

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: P601166

Luminaire Tested: **ML406AWW9FS1E - TIR4D25AWW - TL41R_ TL42S_ 2700K**

Issue Date: 7/29/2022

Tested By:

Approved By:



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Test Information

Test Method: LM-79-08
 Report Number: P601166
 Test Lab: COOPER LIGHTING SOLUTIONS
 Issue Date: 7/29/2022
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
 Product Line: HALO
 Catalog Number: ML406AWW9FS1E - TIR4D25AWW - TL41R_ TL42S_ 2700K
 Description: RETROFIT, 25D WW OPTIC, OPEN TRIM
 Light Source: (1) SELECTABLE LUMEN LED 90CRI / 2700K CCT
 Ballast/Driver: -

Summary

Lumens per Lamp: N/A
 Luminaire Lumens: 497.0 lumens
 Efficiency: N/A
 Efficacy: 59.9 lumens/watt
 Spacing Criteria (0/90/45): 1.31 / 0.61 / 0.81
 Luminous Opening: Circular (Dia: 0.21' x H: 0')
 CIE Type: Direct

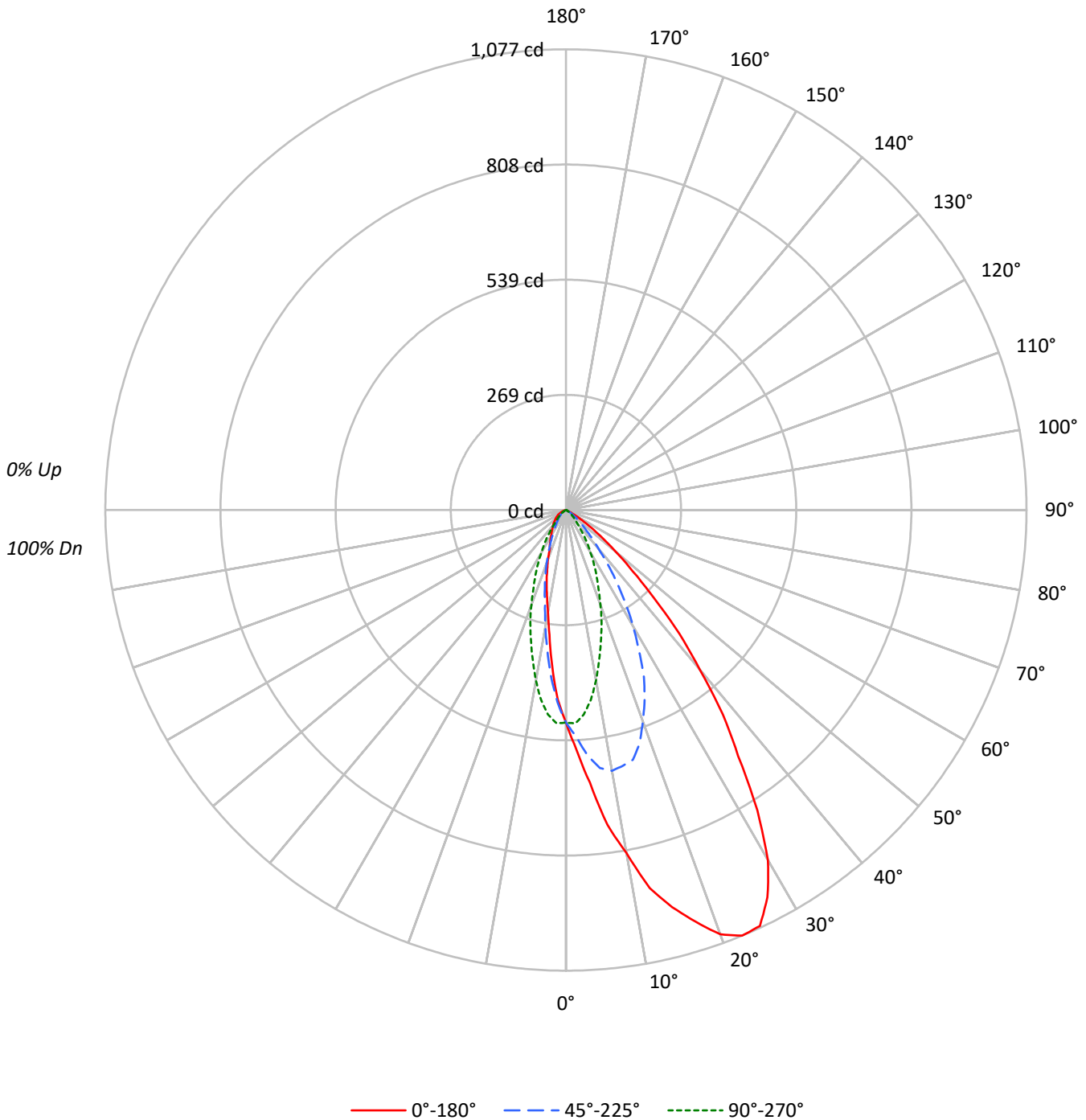
Input Watts (W): 8.3
 Input Voltage (V): NR
 Input Current (Ain): NR
 Voltage Rise (V): NR
 Power Factor: NR
 Total Harmonic Distortion (THDi): NR
 Frequency (hertz): 60
 Stabilization Time: NR
 Operation Time: NR
 Ambient Temperature (°C): NR
 Test Distance: 25 FT



