

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: P601195

Luminaire Tested: **ML406FL9FS1E - TIR4D40FL - TL43R2G\_ TL44S2G\_ 4000K**

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: P601195  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Issue Date: 7/29/2022  
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
 Product Line: HALO  
 Catalog Number: ML406FL9FS1E - TIR4D40FL - TL43R2G\_ TL44S2G\_ 4000K  
 Description: RETROFIT, 40D OPTIC, DIFFUSE CLEAR LENS TRIM  
 Light Source: (1) SELECTABLE LUMEN LED 90CRI / 4000K CCT  
 Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
 Luminaire Lumens: 835.6 lumens  
 Efficiency: N/A  
 Efficacy: 100.7 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

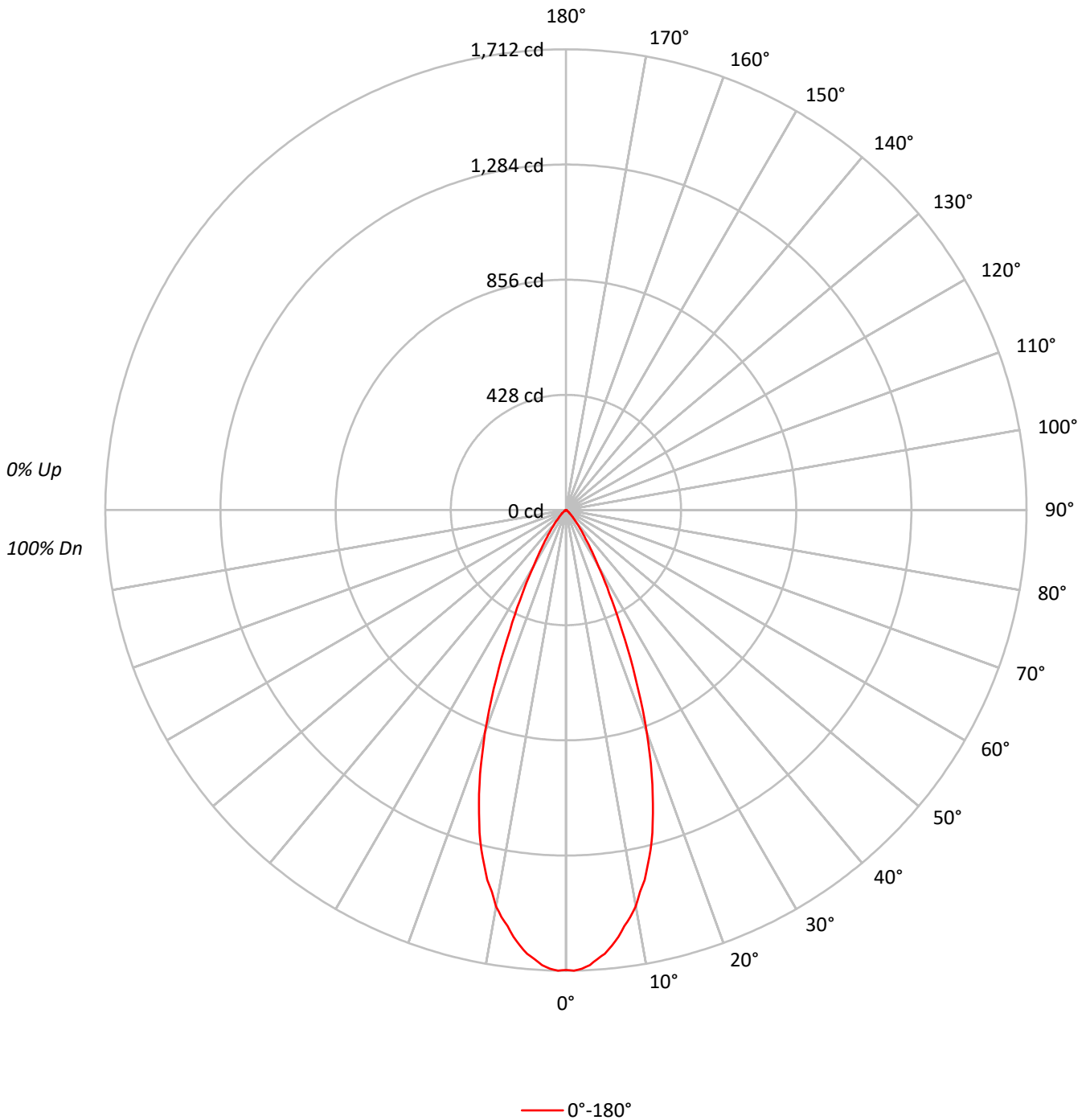
Input Watts (W): 8.3  
 Input Voltage (V): NR  
 Input Current (Ain): NR  
 Voltage Rise (V): NR  
 Power Factor: NR  
 Total Harmonic Distortion (THDi): NR  
 Frequency (hertz): 60  
 Stabilization Time: NR  
 Operation Time: NR  
 Ambient Temperature (°C): NR  
 Test Distance: 25 FT



