

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: P886842

Luminaire Tested: ML412LSFL95FS1E-TIR4D25AWW-TL4SWMW-1020LM-3500K

Issue Date: 7/10/2024

Test Information

Test Method: LM-79-2019
Report Number: P886842
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2402-314-57)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 7/10/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO
Catalog Number: ML412LSFL95FS1E-TIR4D25AWW-TL4SWMW-1020LM-3500K
Description: 4IN SQUARE 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: 840.4 lumens
Efficiency: N/A
Efficacy: 47.7 lumens/watt
Spacing Criteria (0/90/45): 1.12 / 0.8 / 0.99
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

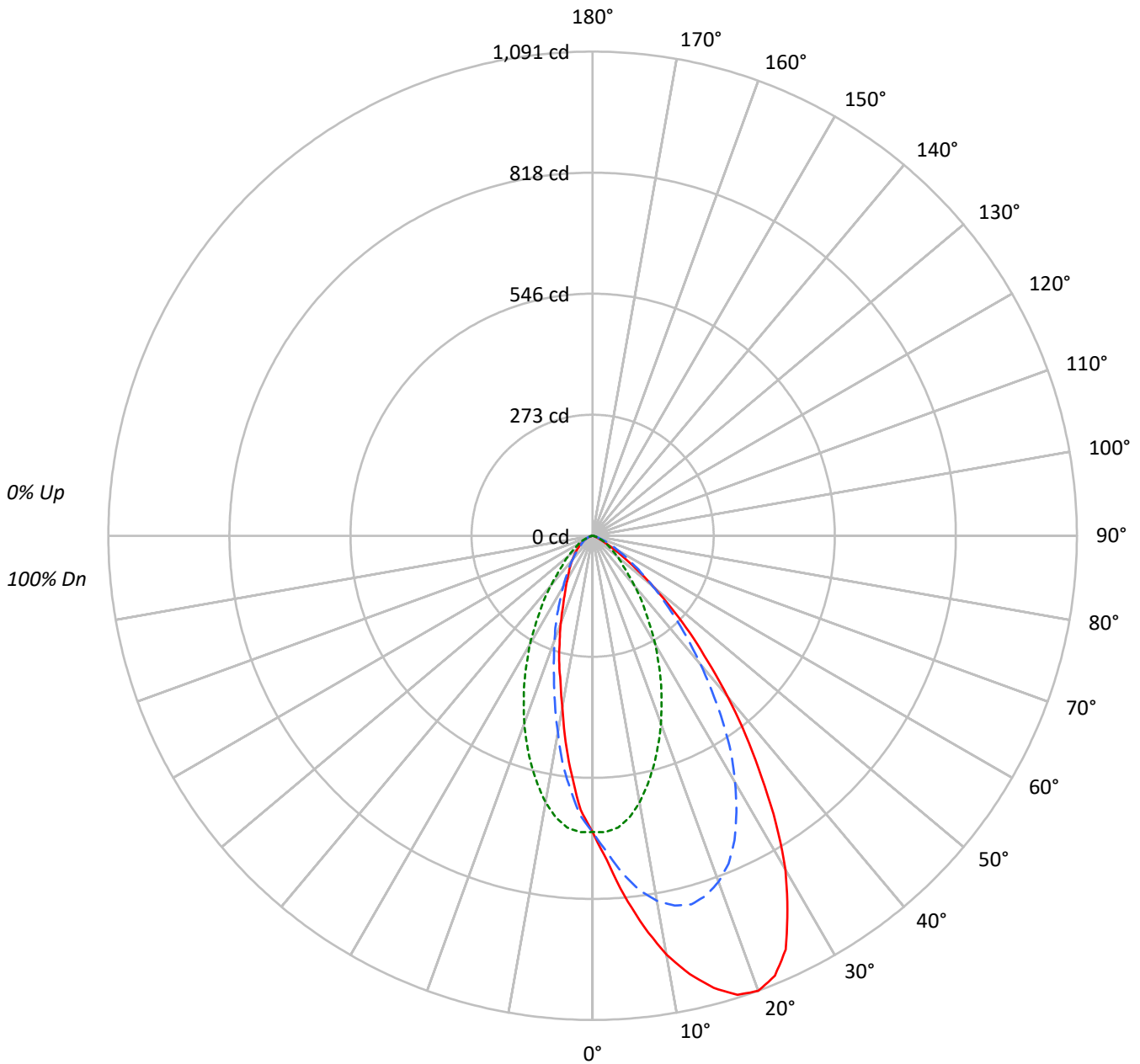
Input Watts (W): 17.6
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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	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	97	96	96	94	93	91								
2	105	100	95	91	103	98	93	90	95	91	88	91	88	86	89	86	84	82								
3	99	91	85	81	97	90	84	80	87	82	79	84	81	77	82	79	76	74								
4	93	84	77	72	91	83	76	72	80	75	71	78	74	70	76	72	69	67								
5	87	77	70	65	85	76	70	65	74	69	64	72	68	64	71	66	63	61								
6	82	71	64	59	80	70	64	59	69	63	59	67	62	58	66	61	58	56								
7	77	66	59	54	75	65	59	54	64	58	54	63	57	53	62	57	53	52								
8	73	62	55	50	71	61	54	50	60	54	50	59	53	49	58	53	49	48								
9	69	57	51	46	67	57	50	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	42	41								

