59	68	62	58	66	62	58	56					56			
7	77	66	59	55	76	66	59	54	64	58	54	63	58	54	62	57	53	52					52			
8	73	62	55	50	71	61	55	50	60	54	50	59	54	50	58	53	49	48					48			
9	69	58	51	46	67	57	51	46	56	50	46	55	50	46	54	49	46	44					44			
10	65	54	47	43	64	54	47	43	53	47	43	52	47	43	51	46	43	41					41			

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	124345	124345	124345	124345	124345
5°	150977	142488	123489	108413	101343
10°	179164	157645	116033	85726	76073
15°	203153	165942	104518	66149	56699
20°	215899	165415	90850	51390	42905
25°	213153	156820	76372	39868	32932
30°	190135	140628	62344	30526	26787
35°	156443	118957	47810	23905	22517
40°	116907	93941	35005	19604	19604
45°	75552	69914	25014	15856	17220
50°	43190	49098	18648	13021	15379
55°	23540	31167	12941	11590	13272
60°	12538	17687	10264	10264	11401
65°	7213	10351	8558	8558	9006
70°	4431	6370	7251	7805	7251
75°	2196	4026	5856	6588	5124
80°	1091	2182	3273	5455	5455
85°	0	2174	4347	6521	6521

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 30°
 Vertical Angle: 45°
 Luminance: 78524 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	68.3	7.5
10°-20°	183.7	20.1
20°-30°	237.7	26.0
30°-40°	207.8	22.7
40°-50°	126.3	13.8
50°-60°	57.0	6.2
60°-70°	22.9	2.5
70°-80°	8.4	0.9
80°-90°	2.1	0.2
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°	489.7	53.6
0°-40°	697.5	76.3
0°-60°	880.8	96.3
0°-90°	914.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	914.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	722	722	722	722	722	
5°	873	824	714	627	586	88
15°	1139	931	586	371	318	322
25°	1122	825	402	210	173	506
35°	744	566	227	114	107	460
45°	310	287	103	65	71	244
55°	78	104	43	39	44	77
65°	18	25	21	21	22	19
75°	3	6	9	10	8	4
85°	0	1	2	3	3	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°	722.0	722.0	722.0	722.0	722.0	722.0	722.0	722.0	722.0	722.0	722.0
1°	739.7	738.6	736.4	734.2	735.3	734.2	730.9	729.8	729.8	727.6	726.5
2°	775.0	770.6	766.2	768.4	764.0	757.4	748.5	740.8	733.1	726.5	709.9
3°	808.2	803.7	803.7	798.2	787.2	776.1	764.0	749.6	737.5	726.5	698.9
4°	839.1	836.9	832.4	820.3	813.7	796.0	777.2	758.5	739.7	720.9	682.3
5°	873.3	873.3	863.4	852.3	834.7	813.7	789.4	762.9	738.6	714.3	665.7
6°	908.6	908.6	895.4	878.8	857.8	828.0	799.3	770.6	736.4	706.6	647.0
7°	944.0	938.4	926.3	905.3	878.8	844.6	807.1	771.7	732.0	698.9	628.2
8°	971.6	966.0	950.6	928.5	894.3	855.6	814.8	771.7	727.6	687.8	608.3
9°	1004.7	996.9	981.5	950.6	911.9	867.8	819.2	769.5	720.9	675.7	587.3
10°	1024.5	1024.5	1005.8	972.7	927.4	875.5	822.5	768.4	714.3	663.5	566.4
11°	1059.9	1051.0	1023.4	991.4	941.7	884.3	823.6	762.9	704.4	649.2	545.4
12°	1079.8	1070.9	1046.6	1006.9	952.8	889.9	822.5	756.3	692.2	634.8	525.5
13°	1101.8	1094.1	1065.4	1019.0	961.6	891.0	820.3	749.6	681.2	619.4	503.4
14°	1119.5	1112.9	1082.0	1031.2	968.2	893.2	815.9	740.8	666.8	602.8	479.2
15°	1139.4	1127.2	1093.0	1038.9	969.3	892.1	809.3	729.8	654.7	586.2	462.6
16°	1151.5	1140.5	1102.9	1044.4	970.5	889.9	802.6	717.6	639.2	569.7	438.3
17°	1163.7	1152.6	1110.7	1048.8	969.3	883.2	793.8	705.5	627.1	550.9	417.3
18°	1172.5	1160.3	1117.3	1048.8	966.0	875.5	780.6	691.1	608.3	533.3	398.6
19°	1176.9	1162.6	1117.3	1047.7	961.6	865.6	769.5	676.8	590.7	514.5	377.6
20°	1178.0	1162.6	1118.4	1043.3	951.7	853.4	754.1	661.3	571.9	495.7	357.7
21°	1174.7	1159.2	1111.8	1036.7	944.0	840.2	739.7	641.4	553.1	473.6	338.9
22.5°	1162.6	1146.0	1096.3	1019.0	921.9	819.2	714.3	613.8	526.6	448.2	312.4
23°	1155.9	1141.6	1090.8	1012.4	916.4	809.3	703.3	606.1	513.4	438.3	304.7
24°	1139.4	1126.1	1075.3	996.9	898.7	793.8	683.4	587.3	496.8	418.4	287.1
25°	1121.7	1100.7	1055.5	977.1	878.8	771.7	665.7	566.4	478.0	401.9	270.5
26°	1089.7	1074.2	1030.1	952.8	858.9	749.6	644.8	544.3	458.2	379.8	257.2
27°	1058.8	1047.7	1005.8	928.5	838.0	728.7	623.8	525.5	433.9	362.1	239.6
28°	1030.1	1017.9	971.6	899.8	811.5	706.6	597.3	504.5	417.3	345.6	226.3
29°	992.5	983.7	940.6	876.6	783.9	681.2	576.3	482.5	398.6	327.9	213.1
30°	956.1	946.2	904.2	842.4	758.5	655.8	554.2	461.5	379.8	313.5	202.0
32.5°	851.2	847.9	810.4	757.4	681.2	588.5	495.7	407.4	332.3	272.7	174.4
35°	744.1	740.8	706.6	666.8	607.2	524.4	435.0	354.4	283.7	227.4	146.8
37.5°	627.1	623.8	607.2	571.9	527.7	452.7	375.4	303.6	236.3	191.0	123.7
40°	520.0	516.7	509.0	483.6	449.3	386.4	319.1	249.5	195.4	155.7	101.6
42.5°	406.3	410.7	408.5	399.7	377.6	322.4	267.2	207.6	161.2	125.9	83.9
45°	310.2	312.4	318.0	322.4	306.9	267.2	218.6	164.5	125.9	102.7	69.6
47.5°	225.2	230.7	242.9	251.7	247.3	217.5	173.3	131.4	102.7	85.0	59.6
50°	161.2	164.5	176.6	195.4	195.4	171.1	134.7	100.5	82.8	69.6	53.0
52.5°	115.9	118.1	129.2	143.5	147.9	130.3	103.8	79.5	65.1	54.1	44.2
55°	78.4	81.7	92.7	108.2	108.2	99.4	76.2	59.6	49.7	43.1	36.4
57.5°	53.0	56.3	64.0	77.3	77.3	70.7	57.4	44.2	38.6	34.2	30.9
60°	36.4	37.5	46.4	53.0	54.1	48.6	40.8	34.2	30.9	29.8	27.6



