

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: P887015

Luminaire Tested: ML412LSFL9FS1E-TIR4D25NFL-TL4SDSL-1200LM-2700K

Issue Date: 7/9/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P887015  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2402-314-49)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 7/9/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO  
Catalog Number: ML412LSFL9FS1E-TIR4D25NFL-TL4SDSL-1200LM-2700K  
Description: 4IN SQUARE ML FLEX, SELECTABLE CCT, WITH 25D TIR, METALLIC SILVER TRIM  
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 2700K CCT  
Ballast/Driver: -

**Summary**

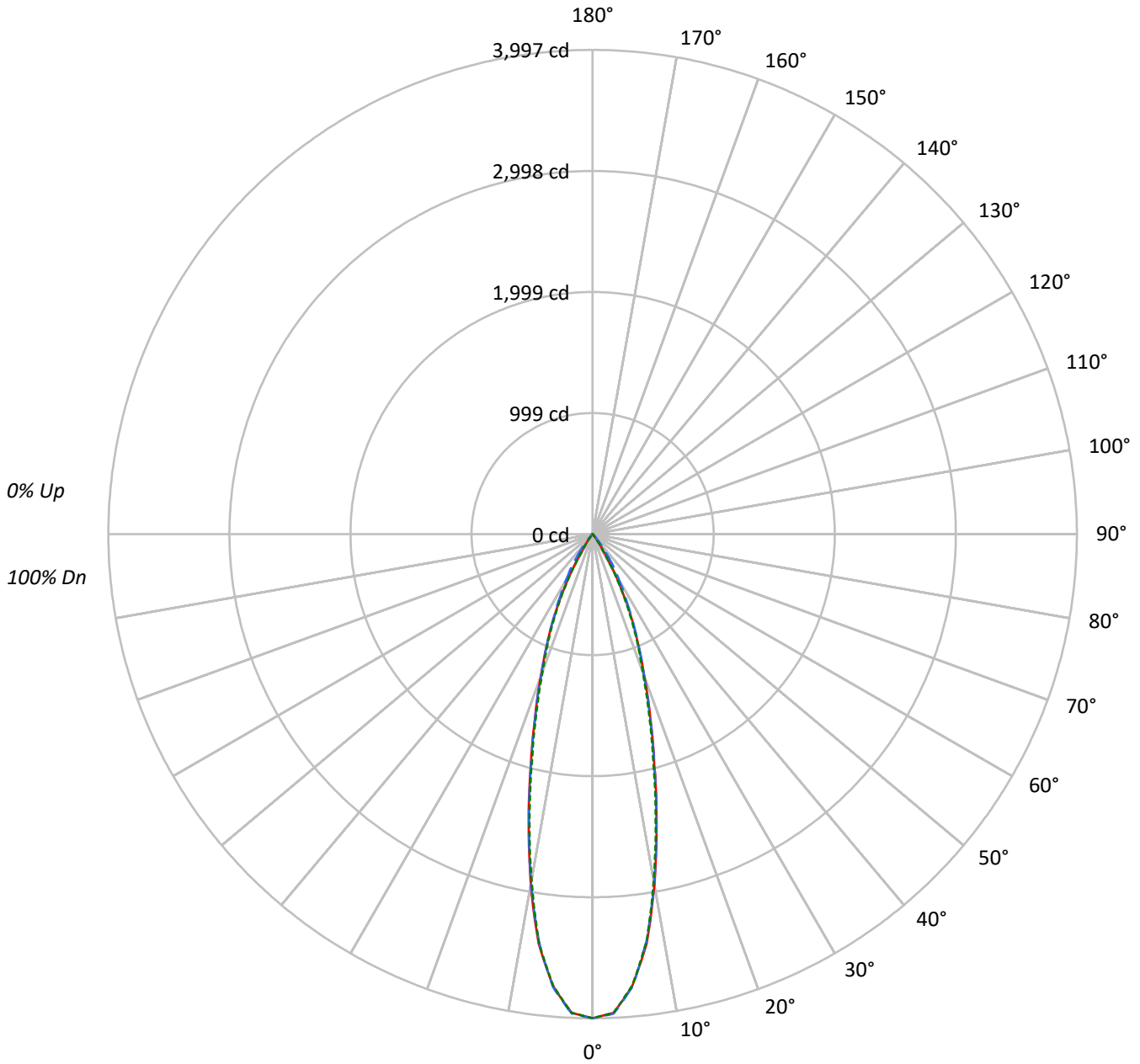
Lumens per Lamp: N/A  
Luminaire Lumens: 1332.0 lumens  
Efficiency: N/A  
Efficacy: 75.7 lumens/watt  
Spacing Criteria (0/90/45): 0.49 / 0.49 / 0.52  
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
CIE Type: Direct

