

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: P601295

Luminaire Tested: **ML410LSFL9FS1E - TIR4D40FL - 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: P601295
 Test Lab: COOPER LIGHTING SOLUTIONS
 Issue Date: 7/29/2022
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
 Product Line: HALO
 Catalog Number: ML410LSFL9FS1E - TIR4D40FL - TL43R2G_ TL44S2G_ 3000K
 Description: RETROFIT, 40D OPTIC, DIFFUSE CLEAR LENS TRIM
 Light Source: (1) SELECTABLE LUMEN LED 90CRI / 3000K CCT
 Ballast/Driver: -

Summary

Lumens per Lamp: N/A
 Luminaire Lumens: 1087.1 lumens
 Efficiency: N/A
 Efficacy: 90.6 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

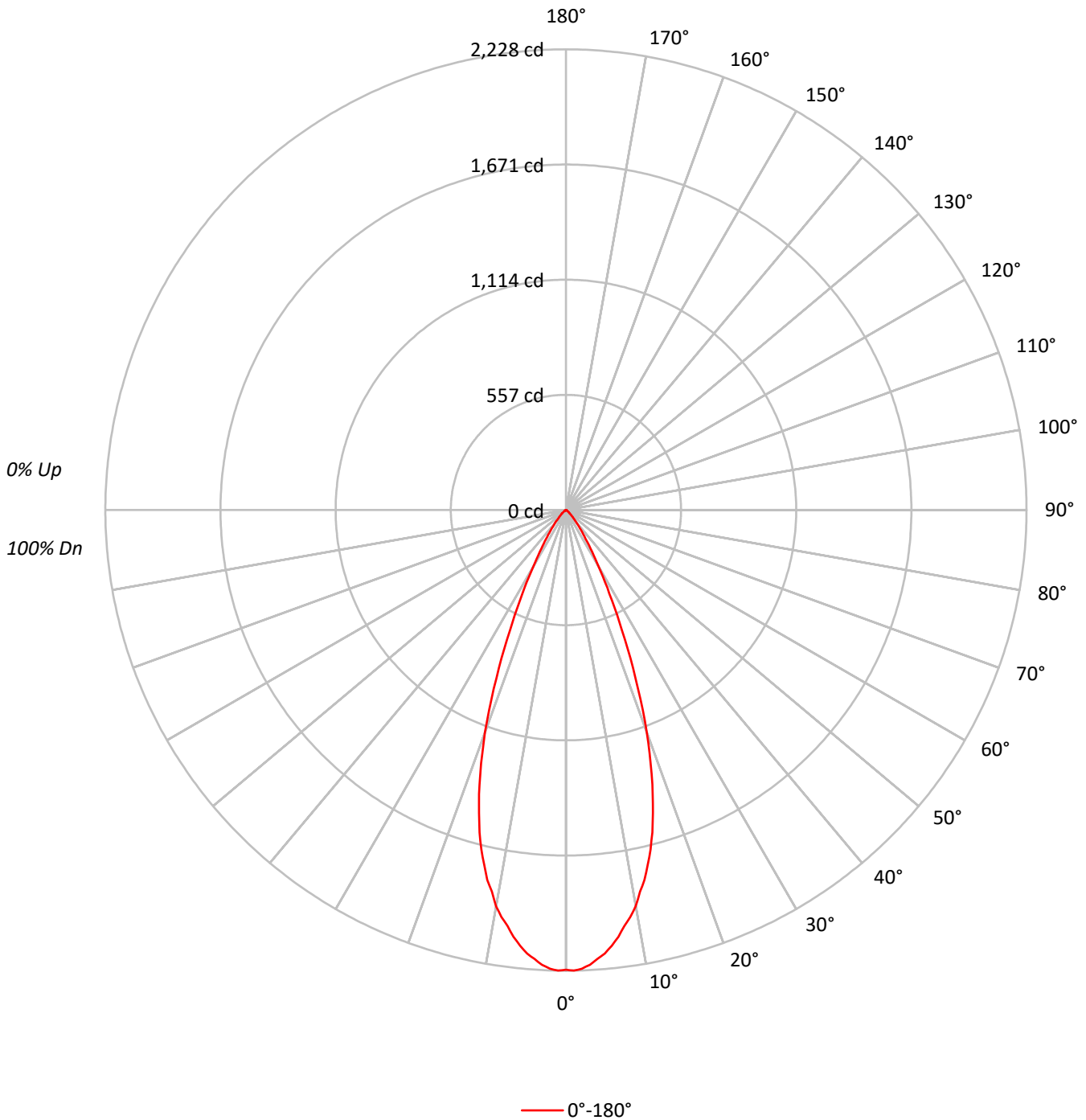
Input Watts (W): 12
 Input Voltage (V): NR
 Input Current (Ain): NR
 Voltage Rise (V): NR
 Power Factor: NR
 Total Harmonic Distortion (THDi): NR
 Frequency (hertz): 60
 Stabilization Time: NR
 Operation Time: NR
 Ambient Temperature (°C): NR
 Test Distance: 25 FT



