

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: P601389

Luminaire Tested: **ML4DM08LSAWW95FS1E - TIR4D25AWW - TL43R2G\_ TL44S2G\_ 3500K**

Issue Date: 7/29/2022

Tested By:

Approved By:



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**Test Information**

Test Method: LM-79-08  
 Report Number: P601389  
 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\_ 3500K  
 Description: DIRECT MOUNT, 25D WW OPTIC, DIFFUSE CLEAR LENS TRIM  
 Light Source: (1) SELECTABLE LUMEN LED 95CRI / 3500K CCT  
 Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
 Luminaire Lumens: 732.4 lumens  
 Efficiency: N/A  
 Efficacy: 71.1 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

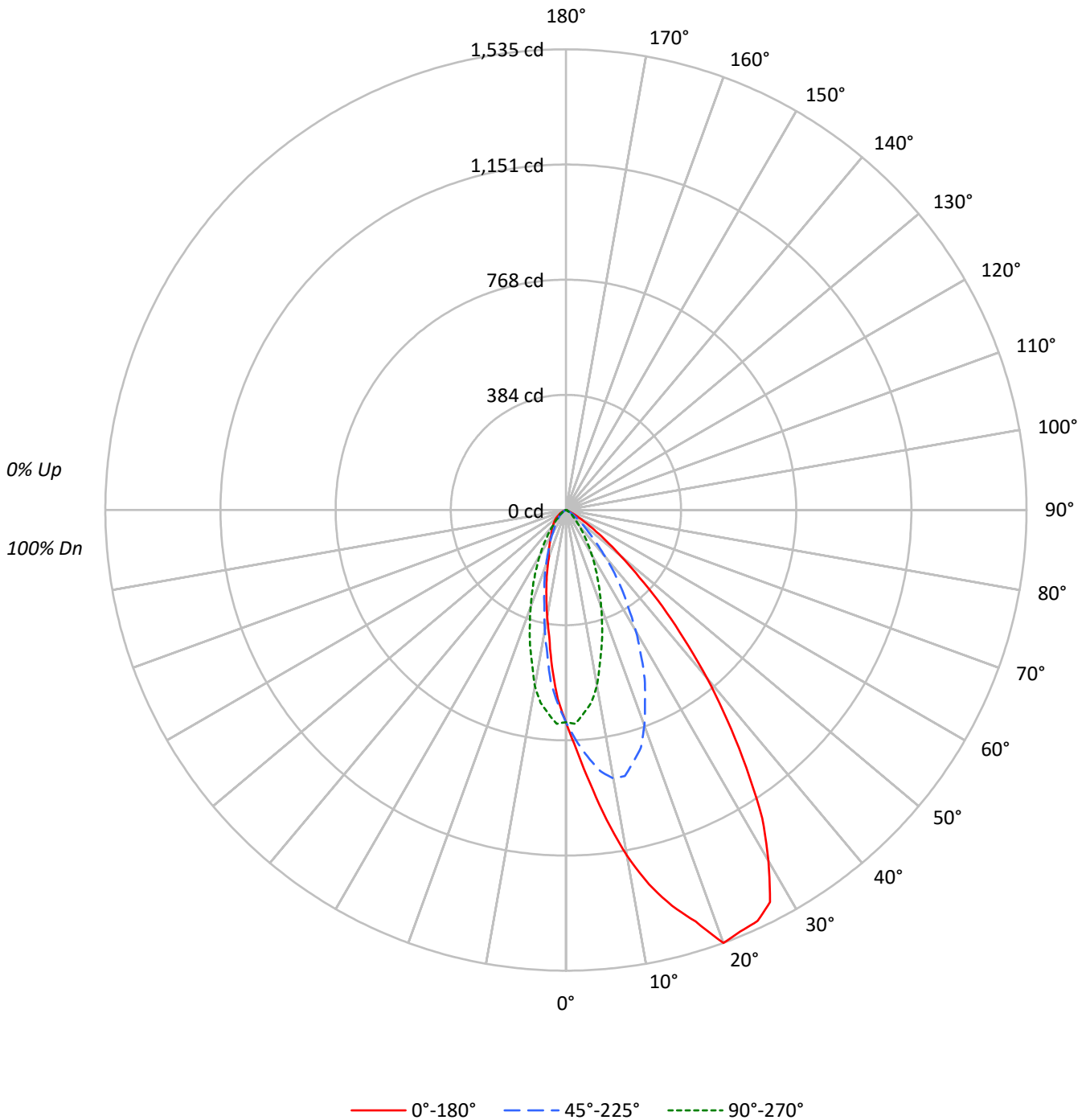
Input Watts (W): 10.3  
 Input Voltage (V): NR  
 Input Current (Ain): NR  
 Voltage Rise (V): NR  
 Power Factor: NR  
 Total Harmonic Distortion (THDi): NR  
 Frequency (hertz): 60  
 Stabilization Time: NR  
 Operation Time: NR  
 Ambient Temperature (°C): NR  
 Test Distance: 25 FT



