

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: P601204

Luminaire Tested: **ML406NFL9FS1E - TIR4D25NFL - TL41R\_ TL42S\_ 4000K**

Issue Date: 7/29/2022

Tested By:

Approved By:



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**Test Information**

Test Method: LM-79-08  
 Report Number: P601204  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Issue Date: 7/29/2022  
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
 Product Line: HALO  
 Catalog Number: ML406NFL9FS1E - TIR4D25NFL - TL41R\_ TL42S\_ 4000K  
 Description: RETROFIT, 25D OPTIC, OPEN TRIM  
 Light Source: (1) SELECTABLE LUMEN LED 90CRI / 4000K CCT  
 Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
 Luminaire Lumens: 887.4 lumens  
 Efficiency: N/A  
 Efficacy: 106.9 lumens/watt  
 Spacing Criteria (0/90/45): 0.43 / 0.43 / 0.46  
 Luminous Opening: Circular (Dia: 0.21' x H: 0')  
 CIE Type: Direct

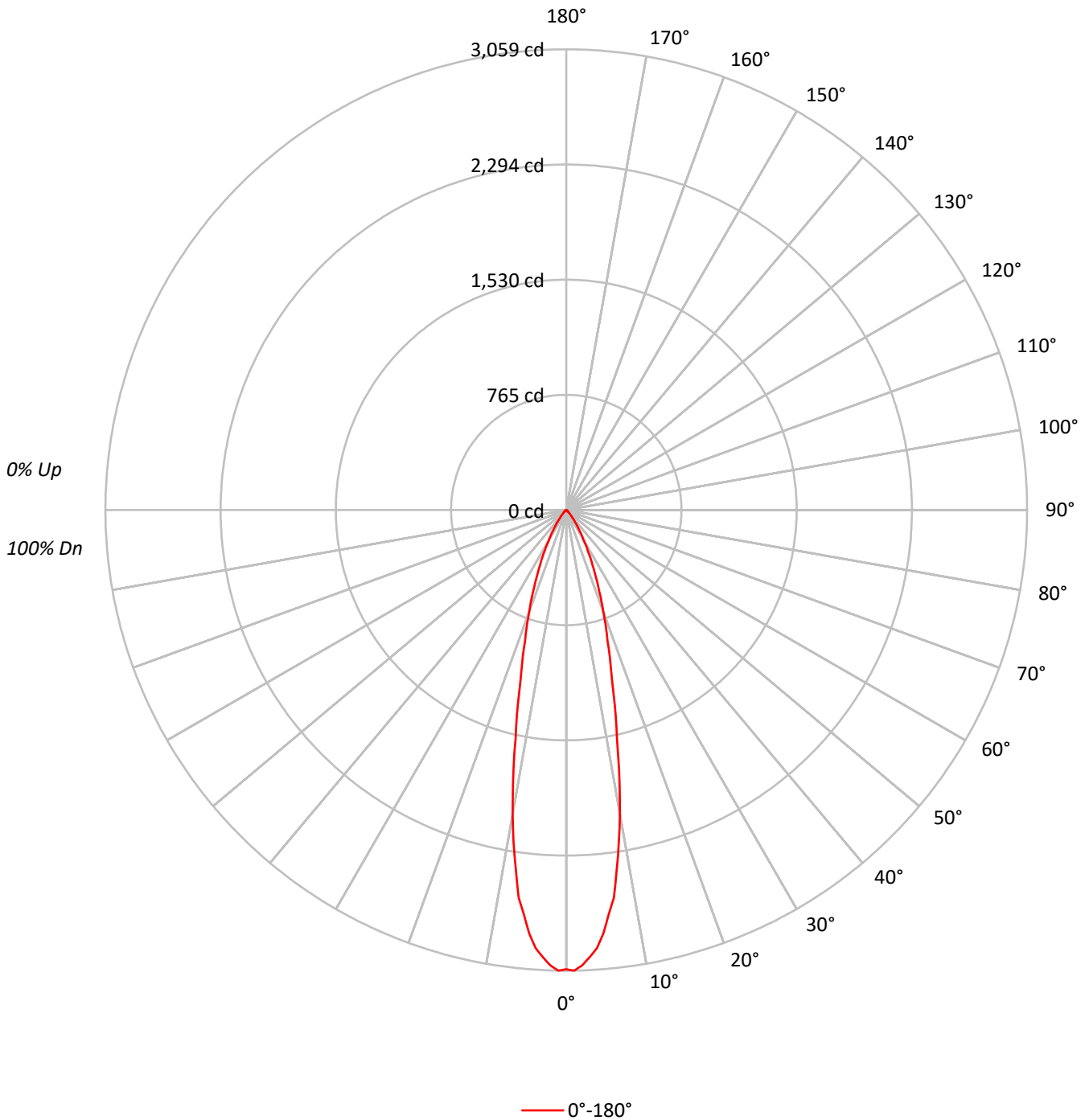
Input Watts (W): 8.3  
 Input Voltage (V): NR  
 Input Current (Ain): NR  
 Voltage Rise (V): NR  
 Power Factor: NR  
 Total Harmonic Distortion (THDi): NR  
 Frequency (hertz): 60  
 Stabilization Time: NR  
 Operation Time: NR  
 Ambient Temperature (°C): NR  
 Test Distance: 25 FT



