

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: P886846

Luminaire Tested: ML412LSFL95FS1E-TIR4D25AWW-TL4SWSL-1020LM-3000K

Issue Date: 7/10/2024

Test Information

Test Method: LM-79-2019
Report Number: P886846
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2402-314-58)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 7/10/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO
Catalog Number: ML412LSFL95FS1E-TIR4D25AWW-TL45WSL-1020LM-3000K
Description: 4IN SQUARE ML FLEX, SELECTABLE CCT, WITH WW TIR, METALLIC SILVER TRIM
Light Source: (1) HCL SELECTABLE LUMEN LED 95CRI / 3000K CCT
Ballast/Driver: -

Summary

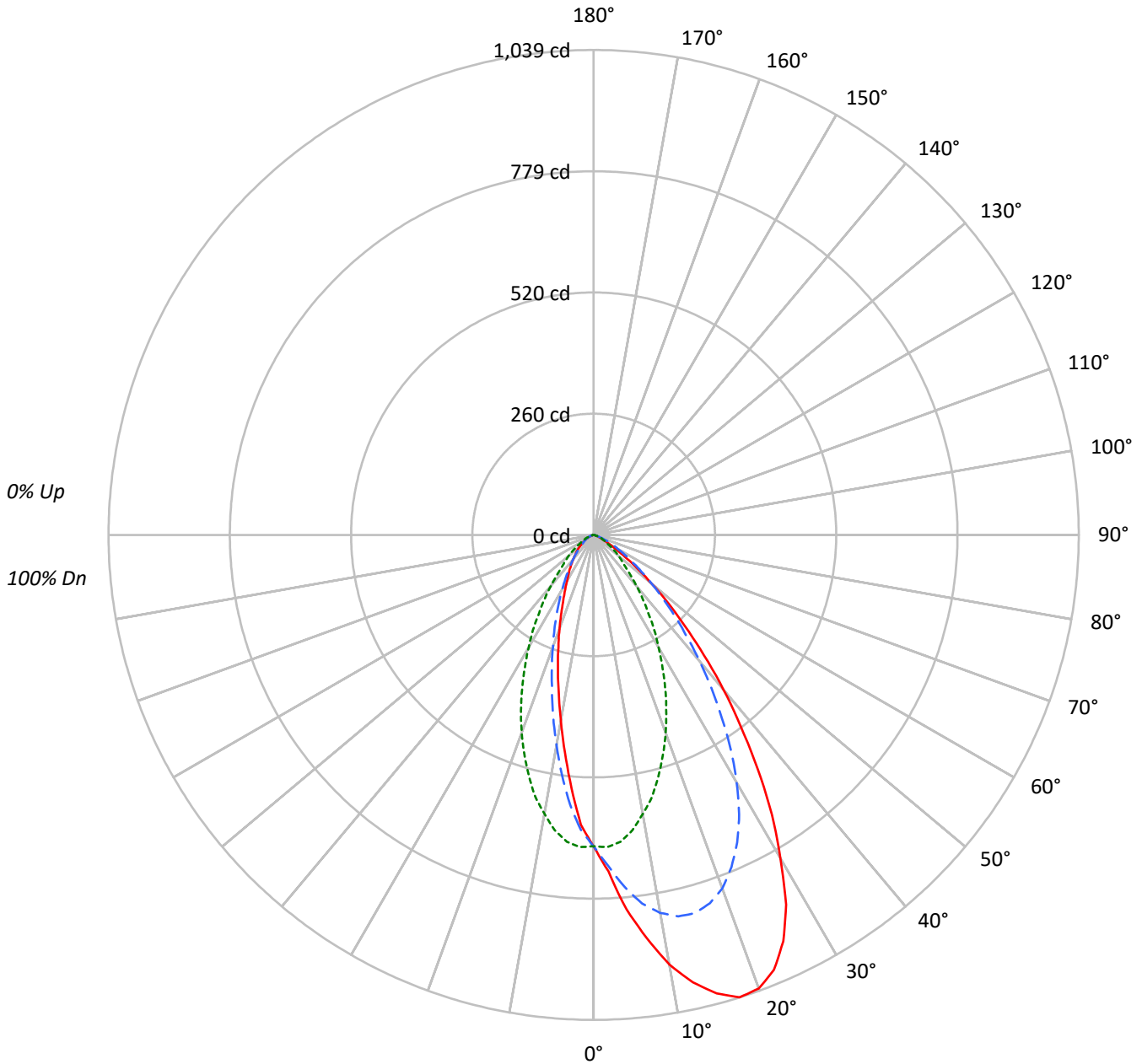
Lumens per Lamp: N/A
Luminaire Lumens: 803.0 lumens
Efficiency: N/A
Efficacy: 45.6 lumens/watt
Spacing Criteria (0/90/45): 1.08 / 0.8 / 0.97
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

