

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: P887040

Luminaire Tested: ML412LSFL9FS1E-TIR4D40FL-TL4SDMW-1200LM-2700K

Issue Date: 7/9/2024

Test Information

Test Method: LM-79-2019
Report Number: P887040
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2402-314-51)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 7/9/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO
Catalog Number: ML412LSFL9FS1E-TIR4D40FL-TL4SDMW-1200LM-2700K
Description: 4IN SQUARE ML FLEX, SELECTABLE CCT, WITH 40D TIR, MATTE WHITE TRIM
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 2700K CCT
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1533.0 lumens
Efficiency: N/A
Efficacy: 87.1 lumens/watt
Spacing Criteria (0/90/45): 0.7 / 0.69 / 0.65
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

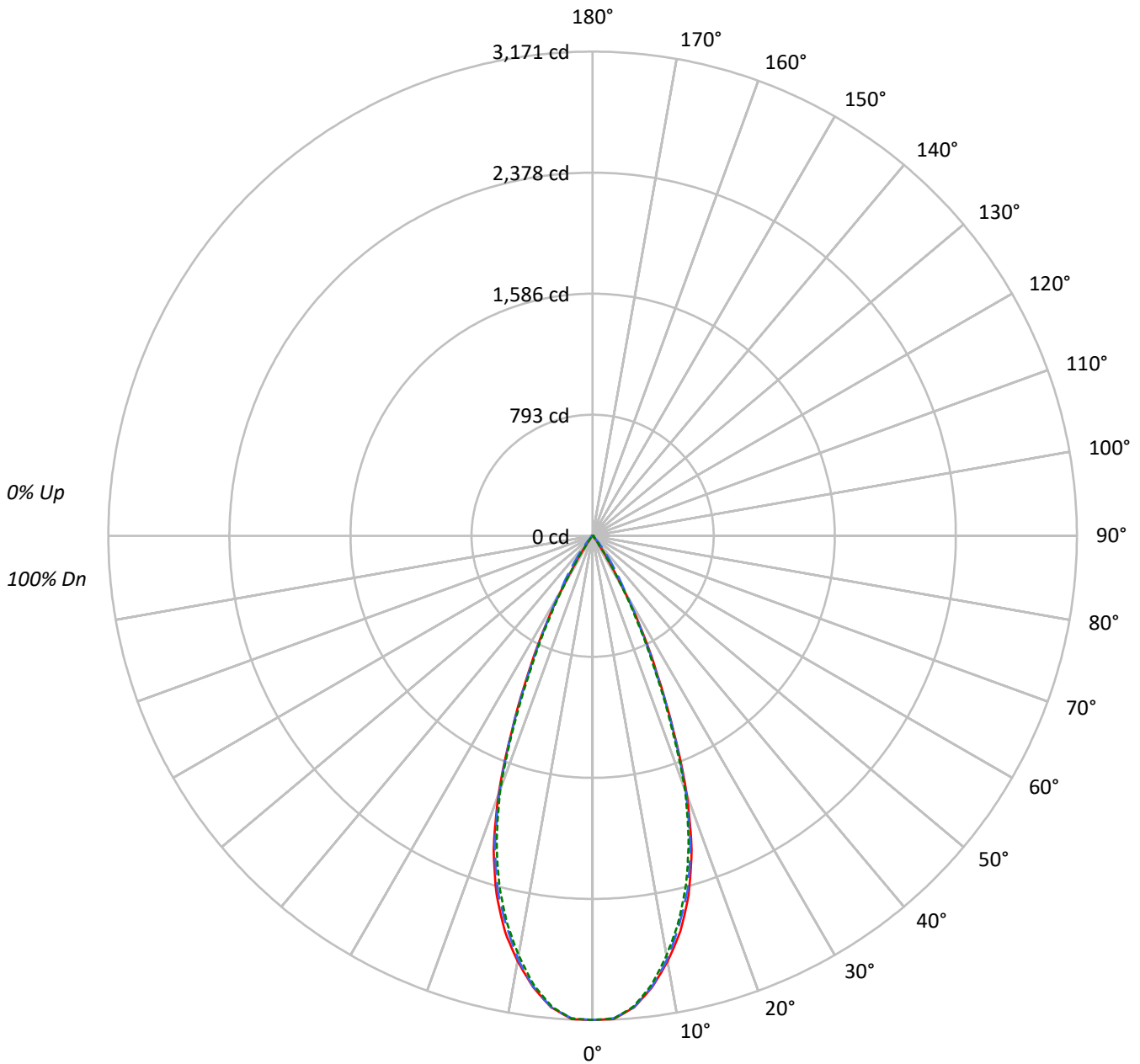
Input Watts (W): 17.6
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