Meas			
Instrument	Identificatio		Calibration Due Date
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	111	108	106	103	104	102	100	100	99	97	97	96	94	94	94	94	93
2	107	102	97	94	105	100	96	93	97	93	91	94	91	89	91	89	87	87	87	87	85
3	101	94	89	84	99	93	88	84	90	86	82	87	84	81	85	82	80	80	80	80	78
4	95	87	81	77	93	86	80	76	84	79	75	82	78	74	80	76	73	73	73	73	72
5	90	81	75	70	88	80	74	70	78	73	69	76	72	68	75	71	68	68	68	68	66
6	85	75	69	64	83	75	68	64	73	68	64	72	67	63	70	66	63	63	63	63	61
7	80	70	64	59	79	70	64	59	68	63	59	67	62	59	66	62	58	58	58	58	57
8	76	66	60	55	75	65	59	55	64	59	55	63	58	55	62	58	54	54	54	54	53
9	72	62	56	51	71	61	55	51	60	55	51	60	54	51	59	54	51	51	51	51	49
10	69	58	52	48	68	58	52	48	57	52	48	56	51	48	55	51	48	48	48	48	46

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	156904	156904	156904
5°	202703	152083	116709
10°	260934	129537	77305
15°	314220	103040	56979
20°	354747	79370	41332
25°	373772	58742	30939
30°	344524	41894	24940
35°	270683	28256	21664
40°	201113	17106	19126
45°	129859	11655	17103
50°	76044	8400	15229
55°	40353	5836	13433
60°	16988	3094	11810
65°	6052	2466	9115
70°	739	1477	5262
75°	976	976	0
80°	0	0	0
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	45.8	9.2
10°-20°	118.6	23.9
20°-30°	144.9	29.2
30°-40°	108.5	21.8
40°-50°	53.8	10.8
50°-60°	19.8	4.0
60°-70°	4.9	1.0
70°-80°	0.7	0.1
80°-90°	0.0	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°	309.3	62.2
0°-40°	417.8	84.1
0°-60°	491.4	98.9
0°-90°	497.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	497.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	497	497	497	497	497	
5°	640	575	480	394	368	67
15°	961	604	315	191	174	273
25°	1073	431	169	85	89	481
35°	702	207	73	39	56	443
45°	291	68	26	22	38	232
55°	73	19	11	9	24	70
65°	8	2	3	3	12	10
75°	1	1	1	0	0	1
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°	496.9	496.9	496.9	496.9	496.9	496.9	496.9	496.9	496.9	496.9	496.9
2.5°	559.6	559.6	566.1	555.6	555.6	552.3	528.7	514.8	499.3	476.5	449.7
5°	639.5	655.8	642.7	624.8	635.4	630.5	575.1	524.6	479.8	435.8	393.5
7.5°	742.1	746.2	734.8	712.0	707.1	703.8	608.5	525.4	447.2	381.2	332.4
10°	813.8	819.5	814.6	806.5	778.8	772.2	619.1	494.5	404.0	334.0	275.3
12.5°	905.8	904.2	896.9	873.2	841.5	832.5	612.6	466.8	358.4	281.0	225.6
