

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: P886832

Luminaire Tested: ML412LSFL95FS1E-TIR4D25AWW-TL4RWSL-1020LM-3500K

Issue Date: 7/9/2024

Test Information

Test Method: LM-79-2019
Report Number: P886832
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2402-314-46)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 7/9/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO
Catalog Number: ML412LSFL95FS1E-TIR4D25AWW-TL4RWSL-1020LM-3500K
Description: 4IN ROUND ML FLEX, SELECTABLE CCT, WITH WW TIR, METALLIC SILVER TRIM
Light Source: (1) HCL SELECTABLE LUMEN LED 95CRI / 3500K CCT
Ballast/Driver: -

Summary

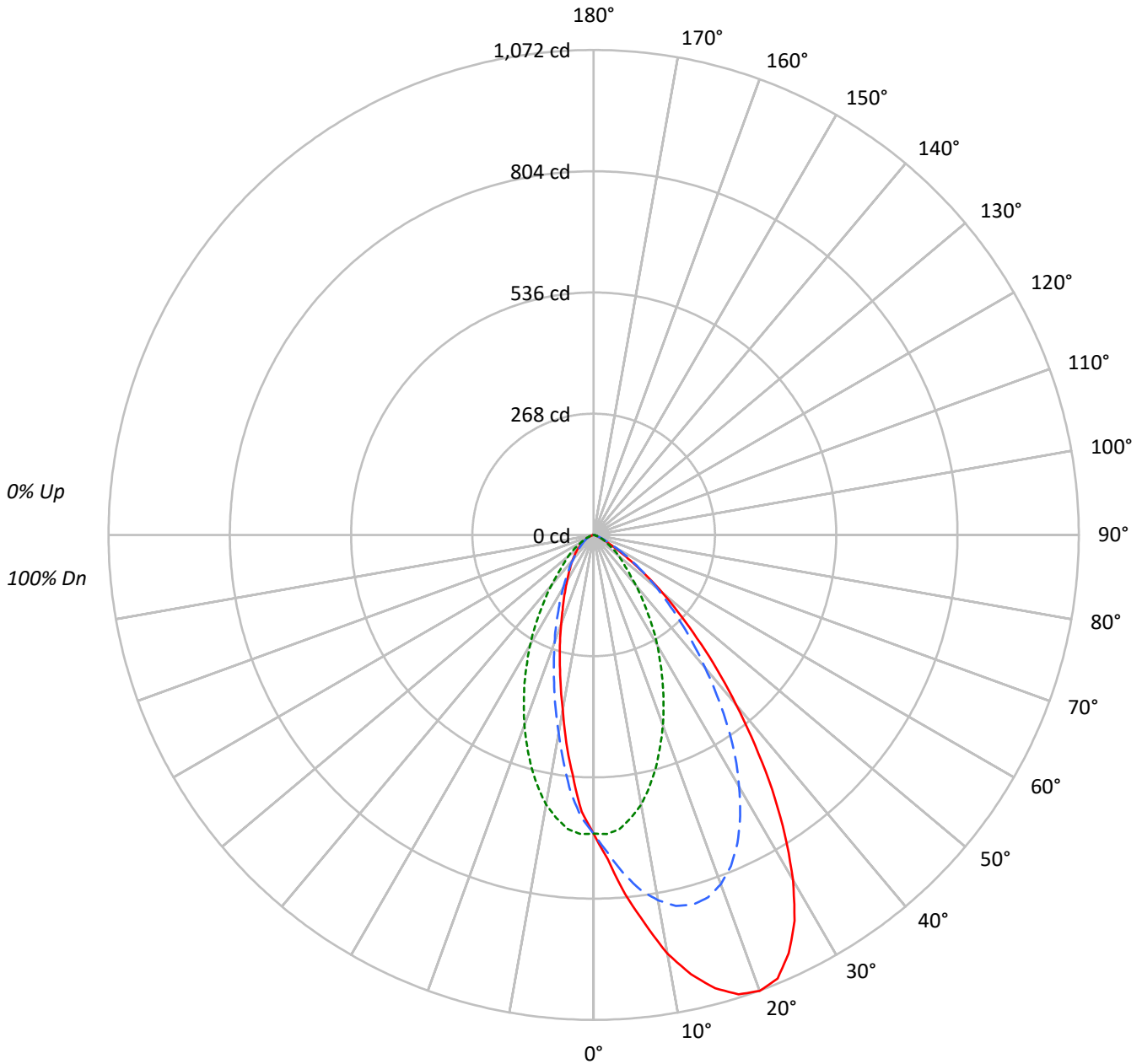
Lumens per Lamp: N/A
Luminaire Lumens: 833.9 lumens
Efficiency: N/A
Efficacy: 47.4 lumens/watt
Spacing Criteria (0/90/45): 1.14 / 0.8 / 1
Luminous Opening: Circular (Dia: 0.25' x H: 0')
CIE Type: Direct

