

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: P886820

Luminaire Tested: ML412LSFL95FS1E-TIR4D25AWW-TL4RWMB-1020LM-2700K

Issue Date: 7/9/2024

Test Information

Test Method: LM-79-2019
Report Number: P886820
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2402-314-47)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 7/9/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO
Catalog Number: ML412LSFL95FS1E-TIR4D25AWW-TL4RWMB-1020LM-2700K
Description: 4IN ROUND ML FLEX, SELECTABLE CCT, WITH WW TIR, MATTE BLACK TRIM
Light Source: (1) HCL SELECTABLE LUMEN LED 95CRI / 2700K CCT
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 743.1 lumens
Efficiency: N/A
Efficacy: 42.2 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 0.8 / 0.99
Luminous Opening: Circular (Dia: 0.25' x H: 0')
CIE Type: Direct

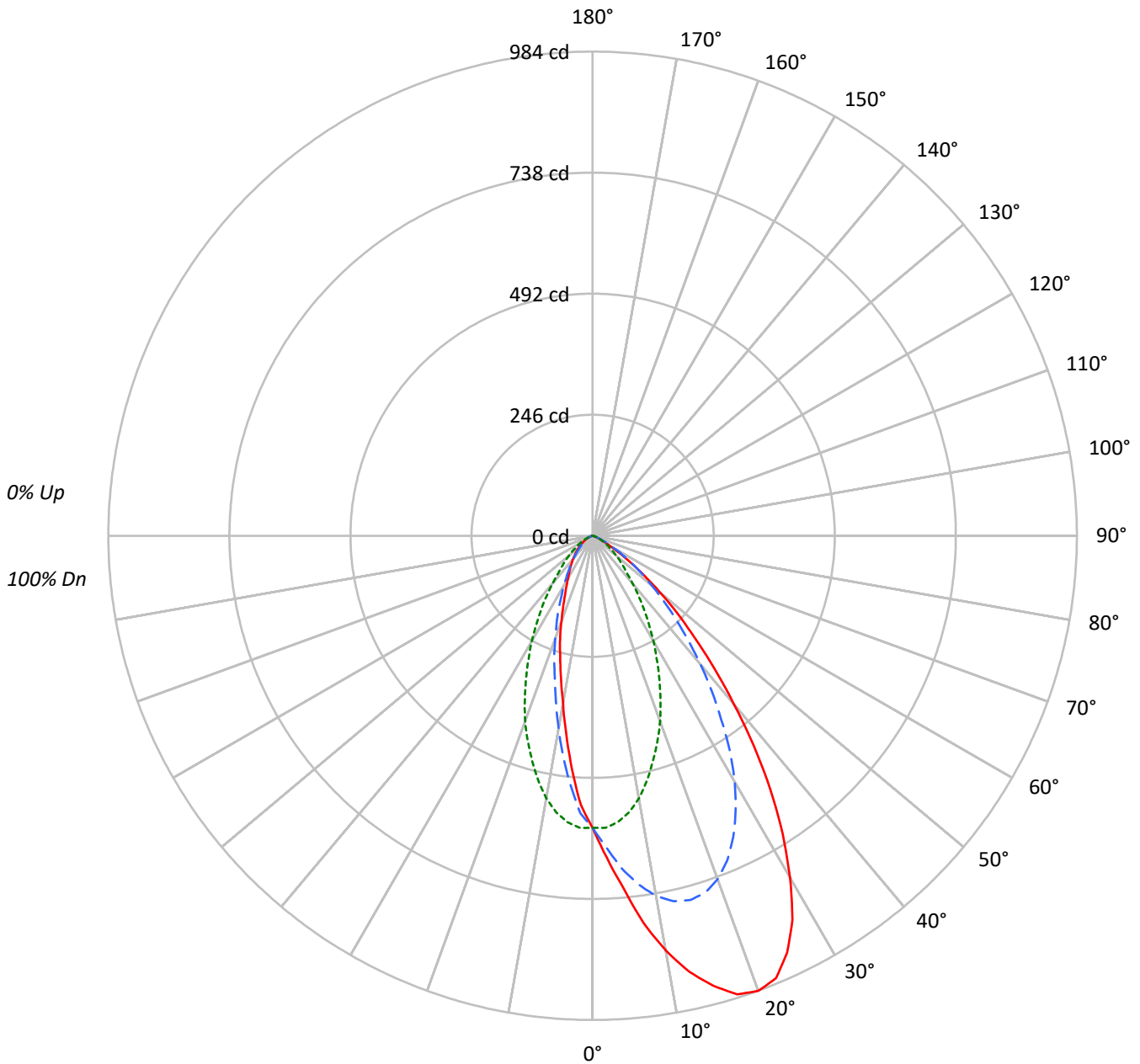
Input Watts (W): 17.6
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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				
RW	70	50	30	10	70	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	109	106	104	110	107	105	102	103	101	99	99	98	96	96	95	93	91		
2	106	100	95	91	103	98	94	90	95	91	88	92	89	86	89	87	85	83		
3	99	92	86	81	97	90	85	81	87	83	79	85	81	78	83	79	77	75		
4	93	84	78	73	91	83	77	72	81	76	71	79	74	71	77	73	70	68		
5	87	78	71	66	86	77	70	65	75	69	65	73	68	64	71	67	64	62		
6	82	72	65	60	80	71	64	60	69	64	59	68	63	59	66	62	58	57		
7	77	67	60	55	76	66	59	55	64	59	54	63	58	54	62	57	54	52		
8	73	62	55	50	72	61	55	50	60	54	50	59	54	50	58	53	50	48		
9	69	58	51	47	68	57	51	47	56	50	46	55	50	46	54	50	46	44		
10	65	54	48	43	64	54	47	43	53	47	43	52	47	43	51	46	43	41		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	130165	130165	130165	130165	130165
5°	158221	149361	128593	112216	104974
10°	190578	165550	120661	88576	77064
15°	214916	174042	107538	67378	57776
20°	229690	173323	93551	51524	43124
25°	226223	163509	77496	39220	32203
30°	203019	146326	62465	29346	25168
35°	168539	121894	48426	22433	20960
40°	127754	97397	36096	17032	17490
45°	90831	73822	27445	13118	14823
50°	60382	53030	21117	10405	12281