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	64664	64664	64664	64664	64664
5°	79022	74155	64172	55819	52571
10°	94219	82154	59996	44316	38571
15°	105769	86232	53556	33638	29205
20°	112505	85536	46361	25804	21588
25°	109958	80884	38887	19614	16055
30°	97152	71815	31545	14844	12696
35°	78444	60385	24374	11341	10656
40°	59930	47796	18463	8865	8966
45°	42526	36463	13481	6973	7658
50°	26902	26721	10821	5531	6405
55°	14660	18748	8597	4932	5489
60°	6781	12933	6956	4534	4689
65°	3645	8504	5364	3828	3645
70°	2351	4843	4022	3541	2606
75°	1572	2658	2807	2171	1235
80°	446	1395	948	1395	948
85°	0	889	889	889	889

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 42526 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	63.1	7.5
10°-20°	168.7	20.1
20°-30°	216.0	25.7
30°-40°	186.4	22.2
40°-50°	116.9	13.9
50°-60°	57.9	6.9
60°-70°	23.5	2.8
70°-80°	7.0	0.8
80°-90°	0.9	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°	447.7	53.3
0°-40°	634.1	75.5
0°-60°	809.0	96.3
0°-90°	840.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	840.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	668	668	668	668	668	
5°	813	763	660	574	541	82
15°	1055	860	534	335	291	298
25°	1029	757	364	184	150	463
35°	663	511	206	96	90	414
45°	310	266	98	51	56	240
55°	87	111	51	29	32	83
65°	16	37	23	17	16	18
75°	4	7	8	6	3	4
85°	0	1	1	1	1	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°	667.5	667.5	667.5	667.5	667.5	667.5	667.5	667.5	667.5	667.5	667.5
2.5°	730.9	735.0	724.2	724.2	715.8	708.3	700.8	689.1	679.1	668.3	647.4
5°	812.6	809.3	799.3	790.9	774.2	750.9	731.7	707.5	681.6	659.9	611.6
7.5°	889.4	885.2	867.7	850.2	822.6	786.8	750.9	711.7	672.5	639.1	568.2
10°	957.8	951.1	930.3	897.7	859.3	811.0	760.1	705.0	654.9	609.9	520.6
12.5°	1012.0	1002.8	978.6	936.1	884.4	822.6	759.2	691.6	629.1	573.2	469.7
15°	1054.6	1046.2	1012.0	962.0	896.1	823.5	745.9	670.8	597.4	534.0	420.5
17.5°	1084.6	1072.9	1030.4	969.5	891.9	807.6	723.3	639.1	561.5	492.2	373.8
20°	1091.3	1076.3	1030.4	962.8	876.0	783.4	693.3	601.5	520.6	449.7	327.1
22.5°	1072.9	1057.1	1010.4	937.8	850.2	749.2	653.3	558.2	476.4	405.5	283.7
25°	1028.7	1011.2	967.0	896.9	807.6	705.8	604.9	518.1	436.3	363.8	242.8
27.5°	950.3	941.9	901.9	836.0	750.9	652.4	553.1	468.9	387.1	320.4	208.6
30°	868.5	860.2	826.0	768.4	688.3	595.7	504.8	419.7	342.9	282.0	177.7
32.5°	769.2	759.2	735.0	685.0	620.7	539.8	448.9	370.4	301.2	241.1	152.7
