

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: P601428

Luminaire Tested: **ML4DM10LSAWW9FS1E - TIR4D25AWW - TL41R_TL42S_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: P601428
 Test Lab: COOPER LIGHTING SOLUTIONS
 Issue Date: 7/29/2022
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
 Product Line: HALO
 Catalog Number: ML4DM10LSAWW9FS1E - TIR4D25AWW - TL41R_ TL42S_ 3000K
 Description: DIRECT MOUNT, 25D WW OPTIC, OPEN TRIM
 Light Source: (1) SELECTABLE LUMEN LED 90CRI / 3000K CCT
 Ballast/Driver: -

Summary

Lumens per Lamp: N/A
 Luminaire Lumens: 624.7 lumens
 Efficiency: N/A
 Efficacy: 48.4 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

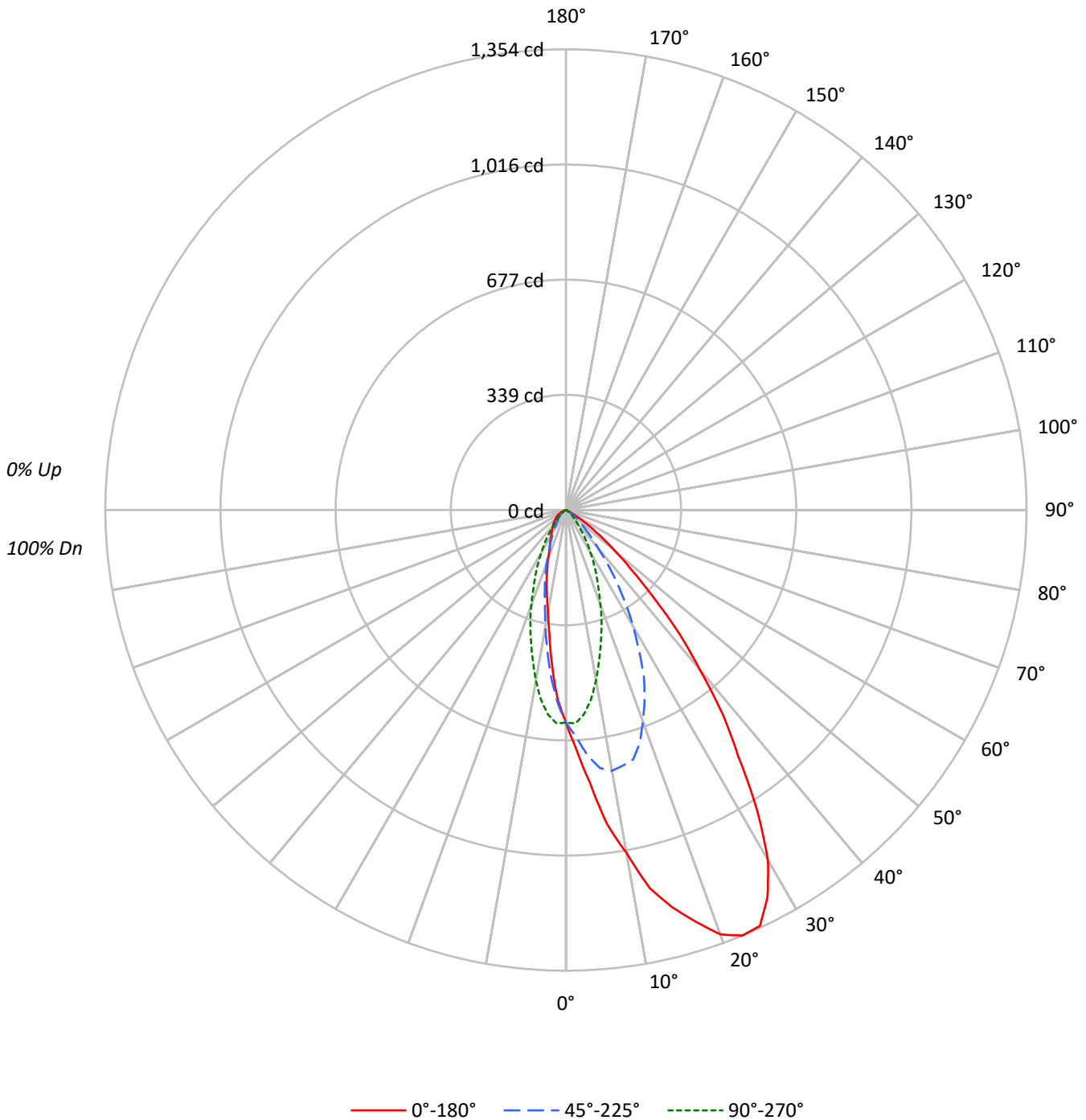
Input Watts (W): 12.9
 Input Voltage (V): NR
 Input Current (Ain): NR
 Voltage Rise (V): NR
 Power Factor: NR
 Total Harmonic Distortion (THDi): NR
 Frequency (hertz): 60
 Stabilization Time: NR
 Operation Time: NR
 Ambient Temperature (°C): NR
 Test Distance: 25 FT



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: P601428
CATALOG NUMBER: ML4DM10LSAWW9FS1E - TIR4D25AWW - TL41R_ TL42S_ 3000K

Luminous Intensity Polar Plot



TEST NUMBER: P601428

CATALOG NUMBER: ML4DM10LSAWW9FS1E - TIR4D25AWW - TL41R_ TL42S_ 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	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°	197228	197228	197228
5°	254775	191169	146696
10°	327988	162850	97188
15°	395006	129556	71640
20°	445927	99795	51972
25°	469873	73835	38877
30°	433102	52658	31348
35°	340267	35539	27219
40°	252826	21528	24054
45°	163253	14622	21484
50°	95568	10559	19096
55°	50755	7351	16918
60°	21314	3870	14845
65°	7654	3075	11481
70°	929	1858	6586
75°	1227	1227	0
80°	0	0	0
85°	0	0	0

