

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: P601236

Luminaire Tested: **ML408LSAWW95FS1E - TIR4D25AWW - TL43R2G_ TL44S2G_ 3500K**

Issue Date: 7/29/2022

Tested By:

Approved By:



Cooper Lighting Solutions laboratories have been accredited by National Voluntary Laboratory Accreditation Program (NVLAP) that it adheres to the requirements of ISO/IEC 17025:2005 and appropriate IESNA test methods. This report must not be used to claim product certification, approval or endorsement by NVLAP, NIST or any agency of the Federal Government. Results contained in this report are valid for luminaire sample tested, as supplied by requestor. Information related to the luminaire tested has been supplied by requestor and can affect the validity of the test results. Report shall not be reproduced except in full without approval of Cooper Lighting Solutions Lighting Laboratory. Test performed at address noted above.

Test Information

Test Method: LM-79-08
 Report Number: P601236
 Test Lab: COOPER LIGHTING SOLUTIONS
 Issue Date: 7/29/2022
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
 Product Line: HALO
 Catalog Number: ML408LSAWW95FS1E - TIR4D25AWW - TL43R2G_ TL44S2G_ 3500K
 Description: RETROFIT, 25D WW OPTIC, DIFFUSE CLEAR LENS TRIM
 Light Source: (1) SELECTABLE LUMEN LED 95CRI / 3500K CCT
 Ballast/Driver: -

Summary

Lumens per Lamp: N/A
 Luminaire Lumens: 732.4 lumens
 Efficiency: N/A
 Efficacy: 71.1 lumens/watt
 Spacing Criteria (0/90/45): 1.33 / 0.62 / 0.83
 Luminous Opening: Circular (Dia: 0.21' x H: 0')
 CIE Type: Direct

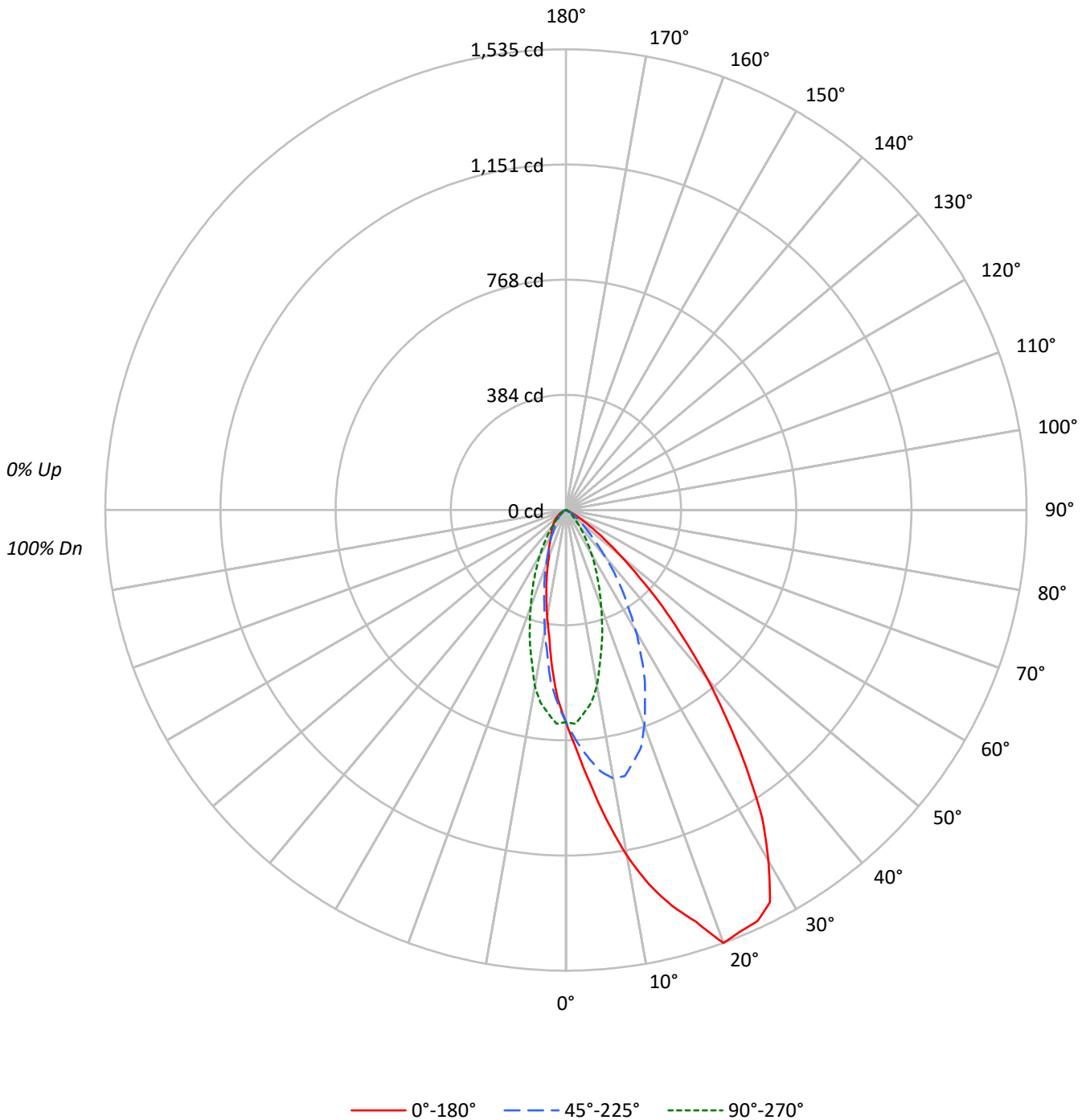
Input Watts (W): 10.3
 Input Voltage (V): NR
 Input Current (Ain): NR
 Voltage Rise (V): NR
 Power Factor: NR
 Total Harmonic Distortion (THDi): NR
 Frequency (hertz): 60
 Stabilization Time: NR
 Operation Time: NR
 Ambient Temperature (°C): NR
 Test Distance: 25 FT