35°	663.3	663.3	642.4	603.2	547.3	473.9	395.5	322.9	259.5	206.1	126.8
37.5°	565.7	568.2	550.6	514.8	469.7	412.2	340.4	275.3	220.3	176.9	106.8
40°	473.9	468.0	458.9	438.0	401.3	354.6	291.2	235.3	186.1	146.0	89.3
42.5°	382.9	387.1	376.3	364.6	338.7	299.5	248.6	198.6	152.7	119.3	73.4
45°	310.4	308.7	305.4	297.0	283.7	248.6	206.1	160.2	125.1	98.4	60.9
47.5°	238.6	241.1	240.3	240.3	231.1	206.1	168.5	129.3	105.1	85.9	52.6
50°	178.5	185.2	189.4	192.7	186.9	167.7	131.0	106.8	89.3	71.8	45.1
52.5°	128.5	131.8	143.5	156.9	151.0	131.8	107.6	89.3	73.4	60.1	38.4
55°	86.8	93.4	106.0	119.3	118.5	103.5	87.6	72.6	61.7	50.9	32.5
57.5°	55.1	58.4	73.4	89.3	89.3	81.8	70.1	60.9	48.4	40.9	27.5
60°	35.0	37.5	48.4	63.4	68.4	65.1	56.7	45.9	40.9	35.9	25.0
62.5°	23.4	24.2	32.5	43.4	50.1	50.1	42.5	37.5	33.4	29.2	21.7
65°	15.9	16.7	21.7	29.2	36.7	37.5	32.5	29.2	26.7	23.4	18.4
67.5°	10.8	11.7	15.0	20.0	24.2	25.9	25.0	23.4	20.9	17.5	14.2
70°	8.3	8.3	10.0	13.3	16.7	17.5	17.5	17.5	15.9	14.2	11.7
72.5°	5.8	6.7	6.7	9.2	10.8	11.7	12.5	12.5	11.7	10.8	9.2
75°	4.2	4.2	5.0	5.8	6.7	7.5	8.3	8.3	8.3	7.5	6.7
77.5°	2.5	2.5	3.3	3.3	4.2	5.0	5.0	5.0	4.2	4.2	4.2
80°	0.8	0.8	1.7	1.7	2.5	2.5	2.5	2.5	1.7	1.7	2.5
82.5°	0.0	0.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.7
85°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8
87.5°	0.0	0.0	0.0	0.0	0.0	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°	667.5	667.5	667.5
2.5°	631.6	619.9	618.2
5°	574.0	554.8	540.6
7.5°	517.3	479.7	468.0
10°	450.5	410.5	392.1
12.5°	391.3	348.7	334.6
15°	335.4	298.7	291.2
17.5°	290.3	257.0	246.1
20°	250.3	218.6	209.4
22.5°	216.9	185.2	175.2
25°	183.5	157.7	150.2
27.5°	156.0	134.3	130.2
30°	132.7	115.1	113.5
32.5°	113.5	100.1	101.0
35°	95.9	87.6	90.1
37.5°	83.4	77.6	80.1
40°	70.1	68.4	70.9
42.5°	60.1	60.9	63.4
45°	50.9	54.2	55.9
47.5°	43.4	48.4	49.2
50°	36.7	42.5	42.5
52.5°	32.5	37.5	37.5
55°	29.2	32.5	32.5
57.5°	26.7	28.4	28.4
60°	23.4	23.4	24.2
62.5°	19.2	20.0	20.0
65°	16.7	16.7	15.9
67.5°	14.2	14.2	12.5
70°	12.5	11.7	9.2
72.5°	9.2	8.3	5.8
75°	5.8	5.0	3.3
77.5°	3.3	2.5	1.7
80°	2.5	1.7	1.7
82.5°	1.7	1.7	0.8
85°	0.8	0.8	0.8
87.5°	0.8	0.8	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



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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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