

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: P887014

Luminaire Tested: ML412LSFL9FS1E-TIR4D25NFL-TL4SDMW-1200LM-5000K

Issue Date: 7/9/2024

Test Information

Test Method: LM-79-2019
Report Number: P887014
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2402-314-48)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 7/9/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO
Catalog Number: ML412LSFL9FS1E-TIR4D25NFL-TL4SDMW-1200LM-5000K
Description: 4IN SQUARE ML FLEX, SELECTABLE CCT, WITH 25D TIR, MATTE WHITE TRIM
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 5000K CCT
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1557.7 lumens
Efficiency: N/A
Efficacy: 88.5 lumens/watt
Spacing Criteria (0/90/45): 0.49 / 0.49 / 0.52
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

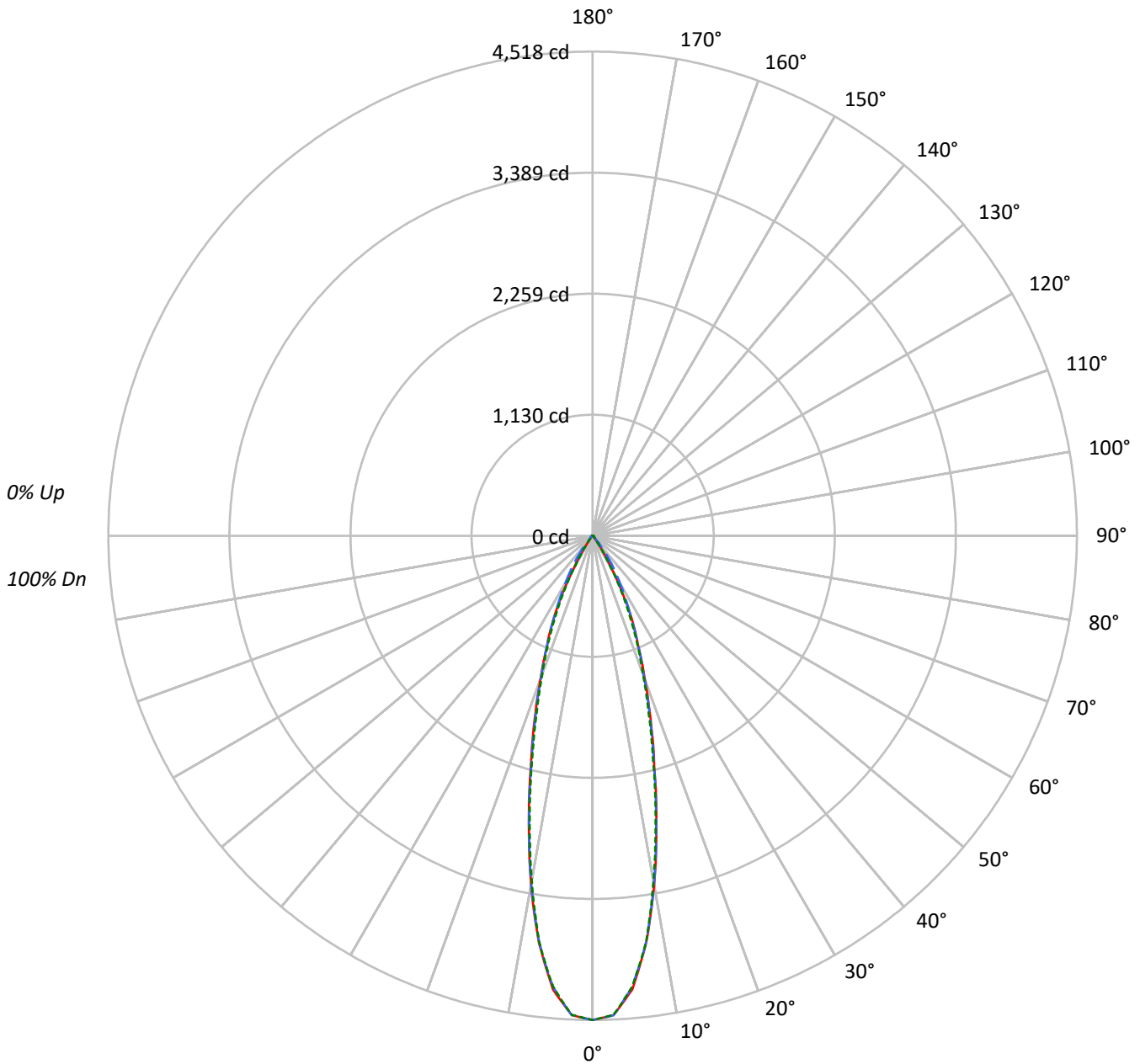
Input Watts (W): 17.6
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



