

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: P886823

Luminaire Tested: ML412LSFL95FS1E-TIR4D25AWW-TL4RWMB-1020LM-4000K

Issue Date: 7/9/2024

Test Information

Test Method: LM-79-2019
Report Number: P886823
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2402-314-47)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 7/9/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO
Catalog Number: ML412LSFL95FS1E-TIR4D25AWW-TL4RWMB-1020LM-4000K
Description: 4IN ROUND ML FLEX, SELECTABLE CCT, WITH WW TIR, MATTE BLACK TRIM
Light Source: (1) HCL SELECTABLE LUMEN LED 95CRI / 4000K CCT
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 822.1 lumens
Efficiency: N/A
Efficacy: 46.7 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 0.8 / 0.99
Luminous Opening: Circular (Dia: 0.25' x H: 0')
CIE Type: Direct

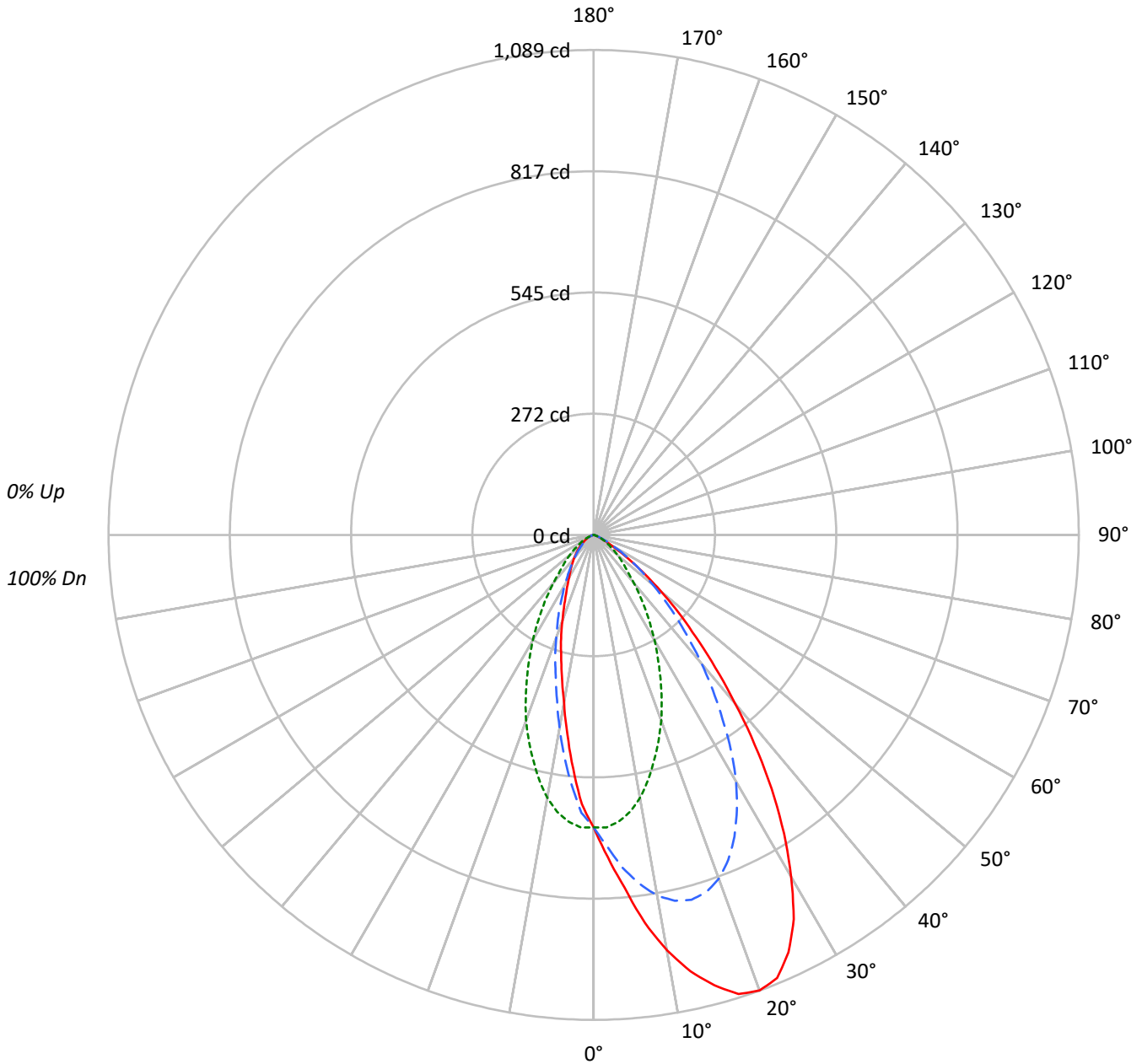
Input Watts (W): 17.6
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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	0		
RCR																										
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100					100			
1	113	109	106	104	110	107	105	102	103	101	99	99	98	96	96	95	93	91					91			
2	106	100	95	91	103	98	94	90	95	91	88	92	89	86	89	87	85	83					83			
3	99	92	86	81	97	90	85	81	87	83	79	85	81	78	83	79	77	75					75			
4	93	84	78	73	91	83	77	72	81	76	71	79	74	71	77	73	70	68					68			
5	87	78	71	66	86	77	70	65	75	69	65	73	68	64	71	67	64	62					62			
6	82	72	65	60	80	71	64	60	69	64	59	68	63	59	66	62	58	57					57			
7	77	67	60	55	76	66	59	55	64	59	54	63	58	54	62	57	54	52					52			
8	73	62	55	50	72	61	55	50	60	54	50	59	54	50	58	53	50	48					48			
9	69	58	51	47	68	57	51	47	56	50	46	55	50	46	54	50	46	44					44			
10	65	54	48	43	64	54	47	43	53	47	43	52	47	43	51	46	43	41					41			

