

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: P601241

Luminaire Tested: **ML408LSAWW95FS1E - TIR4D25AWW - TL45R6G_ TL46S6G_ 3500K**

Issue Date: 7/29/2022

Tested By:

Approved By:



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Test Information

Test Method: LM-79-08
 Report Number: P601241
 Test Lab: COOPER LIGHTING SOLUTIONS
 Issue Date: 7/29/2022
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
 Product Line: HALO
 Catalog Number: ML408LSAWW95FS1E - TIR4D25AWW - TL45R6G_ TL46S6G_ 3500K
 Description: RETROFIT, 25D WW OPTIC, LINEAR SPREAD LENS TRIM
 Light Source: (1) SELECTABLE LUMEN LED 95CRI / 3500K CCT
 Ballast/Driver: -

Summary

Lumens per Lamp: N/A
 Luminaire Lumens: 771.6 lumens
 Efficiency: N/A
 Efficacy: 74.9 lumens/watt
 Spacing Criteria (0/90/45): 1.21 / 0.78 / 1
 Luminous Opening: Circular (Dia: 0.21' x H: 0')
 CIE Type: Direct

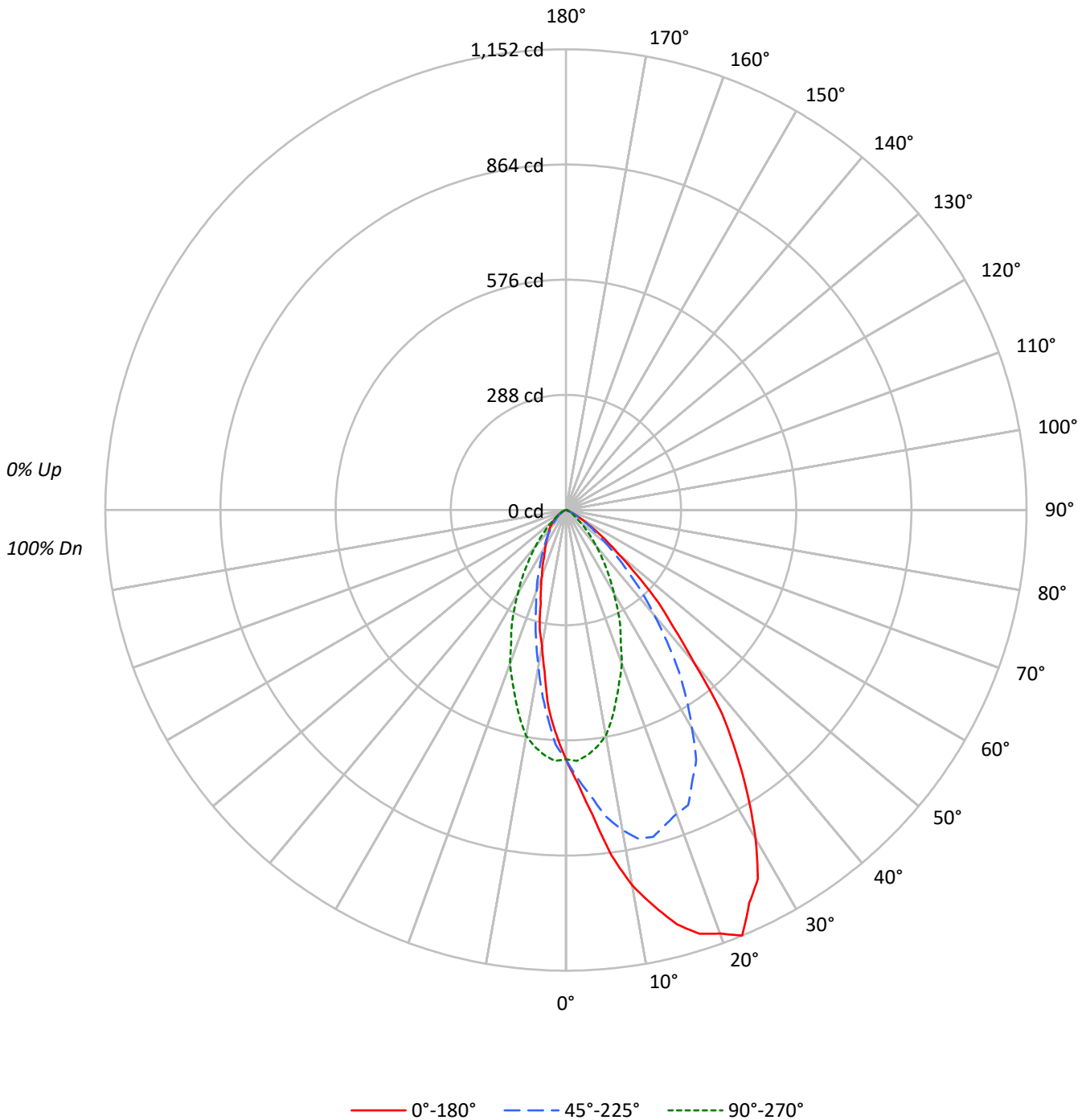
Input Watts (W): 10.3
 Input Voltage (V): NR
 Input Current (Ain): NR
 Voltage Rise (V): NR
 Power Factor: NR
 Total Harmonic Distortion (THDi): NR
 Frequency (hertz): 60
 Stabilization Time: NR
 Operation Time: NR
 Ambient Temperature (°C): NR
 Test Distance: 25 FT



