

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: P601339

Luminaire Tested: **ML4DM06AWWD2W1E - TIR4D25AWW - TL45R6G\_ TL46S6G\_ 3000K**

Issue Date: 7/29/2022

Tested By:

Approved By:



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**Test Information**

Test Method: LM-79-08  
 Report Number: P601339  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Issue Date: 7/29/2022  
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
 Product Line: HALO  
 Catalog Number: ML4DM06AWWD2W1E - TIR4D25AWW - TL45R6G\_ TL46S6G\_ 3000K  
 Description: DIRECT MOUNT, 25D WW OPTIC, LINEAR SPREAD LENS TRIM  
 Light Source: (1) SELECTABLE LUMEN LED D2W / 3000K CCT  
 Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
 Luminaire Lumens: 507.4 lumens  
 Efficiency: N/A  
 Efficacy: 61.1 lumens/watt  
 Spacing Criteria (0/90/45): 1.21 / 0.78 / 1  
 Luminous Opening: Circular (Dia: 0.21' x H: 0')  
 CIE Type: Direct

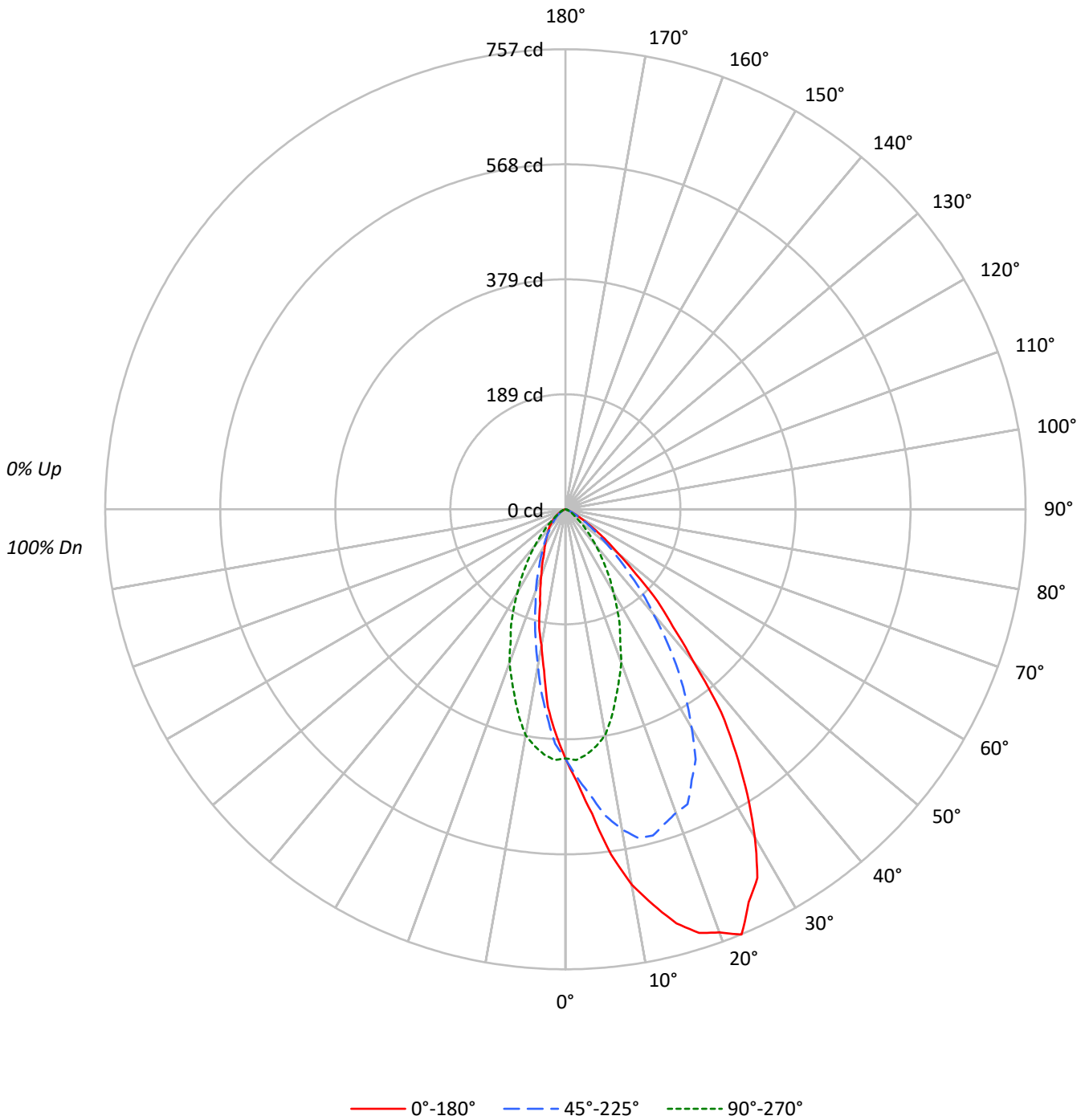
Input Watts (W): 8.3  
 Input Voltage (V): NR  
 Input Current (Ain): NR  
 Voltage Rise (V): NR  
 Power Factor: NR  
 Total Harmonic Distortion (THDi): NR  
 Frequency (hertz): 60  
 Stabilization Time: NR  
 Operation Time: NR  
 Ambient Temperature (°C): NR  
 Test Distance: 25 FT



