

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: P887035

Luminaire Tested: ML412LSFL9FS1E-TIR4D40FL-TL4SDMB-1200LM-2700K

Issue Date: 7/9/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P887035  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2402-314-53)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 7/9/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO  
Catalog Number: ML412LSFL9FS1E-TIR4D40FL-TL4SDMB-1200LM-2700K  
Description: 4IN SQUARE ML FLEX, SELECTABLE CCT, WITH 40D TIR, MATTE BLACK TRIM  
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 2700K CCT  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1493.0 lumens  
Efficiency: N/A  
Efficacy: 84.8 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

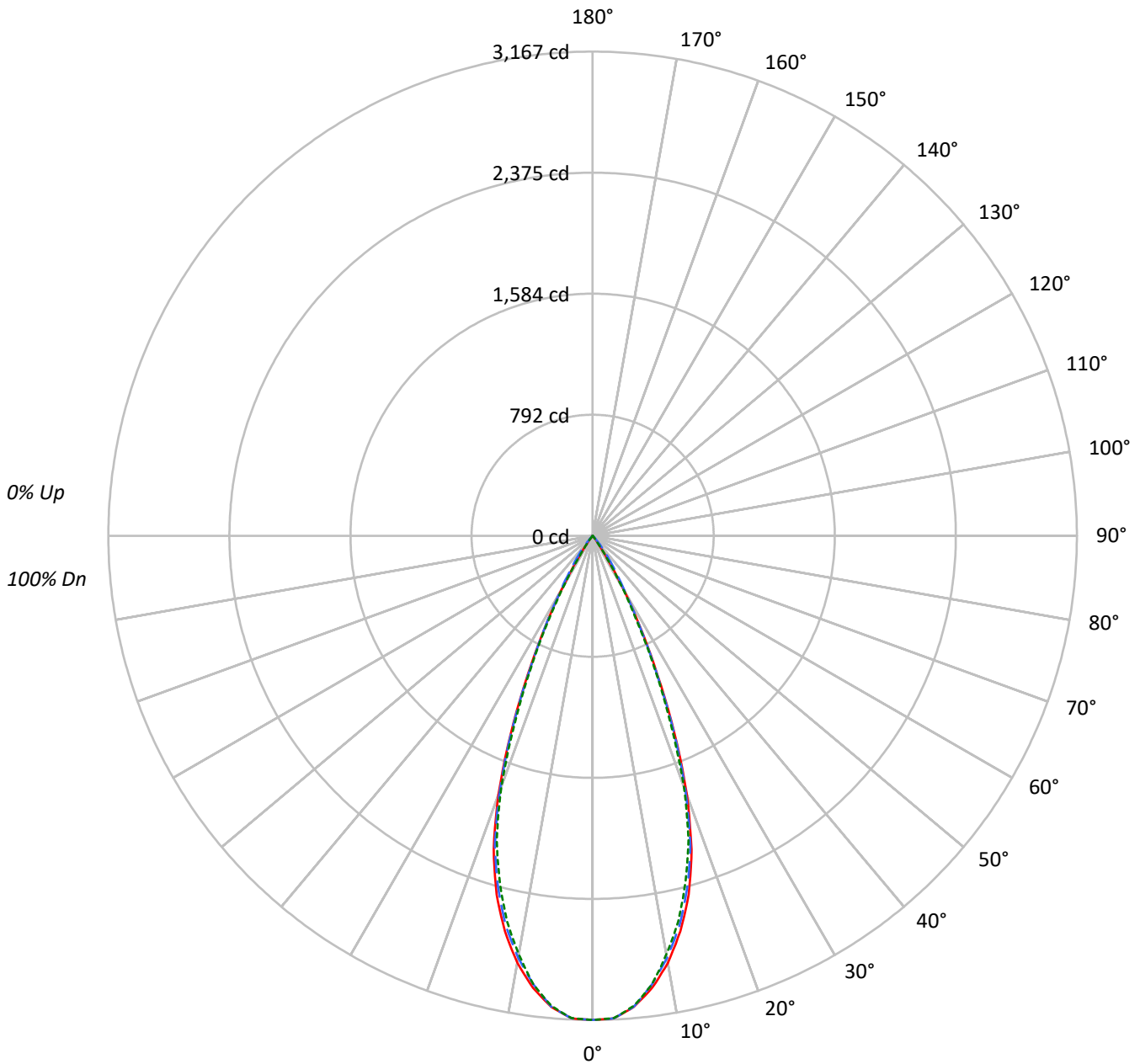
Input Watts (W): 17.6  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT



