

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: P886829

Luminaire Tested: ML412LSFL95FS1E-TIR4D25AWW-TL4RWMW-1020LM-5000K

Issue Date: 7/9/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P886829  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2402-314-45)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 7/9/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO  
Catalog Number: ML412LSFL95FS1E-TIR4D25AWW-TL4RWMW-1020LM-5000K  
Description: 4IN ROUND ML FLEX, SELECTABLE CCT, WITH WW TIR, MATTE WHITE TRIM  
Light Source: (1) HCL SELECTABLE LUMEN LED 95CRI / 5000K CCT  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 919.2 lumens  
Efficiency: N/A  
Efficacy: 52.2 lumens/watt  
Spacing Criteria (0/90/45): 1.16 / 0.81 / 1.01  
Luminous Opening: Circular (Dia: 0.25' x H: 0')  
CIE Type: Direct

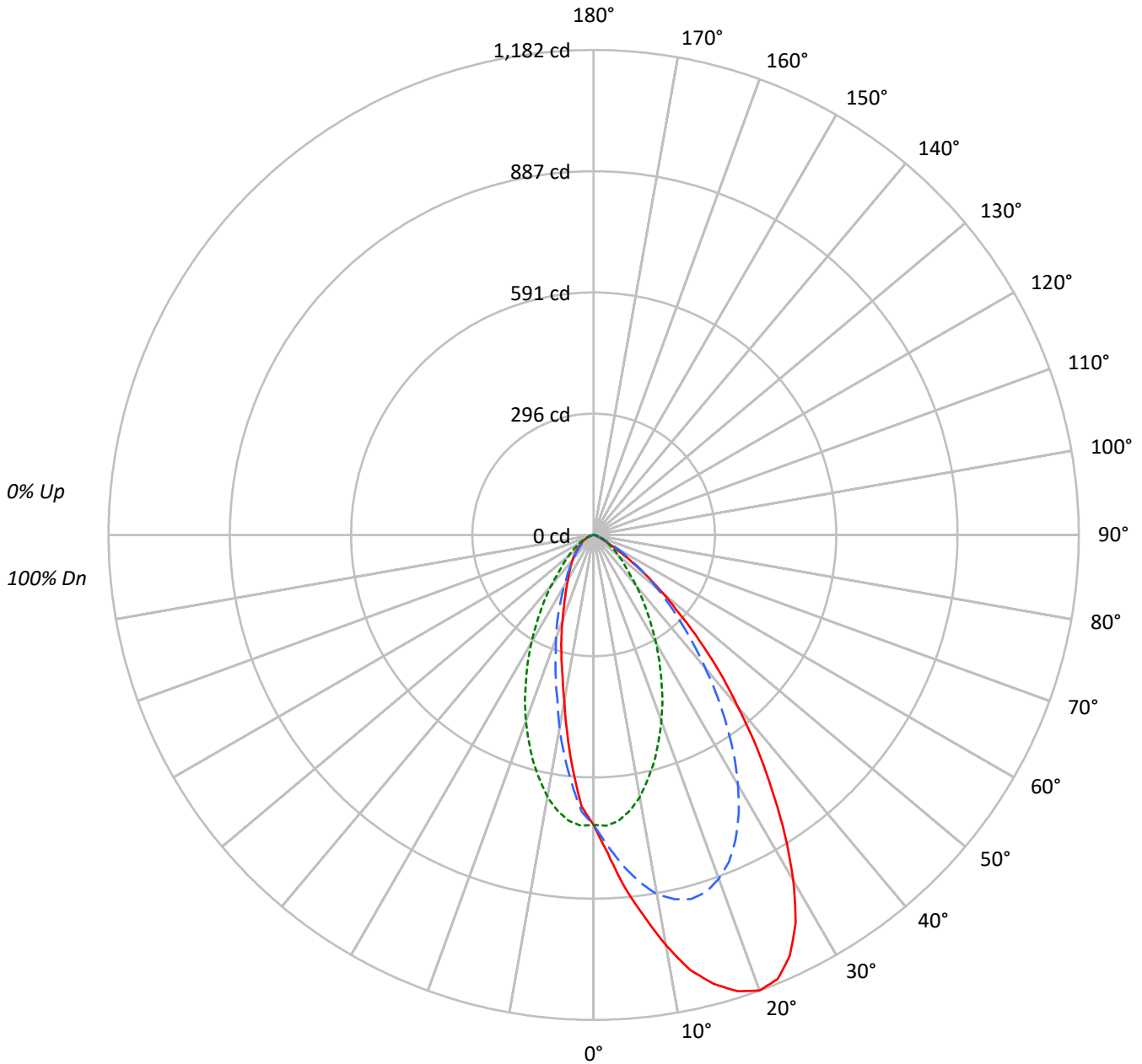
Input Watts (W): 17.6  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT



