

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: P601442

Luminaire Tested: **ML4DM10LSFL9FS1E - TIR4D40FL - TL41R\_ TL42S\_ 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: P601442  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Issue Date: 7/29/2022  
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
 Product Line: HALO  
 Catalog Number: ML4DM10LSFL9FS1E - TIR4D40FL - TL41R\_ TL42S\_ 2700K  
 Description: DIRECT MOUNT, 40D OPTIC, OPEN TRIM  
 Light Source: (1) SELECTABLE LUMEN LED 90CRI / 2700K CCT  
 Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
 Luminaire Lumens: 1144.8 lumens  
 Efficiency: N/A  
 Efficacy: 95.4 lumens/watt  
 Spacing Criteria (0/90/45): 0.67 / 0.67 / 0.63  
 Luminous Opening: Circular (Dia: 0.21' x H: 0')  
 CIE Type: Direct

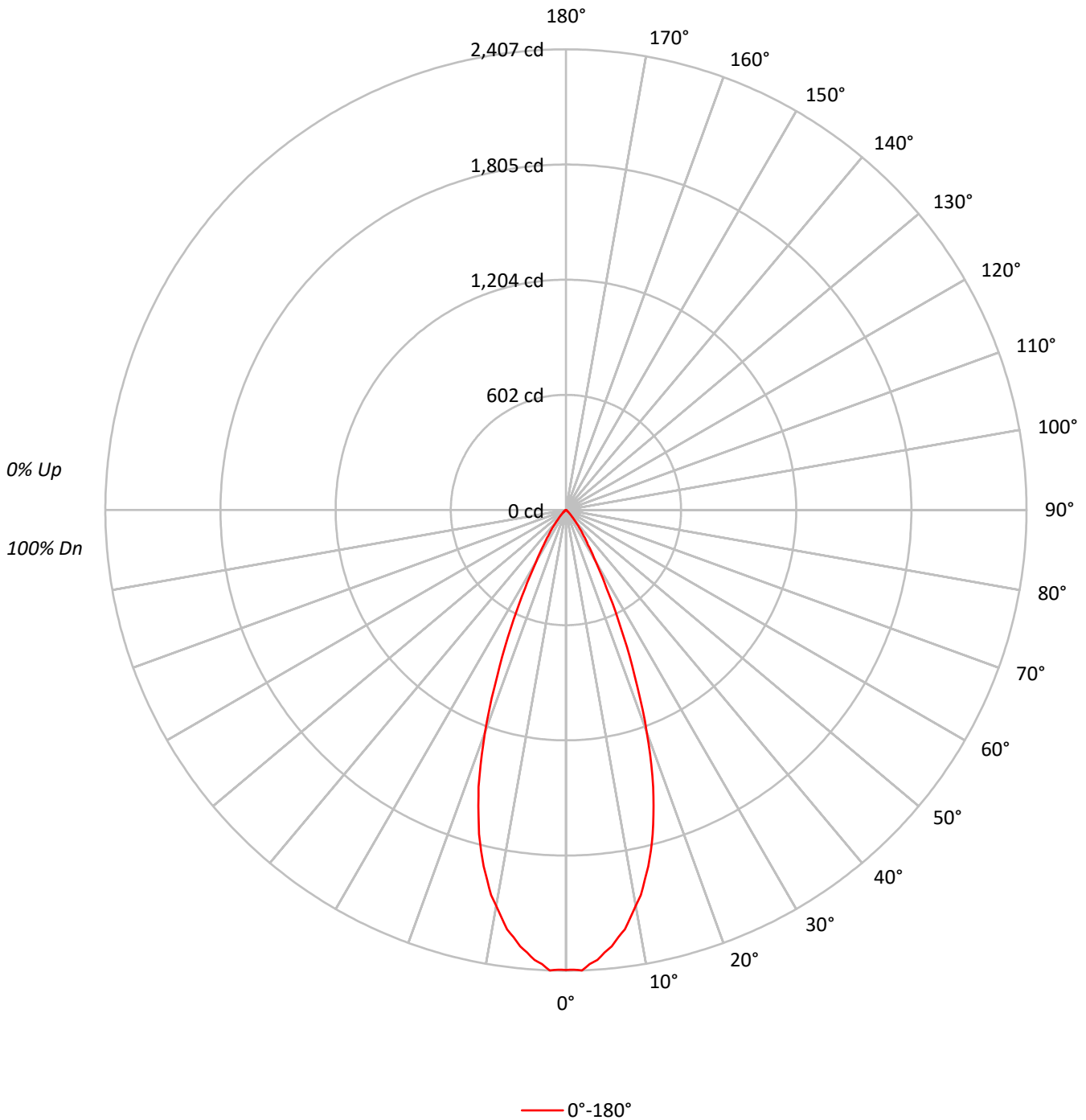
Input Watts (W): 12  
 Input Voltage (V): NR  
 Input Current (Ain): NR  
 Voltage Rise (V): NR  
 Power Factor: NR  
 Total Harmonic Distortion (THDi): NR  
 Frequency (hertz): 60  
 Stabilization Time: NR  
 Operation Time: NR  
 Ambient Temperature (°C): NR  
 Test Distance: 25 FT



