

LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-State
Lighting Products

Test Report Prepared for
Cooper Lighting Solutions
(formerly Eaton)

Brand: HALO

Report Number: P601232

Luminaire Tested: **ML408LSAWW95FS1E - TIR4D25AWW - TL41R_ TL42S_ 4000K**

Issue Date: 7/29/2022

Tested By:

Approved By:



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Test Information

Test Method: LM-79-08
 Report Number: P601232
 Test Lab: COOPER LIGHTING SOLUTIONS
 Issue Date: 7/29/2022
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
 Product Line: HALO
 Catalog Number: ML408LSAWW95FS1E - TIR4D25AWW - TL41R_ TL42S_ 4000K
 Description: RETROFIT, 25D WW OPTIC, OPEN TRIM
 Light Source: (1) SELECTABLE LUMEN LED 95CRI / 4000K CCT
 Ballast/Driver: -

Summary

Lumens per Lamp: N/A
 Luminaire Lumens: 625.7 lumens
 Efficiency: N/A
 Efficacy: 60.7 lumens/watt
 Spacing Criteria (0/90/45): 1.31 / 0.61 / 0.81
 Luminous Opening: Circular (Dia: 0.21' x H: 0')
 CIE Type: Direct

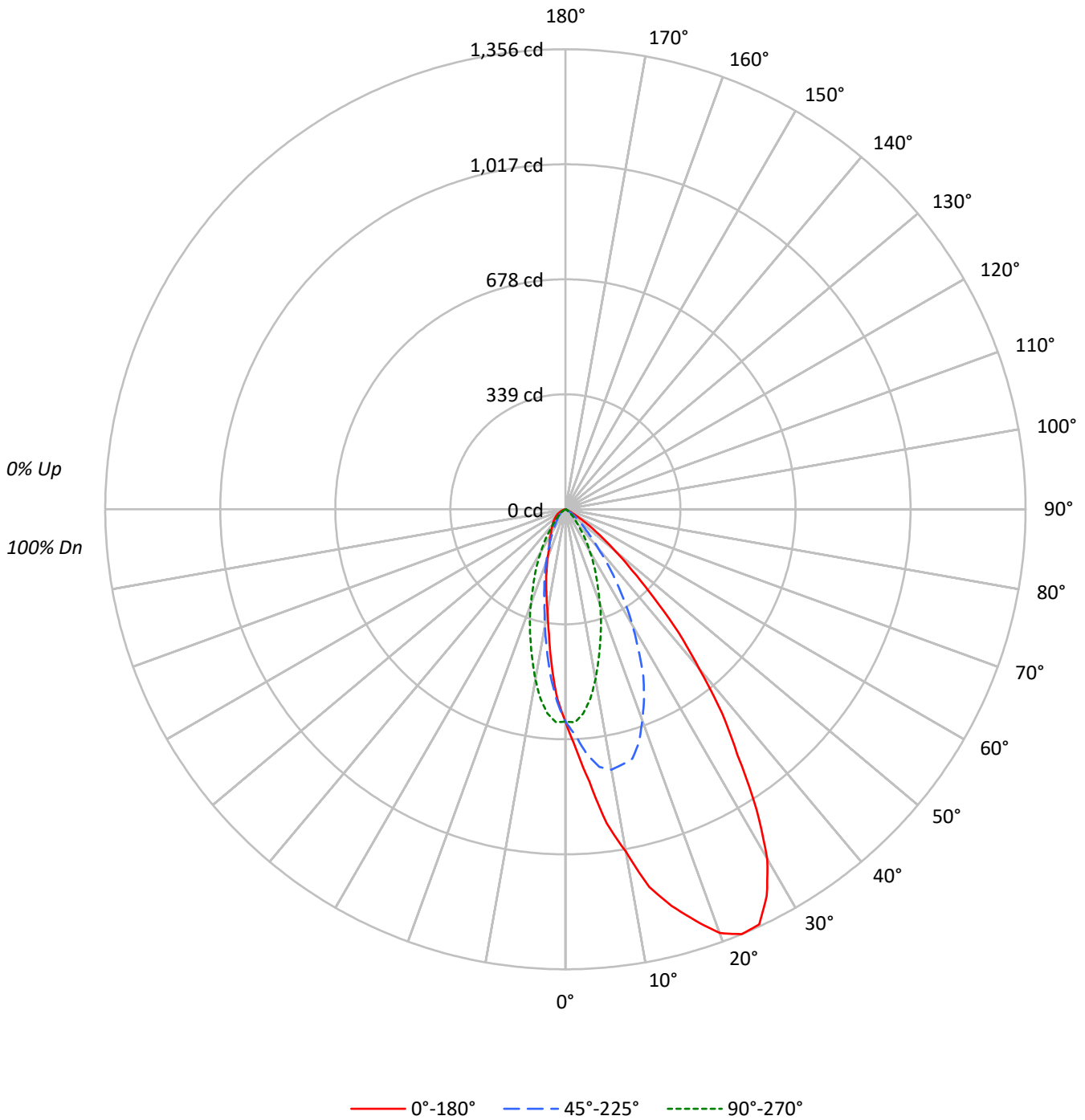
Input Watts (W): 10.3
 Input Voltage (V): NR
 Input Current (Ain): NR
 Voltage Rise (V): NR
 Power Factor: NR
 Total Harmonic Distortion (THDi): NR
 Frequency (hertz): 60
 Stabilization Time: NR
 Operation Time: NR
 Ambient Temperature (°C): NR
 Test Distance: 25 FT



