

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: P601324

Luminaire Tested: **ML4DM06AWW9FS1E - TIR4D25AWW - TL43R2G_ TL44S2G_ 2700K**

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: P601324
 Test Lab: COOPER LIGHTING SOLUTIONS
 Issue Date: 7/29/2022
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
 Product Line: HALO
 Catalog Number: ML4DM06AWW9FS1E - TIR4D25AWW - TL43R2G_ TL44S2G_ 2700K
 Description: DIRECT MOUNT, 25D WW OPTIC, DIFFUSE CLEAR LENS TRIM
 Light Source: (1) SELECTABLE LUMEN LED 90CRI / 2700K CCT
 Ballast/Driver: -

Summary

Lumens per Lamp: N/A
 Luminaire Lumens: 579.0 lumens
 Efficiency: N/A
 Efficacy: 69.8 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

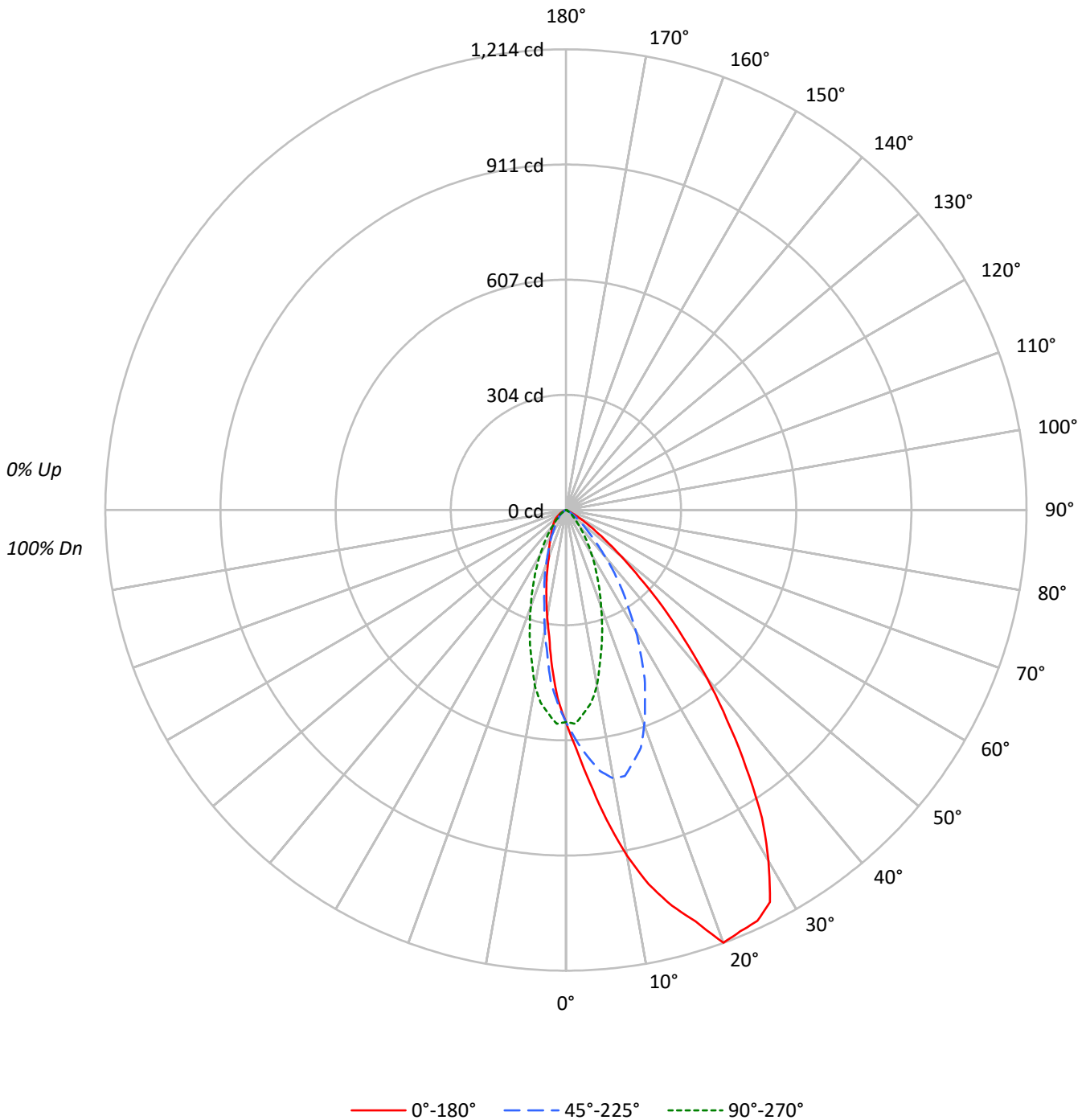
Input Watts (W): 8.3
 Input Voltage (V): NR
 Input Current (Ain): NR
 Voltage Rise (V): NR
 Power Factor: NR
 Total Harmonic Distortion (THDi): NR
 Frequency (hertz): 60
 Stabilization Time: NR
 Operation Time: NR
 Ambient Temperature (°C): NR
 Test Distance: 25 FT



