

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: P887071

Luminaire Tested: ML412LSFL9FS1E-TIR4D55WFL-TL4SDMW-1200LM-3000K

Issue Date: 7/10/2024

Test Information

Test Method: LM-79-2019
Report Number: P887071
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-3000K
Description: 4IN SQUARE ML FLEX, SELECTABLE CCT, WITH 55D TIR, MATTE WHITE TRIM
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 3000K CCT
Ballast/Driver: -

Summary

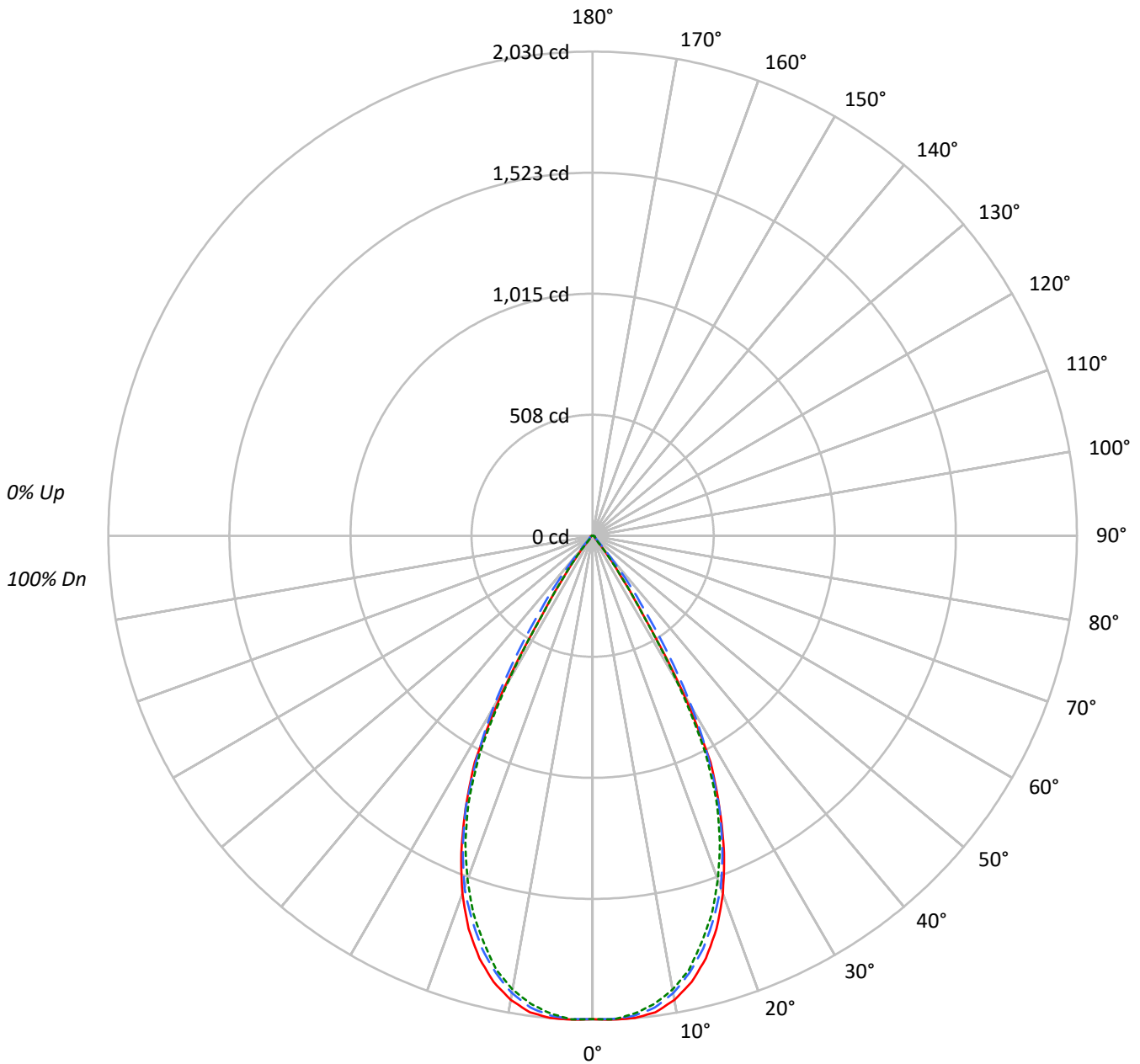
Lumens per Lamp: N/A
Luminaire Lumens: 1494.9 lumens
Efficiency: N/A
Efficacy: 84.9 lumens/watt
Spacing Criteria (0/90/45): 0.89 / 0.88 / 0.83
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

