

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: P886826

Luminaire Tested: ML412LSFL95FS1E-TIR4D25AWW-TL4RWMW-1020LM-3000K

Issue Date: 7/9/2024

Test Information

Test Method: LM-79-2019
Report Number: P886826
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-3000K
Description: 4IN ROUND ML FLEX, SELECTABLE CCT, WITH WW TIR, MATTE WHITE TRIM
Light Source: (1) HCL SELECTABLE LUMEN LED 95CRI / 3000K CCT
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 812.9 lumens
Efficiency: N/A
Efficacy: 46.2 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

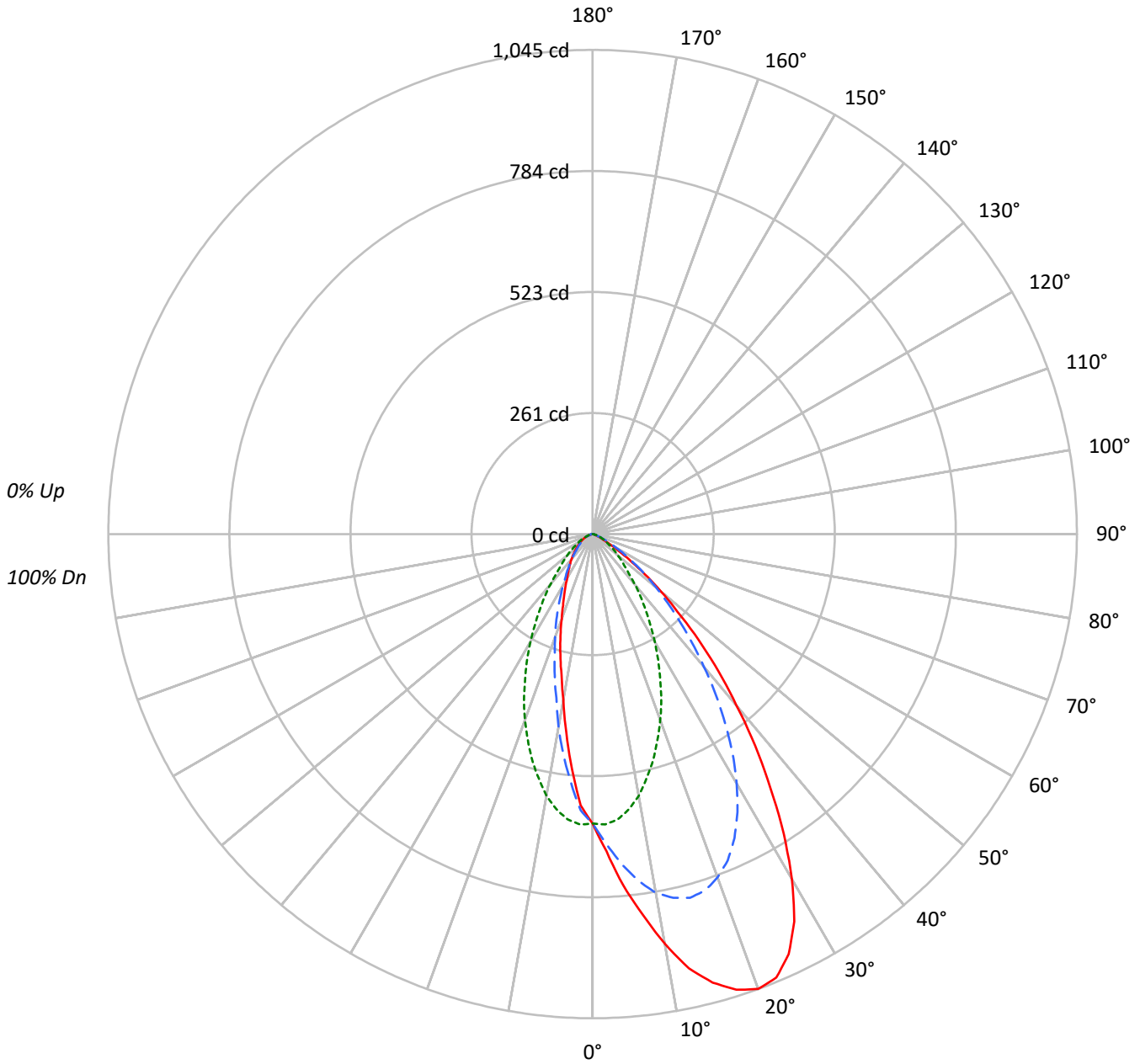
Input Watts (W): 17.6
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	137007	137007	137007	137007	137007
5°	167686	157219	136099	118534	112150
10°	199974	175103	127631	94231	81139
15°	227493	184473	114575	71737	60954
20°	243808	183988	99525	55118	45527
25°	242046	175147	83279	42511	34913
30°	217806	157480	67757	32056	27751
35°	179113	133471	53083	25029	23530
40°	138230	106843	40619	19608	20295
45°	100258	81745	29988	15754	17490
50°	65738	60365	24187	12929	15113
55°	36663	41767	18809	11393	12960
60°	16621	25634	15218	10262	11315
65°	8354	13594	12141	8769	9184
70°	5193	7758	8784	7245	6732
75°	3389	4406	6863	4745	3389
80°	1010	2020	3031	3031	3031
85°	0	2013	4026	4026	4026

