

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: P886824

Luminaire Tested: ML412LSFL95FS1E-TIR4D25AWW-TL4RWMB-1020LM-5000K

Issue Date: 7/9/2024

Test Information

Test Method: LM-79-2019
Report Number: P886824
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2402-314-47)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 7/9/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO
Catalog Number: ML412LSFL95FS1E-TIR4D25AWW-TL4RWMB-1020LM-5000K
Description: 4IN ROUND ML FLEX, SELECTABLE CCT, WITH WW TIR, MATTE BLACK TRIM
Light Source: (1) HCL SELECTABLE LUMEN LED 95CRI / 5000K CCT
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 865.8 lumens
Efficiency: N/A
Efficacy: 49.2 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 0.8 / 0.99
Luminous Opening: Circular (Dia: 0.25' x H: 0')
CIE Type: Direct

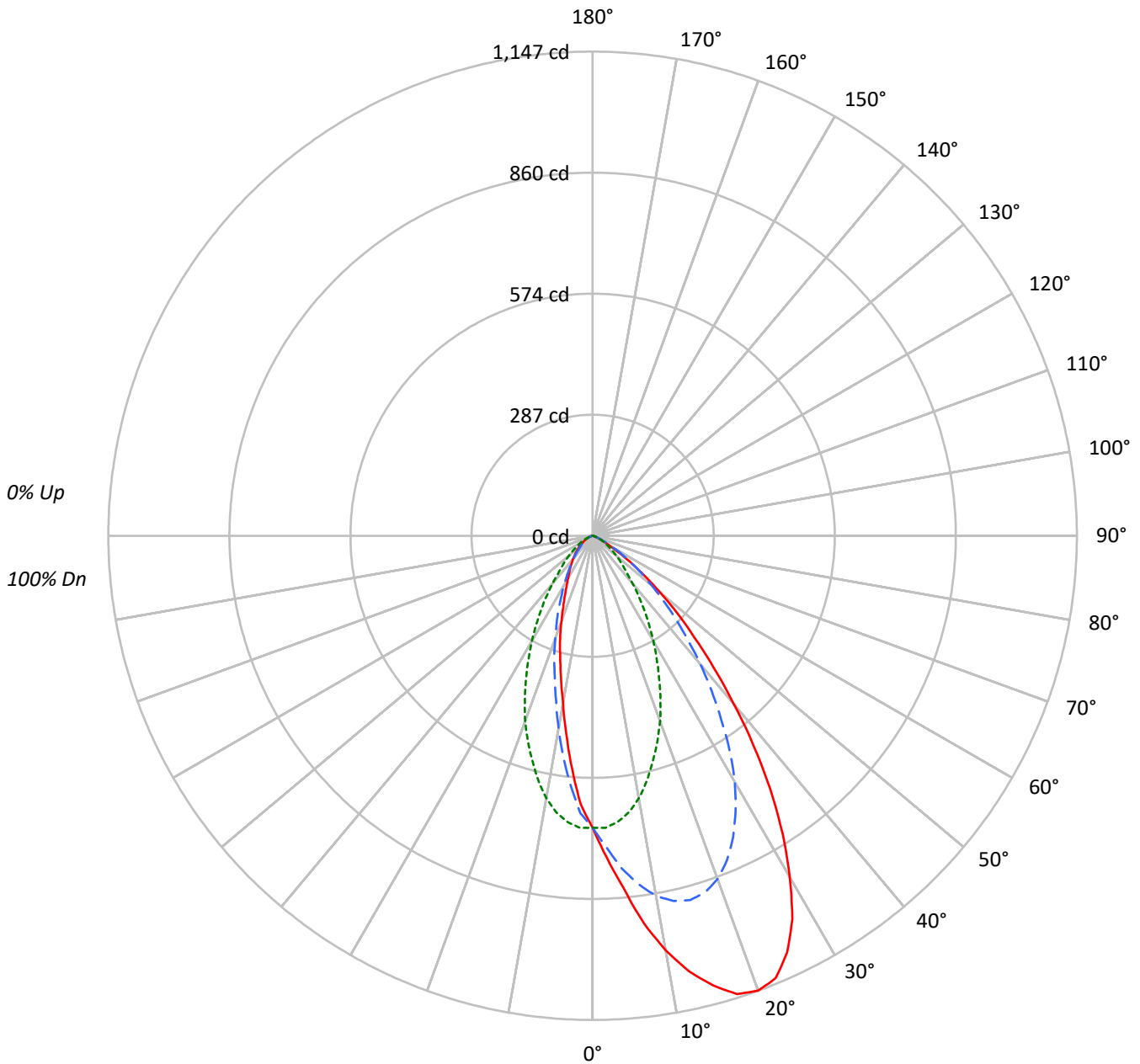
Input Watts (W): 17.6
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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	106	104	110	107	105	102	103	101	99	99	98	96	96	95	93	91					91			
2	106	100	95	91	103	98	94	90	95	91	88	92	89	86	89	87	85	83					83			
3	99	92	86	81	97	90	85	81	87	83	79	85	81	78	83	79	77	75					75			
4	93	84	78	73	91	83	77	72	81	76	71	79	74	71	77	73	70	68					68			
5	87	78	71	66	86	77	70	65	75	69	65	73	68	64	71	67	64	62					62			
6	82	72	65	60	80	71	64	60	69	64	59	68	63	59	66	62	58	57					57			
7	77	67	60	55	76	66	59	55	64	59	54	63	58	54	62	57	54	52					52			
8	73	62	55	50	72	61	55	50	60	54	50	59	54	50	58	53	50	48					48			
9	69	58	51	47	68	57	51	47	56	50	46	55	50	46	54	50	46	44					44			
10	65	54	48	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°	151633	151633	151633	151633	151633
5°	184349	174004	149813	130728	122298
10°	222018	192871	140567	103182	89778
15°	250376	202759	125290	78502	67310
20°	267587	201921	108999	60042	50241
25°	263556	190487	90271	45680	37526
30°	236543	170482	72771	34182	29346
35°	196352	142011	56403	26127	24414
40°	148850	113455	42050	19837	20381
45°	105809	86009	31972	15288	17242
50°	70343	61780	24596	12145	14328
55°	41136	42895	18504	10131	11507