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	102	102	102	100
1	113	110	107	105	110	108	105	103	104	102	100	100	98	97	97	95	94	94	94	94	92
2	107	101	97	93	104	100	96	92	96	93	90	93	91	88	91	88	86	86	86	86	85
3	101	94	88	84	99	92	87	83	89	85	82	87	83	80	85	82	79	79	79	79	78
4	95	87	81	76	93	85	80	75	83	78	75	81	77	74	79	76	73	73	73	73	71
5	89	80	74	69	88	79	73	69	78	72	68	76	71	68	74	70	67	67	67	67	65
6	84	75	68	64	83	74	68	63	72	67	63	71	66	62	70	65	62	62	62	62	60
7	80	70	63	59	78	69	63	58	68	62	58	66	62	58	65	61	57	57	57	57	56
8	76	65	59	54	74	65	58	54	64	58	54	62	57	54	61	57	53	53	53	53	52
9	72	61	55	51	70	61	55	50	60	54	50	59	54	50	58	53	50	50	50	50	48
10	68	58	51	47	67	57	51	47	56	51	47	55	50	47	55	50	47	47	47	47	45

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

	0°	90°	180°
0°	223151	223151	223151
5°	288634	215572	166600
10°	374824	190875	114916
15°	446322	151128	81988
20°	515806	114922	55311
25°	526410	86475	45432
30°	492266	62787	35550
35°	403750	42480	31725
40°	301237	27659	27659
45°	203051	18666	24337
50°	118832	13706	21173
55°	62759	9744	16736
60°	30377	5621	12820
65°	12328	3811	8518
70°	5816	2308	4709
75°	3050	1586	0
80°	2364	2364	0
85°	0	0	0

