

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: P601235

Luminaire Tested: **ML408LSAWW95FS1E - TIR4D25AWW - TL43R2G_ TL44S2G_ 3000K**

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: P601235
 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_ 3000K
 Description: RETROFIT, 25D WW OPTIC, DIFFUSE CLEAR LENS TRIM
 Light Source: (1) SELECTABLE LUMEN LED 95CRI / 3000K CCT
 Ballast/Driver: -

Summary

Lumens per Lamp: N/A
 Luminaire Lumens: 691.8 lumens
 Efficiency: N/A
 Efficacy: 67.2 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

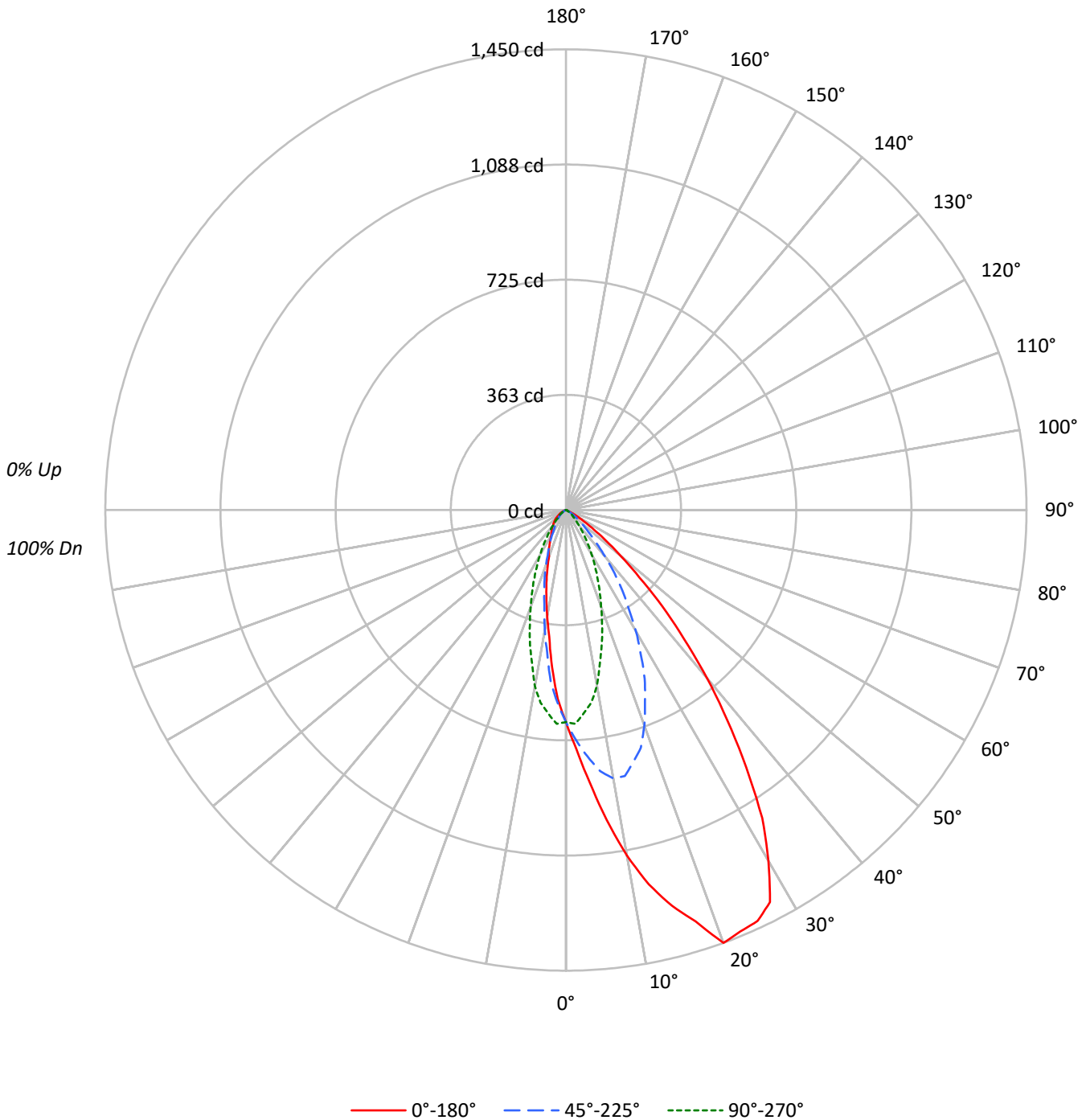
Input Watts (W): 10.3
 Input Voltage (V): NR
 Input Current (Ain): NR
 Voltage Rise (V): NR
 Power Factor: NR
 Total Harmonic Distortion (THDi): NR
 Frequency (hertz): 60
 Stabilization Time: NR
 Operation Time: NR
 Ambient Temperature (°C): NR
 Test Distance: 25 FT



