

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: P886960

Luminaire Tested: ML412LSFL9FS1E-TIR4D25AWW-TL4RWSL-1200LM-2700K

Issue Date: 7/9/2024

Test Information

Test Method: LM-79-2019
Report Number: P886960
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: ML412LSFL9FS1E-TIR4D25AWW-TL4RWSL-1200LM-2700K
Description: 4IN ROUND ML FLEX, SELECTABLE CCT, WITH WW TIR, METALLIC SILVER TRIM
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 2700K CCT
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 999.2 lumens
Efficiency: N/A
Efficacy: 56.8 lumens/watt
Spacing Criteria (0/90/45): 1.14 / 0.8 / 1
Luminous Opening: Circular (Dia: 0.25' x H: 0')
CIE Type: Direct

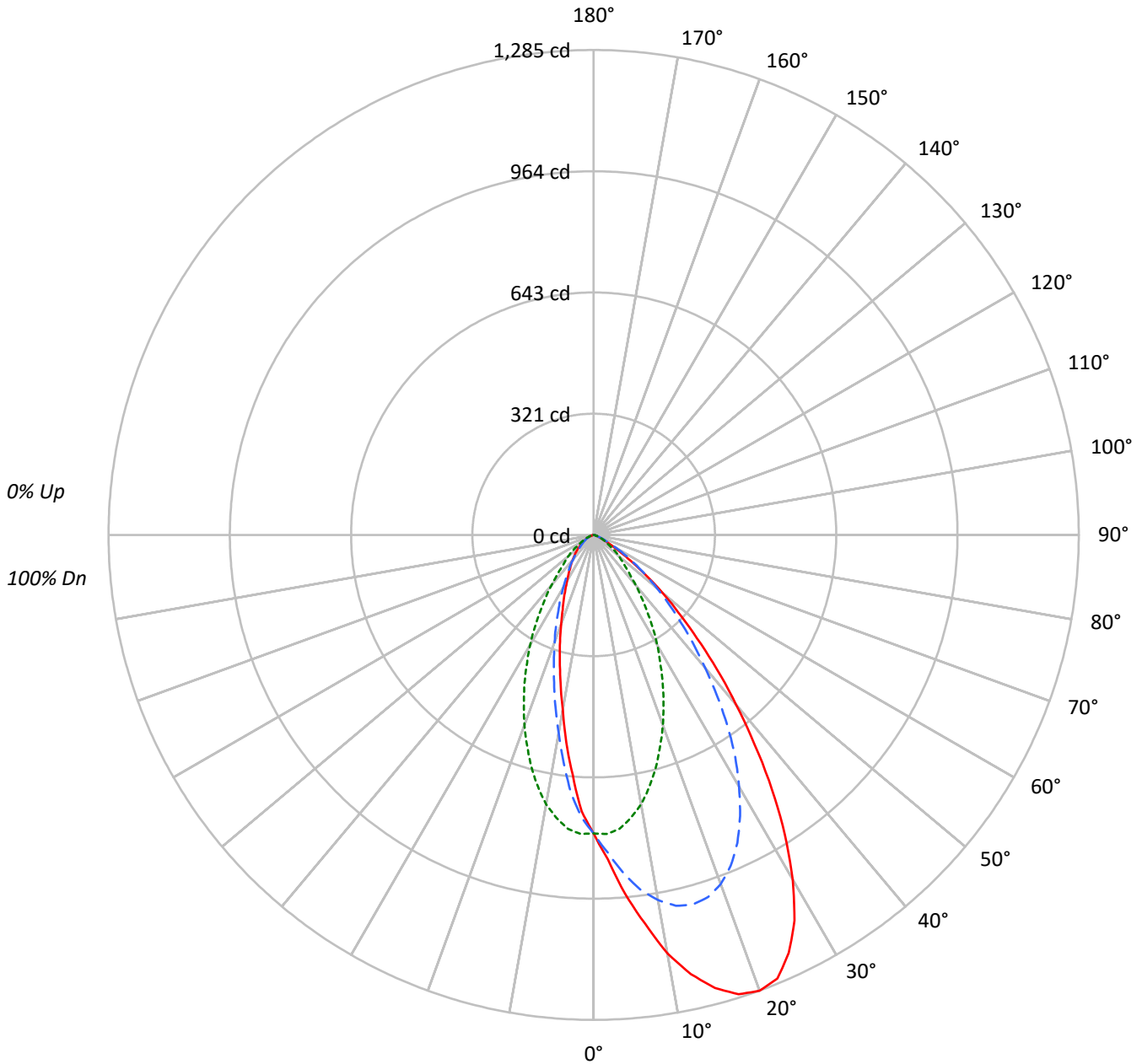
Input Watts (W): 17.6
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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	72	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°	173451	173451	173451	173451	173451
5°	210213	197886	172133	151221	140435
10°	250719	218767	161431	118902	104652
15°	282204	230194	144609	91714	78321
20°	299883	229737	125078	70473	58572
25°	295662	217875	104764	53471	45003
30°	267130	194967	85330	40513	35448
35°	220578	165300	65852	31052	29178
40°	168029	131246	49521	24045	24618
45°	120012	100631	36593	18917	21087
50°	81191	74198	29679	14669	17398
55°	45494	50273	22174	12616	14145
60°	22367	29822	16227	10525	11403
65°	11415	16085	12453	8302	8821
70°	6411	8014	8335	6411	5770
75°	3389	4236	5083	2542	1694
80°	1263	1263	1263	0	0
85°	0	0	2516	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 10°
 Vertical Angle: 45°
 Luminance: 121253 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	74.5	7.5
10°-20°	199.9	20.0
20°-30°	257.9	25.8
30°-40°	225.7	22.6
40°-50°	142.6	14.3
50°-60°	69.2	6.9
60°-70°	23.9	2.4
70°-80°	5.2	0.5
80°-90°	0.3	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°	532.3	53.3
