

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: P601242

Luminaire Tested: **ML408LSAWW95FS1E - TIR4D25AWW - TL45R6G_ TL46S6G_ 4000K**

Issue Date: 7/29/2022

Tested By:

Approved By:



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Test Information

Test Method: LM-79-08
 Report Number: P601242
 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_ 4000K
 Description: RETROFIT, 25D WW OPTIC, LINEAR SPREAD LENS TRIM
 Light Source: (1) SELECTABLE LUMEN LED 95CRI / 4000K CCT
 Ballast/Driver: -

Summary

Lumens per Lamp: N/A
 Luminaire Lumens: 767.9 lumens
 Efficiency: N/A
 Efficacy: 74.6 lumens/watt
 Spacing Criteria (0/90/45): 1.21 / 0.78 / 1
 Luminous Opening: Circular (Dia: 0.21' x H: 0')
 CIE Type: Direct

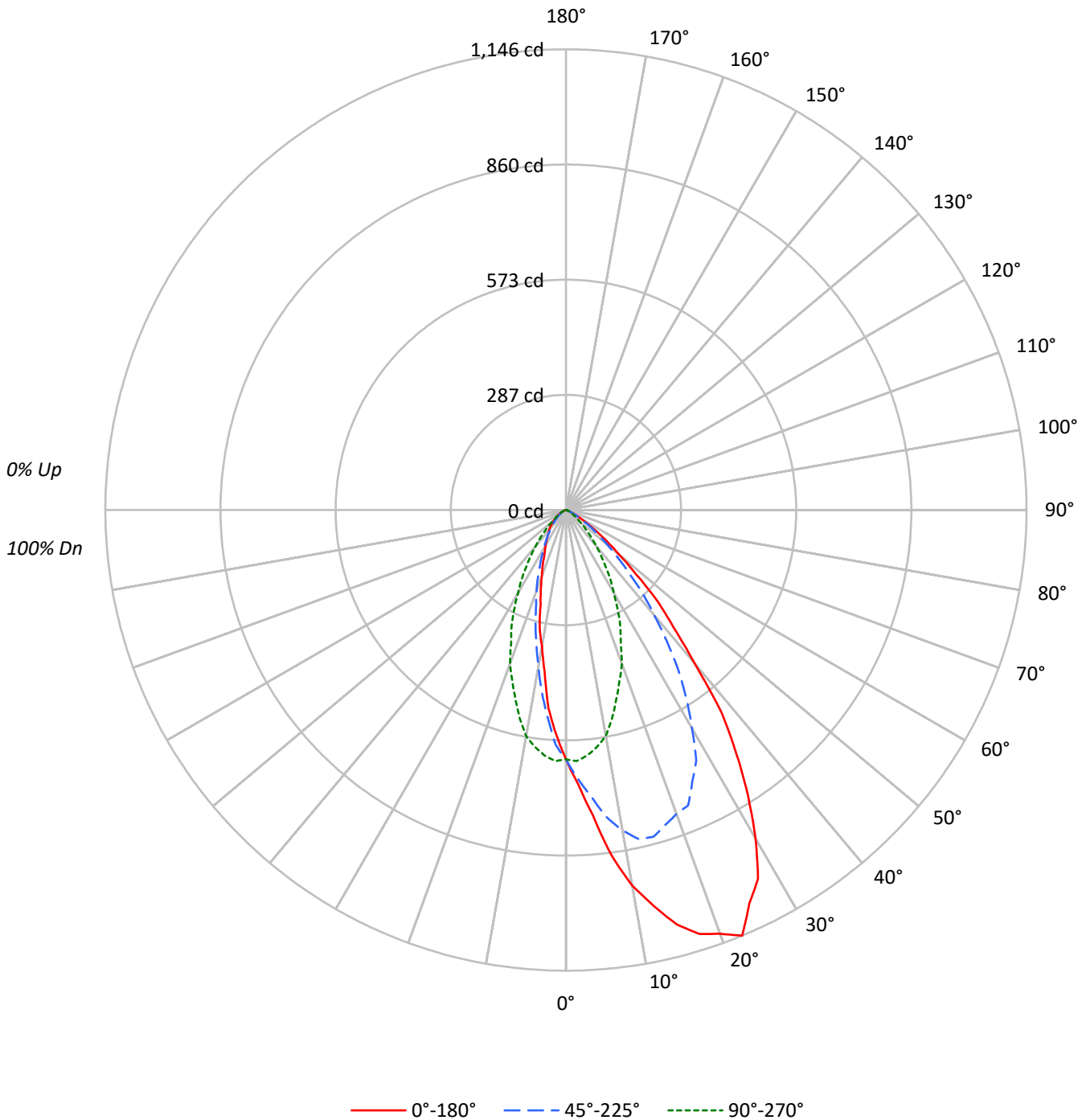
Input Watts (W): 10.3
 Input Voltage (V): NR
 Input Current (Ain): NR
 Voltage Rise (V): NR
 Power Factor: NR
 Total Harmonic Distortion (THDi): NR
 Frequency (hertz): 60
 Stabilization Time: NR
 Operation Time: NR
 Ambient Temperature (°C): NR
 Test Distance: 25 FT



