

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: P886664

Luminaire Tested: ML310LSFL9FS1E-TIR4D25AWW-TL3SWMW-1000LM-3500K

Issue Date: 7/8/2024

Test Information

Test Method: LM-79-2019
Report Number: P886664
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-3500K
Description: 3IN SQUARE ML FLEX, SELECTABLE CCT, WITH WW TIR, MATTE WHITE TRIM
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 3500K CCT
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 885.6 lumens
Efficiency: N/A
Efficacy: 64.2 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

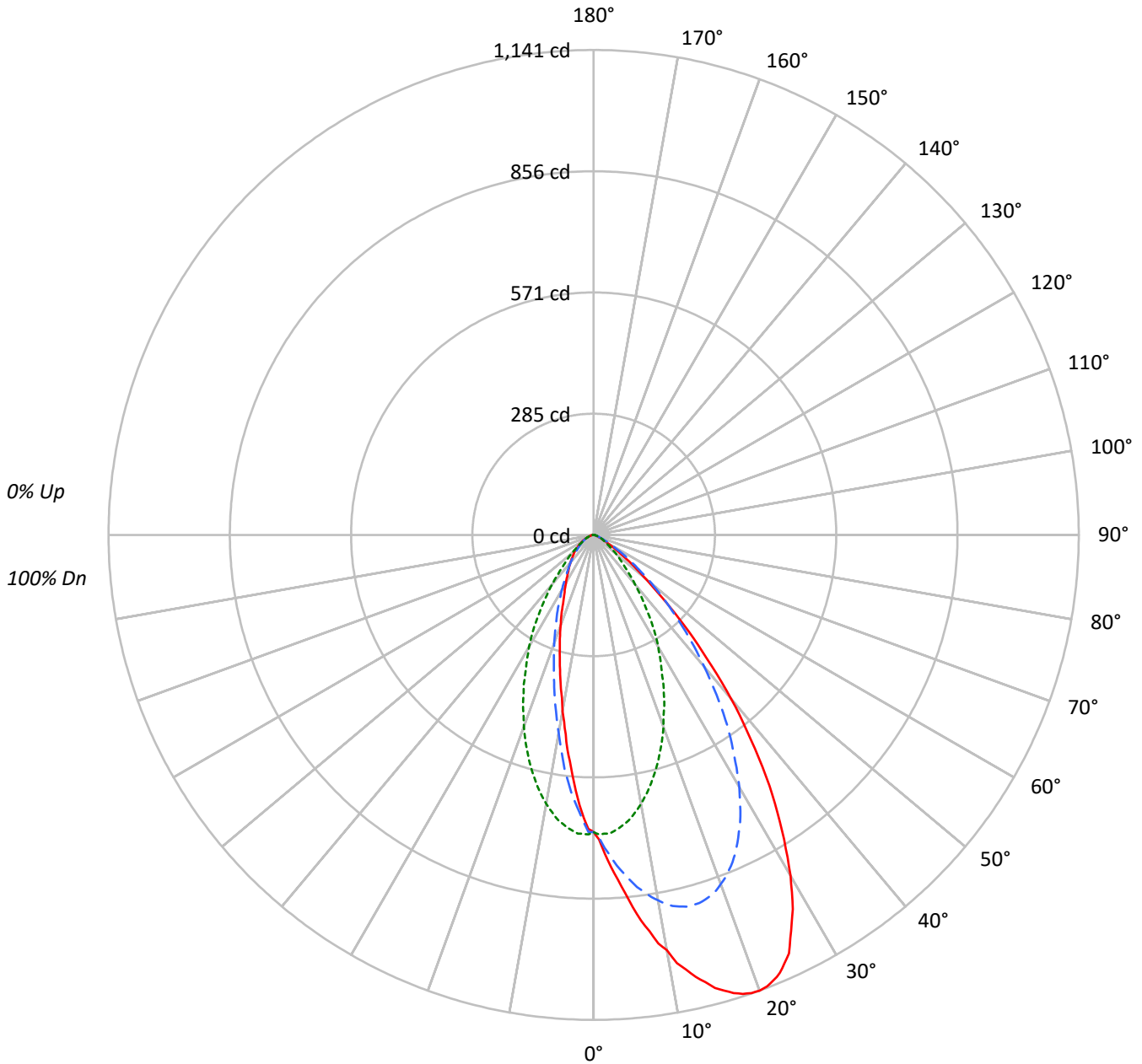
Input Watts (W): 13.8
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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	0	
RCR																						
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100				
1	112	109	106	104	110	107	104	102	103	101	99	99	97	96	96	94	93	91				
2	105	100	95	91	103	98	94	90	95	91	88	92	89	86	89	86	84	82				
3	99	91	85	81	97	90	84	80	87	83	79	85	81	77	82	79	76	74				
4	93	84	77	72	91	83	77	72	80	75	71	78	74	70	76	73	69	68				
5	87	77	70	65	85	76	70	65	74	69	64	73	68	64	71	67	63	62				
6	82	72	65	60	80	71	64	59	69	63	59	68	62	58	66	62	58	56				
7	77	66	59	55	76	66	59	54	64	58	54	63	58	54	62	57	53	52				
8	73	62	55	50	71	61	55	50	60	54	50	59	54	50	58	53	49	48				
9	69	58	51	46	67	57	51	46	56	50	46	55	50	46	54	49	46	44				
10	65	54	47	43	64	54	47	43	53	47	43	52	47	43	51	46	43	41				

