

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: P887044

Luminaire Tested: ML412LSFL9FS1E-TIR4D40FL-TL4SDMW-1200LM-5000K

Issue Date: 7/9/2024

Test Information

Test Method: LM-79-2019
Report Number: P887044
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-5000K
Description: 4IN SQUARE ML FLEX, SELECTABLE CCT, WITH 40D TIR, MATTE WHITE TRIM
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 5000K CCT
Ballast/Driver: -

Summary

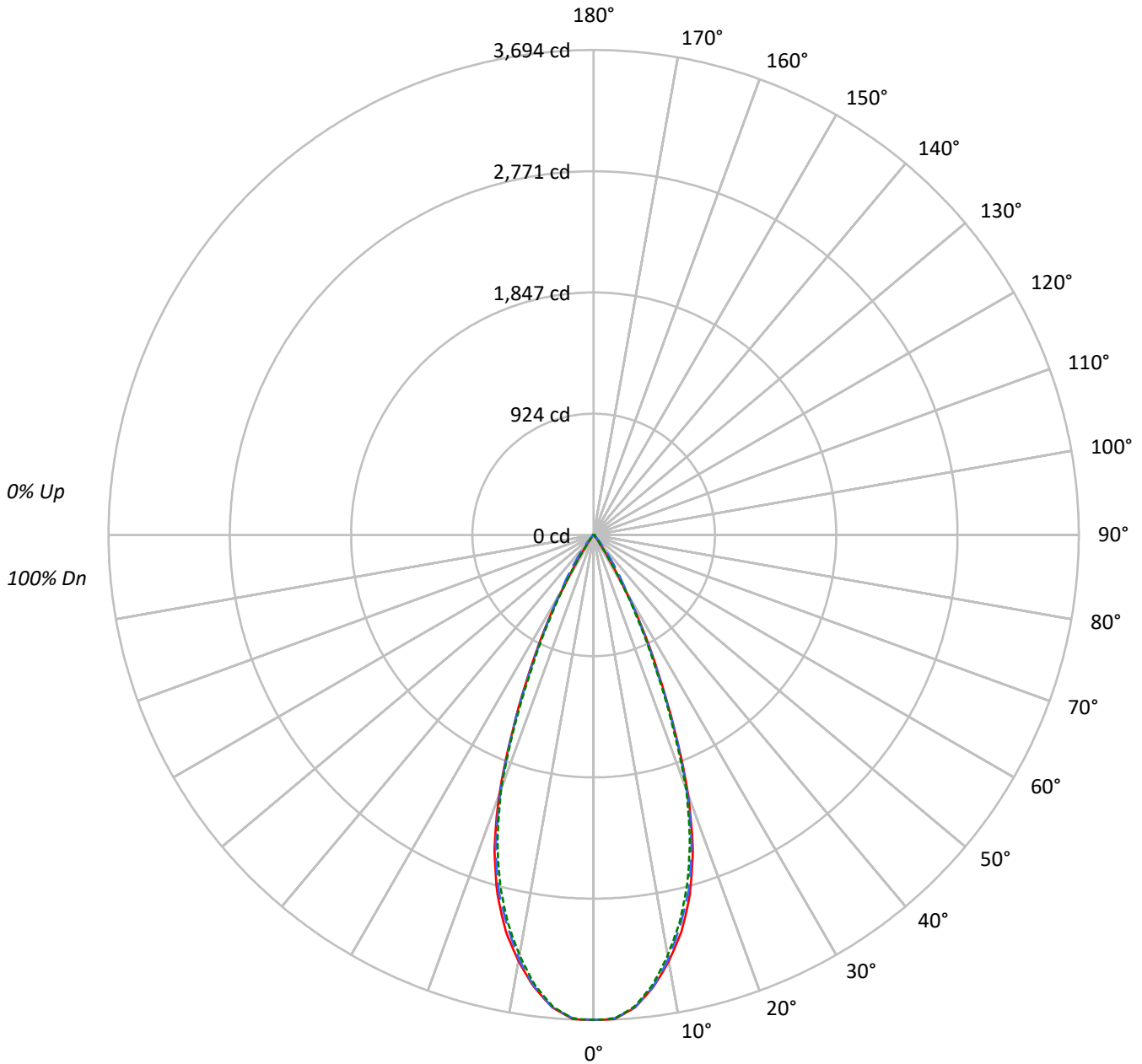
Lumens per Lamp: N/A
Luminaire Lumens: 1786.0 lumens
Efficiency: N/A
Efficacy: 101.5 lumens/watt
Spacing Criteria (0/90/45): 0.7 / 0.69 / 0.65
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

