

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: P887039

Luminaire Tested: ML412LSFL9FS1E-TIR4D40FL-TL4SDMB-1200LM-5000K

Issue Date: 7/9/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P887039  
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-5000K  
Description: 4IN SQUARE ML FLEX, SELECTABLE CCT, WITH 40D TIR, MATTE BLACK TRIM  
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 5000K CCT  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1739.4 lumens  
Efficiency: N/A  
Efficacy: 98.8 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

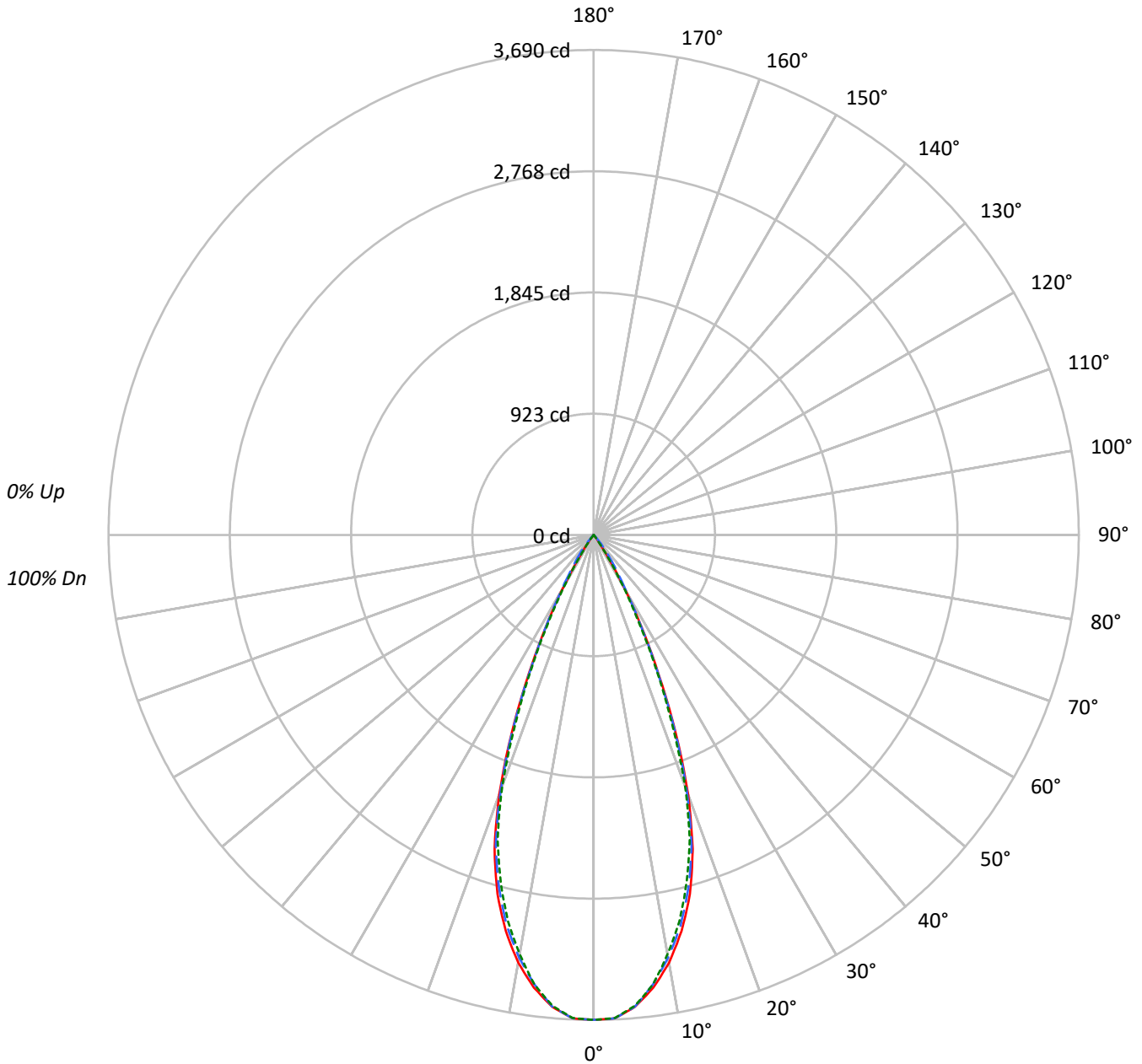
Input Watts (W): 17.6  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT



