

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: P886849

Luminaire Tested: ML412LSFL95FS1E-TIR4D25AWW-TL4SWSL-1020LM-5000K

Issue Date: 7/10/2024

Test Information

Test Method: LM-79-2019
Report Number: P886849
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: ML412LSFL95FS1E-TIR4D25AWW-TL45WSL-1020LM-5000K
Description: 4IN SQUARE ML FLEX, SELECTABLE CCT, WITH WW TIR, METALLIC SILVER TRIM
Light Source: (1) HCL SELECTABLE LUMEN LED 95CRI / 5000K CCT
Ballast/Driver: -

Summary

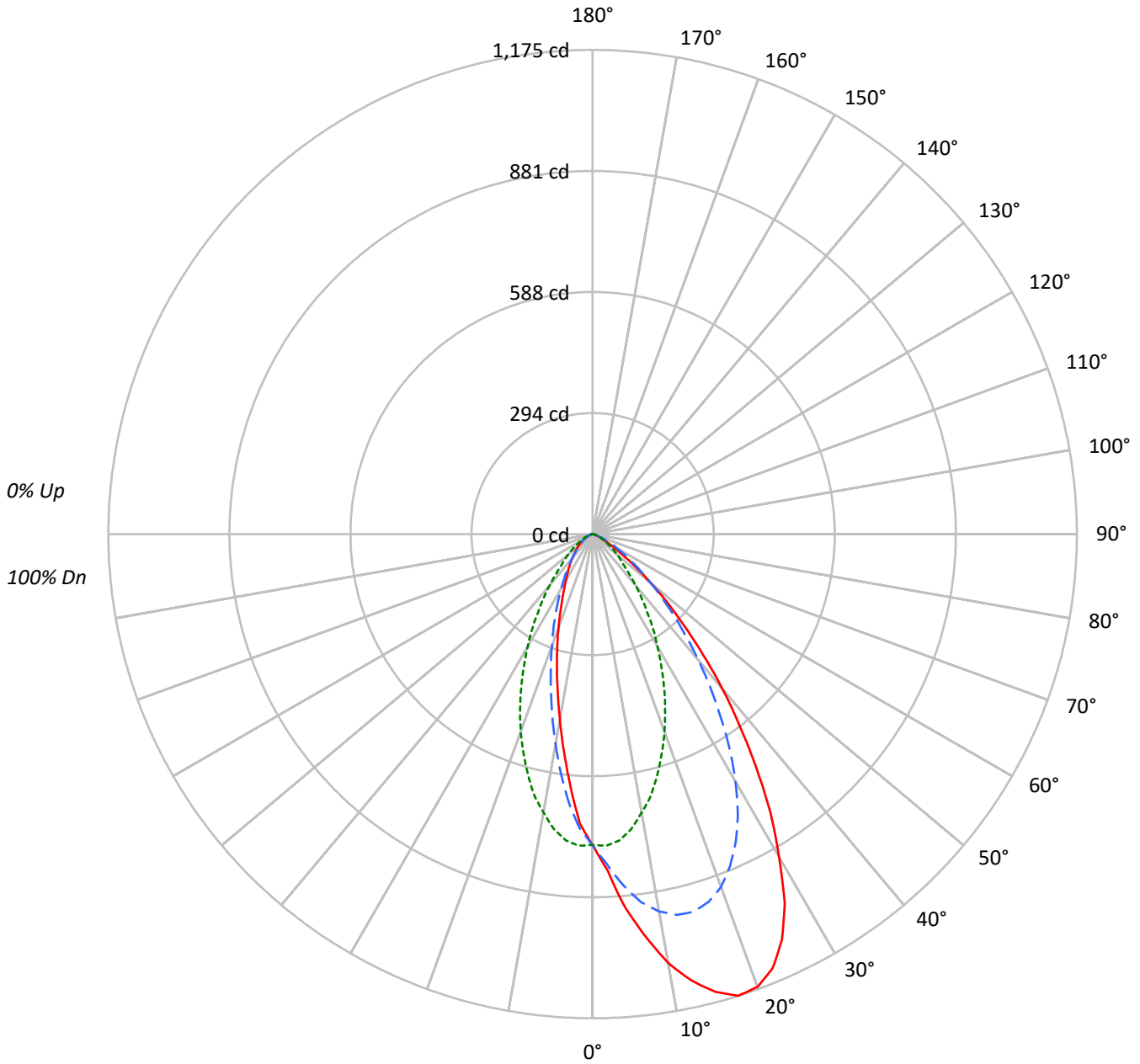
Lumens per Lamp: N/A
Luminaire Lumens: 908.1 lumens
Efficiency: N/A
Efficacy: 51.6 lumens/watt
Spacing Criteria (0/90/45): 1.08 / 0.8 / 0.97
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

