

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: P886825

Luminaire Tested: ML412LSFL95FS1E-TIR4D25AWW-TL4RWMW-1020LM-2700K

Issue Date: 7/9/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P886825  
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-2700K  
Description: 4IN ROUND ML FLEX, SELECTABLE CCT, WITH WW TIR, MATTE WHITE TRIM  
Light Source: (1) HCL SELECTABLE LUMEN LED 95CRI / 2700K CCT  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 789.0 lumens  
Efficiency: N/A  
Efficacy: 44.8 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

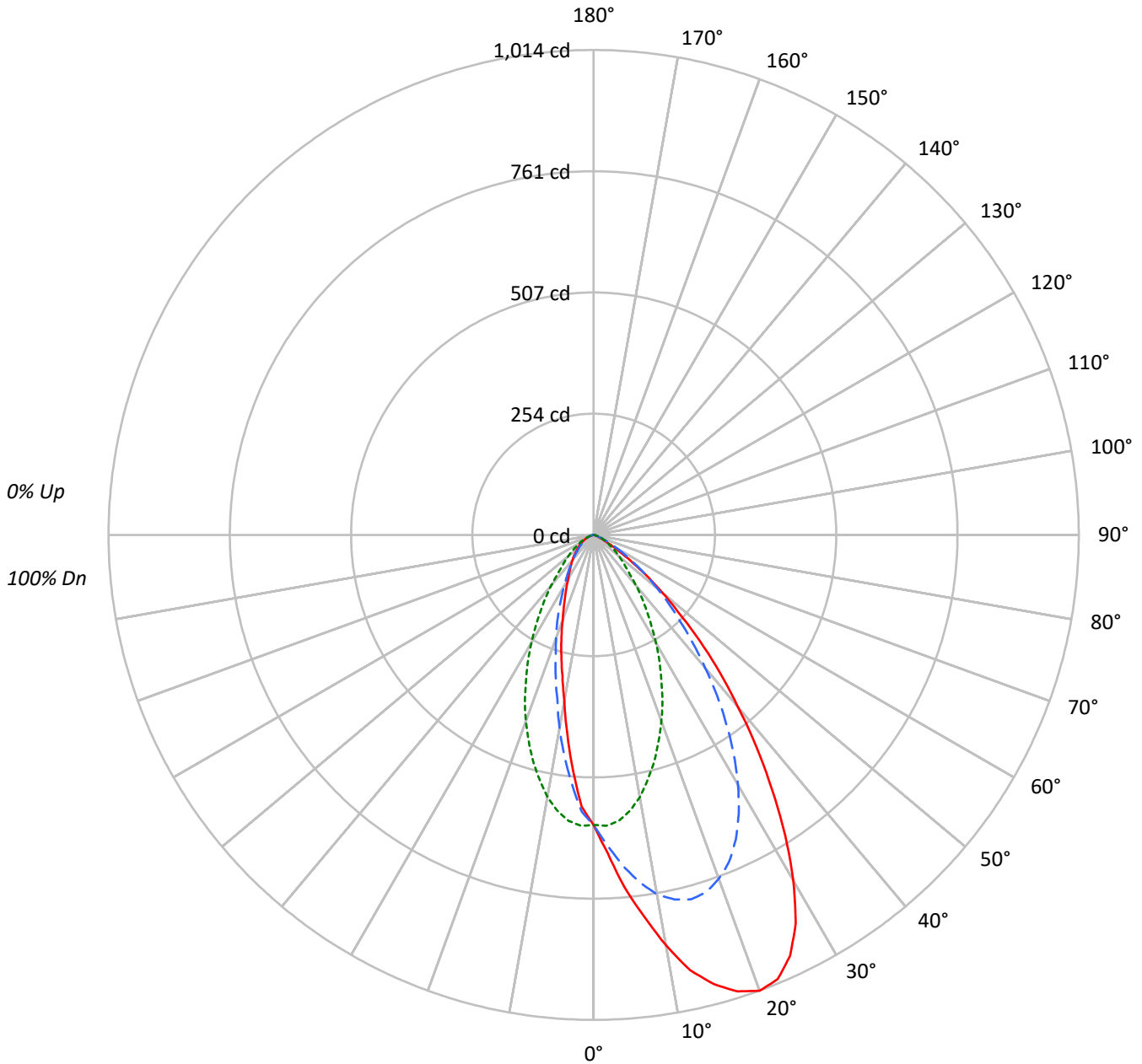
Input Watts (W): 17.6  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT



