

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: P601293

Luminaire Tested: **ML410LSFL9FS1E - TIR4D40FL - TL41R_ TL42S_ 5000K**

Issue Date: 7/29/2022

Tested By:

Approved By:



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Test Information

Test Method: LM-79-08
 Report Number: P601293
 Test Lab: COOPER LIGHTING SOLUTIONS
 Issue Date: 7/29/2022
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
 Product Line: HALO
 Catalog Number: ML410LSFL9FS1E - TIR4D40FL - TL41R_ TL42S_ 5000K
 Description: RETROFIT, 40D OPTIC, OPEN TRIM
 Light Source: (1) SELECTABLE LUMEN LED 90CRI / 5000K CCT
 Ballast/Driver: -

Summary

Lumens per Lamp: N/A
 Luminaire Lumens: 1263.8 lumens
 Efficiency: N/A
 Efficacy: 105.3 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

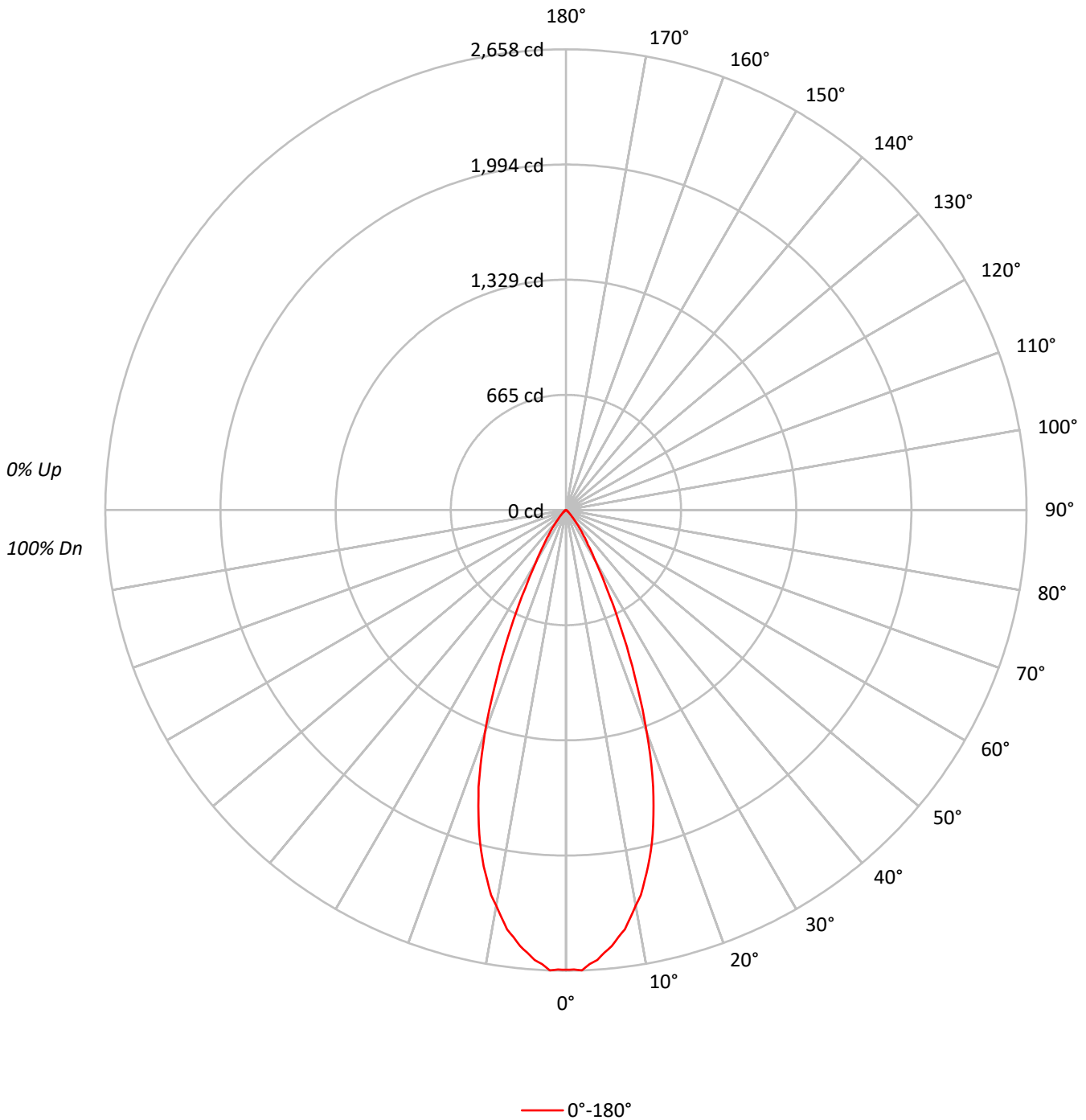
Input Watts (W): 12
 Input Voltage (V): NR
 Input Current (Ain): NR
 Voltage Rise (V): NR
 Power Factor: NR
 Total Harmonic Distortion (THDi): NR
 Frequency (hertz): 60
 Stabilization Time: NR
 Operation Time: NR
 Ambient Temperature (°C): NR
 Test Distance: 25 FT