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										
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								
1	113	109	106	104	110	107	105	102	103	101	99	99	98	96	96	95	93	91								
2	106	100	95	91	103	98	94	90	95	91	88	92	89	86	89	87	85	83								
3	99	92	86	81	97	90	85	81	88	83	79	85	81	78	83	79	77	75								
4	93	84	78	73	91	83	77	72	81	76	72	79	74	71	77	73	70	68								
5	87	78	71	66	86	77	70	66	75	69	65	73	68	64	71	67	64	62								
6	82	72	65	60	81	71	65	60	70	64	59	68	63	59	67	62	59	57								
7	77	67	60	55	76	66	60	55	65	59	55	63	58	54	62	58	54	52								
8	73	62	55	51	72	62	55	51	60	55	50	59	54	50	58	54	50	48								
9	69	58	52	47	68	58	51	47	57	51	47	56	50	47	55	50	46	45								
10	65	55	48	44	64	54	48	44	53	47	44	52	47	43	52	47	43	42								

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	64616	64616	64616	64616	64616
5°	78273	73610	64153	56393	52863
10°	91956	80885	59661	44985	39751
15°	101998	84126	53707	34541	29606
20°	106598	83108	46484	26278	22031
25°	102679	77763	38705	19999	16376
30°	89411	68527	31131	15068	12719
35°	72401	56607	24031	11259	10490
40°	54669	44622	18059	8675	8561
45°	37785	33593	13043	6631	7179
50°	24069	24370	10459	5109	5833
55°	13765	16898	7769	4358	4763
60°	6878	11644	5774	3759	3759
65°	3874	7679	4630	3140	2957
70°	2294	4220	2974	2521	2068
75°	1497	2096	1797	1497	599
80°	446	893	446	0	0
85°	0	0	889	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 10°
 Vertical Angle: 45°
 Luminance: 38128 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	62.9	7.8
10°-20°	166.7	20.8
20°-30°	209.5	26.1
30°-40°	176.9	22.0
40°-50°	108.5	13.5
50°-60°	52.8	6.6
60°-70°	20.6	2.6
70°-80°	5.0	0.6
80°-90°	0.2	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°	439.0	54.7
0°-40°	616.0	76.7
0°-60°	777.2	96.8
0°-90°	803.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	803.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	667	667	667	667	667	
5°	805	757	660	580	544	80
15°	1017	839	536	344	295	287
25°	961	728	362	187	153	434
35°	612	479	203	95	89	381
45°	276	245	95	48	52	218
55°	82	100	46	26	28	77
65°	17	34	20	14	13	18
75°	4	6	5	4	2	4
85°	0	0	1	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°	667.0	667.0	667.0	667.0	667.0	667.0	667.0	667.0	667.0	667.0	667.0
2.5°	721.0	727.5	722.7	722.7	713.0	706.5	696.8	688.8	679.9	669.4	649.3
5°	804.9	800.1	791.2	782.3	766.2	747.7	727.5	703.3	682.3	659.7	613.8
7.5°	871.1	867.8	858.2	838.8	813.0	779.9	745.2	708.9	673.5	638.0	573.4
10°	934.8	925.9	911.4	881.5	844.4	800.1	751.7	704.1	654.9	606.5	526.7
12.5°	981.6	971.9	950.9	913.0	866.2	808.1	748.5	689.6	627.5	575.9	476.7