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

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	196785	196785	196785
5°	242388	195096	157630
10°	305470	183885	110620
15°	350572	159529	79765
20°	378639	137369	59007
25°	377953	112083	44945
30°	345691	87252	36826
35°	286372	66495	30568
40°	205648	48681	26917
45°	145757	33313	22194
50°	85525	21369	18323
55°	51363	14534	14534
60°	27472	10799	10799
65°	15093	8144	6949
70°	8586	5724	4339
75°	3782	3782	0
80°	2909	2909	0
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	59.0	7.7
10°-20°	160.7	20.8
20°-30°	210.0	27.2
30°-40°	180.1	23.3
40°-50°	103.0	13.4
50°-60°	42.1	5.5
60°-70°	13.5	1.7
70°-80°	2.9	0.4
80°-90°	0.3	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°	429.8	55.7
0°-40°	609.8	79.0
0°-60°	755.0	97.8
0°-90°	771.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	771.6	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	623	623	623	623	623	
5°	765	718	616	521	497	79
15°	1072	846	488	294	244	303
25°	1085	748	322	154	129	496
35°	743	491	172	81	79	459
45°	326	222	75	40	50	248
55°	93	76	26	19	26	88
65°	20	17	11	8	9	22
75°	3	3	3	2	0	4
85°	0	0	0	0	0	1
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°	623.2	623.2	623.2	623.2	623.2	623.2	623.2	623.2	623.2	623.2	623.2
2.5°	683.8	697.8	693.2	700.9	699.4	685.4	671.4	649.6	627.9	615.5	587.5
5°	764.7	781.8	794.2	784.9	780.2	769.3	718.0	669.9	615.5	561.1	520.7
7.5°	870.3	865.7	879.7	851.7	853.2	848.6	774.0	680.7	596.8	517.5	460.0
10°	952.7	938.7	952.7	943.4	924.7	903.0	812.8	676.1	573.5	474.0	396.3
12.5°	1013.3	1032.0	1032.0	1010.2	991.6	966.7	842.4	673.0	533.1	421.2	341.9
15°	1072.4	1078.6	1067.7	1050.6	1032.0	980.7	845.5	652.8	488.0	369.9	293.7
17.5°	1111.2	1112.8	1108.1	1092.6	1066.2	1035.1	825.3	634.1	446.1	329.5	247.1
20°	1126.8	1114.4	1112.8	1084.8	1061.5	1033.5	808.2	589.0	408.8	281.3	214.5
22.5°	1151.7	1122.1	1122.1	1094.1	1046.0	1041.3	798.9	537.7	357.5	240.9	183.4
25°	1084.8	1080.2	1089.5	1050.6	1013.3	1005.6	747.6	498.9	321.7	208.3	153.9
27.5°	1039.7	1027.3	1014.9	990.0	954.3	935.6	705.6	449.2	279.8	174.1	130.6
30°	948.1	948.1	932.5	920.1	871.9	857.9	631.0	402.5	239.3	149.2	108.8
32.5°	847.0	833.0	834.6	820.6	791.1	780.2	561.1	351.2	206.7	121.2	94.8
35°	742.9	727.4	719.6	708.7	704.0	669.9	491.1	303.1	172.5	105.7	80.8
37.5°	640.3	624.8	618.6	601.5	576.6	568.8	415.0	251.8	144.5	87.0	66.8
40°	498.9	498.9	497.3	478.7	470.9	466.3	343.5	209.8	118.1	69.9	57.5
42.5°	397.9	402.5	399.4	391.7	374.6	371.5	286.0	171.0	96.4	59.1	48.2
45°	326.4	312.4	309.3	307.7	298.4	296.8	222.2	135.2	74.6	48.2	40.4
47.5°	239.3	237.8	240.9	233.1	222.2	231.6	175.6	102.6	59.1	38.9	34.2
50°	174.1	177.2	177.2	169.4	166.3	169.4	135.2	77.7	43.5	31.1	29.5
52.5°	130.6	129.0	127.4	129.0	127.4	127.4	101.0	57.5	34.2	24.9	23.3
55°	93.3	93.3	91.7	94.8	96.4	93.3	76.2	42.0	26.4	20.2	18.7
57.5°	65.3	65.3	62.2	65.3	65.3	68.4	54.4	31.1	21.8	15.5	15.5
60°	43.5	43.5	43.5	45.1	46.6	46.6	37.3	21.8	17.1	12.4	12.4
62.5°	29.5	29.5	29.5	31.1	31.1	34.2	26.4	17.1	14.0	10.9	9.3
65°	20.2	20.2	20.2	20.2	21.8	21.8	17.1	12.4	10.9	9.3	7.8
67.5°	12.4	14.0	12.4	14.0	14.0	14.0	10.9	9.3	7.8	6.2	4.7
70°	9.3	9.3	9.3	9.3	9.3	9.3	7.8	7.8	6.2	4.7	3.1
72.5°	6.2	6.2	6.2	6.2	6.2	6.2	4.7	4.7	4.7	3.1	3.1
75°	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	1.6	1.6
77.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	0.0
80°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	0.0	0.0
82.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	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°	623.2	623.2
2.5°	571.9	561.1
5°	484.9	497.3
7.5°	422.7	407.2
10°	354.4	345.0
12.5°	307.7	303.1
15°	254.9	244.0
17.5°	219.1	208.3
20°	183.4	175.6
22.5°	157.0	152.3
25°	135.2	129.0
27.5°	116.6	113.5
30°	101.0	101.0
32.5°	87.0	90.1
35°	77.7	79.3
37.5°	66.8	69.9
40°	62.2	65.3
42.5°	52.8	59.1
45°	45.1	49.7
47.5°	38.9	43.5
50°	32.6	37.3
52.5°	29.5	32.6
55°	24.9	26.4
57.5°	20.2	21.8
60°	15.5	17.1
62.5°	12.4	14.0
65°	9.3	9.3
67.5°	6.2	7.8
70°	3.1	4.7
72.5°	1.6	1.6
75°	1.6	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)