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### Luminous Intensity Polar Plot





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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20					20					20					20					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	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	103	110	107	104	102	103	101	99	99	97	96	96	94	93	91													
2	105	100	95	91	103	98	93	90	94	91	88	91	88	86	89	86	84	82													
3	99	91	85	80	97	90	84	80	87	82	78	84	80	77	82	79	76	74													
4	92	83	77	72	91	82	76	71	80	75	71	78	73	70	76	72	69	67													
5	87	77	70	65	85	76	69	65	74	68	64	72	67	63	70	66	63	61													
6	81	71	64	59	80	70	63	59	69	63	58	67	62	58	66	61	57	56													
7	77	66	59	54	75	65	58	54	64	58	53	62	57	53	61	56	53	51													
8	72	61	54	49	71	61	54	49	59	53	49	58	53	49	57	52	49	47													
9	68	57	50	46	67	57	50	46	56	50	45	55	49	45	54	49	45	44													
10	65	53	47	42	63	53	47	42	52	46	42	51	46	42	50	45	42	40													

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°	135°	180°
0°	154922	154922	154922	154922	154922
5°	189632	177801	153907	134052	126832
10°	226137	198015	144330	106567	91760
15°	257255	208605	129558	81136	68922
20°	275707	208046	112546	62329	51478
25°	273717	198072	94191	48075	39486
30°	246291	178091	76645	36233	31397
35°	202563	150938	60043	28322	26609
40°	156321	120826	45915	22184	22957
45°	113376	92459	33926	17800	19785
50°	74334	68262	27359	14601	17091
55°	41480	47234	21256	12884	14642
60°	18770	28989	17192	11578	12806
65°	9443	15384	13698	9910	10429
70°	5834	8784	9938	8207	7629
75°	3897	5041	7710	5422	3897
80°	1137	2273	3410	3410	3410
85°	0	2264	4529	4529	4529