Meas			
Instrument	Identificatio		Calibration Due Date
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
RCR																				
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100	100	100
1	115	112	110	108	112	110	108	107	106	105	103	102	101	100	99	98	97	96	96	96
2	110	106	103	100	108	105	102	99	101	99	97	98	97	95	96	94	93	91	91	91
3	106	101	97	94	104	100	96	93	97	94	91	95	92	90	93	90	89	87	87	87
4	102	96	92	88	101	95	91	88	93	90	87	91	88	86	89	87	85	84	84	84
5	98	92	87	84	97	91	87	83	89	86	83	88	84	82	86	83	81	80	80	80
6	95	88	83	80	94	87	83	80	86	82	79	85	81	78	83	80	78	77	77	77
7	92	84	80	76	91	84	79	76	83	79	76	82	78	75	81	77	75	74	74	74
8	89	81	76	73	88	81	76	73	80	76	73	79	75	72	78	75	72	71	71	71
9	86	78	74	70	85	78	73	70	77	73	70	76	72	70	75	72	70	69	69	69
10	83	75	71	68	82	75	71	68	74	70	68	74	70	67	73	70	67	66	66	66

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

	0°
0°	962673
5°	894398
10°	657561
15°	383524
20°	242009
25°	149014
30°	85101
35°	45988
40°	21764
45°	10851
50°	6239
55°	2918
60°	1326
65°	822
70°	1016
75°	0
80°	0
85°	0

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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	244.4	27.5
10°-20°	337.2	38.0
20°-30°	199.8	22.5
30°-40°	78.1	8.8
40°-50°	20.9	2.4
50°-60°	5.4	0.6
60°-70°	1.5	0.2
70°-80°	0.1	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
<b>0°-30°</b>	<b>781.4</b>	<b>88.1</b>
<b>0°-40°</b>	<b>859.6</b>	<b>96.9</b>
<b>0°-60°</b>	<b>885.8</b>	<b>99.8</b>
<b>0°-90°</b>	<b>887.4</b>	<b>100.0</b>
90°-120°	0.0	0.0
90°-150°	0.0	0.0
<b>90°-180°</b>	<b>0.0</b>	<b>0.0</b>
<b>0°-180°</b>	<b>887.4</b>	<b>100.0</b>

**CANDELA DISTRIBUTION:**

	0°	Flux
0°	3049	
5°	2822	244
15°	1173	337
25°	428	200
35°	119	78
45°	24	21
55°	5	5
65°	1	1
75°	0	0
85°	0	0
90°	0	

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**CANDELA DISTRIBUTION (FULL):**

0°	
0°	3048.7
1°	3059.3
2°	3025.5
3°	2972.7
4°	2916.7
5°	2821.7
6°	2698.1
7°	2593.6
8°	2409.8
9°	2232.4
10°	2050.8
12.5°	1557.6
15°	1173.2
17.5°	910.3
20°	720.2
22.5°	558.6
25°	427.7
27.5°	320.0
30°	233.4
32.5°	170.0
35°	119.3
37.5°	79.2
40°	52.8
42.5°	34.8
45°	24.3
47.5°	18.0
50°	12.7
52.5°	8.4
55°	5.3
57.5°	3.2
60°	2.1
62.5°	2.1
65°	1.1
67.5°	1.1
70°	1.1
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
90°	0.0

(END OF REPORT)