

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: P886833

Luminaire Tested: ML412LSFL95FS1E-TIR4D25AWW-TL4RWSL-1020LM-4000K

Issue Date: 7/9/2024

Test Information

Test Method: LM-79-2019
Report Number: P886833
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2402-314-46)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 7/9/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO
Catalog Number: ML412LSFL95FS1E-TIR4D25AWW-TL4RWSL-1020LM-4000K
Description: 4IN ROUND ML FLEX, SELECTABLE CCT, WITH WW TIR, METALLIC SILVER TRIM
Light Source: (1) HCL SELECTABLE LUMEN LED 95CRI / 4000K CCT
Ballast/Driver: -

Summary

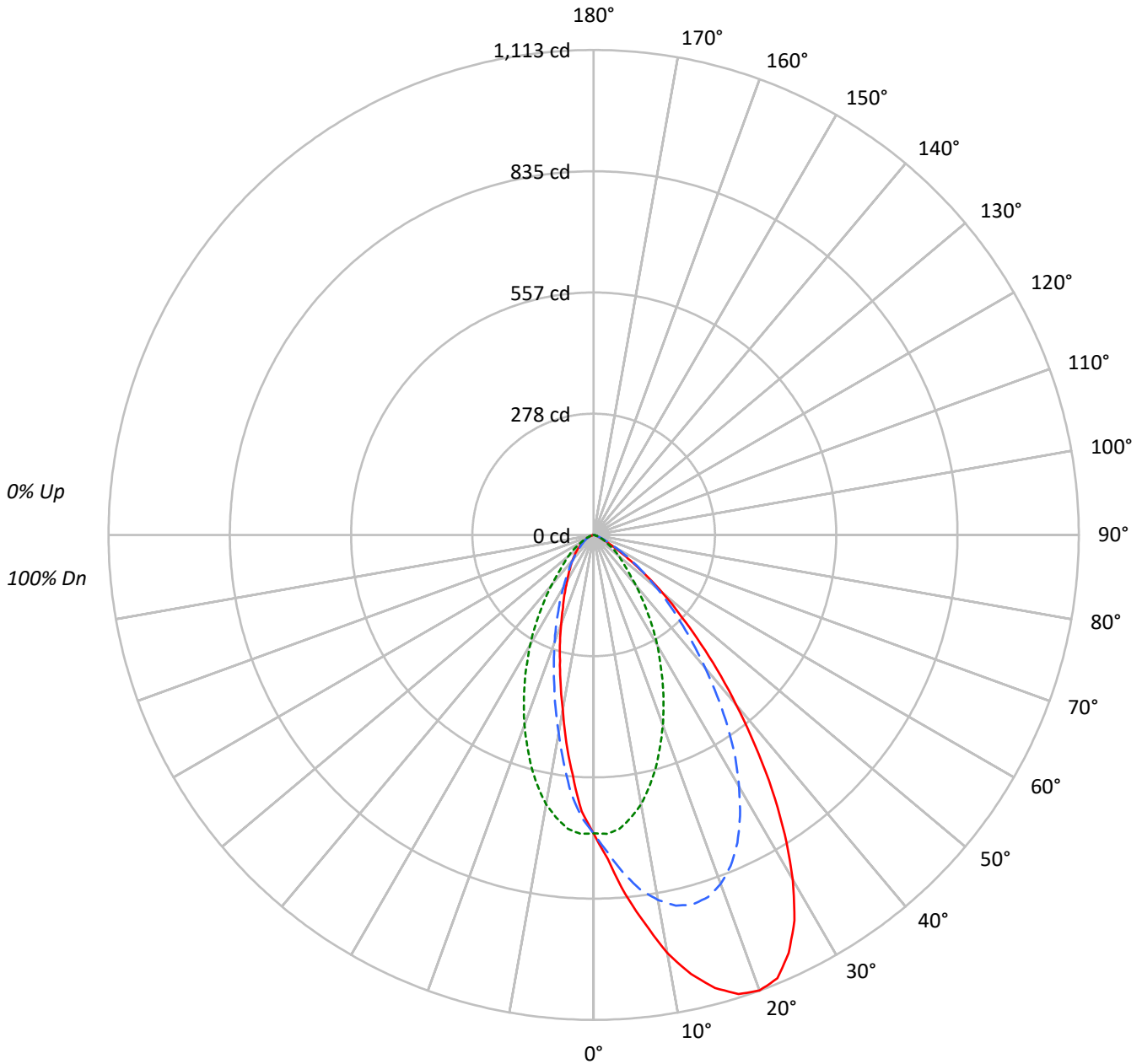
Lumens per Lamp: N/A
Luminaire Lumens: 865.2 lumens
Efficiency: N/A
Efficacy: 49.2 lumens/watt
Spacing Criteria (0/90/45): 1.14 / 0.8 / 1
Luminous Opening: Circular (Dia: 0.25' x H: 0')
CIE Type: Direct

