

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: P887073

Luminaire Tested: ML412LSFL9FS1E-TIR4D55WFL-TL4SDMW-1200LM-4000K

Issue Date: 7/10/2024

Test Information

Test Method: LM-79-2019
Report Number: P887073
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2402-314-54)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 7/10/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO
Catalog Number: ML412LSFL9FS1E-TIR4D55WFL-TL4SDMW-1200LM-4000K
Description: 4IN SQUARE ML FLEX, SELECTABLE CCT, WITH 55D TIR, MATTE WHITE TRIM
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 4000K CCT
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1605.1 lumens
Efficiency: N/A
Efficacy: 91.2 lumens/watt
Spacing Criteria (0/90/45): 0.89 / 0.88 / 0.83
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

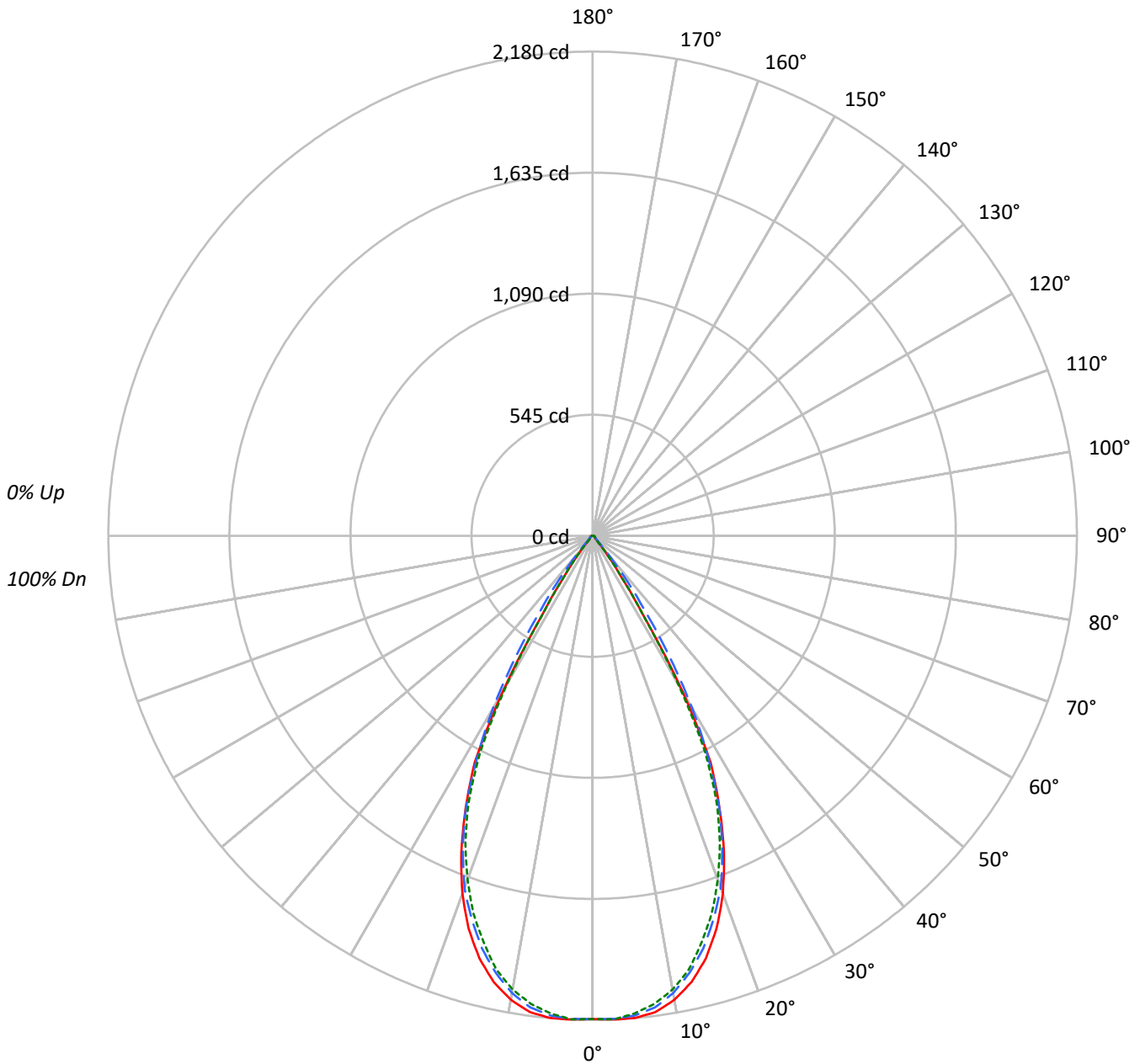
Input Watts (W): 17.6
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20					20					20					20					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	111	109	107	111	109	107	105	105	103	102	101	100	99	98	97	96	94				
2	109	104	100	97	106	102	99	96	99	96	94	96	94	92	93	92	90	88				
3	104	98	93	89	102	96	92	89	94	90	87	91	88	86	89	87	85	83				
4	99	92	87	83	97	91	86	82	89	85	81	87	83	81	85	82	80	78				
5	95	87	81	77	93	86	81	77	84	80	76	82	79	76	81	78	75	74				
6	90	82	77	73	89	81	76	72	80	75	72	78	74	71	77	74	71	70				
7	86	78	72	68	85	77	72	68	76	71	68	75	71	67	74	70	67	66				
8	83	74	68	64	81	73	68	64	72	67	64	71	67	64	70	66	64	62				
9	79	70	65	61	78	70	64	61	69	64	61	68	64	60	67	63	60	59				
10	76	67	61	58	75	66	61	58	66	61	58	65	61	57	64	60	57	56				