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

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	195869	195869	195869
5°	241215	194177	156901
10°	304027	183019	110107
15°	348905	158777	79405
20°	376858	136697	58738
25°	376176	111560	44736
30°	344050	86851	36644
35°	285023	66187	30414
40°	204658	48475	26793
45°	145042	33135	22105
50°	85083	21271	18225
55°	51088	14479	14479
60°	27345	10736	10736
65°	15018	8069	6949
70°	8586	5724	4247
75°	3782	3782	0
80°	2728	2728	0
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	58.8	7.7
10°-20°	159.9	20.8
20°-30°	209.0	27.2
30°-40°	179.2	23.3
40°-50°	102.5	13.4
50°-60°	41.9	5.5
60°-70°	13.4	1.7
70°-80°	2.8	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°	427.7	55.7
0°-40°	607.0	79.0
0°-60°	751.4	97.8
0°-90°	767.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	767.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	620	620	620	620	620	
5°	761	715	613	518	495	79
15°	1067	842	486	292	243	301
25°	1080	744	320	153	128	494
35°	739	489	172	80	79	456
45°	325	221	74	40	50	247
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°	620.3	620.3	620.3	620.3	620.3	620.3	620.3	620.3	620.3	620.3	620.3
2.5°	680.6	694.5	689.9	697.6	696.1	682.2	668.2	646.6	624.9	612.6	584.7
5°	761.0	778.1	790.4	781.2	776.5	765.7	714.6	666.7	612.6	558.4	518.2
7.5°	866.2	861.6	875.5	847.7	849.2	844.6	770.3	677.5	594.0	515.1	457.9
10°	948.2	934.3	948.2	938.9	920.4	898.7	809.0	672.9	570.8	471.8	394.4
12.5°	1008.5	1027.1	1027.1	1005.4	986.9	962.1	838.4	669.8	530.6	419.2	340.3
15°	1067.3	1073.5	1062.7	1045.7	1027.1	976.1	841.5	649.7	485.7	368.1	292.4
17.5°	1106.0	1107.5	1102.9	1087.4	1061.1	1030.2	821.4	631.1	443.9	327.9	245.9
20°	1121.5	1109.1	1107.5	1079.7	1056.5	1028.7	804.4	586.3	406.8	280.0	213.5
22.5°	1146.2	1116.8	1116.8	1089.0	1041.0	1036.4	795.1	535.2	355.8	239.8	182.5
25°	1079.7	1075.1	1084.3	1045.7	1008.5	1000.8	744.0	496.5	320.2	207.3	153.1
27.5°	1034.8	1022.5	1010.1	985.3	949.8	931.2	702.3	447.0	278.4	173.2	129.9
30°	943.6	943.6	928.1	915.7	867.8	853.9	628.0	400.6	238.2	148.5	108.3
32.5°	843.0	829.1	830.7	816.7	787.3	776.5	558.4	349.6	205.7	120.7	94.4
35°	739.4	723.9	716.2	705.4	700.7	666.7	488.8	301.6	171.7	105.2	80.4
37.5°	637.3	621.8	615.6	598.6	573.9	566.1	413.0	250.6	143.9	86.6	66.5
40°	496.5	496.5	495.0	476.4	468.7	464.1	341.9	208.8	117.6	69.6	57.2
42.5°	396.0	400.6	397.5	389.8	372.8	369.7	284.6	170.2	95.9	58.8	48.0
45°	324.8	310.9	307.8	306.3	297.0	295.4	221.2	134.6	74.2	48.0	40.2
47.5°	238.2	236.7	239.8	232.0	221.2	230.5	174.8	102.1	58.8	38.7	34.0
50°	173.2	176.3	176.3	168.6	165.5	168.6	134.6	77.3	43.3	30.9	29.4
52.5°	129.9	128.4	126.8	128.4	126.8	126.8	100.5	57.2	34.0	24.7	23.2
55°	92.8	92.8	91.3	94.4	95.9	92.8	75.8	41.8	26.3	20.1	18.6
57.5°	65.0	65.0	61.9	65.0	65.0	68.1	54.1	30.9	21.7	15.5	15.5
60°	43.3	43.3	43.3	44.9	46.4	46.4	37.1	21.7	17.0	12.4	12.4
62.5°	29.4	29.4	29.4	30.9	30.9	34.0	26.3	17.0	13.9	10.8	9.3
65°	20.1	20.1	20.1	20.1	21.7	21.7	17.0	12.4	10.8	9.3	7.7
67.5°	12.4	13.9	12.4	13.9	13.9	13.9	10.8	9.3	7.7	6.2	4.6
70°	9.3	9.3	9.3	9.3	9.3	9.3	7.7	7.7	6.2	4.6	3.1
72.5°	6.2	6.2	6.2	6.2	6.2	6.2	4.6	4.6	4.6	3.1	3.1
75°	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	1.5	1.5
77.5°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	0.0
80°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	0.0	0.0
82.5°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	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°	620.3	620.3
2.5°	569.2	558.4
5°	482.6	495.0
7.5°	420.7	405.3
10°	352.7	343.4
12.5°	306.3	301.6
15°	253.7	242.9
17.5°	218.1	207.3
20°	182.5	174.8
22.5°	156.2	151.6
25°	134.6	128.4
27.5°	116.0	112.9
30°	100.5	100.5
32.5°	86.6	89.7
35°	77.3	78.9
37.5°	66.5	69.6
40°	61.9	65.0
42.5°	52.6	58.8
45°	44.9	49.5
47.5°	38.7	43.3
50°	32.5	37.1
52.5°	29.4	32.5
55°	24.7	26.3
57.5°	20.1	21.7
60°	15.5	17.0
62.5°	12.4	13.9
65°	9.3	9.3
67.5°	6.2	7.7
70°	3.1	4.6
72.5°	1.5	1.5
75°	1.5	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)