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											
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	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	100	100	96	96	96	92	92	92	88	88	88	84	84	84
1	113	110	107	104	110	107	105	103	103	101	99	100	98	96	96	95	94	92	92	91	91	89	88	84	80	86	82	79	83	80	78	76
2	106	100	96	92	104	99	95	91	95	92	89	92	90	87	90	87	85	83	83	81	81	80	86	82	79	83	80	78	76	74	72	
3	100	92	87	82	98	91	86	81	88	84	80	86	82	79	83	80	78	76	74	72	72	72	79	75	72	78	74	71	69	67	65	
4	94	85	79	74	92	84	78	73	82	76	72	79	75	72	78	74	71	69	67	65	65	65	74	69	65	72	68	65	63	61	59	
5	88	78	72	67	86	77	71	67	76	70	66	74	69	65	72	68	65	63	61	59	57	57	64	59	55	63	58	55	53	51	49	
6	83	73	66	61	81	72	65	61	70	65	60	69	64	60	67	63	59	57	55	53	51	51	59	54	51	59	54	51	49	47	46	
7	78	68	61	56	77	67	60	56	65	60	55	64	59	55	63	58	55	53	51	49	47	47	55	51	47	55	51	47	46	44	42	
8	74	63	56	52	72	62	56	51	61	55	51	60	55	51	59	54	51	49	47	46	44	44	53	48	44	52	47	44	42	40	38	
9	70	59	52	48	68	58	52	48	57	52	47	56	51	47	55	51	47	46	44	42	40	40	48	44	40	48	44	42	40	38	36	
10	66	55	49	44	65	55	48	44	54	48	44	53	48	44	52	47	44	42	40	38	36	36	44	40	36	44	40	36	34	32	30	

**AVERAGE LUMINANCE (cd/sqm):**

	0°	90°	180°
0°	129432	129432	129432
5°	159405	128310	103681
10°	200879	120944	72752
15°	230566	104904	52468
20°	248998	90325	38811
25°	248555	73723	29545
30°	227337	57390	24210
35°	188345	43752	20083
40°	135244	32028	17683
45°	95832	21926	14602
50°	56247	14050	12035
55°	33747	9579	9579
60°	18062	7073	7073
65°	9937	5380	4558
70°	5632	3785	2862
75°	2440	2440	0
80°	1818	1818	0
85°	0	0	0

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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	38.8	7.7
10°-20°	105.7	20.8
20°-30°	138.1	27.2
30°-40°	118.4	23.3
40°-50°	67.7	13.4
50°-60°	27.7	5.5
60°-70°	8.9	1.7
70°-80°	1.9	0.4
80°-90°	0.2	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
<b>0°-30°</b>	<b>282.6</b>	<b>55.7</b>
<b>0°-40°</b>	<b>401.1</b>	<b>79.0</b>
<b>0°-60°</b>	<b>496.5</b>	<b>97.8</b>
<b>0°-90°</b>	<b>507.4</b>	<b>100.0</b>
90°-120°	0.0	0.0
90°-150°	0.0	0.0
<b>90°-180°</b>	<b>0.0</b>	<b>0.0</b>
<b>0°-180°</b>	<b>507.4</b>	<b>100.0</b>

