

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: P601387

Luminaire Tested: **ML4DM08LSAWW95FS1E - TIR4D25AWW - TL43R2G\_ TL44S2G\_ 2700K**

Issue Date: 7/29/2022

Tested By:

Approved By:



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**Test Information**

Test Method: LM-79-08  
 Report Number: P601387  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Issue Date: 7/29/2022  
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
 Product Line: HALO  
 Catalog Number: ML4DM08LSAWW95FS1E - TIR4D25AWW - TL43R2G\_ TL44S2G\_ 2700K  
 Description: DIRECT MOUNT, 25D WW OPTIC, DIFFUSE CLEAR LENS TRIM  
 Light Source: (1) SELECTABLE LUMEN LED 95CRI / 2700K CCT  
 Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
 Luminaire Lumens: 690.0 lumens  
 Efficiency: N/A  
 Efficacy: 67.0 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

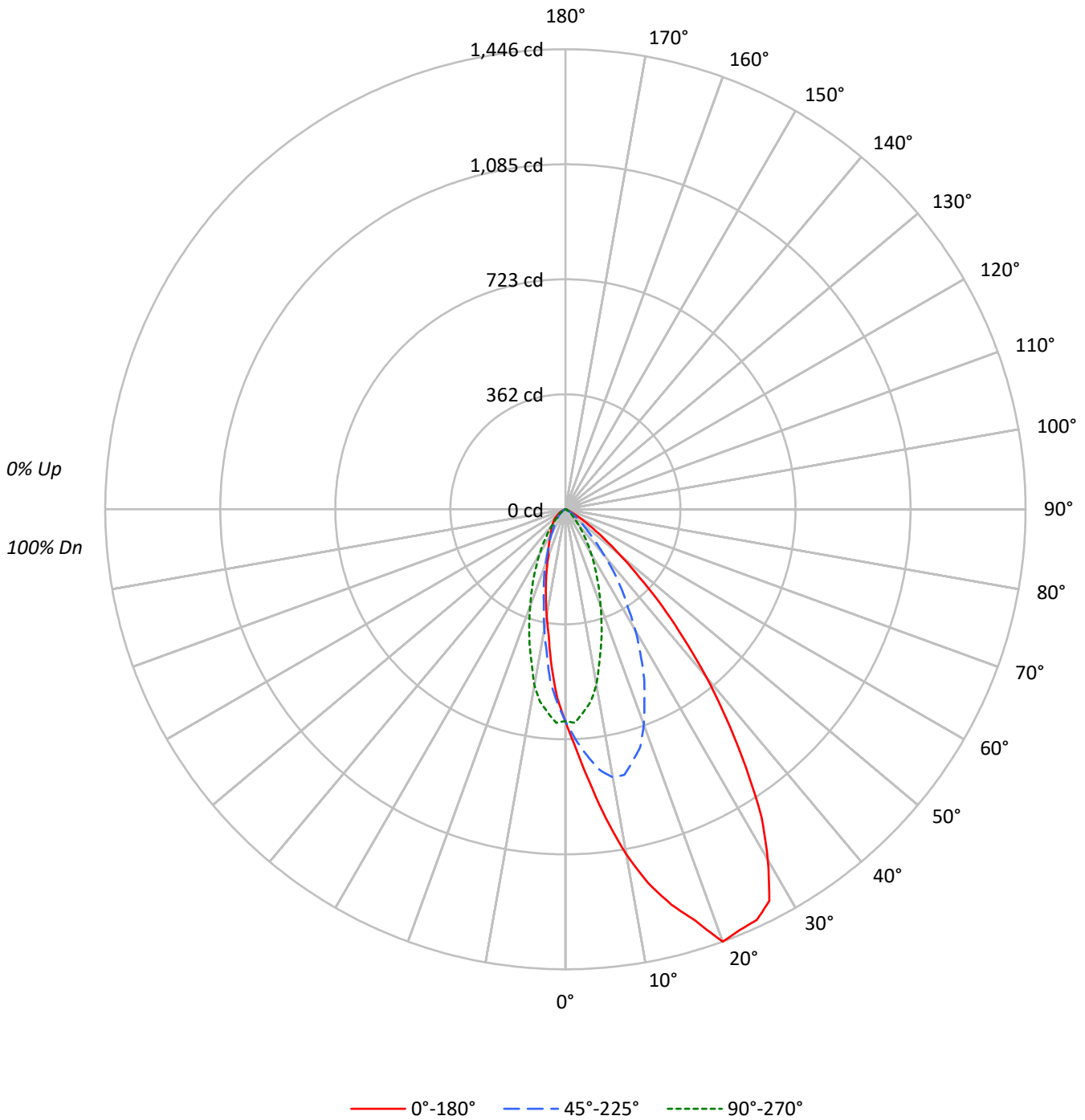
Input Watts (W): 10.3  
 Input Voltage (V): NR  
 Input Current (Ain): NR  
 Voltage Rise (V): NR  
 Power Factor: NR  
 Total Harmonic Distortion (THDi): NR  
 Frequency (hertz): 60  
 Stabilization Time: NR  
 Operation Time: NR  
 Ambient Temperature (°C): NR  
 Test Distance: 25 FT



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	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	58	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°	210236	210236	210236
5°	271930	203115	156964
10°	353149	179813	108279
15°	420497	142367	77247
20°	485967	108269	52118
25°	495959	81493	42819
30°	463789	59177	33508
35°	380390	40013	29913
40°	283801	26051	26051
45°	191306	17594	22908
50°	111954	12920	19944
55°	59126	9194	15745
60°	28608	5305	12062
65°	11581	3586	7995
70°	5539	2216	4432
75°	2928	1464	0
80°	2182	2182	0
85°	0	0	0

