

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: P886848

Luminaire Tested: ML412LSFL95FS1E-TIR4D25AWW-TL4SWSL-1020LM-4000K

Issue Date: 7/10/2024

Test Information

Test Method: LM-79-2019
Report Number: P886848
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-4000K
Description: 4IN SQUARE ML FLEX, SELECTABLE CCT, WITH WW TIR, METALLIC SILVER TRIM
Light Source: (1) HCL SELECTABLE LUMEN LED 95CRI / 4000K CCT
Ballast/Driver: -

Summary

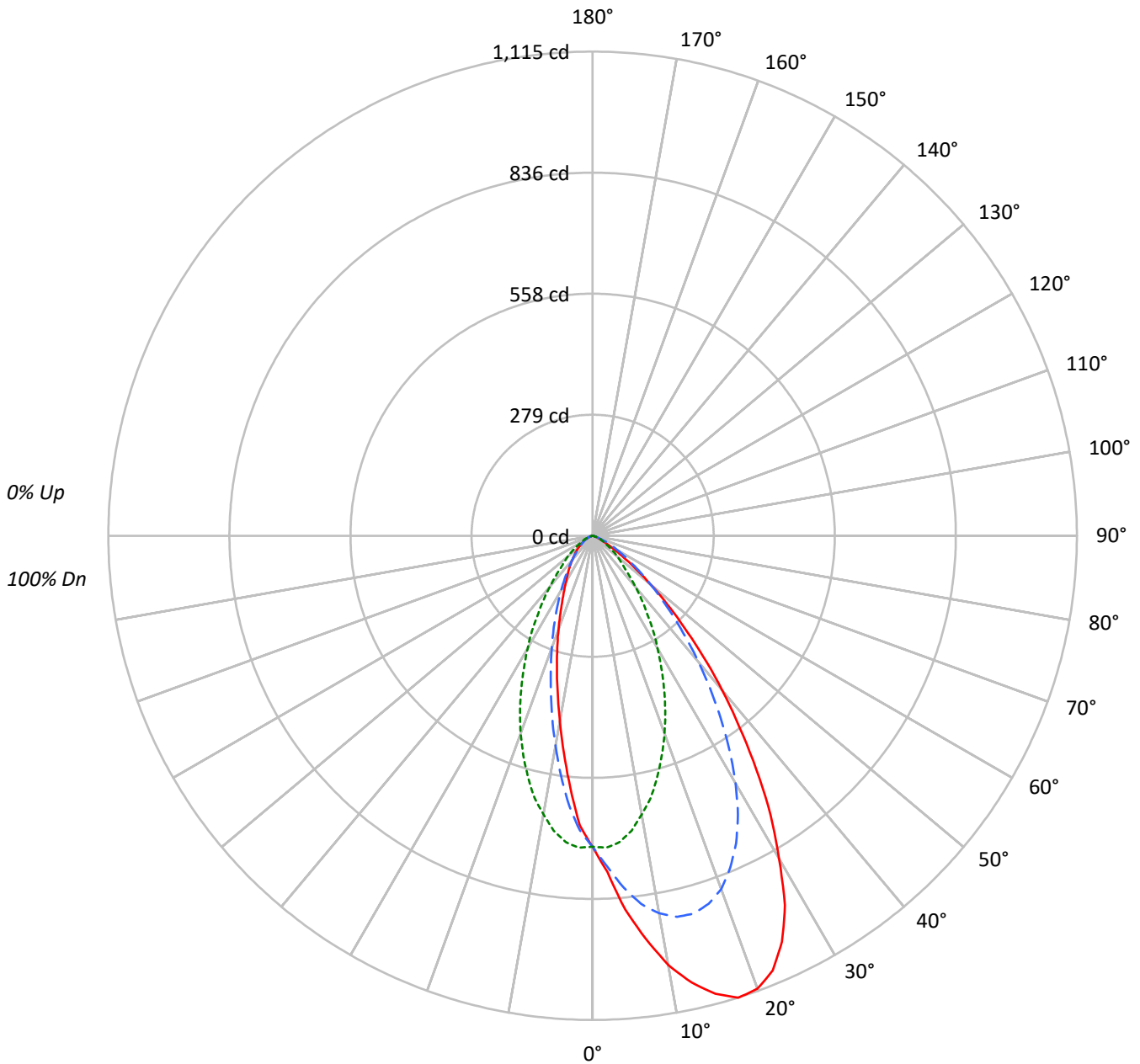
Lumens per Lamp: N/A
Luminaire Lumens: 862.3 lumens
Efficiency: N/A
Efficacy: 49.0 lumens/watt
Spacing Criteria (0/90/45): 1.08 / 0.8 / 0.97
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

