

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: P886830

Luminaire Tested: ML412LSFL95FS1E-TIR4D25AWW-TL4RWSL-1020LM-2700K

Issue Date: 7/9/2024

Test Information

Test Method: LM-79-2019
Report Number: P886830
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-2700K
Description: 4IN ROUND ML FLEX, SELECTABLE CCT, WITH WW TIR, METALLIC SILVER TRIM
Light Source: (1) HCL SELECTABLE LUMEN LED 95CRI / 2700K CCT
Ballast/Driver: -

Summary

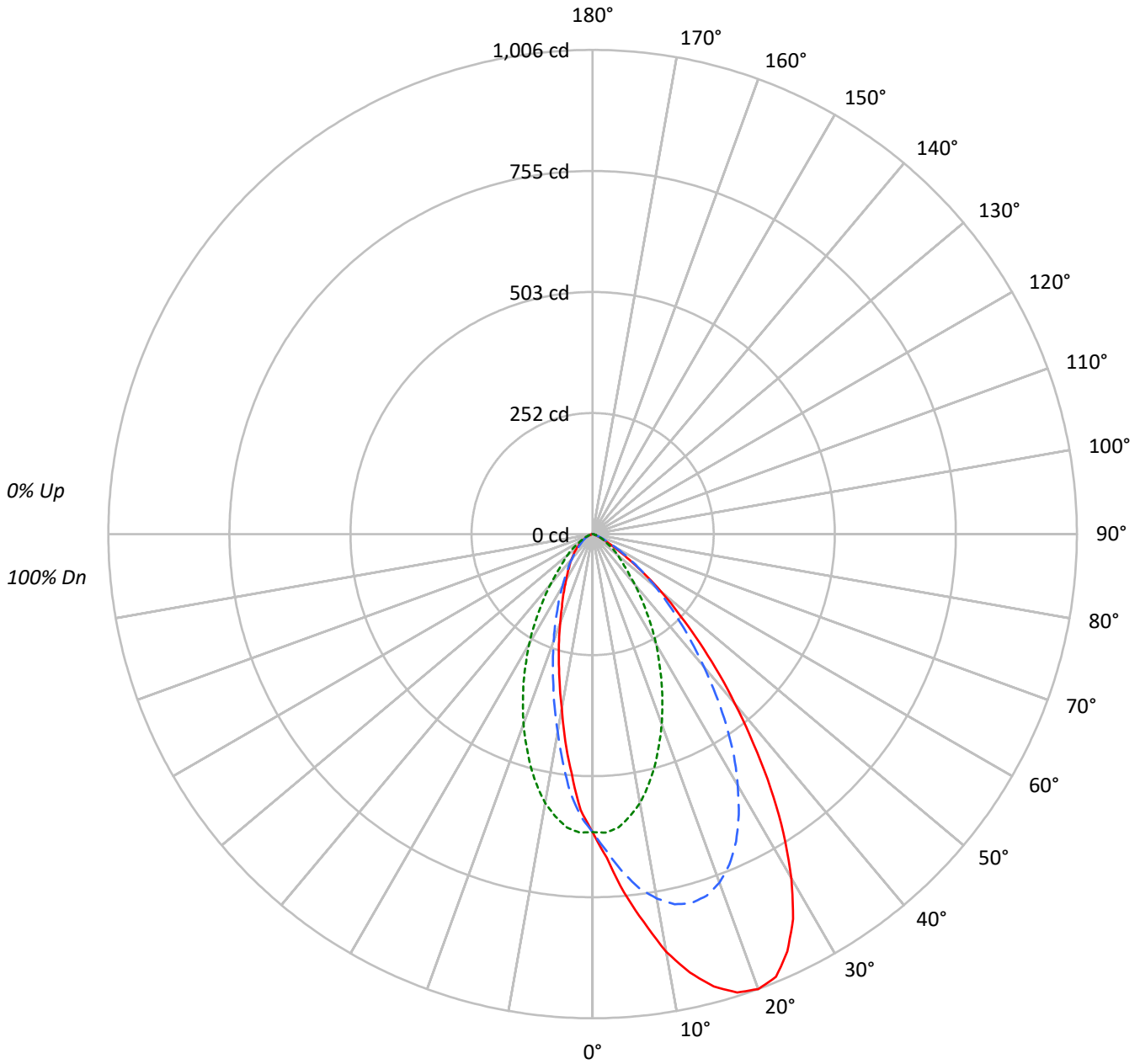
Lumens per Lamp: N/A
Luminaire Lumens: 782.2 lumens
Efficiency: N/A
Efficacy: 44.4 lumens/watt
Spacing Criteria (0/90/45): 1.14 / 0.8 / 1
Luminous Opening: Circular (Dia: 0.25' x H: 0')
CIE Type: Direct

