

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: P886827

Luminaire Tested: ML412LSFL95FS1E-TIR4D25AWW-TL4RWMW-1020LM-3500K

Issue Date: 7/9/2024

Test Information

Test Method: LM-79-2019
Report Number: P886827
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-3500K
Description: 4IN ROUND ML FLEX, SELECTABLE CCT, WITH WW TIR, MATTE WHITE TRIM
Light Source: (1) HCL SELECTABLE LUMEN LED 95CRI / 3500K CCT
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 841.2 lumens
Efficiency: N/A
Efficacy: 47.8 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

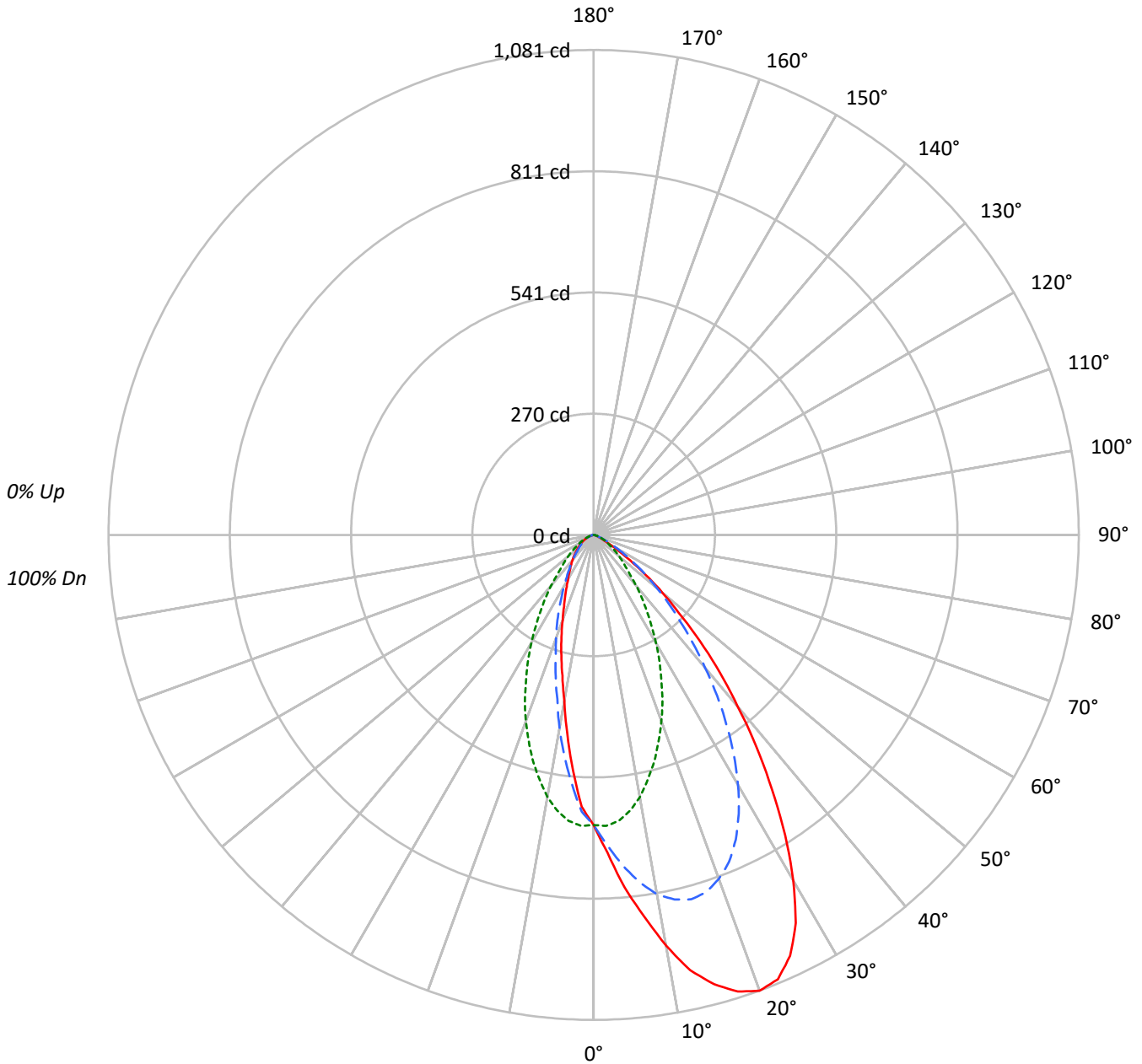
Input Watts (W): 17.6
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20					20					20					20										
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	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°	141787	141787	141787	141787	141787
5°	173541	162700	140854	122672	116068
10°	206943	181215	132084	97527	83966
15°	235416	190921	118570	74234	63065
20°	252302	190393	102979	57032	47114
25°	250514	181269	86182	44011	36123
30°	225402	162974	70137	33170	28739
35°	185377	138129	54930	25913	24333
40°	143039	110564	42022	20295	21011
45°	103732	84613	31042	16312	18110
50°	68023	62480	25040	13373	15658
55°	37963	43219	19459	11813	13381
60°	17192	26533	15744	10613	11710
65°	8665	14061	12556	9080	9547
70°	5321	8014	9104	7501	6924
75°	3558	4575	7032	4914	3558
80°	1010	2147	3157	3157	3157
85°	0	2013	4277	4277	4277

