

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: P887043

Luminaire Tested: ML412LSFL9FS1E-TIR4D40FL-TL4SDMW-1200LM-4000K

Issue Date: 7/9/2024

Test Information

Test Method: LM-79-2019
Report Number: P887043
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2402-314-51)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 7/9/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO
Catalog Number: ML412LSFL9FS1E-TIR4D40FL-TL4SDMW-1200LM-4000K
Description: 4IN SQUARE ML FLEX, SELECTABLE CCT, WITH 40D TIR, MATTE WHITE TRIM
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 4000K CCT
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1695.8 lumens
Efficiency: N/A
Efficacy: 96.4 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

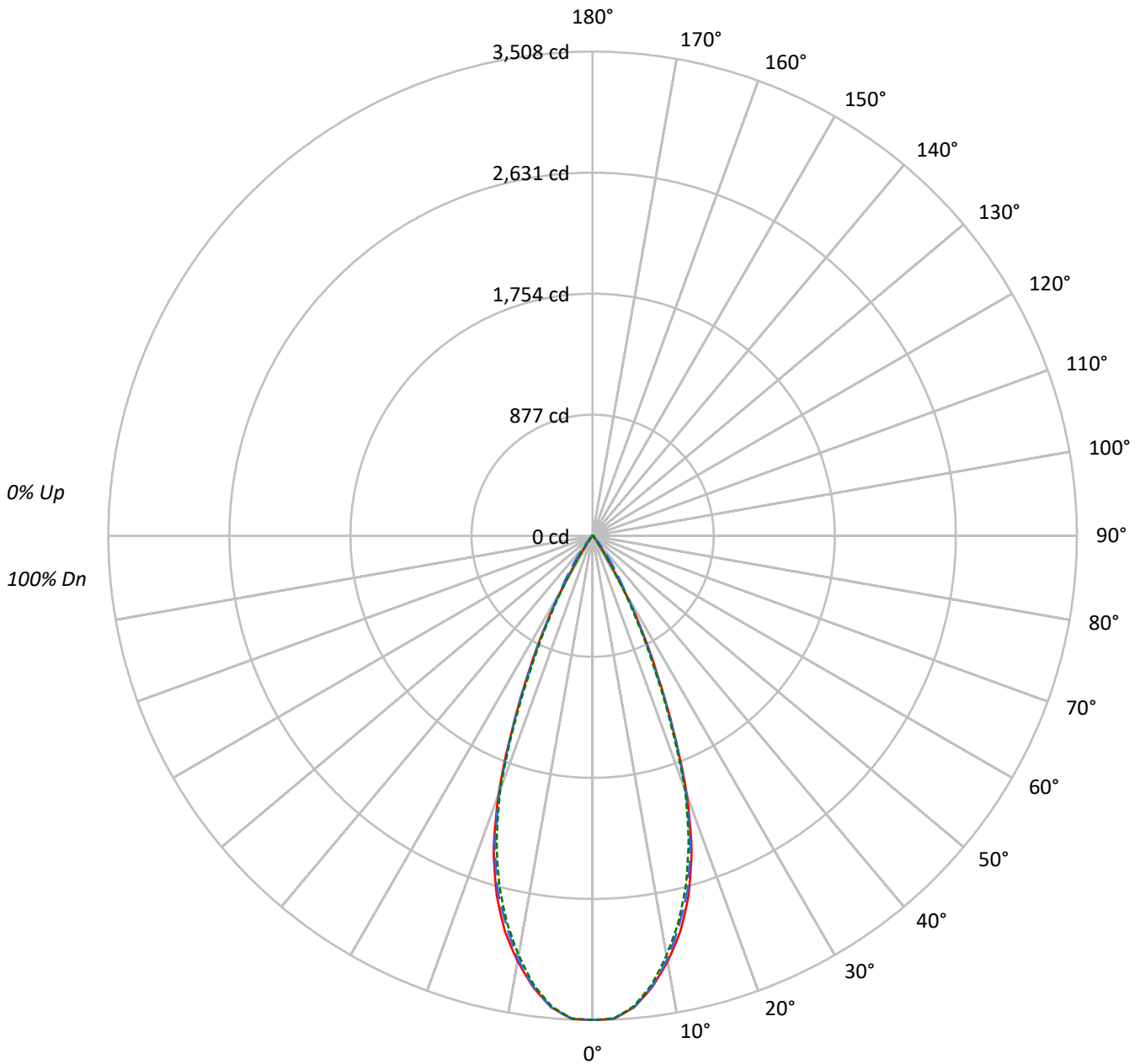
Input Watts (W): 17.6
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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	100	99	98	97	95	
	1	114	112	110	108	112	110	108	106	106	104	103	102	101	100	99	98	97	95	95	93	92	90	90	86	
	2	110	105	102	99	108	104	101	98	101	98	96	98	96	94	95	93	92	90	90	89	87	86	86	82	
	3	105	100	96	92	103	99	95	92	96	93	90	94	91	89	91	89	87	86	86	85	83	82	78	75	
	4	101	95	90	87	100	94	89	86	92	88	85	90	87	84	88	85	83	82	78	79	76	75	71	68	
	5	97	90	85	82	96	89	85	81	88	84	81	86	83	80	85	82	79	78	75	73	71	67	66	62	
	6	94	86	81	78	92	85	81	77	84	80	77	83	79	76	82	78	76	75	71	70	67	66	62	58	
	7	90	82	77	74	89	82	77	74	81	76	73	79	76	73	78	75	73	71	67	66	62	58	54	50	
	8	87	79	74	71	86	78	74	70	77	73	70	76	73	70	76	72	70	68	64	63	59	55	51	47	
	9	84	76	71	67	83	75	71	67	74	70	67	74	70	67	73	69	67	65	61	60	56	52	48	44	
	10	81	73	68	65	80	72	68	65	72	67	64	71	67	64	70	67	64	62	58	57	53	49	45	41	

