

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: P886838

Luminaire Tested: ML412LSFL95FS1E-TIR4D25AWW-TL4SWMB-1020LM-4000K

Issue Date: 7/10/2024

Test Information

Test Method: LM-79-2019
Report Number: P886838
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2402-314-59)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 7/10/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO
Catalog Number: ML412LSFL95FS1E-TIR4D25AWW-TL4SWMB-1020LM-4000K
Description: 4IN SQUARE ML FLEX, SELECTABLE CCT, WITH WW TIR, MATTE BLACK TRIM
Light Source: (1) HCL SELECTABLE LUMEN LED 95CRI / 4000K CCT
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 824.9 lumens
Efficiency: N/A
Efficacy: 46.9 lumens/watt
Spacing Criteria (0/90/45): 1.08 / 0.79 / 0.96
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

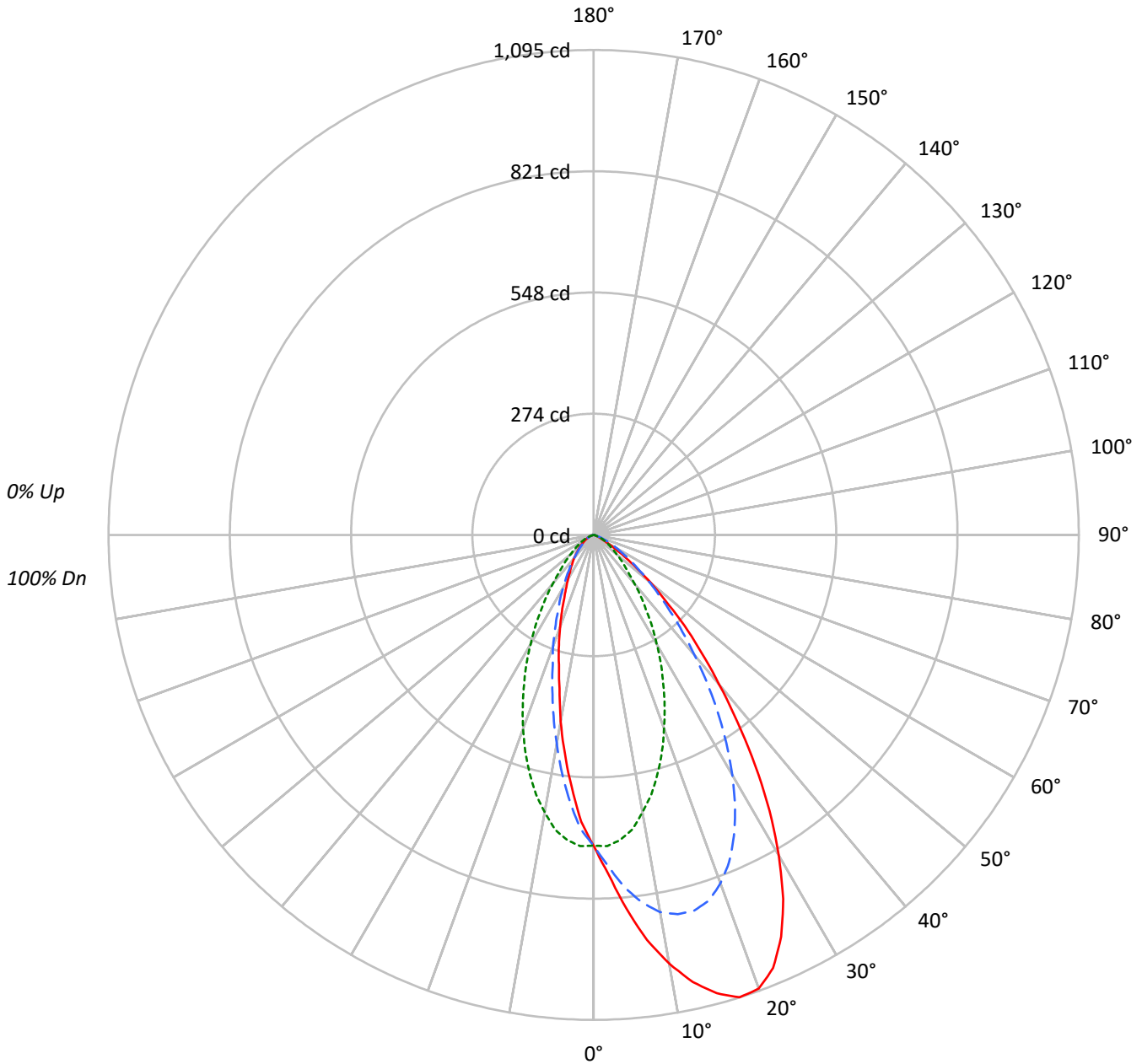
Input Watts (W): 17.6
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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	109	107	104	110	107	105	102	103	101	99	99	98	96	96	95	93	92					92			
2	106	100	95	92	104	98	94	91	95	92	89	92	89	87	89	87	85	83					83			
3	99	92	86	81	97	90	85	81	88	83	79	85	81	78	83	80	77	75					75			
4	93	85	78	73	91	83	77	73	81	76	72	79	75	71	77	73	70	68					68			
5	88	78	71	66	86	77	71	66	75	70	65	73	69	65	72	68	64	63					63			
6	82	72	65	60	81	71	65	60	70	64	60	68	63	59	67	62	59	57					57			
7	78	67	60	56	76	66	60	55	65	59	55	64	59	55	63	58	54	53					53			
8	73	63	56	51	72	62	56	51	61	55	51	60	54	51	59	54	50	49					49			
9	69	59	52	47	68	58	52	47	57	51	47	56	51	47	55	50	47	45					45			
10	66	55	48	44	65	54	48	44	54	48	44	53	48	44	52	47	44	42					42			

