

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: P601325

Luminaire Tested: **ML4DM06AWW9FS1E - 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: P601325
 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_ 3000K
 Description: DIRECT MOUNT, 25D WW OPTIC, DIFFUSE CLEAR LENS TRIM
 Light Source: (1) SELECTABLE LUMEN LED 90CRI / 3000K CCT
 Ballast/Driver: -

Summary

Lumens per Lamp: N/A
 Luminaire Lumens: 580.4 lumens
 Efficiency: N/A
 Efficacy: 69.9 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

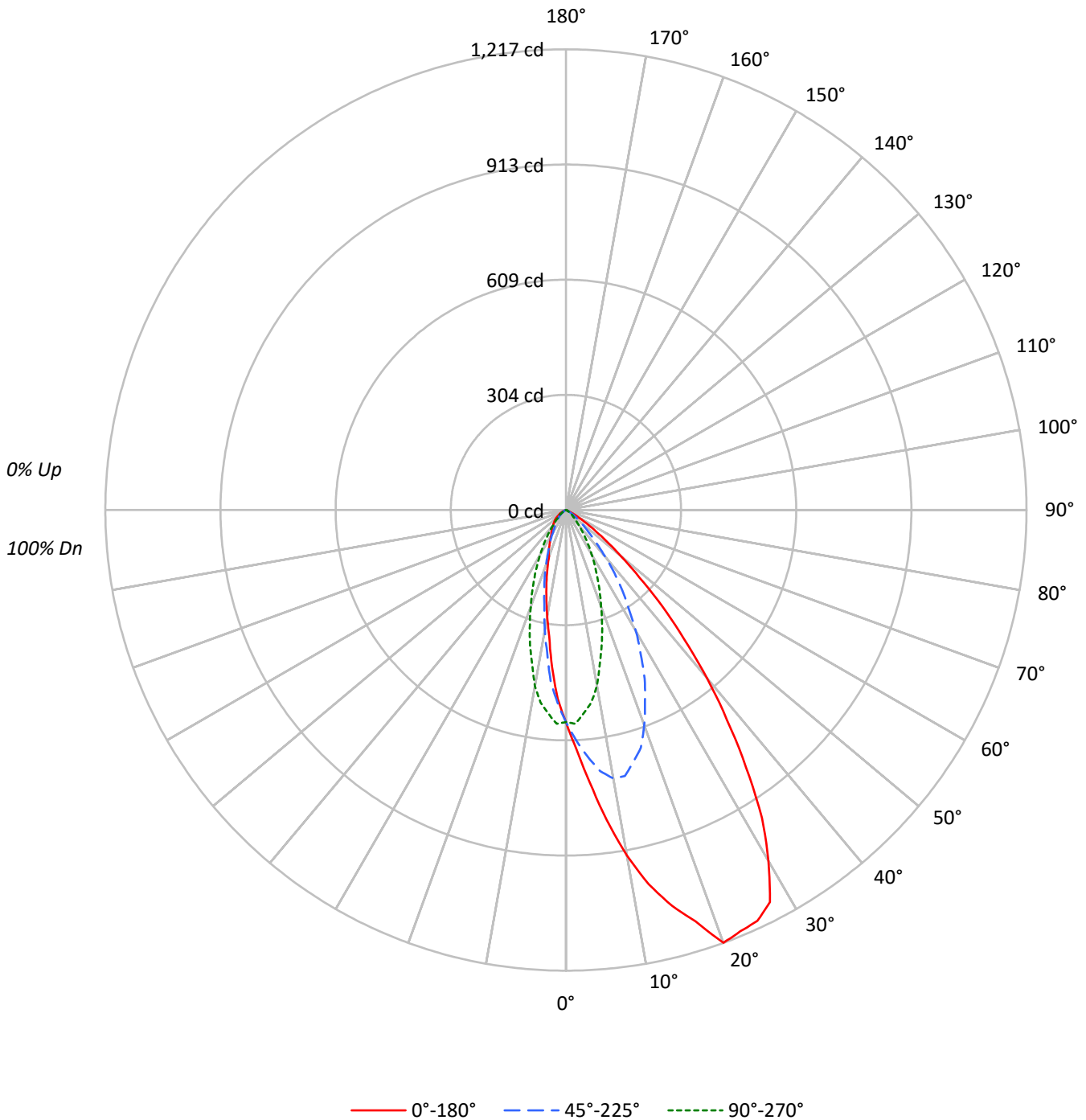
Input Watts (W): 8.3
 Input Voltage (V): NR
 Input Current (Ain): NR
 Voltage Rise (V): NR
 Power Factor: NR
 Total Harmonic Distortion (THDi): NR
 Frequency (hertz): 60
 Stabilization Time: NR
 Operation Time: NR
 Ambient Temperature (°C): NR
 Test Distance: 25 FT



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: P601325
CATALOG NUMBER: ML4DM06AWW9FS1E - TIR4D25AWW - TL43R2G_ TL44S2G_ 3000K

Luminous Intensity Polar Plot



TEST NUMBER: P601325

CATALOG NUMBER: ML4DM06AWW9FS1E - 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	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°	176860	176860	176860
5°	228758	170848	132050
10°	297070	151276	91093
15°	353743	119778	64956
20°	408814	91064	43852
25°	417219	68532	36025
30°	390137	49770	28185
35°	319985	33652	25133
40°	238747	21929	21929
45°	160940	14781	19291
50°	94171	10856	16751
55°	49712	7762	13268
60°	24061	4421	10168
65°	9713	2989	6724
70°	4616	1846	3693
75°	2440	1220	0
80°	1818	1818	0
85°	0	0	0