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	120435	120435	120435	120435	120435
5°	146222	138002	119616	105008	98162
10°	173533	152687	112395	83033	73677
15°	196770	160727	101238	64062	54916
20°	209117	160219	87991	49778	41549
25°	206464	151898	73958	38613	31905
30°	184150	136203	60395	29551	25952
35°	151524	115214	46317	23148	21802
40°	113242	90996	33903	18997	18997
45°	73190	67722	24210	15369	16659
50°	41824	47558	18059	12620	14897
55°	22790	30176	12521	11230	12851
60°	12159	17136	9954	9954	11057
65°	6968	10025	8273	8273	8721
70°	4330	6194	6999	7553	6999
75°	2129	3893	5723	6388	4991
80°	1091	2083	3174	5256	5256
85°	0	2174	4150	6323	6323

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 30°
 Vertical Angle: 45°
 Luminance: 76039 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	66.2	7.5
10°-20°	177.9	20.1
20°-30°	230.2	26.0
30°-40°	201.2	22.7
40°-50°	122.3	13.8
50°-60°	55.2	6.2
60°-70°	22.2	2.5
70°-80°	8.2	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°	474.3	53.6
0°-40°	675.6	76.3
0°-60°	853.1	96.3
0°-90°	885.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	885.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	699	699	699	699	699	
5°	846	798	692	607	568	86
15°	1104	901	568	359	308	312
25°	1086	799	389	203	168	490
35°	721	548	220	110	104	445
45°	300	278	99	63	68	237
55°	76	100	42	37	43	74
65°	17	25	20	20	21	18
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°	699.3	699.3	699.3	699.3	699.3	699.3	699.3	699.3	699.3	699.3	699.3
1°	716.5	715.4	713.3	711.1	712.2	711.1	707.9	706.8	706.8	704.7	703.6
2°	750.7	746.4	742.1	744.3	740.0	733.6	725.0	717.5	710.0	703.6	687.6
3°	782.8	778.5	778.5	773.1	762.4	751.7	740.0	726.1	714.3	703.6	676.9
4°	812.7	810.6	806.3	794.5	788.1	771.0	752.8	734.6	716.5	698.3	660.9
5°	845.8	845.8	836.2	825.5	808.4	788.1	764.6	738.9	715.4	691.9	644.8
6°	880.1	880.1	867.2	851.2	830.9	802.0	774.2	746.4	713.3	684.4	626.6
7°	914.3	908.9	897.2	876.9	851.2	818.0	781.7	747.5	709.0	676.9	608.5
8°	941.0	935.7	920.7	899.3	866.2	828.7	789.2	747.5	704.7	666.2	589.2
9°	973.1	965.6	950.6	920.7	883.3	840.5	793.5	745.3	698.3	654.4	568.9
10°	992.3	992.3	974.2	942.1	898.2	848.0	796.7	744.3	691.9	642.7	548.6
11°	1026.6	1018.0	991.3	960.3	912.1	856.5	797.7	738.9	682.2	628.8	528.3
