

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: P886843

Luminaire Tested: ML412LSFL95FS1E-TIR4D25AWW-TL4SWMW-1020LM-4000K

Issue Date: 7/10/2024

Test Information

Test Method: LM-79-2019
Report Number: P886843
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2402-314-57)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 7/10/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO
Catalog Number: ML412LSFL95FS1E-TIR4D25AWW-TL45WMW-1020LM-4000K
Description: 4IN SQUARE ML FLEX, SELECTABLE CCT, WITH WW TIR, MATTE WHITE TRIM
Light Source: (1) HCL SELECTABLE LUMEN LED 95CRI / 4000K CCT
Ballast/Driver: -

Summary

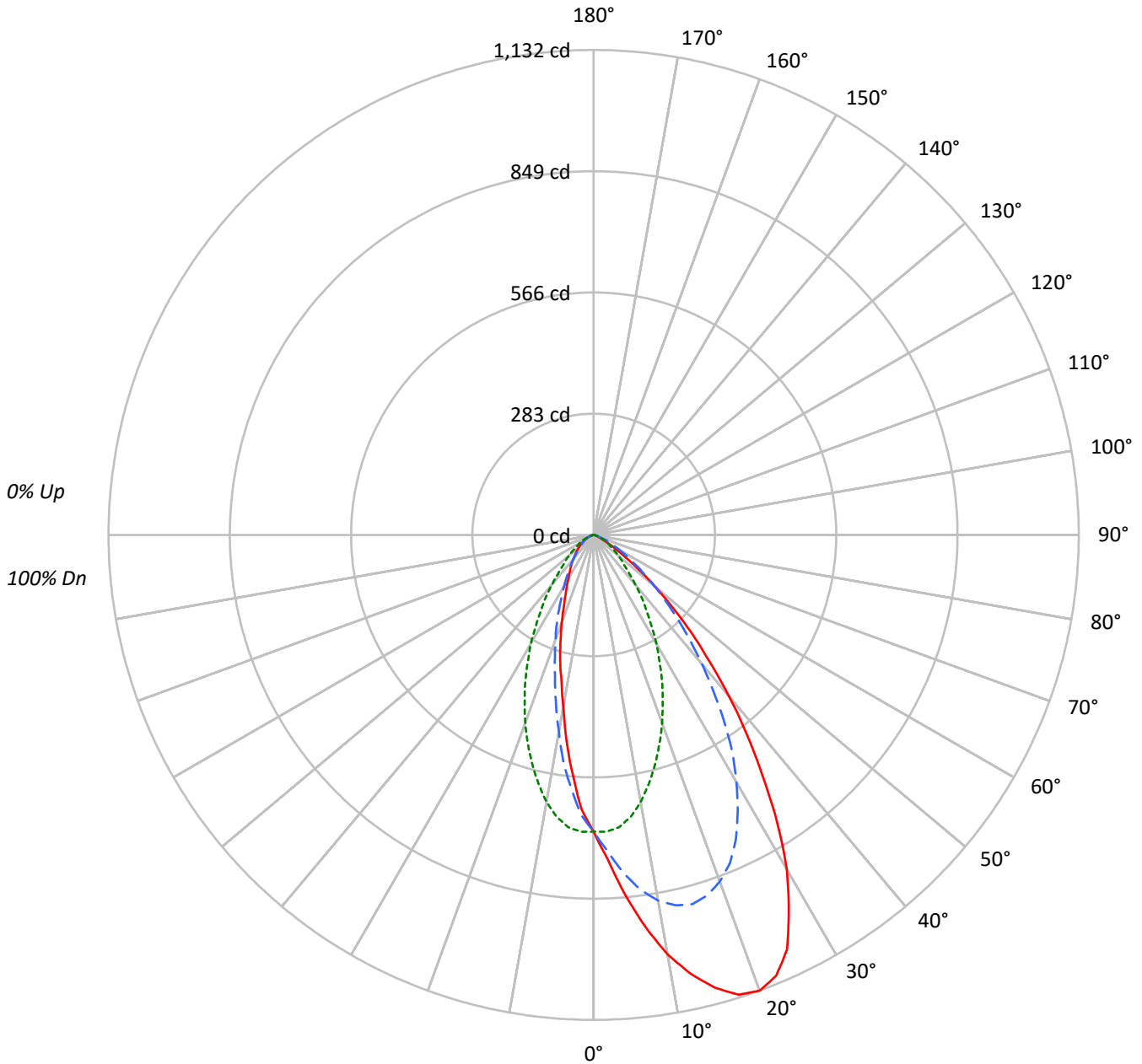
Lumens per Lamp: N/A
Luminaire Lumens: 872.0 lumens
Efficiency: N/A
Efficacy: 49.5 lumens/watt
Spacing Criteria (0/90/45): 1.12 / 0.8 / 0.99
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

