

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: P886642

Luminaire Tested: ML310LSFL9FS1E-TIR4D25AWW-TL3RWMB-1000LM-2700K

Issue Date: 7/5/2024

Test Information

Test Method: LM-79-2019
Report Number: P886642
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2402-314-12)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 7/5/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO
Catalog Number: ML310LSFL9FS1E-TIR4D25AWW-TL3RWMB-1000LM-2700K
Description: 3IN ROUND ML FLEX, SELECTABLE CCT, WITH WW TIR, MATTE BLACK TRIM
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 2700K CCT
Ballast/Driver: -

Summary

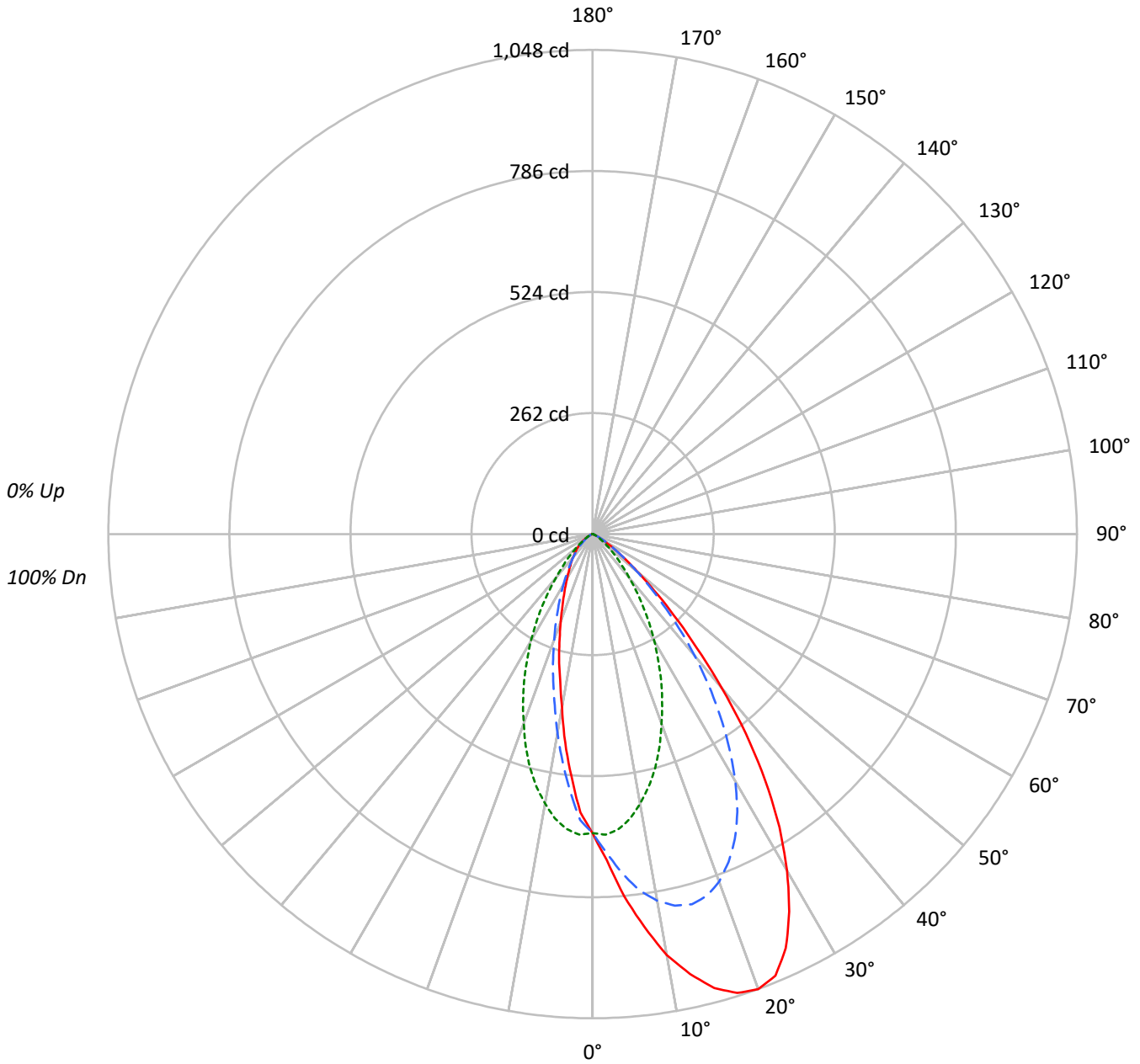
Lumens per Lamp: N/A
Luminaire Lumens: 749.5 lumens
Efficiency: N/A
Efficacy: 54.3 lumens/watt
Spacing Criteria (0/90/45): 1.12 / 0.8 / 0.98
Luminous Opening: Circular (Dia: 0.25' x H: 0')
CIE Type: Direct