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	143980	143980	143980	143980	143980
5°	175038	165221	142240	124125	116112
10°	210818	183141	133464	97972	85258
15°	237754	192510	118979	74529	63905
20°	254075	191723	103492	57008	47697
25°	250248	180869	85723	43382	35639
30°	224592	161860	69099	32461	27852
35°	186421	134837	53565	24815	23182
40°	141322	107745	39932	18835	19351
45°	100476	81667	30360	14513	16374
50°	66795	58659	23334	11531	13577
55°	39071	40735	17548	9596	10934
60°	17849	23945	14078	7982	8727
65°	8976	12582	9443	6278	6745
70°	5001	6091	6091	4424	3911
75°	2203	2203	2965	1440	763
80°	0	568	1137	0	0
85°	0	0	0	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 10°
 Vertical Angle: 45°
 Luminance: 101809 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	61.9	7.5
10°-20°	166.2	20.2
20°-30°	214.1	26.0
30°-40°	185.5	22.6
40°-50°	116.5	14.2
50°-60°	55.8	6.8
60°-70°	18.8	2.3
70°-80°	3.2	0.4
80°-90°	0.1	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°	442.2	53.8
0°-40°	627.7	76.4
0°-60°	800.1	97.3
0°-90°	822.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	822.1	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	657	657	657	657	657	
5°	795	751	646	564	528	81
15°	1047	848	524	328	282	296
25°	1034	748	354	179	147	468
35°	696	504	200	93	87	431
45°	324	263	98	47	53	255
55°	102	107	46	25	29	95
65°	17	24	18	12	13	19
75°	3	3	4	2	1	3
85°	0	0	0	0	0	0
90°	0	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°	656.6	656.6	656.6	656.6	656.6	656.6	656.6	656.6	656.6	656.6	656.6
2.5°	724.2	715.5	717.2	712.9	706.0	695.6	688.6	678.2	668.7	657.5	637.5
5°	795.2	796.1	786.5	776.1	764.0	737.2	717.2	693.8	669.6	646.2	600.3
7.5°	878.3	873.1	861.0	835.0	808.2	772.7	737.2	699.9	663.5	627.1	557.8
10°	946.8	939.0	919.9	886.1	848.9	796.1	747.5	693.8	644.5	599.4	511.1
12.5°	1003.9	997.0	971.0	926.0	873.1	809.9	744.9	680.0	619.3	563.9	459.1
15°	1047.3	1037.7	1003.9	952.0	886.1	809.9	735.4	657.5	588.2	524.1	409.7
17.5°	1081.0	1066.3	1023.0	962.4	883.5	798.7	712.0	629.7	552.6	484.2	361.2
20°	1088.8	1075.8	1026.5	956.3	870.5	772.7	681.7	590.8	513.7	443.5	317.0
22.5°	1076.7	1056.8	1011.7	935.5	841.1	738.9	642.7	553.5	469.5	398.5	273.7
25°	1034.3	1020.4	971.9	893.1	798.7	696.4	596.8	502.4	427.0	354.3	237.3
27.5°	972.8	956.3	908.7	840.2	749.3	643.6	547.5	458.2	381.1	311.8	203.6