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	67958	67958	67958	67958	67958
5°	82367	77651	67206	59038	55498
10°	96688	85065	62534	47198	42083
15°	107444	88067	55933	36136	30399
20°	112402	86289	47948	27588	22856
25°	107008	80120	39710	20363	16664
30°	93382	69992	31870	15403	12976
35°	75180	57766	24374	11472	10443
40°	55744	44742	18071	8650	8650
45°	39744	33518	13522	6521	7001
50°	25320	24076	10173	5094	5878
55°	14035	16898	7904	4239	4678
60°	6549	11664	6374	3352	3701
65°	3576	7645	4378	2980	2980
70°	1954	4164	2946	2464	1954
75°	973	1946	1310	1310	337
80°	0	502	502	0	0
85°	0	0	0	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 39744 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	66.1	8.0
10°-20°	174.2	21.1
20°-30°	216.6	26.3
30°-40°	180.5	21.9
40°-50°	109.7	13.3
50°-60°	52.9	6.4
60°-70°	20.5	2.5
70°-80°	4.4	0.5
80°-90°	0.1	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°	456.8	55.4
0°-40°	637.3	77.3
0°-60°	799.9	97.0
0°-90°	824.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	824.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	702	702	702	702	702	
5°	847	798	691	607	571	85
15°	1071	878	558	360	303	302
25°	1001	750	372	190	156	453
35°	636	488	206	97	88	395
45°	290	245	99	48	51	224
55°	83	100	47	25	28	79
65°	16	33	19	13	13	17
75°	3	5	4	4	1	3
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°	701.5	701.5	701.5	701.5	701.5	701.5	701.5	701.5	701.5	701.5	701.5
2.5°	766.4	767.3	767.3	758.6	753.4	743.9	734.4	724.9	711.9	703.2	682.4
5°	847.0	841.8	837.4	825.3	808.9	788.1	763.8	738.7	714.5	691.1	641.7
7.5°	922.3	915.4	905.9	880.7	853.9	820.1	782.0	742.2	703.2	670.3	601.0
10°	982.9	976.0	957.8	928.4	887.7	841.8	788.1	737.0	686.8	635.7	549.9
12.5°	1034.0	1023.6	1002.0	962.1	906.7	847.8	783.7	720.5	656.4	600.2	494.5
15°	1071.3	1058.3	1030.6	978.6	913.6	842.6	766.4	693.7	621.8	557.7	443.4
17.5°	1094.6	1079.1	1041.0	982.1	906.7	824.4	739.6	656.4	584.6	512.7	394.0
20°	1090.3	1071.3	1032.3	966.5	881.6	792.4	702.3	618.3	536.1	465.1	343.8
22.5°	1058.3	1042.7	1000.3	933.6	847.0	751.7	659.9	572.4	491.9	418.3	297.9
25°	1001.1	987.3	947.4	881.6	797.6	701.5	605.3	520.5	441.7	371.5	256.3
27.5°	926.6	915.4	873.8	814.1	736.1	646.9	552.5	471.1	394.0	329.1	219.1
30°	834.8	824.4	787.2	737.8	666.8	584.6	498.8	420.9	347.3	284.9	184.5
