

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: P886844

Luminaire Tested: ML412LSFL95FS1E-TIR4D25AWW-TL4SWMW-1020LM-5000K

Issue Date: 7/10/2024

Test Information

Test Method: LM-79-2019
Report Number: P886844
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-TL4SWMW-1020LM-5000K
Description: 4IN SQUARE ML FLEX, SELECTABLE CCT, WITH WW TIR, MATTE WHITE TRIM
Light Source: (1) HCL SELECTABLE LUMEN LED 95CRI / 5000K CCT
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 918.3 lumens
Efficiency: N/A
Efficacy: 52.2 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

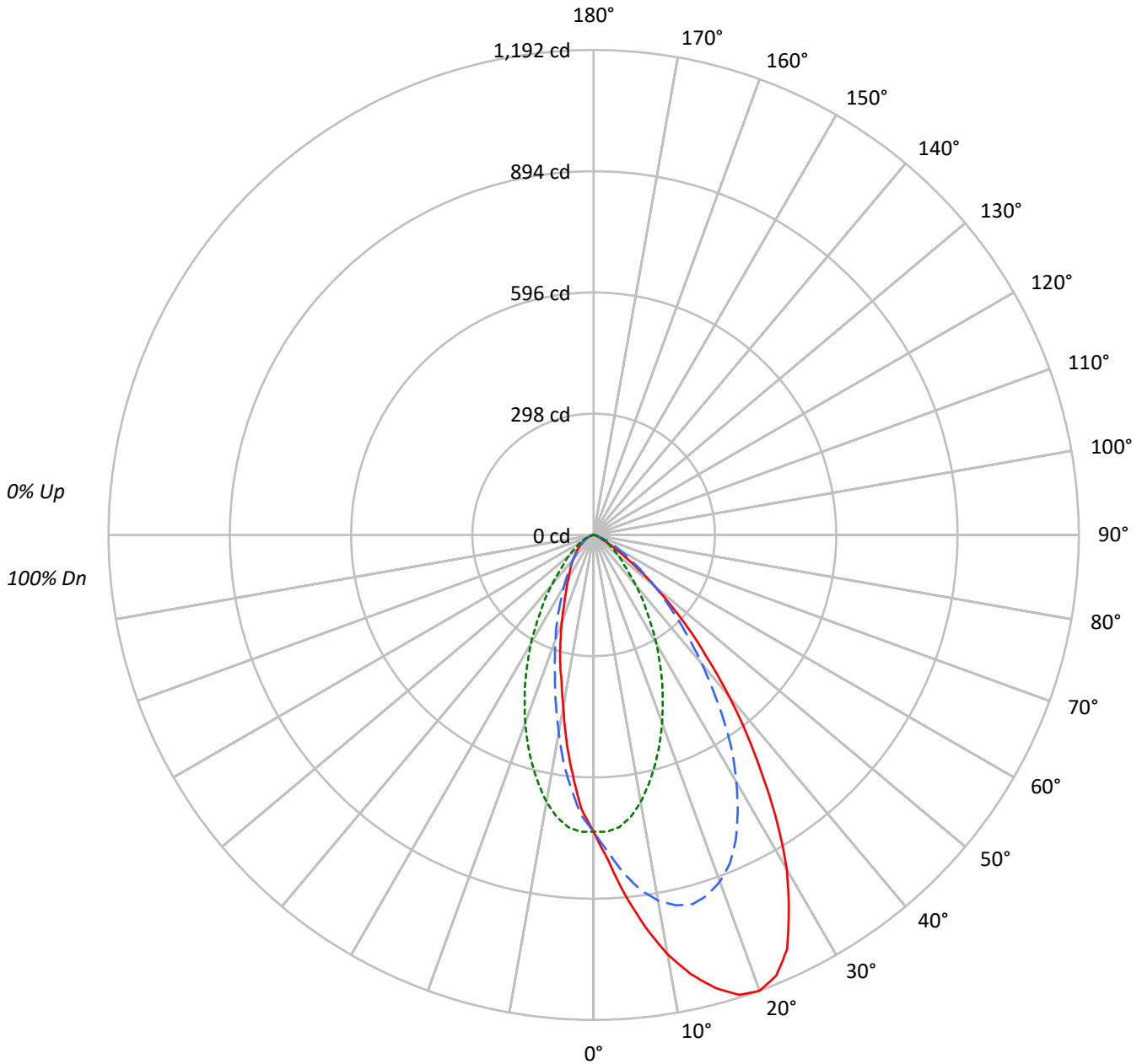
Input Watts (W): 17.6
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20					20					20					20										
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	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	82	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°	70651	70651	70651	70651	70651
5°	86354	81030	70124	60992	57453
10°	102954	89767	65554	48427	42151
15°	115577	94220	58521	36757	31913
20°	122938	93474	50660	28196	23588
25°	120155	88388	42489	21442	17541
30°	106157	78471	34465	16220	13871
35°	85717	65985	26633	12394	11649
40°	65482	52229	20171	9687	9801
45°	46458	39847	14741	7617	8371
50°	29404	29193	11816	6044	7008
55°	16011	20479	9391	5388	6013
60°	7421	14134	7595	4941	5115
65°	3966	9295	5845	4172	3966
70°	2578	5283	4390	3880	2832
75°	1722	2901	3069	2396	1347
80°	502	1506	1004	1506	1004
85°	0	1000	1000	1000	1000

