

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: P886841

Luminaire Tested: ML412LSFL95FS1E-TIR4D25AWW-TL4SWMW-1020LM-3000K

Issue Date: 7/10/2024

Test Information

Test Method: LM-79-2019
Report Number: P886841
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-TL45WMW-1020LM-3000K
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: 812.0 lumens
Efficiency: N/A
Efficacy: 46.1 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

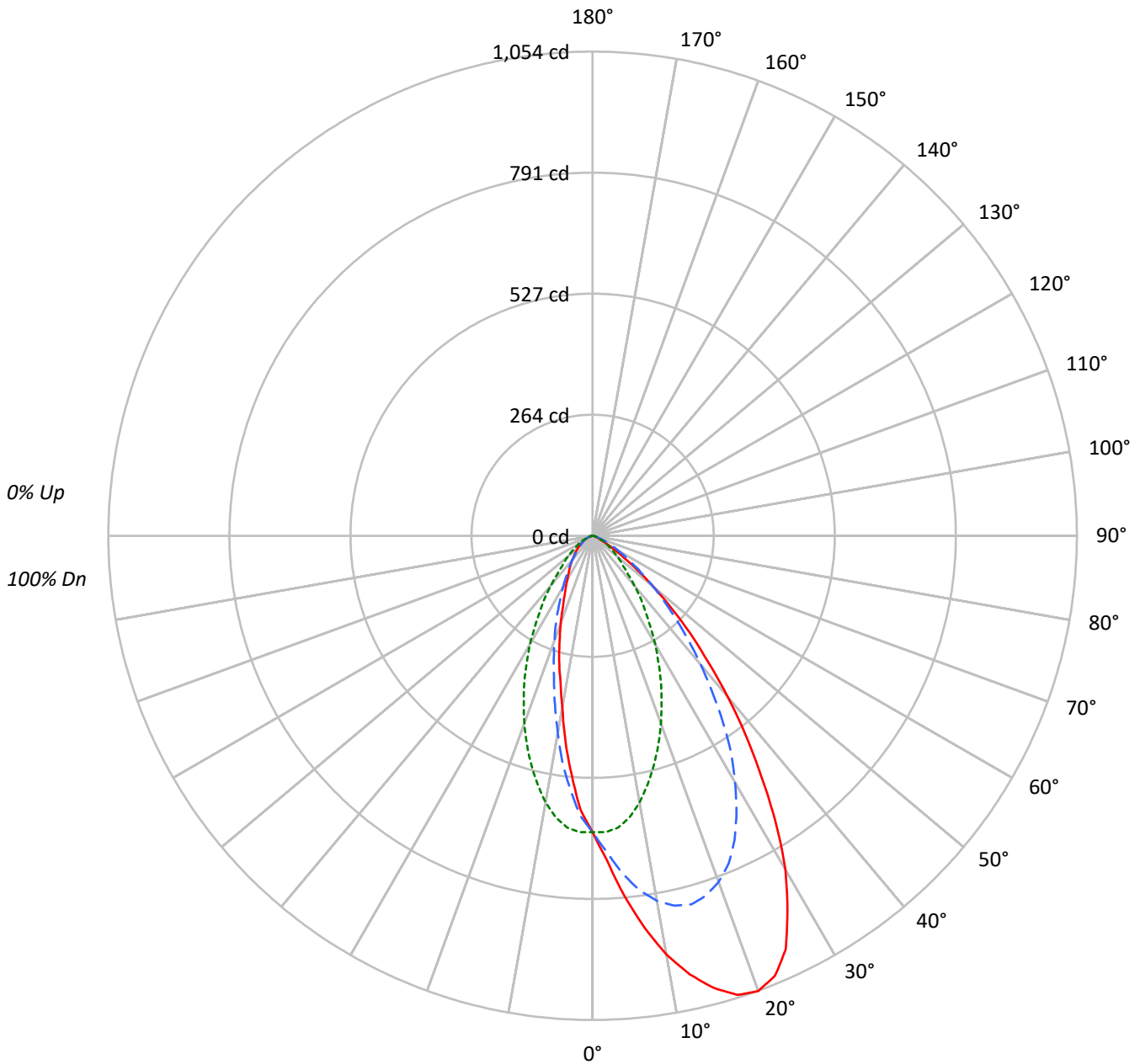
Input Watts (W): 17.6
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20					20					20					20					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°	62475	62475	62475	62475	62475
5°	76357	71655	62013	53942	50801
10°	91041	79385	57969	42820	37272
15°	102198	83318	51751	32505	28222
20°	108711	82655	44794	24938	20866
25°	106249	78158	37572	18962	15510
30°	93875	69394	30482	14341	12260
35°	75795	58351	23546	10963	10301
40°	57907	46184	17844	8561	8663
45°	41087	35230	13029	6741	7398
50°	25998	25817	10444	5350	6194
55°	14154	18114	8310	4763	5303
60°	6568	12497	6723	4379	4534
65°	3507	8229	5181	3691	3507
70°	2294	4674	3880	3427	2521
75°	1497	2564	2732	2096	1198
80°	446	1339	893	1339	893
85°	0	889	889	889	889