Meas			
Instrument	Identificatio		Calibration Due Date
Photometer	GONIO 1 11111111	4/22/2021	10/22/2021
Power Meter	XITRON 2801 IN0197	12/1/2020	12/1/2021
AC Power Source	CHROMA 61505 IN0196	12/1/2020	12/1/2021
DC Power Supply	AGILENT E3634A IN0198	11/30/2020	11/30/2021
Room Thermometer	ONSET IN0143	12/1/2020	12/1/2021

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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	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	111	108	106	103	104	102	100	100	99	97	97	96	94	93
2	107	102	97	94	105	100	96	93	97	93	91	94	91	89	91	89	87	85
3	101	94	89	84	99	93	88	84	90	86	82	87	84	81	85	82	80	78
4	95	87	81	77	93	86	80	76	84	79	75	82	78	74	80	76	73	72
5	90	81	75	70	88	80	74	70	78	73	69	76	72	68	75	71	68	66
6	85	75	69	64	83	75	68	64	73	68	64	72	67	63	70	66	63	61
7	80	70	64	59	79	70	64	59	68	63	59	67	62	59	66	62	58	57
8	76	66	60	55	75	65	59	55	64	59	55	63	58	55	62	58	54	53
9	72	62	56	51	71	61	55	51	60	55	51	60	54	51	59	54	51	49
10	69	58	52	48	68	58	52	48	57	52	48	56	51	48	55	51	48	46

