

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: P887036

Luminaire Tested: ML412LSFL9FS1E-TIR4D40FL-TL4SDMB-1200LM-3000K

Issue Date: 7/9/2024

Test Information

Test Method: LM-79-2019
Report Number: P887036
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2402-314-53)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 7/9/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO
Catalog Number: ML412LSFL9FS1E-TIR4D40FL-TL4SDMB-1200LM-3000K
Description: 4IN SQUARE ML FLEX, SELECTABLE CCT, WITH 40D TIR, MATTE BLACK TRIM
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 3000K CCT
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1538.1 lumens
Efficiency: N/A
Efficacy: 87.4 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

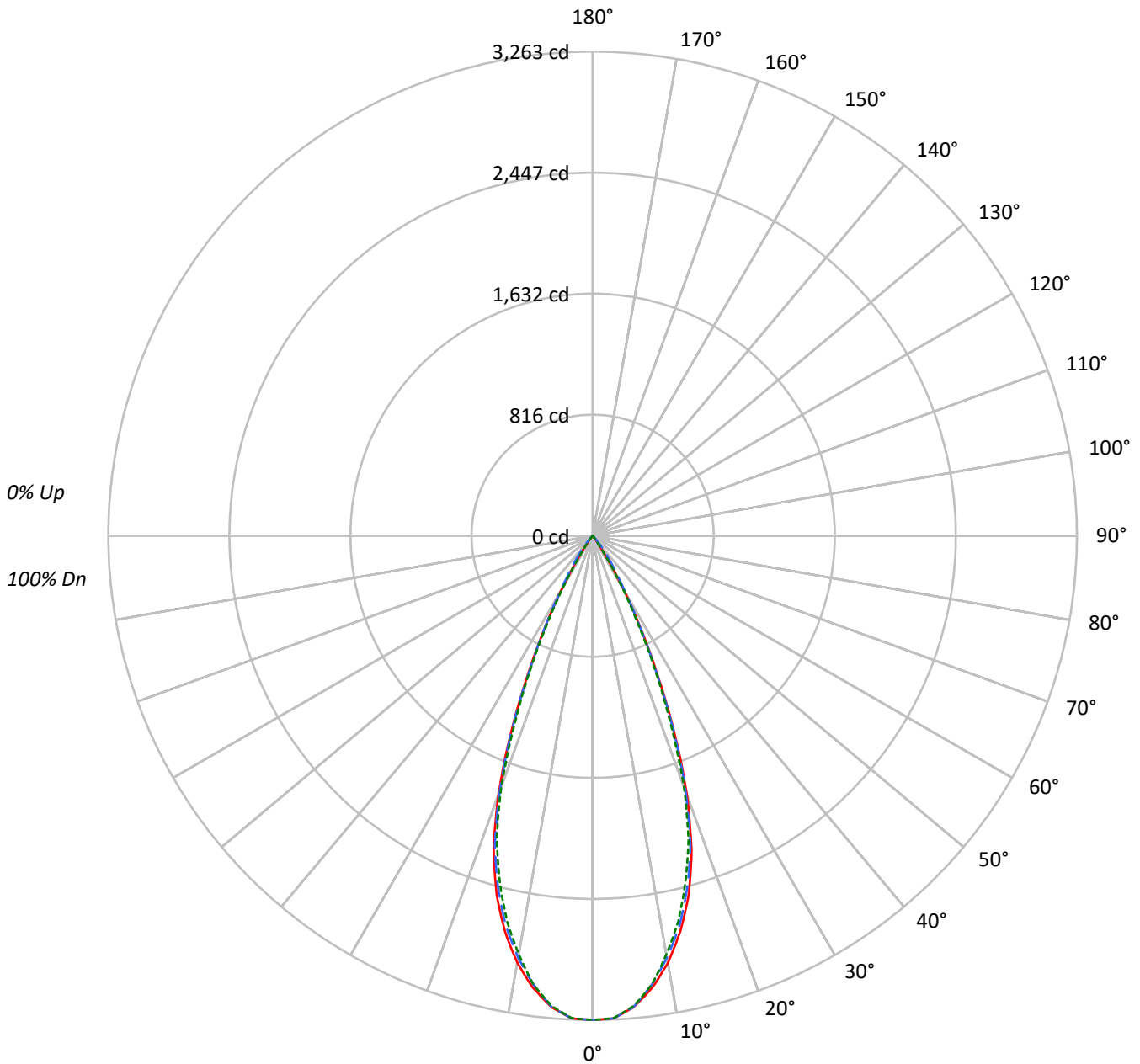
Input Watts (W): 17.6
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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	115	112	110	108	112	110	108	106	106	105	103	102	101	100	99	98	97	96								
2	110	106	103	100	108	104	101	99	101	99	97	98	96	95	96	94	93	91								
3	106	101	97	93	104	99	96	93	97	94	91	94	92	90	92	90	88	87								
4	102	96	91	88	100	95	91	87	93	89	86	91	88	85	89	86	84	83								
5	98	91	87	83	97	90	86	83	89	85	82	87	84	81	86	83	81	79								
6	94	87	82	79	93	87	82	79	85	81	78	84	80	78	83	80	77	76								
7	91	83	79	75	90	83	78	75	82	78	75	81	77	74	80	76	74	73								
8	88	80	75	72	87	79	75	72	79	74	71	78	74	71	77	73	71	70								
9	85	77	72	69	84	76	72	69	76	71	68	75	71	68	74	71	68	67								
10	82	74	69	66	81	73	69	66	73	69	66	72	68	66	71	68	65	64								

