

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: P887088

Luminaire Tested: ML412LSFLD2W1E-TIR4D25AWW-TL4SWMW-600LM-2700K

Issue Date: 7/10/2024

Test Information

Test Method: LM-79-2019
Report Number: P887088
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: ML412LSFLD2W1E-TIR4D25AWW-TL4SWMW-600LM-2700K
Description: 4IN SQUARE 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: 518.1 lumens
Efficiency: N/A
Efficacy: 55.1 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

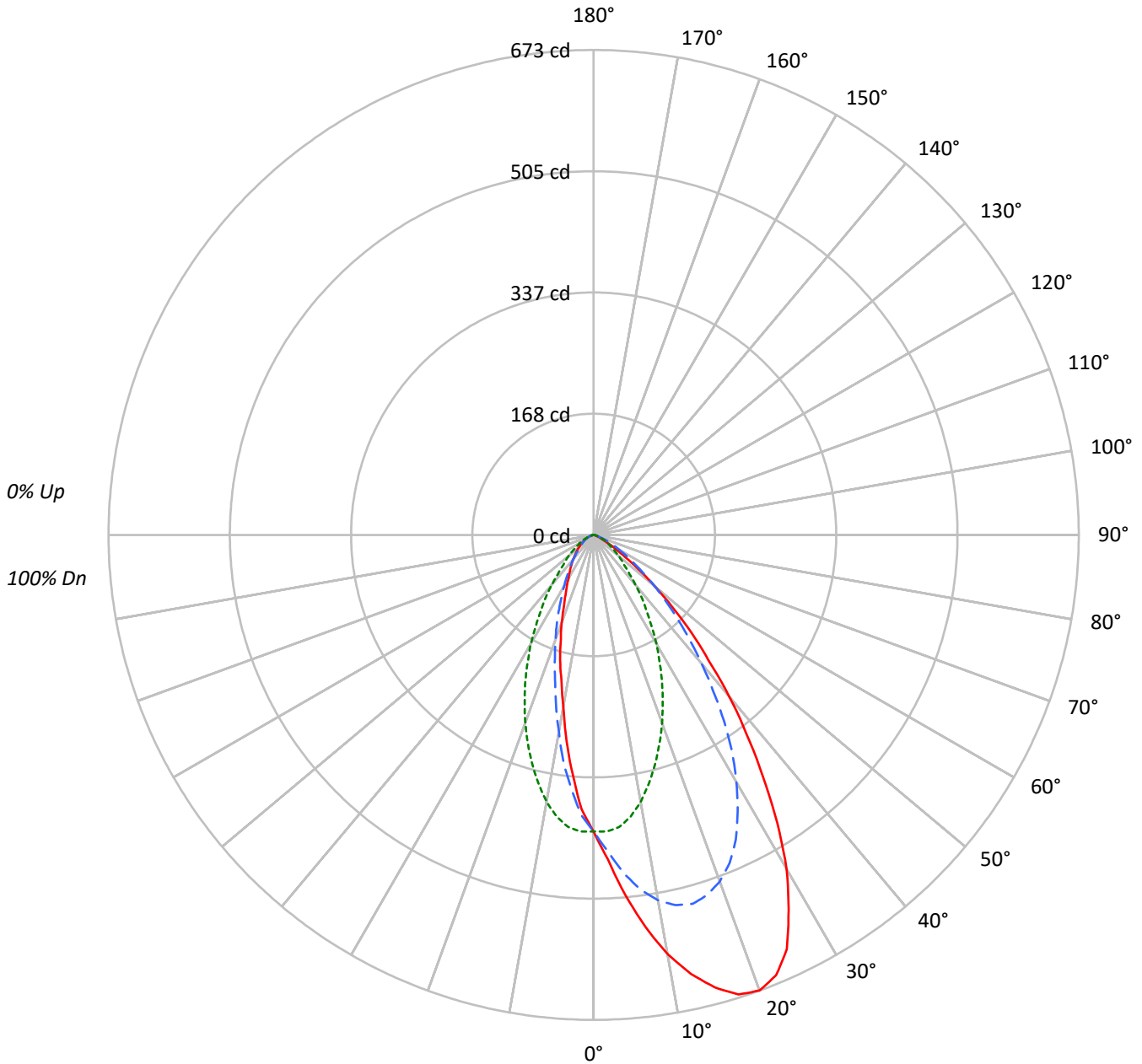
Input Watts (W): 9.4
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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	100	100	100	100	100		
	1	112	109	106	104	110	107	104	102	103	101	99	99	97	96	96	94	93	91	91	91	91	91	91		
	2	105	100	95	91	103	98	93	90	95	91	88	91	88	86	89	86	84	82	82	82	82	82	82		
	3	99	91	85	81	97	90	84	80	87	82	79	84	81	77	82	79	76	74	74	74	74	74	74		
	4	93	84	77	72	91	83	76	72	80	75	71	78	74	70	76	72	69	67	67	67	67	67	67		