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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	115	112	110	108	112	110	108	106	106	105	103	102	101	100	99	98	97	96								
2	110	106	103	100	108	104	101	99	101	99	97	98	96	95	96	94	93	91								
3	106	101	97	93	104	99	96	93	97	94	91	94	92	90	92	90	88	87								
4	102	96	91	88	100	95	91	87	93	89	86	91	88	85	89	86	84	83								
5	98	91	87	83	97	90	86	83	89	85	82	87	84	81	86	83	81	79								
6	94	87	82	79	93	87	82	79	85	81	78	84	80	78	83	80	77	76								
7	91	83	79	75	90	83	78	75	82	78	75	81	77	74	80	76	74	73								
8	88	80	75	72	87	79	75	72	79	74	71	78	74	71	77	73	71	70								
9	85	77	72	69	84	76	72	69	76	71	68	75	71	68	74	71	68	67								
10	82	74	69	66	81	73	69	66	73	69	66	72	68	66	71	68	65	64								

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

	0°	45°	90°
0°	306804	306804	306804
5°	300878	300683	300197
10°	278957	275613	273449
15°	243471	239549	235237
20°	185484	183103	179804
25°	106954	104817	102893
30°	44667	47799	40740
35°	8278	22127	7214
40°	1265	7841	1265
45°	137	1507	137
50°	0	301	0
55°	0	0	0
60°	0	0	0
65°	0	0	0
70°	0	0	0
75°	0	0	0
80°	0	0	0
85°	0	0	0

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 45°  
 Vertical Angle: 45°  
 Luminance: 1507 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	285.7	19.1
10°-20°	652.4	43.7
20°-30°	455.9	30.5
30°-40°	93.2	6.2
40°-50°	5.7	0.4
50°-60°	0.1	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°	1394.0	93.4
0°-40°	1487.1	99.6
0°-60°	1493.0	100.0
0°-90°	1493.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1493.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	3167	3167	3167	3167	3167	
5°	3094	3097	3092	3083	3087	287
15°	2428	2424	2388	2360	2346	662
25°	1001	1007	981	967	963	464
35°	70	115	187	99	61	72
45°	1	2	11	2	1	2
55°	0	0	0	0	0	0
65°	0	0	0	0	0	0
75°	0	0	0	0	0	0
85°	0	0	0	0	0	0
90°	0	0	0	0	0	0



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	3167.0	3167.0	3167.0	3167.0	3167.0
2.5°	3160.0	3158.0	3160.0	3159.0	3158.0
5°	3094.0	3097.0	3092.0	3083.0	3087.0
7.5°	2982.9	2974.9	2960.9	2956.9	2961.9
10°	2835.8	2815.8	2801.8	2796.8	2779.8
12.5°	2649.7	2639.7	2615.7	2593.7	2584.7
15°	2427.6	2423.6	2388.5	2360.5	2345.5
17.5°	2151.4	2133.4	2125.4	2098.4	2085.3
20°	1799.2	1799.2	1776.1	1738.1	1744.1
22.5°	1398.9	1383.9	1388.9	1348.9	1336.9
25°	1000.6	1006.7	980.6	966.6	962.6
27.5°	674.4	665.4	667.4	641.4	622.4
30°	399.3	427.3	427.3	403.3	364.2
32.5°	187.1	240.2	282.2	224.1	159.1
35°	70.0	115.1	187.1	99.1	61.0
37.5°	27.0	47.0	114.1	40.0	25.0
40°	10.0	19.0	62.0	18.0	10.0
42.5°	4.0	7.0	29.0	6.0	4.0
45°	1.0	2.0	11.0	2.0	1.0
47.5°	1.0	1.0	4.0	1.0	0.0
50°	0.0	0.0	2.0	0.0	0.0
52.5°	0.0	0.0	1.0	0.0	0.0
55°	0.0	0.0	0.0	0.0	0.0
57.5°	0.0	0.0	0.0	0.0	0.0
60°	0.0	0.0	0.0	0.0	0.0
62.5°	0.0	0.0	0.0	0.0	0.0
65°	0.0	0.0	0.0	0.0	0.0
67.5°	0.0	0.0	0.0	0.0	0.0
70°	0.0	0.0	0.0	0.0	0.0
72.5°	0.0	0.0	0.0	0.0	0.0
75°	0.0	0.0	0.0	0.0	0.0
77.5°	0.0	0.0	0.0	0.0	0.0
80°	0.0	0.0	0.0	0.0	0.0
82.5°	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0
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



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Scaled Data Report







— 0°-180°    - - 45°-225°    - - - 90°-270°

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