

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: P601185

Luminaire Tested: **ML406AWWD2W1E - TIR4D25AWW - TL45R6G_ TL46S6G_ 2700K**

Issue Date: 7/29/2022

Tested By:

Approved By:



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Test Information

Test Method: LM-79-08
 Report Number: P601185
 Test Lab: COOPER LIGHTING SOLUTIONS
 Issue Date: 7/29/2022
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
 Product Line: HALO
 Catalog Number: ML406AWWD2W1E - TIR4D25AWW - TL45R6G_ TL46S6G_ 2700K
 Description: RETROFIT, 25D WW OPTIC, LINEAR SPREAD LENS TRIM
 Light Source: (1) SELECTABLE LUMEN LED D2W / 2700K CCT
 Ballast/Driver: -

Summary

Lumens per Lamp: N/A
 Luminaire Lumens: 477.4 lumens
 Efficiency: N/A
 Efficacy: 57.5 lumens/watt
 Spacing Criteria (0/90/45): 1.21 / 0.78 / 1
 Luminous Opening: Circular (Dia: 0.21' x H: 0')
 CIE Type: Direct

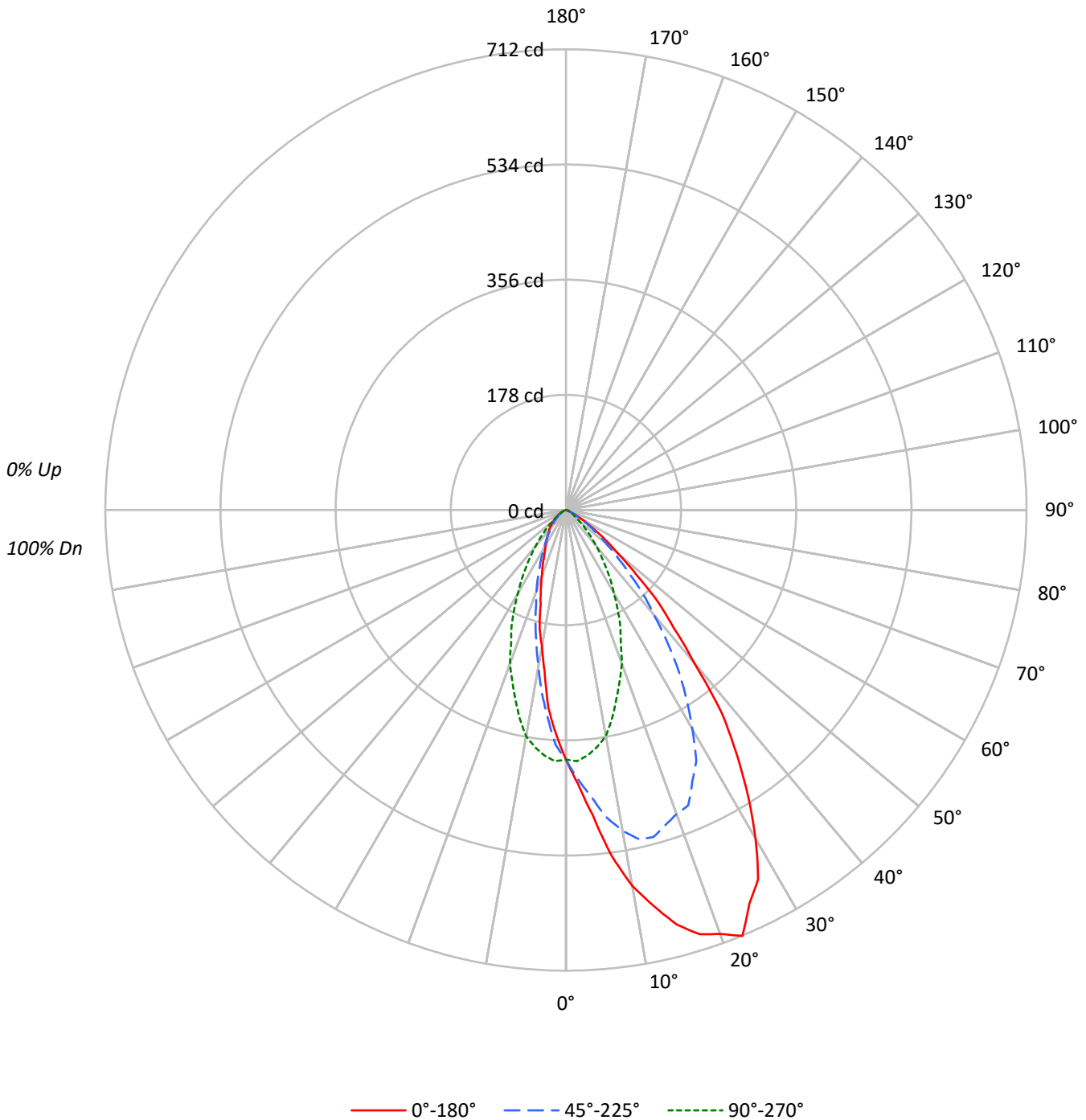
Input Watts (W): 8.3
 Input Voltage (V): NR
 Input Current (Ain): NR
 Voltage Rise (V): NR
 Power Factor: NR
 Total Harmonic Distortion (THDi): NR
 Frequency (hertz): 60
 Stabilization Time: NR
 Operation Time: NR
 Ambient Temperature (°C): NR
 Test Distance: 25 FT