12°	1045.8	1037.3	1013.7	975.2	922.8	861.9	796.7	732.5	670.5	614.9	509.0
13°	1067.2	1059.7	1031.9	987.0	931.4	863.0	794.5	726.1	659.8	599.9	487.6
14°	1084.3	1077.9	1048.0	998.8	937.8	865.1	790.2	717.5	645.9	583.9	464.1
15°	1103.6	1091.8	1058.6	1006.2	938.9	864.0	783.8	706.8	634.1	567.8	448.1
16°	1115.3	1104.6	1068.3	1011.6	940.0	861.9	777.4	695.1	619.1	551.8	424.5
17°	1127.1	1116.4	1075.8	1015.9	938.9	855.5	768.9	683.3	607.4	533.6	404.2
18°	1135.6	1123.9	1082.2	1015.9	935.7	848.0	756.0	669.4	589.2	516.5	386.0
19°	1139.9	1126.0	1082.2	1014.8	931.4	838.4	745.3	655.5	572.1	498.3	365.7
20°	1141.0	1126.0	1083.2	1010.5	921.8	826.6	730.4	640.5	553.9	480.1	346.5
21°	1137.8	1122.8	1076.8	1004.1	914.3	813.8	716.5	621.3	535.7	458.7	328.3
22.5°	1126.0	1110.0	1061.9	987.0	892.9	793.5	691.9	594.6	510.1	434.2	302.6
23°	1119.6	1105.7	1056.5	980.6	887.6	783.8	681.2	587.1	497.2	424.5	295.1
24°	1103.6	1090.7	1041.5	965.6	870.4	768.9	661.9	568.9	481.2	405.3	278.0
25°	1086.5	1066.1	1022.3	946.4	851.2	747.5	644.8	548.6	463.0	389.2	262.0
26°	1055.4	1040.5	997.7	922.8	831.9	726.1	624.5	527.2	443.8	367.9	249.2
27°	1025.5	1014.8	974.2	899.3	811.6	705.8	604.2	509.0	420.3	350.7	232.0
28°	997.7	985.9	941.0	871.5	786.0	684.4	578.5	488.7	404.2	334.7	219.2
29°	961.3	952.8	911.1	849.1	759.2	659.8	558.2	467.3	386.0	317.6	206.4
30°	926.0	916.4	875.8	815.9	734.6	635.2	536.8	447.0	367.9	303.7	195.7
32.5°	824.5	821.3	784.9	733.6	659.8	570.0	480.1	394.6	321.9	264.1	169.0
35°	720.7	717.5	684.4	645.9	588.1	507.9	421.3	343.3	274.8	220.3	142.2
37.5°	607.4	604.2	588.1	553.9	511.1	438.4	363.6	294.1	228.8	185.0	119.8
40°	503.7	500.5	493.0	468.4	435.2	374.3	309.0	241.7	189.3	150.8	98.4
42.5°	393.5	397.8	395.7	387.1	365.7	312.2	258.8	201.0	156.1	121.9	81.3
45°	300.5	302.6	308.0	312.2	297.3	258.8	211.7	159.3	121.9	99.4	67.4
47.5°	218.1	223.5	235.3	243.8	239.5	210.7	167.9	127.3	99.4	82.3	57.7
50°	156.1	159.3	171.1	189.3	189.3	165.7	130.5	97.3	80.2	67.4	51.3
52.5°	112.3	114.4	125.1	139.0	143.3	126.2	100.5	77.0	63.1	52.4	42.8
55°	75.9	79.1	89.8	104.8	104.8	96.2	73.8	57.7	48.1	41.7	35.3
57.5°	51.3	54.5	62.0	74.9	74.9	68.4	55.6	42.8	37.4	33.1	29.9
60°	35.3	36.4	44.9	51.3	52.4	47.1	39.6	33.1	29.9	28.9	26.7