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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	61.8	9.0
10°-20°	160.0	23.2
20°-30°	196.0	28.4
30°-40°	153.6	22.3
40°-50°	79.2	11.5
50°-60°	30.0	4.4
60°-70°	7.7	1.1
70°-80°	1.5	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°	417.9	60.6
0°-40°	571.5	82.8
0°-60°	680.7	98.6
0°-90°	690.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	690.0	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	666	666	666	666	666	
5°	858	777	641	543	495	90
15°	1286	819	436	261	236	367
25°	1424	585	234	122	123	646
35°	987	310	104	57	78	612
45°	428	107	39	31	51	333
55°	107	33	17	14	29	104
65°	16	6	5	5	11	19
75°	2	1	1	1	0	3
85°	0	0	0	0	0	0
90°	0	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°	665.8	665.8	665.8	665.8	665.8	665.8	665.8	665.8	665.8	665.8	665.8
2.5°	750.5	747.0	766.1	738.6	720.7	744.6	723.1	698.0	671.8	627.6	605.0
5°	857.9	860.3	863.9	855.5	852.0	849.6	776.8	708.8	640.8	573.9	542.9
7.5°	980.8	958.2	972.5	940.3	946.2	929.5	826.9	698.0	609.7	523.8	451.0
10°	1101.4	1076.3	1088.2	1058.4	1051.2	1036.9	855.5	669.4	560.8	445.1	383.0
12.5°	1204.0	1193.2	1181.3	1140.7	1126.4	1087.0	855.5	631.2	491.6	384.2	312.6
15°	1286.3	1275.6	1262.4	1209.9	1165.8	1131.2	818.6	577.5	435.5	329.3	261.3
17.5°	1354.3	1312.6	1313.7	1238.6	1200.4	1155.0	782.8	522.6	377.1	275.6	221.9
20°	1446.2	1369.8	1356.7	1276.8	1205.2	1155.0	719.5	463.0	322.2	232.7	182.6
22.5°	1431.9	1363.9	1379.4	1261.2	1184.9	1164.6	649.1	399.7	276.8	195.7	146.8
25°	1423.5	1374.6	1348.4	1221.9	1130.0	1065.6	584.7	349.6	233.9	161.1	121.7
27.5°	1387.7	1313.7	1274.4	1146.7	1045.3	992.8	508.3	295.9	195.7	127.7	102.6
30°	1272.0	1218.3	1176.5	1042.9	935.5	885.4	440.3	245.8	162.3	105.0	81.1
32.5°	1146.7	1100.2	1035.7	925.9	803.0	754.1	365.1	210.0	132.4	83.5	68.0
35°	986.8	948.6	887.8	776.8	658.7	637.2	310.2	168.2	103.8	66.8	57.3
37.5°	831.7	798.3	736.2	636.0	544.1	513.1	250.6	134.8	83.5	54.9	48.9
40°	688.5	649.1	608.5	510.7	435.5	402.1	192.1	105.0	63.2	44.1	41.8
42.5°	547.7	523.8	479.7	408.1	334.1	312.6	143.2	78.8	50.1	37.0	35.8
45°	428.4	403.3	361.5	313.8	251.8	235.1	107.4	60.9	39.4	29.8	31.0
47.5°	312.6	300.7	273.2	232.7	192.1	173.0	81.1	47.7	31.0	25.1	26.3
50°	227.9	216.0	202.8	165.9	133.6	128.9	60.9	37.0	26.3	20.3	21.5
52.5°	157.5	156.3	142.0	118.1	97.8	89.5	46.5	28.6	21.5	16.7	17.9
55°	107.4	106.2	96.7	82.3	69.2	63.2	33.4	21.5	16.7	13.1	14.3
57.5°	69.2	70.4	64.4	56.1	45.3	41.8	22.7	15.5	11.9	9.5	10.7
60°	45.3	45.3	39.4	35.8	28.6	26.3	15.5	10.7	8.4	7.2	8.4
62.5°	27.4	28.6	25.1	20.3	17.9	15.5	9.5	7.2	6.0	4.8	6.0
65°	15.5	16.7	14.3	11.9	10.7	9.5	6.0	4.8	4.8	3.6	4.8
67.5°	9.5	9.5	8.4	7.2	6.0	6.0	3.6	3.6	3.6	3.6	3.6
70°	6.0	6.0	4.8	4.8	3.6	3.6	2.4	3.6	2.4	2.4	2.4
72.5°	3.6	3.6	2.4	2.4	2.4	2.4	2.4	2.4	2.4	1.2	1.2
75°	2.4	2.4	2.4	2.4	1.2	1.2	1.2	1.2	1.2	1.2	1.2
77.5°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	0.0
80°	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	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°	665.8	665.8
2.5°	590.6	593.0
5°	509.5	495.2
7.5°	423.6	400.9
10°	342.5	337.7
12.5°	288.8	282.8
15°	242.2	236.3
17.5°	202.8	192.1
20°	169.4	155.1
22.5°	140.8	142.0
25°	120.5	122.9
27.5°	103.8	106.2
30°	87.1	91.9
32.5°	78.8	85.9
35°	68.0	77.6
37.5°	60.9	70.4
40°	53.7	63.2
42.5°	47.7	57.3
45°	41.8	51.3
47.5°	37.0	46.5
50°	31.0	40.6
52.5°	26.3	34.6
55°	21.5	28.6
57.5°	17.9	23.9
60°	14.3	19.1
62.5°	10.7	14.3
65°	7.2	10.7
67.5°	4.8	7.2
70°	3.6	4.8
72.5°	1.2	2.4
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)