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	316085	316085	316085
5°	309970	309775	309270
10°	287397	283945	281712
15°	250832	246791	242348
20°	191093	188639	185247
25°	110193	107991	106003
30°	46009	49242	41971
35°	8539	22801	7439
40°	1303	8081	1303
45°	137	1548	137
50°	0	316	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: 1548 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	294.3	19.1
10°-20°	672.1	43.7
20°-30°	469.7	30.5
30°-40°	96.0	6.2
40°-50°	5.9	0.4
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°	1436.1	93.4
0°-40°	1532.1	99.6
0°-60°	1538.1	100.0
0°-90°	1538.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1538.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3263	3263	3263	3263	3263	
5°	3188	3191	3186	3176	3180	296
15°	2501	2497	2461	2432	2416	682
25°	1031	1037	1010	996	992	478
35°	72	119	193	102	63	75
45°	1	2	11	2	1	2
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	0



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3262.8	3262.8	3262.8	3262.8	3262.8
2.5°	3255.6	3253.5	3255.6	3254.5	3253.5
5°	3187.5	3190.6	3185.5	3176.2	3180.3
7.5°	3073.1	3064.9	3050.4	3046.3	3051.5
10°	2921.6	2900.9	2886.5	2881.4	2863.8
12.5°	2729.8	2719.5	2694.8	2672.1	2662.8
15°	2501.0	2496.8	2460.7	2431.9	2416.4
17.5°	2216.4	2197.9	2189.6	2161.8	2148.4
20°	1853.6	1853.6	1829.8	1790.7	1796.9
22.5°	1441.2	1425.7	1430.9	1389.6	1377.3
25°	1030.9	1037.1	1010.3	995.8	991.7
27.5°	694.8	685.5	687.6	660.8	641.2
30°	411.3	440.2	440.2	415.5	375.2
32.5°	192.8	247.4	290.7	230.9	163.9
35°	72.2	118.6	192.8	102.1	62.9
37.5°	27.8	48.5	117.5	41.2	25.8
40°	10.3	19.6	63.9	18.6	10.3
42.5°	4.1	7.2	29.9	6.2	4.1
45°	1.0	2.1	11.3	2.1	1.0
47.5°	1.0	1.0	4.1	1.0	0.0
50°	0.0	0.0	2.1	0.0	0.0
52.5°	0.0	0.0	1.0	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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