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	60	57	64	60	57	56			

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	196308	196308	196308
5°	197360	196358	195551
10°	194369	191526	190011
15°	183907	179675	176987
20°	164515	161959	158031
25°	134564	134233	131368
30°	84120	93338	80093
35°	23759	44349	24611
40°	5210	11849	4173
45°	2261	4096	2124
50°	2170	2336	2170
55°	2094	2263	2094
60°	2189	2189	2189
65°	2132	2361	2132
70°	2039	2323	2039
75°	2321	2321	2321
80°	2287	2287	2287
85°	2334	2334	2334

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 45°
 Vertical Angle: 45°
 Luminance: 4096 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	190.7	12.8
10°-20°	499.4	33.4
20°-30°	556.5	37.2
30°-40°	198.8	13.3
40°-50°	19.7	1.3
50°-60°	11.6	0.8
60°-70°	9.6	0.6
70°-80°	6.4	0.4
80°-90°	2.2	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°	1246.6	83.4
0°-40°	1445.3	96.7
0°-60°	1476.6	98.8
0°-90°	1494.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1494.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2026	2026	2026	2026	2026	
5°	2030	2030	2019	2018	2011	192
15°	1834	1820	1792	1767	1765	509
25°	1259	1266	1256	1228	1229	561
35°	201	232	375	228	208	164
45°	16	18	30	16	16	15
55°	12	13	13	13	12	11
65°	9	10	10	9	9	9
75°	6	6	6	6	6	6
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°	2026.4	2026.4	2026.4	2026.4	2026.4
2.5°	2030.5	2031.5	2027.4	2027.4	2029.5
5°	2029.5	2029.5	2019.2	2018.1	2010.9
7.5°	2015.0	2009.9	1995.5	1984.1	1980.0
10°	1975.9	1966.6	1947.0	1928.5	1931.6
12.5°	1916.1	1904.8	1877.0	1860.5	1863.6
15°	1833.7	1820.3	1791.5	1766.8	1764.7
17.5°	1727.6	1713.2	1685.4	1667.9	1660.7
20°	1595.8	1589.6	1571.0	1539.1	1532.9
22.5°	1439.2	1439.2	1420.6	1401.1	1393.8
25°	1258.9	1266.1	1255.8	1228.0	1229.0
27.5°	1070.4	1065.2	1050.8	1032.2	1018.9
30°	752.0	827.2	834.4	794.3	716.0
32.5°	391.5	512.0	591.3	479.0	387.3
35°	200.9	231.8	375.0	227.7	208.1
37.5°	104.0	119.5	221.5	118.5	102.0
40°	41.2	55.6	93.7	54.6	33.0
42.5°	18.5	25.8	52.5	22.7	18.5
45°	16.5	17.5	29.9	16.5	15.5
47.5°	15.5	15.5	19.6	15.5	14.4
50°	14.4	14.4	15.5	14.4	14.4
52.5°	13.4	13.4	14.4	13.4	13.4
55°	12.4	13.4	13.4	13.4	12.4
57.5°	11.3	12.4	12.4	12.4	11.3
60°	11.3	11.3	11.3	11.3	11.3
62.5°	10.3	10.3	10.3	10.3	10.3
65°	9.3	10.3	10.3	9.3	9.3
67.5°	8.2	9.3	9.3	9.3	8.2
70°	7.2	8.2	8.2	8.2	7.2
72.5°	6.2	7.2	7.2	7.2	6.2
75°	6.2	6.2	6.2	6.2	6.2
77.5°	5.2	5.2	5.2	5.2	5.2
80°	4.1	4.1	4.1	4.1	4.1
82.5°	3.1	3.1	3.1	3.1	3.1
85°	2.1	2.1	2.1	2.1	2.1
87.5°	1.0	1.0	1.0	1.0	1.0
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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