

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: P886975

Luminaire Tested: ML412LSFL9FS1E-TIR4D25AWW-TL4SWSL-1200LM-2700K

Issue Date: 7/10/2024

Test Information

Test Method: LM-79-2019
Report Number: P886975
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: ML412LSFL9FS1E-TIR4D25AWW-TL4SWSL-1200LM-2700K
Description: 4IN SQUARE ML FLEX, SELECTABLE CCT, WITH WW TIR, METALLIC SILVER TRIM
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 2700K CCT
Ballast/Driver: -

Summary

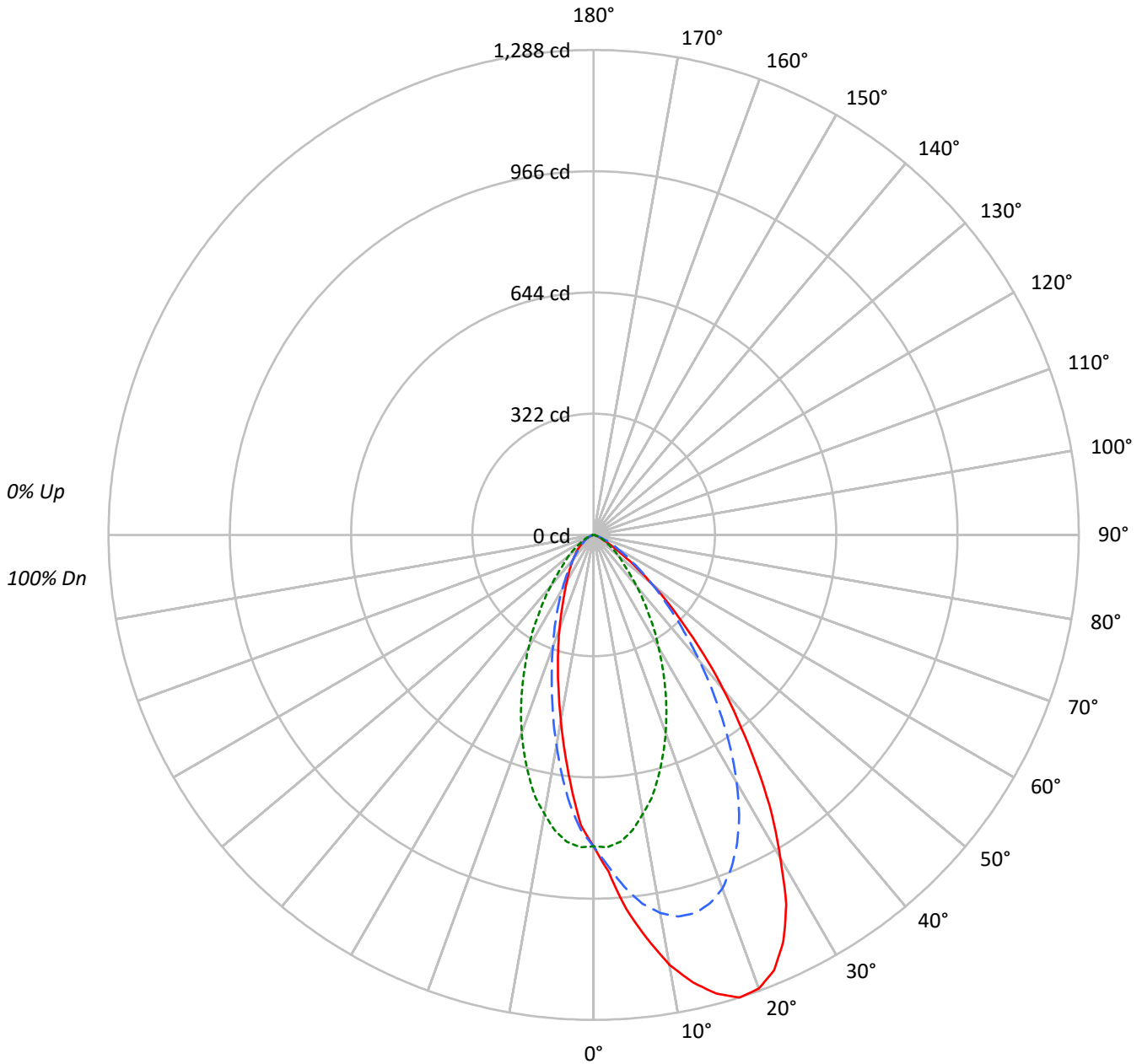
Lumens per Lamp: N/A
Luminaire Lumens: 995.8 lumens
Efficiency: N/A
Efficacy: 56.6 lumens/watt
Spacing Criteria (0/90/45): 1.08 / 0.8 / 0.97
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