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 103732 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	61.2	7.3
10°-20°	164.8	19.6
20°-30°	214.7	25.5
30°-40°	189.0	22.5
40°-50°	121.0	14.4
50°-60°	60.1	7.1
60°-70°	22.6	2.7
70°-80°	6.6	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°	440.7	52.4
0°-40°	629.7	74.8
0°-60°	810.8	96.4
0°-90°	841.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	841.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	647	647	647	647	647	
5°	788	739	640	557	527	79
15°	1037	841	522	327	278	293
25°	1035	749	356	182	149	468
35°	692	516	205	97	91	432
45°	334	273	100	53	58	260
55°	99	113	51	31	35	95
65°	17	27	24	18	18	19
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°	646.6	646.6	646.6	646.6	646.6	646.6	646.6	646.6	646.6	646.6	646.6
2.5°	709.1	710.8	705.0	699.1	695.8	688.3	679.1	665.8	659.1	649.1	630.7
5°	788.4	788.4	782.6	765.0	750.0	728.3	710.0	685.8	662.4	639.9	596.5
7.5°	856.8	856.8	845.1	828.4	797.6	763.4	729.2	690.0	654.1	619.9	554.0
10°	929.4	925.2	909.4	878.5	836.0	791.7	738.3	685.8	639.1	593.2	505.6
12.5°	993.6	982.8	957.8	917.7	862.7	801.8	739.2	673.3	613.2	558.1	455.5
15°	1037.0	1027.8	994.5	943.6	877.7	804.3	729.2	652.4	583.2	522.3	408.8
17.5°	1067.1	1057.9	1014.5	953.6	876.8	792.6	708.3	624.9	549.0	481.4	360.4
20°	1081.2	1068.7	1023.7	951.1	861.8	770.0	677.4	588.2	510.6	441.3	317.0
22.5°	1072.1	1057.0	1005.3	932.7	839.3	738.3	642.4	552.3	468.0	400.5	275.3
25°	1035.4	1025.3	971.1	892.7	800.9	697.5	597.4	506.4	424.7	356.2	238.6
27.5°	975.3	957.8	909.4	843.5	750.9	649.9	549.0	461.4	383.8	317.0	205.2
30°	890.2	875.2	837.6	775.1	693.3	594.0	499.7	411.3	339.6	277.0	176.0
32.5°	794.2	788.4	754.2	703.3	628.2	535.6	452.2	366.3	298.7	239.4	150.2
35°	692.5	684.1	660.8	611.5	553.1	478.9	395.5	319.5	260.3	205.2	126.0
37.5°	596.5	584.8	565.6	531.4	483.1	420.5	342.1	273.6	219.4	175.2	106.8
40°	499.7	493.9	476.4	450.5	414.6	357.9	292.8	234.4	188.5	146.8	89.3