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



TEST NUMBER: P886848
CATALOG NUMBER: ML412LSFL95FS1E-TIR4D25AWW-TL4SWSL-1020LM-4000K

Luminous Intensity Polar Plot





TEST NUMBER: P886848
 CATALOG NUMBER: ML412LSFL95FS1E-TIR4D25AWW-TL4SWSL-1020LM-4000K

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	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°	69382	69382	69382	69382	69382
5°	84049	79036	68889	60555	56762
10°	98734	86851	64058	48300	42683
15°	109520	90329	57668	37088	31793
20°	114453	89237	49907	28216	23660
25°	110247	83497	41559	21474	17583
30°	96000	73577	33424	16175	13658
35°	77734	60781	25805	12086	11270
40°	58704	47916	19387	9308	9194
45°	40580	36066	14002	7124	7713
50°	25847	26164	11228	5486	6270
55°	14779	18131	8344	4678	5118
60°	7382	12507	6200	4030	4030
65°	4172	8241	4974	3370	3186
70°	2464	4546	3201	2691	2209
75°	1609	2283	1946	1609	636
80°	502	948	502	0	0
85°	0	0	1000	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 10°
 Vertical Angle: 45°
 Luminance: 40936 cd/sqm



TEST NUMBER: P886848

CATALOG NUMBER: ML412LSFL95FS1E-TIR4D25AWW-TL4SWSL-1020LM-4000K

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	67.5	7.8
10°-20°	179.0	20.8
20°-30°	224.9	26.1
30°-40°	190.0	22.0
40°-50°	116.5	13.5
50°-60°	56.6	6.6
60°-70°	22.1	2.6
70°-80°	5.4	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°	471.4	54.7
0°-40°	661.4	76.7
0°-60°	834.6	96.8
0°-90°	862.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	862.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	716	716	716	716	716	
5°	864	813	708	623	584	86
15°	1092	901	575	370	317	308
25°	1031	781	389	201	164	466
35°	657	514	218	102	95	409
45°	296	263	102	52	56	234
55°	88	107	49	28	30	83
65°	18	36	22	15	14	20
75°	4	6	5	4	2	5
85°	0	0	1	0	0	0
90°	0	0	0	0	0	



TEST NUMBER: P886848

CATALOG NUMBER: ML412LSFL95FS1E-TIR4D25AWW-TL4SWSL-1020LM-4000K

CANDELA DISTRIBUTION (FULL):