15°	1017.0	1009.8	979.9	934.0	873.5	804.1	734.8	665.4	597.6	535.5	425.9
17.5°	1038.8	1027.5	992.8	936.4	866.2	788.8	710.6	634.7	563.0	493.6	377.5
20°	1034.0	1023.5	987.2	924.3	847.7	764.6	679.1	595.2	519.4	450.9	331.5
22.5°	1009.0	1000.9	960.6	893.6	814.6	726.7	638.8	552.5	475.0	406.5	287.9
25°	960.6	947.7	909.0	850.1	772.7	682.3	589.6	508.1	429.1	362.1	246.0
27.5°	892.8	876.7	842.8	790.4	716.2	633.1	540.4	458.1	384.7	318.6	211.3
30°	799.3	794.4	760.6	720.2	650.9	574.3	491.2	407.3	338.7	278.3	179.9
32.5°	710.6	700.9	677.5	636.4	582.3	512.1	434.7	362.9	299.2	242.0	152.4
35°	612.2	608.1	584.7	558.1	509.7	447.6	382.3	317.8	254.9	203.2	129.0
37.5°	517.0	516.2	496.8	481.5	437.9	390.4	328.3	267.8	217.0	172.6	106.5
40°	432.3	427.5	416.2	399.2	372.6	333.1	278.3	225.0	180.7	142.8	87.9
42.5°	350.0	347.6	342.0	331.5	310.5	278.3	234.7	187.9	147.6	116.9	71.8
45°	275.8	278.3	278.3	271.8	258.1	232.3	193.6	153.2	120.2	95.2	58.9
47.5°	217.0	215.3	218.6	217.0	211.3	189.5	156.5	122.6	100.8	81.5	50.0
50°	159.7	165.3	168.6	175.0	170.2	153.2	124.2	101.6	84.7	69.4	42.7
52.5°	117.8	120.2	128.2	140.3	137.1	121.0	100.0	85.5	70.2	57.3	36.3
55°	81.5	83.9	96.0	107.3	105.7	94.4	81.5	69.4	56.5	46.0	29.8
57.5°	53.2	55.7	66.1	82.3	82.3	75.0	66.1	54.8	44.4	36.3	25.0
60°	35.5	37.1	46.0	58.1	60.5	59.7	52.4	41.1	34.7	29.8	21.0
62.5°	23.4	25.0	32.3	41.1	46.0	46.0	38.7	31.5	28.2	25.0	17.7
65°	16.9	17.7	22.6	27.4	33.1	33.9	28.2	25.0	22.6	20.2	15.3
67.5°	12.1	12.1	16.1	19.4	23.4	22.6	21.0	18.6	16.9	14.5	12.1
70°	8.1	8.9	10.5	12.9	15.3	14.5	14.5	13.7	12.1	10.5	8.9
72.5°	5.6	6.5	7.3	8.9	9.7	9.7	9.7	8.9	8.1	7.3	6.5
75°	4.0	4.0	4.0	4.8	5.6	5.6	6.5	5.6	4.8	4.8	4.0
77.5°	2.4	2.4	2.4	2.4	3.2	3.2	3.2	2.4	2.4	1.6	2.4
80°	0.8	0.8	0.8	1.6	1.6	1.6	1.6	0.8	0.8	0.8	0.8
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.8	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°	667.0	667.0	667.0
2.5°	632.3	622.6	621.8
5°	579.9	556.5	543.6
7.5°	518.6	485.5	470.2
10°	457.3	417.8	404.1
12.5°	400.0	358.1	345.2
15°	344.4	304.1	295.2
17.5°	297.6	260.5	251.6
20°	254.9	223.4	213.7
22.5°	219.4	189.5	179.9
25°	187.1	161.3	153.2
27.5°	159.7	137.1	132.3
30°	134.7	116.9	113.7
32.5°	112.9	100.8	100.0
35°	95.2	86.3	88.7
37.5°	82.3	75.0	77.4
40°	68.6	65.3	67.7
42.5°	58.1	56.5	59.7
45°	48.4	50.0	52.4
47.5°	41.1	44.4	46.0
50°	33.9	38.7	38.7
52.5°	29.0	33.9	33.1
55°	25.8	29.0	28.2
57.5°	22.6	24.2	23.4
60°	19.4	20.2	19.4
62.5°	16.1	16.9	16.1
65°	13.7	13.7	12.9
67.5°	11.3	10.5	10.5
70°	8.9	8.1	7.3
72.5°	6.5	5.6	4.0
75°	4.0	3.2	1.6
77.5°	1.6	0.8	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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