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 41087 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	60.9	7.5
10°-20°	163.0	20.1
20°-30°	208.7	25.7
30°-40°	180.1	22.2
40°-50°	113.0	13.9
50°-60°	56.0	6.9
60°-70°	22.7	2.8
70°-80°	6.8	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°	432.6	53.3
0°-40°	612.7	75.5
0°-60°	781.7	96.3
0°-90°	812.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	812.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	645	645	645	645	645	
5°	785	737	638	555	522	79
15°	1019	831	516	324	281	288
25°	994	731	352	177	145	448
35°	641	493	199	93	87	400
45°	300	257	95	49	54	232
55°	84	107	49	28	31	81
65°	15	36	23	16	15	17
75°	4	7	7	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°	644.9	644.9	644.9	644.9	644.9	644.9	644.9	644.9	644.9	644.9	644.9
2.5°	706.2	710.2	699.8	699.8	691.7	684.4	677.2	665.9	656.2	645.8	625.6
5°	785.2	782.0	772.3	764.3	748.1	725.6	707.0	683.6	658.7	637.7	590.9
7.5°	859.4	855.4	838.4	821.5	794.9	760.2	725.6	687.7	649.8	617.5	549.0
10°	925.5	919.0	898.9	867.5	830.4	783.6	734.4	681.2	632.9	589.3	503.1
12.5°	977.9	969.0	945.7	904.5	854.6	794.9	733.6	668.3	607.9	553.8	453.9
15°	1019.0	1011.0	977.9	929.5	865.8	795.7	720.7	648.2	577.2	516.0	406.3
17.5°	1048.0	1036.8	995.6	936.8	861.8	780.4	699.0	617.5	542.6	475.6	361.2
20°	1054.5	1040.0	995.6	930.3	846.5	757.0	669.9	581.3	503.1	434.5	316.0
22.5°	1036.8	1021.4	976.3	906.2	821.5	724.0	631.2	539.3	460.3	391.8	274.1
25°	994.0	977.1	934.4	866.6	780.4	682.0	584.5	500.6	421.6	351.5	234.6
27.5°	918.2	910.2	871.5	807.8	725.6	630.4	534.5	453.1	374.1	309.6	201.5
30°	839.2	831.2	798.1	742.5	665.1	575.6	487.7	405.5	331.3	272.5	171.7
32.5°	743.3	733.6	710.2	661.9	599.8	521.6	433.7	357.9	291.0	233.0	147.5
35°	640.9	640.9	620.8	582.9	528.9	457.9	382.1	312.0	250.7	199.1	122.5
37.5°	546.6	549.0	532.1	497.4	453.9	398.3	328.9	266.0	212.8	170.9	103.2
40°	457.9	452.3	443.4	423.2	387.8	342.6	281.4	227.3	179.8	141.1	86.3
42.5°	370.0	374.1	363.6	352.3	327.3	289.4	240.2	191.9	147.5	115.3	70.9
45°	299.9	298.3	295.1	287.0	274.1	240.2	199.1	154.8	120.9	95.1	58.9
47.5°	230.6	233.0	232.2	232.2	223.3	199.1	162.8	125.0	101.6	83.0	50.8
50°	172.5	179.0	183.0	186.2	180.6	162.0	126.6	103.2	86.3	69.3	43.5
52.5°	124.2	127.4	138.7	151.6	145.9	127.4	104.0	86.3	70.9	58.0	37.1
55°	83.8	90.3	102.4	115.3	114.5	100.0	84.6	70.1	59.7	49.2	31.4
57.5°	53.2	56.4	70.9	86.3	86.3	79.0	67.7	58.9	46.8	39.5	26.6
60°	33.9	36.3	46.8	61.3	66.1	62.9	54.8	44.3	39.5	34.7	24.2
62.5°	22.6	23.4	31.4	41.9	48.4	48.4	41.1	36.3	32.2	28.2	21.0
65°	15.3	16.1	21.0	28.2	35.5	36.3	31.4	28.2	25.8	22.6	17.7
67.5°	10.5	11.3	14.5	19.3	23.4	25.0	24.2	22.6	20.2	16.9	13.7
70°	8.1	8.1	9.7	12.9	16.1	16.9	16.9	16.9	15.3	13.7	11.3
72.5°	5.6	6.4	6.4	8.9	10.5	11.3	12.1	12.1	11.3	10.5	8.9
75°	4.0	4.0	4.8	5.6	6.4	7.3	8.1	8.1	8.1	7.3	6.4
77.5°	2.4	2.4	3.2	3.2	4.0	4.8	4.8	4.8	4.0	4.0	4.0
80°	0.8	0.8	1.6	1.6	2.4	2.4	2.4	2.4	1.6	1.6	2.4
82.5°	0.0	0.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	1.6
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°	644.9	644.9	644.9
2.5°	610.3	599.0	597.4
5°	554.7	536.1	522.4
7.5°	499.8	463.6	452.3
10°	435.3	396.6	378.9
12.5°	378.1	337.0	323.3
15°	324.1	288.6	281.4
17.5°	280.6	248.3	237.8
20°	241.9	211.2	202.4
22.5°	209.6	179.0	169.3
25°	177.4	152.4	145.1
27.5°	150.8	129.8	125.8
30°	128.2	111.3	109.6
32.5°	109.6	96.7	97.5
35°	92.7	84.6	87.1
37.5°	80.6	75.0	77.4
40°	67.7	66.1	68.5
42.5°	58.0	58.9	61.3
45°	49.2	52.4	54.0
47.5°	41.9	46.8	47.6
50°	35.5	41.1	41.1
52.5°	31.4	36.3	36.3
55°	28.2	31.4	31.4
57.5°	25.8	27.4	27.4
60°	22.6	22.6	23.4
62.5°	18.5	19.3	19.3
65°	16.1	16.1	15.3
67.5°	13.7	13.7	12.1
70°	12.1	11.3	8.9
72.5°	8.9	8.1	5.6
75°	5.6	4.8	3.2
77.5°	3.2	2.4	1.6
80°	2.4	1.6	1.6
82.5°	1.6	1.6	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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