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	100					100			
1	112	109	106	104	110	107	104	102	103	101	99	99	98	96	96	94	93	91					91			
2	106	100	95	91	103	98	94	90	95	91	88	92	89	86	89	87	84	83					83			
3	99	91	86	81	97	90	85	80	87	83	79	85	81	78	82	79	76	75					75			
4	93	84	77	72	91	83	77	72	81	75	71	78	74	70	76	73	69	68					68			
5	87	77	71	65	85	76	70	65	74	69	65	73	68	64	71	67	63	62					62			
6	82	72	65	60	80	71	64	59	69	63	59	68	62	58	66	62	58	56					56			
7	77	66	59	54	76	66	59	54	64	58	54	63	58	54	62	57	53	52					52			
8	73	62	55	50	71	61	55	50	60	54	50	59	53	50	58	53	49	48					48			
9	69	58	51	46	67	57	51	46	56	50	46	55	50	46	54	49	46	44					44			
10	65	54	47	43	64	53	47	43	53	47	43	52	46	43	51	46	43	41					41			

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	150207	150207	150207	150207	150207
5°	182038	171362	149064	130948	121615
10°	217097	189442	139788	102960	90624
15°	244360	199331	125222	79410	67810
20°	259653	198934	108299	61022	50708
25°	256031	188660	90707	46309	38978
30°	231327	168836	73885	35069	30688
35°	190998	143135	57018	26876	25270
40°	145501	113656	42880	20810	21326
45°	103918	87141	31693	16374	18265
50°	70309	64254	25688	12690	15078
55°	39377	43525	19192	10934	12234
60°	19384	25831	14034	9122	9868
65°	9910	13931	10792	7212	7627
70°	5578	6956	7245	5578	5001
75°	2965	3643	4406	2203	1440
80°	1137	1137	1137	0	0
85°	0	0	2264	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 10°
 Vertical Angle: 45°
 Luminance: 105003 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	64.5	7.5
10°-20°	173.1	20.0
20°-30°	223.3	25.8
30°-40°	195.4	22.6
40°-50°	123.5	14.3
50°-60°	59.9	6.9
60°-70°	20.7	2.4
70°-80°	4.5	0.5
80°-90°	0.2	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°	461.0	53.3
0°-40°	656.4	75.9
0°-60°	839.8	97.1
0°-90°	865.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	865.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	685	685	685	685	685	
5°	827	778	677	595	552	83
15°	1076	878	552	350	299	304
25°	1058	780	375	191	161	480
35°	714	535	213	100	94	442
45°	335	281	102	53	59	263
55°	103	114	50	29	32	98
65°	19	27	21	14	15	21
75°	4	4	5	3	2	4
85°	0	0	1	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°	685.0	685.0	685.0	685.0	685.0	685.0	685.0	685.0	685.0	685.0	685.0
2.5°	744.7	742.1	747.3	739.5	732.6	725.7	719.6	704.9	697.1	686.7	667.6
5°	827.0	826.1	819.2	804.5	788.9	768.1	748.2	721.3	700.5	677.2	630.4
7.5°	898.8	899.7	887.6	864.2	839.1	802.7	768.1	730.0	691.0	654.6	583.6
10°	975.0	964.6	947.3	917.9	874.6	827.0	776.7	723.9	672.8	627.8	535.1
12.5°	1032.2	1020.1	997.6	955.1	902.3	840.8	775.9	710.9	647.7	591.4	484.9
15°	1076.4	1066.8	1035.7	981.1	915.3	840.8	763.8	689.3	615.7	551.6	429.5
17.5°	1104.9	1093.7	1053.0	990.6	913.6	829.6	742.1	655.5	577.6	507.4	383.6