TEST NUMBER: P601325
 CATALOG NUMBER: ML4DM06AWW9FS1E - TIR4D25AWW - TL43R2G_ TL44S2G_ 3000K

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	52.0	9.0
10°-20°	134.6	23.2
20°-30°	164.9	28.4
30°-40°	129.2	22.3
40°-50°	66.6	11.5
50°-60°	25.3	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°	351.5	60.6
0°-40°	480.8	82.8
0°-60°	572.6	98.7
0°-90°	580.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	580.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	560	560	560	560	560	
5°	722	654	539	457	417	75
15°	1082	689	366	220	199	309
25°	1198	492	197	102	103	544
35°	830	261	87	48	65	515
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	

TEST NUMBER: P601325

CATALOG NUMBER: ML4DM06AWW9FS1E - TIR4D25AWW - TL43R2G_ TL44S2G_ 3000K

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	45°	67.5°	90°	112.5°	135°
0°	560.1	560.1	560.1	560.1	560.1	560.1	560.1	560.1	560.1	560.1	560.1
2.5°	631.4	628.4	644.4	621.3	606.3	626.4	608.3	587.2	565.1	528.0	508.9
5°	721.7	723.7	726.7	719.7	716.7	714.7	653.5	596.2	539.0	482.8	456.7
7.5°	825.1	806.0	818.1	791.0	796.0	781.9	695.6	587.2	512.9	440.7	379.4
10°	926.5	905.4	915.4	890.3	884.3	872.3	719.7	563.1	471.8	374.4	322.2
12.5°	1012.8	1003.8	993.7	959.6	947.6	914.4	719.7	531.0	413.6	323.2	263.0
15°	1082.1	1073.0	1062.0	1017.8	980.7	951.6	688.6	485.8	366.4	277.0	219.8
17.5°	1139.3	1104.1	1105.1	1041.9	1009.8	971.6	658.5	439.7	317.2	231.9	186.7
20°	1216.6	1152.3	1141.3	1074.0	1013.8	971.6	605.3	389.5	271.0	195.7	153.6
22.5°	1204.5	1147.3	1160.4	1061.0	996.7	979.7	546.1	336.3	232.9	164.6	123.5
25°	1197.5	1156.3	1134.3	1027.9	950.6	896.4	491.8	294.1	196.7	135.5	102.4
27.5°	1167.4	1105.1	1072.0	964.6	879.3	835.1	427.6	248.9	164.6	107.4	86.3
30°	1070.0	1024.8	989.7	877.3	787.0	744.8	370.4	206.8	136.5	88.3	68.3
32.5°	964.6	925.5	871.3	778.9	675.5	634.4	307.2	176.7	111.4	70.3	57.2
35°	830.1	798.0	746.8	653.5	554.1	536.0	261.0	141.5	87.3	56.2	48.2
37.5°	699.6	671.5	619.3	535.0	457.7	431.6	210.8	113.4	70.3	46.2	41.2
40°	579.2	546.1	511.9	429.6	366.4	338.3	161.6	88.3	53.2	37.1	35.1
42.5°	460.7	440.7	403.5	343.3	281.1	263.0	120.5	66.2	42.2	31.1	30.1
45°	360.4	339.3	304.1	264.0	211.8	197.7	90.3	51.2	33.1	25.1	26.1
47.5°	263.0	252.9	229.9	195.7	161.6	145.5	68.3	40.2	26.1	21.1	22.1
50°	191.7	181.7	170.6	139.5	112.4	108.4	51.2	31.1	22.1	17.1	18.1
52.5°	132.5	131.5	119.4	99.4	82.3	75.3	39.1	24.1	18.1	14.1	15.1
55°	90.3	89.3	81.3	69.3	58.2	53.2	28.1	18.1	14.1	11.0	12.0
57.5°	58.2	59.2	54.2	47.2	38.1	35.1	19.1	13.0	10.0	8.0	9.0
60°	38.1	38.1	33.1	30.1	24.1	22.1	13.0	9.0	7.0	6.0	7.0
62.5°	23.1	24.1	21.1	17.1	15.1	13.0	8.0	6.0	5.0	4.0	5.0
65°	13.0	14.1	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: P601325
 CATALOG NUMBER: ML4DM06AWW9FS1E - TIR4D25AWW - TL43R2G_ TL44S2G_ 3000K

CANDELA DISTRIBUTION (continued):

	157.5°	180°
0°	560.1	560.1
2.5°	496.9	498.9
5°	428.6	416.6
7.5°	356.3	337.3
10°	288.1	284.1
12.5°	242.9	237.9
15°	203.8	198.7
17.5°	170.6	161.6
20°	142.5	130.5
22.5°	118.4	119.4
25°	101.4	103.4
27.5°	87.3	89.3
30°	73.3	77.3
32.5°	66.2	72.3
35°	57.2	65.2
37.5°	51.2	59.2
40°	45.2	53.2
42.5°	40.2	48.2
45°	35.1	43.2
47.5°	31.1	39.1
50°	26.1	34.1
52.5°	22.1	29.1
55°	18.1	24.1
57.5°	15.1	20.1
60°	12.0	16.1
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)