

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: P887091

Luminaire Tested: ML412LSFLD2W1E-TIR4D25AWW-TL4SWSL-600LM-3000K

Issue Date: 7/10/2024

Test Information

Test Method: LM-79-2019
Report Number: P887091
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2402-314-58)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 7/10/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO
Catalog Number: ML412LSFLD2W1E-TIR4D25AWW-TL4SWSL-600LM-3000K
Description: 4IN SQUARE ML FLEX, SELECTABLE CCT, WITH WW TIR, METALLIC SILVER TRIM
Light Source: (1) HCL SELECTABLE LUMEN LED 95CRI / 3500K CCT
Ballast/Driver: -

Summary

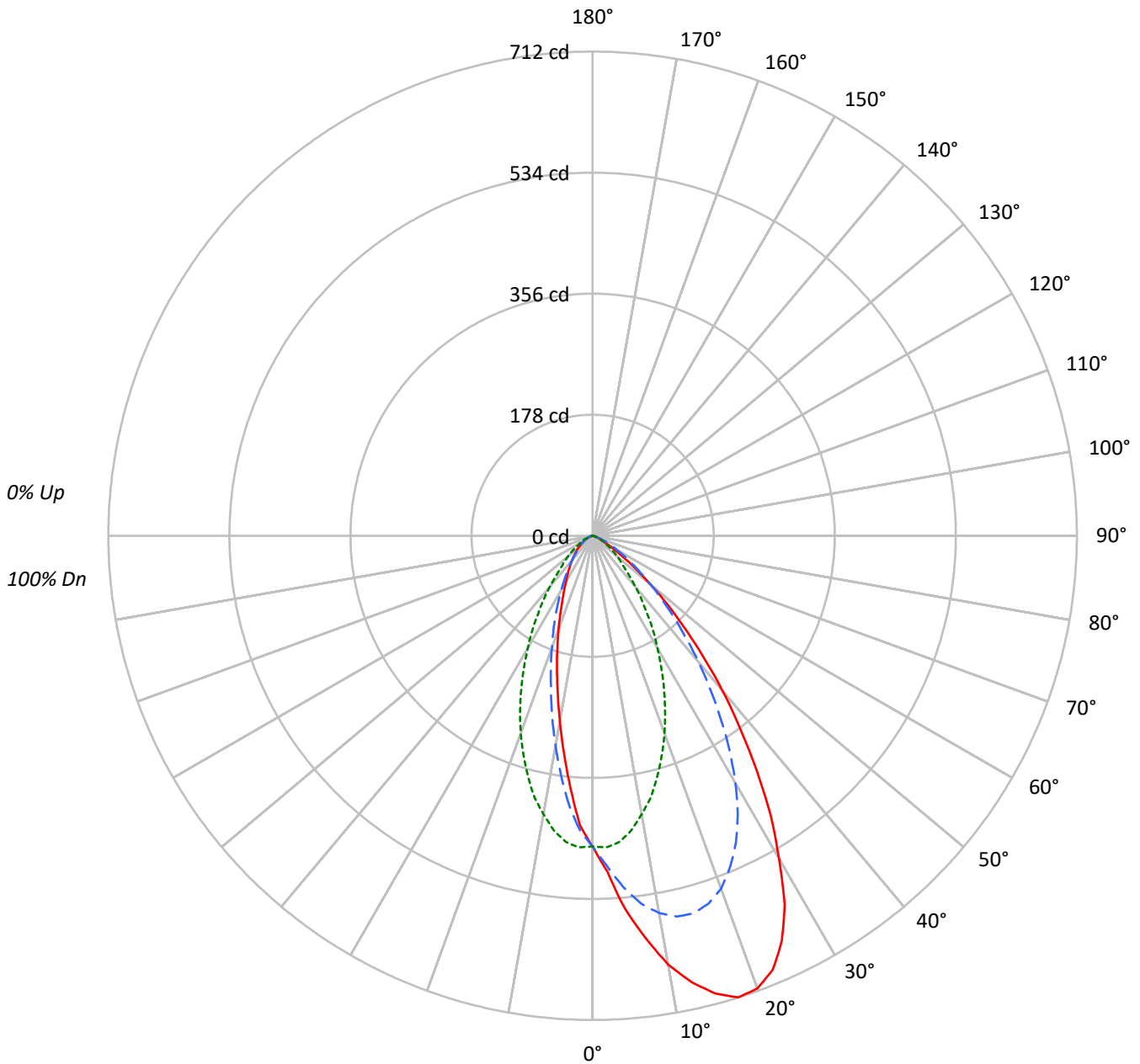
Lumens per Lamp: N/A
Luminaire Lumens: 550.2 lumens
Efficiency: N/A
Efficacy: 58.5 lumens/watt
Spacing Criteria (0/90/45): 1.08 / 0.8 / 0.97
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