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 113376 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	66.8	7.3
10°-20°	180.1	19.6
20°-30°	234.6	25.5
30°-40°	206.5	22.5
40°-50°	132.2	14.4
50°-60°	65.7	7.1
60°-70°	24.7	2.7
70°-80°	7.2	0.8
80°-90°	1.3	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°	481.5	52.4
0°-40°	688.0	74.9
0°-60°	886.0	96.4
0°-90°	919.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	919.2	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	706	706	706	706	706	
5°	862	808	699	609	576	87
15°	1133	919	571	357	304	320
25°	1131	819	389	199	163	512
35°	757	564	224	106	99	472
45°	366	298	109	57	64	284
55°	108	124	56	34	38	103
65°	18	30	26	19	20	20
75°	5	6	9	6	5	5
85°	0	1	2	2	2	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°	706.5	706.5	706.5	706.5	706.5	706.5	706.5	706.5	706.5	706.5	706.5
2.5°	774.9	776.7	770.3	764.0	760.3	752.1	742.1	727.5	720.2	709.3	689.2
5°	861.5	861.5	855.1	836.0	819.6	795.9	775.8	749.4	723.8	699.2	651.8
7.5°	936.3	936.3	923.5	905.3	871.5	834.2	796.8	753.9	714.7	677.4	605.3
10°	1015.6	1011.0	993.7	960.0	913.5	865.1	806.8	749.4	698.3	648.2	552.5
12.5°	1085.8	1073.9	1046.6	1002.8	942.6	876.1	807.7	735.7	670.1	609.9	497.8
15°	1133.2	1123.1	1086.7	1031.1	959.0	878.8	796.8	712.9	637.2	570.7	446.7
17.5°	1166.0	1156.0	1108.6	1042.0	958.1	866.1	774.0	682.8	599.9	526.0	393.8
20°	1181.5	1167.8	1118.6	1039.3	941.7	841.4	740.3	642.7	557.9	482.3	346.4
22.5°	1171.5	1155.1	1098.5	1019.2	917.1	806.8	702.0	603.5	511.4	437.6	300.8
25°	1131.3	1120.4	1061.2	975.5	875.2	762.1	652.7	553.4	464.0	389.3	260.7
27.5°	1065.7	1046.6	993.7	921.7	820.5	710.2	599.9	504.1	419.4	346.4	224.3
30°	972.7	956.3	915.3	846.9	757.6	649.1	546.1	449.4	371.0	302.7	192.4
32.5°	867.9	861.5	824.1	768.5	686.5	585.3	494.1	400.2	326.4	261.6	164.1
35°	756.7	747.5	722.0	668.2	604.4	523.3	432.1	349.2	284.4	224.3	137.7
37.5°	651.8	639.1	618.1	580.7	527.8	459.5	373.8	299.0	239.8	191.4	116.7
40°	546.1	539.7	520.5	492.3	453.1	391.1	320.0	256.2	206.0	160.4	97.5
42.5°	454.9	444.0	431.2	413.0	382.9	332.7	271.7	215.1	166.8	131.3	81.1
45°	365.6	357.4	353.7	341.0	318.2	278.1	227.0	174.1	137.7	109.4	67.5
47.5°	280.8	282.6	282.6	278.1	264.4	230.6	185.1	144.0	116.7	94.8	58.3
50°	217.9	216.1	220.6	224.3	212.4	187.8	147.7	120.3	99.4	80.2	50.1
52.5°	159.5	159.5	169.6	177.8	169.6	150.4	120.3	98.5	81.1	68.4	43.8
55°	108.5	113.0	121.2	136.7	132.2	114.9	97.5	78.4	66.5	55.6	36.5
57.5°	69.3	73.8	83.0	99.4	95.7	87.5	72.9	62.9	52.0	44.7	31.0
60°	42.8	45.6	53.8	67.5	69.3	62.9	53.8	46.5	43.8	39.2	28.3
62.5°	27.3	29.2	37.4	44.7	46.5	41.9	39.2	37.4	36.5	32.8	24.6
65°	18.2	19.1	23.7	30.1	30.1	29.2	27.3	29.2	29.2	26.4	20.1
67.5°	11.9	12.8	16.4	20.1	20.1	20.1	21.9	22.8	22.8	20.1	15.5
70°	9.1	9.1	10.9	12.8	13.7	13.7	14.6	17.3	17.3	15.5	12.8
72.5°	6.4	6.4	7.3	8.2	9.1	9.1	10.9	11.9	12.8	11.9	10.0
75°	4.6	4.6	4.6	5.5	5.5	6.4	7.3	8.2	9.1	9.1	7.3
77.5°	2.7	2.7	2.7	3.6	3.6	3.6	4.6	4.6	5.5	5.5	4.6
80°	0.9	0.9	1.8	1.8	1.8	1.8	2.7	2.7	2.7	2.7	2.7
82.5°	0.0	0.0	0.9	0.9	0.9	0.9	0.9	1.8	1.8	1.8	1.8
85°	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	1.8	1.8	1.8
87.5°	0.0	0.0	0.0	0.0	0.9	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°	706.5	706.5	706.5
2.5°	674.6	661.9	662.8
5°	609.0	580.7	576.2
7.5°	543.3	501.4	489.6
10°	478.6	429.4	412.1
12.5°	409.3	367.4	351.0
15°	357.4	317.3	303.6
17.5°	307.2	273.5	260.7
20°	267.1	236.1	220.6
22.5°	232.5	200.6	188.7
25°	198.7	170.5	163.2
27.5°	168.7	145.9	142.2
30°	143.1	126.7	124.0
32.5°	122.2	111.2	112.1
35°	105.8	98.5	99.4
37.5°	91.2	85.7	89.3
40°	77.5	76.6	80.2
42.5°	67.5	68.4	72.0
45°	57.4	61.1	63.8
47.5°	49.2	55.6	56.5
50°	42.8	49.2	50.1
52.5°	38.3	43.8	43.8
55°	33.7	38.3	38.3
57.5°	30.1	32.8	33.7
60°	26.4	27.3	29.2
62.5°	22.8	23.7	24.6
65°	19.1	20.1	20.1
67.5°	15.5	16.4	16.4
70°	12.8	12.8	11.9
72.5°	8.2	9.1	7.3
75°	6.4	5.5	4.6
77.5°	3.6	3.6	2.7
80°	2.7	2.7	2.7
82.5°	2.7	2.7	1.8
85°	1.8	1.8	1.8
87.5°	0.9	0.9	0.9
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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Scaled Data Report





— 0°-180°    - - 45°-225°    - - - - 90°-270°

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