

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: P601304

Luminaire Tested: **ML410LSNFL9FS1E - TIR4D25NFL - TL43R2G_ TL44S2G_ 2700K**

Issue Date: 7/29/2022

Tested By:

Approved By:



Cooper Lighting Solutions laboratories have been accredited by National Voluntary Laboratory Accreditation Program (NVLAP) that it adheres to the requirements of ISO/IEC 17025:2005 and appropriate IESNA test methods. This report must not be used to claim product certification, approval or endorsement by NVLAP, NIST or any agency of the Federal Government. Results contained in this report are valid for luminaire sample tested, as supplied by requestor. Information related to the luminaire tested has been supplied by requestor and can affect the validity of the test results. Report shall not be reproduced except in full without approval of Cooper Lighting Solutions Lighting Laboratory. Test performed at address noted above.

Test Information

Test Method: LM-79-08
 Report Number: P601304
 Test Lab: COOPER LIGHTING SOLUTIONS
 Issue Date: 7/29/2022
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
 Product Line: HALO
 Catalog Number: ML410LSNFL9FS1E - TIR4D25NFL - TL43R2G_ TL44S2G_ 2700K
 Description: RETROFIT, 25D OPTIC, DIFFUSE CLEAR LENS TRIM
 Light Source: (1) SELECTABLE LUMEN LED 90CRI / 2700K CCT
 Ballast/Driver: -

Summary

Lumens per Lamp: N/A
 Luminaire Lumens: 1084.4 lumens
 Efficiency: N/A
 Efficacy: 90.4 lumens/watt
 Spacing Criteria (0/90/45): 0.44 / 0.44 / 0.47
 Luminous Opening: Circular (Dia: 0.21' x H: 0')
 CIE Type: Direct

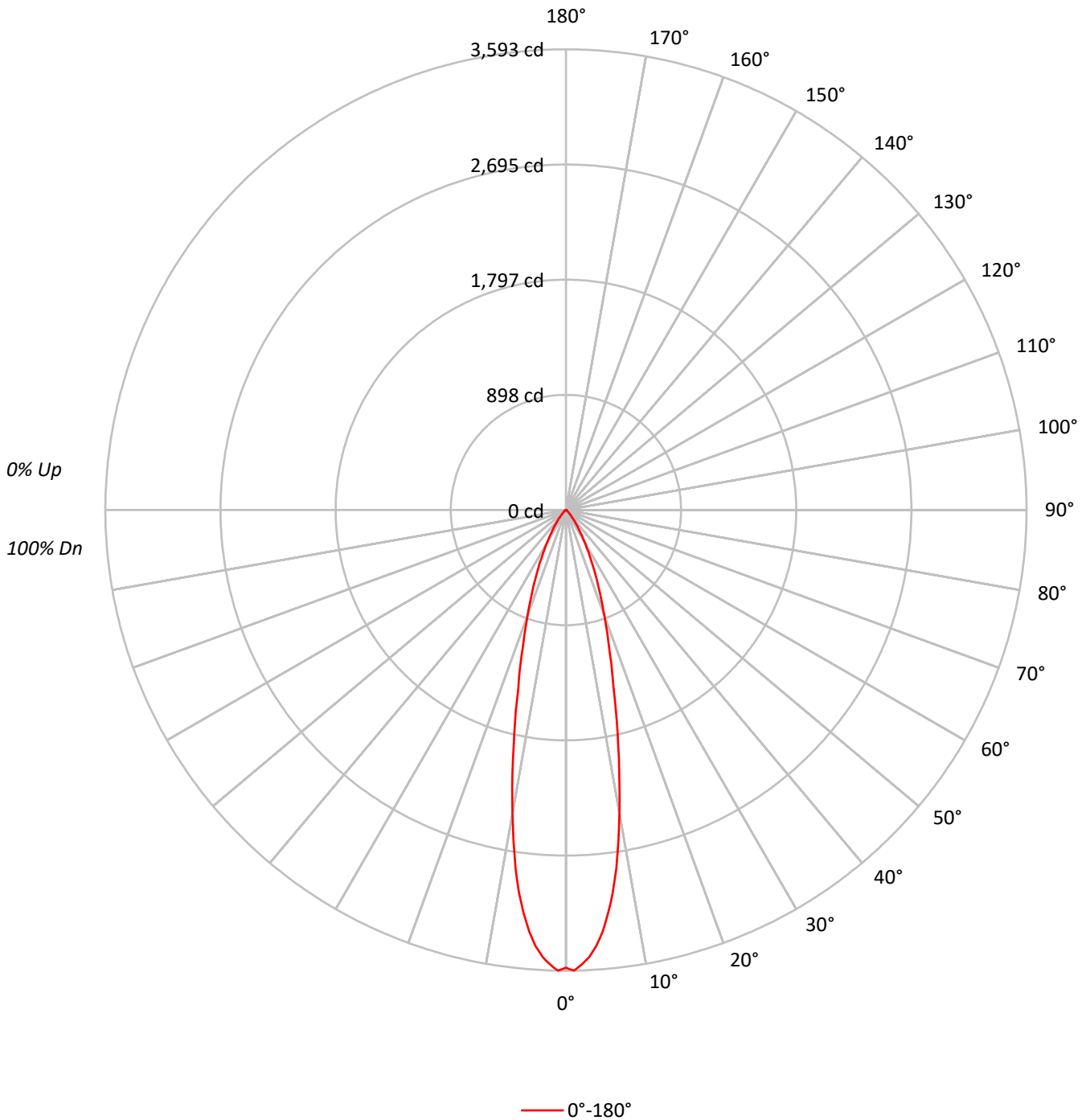
Input Watts (W): 12
 Input Voltage (V): NR
 Input Current (Ain): NR
 Voltage Rise (V): NR
 Power Factor: NR
 Total Harmonic Distortion (THDi): NR
 Frequency (hertz): 60
 Stabilization Time: NR
 Operation Time: NR
 Ambient Temperature (°C): NR
 Test Distance: 25 FT