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: P601235
CATALOG NUMBER: ML408LSAWW95FS1E - TIR4D25AWW - TL43R2G_ TL44S2G_ 3000K

Luminous Intensity Polar Plot



TEST NUMBER: P601235

CATALOG NUMBER: ML408LSAWW95FS1E - TIR4D25AWW - TL43R2G_ TL44S2G_ 3000K

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

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	210773	210773	210773
5°	272627	203622	157345
10°	354015	180262	108535
15°	421543	142726	77444
20°	487177	108538	52253
25°	497214	81702	42924
30°	464956	59323	33581
35°	381353	40128	29990
40°	284502	26134	26134
45°	191753	17639	22953
50°	112249	12920	19994
55°	59291	9194	15800
60°	28735	5305	12062
65°	11656	3586	8069
70°	5539	2216	4432
75°	2928	1464	0
80°	2182	2182	0
85°	0	0	0

TEST NUMBER: P601235
 CATALOG NUMBER: ML408LSAWW95FS1E - TIR4D25AWW - TL43R2G_ TL44S2G_ 3000K

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	62.0	9.0
10°-20°	160.4	23.2
20°-30°	196.5	28.4
30°-40°	154.0	22.3
40°-50°	79.4	11.5
50°-60°	30.1	4.4
60°-70°	7.7	1.1
70°-80°	1.5	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°	418.9	60.6
0°-40°	572.9	82.8
0°-60°	682.4	98.6
0°-90°	691.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	691.8	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	668	668	668	668	668	
5°	860	779	642	544	496	90
15°	1290	821	437	262	237	368
25°	1427	586	234	122	123	648
35°	989	311	104	57	78	614
45°	429	108	40	31	51	334
55°	108	34	17	14	29	104
65°	16	6	5	5	11	19
75°	2	1	1	1	0	3
85°	0	0	0	0	0	0
90°	0	0	0	0	0	0