TEST NUMBER: P887040

CATALOG NUMBER: ML412LSFL9FS1E-TIR4D40FL-TL4SDMW-1200LM-2700K

Luminous Intensity Polar Plot





TEST NUMBER: P887040

CATALOG NUMBER: ML412LSFL9FS1E-TIR4D40FL-TL4SDMW-1200LM-2700K

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20									20									20									20									
RC	80									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	114	112	110	108	112	110	108	106	106	104	103	102	101	100	99	98	97	95																			
2	110	105	102	99	108	104	101	98	101	98	96	98	96	94	95	93	92	90																			
3	105	100	96	92	103	99	95	92	96	93	90	94	91	89	91	89	87	86																			
4	101	95	90	87	100	94	89	86	92	88	85	90	87	84	88	85	83	82																			
5	97	90	85	82	96	89	85	81	88	84	81	86	83	80	85	82	79	78																			
6	94	86	81	78	92	85	81	77	84	80	77	83	79	76	82	78	76	75																			
7	90	82	77	74	89	82	77	74	81	76	73	79	76	73	78	75	73	71																			
8	87	79	74	71	86	78	74	70	77	73	70	76	73	70	76	72	70	68																			
9	84	76	71	67	83	75	71	67	74	70	67	74	70	67	73	69	67	66																			
10	81	73	68	65	80	72	68	65	72	67	64	71	67	64	70	67	64	63																			

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	307173	307173	307173
5°	301539	301442	300761
10°	278279	276901	274344
15°	243822	240913	237102
20°	186010	183742	182196
25°	107061	104817	100968
30°	44062	48526	41378
35°	9106	22813	8633
40°	2656	8852	2909
45°	1644	2877	1644
50°	1507	1809	1507
55°	1689	1689	1520
60°	1550	1744	1550
65°	1605	1605	1605
70°	1699	1699	1699
75°	1497	1871	1497
80°	1674	1674	1674
85°	2223	2223	2223

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 45°
 Vertical Angle: 45°
 Luminance: 2877 cd/sqm



TEST NUMBER: P887040

CATALOG NUMBER: ML412LSFL9FS1E-TIR4D40FL-TL4SDMW-1200LM-2700K

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	286.5	18.7
10°-20°	654.2	42.7
20°-30°	457.5	29.8
30°-40°	98.5	6.4
40°-50°	13.8	0.9
50°-60°	8.7	0.6
60°-70°	7.2	0.5
70°-80°	4.8	0.3
80°-90°	1.8	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°	1398.2	91.2
0°-40°	1496.8	97.6
0°-60°	1519.2	99.1
0°-90°	1533.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1533.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3171	3171	3171	3171	3171	
5°	3101	3103	3100	3092	3093	287
15°	2431	2417	2402	2368	2364	663
25°	1002	989	981	965	945	464
35°	77	122	193	111	73	76
45°	12	13	21	13	12	10
55°	10	10	10	10	9	9
65°	7	7	7	7	7	7
75°	4	5	5	5	4	5
85°	2	2	2	2	2	2
90°	0	0	0	0	0	



TEST NUMBER: P887040

CATALOG NUMBER: ML412LSFL9FS1E-TIR4D40FL-TL4SDMW-1200LM-2700K

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3170.8	3170.8	3170.8	3170.8	3170.8
2.5°	3167.8	3165.8	3162.8	3162.8	3164.8
5°	3100.8	3102.8	3099.8	3091.8	3092.8
7.5°	2982.9	2989.9	2976.9	2971.9	2963.9
10°	2828.9	2826.9	2814.9	2797.9	2788.9
12.5°	2654.0	2646.0	2614.0	2598.0	2593.0
15°	2431.1	2417.1	2402.1	2368.1	2364.1
17.5°	2155.2	2148.2	2127.2	2098.2	2088.2
20°	1804.3	1805.3	1782.3	1758.3	1767.3
22.5°	1381.5	1401.5	1374.5	1351.5	1341.5
25°	1001.6	988.6	980.6	964.6	944.6
27.5°	694.7	682.7	667.7	659.8	629.8
30°	393.9	436.8	433.8	407.8	369.9
32.5°	186.9	248.9	295.9	223.9	171.9
35°	77.0	122.0	192.9	111.0	73.0
37.5°	37.0	56.0	121.0	55.0	36.0
40°	21.0	30.0	70.0	29.0	23.0
42.5°	15.0	17.0	38.0	17.0	15.0
45°	12.0	13.0	21.0	13.0	12.0
47.5°	11.0	11.0	14.0	11.0	11.0
50°	10.0	11.0	12.0	10.0	10.0
52.5°	10.0	10.0	11.0	10.0	10.0
55°	10.0	10.0	10.0	10.0	9.0
57.5°	9.0	9.0	9.0	9.0	9.0
60°	8.0	9.0	9.0	8.0	8.0
62.5°	8.0	8.0	8.0	8.0	7.0
65°	7.0	7.0	7.0	7.0	7.0
67.5°	6.0	7.0	7.0	7.0	6.0
70°	6.0	6.0	6.0	6.0	6.0
72.5°	5.0	5.0	5.0	5.0	5.0
75°	4.0	5.0	5.0	5.0	4.0
77.5°	4.0	4.0	4.0	4.0	4.0
80°	3.0	3.0	3.0	3.0	3.0
82.5°	2.0	3.0	2.0	2.0	2.0
85°	2.0	2.0	2.0	2.0	2.0
87.5°	1.0	1.0	1.0	1.0	1.0
90°	0.0	0.0	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



(END OF REPORT)