

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: P601181

Luminaire Tested: **ML406AWWD2W1E - 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: P601181
 Test Lab: COOPER LIGHTING SOLUTIONS
 Issue Date: 7/29/2022
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
 Product Line: HALO
 Catalog Number: ML406AWWD2W1E - TIR4D25AWW - TL41R_ TL42S_ 2700K
 Description: RETROFIT, 25D WW OPTIC, OPEN TRIM
 Light Source: (1) SELECTABLE LUMEN LED D2W / 2700K CCT
 Ballast/Driver: -

Summary

Lumens per Lamp: N/A
 Luminaire Lumens: 388.9 lumens
 Efficiency: N/A
 Efficacy: 46.9 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

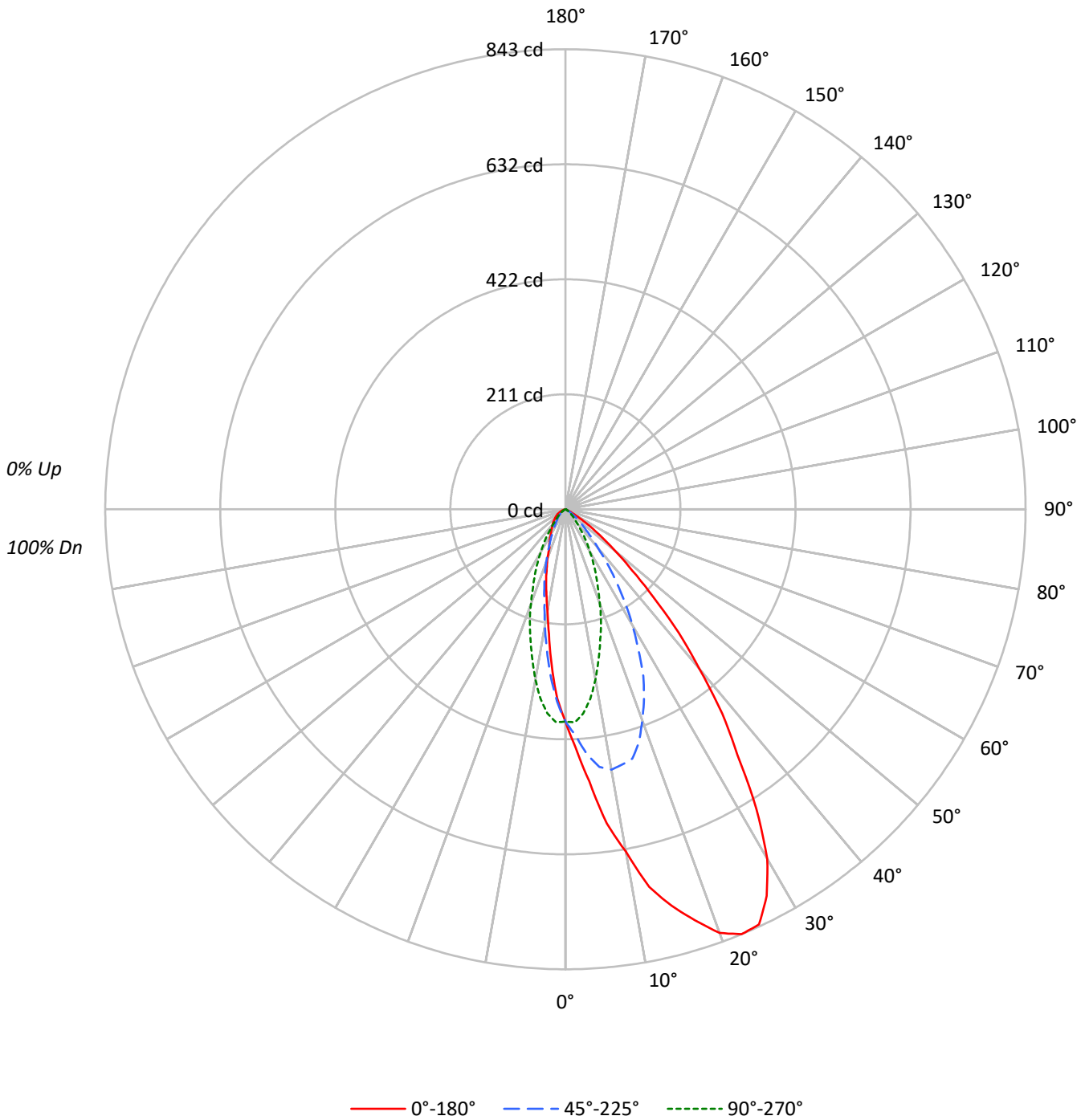
Input Watts (W): 8.3
 Input Voltage (V): NR
 Input Current (Ain): NR
 Voltage Rise (V): NR
 Power Factor: NR
 Total Harmonic Distortion (THDi): NR
 Frequency (hertz): 60
 Stabilization Time: NR
 Operation Time: NR
 Ambient Temperature (°C): NR
 Test Distance: 25 FT