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 100258 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	59.1	7.3
10°-20°	159.3	19.6
20°-30°	207.5	25.5
30°-40°	182.6	22.5
40°-50°	116.9	14.4
50°-60°	58.1	7.1
60°-70°	21.9	2.7
70°-80°	6.4	0.8
80°-90°	1.2	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°	425.8	52.4
0°-40°	608.4	74.9
0°-60°	783.5	96.4
0°-90°	812.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	812.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	625	625	625	625	625	
5°	762	714	618	538	510	77
15°	1002	813	505	316	268	283
25°	1000	724	344	176	144	452
35°	669	499	198	94	88	417
45°	323	264	97	51	56	251
55°	96	109	49	30	34	91
65°	16	26	23	17	18	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°	624.8	624.8	624.8	624.8	624.8	624.8	624.8	624.8	624.8	624.8	624.8
2.5°	685.2	686.8	681.2	675.6	672.3	665.1	656.2	643.3	636.9	627.2	609.5
5°	761.8	761.8	756.2	739.2	724.7	703.8	686.0	662.7	640.1	618.3	576.4
7.5°	827.9	827.9	816.6	800.5	770.7	737.6	704.6	666.7	632.0	599.0	535.3
10°	898.1	894.0	878.7	848.9	807.8	765.0	713.5	662.7	617.5	573.2	488.5
12.5°	960.1	949.7	925.5	886.8	833.6	774.7	714.3	650.6	592.5	539.3	440.2
15°	1002.1	993.2	960.9	911.8	848.1	777.1	704.6	630.4	563.5	504.7	395.0
17.5°	1031.1	1022.2	980.3	921.4	847.3	765.9	684.4	603.8	530.5	465.2	348.3
20°	1044.8	1032.7	989.2	919.0	832.8	744.1	654.6	568.3	493.4	426.5	306.3
22.5°	1035.9	1021.4	971.4	901.3	811.0	713.5	620.7	533.7	452.3	387.0	266.0
25°	1000.4	990.8	938.4	862.6	773.9	673.9	577.2	489.3	410.3	344.2	230.6
27.5°	942.4	925.5	878.7	815.0	725.5	628.0	530.5	445.8	370.8	306.3	198.3
30°	860.2	845.7	809.4	748.9	669.9	574.0	482.9	397.4	328.1	267.6	170.1
32.5°	767.5	761.8	728.8	679.6	607.0	517.6	436.9	353.9	288.6	231.4	145.1
35°	669.1	661.1	638.5	590.9	534.5	462.7	382.1	308.8	251.5	198.3	121.7
37.5°	576.4	565.1	546.6	513.5	466.8	406.3	330.5	264.4	212.0	169.3	103.2
40°	482.9	477.2	460.3	435.3	400.7	345.8	283.0	226.5	182.2	141.9	86.3
42.5°	402.3	392.6	381.3	365.2	338.6	294.2	240.2	190.3	147.5	116.1	71.7
45°	323.3	316.0	312.8	301.5	281.3	245.9	200.7	154.0	121.7	96.7	59.7
47.5°	248.3	249.9	249.9	245.9	233.8	204.0	163.7	127.4	103.2	83.8	51.6
50°	192.7	191.1	195.1	198.3	187.8	166.1	130.6	106.4	87.9	70.9	44.3
52.5°	141.1	141.1	149.9	157.2	149.9	133.0	106.4	87.1	71.7	60.5	38.7
55°	95.9	100.0	107.2	120.9	116.9	101.6	86.3	69.3	58.8	49.2	32.2
57.5°	61.3	65.3	73.4	87.9	84.6	77.4	64.5	55.6	46.0	39.5	27.4
60°	37.9	40.3	47.6	59.7	61.3	55.6	47.6	41.1	38.7	34.7	25.0
62.5°	24.2	25.8	33.1	39.5	41.1	37.1	34.7	33.1	32.2	29.0	21.8
65°	16.1	16.9	21.0	26.6	26.6	25.8	24.2	25.8	25.8	23.4	17.7
67.5°	10.5	11.3	14.5	17.7	17.7	17.7	19.3	20.2	20.2	17.7	13.7
70°	8.1	8.1	9.7	11.3	12.1	12.1	12.9	15.3	15.3	13.7	11.3
72.5°	5.6	5.6	6.4	7.3	8.1	8.1	9.7	10.5	11.3	10.5	8.9
75°	4.0	4.0	4.0	4.8	4.8	5.6	6.4	7.3	8.1	8.1	6.4
77.5°	2.4	2.4	2.4	3.2	3.2	3.2	4.0	4.0	4.8	4.8	4.0
80°	0.8	0.8	1.6	1.6	1.6	1.6	2.4	2.4	2.4	2.4	2.4
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°	624.8	624.8	624.8
2.5°	596.6	585.3	586.1
5°	538.5	513.5	509.5
7.5°	480.5	443.4	432.9
10°	423.2	379.7	364.4
12.5°	362.0	324.9	310.4
15°	316.0	280.5	268.5
17.5°	271.7	241.8	230.6
20°	236.2	208.8	195.1
22.5°	205.6	177.4	166.9
25°	175.7	150.8	144.3
27.5°	149.1	129.0	125.8
30°	126.6	112.1	109.6
32.5°	108.0	98.4	99.2
35°	93.5	87.1	87.9
37.5°	80.6	75.8	79.0
40°	68.5	67.7	70.9
42.5°	59.7	60.5	63.7
45°	50.8	54.0	56.4
47.5°	43.5	49.2	50.0
50°	37.9	43.5	44.3
52.5°	33.9	38.7	38.7
55°	29.8	33.9	33.9
57.5°	26.6	29.0	29.8
60°	23.4	24.2	25.8
62.5°	20.2	21.0	21.8
65°	16.9	17.7	17.7
67.5°	13.7	14.5	14.5
70°	11.3	11.3	10.5
72.5°	7.3	8.1	6.4
75°	5.6	4.8	4.0
77.5°	3.2	3.2	2.4
80°	2.4	2.4	2.4
82.5°	2.4	2.4	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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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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