Meas		Calibration Due Date	
Instrument	Identificatio		
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

TEST NUMBER: P601236
CATALOG NUMBER: ML408LSAWW95FS1E - TIR4D25AWW - TL43R2G_ TL44S2G_ 3500K

Luminous Intensity Polar Plot



TEST NUMBER: P601236
 CATALOG NUMBER: ML408LSAWW95FS1E - TIR4D25AWW - TL43R2G_ TL44S2G_ 3500K

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20					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	102	102	102	102	102	102	100		
1	113	110	107	105	110	108	105	103	104	102	100	100	98	97	97	95	94	94	94	94	94	94	94	92		
2	107	101	97	93	104	100	96	92	96	93	90	93	91	88	91	88	86	86	86	86	86	86	86	85		
3	101	94	88	84	99	92	87	83	89	85	82	87	83	80	85	82	79	79	79	79	79	79	79	78		
4	95	87	81	76	93	85	80	75	83	78	75	81	77	74	79	76	73	73	73	73	73	73	73	71		
5	89	80	74	69	88	79	73	69	78	72	68	76	71	68	74	70	67	67	67	67	67	67	67	65		
6	84	75	68	64	83	74	68	63	72	67	63	71	66	62	70	65	62	62	62	62	62	62	62	60		
7	80	70	63	59	78	69	63	58	68	62	58	66	62	58	65	61	57	57	57	57	57	57	57	56		
8	76	65	59	54	74	65	58	54	64	58	54	62	57	54	61	57	53	53	53	53	53	53	53	52		
9	72	61	55	51	70	61	55	50	60	54	50	59	54	50	58	53	50	50	50	50	50	50	50	48		
10	68	58	51	47	67	57	51	47	56	51	47	55	50	47	55	50	47	47	47	47	47	47	47	45		

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	223151	223151	223151
5°	288634	215572	166600
10°	374824	190875	114916
15°	446322	151128	81988
20°	515806	114922	55311
25°	526410	86475	45432
30°	492266	62787	35550
35°	403750	42480	31725
40°	301237	27659	27659
45°	203051	18666	24337
50°	118832	13706	21173
55°	62759	9744	16736
60°	30377	5621	12820
65°	12328	3811	8518
70°	5816	2308	4709
75°	3050	1586	0
80°	2364	2364	0
85°	0	0	0

TEST NUMBER: P601236

CATALOG NUMBER: ML408LSAWW95FS1E - TIR4D25AWW - TL43R2G_ TL44S2G_ 3500K

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	65.6	9.0
10°-20°	169.9	23.2
20°-30°	208.0	28.4
30°-40°	163.1	22.3
40°-50°	84.0	11.5
50°-60°	31.9	4.4
60°-70°	8.1	1.1
70°-80°	1.6	0.2
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°	443.6	60.6
0°-40°	606.6	82.8
0°-60°	722.5	98.7
0°-90°	732.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	732.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	707	707	707	707	707	
5°	911	824	680	576	526	95
15°	1365	869	462	277	251	390
25°	1511	621	248	129	130	686
35°	1047	329	110	61	82	650
45°	455	114	42	33	54	354
55°	114	36	18	15	30	110
65°	16	6	5	5	11	20
75°	2	1	1	1	0	3
85°	0	0	0	0	0	0
90°	0	0	0	0	0	0

