

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: P886994

Luminaire Tested: ML412LSFL9FS1E-TIR4D25NFL-TL4RDDB-960LM-5000K

Issue Date: 7/18/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P886994  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2402-314-38)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 7/18/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO  
Catalog Number: ML412LSFL9FS1E-TIR4D25NFL-TL4RDMB-960LM-5000K  
Description: 4IN ROUND ML FLEX, SELECTABLE CCT, WITH 25D TIR, MATTE BLACK TRIM  
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 5000K CCT  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1176.7 lumens  
Efficiency: N/A  
Efficacy: 84.7 lumens/watt  
Spacing Criteria (0/90/45): 0.48 / 0.48 / 0.51  
Luminous Opening: Circular (Dia: 0.33' x H: 0')  
CIE Type: Direct

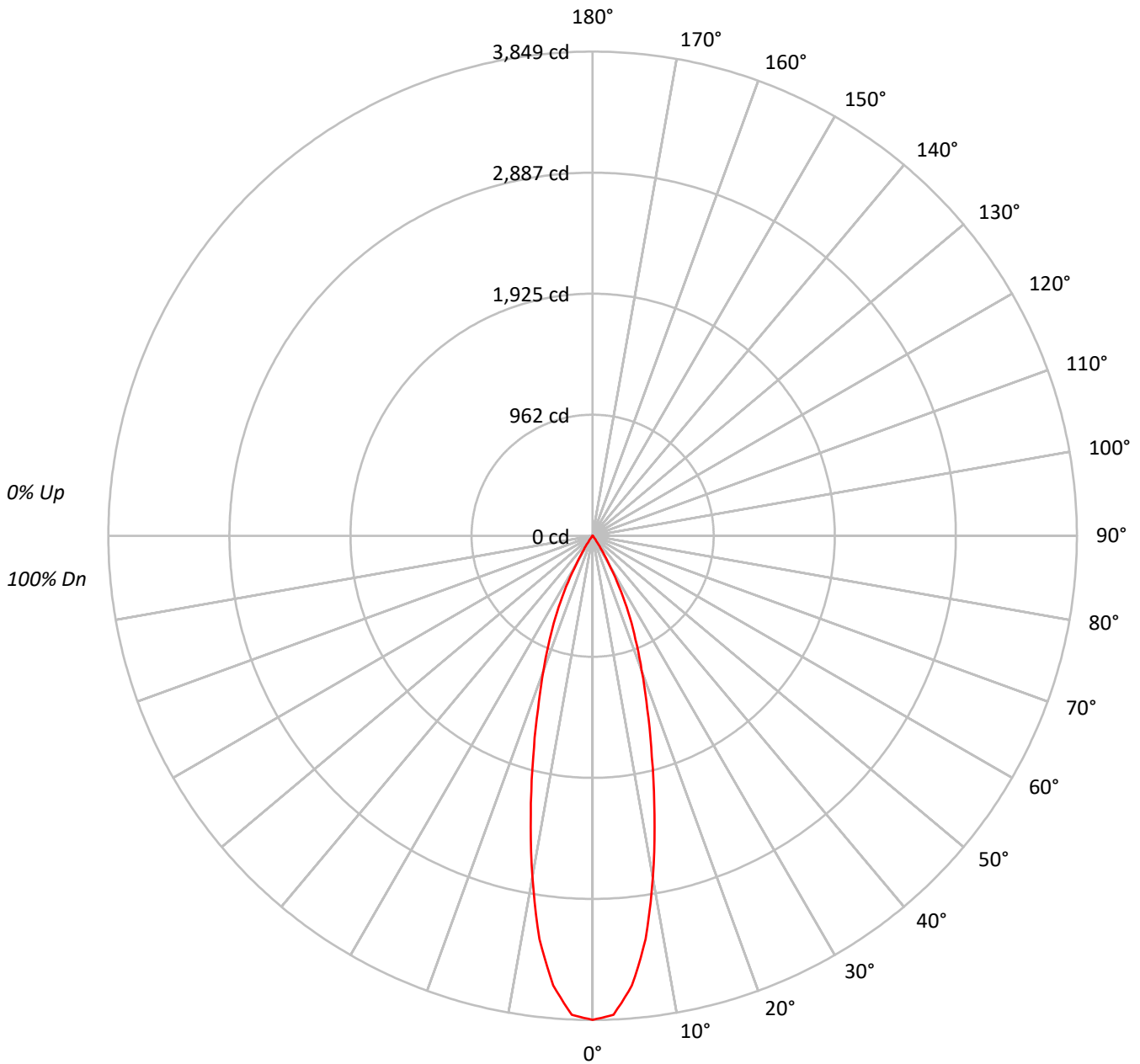
Input Watts (W): 13.9  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT