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	339800	339800	339800
5°	333571	333464	332706
10°	307839	306314	303491
15°	269717	266498	262286
20°	205773	203258	201546
25°	118434	115954	111700
30°	48738	53683	45763
35°	10064	25237	9544
40°	2934	9788	3212
45°	1822	3178	1822
50°	1673	2004	1673
55°	1875	1875	1689
60°	1705	1938	1705
65°	1765	1765	1765
70°	1869	1869	1869
75°	1647	2059	1647
80°	1841	1841	1841
85°	2445	2445	2445

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 45°
 Vertical Angle: 45°
 Luminance: 3178 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	316.9	18.7
10°-20°	723.7	42.7
20°-30°	506.1	29.8
30°-40°	109.0	6.4
40°-50°	15.3	0.9
50°-60°	9.6	0.6
60°-70°	7.9	0.5
70°-80°	5.3	0.3
80°-90°	2.0	0.1
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°	1546.7	91.2
0°-40°	1655.7	97.6
0°-60°	1680.6	99.1
0°-90°	1695.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1695.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3508	3508	3508	3508	3508	
5°	3430	3432	3429	3420	3421	318
15°	2689	2674	2657	2620	2615	733
25°	1108	1094	1085	1067	1045	514
35°	85	135	213	123	81	84
45°	13	14	23	14	13	11
55°	11	11	11	11	10	9
65°	8	8	8	8	8	8
75°	4	6	6	6	4	5
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°	3507.6	3507.6	3507.6	3507.6	3507.6
2.5°	3504.2	3502.0	3498.7	3498.7	3500.9
5°	3430.2	3432.4	3429.1	3420.2	3421.3
7.5°	3299.7	3307.4	3293.0	3287.5	3278.7
10°	3129.4	3127.2	3113.9	3095.1	3085.2
12.5°	2935.9	2927.0	2891.6	2873.9	2868.4
15°	2689.3	2673.8	2657.2	2619.6	2615.2
17.5°	2384.1	2376.3	2353.1	2321.1	2310.0
20°	1996.0	1997.1	1971.6	1945.1	1955.0
22.5°	1528.2	1550.3	1520.5	1495.0	1484.0
25°	1108.0	1093.6	1084.8	1067.1	1045.0
27.5°	768.5	755.3	738.7	729.8	696.6
30°	435.7	483.2	479.9	451.2	409.1
32.5°	206.8	275.3	327.3	247.7	190.2
35°	85.1	134.9	213.4	122.7	80.7
37.5°	40.9	61.9	133.8	60.8	39.8
40°	23.2	33.2	77.4	32.1	25.4
42.5°	16.6	18.8	42.0	18.8	16.6
45°	13.3	14.4	23.2	14.4	13.3
47.5°	12.2	12.2	15.5	12.2	12.2
50°	11.1	12.2	13.3	11.1	11.1
52.5°	11.1	11.1	12.2	11.1	11.1
55°	11.1	11.1	11.1	11.1	10.0
57.5°	10.0	10.0	10.0	10.0	10.0
60°	8.8	10.0	10.0	8.8	8.8
62.5°	8.8	8.8	8.8	8.8	7.7
65°	7.7	7.7	7.7	7.7	7.7
67.5°	6.6	7.7	7.7	7.7	6.6
70°	6.6	6.6	6.6	6.6	6.6
72.5°	5.5	5.5	5.5	5.5	5.5
75°	4.4	5.5	5.5	5.5	4.4
77.5°	4.4	4.4	4.4	4.4	4.4
80°	3.3	3.3	3.3	3.3	3.3
82.5°	2.2	3.3	2.2	2.2	2.2
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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