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								
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°	73073	73073	73073	73073	73073
5°	88513	83242	72555	63774	59777
10°	103987	91469	67472	50867	44945
15°	115347	95133	60737	39064	33478
20°	120546	93979	52557	29711	24918
25°	116115	87939	43772	22618	18524
30°	101112	77487	35203	17037	14385
35°	81874	64016	27177	12725	11862
40°	61827	50465	20411	9801	9687
45°	42731	37991	14741	7494	8124
50°	27218	27558	11816	5772	6601
55°	15555	19102	8783	4932	5388
60°	7769	13165	6529	4243	4243
65°	4401	8676	5226	3553	3347
70°	2578	4773	3371	2832	2323
75°	1722	2396	2059	1722	674
80°	502	1004	502	0	0
85°	0	0	1000	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 10°
 Vertical Angle: 45°
 Luminance: 43115 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	71.1	7.8
10°-20°	188.5	20.8
20°-30°	236.9	26.1
30°-40°	200.1	22.0
40°-50°	122.7	13.5
50°-60°	59.7	6.6
60°-70°	23.3	2.6
70°-80°	5.7	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°	496.5	54.7
0°-40°	696.6	76.7
0°-60°	878.9	96.8
0°-90°	908.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	908.1	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	754	754	754	754	754	
5°	910	856	746	656	615	91
15°	1150	949	606	390	334	324
25°	1086	823	410	212	173	491
35°	692	541	230	108	100	431
45°	312	277	108	55	59	246
55°	92	113	52	29	32	88
65°	19	38	23	16	15	21
75°	5	6	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°	754.3	754.3	754.3	754.3	754.3	754.3	754.3	754.3	754.3	754.3	754.3
2.5°	815.4	822.7	817.2	817.2	806.3	799.0	788.0	778.9	768.9	757.0	734.2
5°	910.2	904.8	894.7	884.7	866.5	845.5	822.7	795.3	771.6	746.1	694.1
7.5°	985.0	981.4	970.4	948.6	919.4	882.0	842.8	801.7	761.6	721.4	648.5
10°	1057.1	1047.1	1030.6	996.9	954.9	904.8	850.0	796.2	740.6	685.9	595.6
12.5°	1110.0	1099.0	1075.3	1032.5	979.6	913.9	846.4	779.8	709.6	651.2	539.0
15°	1150.1	1141.9	1108.2	1056.2	987.8	909.3	830.9	752.5	675.8	605.6	481.6
17.5°	1174.7	1162.0	1122.8	1058.9	979.6	892.0	803.5	717.8	636.6	558.2	426.8
20°	1169.3	1157.4	1116.4	1045.2	958.6	864.6	768.0	673.1	587.4	509.8	374.9
22.5°	1141.0	1131.9	1086.3	1010.6	921.2	821.8	722.4	624.8	537.2	459.7	325.6
25°	1086.3	1071.7	1027.9	961.3	873.8	771.6	666.7	574.6	485.2	409.5	278.2
27.5°	1009.7	991.4	953.1	893.8	809.9	716.0	611.1	518.1	435.1	360.3	239.0