60°	18814	25195	14823	8420	9210
65°	9443	13257	9962	6641	7108
70°	5257	6411	6411	4680	4103
75°	2288	2288	3050	1525	763
80°	0	568	1137	0	0
85°	0	0	0	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 10°
 Vertical Angle: 45°
 Luminance: 107236 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	65.2	7.5
10°-20°	175.1	20.2
20°-30°	225.5	26.0
30°-40°	195.4	22.6
40°-50°	122.7	14.2
50°-60°	58.8	6.8
60°-70°	19.8	2.3
70°-80°	3.3	0.4
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°	465.8	53.8
0°-40°	661.1	76.4
0°-60°	842.6	97.3
0°-90°	865.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	865.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	692	692	692	692	692	
5°	838	790	681	594	556	85
15°	1103	893	552	346	296	312
25°	1089	787	373	189	155	493
35°	734	530	211	98	91	454
45°	341	277	103	49	56	268
55°	108	112	48	26	30	100
65°	18	26	19	13	14	20
75°	3	3	4	2	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°	691.5	691.5	691.5	691.5	691.5	691.5	691.5	691.5	691.5	691.5	691.5
2.5°	762.7	753.5	755.4	750.8	743.5	732.6	725.3	714.3	704.3	692.4	671.4
5°	837.5	838.4	828.4	817.4	804.6	776.4	755.4	730.7	705.2	680.6	632.2
7.5°	925.1	919.6	906.8	879.4	851.2	813.8	776.4	737.1	698.8	660.5	587.5
10°	997.1	988.9	968.8	933.3	894.0	838.4	787.3	730.7	678.7	631.3	538.2
12.5°	1057.3	1050.0	1022.7	975.2	919.6	853.0	784.6	716.1	652.3	593.9	483.5
15°	1102.9	1092.9	1057.3	1002.6	933.3	853.0	774.5	692.4	619.4	551.9	431.5
17.5°	1138.5	1123.0	1077.4	1013.5	930.5	841.1	749.9	663.2	582.0	510.0	380.4
20°	1146.7	1133.1	1081.1	1007.2	916.8	813.8	718.0	622.2	541.0	467.1	333.9
22.5°	1134.0	1113.0	1065.5	985.3	885.8	778.2	676.9	582.9	494.5	419.6	288.3
25°	1089.3	1074.7	1023.6	940.6	841.1	733.5	628.6	529.1	449.8	373.1	250.0
27.5°	1024.5	1007.2	957.0	884.9	789.1	677.8	576.6	482.6	401.4	328.4	214.4
30°	934.2	922.3	879.4	806.5	726.2	620.4	522.7	432.4	354.0	287.4	183.4
32.5°	837.5	821.1	786.4	727.1	651.4	557.4	465.3	379.5	306.5	247.2	154.2
35°	733.5	724.4	689.7	634.9	570.2	490.8	408.7	329.3	263.6	210.7	129.5
37.5°	625.8	614.9	593.0	549.2	498.1	426.9	351.2	282.8	224.4	177.9	107.6