55°	35325	36835	15866	8678	9863
60°	16139	21643	12718	7192	7894
65°	8146	11363	8509	5707	6071
70°	4488	5514	5514	4039	3526
75°	1949	1949	2626	1356	678
80°	0	505	1010	0	0
85°	0	0	0	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 10°
 Vertical Angle: 45°
 Luminance: 92041 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	56.0	7.5
10°-20°	150.3	20.2
20°-30°	193.5	26.0
30°-40°	167.7	22.6
40°-50°	105.3	14.2
50°-60°	50.4	6.8
60°-70°	17.0	2.3
70°-80°	2.9	0.4
80°-90°	0.1	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°	399.8	53.8
0°-40°	567.5	76.4
0°-60°	723.2	97.3
0°-90°	743.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	743.1	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	594	594	594	594	594	
5°	719	679	584	510	477	73
15°	947	767	474	297	254	268
25°	935	676	320	162	133	423
35°	630	455	181	84	78	390
45°	293	238	88	42	48	230
55°	92	96	42	23	26	86
65°	16	22	16	11	12	18
75°	2	2	3	2	1	3
85°	0	0	0	0	0	0
90°	0	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°	593.6	593.6	593.6	593.6	593.6	593.6	593.6	593.6	593.6	593.6	593.6
2.5°	654.6	646.8	648.4	644.5	638.2	628.8	622.5	613.1	604.5	594.3	576.3
5°	718.8	719.6	711.0	701.6	690.7	666.4	648.4	627.2	605.3	584.2	542.7
7.5°	794.0	789.3	778.4	754.9	730.6	698.5	666.4	632.7	599.8	566.9	504.3
10°	855.9	848.8	831.6	801.1	767.4	719.6	675.8	627.2	582.6	541.9	462.0
12.5°	907.6	901.3	877.8	837.1	789.3	732.2	673.4	614.7	559.9	509.8	415.0
15°	946.7	938.1	907.6	860.6	801.1	732.2	664.8	594.3	531.7	473.7	370.4
17.5°	977.2	963.9	924.8	870.0	798.7	722.0	643.7	569.3	499.6	437.7	326.5
20°	984.3	972.5	927.9	864.5	787.0	698.5	616.3	534.0	464.3	400.9	286.6
22.5°	973.3	955.3	914.6	845.7	760.3	667.9	581.0	500.4	424.4	360.2	247.4
25°	935.0	922.4	878.6	807.3	722.0	629.6	539.5	454.2	386.0	320.3	214.6
27.5°	879.4	864.5	821.4	759.6	677.3	581.8	494.9	414.2	344.5	281.9	184.0
30°	801.8	791.7	754.9	692.2	623.3	532.5	448.7	371.2	303.8	246.7	157.4
32.5°	718.8	704.7	675.0	624.1	559.1	478.4	399.4	325.7	263.1	212.2	132.3
35°	629.6	621.7	592.0	545.0	489.4	421.3	350.8	282.7	226.3	180.9	111.2
