

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: P887042

Luminaire Tested: ML412LSFL9FS1E-TIR4D40FL-TL4SDMW-1200LM-3500K

Issue Date: 7/9/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P887042  
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-3500K  
Description: 4IN SQUARE ML FLEX, SELECTABLE CCT, WITH 40D TIR, MATTE WHITE TRIM  
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 3500K CCT  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1634.5 lumens  
Efficiency: N/A  
Efficacy: 92.9 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

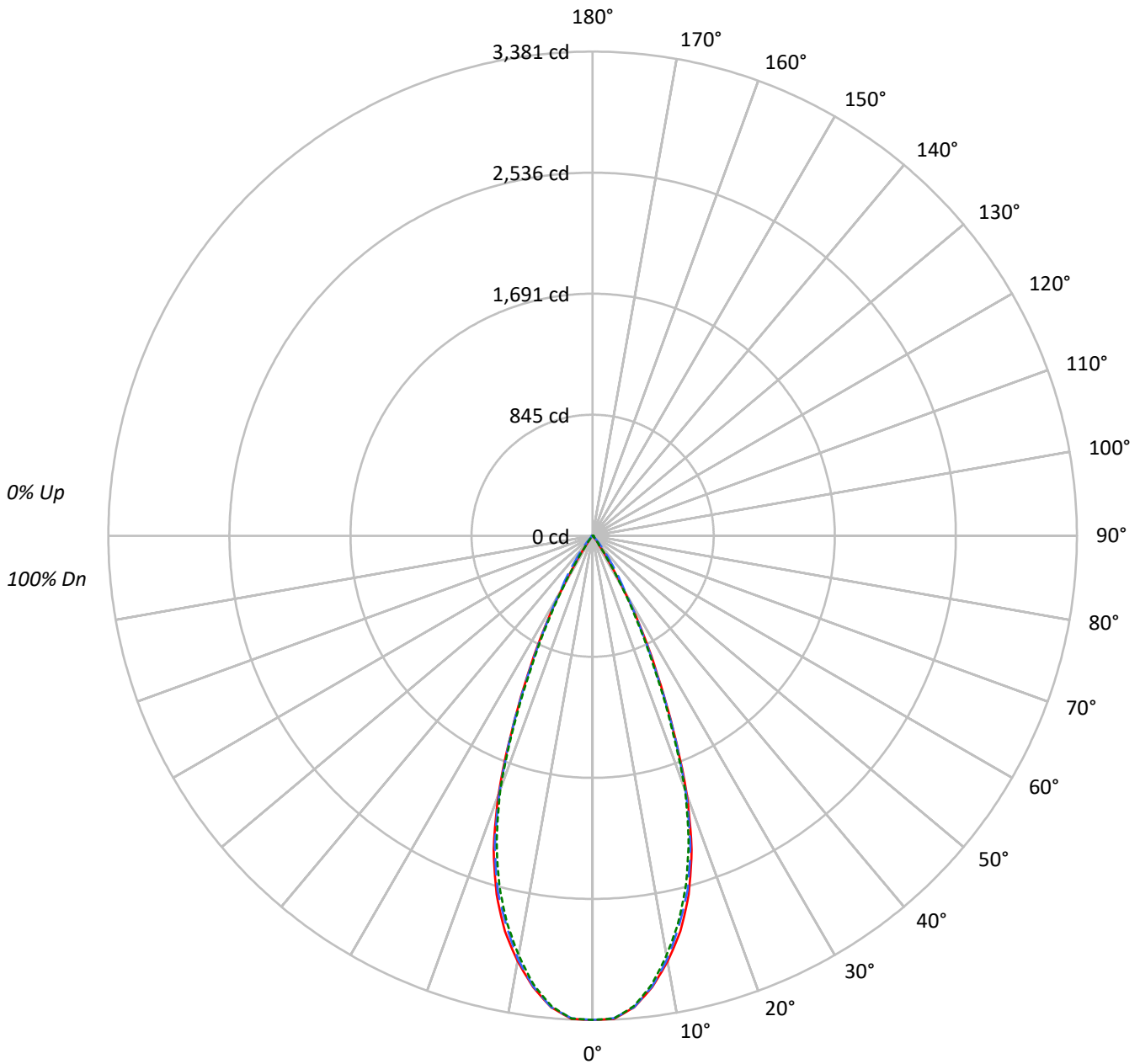
Input Watts (W): 17.6  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT



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### Luminous Intensity Polar Plot





