

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: P886847

Luminaire Tested: ML412LSFL95FS1E-TIR4D25AWW-TL4SWSL-1020LM-3500K

Issue Date: 7/10/2024

Test Information

Test Method: LM-79-2019
Report Number: P886847
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-3500K
Description: 4IN SQUARE ML FLEX, SELECTABLE CCT, WITH WW TIR, METALLIC SILVER TRIM
Light Source: (1) HCL SELECTABLE LUMEN LED 95CRI / 3500K CCT
Ballast/Driver: -

Summary

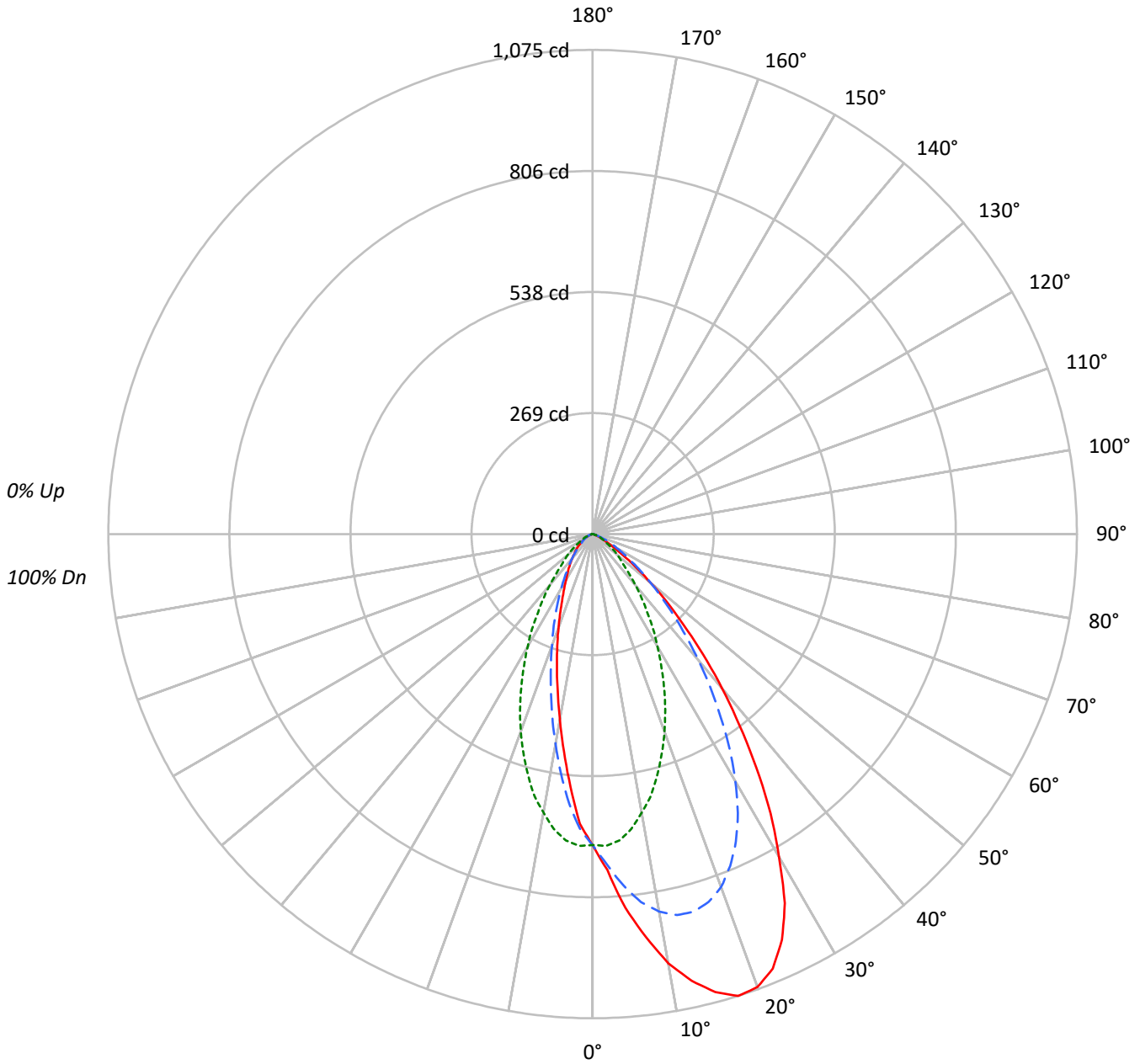
Lumens per Lamp: N/A
Luminaire Lumens: 831.1 lumens
Efficiency: N/A
Efficacy: 47.2 lumens/watt
Spacing Criteria (0/90/45): 1.08 / 0.8 / 0.97
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