Input Watts (W): 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	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	113	109	106	104	110	107	105	102	103	101	99	99	98	96	96	95	93	91	91	91	91	91	91		
	2	106	100	95	91	103	98	94	90	95	91	88	92	89	86	89	87	85	83	83	83	83	83	83		
	3	99	92	86	81	97	90	85	81	88	83	79	85	81	78	83	79	77	75	75	75	75	75	75		
	4	93	84	78	73	91	83	77	72	81	76	72	79	74	71	77	73	70	68	68	68	68	68	68		
	5	87	78	71	66	86	77	70	66	75	69	65	73	68	64	71	67	64	62	62	62	62	62	62		
	6	82	72	65	60	81	71	65	60	70	64	59	68	63	59	67	62	59	57	57	57	57	57	57		
	7	77	67	60	55	76	66	60	55	65	59	55	63	58	54	62	58	54	52	52	52	52	52	52		
	8	73	62	55	51	72	62	55	51	60	55	50	59	54	50	58	54	50	48	48	48	48	48	48		
	9	69	58	52	47	68	58	51	47	57	51	47	56	50	47	55	50	46	45	45	45	45	45	45		
	10	65	55	48	44	64	54	48	44	53	47	44	52	47	43	52	47	43	42	42	42	42	42	42		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	80126	80126	80126	80126	80126
5°	97061	91275	79557	69929	65553
10°	114030	100298	73984	55786	49293
15°	126489	104320	66604	42835	36717
20°	132185	103051	57639	32577	27320
25°	127328	96426	48004	24799	20309
30°	110867	84970	38592	18681	15773
35°	89773	70201	29802	13955	13009
40°	67796	55340	22384	10749	10623
45°	46855	41649	16166	8220	8905
50°	29841	30218	12961	6330	7234
55°	17059	20943	9627	5405	5911
60°	8525	14434	7169	4650	4650
65°	4814	9513	5731	3897	3668
70°	2832	5240	3682	3116	2549
75°	1871	2620	2246	1871	749
80°	558	1116	558	0	0
85°	0	0	1112	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 10°
 Vertical Angle: 45°
 Luminance: 47266 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	78.0	7.8
10°-20°	206.7	20.8
20°-30°	259.8	26.1
30°-40°	219.4	22.0
40°-50°	134.6	13.5
50°-60°	65.4	6.6
60°-70°	25.5	2.6
70°-80°	6.2	0.6
80°-90°	0.2	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°	544.4	54.7
0°-40°	763.8	76.7
0°-60°	963.8	96.8
0°-90°	995.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	995.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	827	827	827	827	827	
5°	998	939	818	719	674	100
15°	1261	1040	664	427	366	355
25°	1191	902	449	232	190	538
35°	759	594	252	118	110	473
45°	342	304	118	60	65	270
55°	101	124	57	32	35	96
65°	21	42	25	17	16	23
75°	5	7	6	5	2	5
85°	0	0	1	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°	827.1	827.1	827.1	827.1	827.1	827.1	827.1	827.1	827.1	827.1	827.1
2.5°	894.1	902.1	896.1	896.1	884.1	876.1	864.1	854.1	843.1	830.1	805.1
5°	998.1	992.1	981.1	970.1	950.1	927.1	902.1	872.1	846.1	818.1	761.1
7.5°	1080.2	1076.1	1064.1	1040.1	1008.1	967.1	924.1	879.1	835.1	791.1	711.1
10°	1159.2	1148.2	1130.2	1093.2	1047.1	992.1	932.1	873.1	812.1	752.1	653.1
12.5°	1217.2	1205.2	1179.2	1132.2	1074.1	1002.1	928.1	855.1	778.1	714.1	591.1