TEST NUMBER: P601235

CATALOG NUMBER: ML408LSAWW95FS1E - TIR4D25AWW - TL43R2G_ TL44S2G_ 3000K

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	45°	67.5°	90°	112.5°	135°
0°	667.5	667.5	667.5	667.5	667.5	667.5	667.5	667.5	667.5	667.5	667.5
2.5°	752.4	748.8	768.0	740.5	722.5	746.4	724.9	699.8	673.5	629.2	606.5
5°	860.1	862.5	866.1	857.7	854.1	851.7	778.7	710.6	642.4	575.4	544.3
7.5°	983.3	960.6	974.9	942.6	948.6	931.9	829.0	699.8	611.3	525.1	452.2
10°	1104.1	1079.0	1091.0	1061.0	1053.9	1039.5	857.7	671.1	562.2	446.2	384.0
12.5°	1207.0	1196.2	1184.3	1143.6	1129.2	1089.8	857.7	632.8	492.8	385.2	313.4
15°	1289.5	1278.8	1265.6	1213.0	1168.7	1134.0	820.6	579.0	436.6	330.2	262.0
17.5°	1357.7	1315.8	1317.0	1241.7	1203.4	1157.9	784.7	523.9	378.0	276.3	222.5
20°	1449.8	1373.3	1360.1	1280.0	1208.2	1157.9	721.3	464.1	323.0	233.3	183.0
22.5°	1435.5	1367.3	1382.8	1264.4	1187.8	1167.5	650.7	400.7	277.5	196.2	147.1
25°	1427.1	1378.0	1351.7	1224.9	1132.8	1068.2	586.1	350.5	234.5	161.5	122.0
27.5°	1391.2	1317.0	1277.6	1149.6	1047.9	995.3	509.6	296.7	196.2	128.0	102.9
30°	1275.2	1221.3	1179.5	1045.5	937.8	887.6	441.4	246.4	162.7	105.3	81.3
32.5°	1149.6	1102.9	1038.3	928.3	805.1	756.0	366.0	210.5	132.8	83.7	68.2
35°	989.3	951.0	890.0	778.7	660.3	638.8	311.0	168.7	104.1	67.0	57.4
37.5°	833.8	800.3	738.1	637.6	545.5	514.4	251.2	135.2	83.7	55.0	49.0
40°	690.2	650.7	610.1	512.0	436.6	403.1	192.6	105.3	63.4	44.3	41.9
42.5°	549.1	525.1	480.9	409.1	334.9	313.4	143.5	79.0	50.2	37.1	35.9
45°	429.4	404.3	362.5	314.6	252.4	235.7	107.7	61.0	39.5	29.9	31.1
47.5°	313.4	301.4	273.9	233.3	192.6	173.5	81.3	47.8	31.1	25.1	26.3
50°	228.5	216.5	203.4	166.3	134.0	129.2	61.0	37.1	26.3	20.3	21.5
52.5°	157.9	156.7	142.4	118.4	98.1	89.7	46.7	28.7	21.5	16.7	17.9
55°	107.7	106.5	96.9	82.5	69.4	63.4	33.5	21.5	16.7	13.2	14.4
57.5°	69.4	70.6	64.6	56.2	45.5	41.9	22.7	15.6	12.0	9.6	10.8
60°	45.5	45.5	39.5	35.9	28.7	26.3	15.6	10.8	8.4	7.2	8.4
62.5°	27.5	28.7	25.1	20.3	17.9	15.6	9.6	7.2	6.0	4.8	6.0
65°	15.6	16.7	14.4	12.0	10.8	9.6	6.0	4.8	4.8	3.6	4.8
67.5°	9.6	9.6	8.4	7.2	6.0	6.0	3.6	3.6	3.6	3.6	3.6
70°	6.0	6.0	4.8	4.8	3.6	3.6	2.4	3.6	2.4	2.4	2.4
72.5°	3.6	3.6	2.4	2.4	2.4	2.4	2.4	2.4	2.4	1.2	1.2
75°	2.4	2.4	2.4	2.4	1.2	1.2	1.2	1.2	1.2	1.2	1.2
77.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	0.0
80°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	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: P601235
 CATALOG NUMBER: ML408LSAWW95FS1E - TIR4D25AWW - TL43R2G_ TL44S2G_ 3000K

CANDELA DISTRIBUTION (continued):

	157.5°	180°
0°	667.5	667.5
2.5°	592.1	594.5
5°	510.8	496.4
7.5°	424.7	401.9
10°	343.3	338.5
12.5°	289.5	283.5
15°	242.8	236.9
17.5°	203.4	192.6
20°	169.9	155.5
22.5°	141.2	142.4
25°	120.8	123.2
27.5°	104.1	106.5
30°	87.3	92.1
32.5°	79.0	86.1
35°	68.2	77.8
37.5°	61.0	70.6
40°	53.8	63.4
42.5°	47.8	57.4
45°	41.9	51.4
47.5°	37.1	46.7
50°	31.1	40.7
52.5°	26.3	34.7
55°	21.5	28.7
57.5°	17.9	23.9
60°	14.4	19.1
62.5°	10.8	14.4
65°	7.2	10.8
67.5°	4.8	7.2
70°	3.6	4.8
72.5°	1.2	2.4
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)