

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: P887047

Luminaire Tested: ML412LSFL9FS1E-TIR4D40FL-TL4SDSL-1200LM-3500K

Issue Date: 7/9/2024

Test Information

Test Method: LM-79-2019
Report Number: P887047
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2402-314-52)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 7/9/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO
Catalog Number: ML412LSFL9FS1E-TIR4D40FL-TL4SDSL-1200LM-3500K
Description: 4IN SQUARE ML FLEX, SELECTABLE CCT, WITH 40D TIR, METALLIC SILVER TRIM
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 3500K CCT
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1632.4 lumens
Efficiency: N/A
Efficacy: 92.7 lumens/watt
Spacing Criteria (0/90/45): 0.7 / 0.69 / 0.64
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

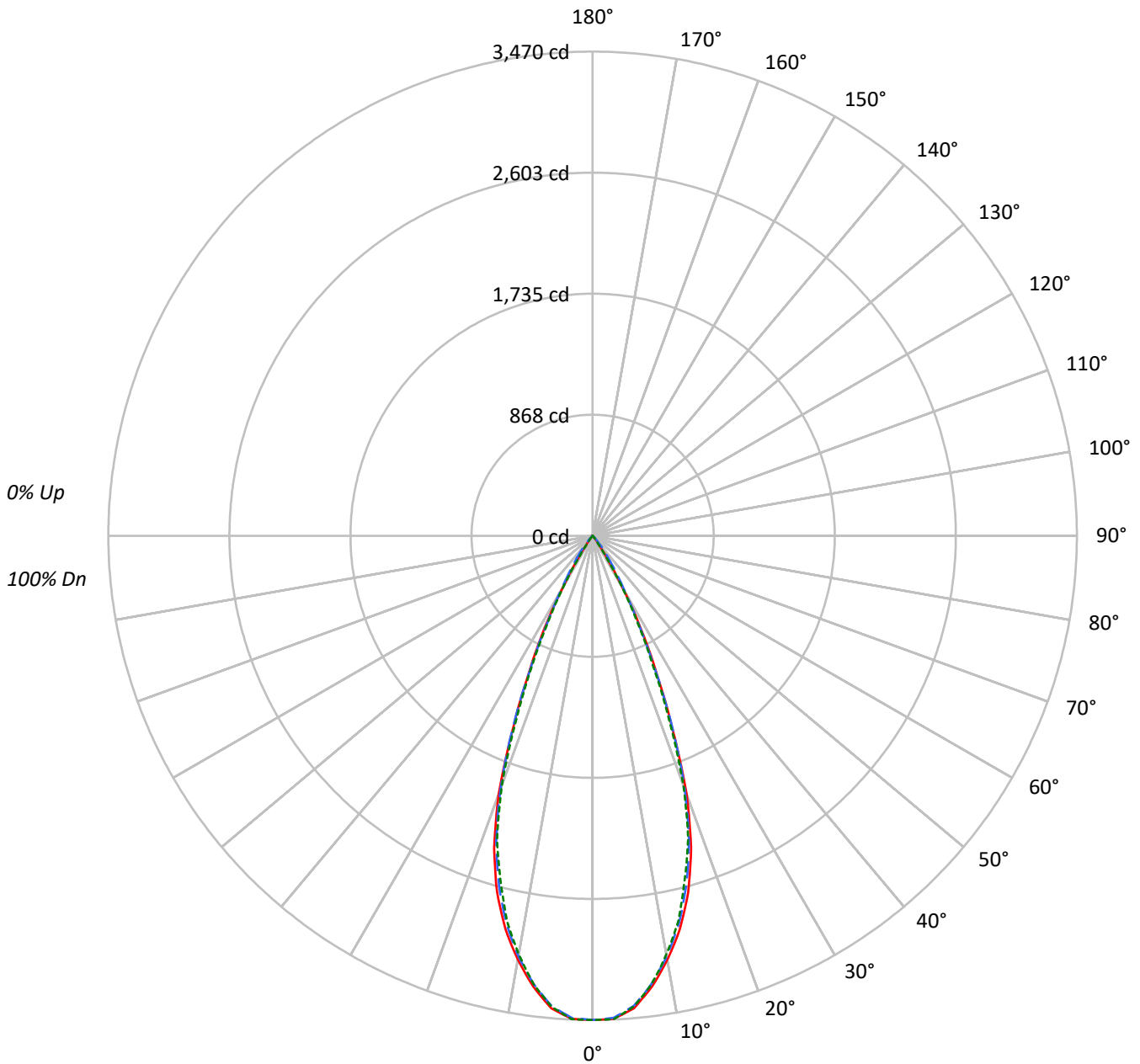
Input Watts (W): 17.6
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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	114	112	110	108	112	110	108	106	106	104	103	102	101	100	99	98	97	95					95			
2	110	106	103	100	108	104	101	99	101	99	97	98	96	94	96	94	93	91					91			
3	106	101	96	93	104	99	95	92	97	94	91	94	92	90	92	90	88	87					87			
4	102	96	91	88	100	95	90	87	92	89	86	91	88	85	89	86	84	83					83			
5	98	91	86	83	96	90	86	83	89	85	82	87	84	81	86	83	80	79					79			
6	94	87	82	79	93	86	82	78	85	81	78	84	80	77	82	79	77	76					76			
7	91	83	78	75	90	83	78	75	82	77	74	80	77	74	79	76	74	73					73			
8	88	80	75	72	87	79	75	72	78	74	71	77	74	71	77	73	71	70					70			
9	84	77	72	69	84	76	72	68	75	71	68	75	71	68	74	70	68	67					67			
10	82	74	69	66	81	73	69	66	73	68	66	72	68	65	71	68	65	64					64			