Input Watts (W): 9.4
Input Voltage (V): NR
Input Current (A_{in}): 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



TEST NUMBER: P887091
CATALOG NUMBER: ML412LSFLD2W1E-TIR4D25AWW-TL4SWSL-600LM-3000K

Luminous Intensity Polar Plot





TEST NUMBER: P887091
 CATALOG NUMBER: ML412LSFLD2W1E-TIR4D25AWW-TL4SWSL-600LM-3000K

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	106	104	110	107	105	102	103	101	99	99	98	96	96	95	93	91								
2	106	100	95	91	103	98	94	90	95	91	88	92	89	86	89	87	85	83								
3	99	92	86	81	97	90	85	81	88	83	79	85	81	78	83	79	77	75								
4	93	84	78	73	91	83	77	72	81	76	72	79	74	71	77	73	70	68								
5	87	78	71	66	86	77	70	66	75	69	65	73	68	64	71	67	64	62								
6	82	72	65	60	81	71	65	60	70	64	59	68	63	59	67	62	59	57								
7	77	67	60	55	76	66	60	55	65	59	55	63	58	54	62	58	54	52								
8	73	62	55	51	72	62	55	51	60	55	50	59	54	50	58	54	50	48								
9	69	58	52	47	68	58	51	47	57	51	47	56	50	47	55	50	46	45								
10	65	55	48	44	64	54	48	44	53	47	44	52	47	43	52	47	43	42								

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	44262	44262	44262	44262	44262
5°	53621	50427	43955	38636	36214
10°	62996	55412	40873	30819	27229
15°	69874	57633	36797	23659	20279
20°	73021	56933	31845	18000	15093
25°	70344	53269	26519	13703	11223
30°	61256	46943	21321	10325	8714
35°	49600	38784	16462	7711	7190
40°	37458	30572	12368	5944	5868
45°	25893	23010	8933	4548	4918
50°	16488	16699	7159	3497	3994
55°	9424	11569	5320	2989	3260
60°	4708	7973	3953	2577	2577
65°	2659	5261	3163	2155	2017
70°	1558	2889	2039	1728	1416
75°	1048	1460	1235	1048	412
80°	335	614	335	0	0
85°	0	0	667	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 10°
 Vertical Angle: 45°
 Luminance: 26113 cd/sqm



TEST NUMBER: P887091

CATALOG NUMBER: ML412LSFLD2W1E-TIR4D25AWW-TL4SWSL-600LM-3000K

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	43.1	7.8
10°-20°	114.2	20.8
20°-30°	143.5	26.1
30°-40°	121.2	22.0
40°-50°	74.3	13.5
50°-60°	36.1	6.6
60°-70°	14.1	2.6
70°-80°	3.5	0.6
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°	300.8	54.7
0°-40°	422.0	76.7
0°-60°	532.5	96.8
0°-90°	550.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	550.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	457	457	457	457	457	
5°	551	519	452	397	372	55
15°	697	575	367	236	202	196
25°	658	498	248	128	105	297
35°	419	328	139	65	61	261
45°	189	168	65	33	36	149
55°	56	68	32	18	19	53
65°	12	23	14	9	9	12
75°	3	4	3	3	1	3
85°	0	0	1	0	0	0
90°	0	0	0	0	0	



TEST NUMBER: P887091

CATALOG NUMBER: ML412LSFLD2W1E-TIR4D25AWW-TL4SWSL-600LM-3000K

CANDELA DISTRIBUTION (FULL):

