

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: P601323

Luminaire Tested: **ML4DM06AWW9FS1E - TIR4D25AWW - TL41R\_ TL42S\_ 5000K**

Issue Date: 7/29/2022

Tested By:

Approved By:



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**Test Information**

Test Method: LM-79-08  
 Report Number: P601323  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Issue Date: 7/29/2022  
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
 Product Line: HALO  
 Catalog Number: ML4DM06AWW9FS1E - TIR4D25AWW - TL41R\_ TL42S\_ 5000K  
 Description: DIRECT MOUNT, 25D WW OPTIC, OPEN TRIM  
 Light Source: (1) SELECTABLE LUMEN LED 90CRI / 5000K CCT  
 Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
 Luminaire Lumens: 548.7 lumens  
 Efficiency: N/A  
 Efficacy: 66.1 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

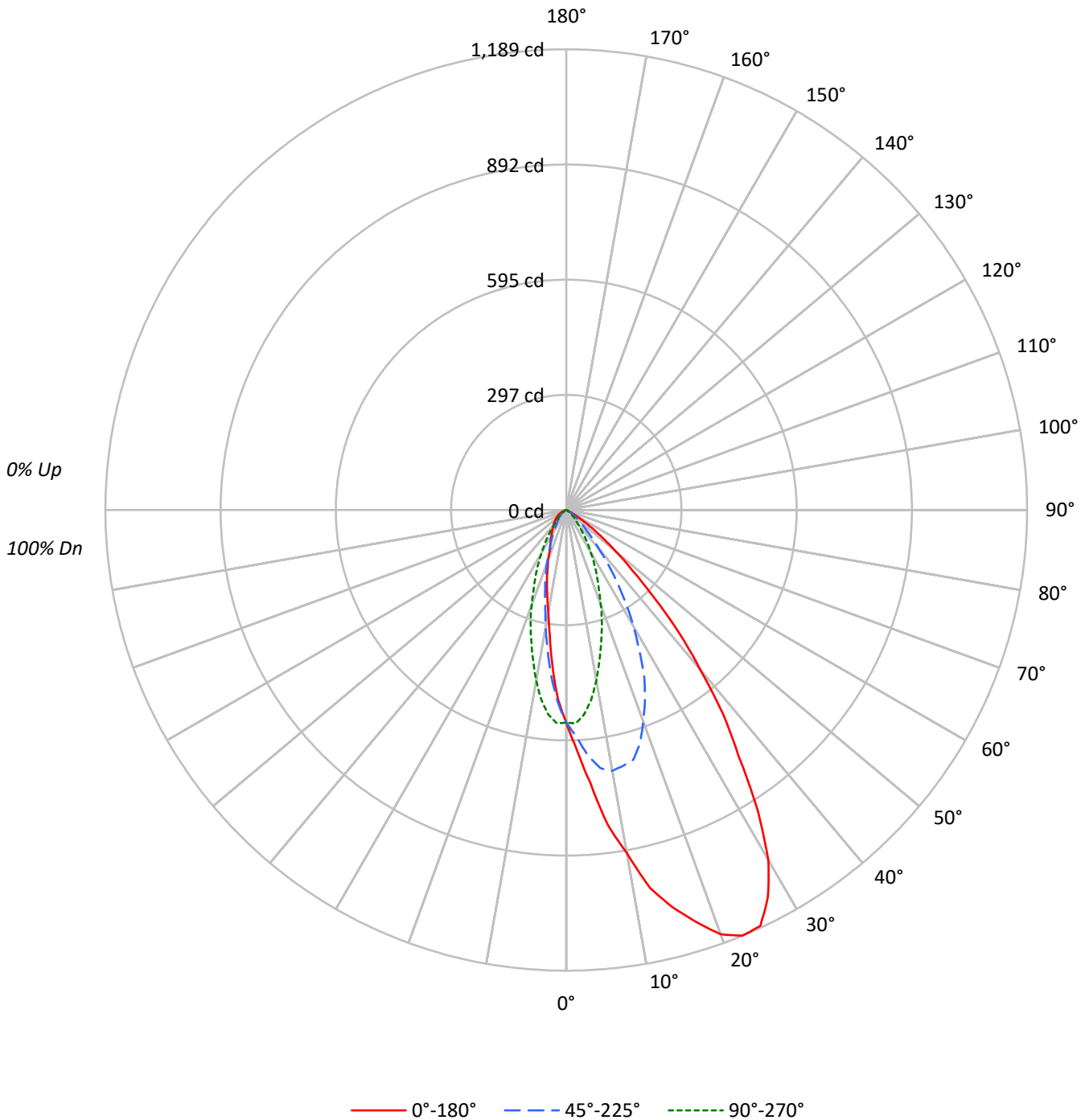
Input Watts (W): 8.3  
 Input Voltage (V): NR  
 Input Current (Ain): NR  
 Voltage Rise (V): NR  
 Power Factor: NR  
 Total Harmonic Distortion (THDi): NR  
 Frequency (hertz): 60  
 Stabilization Time: NR  
 Operation Time: NR  
 Ambient Temperature (°C): NR  
 Test Distance: 25 FT



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

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### Luminous Intensity Polar Plot





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**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
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°	173229	173229	173229
5°	223782	167900	128849
10°	288060	143036	85353
15°	346911	113763	62929
20°	391643	87637	45633
25°	412655	64874	34144
30°	380366	46233	27528
35°	298823	31185	23938
40°	222053	18920	21146
45°	143390	12861	18889
50°	83954	9285	16801
55°	44537	6441	14864
60°	18756	3410	13073
65°	6724	2690	10087
70°	831	1662	5816
75°	1098	1098	0
80°	0	0	0
85°	0	0	0