30°	903.9	898.4	860.1	814.5	736.0	649.4	555.5	460.6	383.1	314.7	203.4
32.5°	803.5	792.6	766.1	719.6	658.5	579.2	491.6	410.4	338.4	273.6	172.4
35°	692.3	687.7	661.3	631.2	576.4	506.2	432.3	359.4	288.2	229.8	145.9
37.5°	584.6	583.7	561.8	544.5	495.3	441.4	371.2	302.8	245.3	195.2	120.4
40°	488.9	483.4	470.6	451.5	421.4	376.7	314.7	254.5	204.3	161.4	99.4
42.5°	395.8	393.1	386.7	374.9	351.1	314.7	265.4	212.5	166.9	132.3	81.2
45°	311.9	314.7	314.7	307.4	291.9	262.7	218.9	173.3	135.9	107.6	66.6
47.5°	245.3	243.5	247.2	245.3	239.0	214.3	176.9	138.6	114.0	92.1	56.5
50°	180.6	187.0	190.6	197.9	192.4	173.3	140.5	114.9	95.8	78.4	48.3
52.5°	133.2	135.9	145.0	158.7	155.1	136.8	113.1	96.7	79.4	64.8	41.0
55°	92.1	94.9	108.5	121.3	119.5	106.7	92.1	78.4	63.8	52.0	33.7
57.5°	60.2	62.9	74.8	93.0	93.0	84.8	74.8	62.0	50.2	41.0	28.3
60°	40.1	42.0	52.0	65.7	68.4	67.5	59.3	46.5	39.2	33.7	23.7
62.5°	26.5	28.3	36.5	46.5	52.0	52.0	43.8	35.6	31.9	28.3	20.1
65°	19.2	20.1	25.5	31.0	37.4	38.3	31.9	28.3	25.5	22.8	17.3
67.5°	13.7	13.7	18.2	21.9	26.5	25.5	23.7	21.0	19.2	16.4	13.7
70°	9.1	10.0	11.9	14.6	17.3	16.4	16.4	15.5	13.7	11.9	10.0
72.5°	6.4	7.3	8.2	10.0	10.9	10.9	10.9	10.0	9.1	8.2	7.3
75°	4.6	4.6	4.6	5.5	6.4	6.4	7.3	6.4	5.5	5.5	4.6
77.5°	2.7	2.7	2.7	2.7	3.6	3.6	3.6	2.7	2.7	1.8	2.7
80°	0.9	0.9	0.9	1.8	1.8	1.8	1.8	0.9	0.9	0.9	0.9
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.9	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°	754.3	754.3	754.3
2.5°	715.1	704.1	703.2
5°	655.8	629.3	614.7
7.5°	586.5	549.1	531.7
10°	517.1	472.5	456.9
12.5°	452.4	405.0	390.4
15°	389.5	343.9	333.8
17.5°	336.6	294.6	284.6
20°	288.2	252.6	241.7
22.5°	248.1	214.3	203.4
25°	211.6	182.4	173.3
27.5°	180.6	155.1	149.6
30°	152.3	132.3	128.6
32.5°	127.7	114.0	113.1
35°	107.6	97.6	100.3
37.5°	93.0	84.8	87.6
40°	77.5	73.9	76.6
42.5°	65.7	63.8	67.5
45°	54.7	56.5	59.3
47.5°	46.5	50.2	52.0
50°	38.3	43.8	43.8
52.5°	32.8	38.3	37.4
55°	29.2	32.8	31.9
57.5°	25.5	27.4	26.5
60°	21.9	22.8	21.9
62.5°	18.2	19.2	18.2
65°	15.5	15.5	14.6
67.5°	12.8	11.9	11.9
70°	10.0	9.1	8.2
72.5°	7.3	6.4	4.6
75°	4.6	3.6	1.8
77.5°	1.8	0.9	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
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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