0°-40°	758.0	75.9
0°-60°	969.8	97.1
0°-90°	999.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	999.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	791	791	791	791	791	
5°	955	899	782	687	638	96
15°	1243	1014	637	404	345	351
25°	1222	900	433	221	186	554
35°	824	618	246	116	109	511
45°	387	324	118	61	68	303
55°	119	132	58	33	37	114
65°	22	31	24	16	17	25
75°	4	5	6	3	2	5
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°	791.0	791.0	791.0	791.0	791.0	791.0	791.0	791.0	791.0	791.0	791.0
2.5°	860.0	857.0	863.0	854.0	846.0	838.0	831.0	814.0	805.0	793.0	771.0
5°	955.0	954.0	946.0	929.0	911.0	887.0	864.0	833.0	809.0	782.0	728.0
7.5°	1038.0	1039.0	1025.0	998.0	969.0	927.0	887.0	843.0	798.0	756.0	674.0
10°	1126.0	1114.0	1094.0	1060.0	1010.0	955.0	897.0	836.0	777.0	725.0	618.0
12.5°	1192.0	1178.0	1152.0	1103.0	1042.0	971.0	896.0	821.0	748.0	683.0	560.0
15°	1243.1	1232.1	1196.0	1133.0	1057.0	971.0	882.0	796.0	711.0	637.0	496.0
17.5°	1276.1	1263.1	1216.0	1144.0	1055.0	958.0	857.0	757.0	667.0	586.0	443.0
20°	1285.1	1270.1	1220.0	1138.0	1039.0	930.0	820.0	716.0	618.0	536.0	385.0
22.5°	1272.1	1252.1	1200.0	1117.0	1008.0	890.0	777.0	666.0	566.0	483.0	335.0
25°	1222.0	1208.0	1154.0	1064.0	959.0	842.0	719.0	614.0	514.0	433.0	292.0
27.5°	1152.0	1130.0	1084.0	1002.0	901.0	779.0	662.0	556.0	460.0	382.0	248.0
30°	1055.0	1037.0	991.0	920.0	826.0	714.0	602.0	501.0	409.0	337.0	213.0
32.5°	943.0	935.0	891.0	832.0	749.0	647.0	539.0	444.0	360.0	291.0	182.0
35°	824.0	811.0	779.0	735.0	662.0	573.0	477.0	386.0	307.0	246.0	152.0
37.5°	701.0	696.0	671.0	631.0	575.0	498.0	413.0	330.0	264.0	208.0	127.0
40°	587.0	590.0	566.0	538.0	490.0	427.0	355.0	281.0	219.0	173.0	106.0
42.5°	483.0	479.0	466.0	449.0	417.0	360.0	295.0	234.0	181.0	141.0	87.0
45°	387.0	391.0	384.0	370.0	347.0	302.0	245.0	189.0	148.0	118.0	71.0
47.5°	303.0	302.0	309.0	304.0	286.0	248.0	200.0	155.0	123.0	101.0	61.0