20°	1112.7	1099.7	1056.4	985.4	899.7	805.3	710.1	620.0	535.1	464.1	333.4
22.5°	1101.5	1084.1	1039.1	967.2	872.9	770.7	672.8	576.7	490.1	418.2	290.1
25°	1058.2	1046.0	999.3	921.4	830.4	729.1	622.6	531.7	445.1	374.9	252.9
27.5°	997.6	978.5	938.7	867.7	780.2	674.6	573.2	481.5	398.3	330.8	214.8
30°	913.6	898.0	858.1	796.7	715.3	618.3	521.3	433.8	354.2	291.8	184.4
32.5°	816.6	809.6	771.5	720.5	648.6	560.3	466.7	384.5	311.7	252.0	157.6
35°	713.5	702.3	674.6	636.5	573.2	496.2	413.1	334.3	265.8	213.0	131.6
37.5°	607.0	602.7	581.0	546.4	497.9	431.2	357.6	285.8	228.6	180.1	110.0
40°	508.3	510.9	490.1	465.9	424.3	369.8	307.4	243.3	189.6	149.8	91.8
42.5°	418.2	414.8	403.5	388.8	361.1	311.7	255.5	202.6	156.7	122.1	75.3
45°	335.1	338.6	332.5	320.4	300.5	261.5	212.2	163.7	128.2	102.2	61.5
47.5°	262.4	261.5	267.6	263.2	247.7	214.8	173.2	134.2	106.5	87.5	52.8
50°	206.1	203.5	207.0	209.6	203.5	173.2	139.4	111.7	90.9	75.3	47.6
52.5°	148.1	150.7	157.6	165.4	161.9	137.7	112.6	90.9	76.2	63.2	39.0
55°	103.0	108.2	115.2	127.3	122.1	105.6	87.5	73.6	58.9	50.2	32.9
57.5°	68.4	71.0	80.5	93.5	90.1	78.8	66.7	55.4	45.0	38.1	26.8
60°	44.2	45.9	54.6	64.1	61.5	56.3	48.5	40.7	35.5	32.0	22.5
62.5°	28.6	30.3	36.4	42.4	42.4	38.1	32.9	31.2	28.6	26.0	19.1
65°	19.1	20.8	25.1	29.4	27.7	26.0	23.4	23.4	22.5	20.8	15.6
67.5°	13.0	13.9	17.3	19.1	18.2	16.5	16.5	18.2	17.3	15.6	11.3
70°	8.7	9.5	11.3	12.1	11.3	10.4	11.3	13.0	12.1	11.3	8.7
72.5°	6.1	6.1	6.9	6.9	6.9	6.9	7.8	8.7	8.7	7.8	6.1
75°	3.5	3.5	3.5	4.3	4.3	4.3	5.2	5.2	5.2	5.2	3.5
77.5°	1.7	1.7	1.7	1.7	2.6	2.6	2.6	2.6	2.6	2.6	1.7
80°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9	0.9	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°	685.0	685.0	685.0
2.5°	647.7	637.3	634.7
5°	594.9	563.7	552.5
7.5°	526.5	490.1	480.6
10°	462.4	421.7	407.0
12.5°	404.4	361.1	349.8
15°	349.8	309.1	298.7
17.5°	303.1	266.7	256.3
20°	261.5	228.6	217.3
22.5°	225.1	194.8	185.3
25°	191.4	165.4	161.1
27.5°	163.7	142.9	139.4
30°	138.5	123.0	121.2
32.5°	117.8	106.5	107.4
35°	100.4	93.5	94.4
37.5°	87.5	81.4	84.9
40°	72.7	71.0	74.5
42.5°	62.3	62.3	65.8
45°	52.8	55.4	58.9
47.5°	44.2	48.5	51.1
50°	37.2	42.4	44.2
52.5°	32.0	37.2	38.1
55°	28.6	32.0	32.0
57.5°	25.1	26.8	26.8
60°	20.8	22.5	22.5
62.5°	17.3	18.2	18.2
65°	13.9	14.7	14.7
67.5°	11.3	11.3	11.3
70°	8.7	7.8	7.8
72.5°	5.2	5.2	4.3
75°	2.6	1.7	1.7
77.5°	0.9	0.9	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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Signify Classified - Internal
Cooper Lighting Solutions Photometric Lab
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Peachtree City, GA 30269

Scaled Data Report





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

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