Input Watts (W): 17.6
Input Voltage (V): NR
Input Current (A_{in}): 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	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	103	99	95	92	96	93	90	94	91	89	91	89	87	86								
4	101	95	90	87	100	94	89	86	92	88	85	90	87	84	88	85	83	82								
5	97	90	85	82	96	89	85	81	88	84	81	86	83	80	85	82	79	78								
6	94	86	81	78	92	85	81	77	84	80	77	83	79	76	82	78	76	75								
7	90	82	77	74	89	82	77	74	81	76	73	79	76	73	78	75	73	71								
8	87	79	74	71	86	78	74	70	77	73	70	76	73	70	76	72	70	68								
9	84	76	71	67	83	75	71	67	74	70	67	74	70	67	73	69	67	66								
10	81	73	68	65	80	72	68	65	72	67	64	71	67	64	70	67	64	63								

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	357868	357868	357868
5°	351309	351192	350395
10°	324207	322604	319623
15°	284059	280669	276237
20°	216711	214072	212268
25°	124730	122122	117633
30°	51322	56535	48201
35°	10608	26586	10052
40°	3098	10307	3389
45°	1918	3357	1918
50°	1748	2110	1748
55°	1959	1959	1773
60°	1802	2034	1802
65°	1880	1880	1880
70°	1983	1983	1983
75°	1759	2171	1759
80°	1953	1953	1953
85°	2556	2556	2556

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 45°
 Vertical Angle: 45°
 Luminance: 3357 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	333.8	18.7
10°-20°	762.2	42.7
20°-30°	533.1	29.8
30°-40°	114.8	6.4
40°-50°	16.0	0.9
50°-60°	10.1	0.6
60°-70°	8.3	0.5
70°-80°	5.6	0.3
80°-90°	2.1	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°	1629.0	91.2
0°-40°	1743.8	97.6
0°-60°	1769.9	99.1
0°-90°	1786.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1786.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3694	3694	3694	3694	3694	
5°	3613	3615	3611	3602	3603	334
15°	2832	2816	2798	2759	2754	772
25°	1167	1152	1142	1124	1100	541
35°	90	142	225	129	85	88
45°	14	15	24	15	14	12
55°	12	12	12	12	10	10
65°	8	8	8	8	8	8
75°	5	6	6	6	5	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°	3694.1	3694.1	3694.1	3694.1	3694.1
2.5°	3690.6	3688.3	3684.8	3684.8	3687.1
5°	3612.6	3614.9	3611.4	3602.1	3603.2
7.5°	3475.1	3483.3	3468.2	3462.3	3453.0
10°	3295.8	3293.5	3279.5	3259.7	3249.2
12.5°	3092.0	3082.7	3045.4	3026.8	3021.0
15°	2832.3	2816.0	2798.5	2758.9	2754.3
17.5°	2510.9	2502.7	2478.3	2444.5	2432.8
20°	2102.1	2103.3	2076.5	2048.5	2059.0
22.5°	1609.5	1632.8	1601.3	1574.5	1562.9
25°	1166.9	1151.8	1142.5	1123.8	1100.5
27.5°	809.4	795.4	777.9	768.6	733.7
30°	458.8	508.9	505.4	475.2	430.9
32.5°	217.8	290.0	344.7	260.9	200.3
35°	89.7	142.1	224.8	129.3	85.0
37.5°	43.1	65.2	140.9	64.1	41.9
40°	24.5	34.9	81.5	33.8	26.8
42.5°	17.5	19.8	44.3	19.8	17.5
45°	14.0	15.1	24.5	15.1	14.0
47.5°	12.8	12.8	16.3	12.8	12.8
50°	11.6	12.8	14.0	11.6	11.6
52.5°	11.6	11.6	12.8	11.6	11.6
55°	11.6	11.6	11.6	11.6	10.5
57.5°	10.5	10.5	10.5	10.5	10.5
60°	9.3	10.5	10.5	9.3	9.3
62.5°	9.3	9.3	9.3	9.3	8.2
65°	8.2	8.2	8.2	8.2	8.2
67.5°	7.0	8.2	8.2	8.2	7.0
70°	7.0	7.0	7.0	7.0	7.0
72.5°	5.8	5.8	5.8	5.8	5.8
75°	4.7	5.8	5.8	5.8	4.7
77.5°	4.7	4.7	4.7	4.7	4.7
80°	3.5	3.5	3.5	3.5	3.5
82.5°	2.3	3.5	2.3	2.3	2.3
85°	2.3	2.3	2.3	2.3	2.3
87.5°	1.2	1.2	1.2	1.2	1.2
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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