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					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	88	83	79	85	81	78	83	79	77	75					75			
4	93	84	78	73	91	83	77	72	81	76	72	79	74	71	77	73	70	68					68			
5	87	78	71	66	86	77	70	66	75	69	65	73	68	64	71	67	64	62					62			
6	82	72	65	60	81	71	65	60	70	64	59	68	63	59	67	62	59	57					57			
7	77	67	60	55	76	66	60	55	65	59	55	63	58	54	62	58	54	52					52			
8	73	62	55	51	72	62	55	51	60	55	50	59	54	50	58	54	50	48					48			
9	69	58	52	47	68	58	51	47	57	51	47	56	50	47	55	50	46	45					45			
10	65	55	48	44	64	54	48	44	53	47	44	52	47	43	52	47	43	42					42			

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	66873	66873	66873	66873	66873
5°	81005	76172	66399	58357	54710
10°	95163	83708	61747	46558	41138
15°	105558	87064	55582	35744	30639
20°	110319	86005	48103	27196	22804
25°	106260	80472	40062	20694	16953
30°	92532	70915	32216	15594	13166
35°	74920	58582	24871	11649	10857
40°	56579	46178	18678	8966	8865
45°	39114	34764	13495	6864	7439
50°	24913	25222	10821	5290	6044
55°	14238	17481	8040	4510	4932
60°	7111	12051	5987	3875	3875
65°	4011	7943	4791	3255	3072
70°	2351	4376	3087	2606	2124
75°	1572	2171	1871	1572	636
80°	446	948	446	0	0
85°	0	0	889	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 10°
 Vertical Angle: 45°
 Luminance: 39457 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	65.1	7.8
10°-20°	172.5	20.8
20°-30°	216.8	26.1
30°-40°	183.1	22.0
40°-50°	112.3	13.5
50°-60°	54.6	6.6
60°-70°	21.3	2.6
70°-80°	5.2	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°	454.4	54.7
0°-40°	637.5	76.7
0°-60°	804.4	96.8
0°-90°	831.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	831.1	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	690	690	690	690	690	
5°	833	783	683	600	563	83
15°	1052	868	554	356	306	297
25°	994	753	375	194	159	449
35°	634	495	210	98	92	394
45°	286	254	98	50	54	225
55°	84	104	48	27	29	80
65°	18	35	21	14	13	19
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°	690.3	690.3	690.3	690.3	690.3	690.3	690.3	690.3	690.3	690.3	690.3
2.5°	746.2	752.9	747.9	747.9	737.9	731.2	721.2	712.8	703.6	692.8	671.9
5°	833.0	828.0	818.8	809.6	792.9	773.7	752.9	727.8	706.1	682.8	635.2
7.5°	901.5	898.1	888.1	868.1	841.4	807.1	771.2	733.7	697.0	660.2	593.5
10°	967.4	958.2	943.2	912.3	873.9	828.0	777.9	728.7	677.8	627.7	545.0
12.5°	1015.8	1005.8	984.1	944.9	896.4	836.3	774.6	713.6	649.4	596.0	493.3
15°	1052.5	1045.0	1014.1	966.6	904.0	832.2	760.4	688.6	618.5	554.2	440.7
