

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: P601305

Luminaire Tested: **ML410LSNFL9FS1E - TIR4D25NFL - TL43R2G_ TL44S2G_ 3000K**

Issue Date: 7/29/2022

Tested By:

Approved By:



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Test Information

Test Method: LM-79-08
 Report Number: P601305
 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_ 3000K
 Description: RETROFIT, 25D OPTIC, DIFFUSE CLEAR LENS TRIM
 Light Source: (1) SELECTABLE LUMEN LED 90CRI / 3000K CCT
 Ballast/Driver: -

Summary

Lumens per Lamp: N/A
 Luminaire Lumens: 1087.2 lumens
 Efficiency: N/A
 Efficacy: 90.6 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

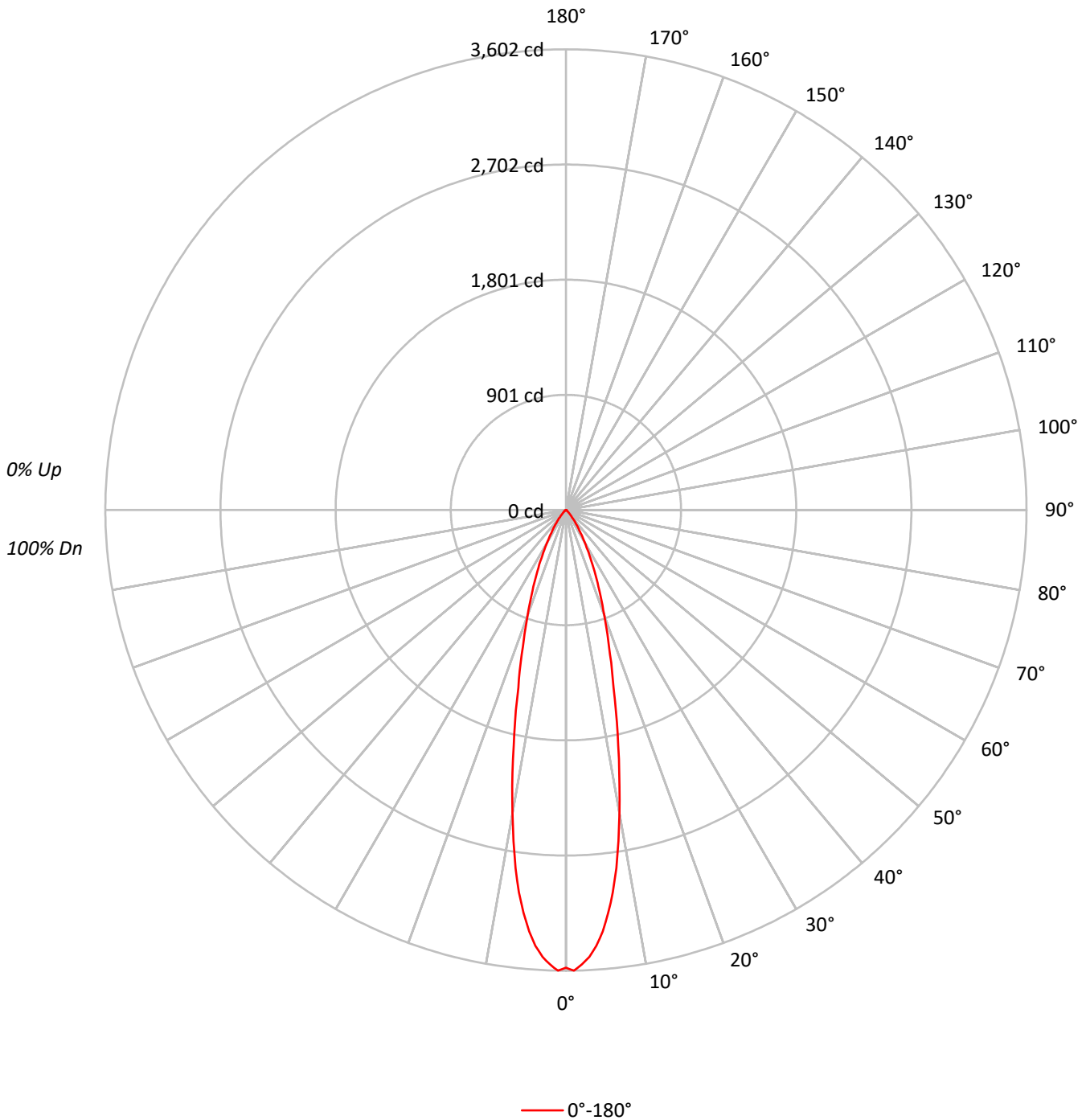
Input Watts (W): 12
 Input Voltage (V): NR
 Input Current (Ain): NR
 Voltage Rise (V): NR
 Power Factor: NR
 Total Harmonic Distortion (THDi): NR
 Frequency (hertz): 60
 Stabilization Time: NR
 Operation Time: NR
 Ambient Temperature (°C): NR
 Test Distance: 25 FT



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

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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	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	90	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°	1130060
5°	1048034
10°	771740
15°	470317
20°	293926
25°	183542
30°	106832
35°	60443
40°	31740
45°	16567
50°	9481
55°	5285
60°	2589
65°	2092
70°	1293
75°	1708
80°	0
85°	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	286.4	26.3
10°-20°	408.7	37.6
20°-30°	245.5	22.6
30°-40°	102.3	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°	940.6	86.5
0°-40°	1042.9	95.9
0°-60°	1083.8	99.7
0°-90°	1087.2	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1087.2	100.0

CANDELA DISTRIBUTION:

	0°	Flux
0°	3579	
5°	3306	286
15°	1439	409
25°	527	245
35°	157	102
45°	37	31
55°	10	10
65°	3	2
75°	1	1
85°	0	0
90°	0	

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CANDELA DISTRIBUTION (FULL):

0°	
0°	3578.8
1°	3602.1
2°	3555.4
3°	3499.0
4°	3415.1
5°	3306.4
6°	3167.5
7°	3010.7
8°	2827.8
9°	2620.1
10°	2406.9
12.5°	1885.7
15°	1438.7
17.5°	1115.4
20°	874.7
22.5°	682.2
25°	526.8
27.5°	396.1
30°	293.0
32.5°	214.6
35°	156.8
37.5°	111.4
40°	77.0
42.5°	53.6
45°	37.1
47.5°	26.1
50°	19.3
52.5°	15.1
55°	9.6
57.5°	6.9
60°	4.1
62.5°	2.8
65°	2.8
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)