

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: P887087

Luminaire Tested: ML412LSFLD2W1E-TIR4D25AWW-TL4SWMB-600LM-3000K

Issue Date: 7/10/2024

Test Information

Test Method: LM-79-2019
Report Number: P887087
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2402-314-59)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 7/10/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO
Catalog Number: ML412LSFLD2W1E-TIR4D25AWW-TL4SWMB-600LM-3000K
Description: 4IN SQUARE ML FLEX, SELECTABLE CCT, WITH WW TIR, MATTE BLACK TRIM
Light Source: (1) HCL SELECTABLE LUMEN LED 95CRI / 3500K CCT
Ballast/Driver: -

Summary

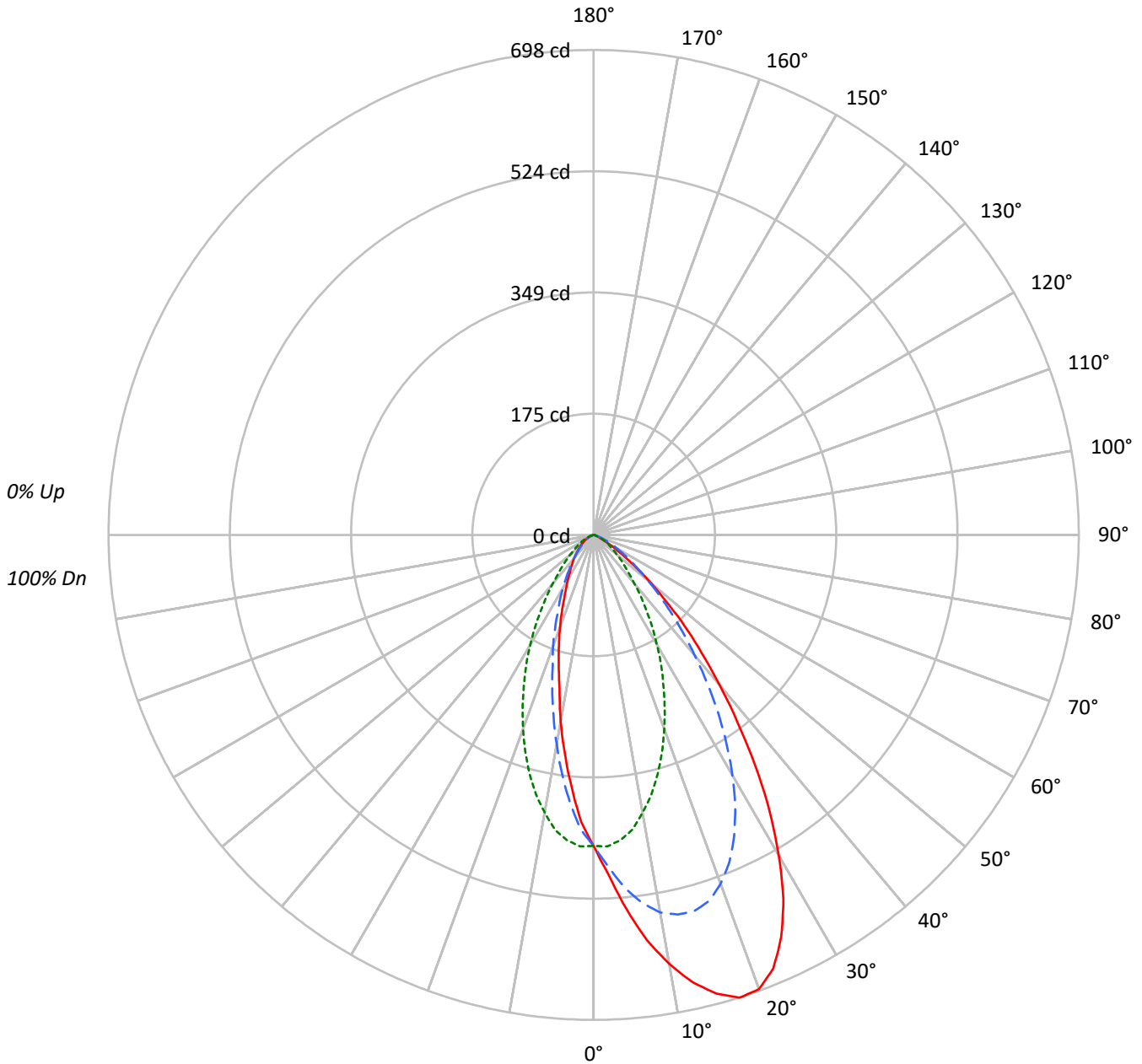
Lumens per Lamp: N/A
Luminaire Lumens: 526.3 lumens
Efficiency: N/A
Efficacy: 56.0 lumens/watt
Spacing Criteria (0/90/45): 1.08 / 0.79 / 0.96
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

