

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: P887011

Luminaire Tested: ML412LSFL9FS1E-TIR4D25NFL-TL4SDMW-1200LM-3000K

Issue Date: 7/9/2024

Test Information

Test Method: LM-79-2019
Report Number: P887011
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2402-314-48)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 7/9/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO
Catalog Number: ML412LSFL9FS1E-TIR4D25NFL-TL4SDMW-1200LM-3000K
Description: 4IN SQUARE ML FLEX, SELECTABLE CCT, WITH 25D TIR, MATTE WHITE TRIM
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 3000K CCT
Ballast/Driver: -

Summary

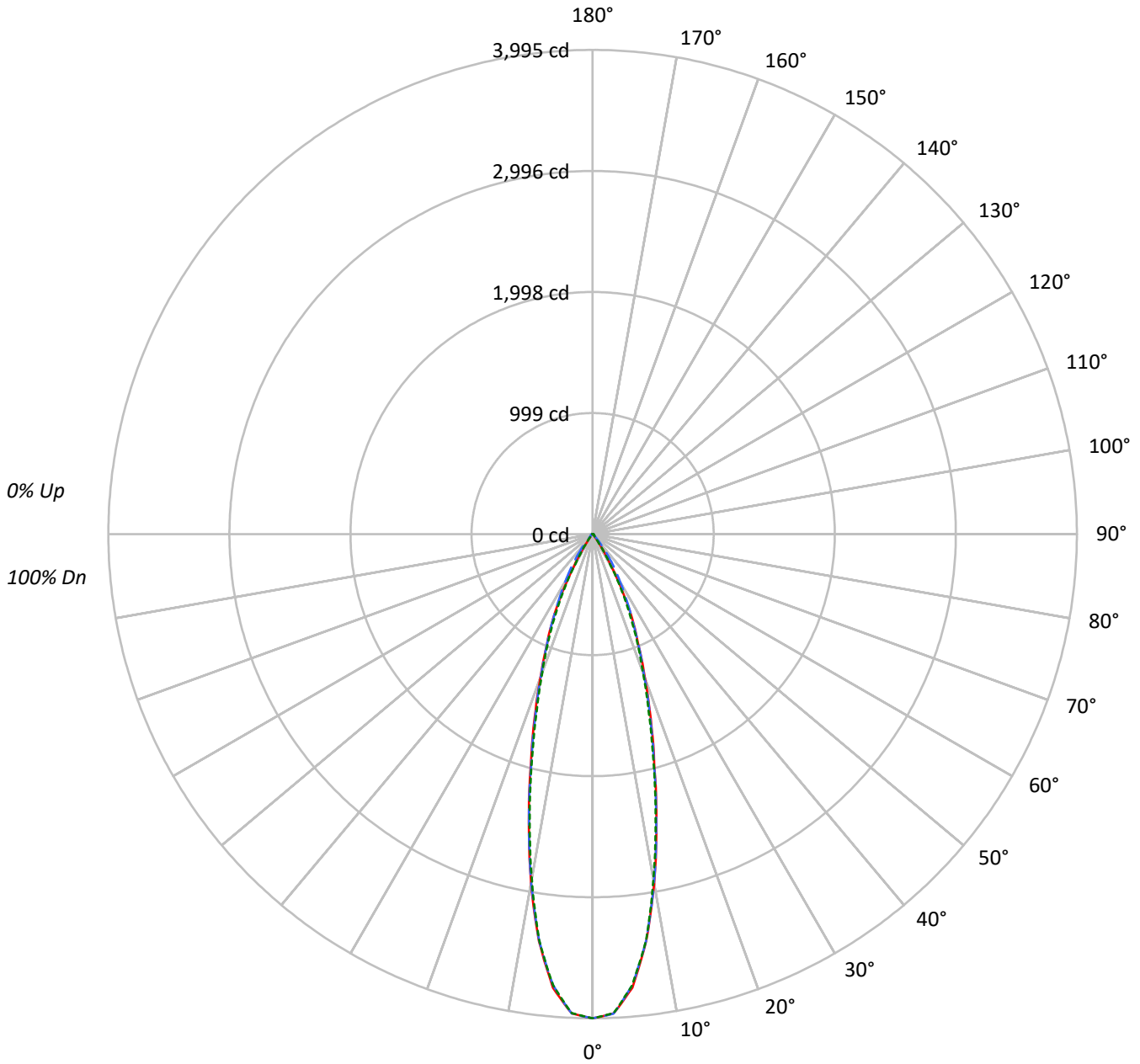
Lumens per Lamp: N/A
Luminaire Lumens: 1377.5 lumens
Efficiency: N/A
Efficacy: 78.3 lumens/watt
Spacing Criteria (0/90/45): 0.49 / 0.49 / 0.52
Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
CIE Type: Direct