50°	238.0	235.0	239.0	242.0	235.0	200.0	161.0	129.0	105.0	87.0	55.0
52.5°	171.0	174.0	182.0	191.0	187.0	159.0	130.0	105.0	88.0	73.0	45.0
55°	119.0	125.0	133.0	147.0	141.0	122.0	101.0	85.0	68.0	58.0	38.0
57.5°	79.0	82.0	93.0	108.0	104.0	91.0	77.0	64.0	52.0	44.0	31.0
60°	51.0	53.0	63.0	74.0	71.0	65.0	56.0	47.0	41.0	37.0	26.0
62.5°	33.0	35.0	42.0	49.0	49.0	44.0	38.0	36.0	33.0	30.0	22.0
65°	22.0	24.0	29.0	34.0	32.0	30.0	27.0	27.0	26.0	24.0	18.0
67.5°	15.0	16.0	20.0	22.0	21.0	19.0	19.0	21.0	20.0	18.0	13.0
70°	10.0	11.0	13.0	14.0	13.0	12.0	13.0	15.0	14.0	13.0	10.0
72.5°	7.0	7.0	8.0	8.0	8.0	8.0	9.0	10.0	10.0	9.0	7.0
75°	4.0	4.0	4.0	5.0	5.0	5.0	6.0	6.0	6.0	6.0	4.0
77.5°	2.0	2.0	2.0	2.0	3.0	3.0	3.0	3.0	3.0	3.0	2.0
80°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0	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°	791.0	791.0	791.0
2.5°	748.0	736.0	733.0
5°	687.0	651.0	638.0
7.5°	608.0	566.0	555.0
10°	534.0	487.0	470.0
12.5°	467.0	417.0	404.0
15°	404.0	357.0	345.0
17.5°	350.0	308.0	296.0
20°	302.0	264.0	251.0
22.5°	260.0	225.0	214.0
25°	221.0	191.0	186.0
27.5°	189.0	165.0	161.0
30°	160.0	142.0	140.0
32.5°	136.0	123.0	124.0
35°	116.0	108.0	109.0
37.5°	101.0	94.0	98.0
40°	84.0	82.0	86.0
42.5°	72.0	72.0	76.0
45°	61.0	64.0	68.0
47.5°	51.0	56.0	59.0
50°	43.0	49.0	51.0
52.5°	37.0	43.0	44.0
55°	33.0	37.0	37.0
57.5°	29.0	31.0	31.0
60°	24.0	26.0	26.0
62.5°	20.0	21.0	21.0
65°	16.0	17.0	17.0
67.5°	13.0	13.0	13.0
70°	10.0	9.0	9.0
72.5°	6.0	6.0	5.0
75°	3.0	2.0	2.0
77.5°	1.0	1.0	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



Report Generated By 670245859 / DESKTOP-T8S5UU9

Signify Classified - Internal
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Peachtree City, GA 30269

Scaled Data Report





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

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