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: P601442  
CATALOG NUMBER: ML4DM10LSFL9FS1E - TIR4D40FL - TL41R\_ TL42S\_ 2700K

### Luminous Intensity Polar Plot



TEST NUMBER: P601442  
 CATALOG NUMBER: ML4DM10LSFL9FS1E - TIR4D40FL - TL41R\_ TL42S\_ 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	0
RCR																		
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	114	112	110	108	112	110	108	106	106	104	103	102	101	100	99	98	97	95
2	110	106	102	99	108	104	101	98	101	98	96	98	96	94	95	93	92	90
3	105	100	96	92	103	98	95	91	96	93	90	94	91	89	91	89	87	86
4	101	95	90	86	99	94	89	86	92	88	85	90	87	84	88	85	83	82
5	97	90	85	81	96	89	85	81	87	83	80	86	82	80	84	81	79	78
6	93	86	81	77	92	85	80	77	84	79	76	82	79	76	81	78	75	74
7	90	82	77	73	89	81	77	73	80	76	73	79	75	72	78	75	72	71
8	86	78	73	70	85	78	73	70	77	73	69	76	72	69	75	72	69	68
9	83	75	70	67	82	75	70	67	74	69	66	73	69	66	72	69	66	65
10	80	72	67	64	79	72	67	64	71	67	64	70	66	63	70	66	63	62

**AVERAGE LUMINANCE (cd/sqm):**

	0°
0°	758847
5°	735659
10°	673304
15°	572965
20°	415535
25°	236709
30°	112593
35°	58708
40°	29431
45°	14111
50°	8106
55°	3799
60°	884
65°	1046
70°	0
75°	0
80°	0
85°	0

TEST NUMBER: P601442  
 CATALOG NUMBER: ML4DM10LSFL9FS1E - TIR4D40FL - TL41R\_ TL42S\_ 2700K

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	214.9	18.8
10°-20°	475.7	41.6
20°-30°	317.3	27.7
30°-40°	101.6	8.9
40°-50°	27.6	2.4
50°-60°	6.8	0.6
60°-70°	0.9	0.1
70°-80°	0.0	0.0
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°	1007.8	88.0
0°-40°	1109.5	96.9
0°-60°	1143.9	99.9
0°-90°	1144.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1144.8	100.0

**CANDELA DISTRIBUTION:**

	0°	Flux
0°	2403	
5°	2321	215
15°	1753	476
25°	679	317
35°	152	102
45°	32	28
55°	7	7
65°	1	1
75°	0	0
85°	0	0
90°	0	

TEST NUMBER: P601442  
CATALOG NUMBER: ML4DM10LSFL9FS1E - TIR4D40FL - TL41R\_ TL42S\_ 2700K

**CANDELA DISTRIBUTION (FULL):**

0°	
0°	2403.2
1°	2401.9
2°	2407.4
3°	2375.8
4°	2356.6
5°	2320.9
6°	2292.1
7°	2248.2
8°	2212.5
9°	2154.8
10°	2099.9
11°	2050.5
12°	1977.8
13°	1910.5
14°	1835.0
15°	1752.7
17.5°	1518.0
20°	1236.6
22.5°	938.8
25°	679.4
27.5°	461.2
30°	308.8
32.5°	214.1
35°	152.3
37.5°	108.4
40°	71.4
42.5°	46.7
45°	31.6
47.5°	23.3
50°	16.5
52.5°	11.0
55°	6.9
57.5°	4.1
60°	1.4
62.5°	1.4
65°	1.4
67.5°	0.0
70°	0.0
72.5°	0.0
75°	0.0
77.5°	0.0
80°	0.0
82.5°	0.0
85°	0.0
87.5°	0.0

Signify Classified - Internal  
Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269

  
NVLAP Lab Code: 200050-0



TEST NUMBER: P601442  
CATALOG NUMBER: ML4DM10LSFL9FS1E - TIR4D40FL - TL41R\_ TL42S\_ 2700K

CANDELA DISTRIBUTION (continued):



(END OF REPORT)