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



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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	107	106	105	103	102	101	100	99	98	97	96					96			
2	110	106	103	100	108	105	102	99	101	99	97	99	97	95	96	94	93	92					92			
3	106	101	97	94	104	100	96	93	97	94	92	95	92	90	93	91	89	88					88			
4	102	96	92	89	101	95	91	88	93	90	87	91	88	86	90	87	85	84					84			
5	99	92	87	84	97	91	87	84	90	86	83	88	85	82	87	84	82	80					80			
6	95	88	83	80	94	87	83	80	86	82	79	85	81	79	84	81	78	77					77			
7	92	85	80	77	91	84	80	76	83	79	76	82	78	76	81	78	75	74					74			
8	89	81	77	73	88	81	76	73	80	76	73	79	75	73	78	75	72	71					71			
9	86	78	74	71	85	78	73	70	77	73	70	76	73	70	76	72	70	69					69			
10	83	76	71	68	82	75	71	68	74	70	68	74	70	68	73	70	67	66					66			

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

	0°	45°	90°
0°	387192	387192	387192
5°	364359	365040	363776
10°	288991	288106	285548
15°	197366	196664	193655
20°	128649	127825	124113
25°	80275	81343	76533
30°	35125	48772	32216
35°	9343	26018	8278
40°	2150	8599	2023
45°	1096	1918	959
50°	603	904	603
55°	507	507	507
60°	388	388	388
65°	458	458	458
70°	283	283	283
75°	374	374	374
80°	558	558	558
85°	0	0	0

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 45°  
 Vertical Angle: 45°  
 Luminance: 1918 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	331.3	24.9
10°-20°	545.0	40.9
20°-30°	344.7	25.9
30°-40°	95.3	7.2
40°-50°	9.9	0.7
50°-60°	2.7	0.2
60°-70°	1.8	0.1
70°-80°	1.1	0.1
80°-90°	0.3	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°	1221.1	91.7
0°-40°	1316.3	98.8
0°-60°	1328.9	99.8
0°-90°	1332.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1332.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	3997	3997	3997	3997	3997	
5°	3747	3754	3754	3733	3741	332
15°	1968	1982	1961	1936	1931	548
25°	751	762	761	739	716	338
35°	79	121	220	113	70	65
45°	8	9	14	8	7	7
55°	3	3	3	3	3	2
65°	2	2	2	2	2	2
75°	1	1	1	1	1	1
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°	3996.8	3996.8	3996.8	3996.8	3996.8
2.5°	3955.8	3961.8	3962.8	3961.8	3955.8
5°	3746.8	3753.8	3753.8	3732.8	3740.8
7.5°	3410.8	3394.8	3392.8	3384.8	3397.8
10°	2937.8	2946.8	2928.8	2929.8	2902.8
12.5°	2436.9	2443.9	2428.9	2410.9	2403.9
15°	1967.9	1981.9	1960.9	1935.9	1930.9
17.5°	1578.9	1604.9	1570.9	1547.9	1540.9
20°	1247.9	1258.9	1239.9	1214.9	1203.9
22.5°	978.9	980.9	984.9	959.9	954.9
25°	751.0	762.0	761.0	739.0	716.0
27.5°	517.0	577.0	581.0	555.0	500.0
30°	314.0	379.0	436.0	359.0	288.0
32.5°	165.0	234.0	326.0	213.0	147.0
35°	79.0	121.0	220.0	113.0	70.0
37.5°	29.0	57.0	133.0	52.0	28.0
40°	17.0	23.0	68.0	22.0	16.0
42.5°	11.0	14.0	34.0	13.0	11.0
45°	8.0	9.0	14.0	8.0	7.0
47.5°	5.0	6.0	8.0	6.0	5.0
50°	4.0	4.0	6.0	4.0	4.0
52.5°	3.0	3.0	4.0	3.0	3.0
55°	3.0	3.0	3.0	3.0	3.0
57.5°	2.0	3.0	3.0	3.0	2.0
60°	2.0	2.0	2.0	2.0	2.0
62.5°	2.0	2.0	2.0	2.0	2.0
65°	2.0	2.0	2.0	2.0	2.0
67.5°	1.0	2.0	2.0	2.0	1.0
70°	1.0	1.0	1.0	1.0	1.0
72.5°	1.0	1.0	1.0	1.0	1.0
75°	1.0	1.0	1.0	1.0	1.0
77.5°	1.0	1.0	1.0	1.0	1.0
80°	1.0	1.0	1.0	1.0	1.0
82.5°	0.0	0.0	1.0	1.0	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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