	0°	10°	20°	30°	40°	50°	60°	70°	80°	90°	112.5°
0°	456.9	456.9	456.9	456.9	456.9	456.9	456.9	456.9	456.9	456.9	456.9
2.5°	494.0	498.4	495.1	495.1	488.4	484.0	477.4	471.9	465.8	458.6	444.8
5°	551.4	548.1	542.0	536.0	524.9	512.2	498.4	481.8	467.4	452.0	420.5
7.5°	596.7	594.5	587.9	574.6	556.9	534.3	510.5	485.7	461.4	437.0	392.8
10°	640.4	634.3	624.4	603.9	578.5	548.1	515.0	482.4	448.7	415.5	360.8
12.5°	672.4	665.8	651.4	625.5	593.4	553.6	512.7	472.4	429.9	394.5	326.5
15°	696.7	691.8	671.3	639.8	598.4	550.9	503.4	455.8	409.4	366.9	291.7
17.5°	711.7	703.9	680.2	641.5	593.4	540.4	486.8	434.8	385.7	338.1	258.6
20°	708.3	701.2	676.3	633.2	580.7	523.8	465.2	407.8	355.8	308.9	227.1
22.5°	691.2	685.7	658.1	612.2	558.1	497.8	437.6	378.5	325.4	278.5	197.3
25°	658.1	649.2	622.7	582.4	529.3	467.4	403.9	348.1	293.9	248.1	168.5
27.5°	611.6	600.6	577.4	541.5	490.6	433.7	370.2	313.8	263.6	218.2	144.8
30°	547.6	544.2	521.0	493.4	445.9	393.4	336.5	279.0	232.1	190.6	123.2
32.5°	486.8	480.1	464.1	435.9	398.9	350.9	297.8	248.6	205.0	165.8	104.4
35°	419.4	416.6	400.6	382.3	349.2	306.7	261.9	217.7	174.6	139.2	88.4
37.5°	354.2	353.6	340.4	329.9	300.0	267.4	224.9	183.4	148.6	118.2	72.9
40°	296.2	292.8	285.1	273.5	255.3	228.2	190.6	154.2	123.8	97.8	60.2
42.5°	239.8	238.1	234.3	227.1	212.7	190.6	160.8	128.7	101.1	80.1	49.2
45°	189.0	190.6	190.6	186.2	176.8	159.1	132.6	105.0	82.3	65.2	40.3
47.5°	148.6	147.5	149.7	148.6	144.8	129.8	107.2	84.0	69.1	55.8	34.3
50°	109.4	113.3	115.5	119.9	116.6	105.0	85.1	69.6	58.0	47.5	29.3
52.5°	80.7	82.3	87.9	96.1	93.9	82.9	68.5	58.6	48.1	39.2	24.9
55°	55.8	57.5	65.8	73.5	72.4	64.6	55.8	47.5	38.7	31.5	20.4
57.5°	36.5	38.1	45.3	56.4	56.4	51.4	45.3	37.6	30.4	24.9	17.1
60°	24.3	25.4	31.5	39.8	41.4	40.9	35.9	28.2	23.8	20.4	14.4
62.5°	16.0	17.1	22.1	28.2	31.5	31.5	26.5	21.5	19.3	17.1	12.2
65°	11.6	12.2	15.5	18.8	22.7	23.2	19.3	17.1	15.5	13.8	10.5
67.5°	8.3	8.3	11.1	13.3	16.0	15.5	14.4	12.7	11.6	9.9	8.3
70°	5.5	6.1	7.2	8.8	10.5	9.9	9.9	9.4	8.3	7.2	6.1
72.5°	3.9	4.4	5.0	6.1	6.6	6.6	6.6	6.1	5.5	5.0	4.4
75°	2.8	2.8	2.8	3.3	3.9	3.9	4.4	3.9	3.3	3.3	2.8
77.5°	1.7	1.7	1.7	1.7	2.2	2.2	2.2	1.7	1.7	1.1	1.7
80°	0.6	0.6	0.6	1.1	1.1	1.1	1.1	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	0.6	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.6	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



TEST NUMBER: P887091

CATALOG NUMBER: ML412LSFLD2W1E-TIR4D25AWW-TL4SWSL-600LM-3000K

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
0°	456.9	456.9	456.9
2.5°	433.2	426.6	426.0
5°	397.3	381.2	372.4
7.5°	355.3	332.6	322.1
10°	313.3	286.2	276.8
12.5°	274.1	245.3	236.5
15°	235.9	208.3	202.2
17.5°	203.9	178.5	172.4
20°	174.6	153.1	146.4
22.5°	150.3	129.8	123.2
25°	128.2	110.5	105.0
27.5°	109.4	93.9	90.6
30°	92.3	80.1	77.9
32.5°	77.4	69.1	68.5
35°	65.2	59.1	60.8
37.5°	56.4	51.4	53.0
40°	47.0	44.8	46.4
42.5°	39.8	38.7	40.9
45°	33.2	34.3	35.9
47.5°	28.2	30.4	31.5
50°	23.2	26.5	26.5
52.5°	19.9	23.2	22.7
55°	17.7	19.9	19.3
57.5°	15.5	16.6	16.0
60°	13.3	13.8	13.3
62.5°	11.1	11.6	11.1
65°	9.4	9.4	8.8
67.5°	7.7	7.2	7.2
70°	6.1	5.5	5.0
72.5°	4.4	3.9	2.8
75°	2.8	2.2	1.1
77.5°	1.1	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



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°

Signify Classified - Internal
Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report



Signify Classified - Internal
Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report



Signify Classified - Internal
Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report



Signify Classified - Internal
Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report



(END OF REPORT)