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	336167	336167	336167
5°	330605	328845	329361
10°	303481	301071	299605
15°	265355	260109	255827
20°	202835	198660	195804
25°	115014	113646	108857
30°	47362	52016	44969
35°	9461	23842	8326
40°	1884	8625	1884
45°	726	1904	589
50°	482	648	482
55°	355	355	355
60°	407	407	213
65°	252	252	252
70°	312	312	312
75°	412	412	412
80°	0	614	614
85°	0	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 45°
 Vertical Angle: 45°
 Luminance: 1904 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	312.8	19.2
10°-20°	710.7	43.5
20°-30°	492.8	30.2
30°-40°	102.9	6.3
40°-50°	8.5	0.5
50°-60°	2.1	0.1
60°-70°	1.3	0.1
70°-80°	1.1	0.1
80°-90°	0.1	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°	1516.3	92.9
0°-40°	1619.2	99.2
0°-60°	1629.8	99.8
0°-90°	1632.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1632.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3470	3470	3470	3470	3470	
5°	3400	3391	3382	3383	3387	314
15°	2646	2634	2594	2568	2551	722
25°	1076	1076	1063	1038	1018	500
35°	80	125	202	115	70	79
45°	5	5	14	5	4	5
55°	2	2	2	2	2	2
65°	1	1	1	1	1	1
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°	3470.1	3470.1	3470.1	3470.1	3470.1
2.5°	3464.8	3463.7	3457.3	3460.5	3466.9
5°	3399.7	3391.2	3381.6	3382.6	3386.9
7.5°	3258.9	3264.3	3238.7	3244.0	3240.8
10°	3085.1	3074.4	3060.6	3055.3	3045.7
12.5°	2887.8	2875.0	2850.5	2828.1	2831.3
15°	2645.8	2634.0	2593.5	2567.9	2550.8
17.5°	2347.2	2333.3	2297.0	2287.4	2275.7
20°	1967.5	1957.9	1927.0	1900.3	1899.3
22.5°	1486.6	1504.7	1502.6	1458.8	1441.8
25°	1076.0	1076.0	1063.2	1037.6	1018.4
27.5°	744.4	728.4	704.9	697.4	679.3
30°	423.4	455.4	465.0	441.5	402.0
32.5°	199.4	264.5	310.3	248.5	174.9
35°	80.0	124.8	201.6	115.2	70.4
37.5°	35.2	54.4	125.8	50.1	33.1
40°	14.9	24.5	68.2	23.5	14.9
42.5°	8.5	11.7	33.1	10.7	7.5
45°	5.3	5.3	13.9	5.3	4.3
47.5°	3.2	4.3	6.4	3.2	3.2
50°	3.2	3.2	4.3	3.2	3.2
52.5°	2.1	2.1	3.2	2.1	2.1
55°	2.1	2.1	2.1	2.1	2.1
57.5°	2.1	2.1	2.1	2.1	2.1
60°	2.1	2.1	2.1	2.1	1.1
62.5°	1.1	1.1	2.1	1.1	1.1
65°	1.1	1.1	1.1	1.1	1.1
67.5°	1.1	1.1	1.1	1.1	1.1
70°	1.1	1.1	1.1	1.1	1.1
72.5°	1.1	1.1	1.1	1.1	1.1
75°	1.1	1.1	1.1	1.1	1.1
77.5°	1.1	1.1	1.1	1.1	1.1
80°	0.0	1.1	1.1	1.1	1.1
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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