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	197543	197543	197543
5°	255162	191451	146916
10°	328492	163108	97345
15°	395587	129748	71755
20°	446618	99935	52051
25°	470560	73967	38952
30°	433745	52723	31393
35°	340763	35580	27292
40°	253216	21558	24114
45°	163485	14647	21524
50°	95694	10562	19158
55°	50813	7322	16956
60°	21346	3915	14904
65°	7696	3063	11506
70°	923	1939	6647
75°	1220	1220	0
80°	0	0	0
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	57.7	9.2
10°-20°	149.3	23.9
20°-30°	182.5	29.2
30°-40°	136.6	21.8
40°-50°	67.7	10.8
50°-60°	25.0	4.0
60°-70°	6.2	1.0
70°-80°	0.8	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°	389.4	62.2
0°-40°	526.0	84.1
0°-60°	618.6	98.9
0°-90°	625.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	625.7	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	626	626	626	626	626	
5°	805	724	604	495	464	84
15°	1210	761	397	241	220	344
25°	1351	542	212	107	112	606
35°	884	260	92	49	71	557
45°	366	85	33	28	48	292
55°	92	24	13	11	31	88
65°	10	3	4	4	15	12
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°	5°	10°	15°	20°	22.5°	45°	67.5°	90°	112.5°	135°
0°	625.6	625.6	625.6	625.6	625.6	625.6	625.6	625.6	625.6	625.6	625.6
2.5°	704.5	704.5	712.7	699.4	699.4	695.3	665.6	648.1	628.6	599.9	566.1
5°	805.0	825.5	809.1	786.6	799.9	793.8	724.0	660.4	604.0	548.7	495.3
7.5°	934.3	939.4	925.0	896.3	890.2	886.1	766.1	661.5	563.0	479.9	418.4
10°	1024.5	1031.7	1025.5	1015.3	980.4	972.2	779.4	622.5	508.7	420.5	346.6
12.5°	1140.4	1138.3	1129.1	1099.4	1059.4	1048.1	771.2	587.6	451.2	353.8	284.1
15°	1210.1	1222.4	1209.1	1130.1	1111.7	1083.0	760.9	540.5	396.9	306.6	241.0
17.5°	1270.6	1265.5	1239.9	1189.6	1142.4	1116.8	720.9	471.7	348.7	255.4	199.0
20°	1329.1	1330.1	1290.1	1228.6	1152.7	1106.5	661.5	424.6	297.4	210.2	165.1
22.5°	1355.7	1353.7	1302.4	1211.1	1122.9	1075.8	605.1	371.2	249.2	170.2	132.3
25°	1350.6	1313.7	1279.9	1172.2	1072.7	1015.3	542.5	325.1	212.3	143.6	106.7
27.5°	1285.0	1266.5	1209.1	1101.4	986.6	928.1	464.6	277.9	177.4	112.8	87.2
30°	1189.6	1168.1	1099.4	1010.1	859.4	813.2	395.9	227.7	144.6	96.4	71.8
32.5°	1048.1	1031.7	960.9	844.0	726.1	673.8	328.2	181.5	116.9	70.8	58.5
35°	884.0	883.0	820.4	725.0	602.0	548.7	260.5	145.6	92.3	56.4	49.2
37.5°	758.9	732.2	670.7	582.5	478.9	434.8	204.1	113.8	68.7	44.1	41.0
40°	614.3	603.0	538.4	463.5	372.3	339.4	150.8	85.1	52.3	35.9	36.9
42.5°	494.3	478.9	425.6	352.8	288.2	261.5	114.9	65.6	41.0	30.8	32.8
45°	366.1	358.9	328.2	262.5	213.3	194.8	85.1	51.3	32.8	25.6	27.7
47.5°	266.6	258.4	236.9	194.8	154.9	143.6	65.6	40.0	26.7	20.5	21.5
50°	194.8	189.7	175.4	141.5	113.8	104.6	49.2	30.8	21.5	16.4	18.5
52.5°	134.3	136.4	124.1	100.5	81.0	74.9	36.9	22.6	17.4	13.3	15.4
55°	92.3	90.2	85.1	65.6	52.3	48.2	23.6	15.4	13.3	10.3	11.3
57.5°	56.4	56.4	52.3	41.0	32.8	30.8	14.4	10.3	9.2	7.2	9.2
60°	33.8	33.8	28.7	23.6	19.5	17.4	8.2	6.2	6.2	5.1	7.2
62.5°	18.5	18.5	16.4	13.3	10.3	9.2	5.1	5.1	4.1	4.1	6.2
65°	10.3	9.2	8.2	6.2	5.1	5.1	3.1	4.1	4.1	4.1	4.1
67.5°	4.1	4.1	4.1	3.1	3.1	3.1	2.1	3.1	3.1	3.1	3.1
70°	1.0	2.1	2.1	2.1	1.0	1.0	2.1	2.1	2.1	2.1	2.1
72.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
75°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	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):

	157.5°	180°
0°	625.6	625.6
2.5°	567.1	557.9
5°	474.8	463.5
7.5°	377.4	370.2
10°	308.7	303.6
12.5°	260.5	257.4
15°	220.5	219.5
17.5°	185.6	182.5
20°	151.8	154.9
22.5°	125.1	123.1
25°	105.6	111.8
27.5°	90.2	98.5
30°	79.0	86.1
32.5°	67.7	79.0
35°	59.5	70.8
37.5°	53.3	63.6
40°	49.2	58.5
42.5°	43.1	54.4
45°	37.9	48.2
47.5°	32.8	43.1
50°	29.7	39.0
52.5°	25.6	34.9
55°	21.5	30.8
57.5°	19.5	27.7
60°	16.4	23.6
62.5°	12.3	19.5
65°	9.2	15.4
67.5°	6.2	11.3
70°	3.1	7.2
72.5°	1.0	2.1
75°	0.0	0.0
77.5°	0.0	0.0
80°	0.0	0.0
82.5°	0.0	0.0
85°	0.0	0.0
87.5°	0.0	0.0
90°	0.0	0.0

(END OF REPORT)