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: P601324
CATALOG NUMBER: ML4DM06AWW9FS1E - TIR4D25AWW - TL43R2G_ TL44S2G_ 2700K

Luminous Intensity Polar Plot



TEST NUMBER: P601324

CATALOG NUMBER: ML4DM06AWW9FS1E - TIR4D25AWW - TL43R2G_ TL44S2G_ 2700K

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	59	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°	176418	176418	176418
5°	228188	170435	131702
10°	296332	150891	90868
15°	352860	119483	64792
20°	407773	90829	43751
25°	416174	68358	35921
30°	389153	49660	28112
35°	319176	33575	25095
40°	238129	21888	21888
45°	160538	14736	19247
50°	93926	10807	16702
55°	49602	7707	13212
60°	23998	4421	10104
65°	9713	2989	6724
70°	4616	1846	3693
75°	2440	1220	0
80°	1818	1818	0
85°	0	0	0

TEST NUMBER: P601324

CATALOG NUMBER: ML4DM06AWW9FS1E - TIR4D25AWW - TL43R2G_ TL44S2G_ 2700K

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	51.9	9.0
10°-20°	134.3	23.2
20°-30°	164.5	28.4
30°-40°	128.9	22.3
40°-50°	66.4	11.5
50°-60°	25.2	4.4
60°-70°	6.4	1.1
70°-80°	1.3	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°	350.7	60.6
0°-40°	479.6	82.8
0°-60°	571.2	98.7
0°-90°	579.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	579.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	559	559	559	559	559	
5°	720	652	538	456	416	75
15°	1079	687	366	219	198	308
25°	1194	491	196	102	103	542
35°	828	260	87	48	65	514
45°	360	90	33	26	43	280
55°	90	28	14	12	24	87
65°	13	5	4	4	9	16
75°	2	1	1	1	0	2
85°	0	0	0	0	0	0
90°	0	0	0	0	0	0

