

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: P886837

Luminaire Tested: ML412LSFL95FS1E-TIR4D25AWW-TL4SWMB-1020LM-3500K

Issue Date: 7/10/2024

Test Information

Test Method: LM-79-2019
Report Number: P886837
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-3500K
Description: 4IN SQUARE ML FLEX, SELECTABLE CCT, WITH WW TIR, MATTE BLACK TRIM
Light Source: (1) HCL SELECTABLE LUMEN LED 95CRI / 3500K CCT
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 795.0 lumens
Efficiency: N/A
Efficacy: 45.2 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

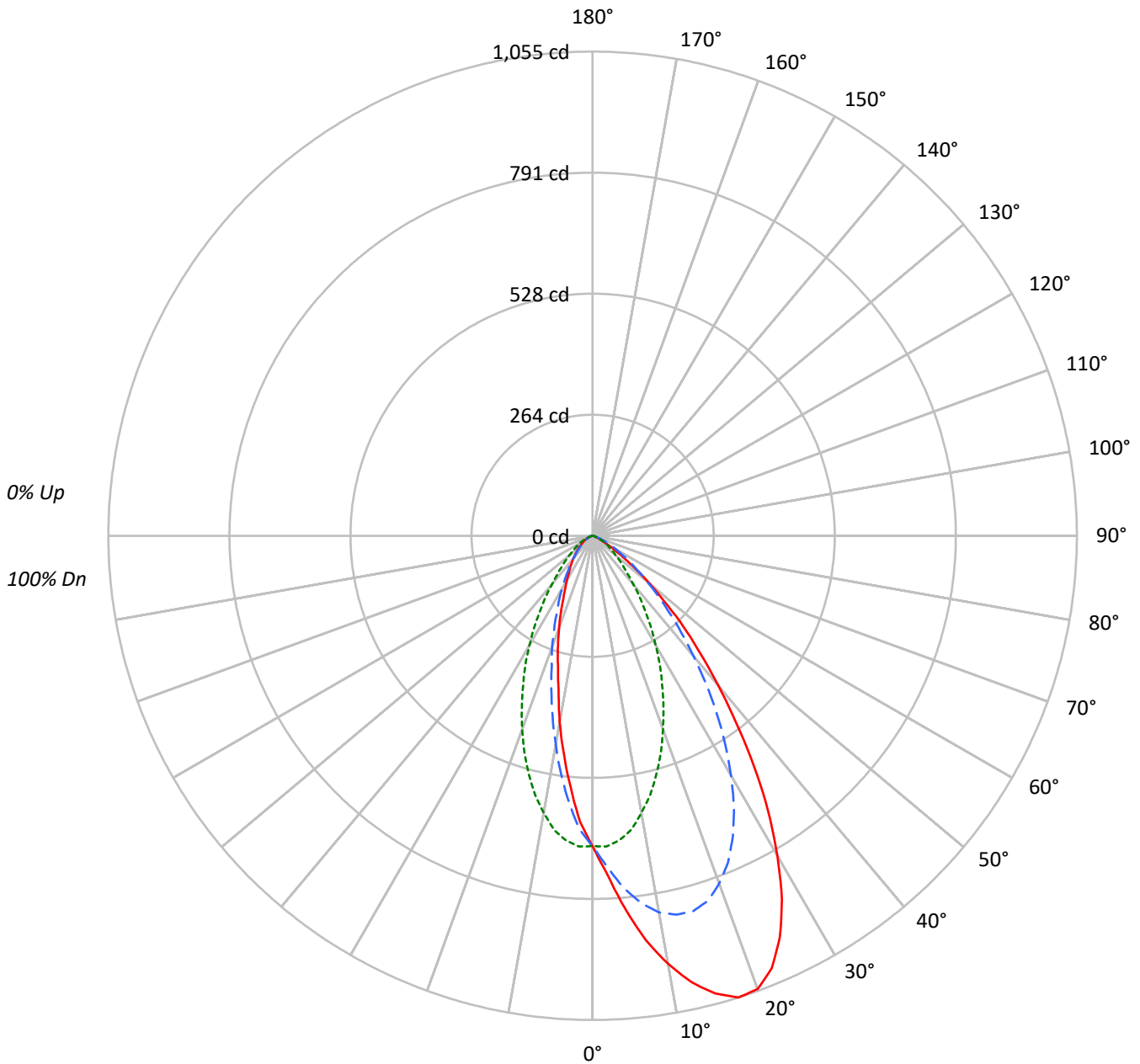
Input Watts (W): 17.6
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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	82	97	90	85	81	88	83	80	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°	65497	65497	65497	65497	65497
5°	79381	74840	64775	56898	53495
10°	93196	81981	60271	45486	40558
15°	103552	84883	53907	34822	29296
20°	108340	83165	46206	26588	22031
25°	103138	77217	38277	19625	16055
30°	90004	67458	30717	14844	12506
35°	72460	55672	23499	11058	10064
40°	53734	43124	17414	8334	8334
45°	38306	32305	13043	6288	6741
50°	24400	23210	9811	4913	5667
55°	13529	16282	7617	4087	4510
60°	6316	11247	6142	3236	3565
65°	3438	7370	4218	2865	2865
70°	1898	4022	2832	2351	1898
75°	936	1871	1235	1235	299
80°	0	446	446	0	0
85°	0	0	0	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 38306 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	63.7	8.0
10°-20°	167.9	21.1
20°-30°	208.8	26.3
30°-40°	173.9	21.9
40°-50°	105.8	13.3
50°-60°	51.0	6.4
60°-70°	19.7	2.5
70°-80°	4.2	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°	440.3	55.4
0°-40°	614.2	77.3
0°-60°	771.0	97.0
0°-90°	795.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	795.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	676	676	676	676	676	
5°	816	770	666	585	550	82
15°	1032	846	538	347	292	291
25°	965	722	358	184	150	437
35°	613	471	199	94	85	380
45°	280	236	95	46	49	216
55°	80	96	45	24	27	76
65°	15	32	18	12	12	16
75°	2	5	3	3	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°	676.1	676.1	676.1	676.1	676.1	676.1	676.1	676.1	676.1	676.1	676.1
2.5°	738.7	739.5	739.5	731.2	726.2	717.0	707.8	698.6	686.1	677.8	657.7
5°	816.3	811.3	807.1	795.4	779.6	759.6	736.2	712.0	688.6	666.1	618.5
7.5°	888.9	882.3	873.1	848.9	823.0	790.4	753.7	715.3	677.8	646.0	579.3
10°	947.4	940.7	923.2	894.8	855.5	811.3	759.6	710.3	661.9	612.7	530.0
12.5°	996.6	986.6	965.7	927.3	873.9	817.2	755.4	694.5	632.7	578.4	476.6
15°	1032.5	1020.0	993.3	943.2	880.6	812.1	738.7	668.6	599.3	537.5	427.4
