

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: P601229

Luminaire Tested: **ML408LSAWW95FS1E - TIR4D25AWW - TL41R_ TL42S_ 2700K**

Issue Date: 7/29/2022

Tested By:

Approved By:



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Test Information

Test Method: LM-79-08
 Report Number: P601229
 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_ 2700K
 Description: RETROFIT, 25D WW OPTIC, OPEN TRIM
 Light Source: (1) SELECTABLE LUMEN LED 95CRI / 2700K CCT
 Ballast/Driver: -

Summary

Lumens per Lamp: N/A
 Luminaire Lumens: 592.3 lumens
 Efficiency: N/A
 Efficacy: 57.5 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

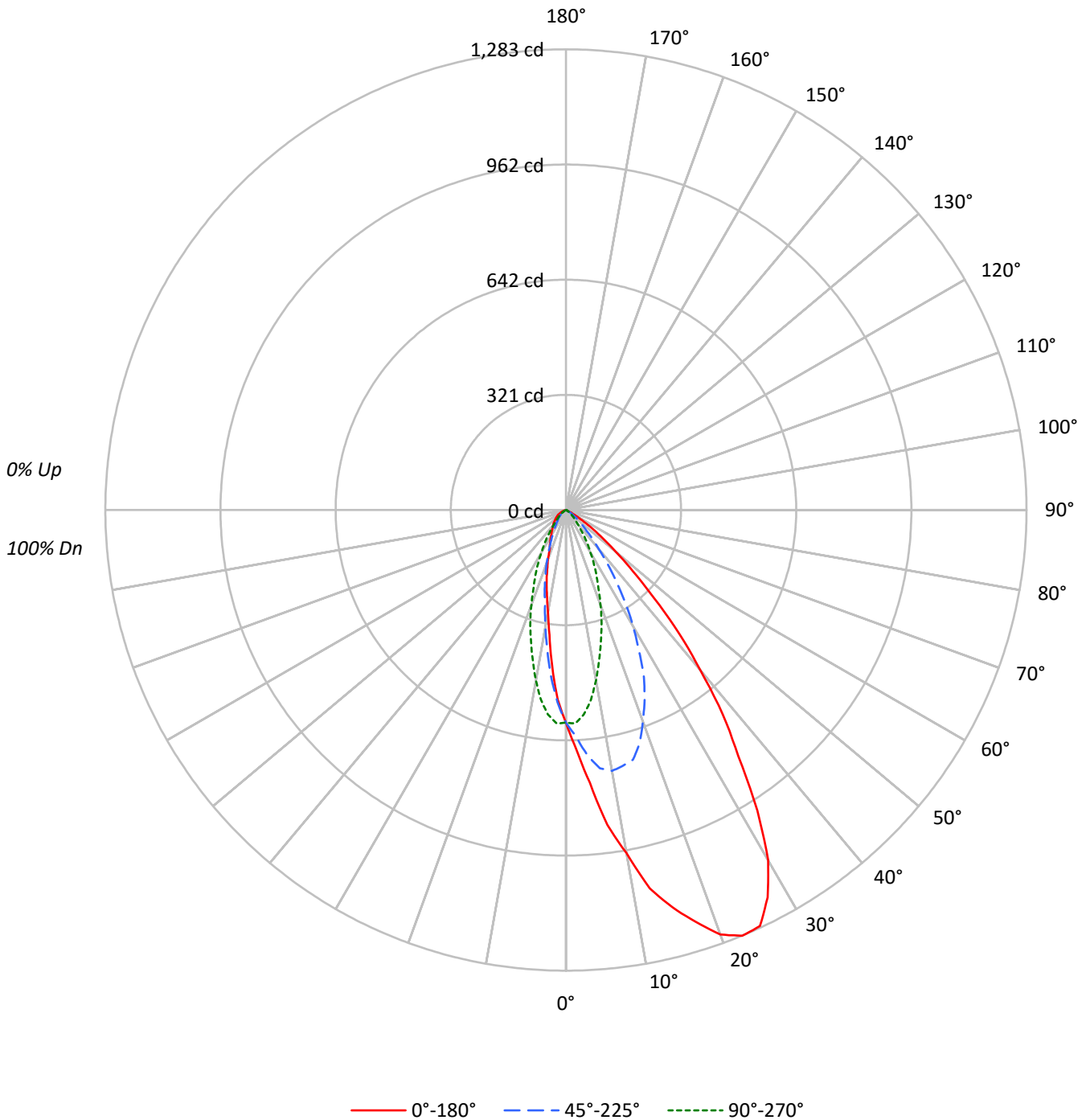
Input Watts (W): 10.3
 Input Voltage (V): NR
 Input Current (Ain): NR
 Voltage Rise (V): NR
 Power Factor: NR
 Total Harmonic Distortion (THDi): NR
 Frequency (hertz): 60
 Stabilization Time: NR
 Operation Time: NR
 Ambient Temperature (°C): NR
 Test Distance: 25 FT