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	112	109	106	104	110	107	104	102	103	101	99	99	97	96	96	94	93	91					91			
2	105	100	95	91	103	98	93	90	95	91	88	91	88	86	89	86	84	82					82			
3	99	91	85	81	97	90	84	80	87	82	79	84	81	77	82	79	76	74					74			
4	93	84	77	72	91	82	76	72	80	75	71	78	74	70	76	72	69	67					67			
5	87	77	70	65	85	76	70	65	74	69	64	72	68	64	71	66	63	61					61			
6	82	71	64	59	80	70	64	59	69	63	59	67	62	58	66	61	58	56					56			
7	77	66	59	54	75	65	59	54	64	58	54	63	57	53	62	57	53	52					52			
8	73	62	55	50	71	61	54	50	60	54	50	59	53	49	58	53	49	48					48			
9	69	57	51	46	67	57	50	46	56	50	46	55	50	46	54	49	46	44					44			
10	65	54	47	43	64	53	47	43	53	47	43	52	46	43	51	46	42	41					41			

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	67086	67086	67086	67086	67086
5°	81988	76941	66584	57919	54545
10°	97760	85238	62248	45978	40027
15°	109740	89466	55562	34902	30298
20°	116732	88747	48103	26773	22402
25°	114084	83920	40340	20352	16653
30°	100799	74517	32731	15392	13166
35°	81389	62656	25285	11767	11058
40°	62181	49592	19159	9194	9308
45°	44115	37833	13988	7234	7946
50°	27912	27723	11213	5742	6646
55°	15201	19440	8918	5118	5709
60°	7053	13417	7208	4689	4863
65°	3759	8837	5547	3966	3759
70°	2464	5028	4164	3682	2691
75°	1609	2751	2920	2283	1310
80°	502	1450	948	1450	948
85°	0	1000	1000	1000	1000