40°	520.0	512.7	496.3	465.3	425.1	367.6	297.4	237.2	186.1	146.9	89.4
42.5°	426.0	424.2	414.2	391.4	358.5	306.5	253.6	197.1	154.2	120.4	72.1
45°	341.2	345.8	335.7	322.0	297.4	257.3	208.9	162.4	128.6	103.1	61.1
47.5°	272.8	269.1	268.2	262.7	241.8	208.9	167.9	134.1	111.3	87.6	52.9
50°	206.2	205.3	209.8	210.7	193.4	168.8	136.8	113.1	90.3	72.1	43.8
52.5°	151.4	153.3	160.6	166.0	155.1	133.2	113.1	90.3	74.8	60.2	37.4
55°	107.6	107.6	118.6	125.0	119.5	104.9	86.7	71.2	58.4	48.4	30.1
57.5°	67.5	70.2	81.2	89.4	87.6	78.5	64.8	53.8	46.5	40.1	26.5
60°	42.9	44.7	53.8	60.2	60.2	54.7	47.4	41.1	38.3	33.8	22.8
62.5°	27.4	30.1	35.6	41.1	42.0	36.5	31.9	31.9	30.1	26.5	19.2
65°	18.2	19.2	23.7	26.5	26.5	24.6	23.7	23.7	22.8	19.2	13.7
67.5°	11.9	12.8	15.5	17.3	16.4	14.6	16.4	17.3	16.4	14.6	10.9
70°	8.2	8.2	9.1	10.9	10.0	10.0	10.9	10.9	10.9	10.0	7.3
72.5°	5.5	5.5	5.5	5.5	5.5	5.5	6.4	7.3	7.3	7.3	4.6
75°	2.7	2.7	2.7	2.7	2.7	2.7	2.7	3.6	3.6	3.6	1.8
77.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
80°	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	0.9	0.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	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	0.9	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°	691.5	691.5	691.5
2.5°	657.8	649.5	637.7
5°	593.9	568.4	555.6
7.5°	530.0	490.8	475.3
10°	463.4	419.6	403.2
12.5°	400.5	359.4	344.8
15°	345.8	308.4	296.5
17.5°	302.0	266.4	256.4
20°	257.3	225.3	215.3
22.5°	222.6	192.5	181.5
25°	188.8	161.5	155.1
27.5°	159.6	137.8	133.2
30°	135.0	119.5	115.9
32.5°	114.9	104.0	103.1
35°	97.6	90.3	91.2
37.5°	83.0	78.5	81.2
40°	69.3	69.3	71.2
42.5°	59.3	61.1	63.9
45°	49.3	53.8	55.6
47.5°	41.1	46.5	48.4
50°	35.6	40.1	42.0
52.5°	31.0	34.7	35.6
55°	26.5	30.1	30.1
57.5°	22.8	24.6	25.5
60°	19.2	21.0	21.0
62.5°	15.5	17.3	17.3
65°	12.8	13.7	13.7
67.5°	10.0	10.0	10.0
70°	7.3	7.3	6.4
72.5°	3.6	3.6	3.6
75°	1.8	0.9	0.9
77.5°	0.0	0.0	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
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report





— 0°-180° - - 45°-225° - - - 90°-270°

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