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 46458 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	68.9	7.5
10°-20°	184.3	20.1
20°-30°	236.0	25.7
30°-40°	203.7	22.2
40°-50°	127.8	13.9
50°-60°	63.3	6.9
60°-70°	25.7	2.8
70°-80°	7.7	0.8
80°-90°	1.0	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°	489.2	53.3
0°-40°	692.9	75.5
0°-60°	884.0	96.3
0°-90°	918.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	918.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	729	729	729	729	729	
5°	888	833	721	627	591	90
15°	1152	939	584	366	318	326
25°	1124	827	398	201	164	506
35°	725	558	225	105	98	453
45°	339	291	108	56	61	263
55°	95	121	56	32	36	91
65°	17	41	26	18	17	19
75°	5	8	8	6	4	5
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°	729.3	729.3	729.3	729.3	729.3	729.3	729.3	729.3	729.3	729.3	729.3
2.5°	798.6	803.2	791.3	791.3	782.2	774.0	765.8	753.0	742.1	730.2	707.5
5°	888.0	884.3	873.4	864.3	846.0	820.5	799.5	773.1	744.8	721.1	668.3
7.5°	971.8	967.3	948.1	929.0	898.9	859.7	820.5	777.7	734.8	698.3	620.8
10°	1046.6	1039.3	1016.5	981.0	939.0	886.1	830.5	770.4	715.7	666.4	568.9
12.5°	1105.9	1095.8	1069.4	1022.9	966.4	898.9	829.6	755.8	687.4	626.3	513.3
15°	1152.4	1143.2	1105.9	1051.2	979.1	899.8	815.0	733.0	652.8	583.5	459.5
17.5°	1185.2	1172.4	1125.9	1059.4	974.6	882.5	790.4	698.3	613.6	537.9	408.4
20°	1192.5	1176.1	1125.9	1052.1	957.3	856.1	757.6	657.3	568.9	491.4	357.4
22.5°	1172.4	1155.1	1104.0	1024.7	929.0	818.7	713.8	609.9	520.6	443.1	310.0
25°	1124.1	1104.9	1056.6	980.0	882.5	771.3	661.0	566.1	476.8	397.5	265.3
27.5°	1038.4	1029.3	985.5	913.5	820.5	712.9	604.4	512.4	423.0	350.1	227.9
30°	949.0	939.9	902.6	839.6	752.1	650.9	551.6	458.6	374.7	308.1	194.2
32.5°	840.6	829.6	803.2	748.5	678.3	589.9	490.5	404.8	329.1	263.5	166.8
35°	724.8	724.8	702.0	659.1	598.1	517.8	432.1	352.8	283.5	225.2	138.6
37.5°	618.1	620.8	601.7	562.5	513.3	450.4	372.0	300.9	240.7	193.3	116.7
40°	517.8	511.4	501.4	478.6	438.5	387.5	318.2	257.1	203.3	159.5	97.5
42.5°	418.5	423.0	411.2	398.4	370.1	327.3	271.7	217.0	166.8	130.4	80.2