30°	887.0	875.7	835.0	765.7	689.5	589.0	496.3	410.6	336.1	272.9	174.1
32.5°	795.2	779.6	746.7	690.4	618.5	529.3	441.8	360.3	291.0	234.7	146.4
35°	696.4	687.8	654.9	602.9	541.4	466.0	388.1	312.7	250.3	200.1	123.0
37.5°	594.2	583.8	563.0	521.5	473.0	405.4	333.5	268.5	213.1	168.9	102.2
40°	493.7	486.8	471.2	441.8	403.7	349.1	282.4	225.2	176.7	139.5	84.9
42.5°	404.5	402.8	393.3	371.6	340.4	291.0	240.8	187.1	146.4	114.3	68.4
45°	324.0	328.3	318.8	305.8	282.4	244.3	198.4	154.2	122.1	97.9	58.0
47.5°	259.0	255.5	254.7	249.5	229.5	198.4	159.4	127.3	105.7	83.2	50.2
50°	195.8	194.9	199.2	200.1	183.6	160.3	129.9	107.4	85.8	68.4	41.6
52.5°	143.8	145.5	152.5	157.7	147.3	126.5	107.4	85.8	71.0	57.2	35.5
55°	102.2	102.2	112.6	118.7	113.5	99.6	82.3	67.6	55.4	45.9	28.6
57.5°	64.1	66.7	77.1	84.9	83.2	74.5	61.5	51.1	44.2	38.1	25.1
60°	40.7	42.4	51.1	57.2	57.2	52.0	45.0	39.0	36.4	32.1	21.7
62.5°	26.0	28.6	33.8	39.0	39.8	34.6	30.3	30.3	28.6	25.1	18.2
65°	17.3	18.2	22.5	25.1	25.1	23.4	22.5	22.5	21.7	18.2	13.0
67.5°	11.3	12.1	14.7	16.5	15.6	13.9	15.6	16.5	15.6	13.9	10.4
70°	7.8	7.8	8.7	10.4	9.5	9.5	10.4	10.4	10.4	9.5	6.9
72.5°	5.2	5.2	5.2	5.2	5.2	5.2	6.1	6.9	6.9	6.9	4.3
75°	2.6	2.6	2.6	2.6	2.6	2.6	2.6	3.5	3.5	3.5	1.7
77.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
80°	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	0.9	0.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	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°	656.6	656.6	656.6
2.5°	624.5	616.7	605.5
5°	563.9	539.7	527.5
7.5°	503.3	466.0	451.3
10°	440.0	398.5	382.9
12.5°	380.3	341.3	327.4
15°	328.3	292.8	281.5
17.5°	286.7	252.9	243.4
20°	244.3	214.0	204.4
22.5°	211.4	182.8	172.4
25°	179.3	153.3	147.3
27.5°	151.6	130.8	126.5
30°	128.2	113.5	110.0
32.5°	109.1	98.7	97.9
35°	92.7	85.8	86.6
37.5°	78.8	74.5	77.1
40°	65.8	65.8	67.6
42.5°	56.3	58.0	60.6
45°	46.8	51.1	52.8
47.5°	39.0	44.2	45.9
50°	33.8	38.1	39.8
52.5°	29.5	32.9	33.8
55°	25.1	28.6	28.6
57.5°	21.7	23.4	24.3
60°	18.2	19.9	19.9
62.5°	14.7	16.5	16.5
65°	12.1	13.0	13.0
67.5°	9.5	9.5	9.5
70°	6.9	6.9	6.1
72.5°	3.5	3.5	3.5
75°	1.7	0.9	0.9
77.5°	0.0	0.0	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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1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report





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

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