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CANDELA DISTRIBUTION (continued):

	0°	10°	20°	30°	40°	50°	60°	70°	80°	90°	112.5°
67.5°	12.1	13.2	14.4	16.6	17.7	17.7	17.7	18.8	18.8	17.7	18.8
70°	8.8	8.8	9.9	11.0	12.1	13.2	13.2	15.5	14.4	14.4	15.5
72.5°	5.5	6.6	6.6	7.7	8.8	8.8	11.0	11.0	11.0	11.0	12.1
75°	3.3	4.4	4.4	4.4	5.5	6.6	7.7	7.7	7.7	8.8	9.9
77.5°	2.2	2.2	3.3	3.3	3.3	4.4	5.5	5.5	5.5	5.5	6.6
80°	1.1	1.1	1.1	2.2	2.2	2.2	3.3	3.3	3.3	3.3	4.4
82.5°	1.1	1.1	1.1	1.1	1.1	2.2	2.2	2.2	3.3	3.3	3.3
85°	0.0	0.0	0.0	1.1	1.1	1.1	1.1	2.2	2.2	2.2	2.2
87.5°	0.0	0.0	0.0	0.0	0.0	1.1	1.1	1.1	1.1	1.1	1.1
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°	722.0	722.0	722.0
1°	722.0	720.9	714.3
2°	697.8	687.8	687.8
3°	673.5	660.2	656.9
4°	650.3	626.0	622.7
5°	627.1	596.2	586.2
6°	600.6	565.3	552.0
7°	575.2	534.4	524.4
8°	545.4	505.7	489.1
9°	515.6	475.8	459.3
10°	490.2	447.1	435.0
11°	464.8	420.6	404.1
12°	438.3	395.2	382.0
13°	417.3	371.0	358.8
14°	393.0	352.2	337.8
15°	371.0	329.0	318.0
16°	352.2	311.3	299.2
17°	330.1	293.7	281.5
18°	313.5	277.1	265.0
19°	295.9	260.6	250.6
20°	280.4	247.3	234.1
21°	265.0	230.7	221.9
22.5°	241.8	212.0	202.0
23°	234.1	203.1	195.4
24°	221.9	193.2	183.3
25°	209.8	181.1	173.3
26°	197.6	170.0	163.4
27°	186.6	161.2	155.7
28°	173.3	151.3	147.9
29°	163.4	143.5	141.3
30°	153.5	136.9	134.7
32.5°	132.5	120.3	119.2
35°	113.7	106.0	107.1
37.5°	99.4	94.9	97.2
40°	87.2	83.9	87.2
42.5°	75.1	75.1	79.5
45°	65.1	68.5	70.7
47.5°	56.3	61.8	64.0
50°	48.6	56.3	57.4
52.5°	43.1	50.8	49.7
55°	38.6	44.2	44.2
57.5°	34.2	38.6	37.5
60°	29.8	33.1	33.1



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CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
67.5°	17.7	19.9	17.7
70°	15.5	15.5	14.4
72.5°	12.1	12.1	11.0
75°	9.9	8.8	7.7
77.5°	7.7	6.6	6.6
80°	5.5	5.5	5.5
82.5°	4.4	4.4	4.4
85°	3.3	3.3	3.3
87.5°	2.2	2.2	2.2
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



Report Generated By 670245859 / DESKTOP-T8S5UU9

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Scaled Data Report





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

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Scaled Data Report





62.5°	24.3	26.5	32.0	37.5	38.6	34.2	29.8	27.6	25.4	25.4	24.3
65°	17.7	18.8	22.1	25.4	26.5	24.3	22.1	22.1	22.1	21.0	21.0

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62.5°	25.4	27.6	27.6
65°	21.0	23.2	22.1

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Scaled Data Report



(END OF REPORT)