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

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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	0
RCR																					
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100	100	100	100
1	114	112	110	108	112	110	108	106	106	104	103	102	101	100	99	98	97	95	95	95	95
2	109	105	102	99	107	104	100	98	100	98	95	97	95	93	95	93	92	90	90	90	90
3	105	99	95	92	103	98	94	91	95	92	89	93	90	88	91	89	87	85	85	85	85
4	101	94	89	86	99	93	89	85	91	87	84	89	86	83	87	85	82	81	81	81	81
5	97	89	84	81	95	88	84	80	87	83	80	85	82	79	84	81	78	77	77	77	77
6	93	85	80	76	91	84	79	76	83	79	75	82	78	75	80	77	75	73	73	73	73
7	89	81	76	72	88	80	76	72	79	75	72	78	74	71	77	74	71	70	70	70	70
8	86	77	72	69	85	77	72	69	76	72	68	75	71	68	74	71	68	67	67	67	67
9	82	74	69	66	81	74	69	66	73	68	65	72	68	65	71	68	65	64	64	64	64
10	79	71	66	63	78	71	66	63	70	66	63	69	65	62	69	65	62	61	61	61	61

AVERAGE LUMINANCE (cd/sqm):

	0°
0°	702104
5°	682566
10°	623894
15°	527754
20°	384452
25°	222772
30°	114307
35°	59903
40°	32317
45°	17193
50°	10120
55°	5285
60°	2589
65°	2092
70°	1293
75°	0
80°	0
85°	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	198.6	18.3
10°-20°	437.9	40.3
20°-30°	301.2	27.7
30°-40°	104.4	9.6
40°-50°	32.4	3.0
50°-60°	9.7	0.9
60°-70°	2.4	0.2
70°-80°	0.5	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°	937.6	86.2
0°-40°	1042.1	95.9
0°-60°	1084.2	99.7
0°-90°	1087.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1087.1	100.0

CANDELA DISTRIBUTION:

	0°	Flux
0°	2224	
5°	2153	199
15°	1614	438
25°	639	301
35°	155	104
45°	38	32
55°	10	10
65°	3	2
75°	0	1
85°	0	0
90°	0	

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CANDELA DISTRIBUTION (FULL):

0°	
0°	2223.5
1°	2227.7
2°	2219.4
3°	2202.9
4°	2176.8
5°	2153.4
6°	2119.0
7°	2079.2
8°	2031.0
9°	1992.5
10°	1945.8
11°	1879.8
12°	1828.9
13°	1760.1
14°	1691.4
15°	1614.4
17.5°	1391.6
20°	1144.1
22.5°	878.7
25°	639.4
27.5°	453.8
30°	313.5
32.5°	220.0
35°	155.4
37.5°	111.4
40°	78.4
42.5°	55.0
45°	38.5
47.5°	27.5
50°	20.6
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°	0.0
77.5°	0.0
80°	0.0
82.5°	0.0
85°	0.0
87.5°	0.0

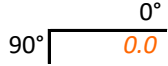
Signify Classified - Internal
Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269


NVLAP Lab Code: 200050-0



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CANDELA DISTRIBUTION (continued):



(END OF REPORT)