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

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	135779	135779	135779	135779	135779
5°	164560	154897	134734	118380	109927
10°	196256	171250	126361	93073	81918
15°	220887	180194	113190	71782	61317
20°	234730	179834	97915	55165	45854
25°	231449	170550	81997	41857	35228
30°	209095	152618	66795	31701	27751
35°	172662	129389	51558	24306	22834
40°	131532	102750	38758	18835	19265
45°	93932	78768	28654	14823	16498
50°	63554	58096	23232	11496	13611
55°	35631	39358	17357	9863	11087
60°	17499	23353	12718	8245	8947
65°	8924	12582	9755	6486	6901
70°	5001	6283	6540	5001	4488
75°	2626	3304	3982	1949	1356
80°	1010	1010	1010	0	0
85°	0	0	2013	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 10°
 Vertical Angle: 45°
 Luminance: 94925 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	58.3	7.5
10°-20°	156.5	20.0
20°-30°	201.9	25.8
30°-40°	176.7	22.6
40°-50°	111.6	14.3
50°-60°	54.2	6.9
60°-70°	18.7	2.4
70°-80°	4.0	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°	416.7	53.3
0°-40°	593.4	75.9
0°-60°	759.2	97.1
0°-90°	782.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	782.2	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	619	619	619	619	619	
5°	748	704	612	538	499	75
15°	973	794	499	316	270	275
25°	957	705	339	173	146	434
35°	645	483	193	91	85	400
45°	303	254	92	48	53	237
55°	93	103	45	26	29	89
65°	17	24	19	12	13	19
75°	3	4	5	2	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°	619.2	619.2	619.2	619.2	619.2	619.2	619.2	619.2	619.2	619.2	619.2
2.5°	673.2	670.9	675.6	668.5	662.2	656.0	650.5	637.2	630.1	620.8	603.5
5°	747.6	746.8	740.5	727.2	713.1	694.3	676.3	652.1	633.3	612.1	569.9
7.5°	812.5	813.3	802.4	781.2	758.5	725.6	694.3	659.9	624.7	591.8	527.6
10°	881.4	872.0	856.4	829.8	790.6	747.6	702.2	654.4	608.2	567.5	483.8
12.5°	933.1	922.1	901.8	863.4	815.7	760.1	701.4	642.7	585.5	534.6	438.4
15°	973.0	964.4	936.2	886.9	827.4	760.1	690.4	623.1	556.6	498.6	388.3
17.5°	998.8	988.7	951.9	895.5	825.8	749.9	670.9	592.6	522.1	458.7	346.8
20°	1005.9	994.1	955.0	890.8	813.3	728.0	641.9	560.5	483.8	419.6	301.4
22.5°	995.7	980.1	939.4	874.4	789.1	696.7	608.2	521.3	443.1	378.1	262.2
25°	956.6	945.6	903.3	832.9	750.7	659.1	562.8	480.6	402.4	338.9	228.6
27.5°	901.8	884.6	848.5	784.4	705.3	609.8	518.2	435.2	360.1	299.0	194.1
30°	825.8	811.8	775.7	720.2	646.6	558.9	471.2	392.2	320.2	263.8	166.7
32.5°	738.2	731.9	697.5	651.3	586.3	506.5	421.9	347.6	281.8	227.8	142.5
35°	645.0	634.8	609.8	575.4	518.2	448.5	373.4	302.2	240.3	192.6	119.0
37.5°	548.7	544.8	525.3	493.9	450.1	389.8	323.3	258.3	206.7	162.8	99.4
40°	459.5	461.8	443.1	421.1	383.6	334.3	277.9	220.0	171.4	135.4	83.0
42.5°	378.1	375.0	364.8	351.5	326.4	281.8	230.9	183.2	141.7	110.4	68.1
45°	302.9	306.1	300.6	289.6	271.6	236.4	191.8	147.9	115.9	92.4	55.6
47.5°	237.2	236.4	241.9	238.0	223.9	194.1	156.6	121.3	96.3	79.1	47.8
50°	186.3	184.0	187.1	189.4	184.0	156.6	126.0	101.0	82.2	68.1	43.1
52.5°	133.9	136.2	142.5	149.5	146.4	124.5	101.8	82.2	68.9	57.1	35.2
55°	93.2	97.8	104.1	115.1	110.4	95.5	79.1	66.5	53.2	45.4	29.7
57.5°	61.8	64.2	72.8	84.5	81.4	71.2	60.3	50.1	40.7	34.4	24.3
60°	39.9	41.5	49.3	57.9	55.6	50.9	43.8	36.8	32.1	29.0	20.4
62.5°	25.8	27.4	32.9	38.4	38.4	34.4	29.7	28.2	25.8	23.5	17.2
65°	17.2	18.8	22.7	26.6	25.0	23.5	21.1	21.1	20.4	18.8	14.1
67.5°	11.7	12.5	15.7	17.2	16.4	14.9	14.9	16.4	15.7	14.1	10.2
70°	7.8	8.6	10.2	11.0	10.2	9.4	10.2	11.7	11.0	10.2	7.8
72.5°	5.5	5.5	6.3	6.3	6.3	6.3	7.0	7.8	7.8	7.0	5.5
75°	3.1	3.1	3.1	3.9	3.9	3.9	4.7	4.7	4.7	4.7	3.1
77.5°	1.6	1.6	1.6	1.6	2.3	2.3	2.3	2.3	2.3	2.3	1.6
80°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	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°	619.2	619.2	619.2
2.5°	585.5	576.1	573.8
5°	537.8	509.6	499.4
7.5°	475.9	443.1	434.5
10°	418.0	381.2	367.9
12.5°	365.6	326.4	316.2
15°	316.2	279.5	270.1
17.5°	274.0	241.1	231.7
20°	236.4	206.7	196.5
22.5°	203.5	176.1	167.5
25°	173.0	149.5	145.6
27.5°	147.9	129.2	126.0
30°	125.2	111.2	109.6
32.5°	106.5	96.3	97.1
35°	90.8	84.5	85.3
37.5°	79.1	73.6	76.7
40°	65.8	64.2	67.3
42.5°	56.4	56.4	59.5
45°	47.8	50.1	53.2
47.5°	39.9	43.8	46.2
50°	33.7	38.4	39.9
52.5°	29.0	33.7	34.4
55°	25.8	29.0	29.0
57.5°	22.7	24.3	24.3
60°	18.8	20.4	20.4
62.5°	15.7	16.4	16.4
65°	12.5	13.3	13.3
67.5°	10.2	10.2	10.2
70°	7.8	7.0	7.0
72.5°	4.7	4.7	3.9
75°	2.3	1.6	1.6
77.5°	0.8	0.8	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
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report





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

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