

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: P887069

Luminaire Tested: ML412LSFL9FS1E-TIR4D55WFL-TL4SDMB-1200LM-5000K

Issue Date: 7/10/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P887069  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2402-314-56)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 7/10/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO  
Catalog Number: ML412LSFL9FS1E-TIR4D55WFL-TL4SDMB-1200LM-5000K  
Description: 4IN SQUARE ML FLEX, SELECTABLE CCT, WITH 55D TIR, MATTE BLACK TRIM  
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 5000K CCT  
Ballast/Driver: -

**Summary**

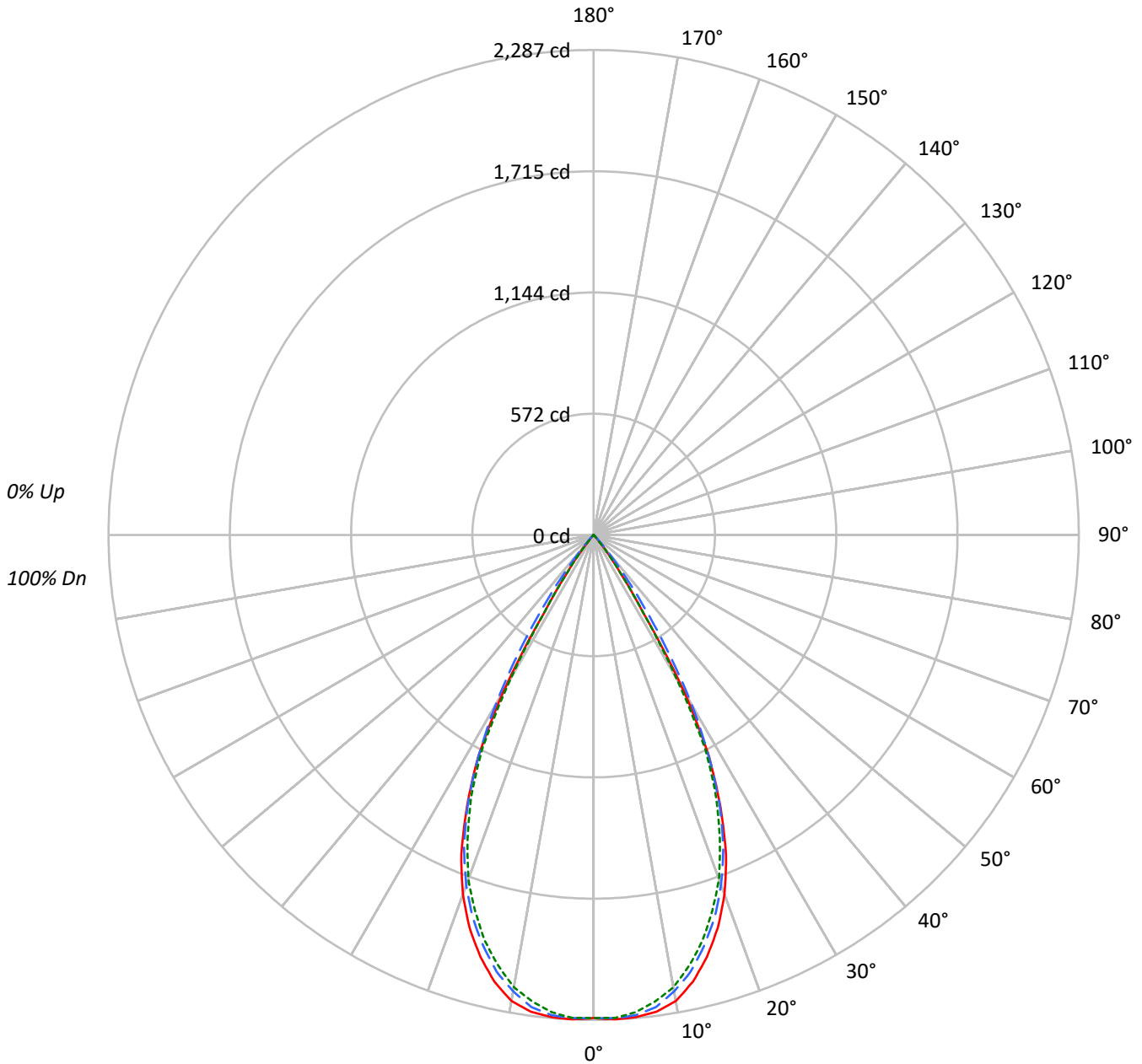
Lumens per Lamp: N/A  
Luminaire Lumens: 1622.9 lumens  
Efficiency: N/A  
Efficacy: 92.2 lumens/watt  
Spacing Criteria (0/90/45): 0.89 / 0.87 / 0.83  
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
CIE Type: Direct