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

TEST NUMBER: P601304
CATALOG NUMBER: ML410LSNFL9FS1E - TIR4D25NFL - TL43R2G_ TL44S2G_ 2700K

Luminous Intensity Polar Plot



TEST NUMBER: P601304
 CATALOG NUMBER: ML410LSNFL9FS1E - TIR4D25NFL - TL43R2G_ TL44S2G_ 2700K

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	114	112	110	108	112	110	108	106	106	104	103	102	101	100	99	98	97	95	95	95	95
2	110	106	103	100	108	104	101	99	101	99	96	98	96	94	95	94	92	91	91	91	91
3	106	100	96	93	104	99	95	92	97	93	91	94	92	89	92	90	88	87	87	87	87
4	102	96	91	88	100	94	90	87	92	89	86	91	87	85	89	86	84	83	83	83	83
5	98	91	86	83	96	90	86	83	89	85	82	87	84	81	86	83	80	79	79	79	79
6	94	87	82	79	93	86	82	79	85	81	78	84	80	78	83	79	77	76	76	76	76
7	91	84	79	75	90	83	78	75	82	78	75	81	77	74	80	76	74	73	73	73	73
8	88	80	75	72	87	80	75	72	79	75	72	78	74	71	77	74	71	70	70	70	70
9	85	77	72	69	84	77	72	69	76	72	69	75	71	69	74	71	68	67	67	67	67
10	82	74	70	67	81	74	70	67	73	69	66	73	69	66	72	69	66	65	65	65	65

AVERAGE LUMINANCE (cd/sqm):

	0°
0°	1127219
5°	1045435
10°	769816
15°	469140
20°	293220
25°	183089
30°	106540
35°	60289
40°	31657
45°	16523
50°	9432
55°	5285
60°	2589
65°	2017
70°	1293
75°	1708
80°	0
85°	0

TEST NUMBER: P601304
 CATALOG NUMBER: ML410LSNFL9FS1E - TIR4D25NFL - TL43R2G_ TL44S2G_ 2700K

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	285.7	26.3
10°-20°	407.7	37.6
20°-30°	244.9	22.6
30°-40°	102.0	9.4
40°-50°	31.3	2.9
50°-60°	9.6	0.9
60°-70°	2.4	0.2
70°-80°	0.9	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°	938.3	86.5
0°-40°	1040.3	95.9
0°-60°	1081.1	99.7
0°-90°	1084.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1084.4	100.0

CANDELA DISTRIBUTION:

	0°	Flux
0°	3570	
5°	3298	286
15°	1435	408
25°	526	245
35°	156	102
45°	37	31
55°	10	10
65°	3	2
75°	1	1
85°	0	0
90°	0	

TEST NUMBER: P601304
CATALOG NUMBER: ML410LSNFL9FS1E - TIR4D25NFL - TL43R2G_ TL44S2G_ 2700K

CANDELA DISTRIBUTION (FULL):

0°	
0°	3569.8
1°	3593.1
2°	3546.5
3°	3490.2
4°	3406.6
5°	3298.2
6°	3159.6
7°	3003.2
8°	2820.7
9°	2613.6
10°	2400.9
12.5°	1880.9
15°	1435.1
17.5°	1112.7
20°	872.6
22.5°	680.5
25°	525.5
27.5°	395.1
30°	292.2
32.5°	214.0
35°	156.4
37.5°	111.1
40°	76.8
42.5°	53.5
45°	37.0
47.5°	26.1
50°	19.2
52.5°	15.1
55°	9.6
57.5°	6.9
60°	4.1
62.5°	2.7
65°	2.7
67.5°	1.4
70°	1.4
72.5°	1.4
75°	1.4
77.5°	0.0
80°	0.0
82.5°	0.0
85°	0.0
87.5°	0.0
90°	0.0

(END OF REPORT)