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										
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	112	109	106	104	110	107	104	102	103	101	99	99	98	96	96	94	93	91								
2	106	100	95	91	103	98	94	90	95	91	88	92	89	86	89	87	84	83								
3	99	91	86	81	97	90	85	80	87	83	79	85	81	78	82	79	76	75								
4	93	84	77	73	91	83	77	72	81	75	71	78	74	70	76	73	69	68								
5	87	77	71	65	85	76	70	65	74	69	65	73	68	64	71	67	63	62								
6	82	72	65	60	80	71	64	59	69	63	59	68	62	58	66	62	58	56								
7	77	66	59	54	76	66	59	54	64	58	54	63	58	54	62	57	53	52								
8	73	62	55	50	71	61	55	50	60	54	50	59	53	50	58	53	49	48								
9	69	58	51	46	67	57	51	46	56	50	46	55	50	46	54	49	46	44								
10	65	54	47	43	64	53	47	43	53	47	43	52	46	43	51	46	43	41								

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	144769	144769	144769	144769	144769
5°	175434	165155	143671	126216	117213
10°	209259	182573	134734	99241	87351
15°	235506	192124	120682	76550	65358
20°	250272	191735	104379	58805	48888
25°	246764	181837	87441	44615	37551
30°	222946	162721	71226	33803	29574
35°	184092	137955	54957	25913	24360
40°	140234	109548	41335	20066	20553
45°	100165	83978	30546	15785	17614
50°	67750	61917	24767	12247	14533
55°	37963	41958	18504	10513	11813
60°	18683	24888	13552	8771	9517
65°	9547	13413	10377	6953	7368
70°	5321	6668	6924	5321	4809
75°	2796	3558	4236	2118	1440
80°	1010	1010	1010	0	0
85°	0	0	2013	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 10°
 Vertical Angle: 45°
 Luminance: 101189 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	62.2	7.5
10°-20°	166.8	20.0
20°-30°	215.3	25.8
30°-40°	188.4	22.6
40°-50°	119.0	14.3
50°-60°	57.7	6.9
60°-70°	19.9	2.4
70°-80°	4.3	0.5
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°	444.3	53.3
0°-40°	632.7	75.9
0°-60°	809.4	97.1
0°-90°	833.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	833.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	660	660	660	660	660	
5°	797	750	653	573	532	80
15°	1037	846	532	337	288	293
25°	1020	752	361	184	155	462
35°	688	515	205	97	91	426
45°	323	271	98	51	57	253
55°	99	110	48	28	31	95
65°	18	26	20	13	14	21
75°	3	4	5	2	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°	660.2	660.2	660.2	660.2	660.2	660.2	660.2	660.2	660.2	660.2	660.2
2.5°	717.8	715.2	720.3	712.7	706.1	699.4	693.5	679.4	671.8	661.8	643.5
5°	797.0	796.2	789.5	775.3	760.3	740.3	721.1	695.2	675.2	652.7	607.6
7.5°	866.3	867.1	855.5	832.9	808.7	773.7	740.3	703.6	666.0	631.0	562.5
10°	939.8	929.7	913.0	884.7	842.9	797.0	748.6	697.7	648.5	605.1	515.8
12.5°	994.8	983.2	961.5	920.6	869.6	810.4	747.8	685.2	624.3	570.0	467.4