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CANDELA DISTRIBUTION (continued):

	0°	10°	20°	30°	40°	50°	60°	70°	80°	90°	112.5°
67.5°	11.8	12.8	13.9	16.0	17.1	17.1	17.1	18.2	18.2	17.1	18.2
70°	8.6	8.6	9.6	10.7	11.8	12.8	12.8	15.0	13.9	13.9	15.0
72.5°	5.3	6.4	6.4	7.5	8.6	8.6	10.7	10.7	10.7	10.7	11.8
75°	3.2	4.3	4.3	4.3	5.3	6.4	7.5	7.5	7.5	8.6	9.6
77.5°	2.1	2.1	3.2	3.2	3.2	4.3	5.3	5.3	5.3	5.3	6.4
80°	1.1	1.1	1.1	2.1	2.1	2.1	3.2	3.2	3.2	3.2	4.3
82.5°	1.1	1.1	1.1	1.1	1.1	2.1	2.1	2.1	3.2	3.2	3.2
85°	0.0	0.0	0.0	1.1	1.1	1.1	1.1	2.1	2.1	2.1	2.1
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°	699.3	699.3	699.3
1°	699.3	698.3	691.9
2°	675.8	666.2	666.2
3°	652.3	639.5	636.3
4°	629.8	606.3	603.1
5°	607.4	577.4	567.8
6°	581.7	547.5	534.7
7°	557.1	517.6	507.9
8°	528.3	489.8	473.7
9°	499.4	460.9	444.8
10°	474.8	433.1	421.3
11°	450.2	407.4	391.4
12°	424.5	382.8	370.0
13°	404.2	359.3	347.5
14°	380.7	341.1	327.2
15°	359.3	318.7	308.0
16°	341.1	301.6	289.8
17°	319.7	284.4	272.7
18°	303.7	268.4	256.6
19°	286.6	252.4	242.7
20°	271.6	239.5	226.7
21°	256.6	223.5	214.9
22.5°	234.2	205.3	195.7
23°	226.7	196.8	189.3
24°	214.9	187.1	177.5
25°	203.2	175.4	167.9
26°	191.4	164.7	158.3
27°	180.7	156.1	150.8
28°	167.9	146.5	143.3
29°	158.3	139.0	136.9
30°	148.6	132.6	130.5
32.5°	128.3	116.6	115.5
35°	110.1	102.7	103.7
37.5°	96.2	92.0	94.1
40°	84.5	81.3	84.5
42.5°	72.7	72.7	77.0
45°	63.1	66.3	68.4
47.5°	54.5	59.9	62.0
50°	47.1	54.5	55.6
52.5°	41.7	49.2	48.1
55°	37.4	42.8	42.8
57.5°	33.1	37.4	36.4
60°	28.9	32.1	32.1



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CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
67.5°	17.1	19.2	17.1
70°	15.0	15.0	13.9
72.5°	11.8	11.8	10.7
75°	9.6	8.6	7.5
77.5°	7.5	6.4	6.4
80°	5.3	5.3	5.3
82.5°	4.3	4.3	4.3
85°	3.2	3.2	3.2
87.5°	2.1	2.1	2.1
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°	23.5	25.7	31.0	36.4	37.4	33.1	28.9	26.7	24.6	24.6	23.5
65°	17.1	18.2	21.4	24.6	25.7	23.5	21.4	21.4	21.4	20.3	20.3

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62.5°	24.6	26.7	26.7
65°	20.3	22.5	21.4

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Scaled Data Report



(END OF REPORT)