37.5°	537.2	527.8	509.0	471.4	427.5	366.5	301.5	242.7	192.6	152.7	92.4
40°	446.3	440.1	426.0	399.4	364.9	315.6	255.3	203.6	159.7	126.1	76.7
42.5°	365.7	364.1	355.5	335.9	307.7	263.1	217.7	169.1	132.3	103.4	61.9
45°	292.9	296.8	288.2	276.4	255.3	220.8	179.3	139.4	110.4	88.5	52.5
47.5°	234.1	231.0	230.2	225.5	207.5	179.3	144.1	115.1	95.5	75.2	45.4
50°	177.0	176.2	180.1	180.9	166.0	144.9	117.5	97.1	77.5	61.9	37.6
52.5°	130.0	131.6	137.8	142.5	133.1	114.3	97.1	77.5	64.2	51.7	32.1
55°	92.4	92.4	101.8	107.3	102.6	90.1	74.4	61.1	50.1	41.5	25.8
57.5°	57.9	60.3	69.7	76.7	75.2	67.3	55.6	46.2	39.9	34.5	22.7
60°	36.8	38.4	46.2	51.7	51.7	47.0	40.7	35.2	32.9	29.0	19.6
62.5°	23.5	25.8	30.5	35.2	36.0	31.3	27.4	27.4	25.8	22.7	16.4
65°	15.7	16.4	20.4	22.7	22.7	21.1	20.4	20.4	19.6	16.4	11.7
67.5°	10.2	11.0	13.3	14.9	14.1	12.5	14.1	14.9	14.1	12.5	9.4
70°	7.0	7.0	7.8	9.4	8.6	8.6	9.4	9.4	9.4	8.6	6.3
72.5°	4.7	4.7	4.7	4.7	4.7	4.7	5.5	6.3	6.3	6.3	3.9
75°	2.3	2.3	2.3	2.3	2.3	2.3	2.3	3.1	3.1	3.1	1.6
77.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
80°	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.8	0.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	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	0.8	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°	593.6	593.6	593.6
2.5°	564.6	557.5	547.4
5°	509.8	487.8	476.9
7.5°	455.0	421.3	408.0
10°	397.8	360.2	346.1
12.5°	343.8	308.5	296.0
15°	296.8	264.7	254.5
17.5°	259.2	228.7	220.0
20°	220.8	193.4	184.8
22.5°	191.1	165.2	155.8
25°	162.1	138.6	133.1
27.5°	137.0	118.2	114.3
30°	115.9	102.6	99.4
32.5°	98.7	89.3	88.5
35°	83.8	77.5	78.3
37.5°	71.3	67.3	69.7
40°	59.5	59.5	61.1
42.5°	50.9	52.5	54.8
45°	42.3	46.2	47.8
47.5°	35.2	39.9	41.5
50°	30.5	34.5	36.0
52.5°	26.6	29.8	30.5
55°	22.7	25.8	25.8
57.5°	19.6	21.1	21.9
60°	16.4	18.0	18.0
62.5°	13.3	14.9	14.9
65°	11.0	11.7	11.7
67.5°	8.6	8.6	8.6
70°	6.3	6.3	5.5
72.5°	3.1	3.1	3.1
75°	1.6	0.8	0.8
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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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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