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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20					20					20					20					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	102	102	102	102	102	100		
	1	114	112	110	108	112	110	108	106	106	104	103	102	101	100	99	98	97	97	97	97	97	97	95		
	2	110	105	102	99	108	104	101	98	101	98	96	98	96	94	95	93	92	92	92	92	92	92	90		
	3	105	100	96	92	103	99	95	92	96	93	90	94	91	89	91	89	87	87	87	87	87	87	86		
	4	101	95	90	87	100	94	89	86	92	88	85	90	87	84	88	85	83	83	83	83	83	83	82		
	5	97	90	85	82	96	89	85	81	88	84	81	86	83	80	85	82	79	79	79	79	79	79	78		
	6	94	86	81	78	92	85	81	77	84	80	77	83	79	76	82	78	76	76	76	76	76	76	75		
	7	90	82	77	74	89	82	77	74	81	76	73	79	76	73	78	75	73	73	73	73	73	73	71		
	8	87	79	74	71	86	78	74	70	77	73	70	76	73	70	76	72	70	70	70	70	70	70	68		
	9	84	76	71	67	83	75	71	67	74	70	67	74	70	67	73	69	67	67	67	67	67	67	66		
	10	81	73	68	65	80	72	68	65	72	67	64	71	67	64	70	67	64	64	64	64	64	64	63		

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	327497	327497	327497
5°	321494	321396	320667
10°	296693	295228	292503
15°	259959	256860	252798
20°	198319	195907	194258
25°	114148	111754	107660
30°	46971	51736	44107
35°	9709	24327	9201
40°	2833	9434	3098
45°	1754	3069	1754
50°	1613	1929	1613
55°	1807	1807	1621
60°	1647	1860	1647
65°	1719	1719	1719
70°	1813	1813	1813
75°	1609	1984	1609
80°	1785	1785	1785
85°	2334	2334	2334

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 45°  
 Vertical Angle: 45°  
 Luminance: 3069 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	305.4	18.7
10°-20°	697.5	42.7
20°-30°	487.8	29.8
30°-40°	105.1	6.4
40°-50°	14.7	0.9
50°-60°	9.3	0.6
60°-70°	7.6	0.5
70°-80°	5.1	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°	1490.7	91.2
0°-40°	1595.8	97.6
0°-60°	1619.7	99.1
0°-90°	1634.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1634.5	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	3381	3381	3381	3381	3381	
5°	3306	3308	3305	3296	3298	306
15°	2592	2577	2561	2525	2521	706
25°	1068	1054	1046	1028	1007	495
35°	82	130	206	118	78	81
45°	13	14	22	14	13	11
55°	11	11	11	11	10	9
65°	8	8	8	8	8	7
75°	4	5	5	5	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°	3380.6	3380.6	3380.6	3380.6	3380.6
2.5°	3377.4	3375.3	3372.1	3372.1	3374.2
5°	3306.0	3308.2	3305.0	3296.4	3297.5
7.5°	3180.3	3187.7	3173.9	3168.5	3160.0
10°	3016.1	3014.0	3001.2	2983.1	2973.5
12.5°	2829.6	2821.1	2787.0	2769.9	2764.6
15°	2592.0	2577.0	2561.1	2524.8	2520.6
17.5°	2297.8	2290.3	2268.0	2237.1	2226.4
20°	1923.7	1924.8	1900.3	1874.7	1884.3
22.5°	1472.9	1494.2	1465.4	1440.9	1430.3
25°	1067.9	1054.0	1045.5	1028.5	1007.2
27.5°	740.7	727.9	711.9	703.4	671.4
30°	419.9	465.7	462.5	434.8	394.3
32.5°	199.3	265.4	315.5	238.7	183.3
35°	82.1	130.0	205.7	118.3	77.8
37.5°	39.4	59.7	129.0	58.6	38.4
40°	22.4	32.0	74.6	30.9	24.5
42.5°	16.0	18.1	40.5	18.1	16.0
45°	12.8	13.9	22.4	13.9	12.8
47.5°	11.7	11.7	14.9	11.7	11.7
50°	10.7	11.7	12.8	10.7	10.7
52.5°	10.7	10.7	11.7	10.7	10.7
55°	10.7	10.7	10.7	10.7	9.6
57.5°	9.6	9.6	9.6	9.6	9.6
60°	8.5	9.6	9.6	8.5	8.5
62.5°	8.5	8.5	8.5	8.5	7.5
65°	7.5	7.5	7.5	7.5	7.5
67.5°	6.4	7.5	7.5	7.5	6.4
70°	6.4	6.4	6.4	6.4	6.4
72.5°	5.3	5.3	5.3	5.3	5.3
75°	4.3	5.3	5.3	5.3	4.3
77.5°	4.3	4.3	4.3	4.3	4.3
80°	3.2	3.2	3.2	3.2	3.2
82.5°	2.1	3.2	2.1	2.1	2.1
85°	2.1	2.1	2.1	2.1	2.1
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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