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	410	410	410	410	410	
5°	503	472	405	342	327	52
15°	705	556	321	193	160	199
25°	713	492	212	101	85	327
35°	489	323	114	53	52	302
45°	215	146	49	27	33	163
55°	61	50	17	12	17	58
65°	13	11	7	5	6	14
75°	2	2	2	1	0	3
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°	409.9	409.9	409.9	409.9	409.9	409.9	409.9	409.9	409.9	409.9	409.9
2.5°	449.7	458.9	455.9	461.0	459.9	450.7	441.5	427.2	412.9	404.8	386.4
5°	502.9	514.1	522.3	516.2	513.1	505.9	472.2	440.5	404.8	369.0	342.4
7.5°	572.4	569.3	578.5	560.1	561.1	558.1	509.0	447.7	392.5	340.4	302.5
10°	626.5	617.3	626.5	620.4	608.2	593.8	534.6	444.6	377.2	311.7	260.6
12.5°	666.4	678.7	678.7	664.4	652.1	635.7	554.0	442.6	350.6	277.0	224.9
15°	705.3	709.3	702.2	690.9	678.7	644.9	556.0	429.3	320.9	243.3	193.2
17.5°	730.8	731.8	728.8	718.5	701.2	680.7	542.7	417.0	293.3	216.7	162.5
20°	741.0	732.8	731.8	713.4	698.1	679.7	531.5	387.4	268.8	185.0	141.1
22.5°	757.4	738.0	738.0	719.6	687.9	684.8	525.4	353.6	235.1	158.4	120.6
25°	713.4	710.4	716.5	690.9	666.4	661.3	491.6	328.1	211.6	137.0	101.2
27.5°	683.8	675.6	667.4	651.1	627.6	615.3	464.0	295.4	184.0	114.5	85.9
30°	623.5	623.5	613.3	605.1	573.4	564.2	415.0	264.7	157.4	98.1	71.5
32.5°	557.0	547.8	548.9	539.7	520.2	513.1	369.0	231.0	135.9	79.7	62.3
35°	488.6	478.3	473.2	466.1	463.0	440.5	323.0	199.3	113.5	69.5	53.1
37.5°	421.1	410.9	406.8	395.6	379.2	374.1	272.9	165.6	95.1	57.2	44.0
40°	328.1	328.1	327.1	314.8	309.7	306.6	225.9	138.0	77.7	46.0	37.8
42.5°	261.7	264.7	262.7	257.6	246.3	244.3	188.1	112.4	63.4	38.8	31.7
45°	214.6	205.4	203.4	202.4	196.2	195.2	146.2	88.9	49.1	31.7	26.6
47.5°	157.4	156.4	158.4	153.3	146.2	152.3	115.5	67.5	38.8	25.6	22.5
50°	114.5	116.5	116.5	111.4	109.4	111.4	88.9	51.1	28.6	20.4	19.4
52.5°	85.9	84.8	83.8	84.8	83.8	83.8	66.4	37.8	22.5	16.4	15.3
55°	61.3	61.3	60.3	62.3	63.4	61.3	50.1	27.6	17.4	13.3	12.3
57.5°	42.9	42.9	40.9	42.9	42.9	45.0	35.8	20.4	14.3	10.2	10.2
60°	28.6	28.6	28.6	29.6	30.7	30.7	24.5	14.3	11.2	8.2	8.2
62.5°	19.4	19.4	19.4	20.4	20.4	22.5	17.4	11.2	9.2	7.2	6.1
65°	13.3	13.3	13.3	13.3	14.3	14.3	11.2	8.2	7.2	6.1	5.1
67.5°	8.2	9.2	8.2	9.2	9.2	9.2	7.2	6.1	5.1	4.1	3.1
70°	6.1	6.1	6.1	6.1	6.1	6.1	5.1	5.1	4.1	3.1	2.0
72.5°	4.1	4.1	4.1	4.1	4.1	4.1	3.1	3.1	3.1	2.0	2.0
75°	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	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°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	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°	409.9	409.9
2.5°	376.1	369.0
5°	318.9	327.1
7.5°	278.0	267.8
10°	233.0	226.9
12.5°	202.4	199.3
15°	167.6	160.5
17.5°	144.1	137.0
20°	120.6	115.5
22.5°	103.2	100.2
25°	88.9	84.8
27.5°	76.7	74.6
30°	66.4	66.4
32.5°	57.2	59.3
35°	51.1	52.1
37.5°	44.0	46.0
40°	40.9	42.9
42.5°	34.8	38.8
45°	29.6	32.7
47.5°	25.6	28.6
50°	21.5	24.5
52.5°	19.4	21.5
55°	16.4	17.4
57.5°	13.3	14.3
60°	10.2	11.2
62.5°	8.2	9.2
65°	6.1	6.1
67.5°	4.1	5.1
70°	2.0	3.1
72.5°	1.0	1.0
75°	1.0	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)