TEST NUMBER: P886994

CATALOG NUMBER: ML412LSFL9FS1E-TIR4D25NFL-TL4RDMB-960LM-5000K

### Luminous Intensity Polar Plot





TEST NUMBER: P886994

CATALOG NUMBER: ML412LSFL9FS1E-TIR4D25NFL-TL4RDDB-960LM-5000K

**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20				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	0
RCR																				
0	119	119	119	119	116	116	116	116	111	111	111		106	106	106		102	102	102	100
1	115	113	111	109	112	110	109	107	106	105	104		103	102	101		99	99	98	96
2	111	107	104	101	109	105	102	100	102	100	98		99	97	96		97	95	94	92
3	107	102	98	95	105	101	97	94	98	95	93		96	93	91		94	92	90	89
4	103	97	93	90	102	96	93	90	94	91	89		93	90	88		91	88	87	85
5	100	93	89	86	98	93	88	85	91	87	85		89	86	84		88	85	83	82
6	96	90	85	82	95	89	85	82	88	84	81		86	83	81		85	82	80	79
7	93	86	82	79	92	86	82	78	85	81	78		84	80	78		83	80	77	76
8	90	83	79	76	89	83	78	76	82	78	75		81	77	75		80	77	75	74
9	88	80	76	73	87	80	76	73	79	75	73		78	75	72		78	74	72	71
10	85	78	73	70	84	77	73	70	77	73	70		76	72	70		75	72	70	69

**AVERAGE LUMINANCE (cd/sqm):**

	0°
0°	474708
5°	444366
10°	345172
15°	232523
20°	149625
25°	91634
30°	36305
35°	8252
40°	1401
45°	331
50°	0
55°	0
60°	0
65°	0
70°	0
75°	0
80°	0
85°	0

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 331 cd/sqm



TEST NUMBER: P886994

CATALOG NUMBER: ML412LSFL9FS1E-TIR4D25NFL-TL4RDMB-960LM-5000K

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	315.9	26.8
10°-20°	506.7	43.1
20°-30°	302.2	25.7
30°-40°	49.7	4.2
40°-50°	2.2	0.2
50°-60°	0.0	0.0
60°-70°	0.0	0.0
70°-80°	0.0	0.0
80°-90°	0.0	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°	1124.8	95.6
0°-40°	1174.4	99.8
0°-60°	1176.7	100.0
0°-90°	1176.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1176.7	100.0

**CANDELA DISTRIBUTION:**

	0°	Flux
0°	3849	
5°	3589	316
15°	1821	507
25°	673	302
35°	55	50
45°	2	2
55°	0	0
65°	0	0
75°	0	0
85°	0	0
90°	0	



TEST NUMBER: P886994

CATALOG NUMBER: ML412LSFL9FS1E-TIR4D25NFL-TL4RDMB-960LM-5000K

**CANDELA DISTRIBUTION (FULL):**

0°	
0°	3848.6
2.5°	3811.1
5°	3588.9
7.5°	3233.0
10°	2755.9
12.5°	2270.1
15°	1820.9
17.5°	1442.9
20°	1139.9
22.5°	889.8
25°	673.3
27.5°	454.0
30°	254.9
32.5°	128.9
35°	54.8
37.5°	19.2
40°	8.7
42.5°	4.8
45°	1.9
47.5°	1.0
50°	0.0
52.5°	0.0
55°	0.0
57.5°	0.0
60°	0.0
62.5°	0.0
65°	0.0
67.5°	0.0
70°	0.0
72.5°	0.0
75°	0.0
77.5°	0.0
80°	0.0
82.5°	0.0
85°	0.0
87.5°	0.0
90°	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





Signify Classified - Internal  
Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269

Scaled Data Report



— 0°-180°

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)