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								
1	113	109	107	104	110	107	105	102	103	101	99	99	98	96	96	95	93	92								
2	106	100	95	92	104	98	94	91	95	92	89	92	89	87	89	87	85	83								
3	99	92	86	81	97	90	85	81	88	83	79	85	81	78	83	80	77	75								
4	93	85	78	73	91	83	77	73	81	76	72	79	75	71	77	73	70	68								
5	88	78	71	66	86	77	71	66	75	70	65	73	69	65	72	68	64	63								
6	82	72	65	60	81	71	65	60	70	64	60	68	63	59	67	62	59	57								
7	78	67	60	56	76	66	60	55	65	59	55	64	59	55	63	58	54	53								
8	73	63	56	51	72	62	56	51	61	55	51	60	54	51	59	54	50	49								
9	69	59	52	47	68	58	52	47	57	51	47	56	51	47	55	50	47	45								
10	66	55	48	44	65	54	48	44	54	48	44	53	48	44	52	47	44	42								

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	43352	43352	43352	43352	43352
5°	52551	49542	42876	37663	35407
10°	61688	54271	39899	30111	26845
15°	68550	56189	35684	23057	19397
20°	71711	55057	30588	17598	14577
25°	68271	51115	25333	12998	10636
30°	59578	44655	20337	9833	8278
35°	47967	36857	15552	7320	6670
40°	35561	28542	11533	5514	5514
45°	25359	21386	8631	4165	4466
50°	16156	15365	6496	3240	3753
55°	8952	10784	5033	2702	2989
60°	4166	7440	4069	2151	2364
65°	2269	4871	2797	1903	1903
70°	1246	2663	1869	1558	1246
75°	636	1235	823	823	225
80°	0	335	335	0	0
85°	0	0	0	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 25359 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	42.1	8.0
10°-20°	111.1	21.1
20°-30°	138.2	26.3
30°-40°	115.1	21.9
40°-50°	70.0	13.3
50°-60°	33.7	6.4
60°-70°	13.0	2.5
70°-80°	2.8	0.5
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°	291.5	55.4
0°-40°	406.6	77.3
0°-60°	510.4	97.0
0°-90°	526.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	526.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	448	448	448	448	448	
5°	540	509	441	387	364	54
15°	684	560	356	230	193	193
25°	639	478	237	122	100	289
35°	406	312	132	62	56	252
45°	185	156	63	30	33	143
55°	53	64	30	16	18	50
65°	10	21	12	8	8	11
75°	2	3	2	2	1	2
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°	447.5	447.5	447.5	447.5	447.5	447.5	447.5	447.5	447.5	447.5	447.5
2.5°	489.0	489.5	489.5	484.0	480.7	474.6	468.5	462.5	454.2	448.7	435.4
5°	540.4	537.1	534.3	526.6	516.1	502.8	487.3	471.3	455.8	440.9	409.4
7.5°	588.4	584.0	577.9	561.9	544.8	523.2	498.9	473.5	448.7	427.7	383.5
10°	627.1	622.7	611.1	592.3	566.3	537.1	502.8	470.2	438.2	405.6	350.9
12.5°	659.7	653.1	639.3	613.9	578.5	540.9	500.0	459.7	418.8	382.9	315.5
15°	683.5	675.2	657.5	624.4	582.9	537.6	489.0	442.6	396.7	355.8	282.9
17.5°	698.4	688.4	664.1	626.6	578.5	526.0	471.9	418.8	373.0	327.1	251.4