TEST NUMBER: P601236

CATALOG NUMBER: ML408LSAWW95FS1E - TIR4D25AWW - TL43R2G_ TL44S2G_ 3500K

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	45°	67.5°	90°	112.5°	135°
0°	706.7	706.7	706.7	706.7	706.7	706.7	706.7	706.7	706.7	706.7	706.7
2.5°	796.6	792.8	813.1	784.0	765.0	790.3	767.5	740.9	713.0	666.2	642.1
5°	910.6	913.1	916.9	908.1	904.3	901.7	824.5	752.3	680.1	609.2	576.3
7.5°	1041.1	1017.0	1032.2	998.0	1004.3	986.6	877.7	740.9	647.2	556.0	478.7
10°	1169.0	1142.4	1155.0	1123.4	1115.8	1100.6	908.1	710.5	595.3	472.4	406.5
12.5°	1277.9	1266.5	1253.8	1210.8	1195.6	1153.8	908.1	670.0	521.8	407.8	331.8
15°	1365.3	1353.9	1340.0	1284.2	1237.4	1200.6	868.8	613.0	462.3	349.6	277.4
17.5°	1437.5	1393.1	1394.4	1314.6	1274.1	1226.0	830.8	554.7	400.2	292.6	235.6
20°	1535.0	1453.9	1440.0	1355.2	1279.2	1226.0	763.7	491.4	342.0	247.0	193.8
22.5°	1519.8	1447.6	1464.1	1338.7	1257.6	1236.1	689.0	424.3	293.8	207.7	155.8
25°	1510.9	1459.0	1431.1	1296.9	1199.4	1131.0	620.6	371.1	248.2	171.0	129.2
27.5°	1472.9	1394.4	1352.6	1217.1	1109.5	1053.7	539.5	314.1	207.7	135.5	108.9
30°	1350.1	1293.1	1248.8	1106.9	992.9	939.7	467.3	260.9	172.2	111.5	86.1
32.5°	1217.1	1167.7	1099.3	982.8	852.4	800.4	387.5	222.9	140.6	88.7	72.2
35°	1047.4	1006.9	942.3	824.5	699.1	676.3	329.3	178.6	110.2	70.9	60.8
37.5°	882.7	847.3	781.4	675.0	577.5	544.6	266.0	143.1	88.7	58.3	51.9
40°	730.8	689.0	645.9	542.1	462.3	426.8	203.9	111.5	67.1	46.9	44.3
42.5°	581.3	556.0	509.1	433.1	354.6	331.8	152.0	83.6	53.2	39.3	38.0
45°	454.7	428.1	383.7	333.1	267.2	249.5	114.0	64.6	41.8	31.7	32.9
47.5°	331.8	319.2	290.0	247.0	203.9	183.6	86.1	50.7	32.9	26.6	27.9
50°	241.9	229.2	215.3	176.0	141.8	136.8	64.6	39.3	27.9	21.5	22.8
52.5°	167.2	165.9	150.7	125.4	103.9	95.0	49.4	30.4	22.8	17.7	19.0
55°	114.0	112.7	102.6	87.4	73.5	67.1	35.5	22.8	17.7	13.9	15.2
57.5°	73.5	74.7	68.4	59.5	48.1	44.3	24.1	16.5	12.7	10.1	11.4
60°	48.1	48.1	41.8	38.0	30.4	27.9	16.5	11.4	8.9	7.6	8.9
62.5°	29.1	30.4	26.6	21.5	19.0	16.5	10.1	7.6	6.3	5.1	6.3
65°	16.5	17.7	15.2	12.7	11.4	10.1	6.3	5.1	5.1	3.8	5.1
67.5°	10.1	10.1	8.9	7.6	6.3	6.3	3.8	3.8	3.8	3.8	3.8
70°	6.3	6.3	5.1	5.1	3.8	3.8	2.5	3.8	2.5	2.5	2.5
72.5°	3.8	3.8	2.5	2.5	2.5	2.5	2.5	2.5	2.5	1.3	1.3
75°	2.5	2.5	2.5	2.5	1.3	1.3	1.3	1.3	1.3	1.3	1.3
77.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	0.0
80°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	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

TEST NUMBER: P601236
 CATALOG NUMBER: ML408LSAWW95FS1E - TIR4D25AWW - TL43R2G_ TL44S2G_ 3500K

CANDELA DISTRIBUTION (continued):

	157.5°	180°
0°	706.7	706.7
2.5°	626.9	629.4
5°	540.8	525.6
7.5°	449.6	425.5
10°	363.5	358.4
12.5°	306.5	300.2
15°	257.1	250.8
17.5°	215.3	203.9
20°	179.8	164.6
22.5°	149.4	150.7
25°	127.9	130.4
27.5°	110.2	112.7
30°	92.5	97.5
32.5°	83.6	91.2
35°	72.2	82.3
37.5°	64.6	74.7
40°	57.0	67.1
42.5°	50.7	60.8
45°	44.3	54.5
47.5°	39.3	49.4
50°	32.9	43.1
52.5°	27.9	36.7
55°	22.8	30.4
57.5°	19.0	25.3
60°	15.2	20.3
62.5°	11.4	15.2
65°	7.6	11.4
67.5°	5.1	7.6
70°	3.8	5.1
72.5°	1.3	2.5
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)