Input Watts (W): 13.8
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					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	113	110	107	105	110	108	105	103	104	102	100	100	98	97	96	95	94	92				
2	106	101	97	93	104	99	95	92	96	93	90	93	90	88	90	88	86	84				
3	100	93	87	83	98	92	86	82	89	85	81	86	83	80	84	81	78	77				
4	94	86	80	75	92	85	79	75	82	78	74	80	76	73	78	75	72	70				
5	89	79	73	68	87	78	72	68	77	71	67	75	70	67	73	69	66	64				
6	84	74	67	62	82	73	67	62	71	66	62	70	65	61	69	64	61	59				
7	79	69	62	57	78	68	62	57	67	61	57	65	60	56	64	60	56	55				
8	75	64	57	53	73	63	57	53	62	57	53	61	56	52	60	56	52	51				
9	71	60	53	49	69	59	53	49	58	53	49	58	52	49	57	52	48	47				
10	67	56	50	46	66	56	50	46	55	49	45	54	49	45	53	49	45	44				

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	141918	141918	141918	141918	141918
5°	173299	162271	141140	123090	115826
10°	206030	179411	131861	97326	84857
15°	230943	188264	118775	74711	63587
20°	244625	186858	101766	56495	46927
25°	239361	176188	84948	42607	35567
30°	213020	156277	67631	31904	27852
35°	174321	128934	50621	24092	22486
40°	124261	98356	35495	18606	18893
45°	77248	66705	24189	13645	15816
50°	42643	41278	15692	9893	12622
55°	23321	23512	9175	7264	9558
60°	10964	11622	6140	5263	6578
65°	5189	5189	4151	3113	3632
70°	1923	2244	2565	1282	1282
75°	847	847	847	0	0
80°	0	0	0	0	0
85°	0	0	0	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 10°
 Vertical Angle: 45°
 Luminance: 77869 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	61.1	8.2
10°-20°	163.2	21.8
20°-30°	208.1	27.8
30°-40°	175.7	23.4
40°-50°	96.2	12.8
50°-60°	34.9	4.7
60°-70°	9.1	1.2
70°-80°	1.1	0.1
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°	432.4	57.7
0°-40°	608.1	81.1
0°-60°	739.3	98.6
0°-90°	749.5	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	749.5	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	647	647	647	647	647	
5°	787	737	641	559	526	79
15°	1017	829	523	329	280	287
25°	989	728	351	176	147	447
35°	651	482	189	90	84	401
45°	249	215	78	44	51	198
55°	61	62	24	19	25	58
65°	10	10	8	6	7	11
75°	1	1	1	0	0	1
85°	0	0	0	0	0	0
90°	0	0	0	0	0	



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CANDELA DISTRIBUTION (FULL):