20°	695.6	683.5	658.6	616.6	562.5	505.6	448.1	394.5	342.0	296.7	219.4
22.5°	675.2	665.2	638.2	595.6	540.4	479.6	421.0	365.2	313.8	266.9	190.1
25°	638.7	629.9	604.5	562.5	508.9	447.5	386.2	332.1	281.8	237.0	163.5
27.5°	591.2	584.0	557.5	519.4	469.6	412.7	352.5	300.6	251.4	210.0	139.8
30°	532.6	526.0	502.2	470.8	425.4	373.0	318.3	268.5	221.6	181.8	117.7
32.5°	471.3	463.6	448.7	415.5	380.1	331.0	283.4	234.8	190.6	156.4	99.5
35°	405.6	398.4	386.8	361.4	332.1	291.2	247.0	202.8	163.5	131.5	82.9
37.5°	339.8	338.1	328.2	310.5	284.6	250.8	210.0	173.5	138.1	111.1	68.5
40°	281.2	281.8	272.9	260.2	239.8	211.6	180.7	145.3	114.9	91.2	56.4
42.5°	229.3	229.3	223.2	214.9	201.1	177.4	150.8	121.6	94.5	74.6	45.9
45°	185.1	179.0	180.1	174.6	165.2	147.0	122.1	96.1	78.5	63.0	38.1
47.5°	139.8	142.0	143.7	143.1	134.8	119.3	98.9	80.1	66.9	53.0	32.6
50°	107.2	107.2	110.5	112.7	108.3	95.6	79.6	66.9	54.1	43.1	27.1
52.5°	75.7	79.0	84.0	90.1	85.6	76.8	66.3	53.6	45.3	35.9	22.7
55°	53.0	54.7	61.9	68.5	66.9	60.8	51.9	43.6	35.9	29.8	18.8
57.5°	33.7	34.8	44.2	51.4	51.9	48.1	41.4	34.8	29.3	25.4	16.0
60°	21.5	23.8	29.3	37.6	39.2	37.6	32.6	27.6	24.9	21.0	13.8
62.5°	14.4	16.0	20.4	25.4	29.3	29.3	24.3	22.7	19.3	16.6	12.2
65°	9.9	11.1	13.8	17.7	21.5	21.0	19.3	17.1	14.9	12.2	9.4
67.5°	6.6	7.7	9.4	12.2	14.4	14.9	13.8	12.2	10.5	9.4	7.2
70°	4.4	5.0	6.1	8.3	9.4	9.4	9.4	8.3	7.2	6.6	5.0
72.5°	2.8	3.3	3.9	5.0	5.5	6.1	5.5	5.5	5.0	4.4	3.3
75°	1.7	2.2	2.2	2.8	3.3	3.3	3.3	2.8	2.8	2.2	2.2
77.5°	1.1	1.1	1.1	1.1	1.1	1.7	1.7	1.1	1.1	0.6	1.1
80°	0.0	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	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°	447.5	447.5	447.5
2.5°	424.3	418.3	413.3
5°	387.3	371.9	364.1
7.5°	347.5	325.4	317.7
10°	306.1	278.5	272.9
12.5°	266.9	238.7	226.5
15°	229.9	201.7	193.4
17.5°	196.1	173.5	166.3
20°	170.7	149.2	141.4
22.5°	144.8	124.9	119.3
25°	121.6	105.5	99.5
27.5°	104.4	89.0	85.6
30°	87.9	75.7	74.0
32.5°	74.0	65.2	63.5
35°	61.9	55.8	56.4
37.5°	52.5	48.1	49.2
40°	43.6	42.0	43.6
42.5°	36.5	37.0	38.1
45°	30.4	32.6	32.6
47.5°	25.4	28.2	28.7
50°	21.5	24.3	24.9
52.5°	18.8	21.0	21.0
55°	16.0	17.7	17.7
57.5°	13.8	14.9	14.9
60°	11.1	12.2	12.2
62.5°	9.4	9.9	9.9
65°	8.3	8.3	8.3
67.5°	6.6	6.6	6.1
70°	5.5	5.0	4.4
72.5°	3.9	3.3	2.2
75°	2.2	1.7	0.6
77.5°	0.6	0.6	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



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Signify Classified - Internal
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Peachtree City, GA 30269

Scaled Data Report





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

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