	5	87	77	70	65	85	76	70	65	74	69	64	72	68	64	71	66	63	61	61	61	61	61	61		
	6	82	71	64	59	80	70	64	59	69	63	59	67	62	58	66	61	58	56	56	56	56	56	56		
	7	77	66	59	54	75	65	59	54	64	58	54	63	57	53	62	57	53	52	52	52	52	52	52		
	8	73	62	55	50	71	61	54	50	60	54	50	59	53	49	58	53	49	48	48	48	48	48	48		
	9	69	57	51	46	67	57	50	46	56	50	46	55	50	46	54	49	46	44	44	44	44	44	44		
	10	65	54	47	43	64	53	47	43	53	47	43	52	46	43	51	46	42	41	41	41	41	41	41		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	39864	39864	39864	39864	39864
5°	48720	45725	39569	34415	32412
10°	58087	50651	36987	27327	23786
15°	65210	53165	33016	20741	18003
20°	69361	52737	28588	15907	13309
25°	67790	49870	23975	12100	9898
30°	59902	44281	19453	9150	7830
35°	48358	37229	15031	7001	6575
40°	36952	29466	11382	5463	5526
45°	26222	22482	8316	4302	4727
50°	16593	16473	6661	3406	3949
55°	9036	11553	5303	3040	3395
60°	4185	7973	4282	2790	2887
65°	2246	5238	3301	2361	2246
70°	1445	2988	2464	2181	1614
75°	973	1628	1722	1347	786
80°	279	837	558	837	558
85°	0	556	556	556	556