15°	1261.2	1252.2	1215.2	1158.2	1083.2	997.1	911.1	825.1	741.1	664.1	528.1
17.5°	1288.2	1274.2	1231.2	1161.2	1074.1	978.1	881.1	787.1	698.1	612.1	468.1
20°	1282.2	1269.2	1224.2	1146.2	1051.1	948.1	842.1	738.1	644.1	559.1	411.1
22.5°	1251.2	1241.2	1191.2	1108.2	1010.1	901.1	792.1	685.1	589.1	504.1	357.0
25°	1191.2	1175.2	1127.2	1054.1	958.1	846.1	731.1	630.1	532.1	449.1	305.0
27.5°	1107.2	1087.2	1045.1	980.1	888.1	785.1	670.1	568.1	477.1	395.1	262.0
30°	991.1	985.1	943.1	893.1	807.1	712.1	609.1	505.1	420.1	345.0	223.0
32.5°	881.1	869.1	840.1	789.1	722.1	635.1	539.1	450.1	371.1	300.0	189.0
35°	759.1	754.1	725.1	692.1	632.1	555.1	474.1	394.1	316.0	252.0	160.0
37.5°	641.1	640.1	616.1	597.1	543.1	484.1	407.1	332.0	269.0	214.0	132.0
40°	536.1	530.1	516.1	495.1	462.1	413.1	345.0	279.0	224.0	177.0	109.0
42.5°	434.1	431.1	424.1	411.1	385.1	345.0	291.0	233.0	183.0	145.0	89.0
45°	342.0	345.0	345.0	337.0	320.0	288.0	240.0	190.0	149.0	118.0	73.0
47.5°	269.0	267.0	271.0	269.0	262.0	235.0	194.0	152.0	125.0	101.0	62.0
50°	198.0	205.0	209.0	217.0	211.0	190.0	154.0	126.0	105.0	86.0	53.0
52.5°	146.0	149.0	159.0	174.0	170.0	150.0	124.0	106.0	87.0	71.0	45.0
55°	101.0	104.0	119.0	133.0	131.0	117.0	101.0	86.0	70.0	57.0	37.0
57.5°	66.0	69.0	82.0	102.0	102.0	93.0	82.0	68.0	55.0	45.0	31.0
60°	44.0	46.0	57.0	72.0	75.0	74.0	65.0	51.0	43.0	37.0	26.0
62.5°	29.0	31.0	40.0	51.0	57.0	57.0	48.0	39.0	35.0	31.0	22.0
65°	21.0	22.0	28.0	34.0	41.0	42.0	35.0	31.0	28.0	25.0	19.0
67.5°	15.0	15.0	20.0	24.0	29.0	28.0	26.0	23.0	21.0	18.0	15.0
70°	10.0	11.0	13.0	16.0	19.0	18.0	18.0	17.0	15.0	13.0	11.0
72.5°	7.0	8.0	9.0	11.0	12.0	12.0	12.0	11.0	10.0	9.0	8.0
75°	5.0	5.0	5.0	6.0	7.0	7.0	8.0	7.0	6.0	6.0	5.0
77.5°	3.0	3.0	3.0	3.0	4.0	4.0	4.0	3.0	3.0	2.0	3.0
80°	1.0	1.0	1.0	2.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	1.0	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°	827.1	827.1	827.1
2.5°	784.1	772.1	771.1
5°	719.1	690.1	674.1
7.5°	643.1	602.1	583.1
10°	567.1	518.1	501.1
12.5°	496.1	444.1	428.1
15°	427.1	377.1	366.1
17.5°	369.1	323.0	312.0
20°	316.0	277.0	265.0
22.5°	272.0	235.0	223.0
25°	232.0	200.0	190.0
27.5°	198.0	170.0	164.0
30°	167.0	145.0	141.0
32.5°	140.0	125.0	124.0
35°	118.0	107.0	110.0
37.5°	102.0	93.0	96.0
40°	85.0	81.0	84.0
42.5°	72.0	70.0	74.0
45°	60.0	62.0	65.0
47.5°	51.0	55.0	57.0
50°	42.0	48.0	48.0
52.5°	36.0	42.0	41.0
55°	32.0	36.0	35.0
57.5°	28.0	30.0	29.0
60°	24.0	25.0	24.0
62.5°	20.0	21.0	20.0
65°	17.0	17.0	16.0
67.5°	14.0	13.0	13.0
70°	11.0	10.0	9.0
72.5°	8.0	7.0	5.0
75°	5.0	4.0	2.0
77.5°	2.0	1.0	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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Peachtree City, GA 30269

Scaled Data Report





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

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