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									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	109	107	112	109	107	106	105	104	102	102	100	99	98	97	96	95																			
2	109	105	101	98	107	103	100	97	100	97	95	97	95	93	94	93	91	89																			
3	104	99	94	91	103	97	93	90	95	91	89	92	90	87	90	88	86	84																			
4	100	93	88	84	98	92	87	84	90	86	83	88	85	82	86	83	81	80																			
5	96	88	83	79	94	87	82	79	85	81	78	84	80	77	82	79	77	75																			
6	91	83	78	74	90	83	78	74	81	77	73	80	76	73	79	75	73	71																			
7	87	79	74	70	86	78	73	70	77	73	69	76	72	69	75	71	69	67																			
8	84	75	70	66	83	75	70	66	74	69	66	73	68	65	72	68	65	64																			
9	80	72	66	63	79	71	66	63	70	66	62	69	65	62	69	65	62	61																			
10	77	68	63	59	76	68	63	59	67	62	59	66	62	59	66	62	59	58																			

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

	0°	45°	90°
0°	220721	220721	220721
5°	222021	221107	219755
10°	219542	214958	213010
15°	206653	201388	198700
20°	185866	181062	178062
25°	150982	150106	146119
30°	95038	103506	86827
35°	26053	48512	25770
40°	3680	11495	2656
45°	164	2548	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: 2548 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	214.3	13.2
10°-20°	560.9	34.6
20°-30°	622.3	38.3
30°-40°	215.3	13.3
40°-50°	9.8	0.6
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°	1397.6	86.1
0°-40°	1612.9	99.4
0°-60°	1622.9	100.0
0°-90°	1622.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1622.9	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2278	2278	2278	2278	2278	
5°	2283	2280	2274	2263	2260	216
15°	2060	2042	2008	1988	1981	574
25°	1412	1403	1404	1376	1367	629
35°	220	249	410	254	218	177
45°	1	4	19	4	1	4
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°	2278.4	2278.4	2278.4	2278.4	2278.4
2.5°	2286.6	2283.1	2280.7	2279.6	2279.6
5°	2283.1	2279.6	2273.7	2263.3	2259.8
7.5°	2267.9	2256.3	2245.8	2229.5	2219.0
10°	2231.8	2216.6	2185.2	2170.0	2165.4
12.5°	2158.4	2140.9	2110.6	2087.3	2080.3
15°	2060.5	2041.8	2008.0	1988.2	1981.2
17.5°	1943.9	1929.9	1893.8	1867.0	1858.9
20°	1802.9	1781.9	1756.3	1733.0	1727.2
22.5°	1630.4	1611.8	1596.6	1567.5	1553.5
25°	1412.5	1403.2	1404.3	1376.4	1367.0
27.5°	1178.2	1184.1	1173.6	1163.1	1139.8
30°	849.6	927.7	925.3	885.7	776.2
32.5°	427.7	558.2	653.8	527.9	434.7
35°	220.3	249.4	410.2	254.1	217.9
37.5°	99.1	115.4	229.6	114.2	96.7
40°	29.1	47.8	90.9	46.6	21.0
42.5°	4.7	14.0	43.1	9.3	4.7
45°	1.2	3.5	18.6	3.5	1.2
47.5°	1.2	1.2	5.8	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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