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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	65.6	9.0
10°-20°	169.9	23.2
20°-30°	208.0	28.4
30°-40°	163.1	22.3
40°-50°	84.0	11.5
50°-60°	31.9	4.4
60°-70°	8.1	1.1
70°-80°	1.6	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°	443.6	60.6
0°-40°	606.6	82.8
0°-60°	722.5	98.7
0°-90°	732.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	732.4	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	707	707	707	707	707	
5°	911	824	680	576	526	95
15°	1365	869	462	277	251	390
25°	1511	621	248	129	130	686
35°	1047	329	110	61	82	650
45°	455	114	42	33	54	354
55°	114	36	18	15	30	110
65°	16	6	5	5	11	20
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°	706.7	706.7	706.7	706.7	706.7	706.7	706.7	706.7	706.7	706.7	706.7
2.5°	796.6	792.8	813.1	784.0	765.0	790.3	767.5	740.9	713.0	666.2	642.1
5°	910.6	913.1	916.9	908.1	904.3	901.7	824.5	752.3	680.1	609.2	576.3
7.5°	1041.1	1017.0	1032.2	998.0	1004.3	986.6	877.7	740.9	647.2	556.0	478.7
10°	1169.0	1142.4	1155.0	1123.4	1115.8	1100.6	908.1	710.5	595.3	472.4	406.5
12.5°	1277.9	1266.5	1253.8	1210.8	1195.6	1153.8	908.1	670.0	521.8	407.8	331.8
15°	1365.3	1353.9	1340.0	1284.2	1237.4	1200.6	868.8	613.0	462.3	349.6	277.4
17.5°	1437.5	1393.1	1394.4	1314.6	1274.1	1226.0	830.8	554.7	400.2	292.6	235.6
20°	1535.0	1453.9	1440.0	1355.2	1279.2	1226.0	763.7	491.4	342.0	247.0	193.8
22.5°	1519.8	1447.6	1464.1	1338.7	1257.6	1236.1	689.0	424.3	293.8	207.7	155.8
25°	1510.9	1459.0	1431.1	1296.9	1199.4	1131.0	620.6	371.1	248.2	171.0	129.2
27.5°	1472.9	1394.4	1352.6	1217.1	1109.5	1053.7	539.5	314.1	207.7	135.5	108.9
30°	1350.1	1293.1	1248.8	1106.9	992.9	939.7	467.3	260.9	172.2	111.5	86.1
32.5°	1217.1	1167.7	1099.3	982.8	852.4	800.4	387.5	222.9	140.6	88.7	72.2
35°	1047.4	1006.9	942.3	824.5	699.1	676.3	329.3	178.6	110.2	70.9	60.8
37.5°	882.7	847.3	781.4	675.0	577.5	544.6	266.0	143.1	88.7	58.3	51.9
40°	730.8	689.0	645.9	542.1	462.3	426.8	203.9	111.5	67.1	46.9	44.3
42.5°	581.3	556.0	509.1	433.1	354.6	331.8	152.0	83.6	53.2	39.3	38.0
45°	454.7	428.1	383.7	333.1	267.2	249.5	114.0	64.6	41.8	31.7	32.9
47.5°	331.8	319.2	290.0	247.0	203.9	183.6	86.1	50.7	32.9	26.6	27.9
50°	241.9	229.2	215.3	176.0	141.8	136.8	64.6	39.3	27.9	21.5	22.8
52.5°	167.2	165.9	150.7	125.4	103.9	95.0	49.4	30.4	22.8	17.7	19.0
55°	114.0	112.7	102.6	87.4	73.5	67.1	35.5	22.8	17.7	13.9	15.2
57.5°	73.5	74.7	68.4	59.5	48.1	44.3	24.1	16.5	12.7	10.1	11.4
60°	48.1	48.1	41.8	38.0	30.4	27.9	16.5	11.4	8.9	7.6	8.9
62.5°	29.1	30.4	26.6	21.5	19.0	16.5	10.1	7.6	6.3	5.1	6.3
65°	16.5	17.7	15.2	12.7	11.4	10.1	6.3	5.1	5.1	3.8	5.1
67.5°	10.1	10.1	8.9	7.6	6.3	6.3	3.8	3.8	3.8	3.8	3.8
70°	6.3	6.3	5.1	5.1	3.8	3.8	2.5	3.8	2.5	2.5	2.5
72.5°	3.8	3.8	2.5	2.5	2.5	2.5	2.5	2.5	2.5	1.3	1.3
75°	2.5	2.5	2.5	2.5	1.3	1.3	1.3	1.3	1.3	1.3	1.3
77.5°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	0.0
80°	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	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°	706.7	706.7
2.5°	626.9	629.4
5°	540.8	525.6
7.5°	449.6	425.5
10°	363.5	358.4
12.5°	306.5	300.2
15°	257.1	250.8
17.5°	215.3	203.9
20°	179.8	164.6
22.5°	149.4	150.7
25°	127.9	130.4
27.5°	110.2	112.7
30°	92.5	97.5
32.5°	83.6	91.2
35°	72.2	82.3
37.5°	64.6	74.7
40°	57.0	67.1
42.5°	50.7	60.8
45°	44.3	54.5
47.5°	39.3	49.4
50°	32.9	43.1
52.5°	27.9	36.7
55°	22.8	30.4
57.5°	19.0	25.3
60°	15.2	20.3
62.5°	11.4	15.2
65°	7.6	11.4
67.5°	5.1	7.6
70°	3.8	5.1
72.5°	1.3	2.5
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)