

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: P887013

Luminaire Tested: ML412LSFL9FS1E-TIR4D25NFL-TL4SDMW-1200LM-4000K

Issue Date: 7/9/2024

Test Information

Test Method: LM-79-2019
Report Number: P887013
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2402-314-48)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 7/9/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO
Catalog Number: ML412LSFL9FS1E-TIR4D25NFL-TL4SDMW-1200LM-4000K
Description: 4IN SQUARE ML FLEX, SELECTABLE CCT, WITH 25D TIR, MATTE WHITE TRIM
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 4000K CCT
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1479.0 lumens
Efficiency: N/A
Efficacy: 84.0 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

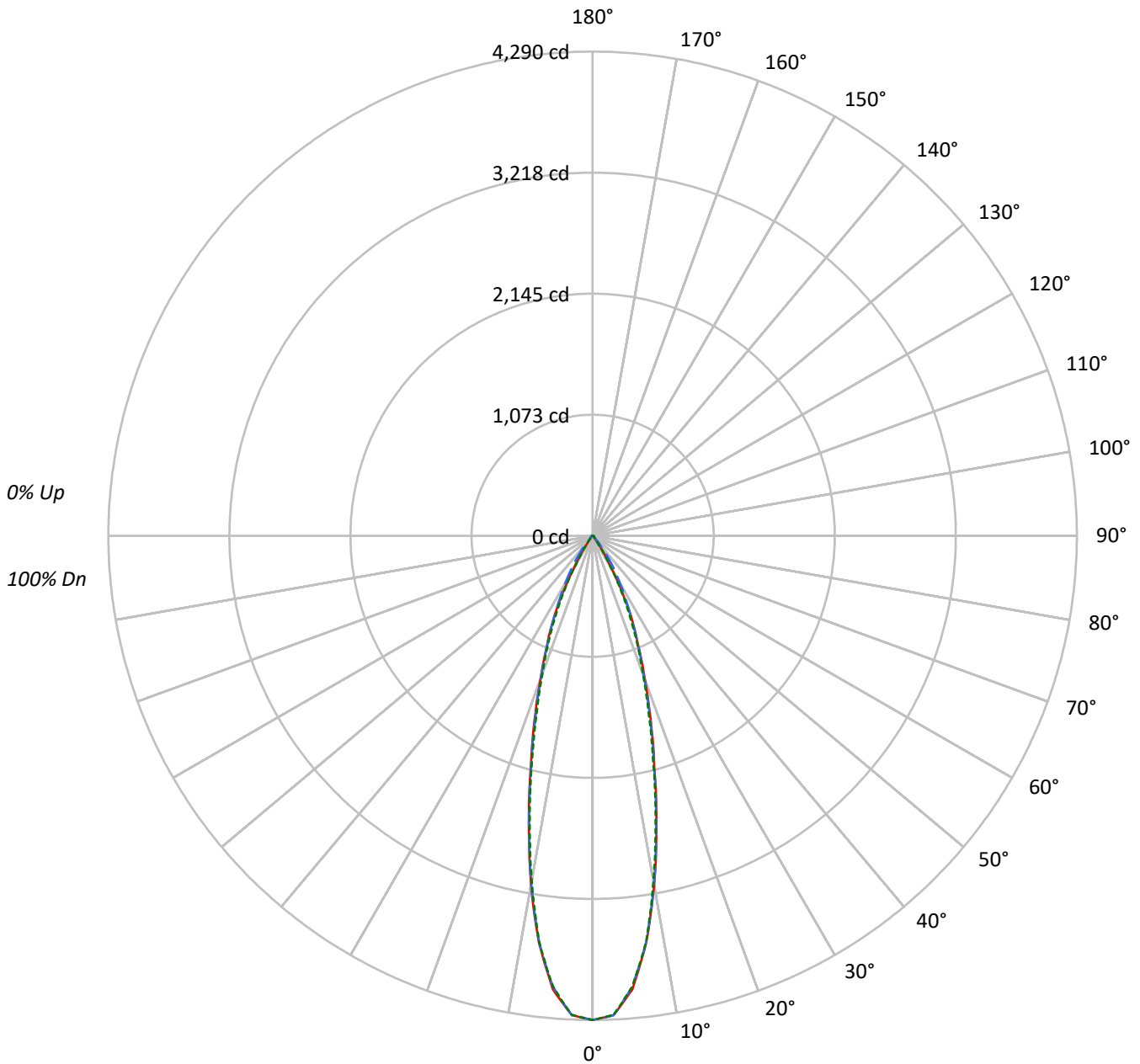
Input Watts (W): 17.6
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	415605	415605	415605
5°	392347	390304	390197
10°	308980	308213	305389
15°	211859	210304	208198
20°	139216	137392	134196
25°	89136	87832	81568
30°	38358	53817	34521
35°	10596	29696	10076
40°	3781	10914	3642
45°	2877	3946	2726
50°	2668	2999	2502
55°	2618	2804	2618
60°	2577	2790	2577
65°	2544	2797	2544
70°	2493	2832	2493
75°	2470	2882	2470
80°	2455	3068	2455
85°	2445	2445	2445