17.5°	1055.0	1040.0	1003.3	946.5	873.9	794.6	712.8	632.7	563.4	494.1	379.8
20°	1050.9	1032.5	994.9	931.5	849.7	763.7	676.9	596.0	516.7	448.2	331.4
22.5°	1020.0	1005.0	964.1	899.8	816.3	724.5	636.0	551.7	474.1	403.1	287.1
25°	964.9	951.5	913.1	849.7	768.7	676.1	583.4	501.6	425.7	358.1	247.1
27.5°	893.1	882.3	842.2	784.6	709.5	623.5	532.5	454.1	379.8	317.2	211.2
30°	804.6	794.6	758.7	711.1	642.7	563.4	480.8	405.7	334.7	274.6	177.8
32.5°	712.0	700.3	677.8	627.7	574.3	500.0	428.2	354.7	288.0	236.2	150.2
35°	612.7	601.8	584.3	545.9	501.6	439.9	373.1	306.3	247.1	198.7	125.2
37.5°	513.3	510.8	495.8	469.1	429.9	378.9	317.2	262.1	208.7	167.8	103.5
40°	424.9	425.7	412.3	393.1	362.3	319.7	272.9	219.5	173.6	137.7	85.1
42.5°	346.4	346.4	337.2	324.7	303.8	267.9	227.9	183.6	142.7	112.7	69.3
45°	279.6	270.4	272.1	263.8	249.6	222.0	184.5	145.2	118.5	95.2	57.6
47.5°	211.2	214.5	217.0	216.2	203.7	180.3	149.4	121.0	101.0	80.1	49.2
50°	161.9	161.9	166.9	170.3	163.6	144.4	120.2	101.0	81.8	65.1	40.9
52.5°	114.4	119.4	126.9	136.1	129.4	116.0	100.2	81.0	68.4	54.3	34.2
55°	80.1	82.6	93.5	103.5	101.0	91.8	78.5	65.9	54.3	45.1	28.4
57.5°	50.9	52.6	66.8	77.6	78.5	72.6	62.6	52.6	44.2	38.4	24.2
60°	32.6	35.9	44.2	56.8	59.3	56.8	49.2	41.7	37.6	31.7	20.9
62.5°	21.7	24.2	30.9	38.4	44.2	44.2	36.7	34.2	29.2	25.0	18.4
65°	15.0	16.7	20.9	26.7	32.6	31.7	29.2	25.9	22.5	18.4	14.2
67.5°	10.0	11.7	14.2	18.4	21.7	22.5	20.9	18.4	15.9	14.2	10.9
70°	6.7	7.5	9.2	12.5	14.2	14.2	14.2	12.5	10.9	10.0	7.5
72.5°	4.2	5.0	5.8	7.5	8.3	9.2	8.3	8.3	7.5	6.7	5.0
75°	2.5	3.3	3.3	4.2	5.0	5.0	5.0	4.2	4.2	3.3	3.3
77.5°	1.7	1.7	1.7	1.7	1.7	2.5	2.5	1.7	1.7	0.8	1.7
80°	0.0	0.8	0.8	0.8	0.8	0.8	0.8	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	0.0	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°	676.1	676.1	676.1
2.5°	641.0	631.9	624.3
5°	585.1	561.7	550.1
7.5°	525.0	491.6	479.9
10°	462.4	420.7	412.3
12.5°	403.1	360.6	342.2
15°	347.2	304.7	292.1
17.5°	296.3	262.1	251.2
20°	257.9	225.4	213.7
22.5°	218.7	188.6	180.3
25°	183.6	159.4	150.2
27.5°	157.8	134.4	129.4
30°	132.7	114.4	111.8
32.5°	111.8	98.5	96.0
35°	93.5	84.3	85.1
37.5°	79.3	72.6	74.3
40°	65.9	63.4	65.9
42.5°	55.1	55.9	57.6
45°	45.9	49.2	49.2
47.5°	38.4	42.6	43.4
50°	32.6	36.7	37.6
52.5°	28.4	31.7	31.7
55°	24.2	26.7	26.7
57.5°	20.9	22.5	22.5
60°	16.7	18.4	18.4
62.5°	14.2	15.0	15.0
65°	12.5	12.5	12.5
67.5°	10.0	10.0	9.2
70°	8.3	7.5	6.7
72.5°	5.8	5.0	3.3
75°	3.3	2.5	0.8
77.5°	0.8	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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