

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: P601210

Luminaire Tested: **ML406NFL9FS1E - TIR4D25NFL - TL43R2G\_ TL44S2G\_ 5000K**

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: P601210  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Issue Date: 7/29/2022  
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
 Product Line: HALO  
 Catalog Number: ML406NFL9FS1E - TIR4D25NFL - TL43R2G\_ TL44S2G\_ 5000K  
 Description: RETROFIT, 25D OPTIC, DIFFUSE CLEAR LENS TRIM  
 Light Source: (1) SELECTABLE LUMEN LED 90CRI / 5000K CCT  
 Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
 Luminaire Lumens: 873.3 lumens  
 Efficiency: N/A  
 Efficacy: 105.2 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

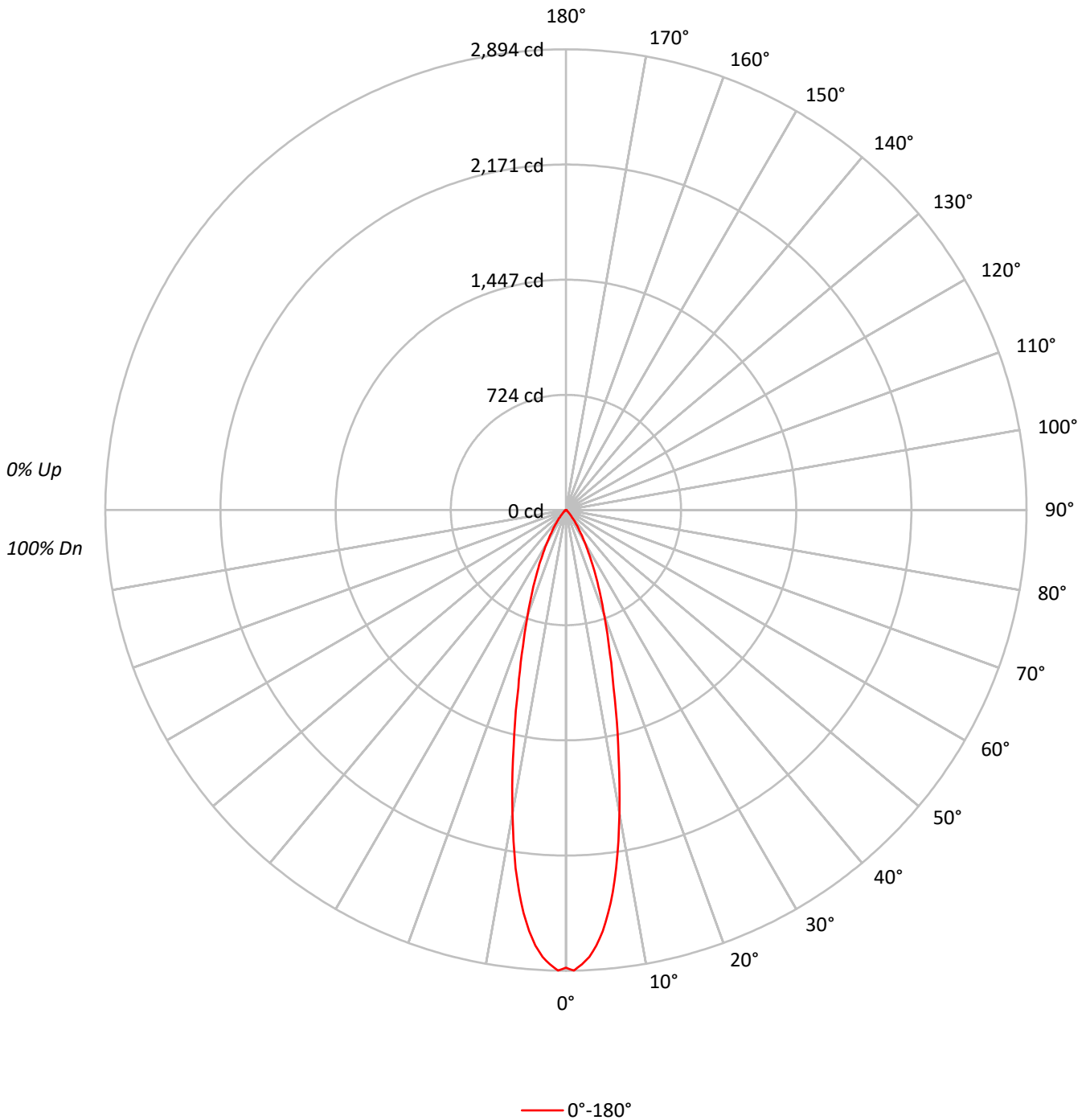
Input Watts (W): 8.3  
 Input Voltage (V): NR  
 Input Current (Ain): NR  
 Voltage Rise (V): NR  
 Power Factor: NR  
 Total Harmonic Distortion (THDi): NR  
 Frequency (hertz): 60  
 Stabilization Time: NR  
 Operation Time: NR  
 Ambient Temperature (°C): NR  
 Test Distance: 25 FT



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

TEST NUMBER: P601210  
CATALOG NUMBER: ML406NFL9FS1E - TIR4D25NFL - TL43R2G\_ TL44S2G\_ 5000K

### Luminous Intensity Polar Plot



TEST NUMBER: P601210

CATALOG NUMBER: ML406NFL9FS1E - TIR4D25NFL - TL43R2G\_ TL44S2G\_ 5000K

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

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

	0°
0°	907762
5°	841876
10°	619950
15°	377803
20°	236128
25°	147446
30°	85794
35°	48570
40°	25515
45°	13307
50°	7614
55°	4239
60°	2084
65°	1644
70°	1016
75°	1342
80°	0
85°	0

TEST NUMBER: P601210

CATALOG NUMBER: ML406NFL9FS1E - TIR4D25NFL - TL43R2G\_ TL44S2G\_ 5000K

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	230.1	26.3
10°-20°	328.3	37.6
20°-30°	197.2	22.6
30°-40°	82.2	9.4
40°-50°	25.2	2.9
50°-60°	7.7	0.9
60°-70°	1.9	0.2
70°-80°	0.7	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°	755.6	86.5
0°-40°	837.8	95.9
0°-60°	870.7	99.7
0°-90°	873.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	873.3	100.0

**CANDELA DISTRIBUTION:**

	0°	Flux
0°	2875	
5°	2656	230
15°	1156	328
25°	423	197
35°	126	82
45°	30	25
55°	8	8
65°	2	2
75°	1	1
85°	0	0
90°	0	

TEST NUMBER: P601210

CATALOG NUMBER: ML406NFL9FS1E - TIR4D25NFL - TL43R2G\_ TL44S2G\_ 5000K

**CANDELA DISTRIBUTION (FULL):**

0°	
0°	2874.8
1°	2893.6
2°	2856.0
3°	2810.7
4°	2743.3
5°	2656.0
6°	2544.4
7°	2418.5
8°	2271.5
9°	2104.7
10°	1933.5
12.5°	1514.7
15°	1155.7
17.5°	896.0
20°	702.7
22.5°	548.0
25°	423.2
27.5°	318.2
30°	235.3
32.5°	172.4
35°	126.0
37.5°	89.5
40°	61.9
42.5°	43.1
45°	29.8
47.5°	21.0
50°	15.5
52.5°	12.2
55°	7.7
57.5°	5.5
60°	3.3
62.5°	2.2
65°	2.2
67.5°	1.1
70°	1.1
72.5°	1.1
75°	1.1
77.5°	0.0
80°	0.0
82.5°	0.0
85°	0.0
87.5°	0.0
90°	0.0

(END OF REPORT)