TEST NUMBER: P601428
 CATALOG NUMBER: ML4DM10LSAWW9FS1E - TIR4D25AWW - TL41R_ TL42S_ 3000K

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	57.6	9.2
10°-20°	149.1	23.9
20°-30°	182.2	29.2
30°-40°	136.3	21.8
40°-50°	67.6	10.8
50°-60°	24.9	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°	388.8	62.2
0°-40°	525.2	84.1
0°-60°	617.7	98.9
0°-90°	624.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	624.7	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	625	625	625	625	625	
5°	804	723	603	495	463	84
15°	1208	760	396	241	219	344
25°	1349	542	212	106	112	605
35°	883	260	92	49	71	556
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	

TEST NUMBER: P601428

CATALOG NUMBER: ML4DM10LSAWW9FS1E - TIR4D25AWW - TL41R_ TL42S_ 3000K

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	45°	67.5°	90°	112.5°	135°
0°	624.6	624.6	624.6	624.6	624.6	624.6	624.6	624.6	624.6	624.6	624.6
2.5°	703.4	703.4	711.7	698.3	698.3	694.3	664.6	647.2	627.7	599.0	565.2
5°	803.8	824.3	807.9	785.4	798.8	792.5	722.9	659.5	603.1	547.9	494.5
7.5°	932.8	938.0	923.6	895.0	888.8	884.7	764.9	660.5	562.1	479.3	417.8
10°	1022.9	1030.2	1024.0	1013.8	978.9	970.7	778.3	621.6	507.9	419.8	346.1
12.5°	1138.6	1136.6	1127.4	1097.7	1057.8	1046.5	770.0	586.7	450.5	353.2	283.6
15°	1208.3	1220.6	1207.3	1128.4	1110.0	1081.3	759.8	539.6	396.3	306.1	240.6
17.5°	1268.7	1263.6	1238.0	1187.8	1140.7	1115.1	719.8	471.0	348.1	255.0	198.7
20°	1327.0	1328.1	1288.2	1226.7	1151.0	1104.9	660.5	423.9	297.0	209.9	164.8
22.5°	1353.8	1351.6	1300.4	1209.3	1121.3	1074.1	604.1	370.7	248.9	169.9	132.1
25°	1348.6	1311.7	1277.9	1170.5	1071.1	1013.8	541.6	324.6	211.9	143.3	106.5
27.5°	1283.0	1264.6	1207.3	1099.8	985.1	926.7	463.9	277.5	177.2	112.7	87.1
30°	1187.8	1166.3	1097.7	1008.7	858.1	812.0	395.2	227.3	144.4	96.2	71.7
32.5°	1046.5	1030.2	959.5	842.7	724.9	672.7	327.7	181.3	116.7	70.6	58.4
35°	882.7	881.6	819.1	723.9	601.1	547.9	260.1	145.4	92.2	56.3	49.1
37.5°	757.8	731.2	669.7	581.6	478.2	434.2	203.8	113.7	68.6	44.0	41.0
40°	613.4	602.1	537.6	462.8	371.7	339.0	150.5	85.0	52.2	35.9	36.9
42.5°	493.5	478.2	424.9	352.2	287.7	261.1	114.7	65.6	41.0	30.7	32.7
45°	365.6	358.4	327.7	262.1	213.0	194.5	85.0	51.2	32.7	25.6	27.6
47.5°	266.3	258.0	236.5	194.5	154.7	143.3	65.6	40.0	26.6	20.5	21.5
50°	194.5	189.4	175.1	141.3	113.7	104.5	49.1	30.7	21.5	16.4	18.5
52.5°	134.2	136.2	123.9	100.3	80.9	74.7	36.9	22.5	17.4	13.4	15.4
55°	92.2	90.1	85.0	65.6	52.2	48.1	23.5	15.4	13.4	10.2	11.3
57.5°	56.3	56.3	52.2	41.0	32.7	30.7	14.4	10.2	9.2	7.1	9.2
60°	33.8	33.8	28.6	23.5	19.5	17.4	8.2	6.1	6.1	5.1	7.1
62.5°	18.5	18.5	16.4	13.4	10.2	9.2	5.1	5.1	4.1	4.1	6.1
65°	10.2	9.2	8.2	6.1	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	2.0	3.1	3.1	3.1	3.1
70°	1.0	2.0	2.0	2.0	1.0	1.0	2.0	2.0	2.0	2.0	2.0
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

TEST NUMBER: P601428
 CATALOG NUMBER: ML4DM10LSAWW9FS1E - TIR4D25AWW - TL41R_ TL42S_ 3000K

CANDELA DISTRIBUTION (continued):

	157.5°	180°
0°	624.6	624.6
2.5°	566.3	557.0
5°	474.1	462.8
7.5°	376.8	369.7
10°	308.2	303.1
12.5°	260.1	257.0
15°	220.2	219.1
17.5°	185.3	182.3
20°	151.6	154.7
22.5°	124.9	122.8
25°	105.5	111.6
27.5°	90.1	98.3
30°	78.8	86.0
32.5°	67.6	78.8
35°	59.4	70.6
37.5°	53.2	63.5
40°	49.1	58.4
42.5°	43.0	54.2
45°	37.9	48.1
47.5°	32.7	43.0
50°	29.7	38.9
52.5°	25.6	34.8
55°	21.5	30.7
57.5°	19.5	27.6
60°	16.4	23.5
62.5°	12.3	19.5
65°	9.2	15.4
67.5°	6.1	11.3
70°	3.1	7.1
72.5°	1.0	2.0
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)