15°	1037.4	1028.2	998.2	945.6	882.2	810.4	736.1	664.3	593.4	531.6	414.0
17.5°	1064.9	1054.1	1014.9	954.8	880.5	799.5	715.2	631.8	556.7	489.1	369.7
20°	1072.5	1059.9	1018.2	949.8	867.1	776.2	684.4	597.6	515.8	447.3	321.3
22.5°	1061.6	1044.9	1001.5	932.2	841.3	742.8	648.5	555.8	472.4	403.1	279.6
25°	1019.9	1008.2	963.1	888.0	800.4	702.7	600.1	512.4	429.0	361.4	243.7
27.5°	961.5	943.1	904.7	836.3	752.0	650.2	552.5	464.0	383.9	318.8	207.0
30°	880.5	865.5	827.1	767.8	689.4	595.9	502.4	418.1	341.3	281.3	177.8
32.5°	787.0	780.3	743.6	694.4	625.1	540.0	449.8	370.6	300.5	242.9	151.9
35°	687.7	676.9	650.2	613.4	552.5	478.2	398.1	322.2	256.2	205.3	126.9
37.5°	585.1	580.9	560.0	526.6	479.9	415.6	344.7	275.4	220.3	173.6	106.0
40°	489.9	492.4	472.4	449.0	409.0	356.4	296.3	234.5	182.8	144.4	88.5
42.5°	403.1	399.8	388.9	374.7	348.0	300.5	246.2	195.3	151.1	117.7	72.6
45°	323.0	326.3	320.5	308.8	289.6	252.0	204.5	157.7	123.5	98.5	59.3
47.5°	252.9	252.0	257.9	253.7	238.7	207.0	166.9	129.4	102.7	84.3	50.9
50°	198.6	196.1	199.5	202.0	196.1	166.9	134.4	107.7	87.6	72.6	45.9
52.5°	142.7	145.2	151.9	159.4	156.1	132.7	108.5	87.6	73.4	60.9	37.6
55°	99.3	104.3	111.0	122.7	117.7	101.8	84.3	70.9	56.8	48.4	31.7
57.5°	65.9	68.4	77.6	90.1	86.8	75.9	64.3	53.4	43.4	36.7	25.9
60°	42.6	44.2	52.6	61.8	59.3	54.2	46.7	39.2	34.2	30.9	21.7
62.5°	27.5	29.2	35.1	40.9	40.9	36.7	31.7	30.0	27.5	25.0	18.4
65°	18.4	20.0	24.2	28.4	26.7	25.0	22.5	22.5	21.7	20.0	15.0
67.5°	12.5	13.4	16.7	18.4	17.5	15.9	15.9	17.5	16.7	15.0	10.8
70°	8.3	9.2	10.8	11.7	10.8	10.0	10.8	12.5	11.7	10.8	8.3
72.5°	5.8	5.8	6.7	6.7	6.7	6.7	7.5	8.3	8.3	7.5	5.8
75°	3.3	3.3	3.3	4.2	4.2	4.2	5.0	5.0	5.0	5.0	3.3
77.5°	1.7	1.7	1.7	1.7	2.5	2.5	2.5	2.5	2.5	2.5	1.7
80°	0.8	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	0.8	0.8	0.8
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	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°	660.2	660.2	660.2
2.5°	624.3	614.3	611.8
5°	573.4	543.3	532.5
7.5°	507.4	472.4	463.2
10°	445.7	406.4	392.3
12.5°	389.8	348.0	337.2
15°	337.2	298.0	287.9
17.5°	292.1	257.1	247.0
20°	252.0	220.3	209.5
22.5°	217.0	187.8	178.6
25°	184.4	159.4	155.2
27.5°	157.7	137.7	134.4
30°	133.5	118.5	116.8
32.5°	113.5	102.7	103.5
35°	96.8	90.1	91.0
37.5°	84.3	78.5	81.8
40°	70.1	68.4	71.8
42.5°	60.1	60.1	63.4
45°	50.9	53.4	56.8
47.5°	42.6	46.7	49.2
50°	35.9	40.9	42.6
52.5°	30.9	35.9	36.7
55°	27.5	30.9	30.9
57.5°	24.2	25.9	25.9
60°	20.0	21.7	21.7
62.5°	16.7	17.5	17.5
65°	13.4	14.2	14.2
67.5°	10.8	10.8	10.8
70°	8.3	7.5	7.5
72.5°	5.0	5.0	4.2
75°	2.5	1.7	1.7
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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