15°	961.2	971.0	960.4	897.7	883.0	860.2	604.4	429.3	315.2	243.6	191.4
17.5°	1009.3	1005.2	984.8	944.9	907.5	887.1	572.7	374.7	277.0	202.8	158.0
20°	1055.7	1056.5	1024.8	975.9	915.6	879.0	525.4	337.2	236.2	167.0	131.2
22.5°	1076.9	1075.3	1034.5	962.0	892.0	854.5	480.6	294.9	197.9	135.2	105.1
25°	1072.8	1043.5	1016.6	931.1	852.1	806.5	430.9	258.2	168.6	114.0	84.7
27.5°	1020.7	1006.0	960.4	874.9	783.6	737.2	369.0	220.8	140.9	89.6	69.2
30°	944.9	927.8	873.2	802.4	682.6	646.0	314.4	180.8	114.9	76.6	57.0
32.5°	832.5	819.5	763.3	670.4	576.7	535.2	260.7	144.2	92.9	56.2	46.4
35°	702.2	701.4	651.7	575.9	478.2	435.8	206.9	115.7	73.3	44.8	39.1
37.5°	602.8	581.6	532.7	462.7	380.4	345.4	162.1	90.4	54.6	35.0	32.6
40°	487.9	479.0	427.7	368.2	295.7	269.6	119.7	67.6	41.5	28.5	29.3
42.5°	392.6	380.4	338.1	280.2	228.9	207.7	91.2	52.1	32.6	24.4	26.1
45°	290.8	285.1	260.7	208.5	169.4	154.8	67.6	40.7	26.1	20.4	22.0
47.5°	211.8	205.3	188.2	154.8	123.0	114.0	52.1	31.8	21.2	16.3	17.1
50°	154.8	150.7	139.3	112.4	90.4	83.1	39.1	24.4	17.1	13.0	14.7
52.5°	106.7	108.3	98.6	79.8	64.4	59.5	29.3	17.9	13.8	10.6	12.2
55°	73.3	71.7	67.6	52.1	41.5	38.3	18.7	12.2	10.6	8.1	9.0
57.5°	44.8	44.8	41.5	32.6	26.1	24.4	11.4	8.1	7.3	5.7	7.3
60°	26.9	26.9	22.8	18.7	15.5	13.8	6.5	4.9	4.9	4.1	5.7
62.5°	14.7	14.7	13.0	10.6	8.1	7.3	4.1	4.1	3.3	3.3	4.9
65°	8.1	7.3	6.5	4.9	4.1	4.1	2.4	3.3	3.3	3.3	3.3
67.5°	3.3	3.3	3.3	2.4	2.4	2.4	1.6	2.4	2.4	2.4	2.4
70°	0.8	1.6	1.6	1.6	0.8	0.8	1.6	1.6	1.6	1.6	1.6
72.5°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
75°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.0
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.0	0.0	0.0
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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°	496.9	496.9
2.5°	450.5	443.1
5°	377.2	368.2
7.5°	299.8	294.1
10°	245.2	241.1
12.5°	206.9	204.5
15°	175.1	174.3
17.5°	147.4	145.0
20°	120.6	123.0
22.5°	99.4	97.8
25°	83.9	88.8
27.5°	71.7	78.2
30°	62.7	68.4
32.5°	53.8	62.7
35°	47.2	56.2
37.5°	42.4	50.5
40°	39.1	46.4
42.5°	34.2	43.2
45°	30.1	38.3
47.5°	26.1	34.2
50°	23.6	31.0
52.5°	20.4	27.7
55°	17.1	24.4
57.5°	15.5	22.0
60°	13.0	18.7
62.5°	9.8	15.5
65°	7.3	12.2
67.5°	4.9	9.0
70°	2.4	5.7
72.5°	0.8	1.6
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)