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

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	387056	387056	387056
5°	365400	363494	363397
10°	287752	287043	284407
15°	197306	195862	193896
20°	129649	127959	124979
25°	83011	81803	75967
30°	35718	50125	32149
35°	9863	27650	9378
40°	3516	10155	3389
45°	2685	3672	2535
50°	2487	2788	2336
55°	2432	2618	2432
60°	2403	2596	2403
65°	2361	2590	2361
70°	2323	2634	2323
75°	2321	2695	2321
80°	2287	2901	2287
85°	2334	2334	2334

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 45°
 Vertical Angle: 45°
 Luminance: 3672 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	330.7	24.0
10°-20°	544.3	39.5
20°-30°	348.0	25.3
30°-40°	101.5	7.4
40°-50°	19.0	1.4
50°-60°	13.2	1.0
60°-70°	10.9	0.8
70°-80°	7.3	0.5
80°-90°	2.4	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°	1223.0	88.8
0°-40°	1324.5	96.2
0°-60°	1356.7	98.5
0°-90°	1377.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1377.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3995	3995	3995	3995	3995	
5°	3758	3753	3738	3739	3737	331
15°	1967	1960	1953	1940	1933	549
25°	777	772	765	747	711	345
35°	83	133	234	123	79	71
45°	20	21	27	21	18	16
55°	14	14	16	14	14	13
65°	10	11	11	11	10	10
75°	6	7	7	7	6	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°	3995.4	3995.4	3995.4	3995.4	3995.4
2.5°	3959.4	3963.5	3961.4	3950.1	3956.3
5°	3757.5	3753.4	3737.9	3738.9	3736.9
7.5°	3388.7	3387.7	3382.5	3384.6	3378.4
10°	2925.2	2945.8	2918.0	2918.0	2891.2
12.5°	2432.9	2438.0	2425.7	2411.3	2398.9
15°	1967.3	1960.1	1952.9	1939.5	1933.3
17.5°	1590.3	1589.3	1571.8	1555.3	1532.7
20°	1257.6	1254.6	1241.2	1235.0	1212.3
22.5°	986.7	999.1	984.7	961.0	954.8
25°	776.6	772.5	765.3	746.8	710.7
27.5°	538.7	582.0	590.2	556.2	499.6
30°	319.3	387.3	448.1	369.8	287.4
32.5°	179.2	239.0	337.8	222.5	154.5
35°	83.4	132.9	233.8	122.6	79.3
37.5°	38.1	64.9	142.1	63.9	41.2
40°	27.8	33.0	80.3	35.0	26.8
42.5°	22.7	24.7	45.3	24.7	21.6
45°	19.6	20.6	26.8	20.6	18.5
47.5°	16.5	18.5	20.6	17.5	16.5
50°	16.5	16.5	18.5	16.5	15.5
52.5°	15.5	15.5	16.5	15.5	15.5
55°	14.4	14.4	15.5	14.4	14.4
57.5°	13.4	13.4	14.4	13.4	13.4
60°	12.4	13.4	13.4	12.4	12.4
62.5°	11.3	12.4	12.4	12.4	11.3
65°	10.3	11.3	11.3	11.3	10.3
67.5°	9.3	10.3	10.3	10.3	9.3
70°	8.2	9.3	9.3	9.3	8.2
72.5°	7.2	8.2	8.2	8.2	7.2
75°	6.2	7.2	7.2	7.2	6.2
77.5°	5.2	6.2	6.2	6.2	5.2
80°	4.1	5.2	5.2	5.2	4.1
82.5°	3.1	3.1	3.1	4.1	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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