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 44115 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	65.4	7.5
10°-20°	175.0	20.1
20°-30°	224.1	25.7
30°-40°	193.4	22.2
40°-50°	121.3	13.9
50°-60°	60.1	6.9
60°-70°	24.4	2.8
70°-80°	7.3	0.8
80°-90°	1.0	0.1
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°	464.5	53.3
0°-40°	657.9	75.5
0°-60°	839.4	96.3
0°-90°	872.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	872.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	692	692	692	692	692	
5°	843	791	685	596	561	85
15°	1094	892	554	348	302	309
25°	1067	785	377	190	156	481
35°	688	530	214	100	94	430
45°	322	276	102	53	58	250
55°	90	115	53	30	34	86
65°	16	39	24	17	16	18
75°	4	7	8	6	4	5
85°	0	1	1	1	1	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°	692.5	692.5	692.5	692.5	692.5	692.5	692.5	692.5	692.5	692.5	692.5
2.5°	758.3	762.6	751.4	751.4	742.7	734.9	727.1	715.0	704.6	693.4	671.7
5°	843.1	839.7	829.3	820.6	803.3	779.1	759.2	734.1	707.2	684.7	634.5
7.5°	922.8	918.4	900.3	882.1	853.5	816.3	779.1	738.4	697.7	663.1	589.5
10°	993.8	986.8	965.2	931.4	891.6	841.4	788.6	731.5	679.5	632.8	540.2
12.5°	1050.0	1040.5	1015.4	971.2	917.6	853.5	787.7	717.6	652.7	594.7	487.4
15°	1094.2	1085.5	1050.0	998.1	929.7	854.4	773.9	696.0	619.8	554.0	436.3
17.5°	1125.3	1113.2	1069.1	1005.9	925.4	837.9	750.5	663.1	582.6	510.7	387.8
20°	1132.3	1116.7	1069.1	998.9	908.9	812.8	719.3	624.1	540.2	466.6	339.3
22.5°	1113.2	1096.8	1048.3	973.0	882.1	777.3	677.8	579.1	494.3	420.7	294.3
25°	1067.3	1049.2	1003.3	930.6	837.9	732.3	627.6	537.6	452.7	377.4	251.9
27.5°	986.0	977.3	935.8	867.4	779.1	676.9	573.9	486.5	401.7	332.4	216.4
30°	901.1	892.5	857.0	797.3	714.2	618.1	523.7	435.4	355.8	292.6	184.4
32.5°	798.1	787.7	762.6	710.7	644.0	560.1	465.7	384.3	312.5	250.2	158.4
35°	688.2	688.2	666.5	625.9	567.9	491.7	410.3	335.0	269.2	213.8	131.6
37.5°	586.9	589.5	571.3	534.1	487.4	427.6	353.2	285.7	228.5	183.5	110.8
40°	491.7	485.6	476.1	454.5	416.4	367.9	302.1	244.1	193.0	151.5	92.6
42.5°	397.3	401.7	390.4	378.3	351.4	310.8	258.0	206.0	158.4	123.8	76.2
45°	322.0	320.3	316.8	308.2	294.3	258.0	213.8	166.2	129.8	102.1	63.2
47.5°	247.6	250.2	249.3	249.3	239.8	213.8	174.9	134.2	109.1	89.2	54.5
50°	185.2	192.2	196.5	200.0	193.9	174.0	135.9	110.8	92.6	74.4	46.7
52.5°	133.3	136.8	148.9	162.7	156.7	136.8	111.7	92.6	76.2	62.3	39.8
55°	90.0	97.0	109.9	123.8	122.9	107.3	90.9	75.3	64.1	52.8	33.8
57.5°	57.1	60.6	76.2	92.6	92.6	84.8	72.7	63.2	50.2	42.4	28.6
60°	36.4	39.0	50.2	65.8	71.0	67.5	58.9	47.6	42.4	37.2	26.0
62.5°	24.2	25.1	33.8	45.0	51.9	51.9	44.1	39.0	34.6	30.3	22.5
65°	16.4	17.3	22.5	30.3	38.1	39.0	33.8	30.3	27.7	24.2	19.0
67.5°	11.3	12.1	15.6	20.8	25.1	26.8	26.0	24.2	21.6	18.2	14.7
70°	8.7	8.7	10.4	13.9	17.3	18.2	18.2	18.2	16.4	14.7	12.1
72.5°	6.1	6.9	6.9	9.5	11.3	12.1	13.0	13.0	12.1	11.3	9.5
75°	4.3	4.3	5.2	6.1	6.9	7.8	8.7	8.7	8.7	7.8	6.9
77.5°	2.6	2.6	3.5	3.5	4.3	5.2	5.2	5.2	4.3	4.3	4.3
80°	0.9	0.9	1.7	1.7	2.6	2.6	2.6	2.6	1.7	1.7	2.6
82.5°	0.0	0.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.7
85°	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9
87.5°	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	0.9	0.9
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°	692.5	692.5	692.5
2.5°	655.3	643.2	641.4
5°	595.6	575.7	560.9
7.5°	536.7	497.7	485.6
10°	467.4	425.9	406.9
12.5°	406.0	361.8	347.1
15°	348.0	309.9	302.1
17.5°	301.2	266.6	255.4
20°	259.7	226.8	217.3
22.5°	225.1	192.2	181.8
25°	190.4	163.6	155.8
27.5°	161.9	139.4	135.0
30°	137.6	119.5	117.7
32.5°	117.7	103.9	104.7
35°	99.5	90.9	93.5
37.5°	86.6	80.5	83.1
40°	72.7	71.0	73.6
42.5°	62.3	63.2	65.8
45°	52.8	56.3	58.0
47.5°	45.0	50.2	51.1
50°	38.1	44.1	44.1
52.5°	33.8	39.0	39.0
55°	30.3	33.8	33.8
57.5°	27.7	29.4	29.4
60°	24.2	24.2	25.1
62.5°	19.9	20.8	20.8
65°	17.3	17.3	16.4
67.5°	14.7	14.7	13.0
70°	13.0	12.1	9.5
72.5°	9.5	8.7	6.1
75°	6.1	5.2	3.5
77.5°	3.5	2.6	1.7
80°	2.6	1.7	1.7
82.5°	1.7	1.7	0.9
85°	0.9	0.9	0.9
87.5°	0.9	0.9	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



Report Generated By 670245859 / DESKTOP-T8S5UU9

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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