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	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°	121759	121759	121759
5°	149959	120703	97532
10°	188983	113762	68456
15°	216868	98692	49363
20°	234247	84982	36526
25°	233817	69333	27803
30°	213846	53999	22788
35°	177166	41131	18888
40°	127206	30132	16653
45°	90160	20631	13754
50°	52907	13214	11348
55°	31765	8973	8973
60°	16988	6694	6694
65°	9340	5006	4334
70°	5355	3508	2677
75°	2318	2318	0
80°	1818	1818	0
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	36.5	7.7
10°-20°	99.4	20.8
20°-30°	129.9	27.2
30°-40°	111.4	23.3
40°-50°	63.7	13.4
50°-60°	26.1	5.5
60°-70°	8.3	1.7
70°-80°	1.8	0.4
80°-90°	0.2	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°	265.9	55.7
0°-40°	377.3	79.0
0°-60°	467.1	97.8
0°-90°	477.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	477.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	386	386	386	386	386	
5°	473	444	381	322	308	49
15°	663	523	302	182	151	187
25°	671	462	199	95	80	307
35°	460	304	107	50	49	284
45°	202	138	46	25	31	154
55°	58	47	16	12	16	55
65°	12	11	7	5	6	13
75°	2	2	2	1	0	3
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°	385.6	385.6	385.6	385.6	385.6	385.6	385.6	385.6	385.6	385.6	385.6
2.5°	423.1	431.7	428.8	433.6	432.7	424.0	415.4	401.9	388.5	380.8	363.5
5°	473.1	483.6	491.3	485.6	482.7	476.0	444.2	414.4	380.8	347.1	322.1
7.5°	538.5	535.6	544.2	526.9	527.9	525.0	478.8	421.1	369.2	320.2	284.6
10°	589.4	580.8	589.4	583.6	572.1	558.6	502.9	418.3	354.8	293.3	245.2
12.5°	626.9	638.4	638.4	625.0	613.5	598.1	521.1	416.3	329.8	260.6	211.5
15°	663.4	667.3	660.6	650.0	638.4	606.7	523.1	403.8	301.9	228.8	181.7
17.5°	687.5	688.4	685.6	675.9	659.6	640.4	510.6	392.3	276.0	203.8	152.9
20°	697.1	689.4	688.4	671.1	656.7	639.4	500.0	364.4	252.9	174.0	132.7
22.5°	712.5	694.2	694.2	676.9	647.1	644.2	494.2	332.7	221.1	149.0	113.5
25°	671.1	668.3	674.0	650.0	626.9	622.1	462.5	308.6	199.0	128.8	95.2
27.5°	643.3	635.6	627.9	612.5	590.4	578.8	436.5	277.9	173.1	107.7	80.8
30°	586.5	586.5	576.9	569.2	539.4	530.8	390.4	249.0	148.1	92.3	67.3
32.5°	524.0	515.4	516.3	507.7	489.4	482.7	347.1	217.3	127.9	75.0	58.7
35°	459.6	450.0	445.2	438.5	435.6	414.4	303.8	187.5	106.7	65.4	50.0
37.5°	396.1	386.5	382.7	372.1	356.7	351.9	256.7	155.8	89.4	53.8	41.3
40°	308.6	308.6	307.7	296.1	291.3	288.5	212.5	129.8	73.1	43.3	35.6
42.5°	246.1	249.0	247.1	242.3	231.7	229.8	176.9	105.8	59.6	36.5	29.8
45°	201.9	193.3	191.3	190.4	184.6	183.7	137.5	83.7	46.2	29.8	25.0
47.5°	148.1	147.1	149.0	144.2	137.5	143.3	108.7	63.5	36.5	24.0	21.2
50°	107.7	109.6	109.6	104.8	102.9	104.8	83.7	48.1	26.9	19.2	18.3
52.5°	80.8	79.8	78.8	79.8	78.8	78.8	62.5	35.6	21.2	15.4	14.4
55°	57.7	57.7	56.7	58.7	59.6	57.7	47.1	26.0	16.3	12.5	11.5
57.5°	40.4	40.4	38.5	40.4	40.4	42.3	33.7	19.2	13.5	9.6	9.6
60°	26.9	26.9	26.9	27.9	28.8	28.8	23.1	13.5	10.6	7.7	7.7
62.5°	18.3	18.3	18.3	19.2	19.2	21.2	16.3	10.6	8.7	6.7	5.8
65°	12.5	12.5	12.5	12.5	13.5	13.5	10.6	7.7	6.7	5.8	4.8
67.5°	7.7	8.7	7.7	8.7	8.7	8.7	6.7	5.8	4.8	3.8	2.9
70°	5.8	5.8	5.8	5.8	5.8	5.8	4.8	4.8	3.8	2.9	1.9
72.5°	3.8	3.8	3.8	3.8	3.8	3.8	2.9	2.9	2.9	1.9	1.9
75°	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.0	1.0
77.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0
80°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0
82.5°	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	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°	385.6	385.6
2.5°	353.8	347.1
5°	300.0	307.7
7.5°	261.5	251.9
10°	219.2	213.5
12.5°	190.4	187.5
15°	157.7	151.0
17.5°	135.6	128.8
20°	113.5	108.7
22.5°	97.1	94.2
25°	83.7	79.8
27.5°	72.1	70.2
30°	62.5	62.5
32.5°	53.8	55.8
35°	48.1	49.0
37.5°	41.3	43.3
40°	38.5	40.4
42.5°	32.7	36.5
45°	27.9	30.8
47.5°	24.0	26.9
50°	20.2	23.1
52.5°	18.3	20.2
55°	15.4	16.3
57.5°	12.5	13.5
60°	9.6	10.6
62.5°	7.7	8.7
65°	5.8	5.8
67.5°	3.8	4.8
70°	1.9	2.9
72.5°	1.0	1.0
75°	1.0	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)