45°	339.1	337.3	333.7	324.6	310.0	271.7	225.2	175.0	136.8	107.6	66.6
47.5°	260.7	263.5	262.6	262.6	252.5	225.2	184.2	141.3	114.9	93.9	57.4
50°	195.1	202.4	206.9	210.6	204.2	183.2	143.1	116.7	97.5	78.4	49.2
52.5°	140.4	144.0	156.8	171.4	165.0	144.0	117.6	97.5	80.2	65.6	41.9
55°	94.8	102.1	115.8	130.4	129.5	113.0	95.7	79.3	67.5	55.6	35.6
57.5°	60.2	63.8	80.2	97.5	97.5	89.3	76.6	66.6	52.9	44.7	30.1
60°	38.3	41.0	52.9	69.3	74.8	71.1	62.0	50.1	44.7	39.2	27.4
62.5°	25.5	26.4	35.6	47.4	54.7	54.7	46.5	41.0	36.5	31.9	23.7
65°	17.3	18.2	23.7	31.9	40.1	41.0	35.6	31.9	29.2	25.5	20.1
67.5°	11.9	12.8	16.4	21.9	26.4	28.3	27.4	25.5	22.8	19.1	15.5
70°	9.1	9.1	10.9	14.6	18.2	19.1	19.1	19.1	17.3	15.5	12.8
72.5°	6.4	7.3	7.3	10.0	11.9	12.8	13.7	13.7	12.8	11.9	10.0
75°	4.6	4.6	5.5	6.4	7.3	8.2	9.1	9.1	9.1	8.2	7.3
77.5°	2.7	2.7	3.6	3.6	4.6	5.5	5.5	5.5	4.6	4.6	4.6
80°	0.9	0.9	1.8	1.8	2.7	2.7	2.7	2.7	1.8	1.8	2.7
82.5°	0.0	0.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.8
85°	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9
87.5°	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.9	0.9	0.9
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°	729.3	729.3	729.3
2.5°	690.1	677.4	675.5
5°	627.2	606.3	590.8
7.5°	565.2	524.2	511.4
10°	492.3	448.5	428.5
12.5°	427.6	381.1	365.6
15°	366.5	326.4	318.2
17.5°	317.3	280.8	268.9
20°	273.5	238.9	228.8
22.5°	237.0	202.4	191.5
25°	200.6	172.3	164.1
27.5°	170.5	146.8	142.2
30°	145.0	125.8	124.0
32.5°	124.0	109.4	110.3
35°	104.8	95.7	98.5
37.5°	91.2	84.8	87.5
40°	76.6	74.8	77.5
42.5°	65.6	66.6	69.3
45°	55.6	59.3	61.1
47.5°	47.4	52.9	53.8
50°	40.1	46.5	46.5
52.5°	35.6	41.0	41.0
55°	31.9	35.6	35.6
57.5°	29.2	31.0	31.0
60°	25.5	25.5	26.4
62.5°	21.0	21.9	21.9
65°	18.2	18.2	17.3
67.5°	15.5	15.5	13.7
70°	13.7	12.8	10.0
72.5°	10.0	9.1	6.4
75°	6.4	5.5	3.6
77.5°	3.6	2.7	1.8
80°	2.7	1.8	1.8
82.5°	1.8	1.8	0.9
85°	0.9	0.9	0.9
87.5°	0.9	0.9	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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