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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	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°	132972	132972	132972	132972	132972
5°	162777	152608	132115	115056	108848
10°	194096	169970	123890	91470	78756
15°	220819	179059	111192	69626	59160
20°	236644	178586	96585	53508	44197
25°	234957	170018	80835	41277	33897
30°	211400	152859	65782	31119	26941
35°	173866	129563	51531	24306	22834
40°	134166	103709	39417	19036	19723
45°	97312	79357	29119	15288	16994
50°	63793	58591	23505	12554	14669
55°	35593	40543	18236	11087	12578
60°	16139	24888	14736	9955	10964
65°	8146	13179	11778	8509	8924
70°	5001	7501	8527	7052	6540
75°	3304	4321	6608	4660	3304
80°	1010	2020	2904	2904	2904
85°	0	2013	4026	4026	4026

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 97312 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	57.4	7.3
10°-20°	154.6	19.6
20°-30°	201.4	25.5
30°-40°	177.3	22.5
40°-50°	113.5	14.4
50°-60°	56.4	7.1
60°-70°	21.2	2.7
70°-80°	6.2	0.8
80°-90°	1.1	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°	413.3	52.4
0°-40°	590.6	74.8
0°-60°	760.5	96.4
0°-90°	789.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	789.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	606	606	606	606	606	
5°	740	693	600	523	494	74
15°	973	789	490	307	261	275
25°	971	703	334	171	140	439
35°	650	484	192	91	85	405
45°	314	256	94	49	55	243
55°	93	106	48	29	33	89
65°	16	25	23	16	17	18
75°	4	5	8	6	4	4
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°	606.4	606.4	606.4	606.4	606.4	606.4	606.4	606.4	606.4	606.4	606.4
2.5°	665.1	666.7	661.2	655.7	652.6	645.6	637.0	624.4	618.2	608.8	591.6
5°	739.5	739.5	734.0	717.6	703.5	683.1	665.9	643.2	621.3	600.2	559.5
7.5°	803.6	803.6	792.7	777.0	748.1	716.0	683.9	647.1	613.5	581.4	519.6
10°	871.7	867.8	852.9	824.0	784.1	742.6	692.5	643.2	599.4	556.4	474.2
12.5°	932.0	921.8	898.3	860.8	809.1	752.0	693.3	631.5	575.1	523.5	427.2
15°	972.7	964.0	932.7	885.0	823.2	754.3	683.9	611.9	547.0	489.8	383.4
17.5°	1000.8	992.2	951.5	894.4	822.4	743.4	664.3	586.1	514.9	451.5	338.0
20°	1014.1	1002.4	960.1	892.1	808.3	722.3	635.4	551.7	478.9	413.9	297.4
22.5°	1005.5	991.4	942.9	874.8	787.2	692.5	602.5	518.0	439.0	375.6	258.2
25°	971.1	961.7	910.8	837.3	751.2	654.2	560.3	475.0	398.3	334.1	223.8
27.5°	914.7	898.3	852.9	791.1	704.3	609.6	514.9	432.7	360.0	297.4	192.5
30°	834.9	820.8	785.6	726.9	650.3	557.1	468.7	385.8	318.5	259.8	165.1