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	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	102	99	108	104	101	98	101	98	96	98	96	94	95	93	92	90
3	105	100	96	92	103	98	95	91	96	93	90	94	91	89	91	89	87	86
4	101	95	90	86	99	94	89	86	92	88	85	90	87	84	88	85	83	82
5	97	90	85	81	96	89	85	81	87	83	80	86	82	80	84	81	79	78
6	93	86	81	77	92	85	80	77	84	79	76	82	79	76	81	78	75	74
7	90	82	77	73	89	81	77	73	80	76	73	79	75	72	78	75	72	71
8	86	78	73	70	85	78	73	70	77	73	69	76	72	69	75	72	69	68
9	83	75	70	67	82	75	70	67	74	69	66	73	69	66	72	69	66	65
10	80	72	67	64	79	72	67	64	71	67	64	70	66	63	70	66	63	62

AVERAGE LUMINANCE (cd/sqm):

	0°
0°	837788
5°	812176
10°	743331
15°	632560
20°	458749
25°	261306
30°	124297
35°	64837
40°	32482
45°	15585
50°	8941
55°	4184
60°	947
65°	1121
70°	0
75°	0
80°	0
85°	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	237.2	18.8
10°-20°	525.1	41.6
20°-30°	350.3	27.7
30°-40°	112.2	8.9
40°-50°	30.5	2.4
50°-60°	7.5	0.6
60°-70°	0.9	0.1
70°-80°	0.0	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
0°-30°	1112.6	88.0
0°-40°	1224.8	96.9
0°-60°	1262.9	99.9
0°-90°	1263.8	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1263.8	100.0

CANDELA DISTRIBUTION:

	0°	Flux
0°	2653	
5°	2562	237
15°	1935	525
25°	750	350
35°	168	112
45°	35	31
55°	8	7
65°	2	1
75°	0	0
85°	0	0
90°	0	

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CANDELA DISTRIBUTION (FULL):

0°	
0°	2653.2
1°	2651.7
2°	2657.8
3°	2622.9
4°	2601.7
5°	2562.3
6°	2530.5
7°	2482.0
8°	2442.6
9°	2378.9
10°	2318.3
11°	2263.8
12°	2183.5
13°	2109.2
14°	2025.9
15°	1935.0
17.5°	1675.9
20°	1365.2
22.5°	1036.4
25°	750.0
27.5°	509.1
30°	340.9
32.5°	236.4
35°	168.2
37.5°	119.7
40°	78.8
42.5°	51.5
45°	34.9
47.5°	25.8
50°	18.2
52.5°	12.1
55°	7.6
57.5°	4.5
60°	1.5
62.5°	1.5
65°	1.5
67.5°	0.0
70°	0.0
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

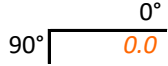
Signify Classified - Internal
Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269


NVLAP Lab Code: 200050-0



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CANDELA DISTRIBUTION (continued):



(END OF REPORT)