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

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	122801	122801	122801
5°	158612	119023	91319
10°	204181	101385	60504
15°	245897	80647	44590
20°	277628	62132	32360
25°	292489	45990	24214
30°	269632	32779	19507
35°	211820	22126	16961
40°	157379	13397	14963
45°	101637	9110	13397
50°	59490	6583	11888
55°	31600	4569	10515
60°	13262	2400	9283
65°	4782	1868	7173
70°	554	1200	4155
75°	732	732	0
80°	0	0	0
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	35.9	9.2
10°-20°	92.8	23.9
20°-30°	113.4	29.2
30°-40°	84.9	21.8
40°-50°	42.1	10.8
50°-60°	15.5	4.0
60°-70°	3.8	1.0
70°-80°	0.5	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°	242.1	62.2
0°-40°	327.0	84.1
0°-60°	384.5	98.9
0°-90°	388.9	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	388.9	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	389	389	389	389	389	
5°	500	450	376	308	288	52
15°	752	473	247	150	136	214
25°	840	337	132	66	70	376
35°	550	162	57	31	44	346
45°	228	53	20	17	30	181
55°	57	15	8	7	19	55
65°	6	2	2	2	10	8
75°	1	1	1	0	0	0
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°	388.9	388.9	388.9	388.9	388.9	388.9	388.9	388.9	388.9	388.9	388.9
2.5°	437.9	437.9	443.0	434.8	434.8	432.2	413.7	402.9	390.8	372.9	351.9
5°	500.4	513.2	503.0	488.9	497.2	493.4	450.1	410.5	375.5	341.0	307.9
7.5°	580.7	583.9	575.0	557.1	553.3	550.8	476.2	411.2	350.0	298.3	260.1
10°	636.8	641.3	637.5	631.1	609.4	604.3	484.5	386.9	316.2	261.4	215.5
12.5°	708.9	707.6	701.9	683.4	658.5	651.5	479.4	365.3	280.5	219.9	176.6
15°	752.2	759.9	751.6	702.5	691.0	673.2	473.0	335.9	246.7	190.6	149.8
17.5°	789.8	786.6	770.7	739.5	710.1	694.2	448.1	293.2	216.7	158.7	123.7
20°	826.2	826.8	801.9	763.7	716.5	687.8	411.2	263.9	184.9	130.7	102.6
22.5°	842.7	841.5	809.6	752.8	698.0	668.7	376.1	230.8	154.9	105.8	82.2
25°	839.5	816.6	795.6	728.6	666.8	631.1	337.2	202.1	132.0	89.2	66.3
27.5°	798.7	787.3	751.6	684.6	613.2	576.9	288.8	172.8	110.3	70.1	54.2
30°	739.5	726.1	683.4	627.9	534.2	505.5	246.1	141.5	89.9	59.9	44.6
32.5°	651.5	641.3	597.3	524.6	451.3	418.8	204.0	112.8	72.7	44.0	36.3
35°	549.5	548.9	510.0	450.7	374.2	341.0	161.9	90.5	57.4	35.1	30.6
37.5°	471.7	455.2	416.9	362.1	297.7	270.3	126.9	70.8	42.7	27.4	25.5
40°	381.8	374.8	334.7	288.1	231.4	211.0	93.7	52.9	32.5	22.3	22.9
42.5°	307.3	297.7	264.5	219.3	179.1	162.6	71.4	40.8	25.5	19.1	20.4
45°	227.6	223.1	204.0	163.2	132.6	121.1	52.9	31.9	20.4	15.9	17.2
47.5°	165.7	160.6	147.3	121.1	96.3	89.2	40.8	24.9	16.6	12.7	13.4
50°	121.1	117.9	109.0	88.0	70.8	65.0	30.6	19.1	13.4	10.2	11.5
52.5°	83.5	84.8	77.1	62.5	50.4	46.5	22.9	14.0	10.8	8.3	9.6
55°	57.4	56.1	52.9	40.8	32.5	30.0	14.7	9.6	8.3	6.4	7.0
57.5°	35.1	35.1	32.5	25.5	20.4	19.1	8.9	6.4	5.7	4.5	5.7
60°	21.0	21.0	17.8	14.7	12.1	10.8	5.1	3.8	3.8	3.2	4.5
62.5°	11.5	11.5	10.2	8.3	6.4	5.7	3.2	3.2	2.5	2.5	3.8
65°	6.4	5.7	5.1	3.8	3.2	3.2	1.9	2.5	2.5	2.5	2.5
67.5°	2.5	2.5	2.5	1.9	1.9	1.9	1.3	1.9	1.9	1.9	1.9
70°	0.6	1.3	1.3	1.3	0.6	0.6	1.3	1.3	1.3	1.3	1.3
72.5°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
75°	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.0
77.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6	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°	388.9	388.9
2.5°	352.5	346.8
5°	295.1	288.1
7.5°	234.6	230.1
10°	191.9	188.7
12.5°	161.9	160.0
15°	137.1	136.4
17.5°	115.4	113.5
20°	94.3	96.3
22.5°	77.8	76.5
25°	65.7	69.5
27.5°	56.1	61.2
30°	49.1	53.5
32.5°	42.1	49.1
35°	37.0	44.0
37.5°	33.1	39.5
40°	30.6	36.3
42.5°	26.8	33.8
45°	23.6	30.0
47.5°	20.4	26.8
50°	18.5	24.2
52.5°	15.9	21.7
55°	13.4	19.1
57.5°	12.1	17.2
60°	10.2	14.7
62.5°	7.6	12.1
65°	5.7	9.6
67.5°	3.8	7.0
70°	1.9	4.5
72.5°	0.6	1.3
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)