	0°	10°	20°	30°	40°	50°	60°	70°	80°	90°	112.5°
0°	647.2	647.2	647.2	647.2	647.2	647.2	647.2	647.2	647.2	647.2	647.2
2.5°	706.2	704.2	703.2	702.2	694.2	686.2	676.2	668.2	660.2	651.2	632.2
5°	787.3	786.3	775.2	765.2	747.2	727.2	707.2	684.2	661.2	641.2	597.2
7.5°	857.3	855.3	840.3	821.3	794.3	761.2	727.2	689.2	653.2	621.2	552.2
10°	925.3	918.3	897.3	866.3	828.3	783.2	735.2	685.2	635.2	592.2	508.2
12.5°	975.3	968.3	945.3	903.3	852.3	795.3	733.2	672.2	613.2	560.2	458.1
15°	1017.3	1004.3	975.3	925.3	864.3	794.3	721.2	650.2	582.2	523.2	408.1
17.5°	1041.3	1029.3	991.3	933.3	861.3	781.2	700.2	620.2	546.2	481.2	359.1
20°	1048.3	1033.3	992.3	926.3	844.3	757.2	670.2	583.2	506.2	436.1	316.1
22.5°	1034.3	1017.3	971.3	904.3	815.3	721.2	631.2	543.2	461.1	393.1	272.1
25°	989.3	977.3	929.3	861.3	777.2	679.2	585.2	497.2	418.1	351.1	233.1
27.5°	921.3	910.3	868.3	804.3	723.2	633.2	536.2	448.1	371.1	306.1	200.1
30°	841.3	829.3	795.3	739.2	663.2	571.2	483.2	399.1	326.1	267.1	170.1
32.5°	752.2	740.2	705.2	659.2	592.2	510.2	430.1	349.1	281.1	227.1	144.0
35°	651.2	642.2	617.2	571.2	516.2	447.1	371.1	299.1	236.1	189.1	120.0
37.5°	544.2	534.2	519.2	489.2	443.1	382.1	316.1	250.1	196.1	154.0	96.0
40°	434.1	430.1	422.1	399.1	369.1	318.1	265.1	207.1	159.1	124.0	78.0
42.5°	332.1	331.1	330.1	316.1	295.1	259.1	212.1	164.1	128.0	97.0	62.0
45°	249.1	251.1	249.1	244.1	227.1	203.1	167.1	130.0	99.0	78.0	47.0
47.5°	181.1	183.1	184.1	186.1	177.1	154.0	124.0	99.0	75.0	60.0	38.0
50°	125.0	130.0	133.0	135.0	128.0	114.0	92.0	71.0	55.0	46.0	31.0
52.5°	90.0	91.0	96.0	98.0	94.0	80.0	64.0	48.0	41.0	34.0	24.0
55°	61.0	61.0	68.0	71.0	67.0	56.0	43.0	34.0	29.0	24.0	18.0
57.5°	38.0	40.0	45.0	48.0	45.0	37.0	29.0	24.0	21.0	19.0	13.0
60°	25.0	27.0	29.0	32.0	30.0	23.0	19.0	17.0	16.0	14.0	10.0
62.5°	16.0	17.0	19.0	21.0	18.0	14.0	13.0	12.0	11.0	11.0	8.0
65°	10.0	10.0	12.0	13.0	11.0	9.0	9.0	9.0	9.0	8.0	6.0
67.5°	6.0	6.0	7.0	7.0	6.0	6.0	6.0	6.0	6.0	6.0	4.0
70°	3.0	3.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	3.0
72.5°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	3.0	2.0	2.0
75°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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CANDELA DISTRIBUTION (continued):

	135°	157.5°	180°
0°	647.2	647.2	647.2
2.5°	619.2	609.2	603.2
5°	559.2	535.2	526.2
7.5°	497.2	466.1	455.1
10°	437.1	396.1	381.1
12.5°	379.1	340.1	324.1
15°	329.1	291.1	280.1
17.5°	284.1	249.1	237.1
20°	242.1	212.1	201.1
22.5°	208.1	181.1	171.1
25°	176.1	152.0	147.0
27.5°	149.0	130.0	127.0
30°	126.0	111.0	110.0
32.5°	106.0	97.0	96.0
35°	90.0	83.0	84.0
37.5°	77.0	73.0	75.0
40°	65.0	63.0	66.0
42.5°	54.0	55.0	58.0
45°	44.0	48.0	51.0
47.5°	36.0	42.0	44.0
50°	29.0	36.0	37.0
52.5°	23.0	30.0	30.0
55°	19.0	24.0	25.0
57.5°	15.0	19.0	19.0
60°	12.0	15.0	15.0
62.5°	9.0	10.0	11.0
65°	6.0	7.0	7.0
67.5°	4.0	5.0	5.0
70°	2.0	3.0	2.0
72.5°	1.0	1.0	1.0
75°	0.0	0.0	0.0
77.5°	0.0	0.0	0.0
80°	0.0	0.0	0.0
82.5°	0.0	0.0	0.0
85°	0.0	0.0	0.0
87.5°	0.0	0.0	0.0
90°	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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Peachtree City, GA 30269

Scaled Data Report





— 0°-180° - - 45°-225° - - - - 90°-270°

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