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	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	109	105	102	99	107	104	100	98	100	98	95		97	95	93		95	93	92	90
3	105	99	95	92	103	98	94	91	95	92	89		93	90	88		91	89	87	85
4	101	94	89	86	99	93	89	85	91	87	84		89	86	83		87	85	82	81
5	97	89	84	81	95	88	84	80	87	83	80		85	82	79		84	81	78	77
6	93	85	80	76	91	84	79	76	83	79	75		82	78	75		80	77	75	73
7	89	81	76	72	88	80	76	72	79	75	72		78	74	71		77	74	71	70
8	86	77	72	69	85	77	72	69	76	72	68		75	71	68		74	71	68	67
9	82	74	69	66	81	74	69	66	73	68	65		72	68	65		71	68	65	64
10	79	71	66	63	78	71	66	63	70	66	63		69	65	62		69	65	62	61

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

	0°
0°	539674
5°	524651
10°	479544
15°	405655
20°	295505
25°	171243
30°	87872
35°	46026
40°	24815
45°	13218
50°	7811
55°	4074
60°	2021
65°	1569
70°	1016
75°	0
80°	0
85°	0

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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	152.6	18.3
10°-20°	336.6	40.3
20°-30°	231.5	27.7
30°-40°	80.3	9.6
40°-50°	24.9	3.0
50°-60°	7.5	0.9
60°-70°	1.8	0.2
70°-80°	0.4	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°	720.7	86.2
0°-40°	801.0	95.9
0°-60°	833.4	99.7
0°-90°	835.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	835.6	100.0

**CANDELA DISTRIBUTION:**

	0°	Flux
0°	1709	
5°	1655	153
15°	1241	337
25°	492	231
35°	119	80
45°	30	25
55°	7	7
65°	2	2
75°	0	0
85°	0	0
90°	0	

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**CANDELA DISTRIBUTION (FULL):**

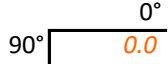
0°	
0°	1709.1
1°	1712.3
2°	1705.9
3°	1693.3
4°	1673.2
5°	1655.2
6°	1628.8
7°	1598.1
8°	1561.1
9°	1531.5
10°	1495.6
11°	1444.9
12°	1405.8
13°	1352.9
14°	1300.1
15°	1240.9
17.5°	1069.6
20°	879.4
22.5°	675.4
25°	491.5
27.5°	348.8
30°	241.0
32.5°	169.1
35°	119.4
37.5°	85.6
40°	60.2
42.5°	42.3
45°	29.6
47.5°	21.1
50°	15.9
52.5°	11.6
55°	7.4
57.5°	5.3
60°	3.2
62.5°	2.1
65°	2.1
67.5°	1.1
70°	1.1
72.5°	1.1
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



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CANDELA DISTRIBUTION (continued):



(END OF REPORT)