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	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	100	93	
1	113	110	107	105	111	108	106	103	104	102	100	100	99	97	97	96	94	97	96	94	93	
2	107	102	97	94	105	100	96	93	97	93	91	94	91	89	91	89	87	91	89	87	85	
3	101	94	89	84	99	93	88	84	90	86	82	87	84	81	85	82	80	85	82	80	78	
4	95	87	81	77	93	86	80	76	84	79	75	82	78	74	80	76	73	80	76	73	72	
5	90	81	75	70	88	80	74	70	78	73	69	76	72	68	75	71	68	75	71	68	66	
6	85	75	69	64	83	75	68	64	73	68	64	72	67	63	70	66	63	70	66	63	61	
7	80	70	64	59	79	70	64	59	68	63	59	67	62	59	66	62	58	66	62	58	57	
8	76	66	60	55	75	65	59	55	64	59	55	63	58	55	62	58	54	62	58	54	53	
9	72	62	56	51	71	61	55	51	60	55	51	60	54	51	59	54	51	59	54	51	49	
10	69	58	52	48	68	58	52	48	57	52	48	56	51	48	55	51	48	55	51	48	46	

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	186996	186996	186996
5°	241564	181244	139087
10°	310953	154386	92151
15°	374469	122818	67898
20°	422760	94593	49262
25°	445440	70030	36862
30°	410592	49916	29716
35°	322568	33691	25827
40°	239696	20404	22795
45°	154777	13888	20363
50°	90585	10021	18127
55°	48115	6937	16020
60°	20209	3663	14083
65°	7247	2914	10909
70°	923	1754	6278
75°	1220	1220	0
80°	0	0	0
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	54.6	9.2
10°-20°	141.3	23.9
20°-30°	172.7	29.2
30°-40°	129.3	21.8
40°-50°	64.1	10.8
50°-60°	23.6	4.0
60°-70°	5.9	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°	368.6	62.2
0°-40°	497.9	84.1
0°-60°	585.6	98.9
0°-90°	592.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	592.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	592	592	592	592	592	
5°	762	685	572	469	439	80
15°	1146	720	376	228	208	326
25°	1278	514	201	101	106	573
35°	837	247	87	47	67	527
45°	347	81	31	26	46	276
55°	87	22	13	11	29	83
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°	592.2	592.2	592.2	592.2	592.2	592.2	592.2	592.2	592.2	592.2	592.2
2.5°	666.9	666.9	674.7	662.1	662.1	658.2	630.0	613.5	595.1	567.9	535.9
5°	762.1	781.5	765.9	744.6	757.2	751.4	685.4	625.2	571.8	519.4	468.9
7.5°	884.4	889.2	875.6	848.5	842.6	838.8	725.2	626.2	533.0	454.3	396.1
10°	969.8	976.6	970.8	961.1	928.1	920.3	737.8	589.3	481.5	398.0	328.1