TEST NUMBER: P887014

CATALOG NUMBER: ML412LSFL9FS1E-TIR4D25NFL-TL4SDMW-1200LM-5000K

Luminous Intensity Polar Plot





TEST NUMBER: P887014

CATALOG NUMBER: ML412LSFL9FS1E-TIR4D25NFL-TL4SDMW-1200LM-5000K

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	104	99	95	92	96	93	90	94	91	89	92	89	88	86																			
4	101	95	90	87	100	94	90	86	92	88	85	90	87	84	88	86	84	82																			
5	98	91	86	82	96	90	85	82	88	84	81	87	83	81	85	82	80	79																			
6	94	87	82	78	93	86	81	78	85	81	78	83	80	77	82	79	77	75																			
7	91	83	78	75	89	82	78	75	81	77	74	80	77	74	79	76	73	72																			
8	87	80	75	72	86	79	75	71	78	74	71	77	74	71	76	73	71	69																			
9	85	77	72	69	84	76	72	69	75	71	68	75	71	68	74	70	68	67																			
10	82	74	69	66	81	74	69	66	73	69	66	72	68	66	71	68	65	64																			

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	437703	437703	437703
5°	413206	411057	410940
10°	325408	324601	321620
15°	223121	221487	219270
20°	146618	144701	141340
25°	93871	92503	85908
30°	40393	56681	36355
35°	11152	31269	10608
40°	3971	11495	3832
45°	3028	4151	2877
50°	2803	3165	2637
55°	2753	2956	2753
60°	2713	2926	2713
65°	2659	2934	2659
70°	2634	2974	2634
75°	2620	3069	2620
80°	2622	3236	2622
85°	2556	2556	2556

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 45°
 Vertical Angle: 45°
 Luminance: 4151 cd/sqm



TEST NUMBER: P887014

CATALOG NUMBER: ML412LSFL9FS1E-TIR4D25NFL-TL4SDMW-1200LM-5000K

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	374.0	24.0
10°-20°	615.5	39.5
20°-30°	393.5	25.3
30°-40°	114.8	7.4
40°-50°	21.5	1.4
50°-60°	14.9	1.0
60°-70°	12.4	0.8
70°-80°	8.3	0.5
80°-90°	2.7	0.2
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°	1383.0	88.8
0°-40°	1497.8	96.2
0°-60°	1534.3	98.5
0°-90°	1557.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1557.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4518	4518	4518	4518	4518	
5°	4249	4244	4227	4228	4226	375
15°	2225	2217	2208	2193	2186	620
25°	878	874	865	844	804	390
35°	94	150	264	139	90	80
45°	22	23	30	23	21	18
55°	16	16	18	16	16	15
65°	12	13	13	13	12	12
75°	7	8	8	8	7	7
85°	2	2	2	2	2	3
90°	0	0	0	0	0	



TEST NUMBER: P887014

CATALOG NUMBER: ML412LSFL9FS1E-TIR4D25NFL-TL4SDMW-1200LM-5000K

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4518.2	4518.2	4518.2	4518.2	4518.2
2.5°	4477.4	4482.1	4479.8	4466.9	4473.9
5°	4249.1	4244.5	4227.0	4228.2	4225.8
7.5°	3832.1	3831.0	3825.1	3827.5	3820.5
10°	3308.0	3331.3	3299.8	3299.8	3269.5
12.5°	2751.2	2757.0	2743.1	2726.8	2712.8
15°	2224.7	2216.6	2208.4	2193.3	2186.3
17.5°	1798.4	1797.3	1777.5	1758.8	1733.2
20°	1422.2	1418.7	1403.6	1396.6	1371.0
22.5°	1115.9	1129.8	1113.5	1086.7	1079.8
25°	878.2	873.6	865.4	844.5	803.7
27.5°	609.2	658.1	667.4	629.0	564.9
30°	361.1	438.0	506.7	418.2	325.0
32.5°	202.7	270.2	382.0	251.6	174.7
35°	94.3	150.3	264.4	138.6	89.7
37.5°	43.1	73.4	160.7	72.2	46.6
40°	31.4	37.3	90.9	39.6	30.3
42.5°	25.6	28.0	51.3	28.0	24.5
45°	22.1	23.3	30.3	23.3	21.0
47.5°	18.6	21.0	23.3	19.8	18.6
50°	18.6	18.6	21.0	18.6	17.5
52.5°	17.5	17.5	18.6	17.5	17.5
55°	16.3	16.3	17.5	16.3	16.3
57.5°	15.1	15.1	16.3	15.1	15.1
60°	14.0	15.1	15.1	14.0	14.0
62.5°	12.8	14.0	14.0	14.0	12.8
65°	11.6	12.8	12.8	12.8	11.6
67.5°	10.5	11.6	11.6	11.6	10.5
70°	9.3	10.5	10.5	10.5	9.3
72.5°	8.2	9.3	9.3	9.3	8.2
75°	7.0	8.2	8.2	8.2	7.0
77.5°	5.8	7.0	7.0	7.0	5.8
80°	4.7	5.8	5.8	5.8	4.7
82.5°	3.5	3.5	3.5	4.7	3.5
85°	2.3	2.3	2.3	2.3	2.3
87.5°	1.2	1.2	1.2	1.2	1.2
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)