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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					100			
1	115	112	110	108	112	110	108	106	106	105	103	102	101	100	99	98	97	96					96			
2	110	106	103	100	108	104	101	99	101	99	97	98	96	95	96	94	93	91					91			
3	106	101	97	93	104	99	96	93	97	94	91	94	92	90	92	90	88	87					87			
4	102	96	91	88	100	95	91	87	93	89	86	91	88	85	89	86	84	83					83			
5	98	91	87	83	97	90	86	83	89	85	82	87	84	81	86	83	81	79					79			
6	94	87	82	79	93	87	82	79	85	81	78	84	80	78	83	80	77	76					76			
7	91	83	79	75	90	83	78	75	82	78	75	81	77	74	80	76	74	73					73			
8	88	80	75	72	87	79	75	72	79	74	71	78	74	71	77	73	71	70					70			
9	85	77	72	69	84	76	72	69	76	71	68	75	71	68	74	71	68	67					67			
10	82	74	69	66	81	73	69	66	73	69	66	72	68	66	71	68	65	64					64			

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

	0°	45°	90°
0°	357441	357441	357441
5°	350531	350307	349743
10°	324994	321099	318581
15°	283648	279085	274060
20°	216093	213330	209484
25°	124613	122122	119877
30°	52027	55685	47463
35°	9650	25781	8409
40°	1480	9143	1480
45°	164	1754	164
50°	0	347	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: 1754 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	332.8	19.1
10°-20°	760.1	43.7
20°-30°	531.1	30.5
30°-40°	108.5	6.2
40°-50°	6.7	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°	1624.0	93.4
0°-40°	1732.6	99.6
0°-60°	1739.4	100.0
0°-90°	1739.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1739.4	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	3690	3690	3690	3690	3690	
5°	3605	3608	3602	3592	3596	334
15°	2828	2824	2783	2750	2733	771
25°	1166	1173	1142	1126	1122	540
35°	82	134	218	115	71	84
45°	1	2	13	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	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	3689.7	3689.7	3689.7	3689.7	3689.7
2.5°	3681.6	3679.2	3681.6	3680.4	3679.2
5°	3604.6	3608.1	3602.3	3591.8	3596.5
7.5°	3475.2	3465.9	3449.6	3444.9	3450.7
10°	3303.8	3280.5	3264.2	3258.4	3238.6
12.5°	3087.0	3075.3	3047.4	3021.7	3011.2
15°	2828.2	2823.5	2782.7	2750.1	2732.6
17.5°	2506.4	2485.5	2476.1	2444.7	2429.5
20°	2096.1	2096.1	2069.3	2025.0	2032.0
22.5°	1629.8	1612.3	1618.1	1571.5	1557.5
25°	1165.8	1172.8	1142.5	1126.2	1121.5
27.5°	785.7	775.2	777.6	747.3	725.1
30°	465.1	497.8	497.8	469.8	424.3
32.5°	218.0	279.8	328.8	261.1	185.4
35°	81.6	134.1	218.0	115.4	71.1
37.5°	31.5	54.8	132.9	46.6	29.1
40°	11.7	22.1	72.3	21.0	11.7
42.5°	4.7	8.2	33.8	7.0	4.7
45°	1.2	2.3	12.8	2.3	1.2
47.5°	1.2	1.2	4.7	1.2	0.0
50°	0.0	0.0	2.3	0.0	0.0
52.5°	0.0	0.0	1.2	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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