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 26222 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	38.9	7.5
10°-20°	104.0	20.1
20°-30°	133.2	25.7
30°-40°	114.9	22.2
40°-50°	72.1	13.9
50°-60°	35.7	6.9
60°-70°	14.5	2.8
70°-80°	4.3	0.8
80°-90°	0.5	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°	276.0	53.3
0°-40°	391.0	75.5
0°-60°	498.8	96.3
0°-90°	518.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	518.1	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	412	412	412	412	412	
5°	501	470	407	354	333	51
15°	650	530	329	207	180	184
25°	634	467	224	113	93	286
35°	409	315	127	59	56	255
45°	191	164	61	31	34	148
55°	54	68	31	18	20	51
65°	10	23	14	10	10	11
75°	3	4	5	4	2	3
85°	0	0	0	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°	411.5	411.5	411.5	411.5	411.5	411.5	411.5	411.5	411.5	411.5	411.5
2.5°	450.6	453.2	446.5	446.5	441.3	436.7	432.1	424.9	418.7	412.0	399.2
5°	501.0	499.0	492.8	487.6	477.4	463.0	451.1	436.2	420.3	406.9	377.0
7.5°	548.3	545.8	535.0	524.2	507.2	485.1	463.0	438.8	414.6	394.0	350.3
10°	590.5	586.4	573.5	553.5	529.8	500.0	468.6	434.7	403.8	376.0	321.0
12.5°	624.0	618.3	603.4	577.1	545.3	507.2	468.1	426.4	387.8	353.4	289.6
15°	650.2	645.0	624.0	593.1	552.5	507.7	459.9	413.6	368.3	329.2	259.3
17.5°	668.7	661.5	635.3	597.7	549.9	497.9	446.0	394.0	346.2	303.5	230.4
20°	672.8	663.6	635.3	593.6	540.1	483.0	427.5	370.9	321.0	277.3	201.6
22.5°	661.5	651.7	622.9	578.2	524.2	461.9	402.8	344.1	293.7	250.0	174.9
25°	634.2	623.4	596.2	553.0	497.9	435.2	372.9	319.4	269.0	224.3	149.7
27.5°	585.9	580.7	556.1	515.4	463.0	402.3	341.0	289.1	238.7	197.5	128.6
30°	535.5	530.3	509.2	473.8	424.4	367.3	311.2	258.7	211.4	173.9	109.6
32.5°	474.3	468.1	453.2	422.3	382.7	332.8	276.7	228.4	185.7	148.7	94.1
35°	408.9	408.9	396.1	371.9	337.4	292.2	243.8	199.1	160.0	127.1	78.2
37.5°	348.8	350.3	339.5	317.4	289.6	254.1	209.9	169.7	135.8	109.1	65.8
40°	292.2	288.6	282.9	270.1	247.4	218.6	179.5	145.1	114.7	90.0	55.0
42.5°	236.1	238.7	232.0	224.8	208.8	184.7	153.3	122.4	94.1	73.6	45.3
45°	191.4	190.3	188.3	183.1	174.9	153.3	127.1	98.8	77.2	60.7	37.6
47.5°	147.1	148.7	148.1	148.1	142.5	127.1	103.9	79.7	64.8	53.0	32.4
50°	110.1	114.2	116.8	118.8	115.2	103.4	80.8	65.8	55.0	44.2	27.8
52.5°	79.2	81.3	88.5	96.7	93.1	81.3	66.4	55.0	45.3	37.0	23.7
55°	53.5	57.6	65.3	73.6	73.0	63.8	54.0	44.8	38.1	31.4	20.1
57.5°	33.9	36.0	45.3	55.0	55.0	50.4	43.2	37.6	29.8	25.2	17.0
60°	21.6	23.1	29.8	39.1	42.2	40.1	35.0	28.3	25.2	22.1	15.4
62.5°	14.4	14.9	20.1	26.7	30.9	30.9	26.2	23.1	20.6	18.0	13.4
65°	9.8	10.3	13.4	18.0	22.6	23.1	20.1	18.0	16.5	14.4	11.3
67.5°	6.7	7.2	9.3	12.3	14.9	15.9	15.4	14.4	12.9	10.8	8.7
70°	5.1	5.1	6.2	8.2	10.3	10.8	10.8	10.8	9.8	8.7	7.2
72.5°	3.6	4.1	4.1	5.7	6.7	7.2	7.7	7.7	7.2	6.7	5.7
75°	2.6	2.6	3.1	3.6	4.1	4.6	5.1	5.1	5.1	4.6	4.1
77.5°	1.5	1.5	2.1	2.1	2.6	3.1	3.1	3.1	2.6	2.6	2.6
80°	0.5	0.5	1.0	1.0	1.5	1.5	1.5	1.5	1.0	1.0	1.5
82.5°	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1.0
85°	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5
87.5°	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.5	0.5
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°	411.5	411.5	411.5
2.5°	389.4	382.2	381.2
5°	353.9	342.1	333.3
7.5°	318.9	295.8	288.6
10°	277.8	253.1	241.8
12.5°	241.2	215.0	206.3
15°	206.8	184.2	179.5
17.5°	179.0	158.4	151.7
20°	154.3	134.8	129.1
22.5°	133.7	114.2	108.0
25°	113.2	97.2	92.6
27.5°	96.2	82.8	80.2
30°	81.8	71.0	70.0
32.5°	70.0	61.7	62.2
35°	59.2	54.0	55.6
37.5°	51.4	47.8	49.4
40°	43.2	42.2	43.7
42.5°	37.0	37.6	39.1
45°	31.4	33.4	34.5
47.5°	26.7	29.8	30.3
50°	22.6	26.2	26.2
52.5°	20.1	23.1	23.1
55°	18.0	20.1	20.1
57.5°	16.5	17.5	17.5
60°	14.4	14.4	14.9
62.5°	11.8	12.3	12.3
65°	10.3	10.3	9.8
67.5°	8.7	8.7	7.7
70°	7.7	7.2	5.7
72.5°	5.7	5.1	3.6
75°	3.6	3.1	2.1
77.5°	2.1	1.5	1.0
80°	1.5	1.0	1.0
82.5°	1.0	1.0	0.5
85°	0.5	0.5	0.5
87.5°	0.5	0.5	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
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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