TEST NUMBER: P601324

CATALOG NUMBER: ML4DM06AWW9FS1E - TIR4D25AWW - TL43R2G_ TL44S2G_ 2700K

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	45°	67.5°	90°	112.5°	135°
0°	558.7	558.7	558.7	558.7	558.7	558.7	558.7	558.7	558.7	558.7	558.7
2.5°	629.8	626.8	642.8	619.8	604.8	624.8	606.8	585.7	563.7	526.7	507.6
5°	719.9	721.9	724.9	717.9	714.9	712.9	651.8	594.7	537.7	481.6	455.6
7.5°	823.0	804.0	816.0	789.0	794.0	780.0	693.9	585.7	511.6	439.6	378.5
10°	924.2	903.1	913.1	888.1	882.1	870.1	717.9	561.7	470.6	373.5	321.4
12.5°	1010.3	1001.3	991.2	957.2	945.2	912.1	717.9	529.7	412.5	322.4	262.3
15°	1079.4	1070.3	1059.3	1015.3	978.2	949.2	686.9	484.6	365.5	276.3	219.3
17.5°	1136.4	1101.4	1102.4	1039.3	1007.3	969.2	656.8	438.6	316.4	231.3	186.2
20°	1213.5	1149.4	1138.4	1071.3	1011.3	969.2	603.8	388.5	270.3	195.2	153.2
22.5°	1201.5	1144.4	1157.5	1058.3	994.3	977.2	544.7	335.4	232.3	164.2	123.2
25°	1194.5	1153.5	1131.4	1025.3	948.2	894.1	490.6	293.4	196.2	135.2	102.1
27.5°	1164.5	1102.4	1069.3	962.2	877.1	833.0	426.5	248.3	164.2	107.1	86.1
30°	1067.3	1022.3	987.2	875.1	785.0	742.9	369.5	206.3	136.2	88.1	68.1
32.5°	962.2	923.2	869.1	777.0	673.8	632.8	306.4	176.2	111.1	70.1	57.1
35°	828.0	796.0	744.9	651.8	552.7	534.7	260.3	141.2	87.1	56.1	48.1
37.5°	697.9	669.8	617.8	533.7	456.6	430.5	210.3	113.1	70.1	46.1	41.1
40°	577.7	544.7	510.6	428.5	365.5	337.4	161.2	88.1	53.1	37.0	35.0
42.5°	459.6	439.6	402.5	342.4	280.4	262.3	120.2	66.1	42.1	31.0	30.0
45°	359.5	338.4	303.4	263.3	211.3	197.2	90.1	51.1	33.0	25.0	26.0
47.5°	262.3	252.3	229.3	195.2	161.2	145.2	68.1	40.1	26.0	21.0	22.0
50°	191.2	181.2	170.2	139.2	112.1	108.1	51.1	31.0	22.0	17.0	18.0
52.5°	132.2	131.2	119.1	99.1	82.1	75.1	39.0	24.0	18.0	14.0	15.0
55°	90.1	89.1	81.1	69.1	58.1	53.1	28.0	18.0	14.0	11.0	12.0
57.5°	58.1	59.1	54.1	47.1	38.0	35.0	19.0	13.0	10.0	8.0	9.0
60°	38.0	38.0	33.0	30.0	24.0	22.0	13.0	9.0	7.0	6.0	7.0
62.5°	23.0	24.0	21.0	17.0	15.0	13.0	8.0	6.0	5.0	4.0	5.0
65°	13.0	14.0	12.0	10.0	9.0	8.0	5.0	4.0	4.0	3.0	4.0
67.5°	8.0	8.0	7.0	6.0	5.0	5.0	3.0	3.0	3.0	3.0	3.0
70°	5.0	5.0	4.0	4.0	3.0	3.0	2.0	3.0	2.0	2.0	2.0
72.5°	3.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.0	1.0
75°	2.0	2.0	2.0	2.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
77.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0
80°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	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: P601324
 CATALOG NUMBER: ML4DM06AWW9FS1E - TIR4D25AWW - TL43R2G_ TL44S2G_ 2700K

CANDELA DISTRIBUTION (continued):

	157.5°	180°
0°	558.7	558.7
2.5°	495.6	497.6
5°	427.5	415.5
7.5°	355.4	336.4
10°	287.4	283.4
12.5°	242.3	237.3
15°	203.3	198.2
17.5°	170.2	161.2
20°	142.2	130.2
22.5°	118.1	119.1
25°	101.1	103.1
27.5°	87.1	89.1
30°	73.1	77.1
32.5°	66.1	72.1
35°	57.1	65.1
37.5°	51.1	59.1
40°	45.1	53.1
42.5°	40.1	48.1
45°	35.0	43.1
47.5°	31.0	39.0
50°	26.0	34.0
52.5°	22.0	29.0
55°	18.0	24.0
57.5°	15.0	20.0
60°	12.0	16.0
62.5°	9.0	12.0
65°	6.0	9.0
67.5°	4.0	6.0
70°	3.0	4.0
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)