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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	50.6	9.2
10°-20°	130.9	23.9
20°-30°	160.0	29.2
30°-40°	119.8	21.8
40°-50°	59.4	10.8
50°-60°	21.9	4.0
60°-70°	5.4	1.0
70°-80°	0.7	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°	341.5	62.2
0°-40°	461.3	84.1
0°-60°	542.5	98.9
0°-90°	548.7	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	548.7	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	549	549	549	549	549	
5°	706	635	530	434	406	74
15°	1061	667	348	211	192	302
25°	1184	476	186	94	98	531
35°	775	228	81	43	62	489
45°	321	75	29	24	42	256
55°	81	21	12	10	27	77
65°	9	3	4	4	14	11
75°	1	1	1	0	0	1
85°	0	0	0	0	0	0
90°	0	0	0	0	0	

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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	45°	67.5°	90°	112.5°	135°
0°	548.6	548.6	548.6	548.6	548.6	548.6	548.6	548.6	548.6	548.6	548.6
2.5°	617.8	617.8	625.0	613.3	613.3	609.7	583.7	568.4	551.3	526.1	496.4
5°	706.0	724.0	709.6	689.8	701.5	696.1	634.9	579.2	529.7	481.1	434.4
7.5°	819.3	823.8	811.2	786.0	780.6	777.0	671.8	580.1	493.7	420.9	366.9
10°	898.4	904.7	899.3	890.3	859.8	852.6	683.5	545.9	446.1	368.7	304.0
12.5°	1000.0	998.3	990.2	964.1	929.0	919.1	676.3	515.3	395.7	310.3	249.1
15°	1061.2	1072.0	1060.3	991.1	974.9	949.7	667.3	473.9	348.0	268.9	211.3
17.5°	1114.3	1109.8	1087.3	1043.2	1001.8	979.4	632.2	413.7	305.8	223.9	174.5
20°	1165.5	1166.4	1131.4	1077.4	1010.8	970.4	580.1	372.3	260.8	184.4	144.8
22.5°	1188.9	1187.1	1142.1	1062.1	984.8	943.4	530.6	325.6	218.5	149.3	116.0
25°	1184.4	1152.0	1122.4	1027.9	940.7	890.3	475.7	285.1	186.2	125.9	93.5
27.5°	1126.9	1110.7	1060.3	965.9	865.2	813.9	407.4	243.7	155.6	98.9	76.4
30°	1043.2	1024.3	964.1	885.8	753.6	713.2	347.1	199.7	126.8	84.5	63.0
32.5°	919.1	904.7	842.7	740.1	636.7	590.9	287.8	159.2	102.5	62.1	51.3
35°	775.2	774.3	719.5	635.8	527.9	481.1	228.4	127.7	80.9	49.5	43.2
37.5°	665.5	642.1	588.2	510.8	420.0	381.3	179.0	99.8	60.3	38.7	36.0
40°	538.7	528.8	472.1	406.5	326.5	297.7	132.2	74.6	45.9	31.5	32.4
42.5°	433.5	420.0	373.2	309.4	252.7	229.3	100.7	57.6	36.0	27.0	28.8
45°	321.1	314.8	287.8	230.2	187.1	170.9	74.6	45.0	28.8	22.5	24.3
47.5°	233.8	226.6	207.7	170.9	135.8	125.9	57.6	35.1	23.4	18.0	18.9
50°	170.9	166.4	153.8	124.1	99.8	91.7	43.2	27.0	18.9	14.4	16.2
52.5°	117.8	119.6	108.8	88.1	71.0	65.7	32.4	19.8	15.3	11.7	13.5
55°	80.9	79.1	74.6	57.6	45.9	42.3	20.7	13.5	11.7	9.0	9.9
57.5°	49.5	49.5	45.9	36.0	28.8	27.0	12.6	9.0	8.1	6.3	8.1
60°	29.7	29.7	25.2	20.7	17.1	15.3	7.2	5.4	5.4	4.5	6.3
62.5°	16.2	16.2	14.4	11.7	9.0	8.1	4.5	4.5	3.6	3.6	5.4
65°	9.0	8.1	7.2	5.4	4.5	4.5	2.7	3.6	3.6	3.6	3.6
67.5°	3.6	3.6	3.6	2.7	2.7	2.7	1.8	2.7	2.7	2.7	2.7
70°	0.9	1.8	1.8	1.8	0.9	0.9	1.8	1.8	1.8	1.8	1.8
72.5°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
75°	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.0
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.9	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

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**CANDELA DISTRIBUTION (continued):**

	157.5°	180°
0°	548.6	548.6
2.5°	497.3	489.2
5°	416.4	406.5
7.5°	331.0	324.7
10°	270.7	266.2
12.5°	228.4	225.7
15°	193.4	192.5
17.5°	162.8	160.1
20°	133.1	135.8
22.5°	109.7	107.9
25°	92.6	98.0
27.5°	79.1	86.3
30°	69.2	75.5
32.5°	59.4	69.2
35°	52.2	62.1
37.5°	46.8	55.8
40°	43.2	51.3
42.5°	37.8	47.7
45°	33.3	42.3
47.5°	28.8	37.8
50°	26.1	34.2
52.5°	22.5	30.6
55°	18.9	27.0
57.5°	17.1	24.3
60°	14.4	20.7
62.5°	10.8	17.1
65°	8.1	13.5
67.5°	5.4	9.9
70°	2.7	6.3
72.5°	0.9	1.8
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)