17.5°	1075.1	1063.4	1027.5	969.1	896.4	816.3	735.4	656.9	582.6	510.8	390.6
20°	1070.1	1059.2	1021.6	956.5	877.2	791.3	702.8	616.0	537.5	466.6	343.1
22.5°	1044.2	1035.8	994.1	924.8	843.0	752.0	661.1	571.8	491.6	420.7	298.0
25°	994.1	980.7	940.7	879.8	799.6	706.1	610.1	525.8	444.0	374.8	254.6
27.5°	924.0	907.3	872.2	818.0	741.2	655.2	559.2	474.1	398.1	329.7	218.7
30°	827.2	822.2	787.1	745.4	673.6	594.3	508.3	421.5	350.6	288.0	186.1
32.5°	735.4	725.3	701.1	658.6	602.6	530.0	449.9	375.6	309.7	250.4	157.8
35°	633.5	629.3	605.1	577.6	527.5	463.2	395.6	328.9	263.8	210.3	133.5
37.5°	535.0	534.2	514.2	498.3	453.2	404.0	339.7	277.1	224.5	178.6	110.2
40°	447.4	442.4	430.7	413.2	385.6	344.7	288.0	232.9	187.0	147.7	91.0
42.5°	362.3	359.7	353.9	343.1	321.4	288.0	242.9	194.5	152.7	121.0	74.3
45°	285.5	288.0	288.0	281.3	267.1	240.4	200.3	158.6	124.4	98.5	60.9
47.5°	224.5	222.9	226.2	224.5	218.7	196.1	161.9	126.9	104.3	84.3	51.8
50°	165.3	171.1	174.4	181.1	176.1	158.6	128.5	105.2	87.6	71.8	44.2
52.5°	121.9	124.4	132.7	145.2	141.9	125.2	103.5	88.5	72.6	59.3	37.6
55°	84.3	86.8	99.3	111.0	109.3	97.7	84.3	71.8	58.4	47.6	30.9
57.5°	55.1	57.6	68.4	85.1	85.1	77.6	68.4	56.8	45.9	37.6	25.9
60°	36.7	38.4	47.6	60.1	62.6	61.8	54.3	42.6	35.9	30.9	21.7
62.5°	24.2	25.9	33.4	42.6	47.6	47.6	40.1	32.6	29.2	25.9	18.4
65°	17.5	18.4	23.4	28.4	34.2	35.1	29.2	25.9	23.4	20.9	15.9
67.5°	12.5	12.5	16.7	20.0	24.2	23.4	21.7	19.2	17.5	15.0	12.5
70°	8.3	9.2	10.9	13.4	15.9	15.0	15.0	14.2	12.5	10.9	9.2
72.5°	5.8	6.7	7.5	9.2	10.0	10.0	10.0	9.2	8.3	7.5	6.7
75°	4.2	4.2	4.2	5.0	5.8	5.8	6.7	5.8	5.0	5.0	4.2
77.5°	2.5	2.5	2.5	2.5	3.3	3.3	3.3	2.5	2.5	1.7	2.5
80°	0.8	0.8	0.8	1.7	1.7	1.7	1.7	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°	690.3	690.3	690.3
2.5°	654.4	644.4	643.5
5°	600.1	575.9	562.6
7.5°	536.7	502.5	486.6
10°	473.3	432.4	418.2
12.5°	414.0	370.6	357.2
15°	356.4	314.7	305.5
17.5°	308.0	269.6	260.4
20°	263.8	231.2	221.2
22.5°	227.0	196.1	186.1
25°	193.6	166.9	158.6
27.5°	165.3	141.9	136.9
30°	139.4	121.0	117.7
32.5°	116.9	104.3	103.5
35°	98.5	89.3	91.8
37.5°	85.1	77.6	80.1
40°	70.9	67.6	70.1
42.5°	60.1	58.4	61.8
45°	50.1	51.8	54.3
47.5°	42.6	45.9	47.6
50°	35.1	40.1	40.1
52.5°	30.0	35.1	34.2
55°	26.7	30.0	29.2
57.5°	23.4	25.0	24.2
60°	20.0	20.9	20.0
62.5°	16.7	17.5	16.7
65°	14.2	14.2	13.4
67.5°	11.7	10.9	10.9
70°	9.2	8.3	7.5
72.5°	6.7	5.8	4.2
75°	4.2	3.3	1.7
77.5°	1.7	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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