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	210782	210782	210782
5°	211908	210838	209972
10°	208702	205652	204029
15°	197477	192923	190045
20°	176639	173907	169691
25°	144483	144131	141063
30°	90329	100228	86000
35°	25509	47613	26420
40°	5590	12735	4477
45°	2425	4398	2274
50°	2336	2502	2336
55°	2246	2432	2246
60°	2364	2364	2364
65°	2292	2544	2292
70°	2181	2493	2181
75°	2470	2470	2470
80°	2455	2455	2455
85°	2445	2445	2445

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 45°
 Vertical Angle: 45°
 Luminance: 4398 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	204.7	12.8
10°-20°	536.2	33.4
20°-30°	597.5	37.2
30°-40°	213.4	13.3
40°-50°	21.1	1.3
50°-60°	12.5	0.8
60°-70°	10.3	0.6
70°-80°	6.9	0.4
80°-90°	2.4	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°	1338.5	83.4
0°-40°	1551.9	96.7
0°-60°	1585.5	98.8
0°-90°	1605.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1605.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2176	2176	2176	2176	2176	
5°	2179	2179	2168	2167	2159	206
15°	1969	1955	1924	1897	1895	547
25°	1352	1360	1348	1318	1320	602
35°	216	249	403	244	223	176
45°	18	19	32	18	17	16
55°	13	14	14	14	13	12
65°	10	11	11	10	10	10
75°	7	7	7	7	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°	2175.8	2175.8	2175.8	2175.8	2175.8
2.5°	2180.2	2181.4	2176.9	2176.9	2179.1
5°	2179.1	2179.1	2168.1	2167.0	2159.2
7.5°	2163.7	2158.1	2142.6	2130.5	2126.0
10°	2121.6	2111.7	2090.6	2070.7	2074.1
12.5°	2057.5	2045.3	2015.4	1997.7	2001.0
15°	1969.0	1954.6	1923.6	1897.1	1894.9
17.5°	1855.0	1839.5	1809.7	1790.9	1783.1
20°	1713.4	1706.8	1686.9	1652.6	1646.0
22.5°	1545.3	1545.3	1525.4	1504.4	1496.6
25°	1351.7	1359.5	1348.4	1318.5	1319.7
27.5°	1149.3	1143.8	1128.3	1108.4	1094.0
30°	807.5	888.2	896.0	852.9	768.8
32.5°	420.3	549.8	634.9	514.4	415.9
35°	215.7	248.9	402.6	244.5	223.4
37.5°	111.7	128.3	237.8	127.2	109.5
40°	44.2	59.7	100.7	58.6	35.4
42.5°	19.9	27.7	56.4	24.3	19.9
45°	17.7	18.8	32.1	17.7	16.6
47.5°	16.6	16.6	21.0	16.6	15.5
50°	15.5	15.5	16.6	15.5	15.5
52.5°	14.4	14.4	15.5	14.4	14.4
55°	13.3	14.4	14.4	14.4	13.3
57.5°	12.2	13.3	13.3	13.3	12.2
60°	12.2	12.2	12.2	12.2	12.2
62.5°	11.1	11.1	11.1	11.1	11.1
65°	10.0	11.1	11.1	10.0	10.0
67.5°	8.8	10.0	10.0	10.0	8.8
70°	7.7	8.8	8.8	8.8	7.7
72.5°	6.6	7.7	7.7	7.7	6.6
75°	6.6	6.6	6.6	6.6	6.6
77.5°	5.5	5.5	5.5	5.5	5.5
80°	4.4	4.4	4.4	4.4	4.4
82.5°	3.3	3.3	3.3	3.3	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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