32.5°	738.7	726.6	703.2	651.2	595.8	518.7	444.3	368.1	298.8	245.1	155.9
35°	635.7	624.4	606.2	566.4	520.5	456.4	387.1	317.8	256.3	206.1	129.9
37.5°	532.6	530.0	514.4	486.7	446.0	393.2	329.1	271.9	216.5	174.1	107.4
40°	440.8	441.7	427.8	407.9	375.9	331.7	283.2	227.8	180.1	142.9	88.3
42.5°	359.4	359.4	349.9	336.9	315.2	278.0	236.4	190.5	148.1	116.9	71.9
45°	290.1	280.6	282.3	273.7	258.9	230.4	191.4	150.7	123.0	98.7	59.8
47.5°	219.1	222.6	225.2	224.3	211.3	187.1	155.0	125.6	104.8	83.1	51.1
50°	168.0	168.0	173.2	176.7	169.7	149.8	124.7	104.8	84.9	67.5	42.4
52.5°	118.6	123.8	131.6	141.2	134.2	120.4	103.9	84.0	71.0	56.3	35.5
55°	83.1	85.7	97.0	107.4	104.8	95.3	81.4	68.4	56.3	46.8	29.4
57.5°	52.8	54.6	69.3	80.5	81.4	75.3	65.0	54.6	45.9	39.8	25.1
60°	33.8	37.2	45.9	58.9	61.5	58.9	51.1	43.3	39.0	32.9	21.7
62.5°	22.5	25.1	32.0	39.8	45.9	45.9	38.1	35.5	30.3	26.0	19.1
65°	15.6	17.3	21.7	27.7	33.8	32.9	30.3	26.8	23.4	19.1	14.7
67.5°	10.4	12.1	14.7	19.1	22.5	23.4	21.7	19.1	16.5	14.7	11.3
70°	6.9	7.8	9.5	13.0	14.7	14.7	14.7	13.0	11.3	10.4	7.8
72.5°	4.3	5.2	6.1	7.8	8.7	9.5	8.7	8.7	7.8	6.9	5.2
75°	2.6	3.5	3.5	4.3	5.2	5.2	5.2	4.3	4.3	3.5	3.5
77.5°	1.7	1.7	1.7	1.7	1.7	2.6	2.6	1.7	1.7	0.9	1.7
80°	0.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
82.5°	0.0	0.0	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	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°	701.5	701.5	701.5
2.5°	665.1	655.6	647.8
5°	607.1	582.8	570.7
7.5°	544.7	510.1	498.0
10°	479.8	436.5	427.8
12.5°	418.3	374.1	355.1
15°	360.3	316.1	303.1
17.5°	307.4	271.9	260.7
20°	267.6	233.8	221.7
22.5°	226.9	195.7	187.1
25°	190.5	165.4	155.9
27.5°	163.7	139.4	134.2
30°	137.7	118.6	116.0
32.5°	116.0	102.2	99.6
35°	97.0	87.5	88.3
37.5°	82.3	75.3	77.1
40°	68.4	65.8	68.4
42.5°	57.2	58.0	59.8
45°	47.6	51.1	51.1
47.5°	39.8	44.2	45.0
50°	33.8	38.1	39.0
52.5°	29.4	32.9	32.9
55°	25.1	27.7	27.7
57.5°	21.7	23.4	23.4
60°	17.3	19.1	19.1
62.5°	14.7	15.6	15.6
65°	13.0	13.0	13.0
67.5°	10.4	10.4	9.5
70°	8.7	7.8	6.9
72.5°	6.1	5.2	3.5
75°	3.5	2.6	0.9
77.5°	0.9	0.9	0.0
80°	0.0	0.0	0.0
82.5°	0.0	0.0	0.0
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
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Peachtree City, GA 30269

Scaled Data Report





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

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