42.5°	416.3	406.3	394.6	377.9	350.4	304.5	248.6	196.9	152.7	120.1	74.3
45°	334.5	327.0	323.7	312.0	291.2	254.5	207.7	159.3	126.0	100.1	61.7
47.5°	257.0	258.6	258.6	254.5	241.9	211.1	169.4	131.8	106.8	86.8	53.4
50°	199.4	197.7	201.9	205.2	194.4	171.9	135.2	110.1	90.9	73.4	45.9
52.5°	146.0	146.0	155.2	162.7	155.2	137.7	110.1	90.1	74.3	62.6	40.0
55°	99.3	103.5	111.0	125.1	121.0	105.1	89.3	71.7	60.9	50.9	33.4
57.5°	63.4	67.6	75.9	90.9	87.6	80.1	66.7	57.6	47.6	40.9	28.4
60°	39.2	41.7	49.2	61.7	63.4	57.6	49.2	42.5	40.0	35.9	25.9
62.5°	25.0	26.7	34.2	40.9	42.5	38.4	35.9	34.2	33.4	30.0	22.5
65°	16.7	17.5	21.7	27.5	27.5	26.7	25.0	26.7	26.7	24.2	18.4
67.5°	10.8	11.7	15.0	18.4	18.4	18.4	20.0	20.9	20.9	18.4	14.2
70°	8.3	8.3	10.0	11.7	12.5	12.5	13.3	15.9	15.9	14.2	11.7
72.5°	5.8	5.8	6.7	7.5	8.3	8.3	10.0	10.8	11.7	10.8	9.2
75°	4.2	4.2	4.2	5.0	5.0	5.8	6.7	7.5	8.3	8.3	6.7
77.5°	2.5	2.5	2.5	3.3	3.3	3.3	4.2	4.2	5.0	5.0	4.2
80°	0.8	0.8	1.7	1.7	1.7	1.7	2.5	2.5	2.5	2.5	2.5
82.5°	0.0	0.0	0.8	0.8	0.8	0.8	0.8	1.7	1.7	1.7	1.7
85°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	1.7	1.7	1.7
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°	646.6	646.6	646.6
2.5°	617.4	605.7	606.5
5°	557.3	531.4	527.3
7.5°	497.2	458.9	448.0
10°	438.0	392.9	377.1
12.5°	374.6	336.2	321.2
15°	327.0	290.3	277.8
17.5°	281.2	250.3	238.6
20°	244.4	216.1	201.9
22.5°	212.7	183.5	172.7
25°	181.9	156.0	149.3
27.5°	154.3	133.5	130.1
30°	131.0	116.0	113.5
32.5°	111.8	101.8	102.6
35°	96.8	90.1	90.9
37.5°	83.4	78.4	81.8
40°	70.9	70.1	73.4
42.5°	61.7	62.6	65.9
45°	52.6	55.9	58.4
47.5°	45.1	50.9	51.7
50°	39.2	45.1	45.9
52.5°	35.0	40.0	40.0
55°	30.9	35.0	35.0
57.5°	27.5	30.0	30.9
60°	24.2	25.0	26.7
62.5°	20.9	21.7	22.5
65°	17.5	18.4	18.4
67.5°	14.2	15.0	15.0
70°	11.7	11.7	10.8
72.5°	7.5	8.3	6.7
75°	5.8	5.0	4.2
77.5°	3.3	3.3	2.5
80°	2.5	2.5	2.5
82.5°	2.5	2.5	1.7
85°	1.7	1.7	1.7
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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