	0°	10°	20°	30°	40°	50°	60°	70°	80°	90°	112.5°
0°	716.2	716.2	716.2	716.2	716.2	716.2	716.2	716.2	716.2	716.2	716.2
2.5°	774.2	781.1	776.0	776.0	765.6	758.6	748.2	739.6	730.1	718.8	697.1
5°	864.3	859.1	849.6	840.0	822.7	802.8	781.1	755.2	732.7	708.4	659.0
7.5°	935.3	931.8	921.4	900.7	872.9	837.4	800.2	761.2	723.1	685.0	615.7
10°	1003.7	994.2	978.6	946.6	906.7	859.1	807.1	756.0	703.2	651.2	565.5
12.5°	1053.9	1043.6	1021.0	980.3	930.1	867.8	803.7	740.4	673.8	618.3	511.8
15°	1092.0	1084.3	1052.2	1002.8	937.9	863.4	788.9	714.5	641.7	575.0	457.3
17.5°	1115.4	1103.3	1066.1	1005.4	930.1	847.0	763.0	681.6	604.5	530.0	405.3
20°	1110.2	1099.0	1060.0	992.5	910.2	821.0	729.2	639.1	557.7	484.1	355.9
22.5°	1083.4	1074.7	1031.4	959.5	874.7	780.3	685.9	593.2	510.1	436.5	309.2
25°	1031.4	1017.6	976.0	912.8	829.6	732.7	633.1	545.6	460.7	388.8	264.1
27.5°	958.7	941.4	905.0	848.7	769.0	679.8	580.2	491.9	413.1	342.1	226.9
30°	858.2	853.0	816.7	773.4	698.9	616.6	527.4	437.3	363.7	298.8	193.1
32.5°	763.0	752.6	727.5	683.3	625.3	549.9	466.8	389.7	321.3	259.8	163.7
35°	657.3	653.0	627.9	599.3	547.3	480.6	410.5	341.2	273.7	218.2	138.6
37.5°	555.1	554.3	533.5	517.0	470.2	419.2	352.5	287.5	233.0	185.3	114.3
40°	464.2	459.0	446.9	428.7	400.1	357.7	298.8	241.6	194.0	153.3	94.4
42.5°	375.9	373.3	367.2	355.9	333.4	298.8	252.0	201.8	158.5	125.6	77.1
45°	296.2	298.8	298.8	291.8	277.1	249.4	207.8	164.5	129.0	102.2	63.2
47.5°	233.0	231.2	234.7	233.0	226.9	203.5	168.0	131.6	108.3	87.5	53.7
50°	171.5	177.5	181.0	187.9	182.7	164.5	133.4	109.1	90.9	74.5	45.9
52.5°	126.4	129.0	137.7	150.7	147.2	129.9	107.4	91.8	75.3	61.5	39.0
55°	87.5	90.1	103.1	115.2	113.4	101.3	87.5	74.5	60.6	49.4	32.0
57.5°	57.2	59.8	71.0	88.3	88.3	80.5	71.0	58.9	47.6	39.0	26.8
60°	38.1	39.8	49.4	62.4	65.0	64.1	56.3	44.2	37.2	32.0	22.5
62.5°	25.1	26.8	34.6	44.2	49.4	49.4	41.6	33.8	30.3	26.8	19.1
65°	18.2	19.1	24.2	29.4	35.5	36.4	30.3	26.8	24.2	21.7	16.5
67.5°	13.0	13.0	17.3	20.8	25.1	24.2	22.5	19.9	18.2	15.6	13.0
70°	8.7	9.5	11.3	13.9	16.5	15.6	15.6	14.7	13.0	11.3	9.5
72.5°	6.1	6.9	7.8	9.5	10.4	10.4	10.4	9.5	8.7	7.8	6.9
75°	4.3	4.3	4.3	5.2	6.1	6.1	6.9	6.1	5.2	5.2	4.3
77.5°	2.6	2.6	2.6	2.6	3.5	3.5	3.5	2.6	2.6	1.7	2.6
80°	0.9	0.9	0.9	1.7	1.7	1.7	1.7	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



TEST NUMBER: P886848

CATALOG NUMBER: ML412LSFL95FS1E-TIR4D25AWW-TL4SWSL-1020LM-4000K

CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
0°	716.2	716.2	716.2
2.5°	679.0	668.6	667.7
5°	622.7	597.6	583.7
7.5°	556.8	521.3	504.9
10°	491.0	448.6	433.9
12.5°	429.5	384.5	370.7
15°	369.8	326.5	317.0
17.5°	319.6	279.7	270.2
20°	273.7	239.9	229.5
22.5°	235.6	203.5	193.1
25°	200.9	173.2	164.5
27.5°	171.5	147.2	142.0
30°	144.6	125.6	122.1
32.5°	121.2	108.3	107.4
35°	102.2	92.7	95.3
37.5°	88.3	80.5	83.1
40°	73.6	70.1	72.7
42.5°	62.4	60.6	64.1
45°	52.0	53.7	56.3
47.5°	44.2	47.6	49.4
50°	36.4	41.6	41.6
52.5°	31.2	36.4	35.5
55°	27.7	31.2	30.3
57.5°	24.2	26.0	25.1
60°	20.8	21.7	20.8
62.5°	17.3	18.2	17.3
65°	14.7	14.7	13.9
67.5°	12.1	11.3	11.3
70°	9.5	8.7	7.8
72.5°	6.9	6.1	4.3
75°	4.3	3.5	1.7
77.5°	1.7	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



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)