32.5°	744.9	739.5	707.4	659.7	589.2	502.4	424.1	343.5	280.1	224.6	140.9
35°	649.5	641.7	619.7	573.6	518.8	449.2	370.9	299.7	244.1	192.5	118.2
37.5°	559.5	548.5	530.5	498.5	453.1	394.4	320.8	256.7	205.8	164.3	100.2
40°	468.7	463.2	446.8	422.6	388.9	335.7	274.7	219.9	176.8	137.7	83.7
42.5°	390.5	381.1	370.1	354.5	328.7	285.6	233.2	184.7	143.2	112.7	69.6
45°	313.8	306.7	303.6	292.7	273.1	238.7	194.8	149.5	118.2	93.9	57.9
47.5°	241.0	242.6	242.6	238.7	226.9	198.0	158.8	123.6	100.2	81.4	50.1
50°	187.0	185.5	189.4	192.5	182.3	161.2	126.8	103.3	85.3	68.9	43.0
52.5°	136.9	136.9	145.5	152.6	145.5	129.1	103.3	84.5	69.6	58.7	37.6
55°	93.1	97.0	104.1	117.4	113.5	98.6	83.7	67.3	57.1	47.7	31.3
57.5°	59.5	63.4	71.2	85.3	82.2	75.1	62.6	54.0	44.6	38.3	26.6
60°	36.8	39.1	46.2	57.9	59.5	54.0	46.2	39.9	37.6	33.6	24.3
62.5°	23.5	25.0	32.1	38.3	39.9	36.0	33.6	32.1	31.3	28.2	21.1
65°	15.7	16.4	20.3	25.8	25.8	25.0	23.5	25.0	25.0	22.7	17.2
67.5°	10.2	11.0	14.1	17.2	17.2	17.2	18.8	19.6	19.6	17.2	13.3
70°	7.8	7.8	9.4	11.0	11.7	11.7	12.5	14.9	14.9	13.3	11.0
72.5°	5.5	5.5	6.3	7.0	7.8	7.8	9.4	10.2	11.0	10.2	8.6
75°	3.9	3.9	3.9	4.7	4.7	5.5	6.3	7.0	7.8	7.8	6.3
77.5°	2.3	2.3	2.3	3.1	3.1	3.1	3.9	3.9	4.7	4.7	3.9
80°	0.8	0.8	1.6	1.6	1.6	1.6	2.3	2.3	2.3	2.3	2.3
82.5°	0.0	0.0	0.8	0.8	0.8	0.8	0.8	1.6	1.6	1.6	1.6
85°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.6	1.6	1.6
87.5°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8
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°	606.4	606.4	606.4
2.5°	579.1	568.1	568.9
5°	522.7	498.5	494.5
7.5°	466.4	430.4	420.2
10°	410.8	368.6	353.7
12.5°	351.3	315.3	301.3
15°	306.7	272.3	260.6
17.5°	263.7	234.8	223.8
20°	229.3	202.7	189.4
22.5°	199.5	172.2	162.0
25°	170.6	146.3	140.1
27.5°	144.8	125.2	122.1
30°	122.9	108.8	106.4
32.5°	104.9	95.5	96.2
35°	90.8	84.5	85.3
37.5°	78.3	73.6	76.7
40°	66.5	65.7	68.9
42.5°	57.9	58.7	61.8
45°	49.3	52.4	54.8
47.5°	42.3	47.7	48.5
50°	36.8	42.3	43.0
52.5°	32.9	37.6	37.6
55°	29.0	32.9	32.9
57.5°	25.8	28.2	29.0
60°	22.7	23.5	25.0
62.5°	19.6	20.3	21.1
65°	16.4	17.2	17.2
67.5°	13.3	14.1	14.1
70°	11.0	11.0	10.2
72.5°	7.0	7.8	6.3
75°	5.5	4.7	3.9
77.5°	3.1	3.1	2.3
80°	2.3	2.3	2.3
82.5°	2.3	2.3	1.6
85°	1.6	1.6	1.6
87.5°	0.8	0.8	0.8
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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Peachtree City, GA 30269

Scaled Data Report





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

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