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 45°
 Vertical Angle: 45°
 Luminance: 3946 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	355.1	24.0
10°-20°	584.4	39.5
20°-30°	373.7	25.3
30°-40°	109.0	7.4
40°-50°	20.4	1.4
50°-60°	14.2	1.0
60°-70°	11.8	0.8
70°-80°	7.8	0.5
80°-90°	2.6	0.2
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°	1313.2	88.8
0°-40°	1422.2	96.2
0°-60°	1456.8	98.5
0°-90°	1479.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1479.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4290	4290	4290	4290	4290	
5°	4035	4030	4014	4015	4012	356
15°	2112	2105	2097	2082	2076	589
25°	834	830	822	802	763	371
35°	90	143	251	132	85	76
45°	21	22	29	22	20	17
55°	16	16	17	16	16	14
65°	11	12	12	12	11	11
75°	7	8	8	8	7	7
85°	2	2	2	2	2	2
90°	0	0	0	0	0	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4290.1	4290.1	4290.1	4290.1	4290.1
2.5°	4251.4	4255.8	4253.6	4241.4	4248.0
5°	4034.6	4030.2	4013.6	4014.7	4012.5
7.5°	3638.7	3637.5	3632.0	3634.2	3627.6
10°	3141.0	3163.1	3133.2	3133.2	3104.5
12.5°	2612.3	2617.8	2604.6	2589.1	2575.8
15°	2112.4	2104.7	2096.9	2082.5	2075.9
17.5°	1707.6	1706.5	1687.7	1670.0	1645.7
20°	1350.4	1347.1	1332.7	1326.1	1301.7
22.5°	1059.5	1072.8	1057.3	1031.9	1025.2
25°	833.9	829.5	821.7	801.8	763.1
27.5°	578.4	624.9	633.7	597.2	536.4
30°	342.9	415.8	481.1	397.0	308.6
32.5°	192.4	256.6	362.8	238.9	165.9
35°	89.6	142.7	251.1	131.6	85.2
37.5°	40.9	69.7	152.6	68.6	44.2
40°	29.9	35.4	86.3	37.6	28.8
42.5°	24.3	26.5	48.7	26.5	23.2
45°	21.0	22.1	28.8	22.1	19.9
47.5°	17.7	19.9	22.1	18.8	17.7
50°	17.7	17.7	19.9	17.7	16.6
52.5°	16.6	16.6	17.7	16.6	16.6
55°	15.5	15.5	16.6	15.5	15.5
57.5°	14.4	14.4	15.5	14.4	14.4
60°	13.3	14.4	14.4	13.3	13.3
62.5°	12.2	13.3	13.3	13.3	12.2
65°	11.1	12.2	12.2	12.2	11.1
67.5°	10.0	11.1	11.1	11.1	10.0
70°	8.8	10.0	10.0	10.0	8.8
72.5°	7.7	8.8	8.8	8.8	7.7
75°	6.6	7.7	7.7	7.7	6.6
77.5°	5.5	6.6	6.6	6.6	5.5
80°	4.4	5.5	5.5	5.5	4.4
82.5°	3.3	3.3	3.3	4.4	3.3
85°	2.2	2.2	2.2	2.2	2.2
87.5°	1.1	1.1	1.1	1.1	1.1
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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