12.5°	1079.5	1077.6	1068.8	1040.7	1002.8	992.1	730.0	556.3	427.1	334.9	268.9
15°	1145.5	1157.2	1144.6	1069.8	1052.3	1025.1	720.3	511.6	375.7	290.3	228.1
17.5°	1202.8	1197.9	1173.7	1126.1	1081.4	1057.2	682.5	446.6	330.1	241.7	188.3
20°	1258.1	1259.1	1221.2	1163.0	1091.2	1047.5	626.2	401.9	281.5	199.0	156.3
22.5°	1283.4	1281.4	1232.9	1146.5	1063.0	1018.3	572.8	351.4	235.9	161.1	125.2
25°	1278.5	1243.6	1211.5	1109.6	1015.4	961.1	513.5	307.7	201.0	135.9	101.0
27.5°	1216.4	1198.9	1144.6	1042.6	933.9	878.6	439.8	263.1	167.9	106.8	82.5
30°	1126.1	1105.7	1040.7	956.2	813.5	769.8	374.7	215.5	136.9	91.3	68.0
32.5°	992.1	976.6	909.6	799.0	687.3	637.8	310.6	171.8	110.7	67.0	55.3
35°	836.8	835.8	776.6	686.3	569.8	519.4	246.6	137.9	87.4	53.4	46.6
37.5°	718.4	693.1	634.9	551.4	453.4	411.6	193.2	107.8	65.0	41.7	38.8
40°	581.5	570.8	509.7	438.8	352.4	321.3	142.7	80.6	49.5	34.0	34.9
42.5°	467.9	453.4	402.9	333.9	272.8	247.5	108.7	62.1	38.8	29.1	31.1
45°	346.6	339.8	310.6	248.5	201.9	184.4	80.6	48.5	31.1	24.3	26.2
47.5°	252.4	244.6	224.3	184.4	146.6	135.9	62.1	37.9	25.2	19.4	20.4
50°	184.4	179.6	166.0	134.0	107.8	99.0	46.6	29.1	20.4	15.5	17.5
52.5°	127.2	129.1	117.5	95.1	76.7	70.9	34.9	21.4	16.5	12.6	14.6
55°	87.4	85.4	80.6	62.1	49.5	45.6	22.3	14.6	12.6	9.7	10.7
57.5°	53.4	53.4	49.5	38.8	31.1	29.1	13.6	9.7	8.7	6.8	8.7
60°	32.0	32.0	27.2	22.3	18.4	16.5	7.8	5.8	5.8	4.9	6.8
62.5°	17.5	17.5	15.5	12.6	9.7	8.7	4.9	4.9	3.9	3.9	5.8
65°	9.7	8.7	7.8	5.8	4.9	4.9	2.9	3.9	3.9	3.9	3.9
67.5°	3.9	3.9	3.9	2.9	2.9	2.9	1.9	2.9	2.9	2.9	2.9
70°	1.0	1.9	1.9	1.9	1.0	1.0	1.9	1.9	1.9	1.9	1.9
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°	592.2	592.2
2.5°	536.8	528.1
5°	449.5	438.8
7.5°	357.2	350.5
10°	292.2	287.4
12.5°	246.6	243.7
15°	208.7	207.7
17.5°	175.7	172.8
20°	143.7	146.6
22.5°	118.4	116.5
25°	100.0	105.8
27.5°	85.4	93.2
30°	74.8	81.5
32.5°	64.1	74.8
35°	56.3	67.0
37.5°	50.5	60.2
40°	46.6	55.3
42.5°	40.8	51.5
45°	35.9	45.6
47.5°	31.1	40.8
50°	28.2	36.9
52.5°	24.3	33.0
55°	20.4	29.1
57.5°	18.4	26.2
60°	15.5	22.3
62.5°	11.6	18.4
65°	8.7	14.6
67.5°	5.8	10.7
70°	2.9	6.8
72.5°	1.0	1.9
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)