

LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

Brand: FAIL-SAFE

Report Number: P517855

Luminaire Tested: HVL8-1-LD4-3STD-35-UNV-C-EDD-90

Issue Date: 4/27/2021

Tested By:

Approved By:



NVLAP Lab Code: 200050-0

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Test Information

Test Method: LM-79-2019
Report Number: P517855
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-1-LD4-3STD-35-UNV-C-EDD-90
Description: 1 FOOT, 8 INCH WIDE, HVL LED LUMINAIRE, WITH 3500K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2303.0 lumens
Efficiency: N/A
Efficacy: 96.4 lumens/watt
Spacing Criteria (0/90/45): 1.18 / 1.32 / 1.37
Luminous Opening: Rectangular w/ Sides (W: 0.67' x L: 1' x H: 0.17')
CIE Type: Direct

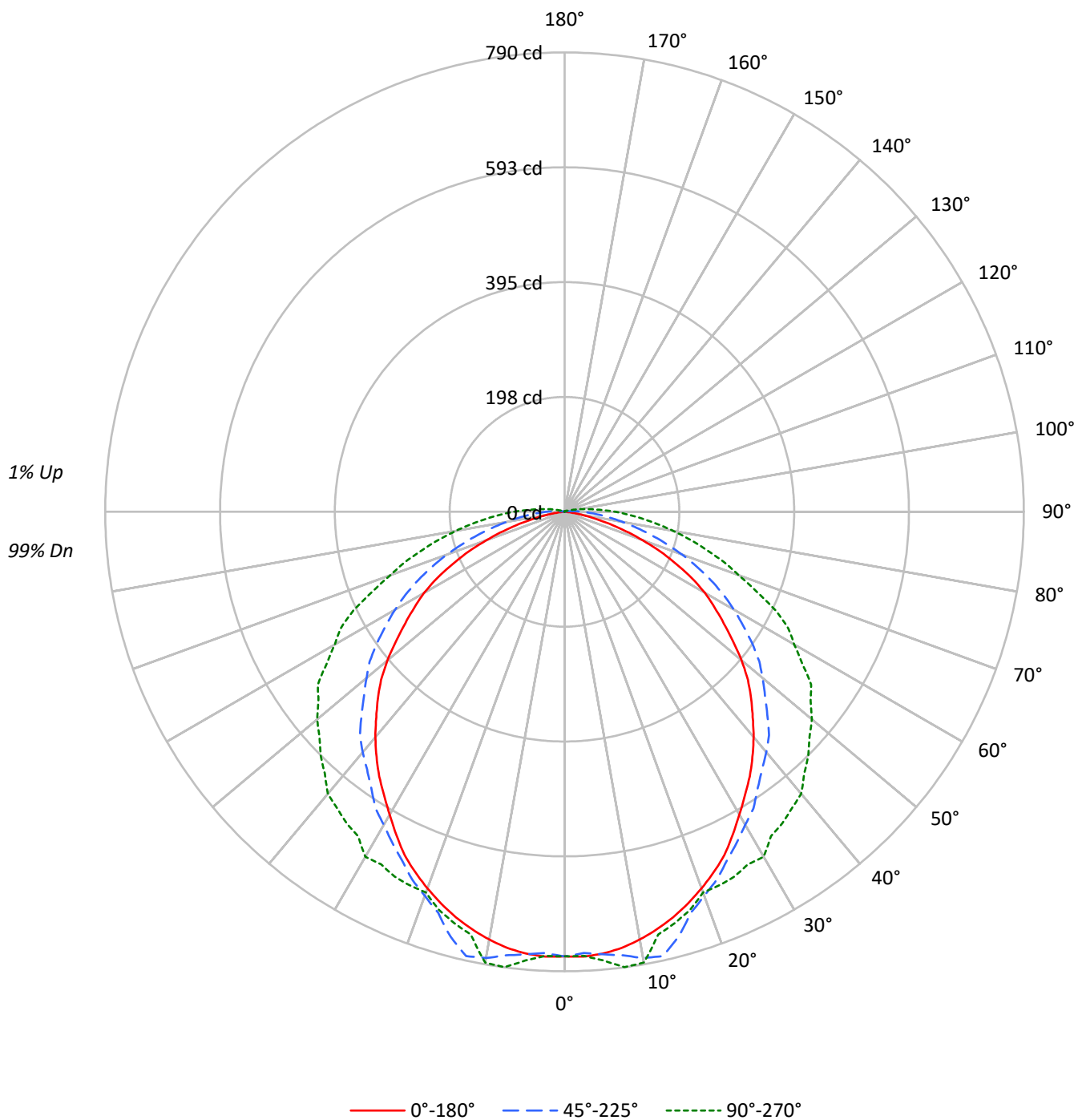
Input Watts (W): 23.9
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	P3	10/30/2015	4/30/2016
Power Meter	IN0214	1/12/2016	1/12/2017
AC Power Source	IN0062	1/12/2016	1/12/2017
DC Power Supply	--	--	--
Room Thermometer	IN0145	1/13/2016	1/13/2017

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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
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	110	110	110	105	105	105	101	101	101			99
1	108	103	98	94	105	100	96	92	96	92	89	91	89	86	87	85	83			81
2	98	89	82	76	95	87	80	75	83	78	73	80	75	71	76	72	69			67
3	89	78	69	63	86	76	68	62	73	66	61	70	64	59	67	62	58			56
4	81	69	60	53	79	67	59	52	65	57	51	62	56	51	60	54	50			47
5	75	61	52	45	72	60	51	45	58	50	44	56	49	44	54	48	43			41
6	69	55	46	39	67	54	46	39	52	45	39	50	44	38	49	43	38			36
7	64	50	41	35	62	49	41	35	47	40	34	46	39	34	44	38	34			32
8	59	46	37	31	58	45	37	31	43	36	31	42	35	30	41	35	30			28
9	55	42	34	28	54	41	33	28	40	33	28	39	32	27	38	32	27			25
10	52	39	31	25	51	38	30	25	37	30	25	36	29	25	35	29	25			23

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	12344	12344	12344
5°	12182	12067	12282
10°	11893	12141	12360
15°	11549	11724	11471
20°	11163	10903	10971
25°	10763	10355	11039
30°	10226	9901	11160
35°	9805	9468	10963
40°	9358	9123	11031
45°	8883	8704	10832
50°	8334	8265	10750
55°	7601	7800	10744
60°	6986	7194	10284
65°	5955	6494	9957
70°	4630	5619	8929
75°	3077	4593	8151
80°	1539	3578	7317
85°	459	2557	6444

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 10832 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	73.5	3.2
10°-20°	209.2	9.1
20°-30°	311.3	13.5
30°-40°	374.2	16.2
40°-50°	393.9	17.1
50°-60°	365.5	15.9
60°-70°	289.0	12.5
70°-80°	176.5	7.7
80°-90°	76.9	3.3
90°-100°	24.0	1.0
100°-110°	5.4	0.2
110°-120°	2.2	0.1
120°-130°	1.2	0.1
130°-140°	0.3	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°	594.0	25.8
0°-40°	968.2	42.0
0°-60°	1727.6	75.0
0°-90°	2270.0	98.6
90°-120°	31.5	1.4
90°-150°	33.0	1.4
90°-180°	33.0	1.4
0°-180°	2303.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	764	764	764	764	764	
5°	763	761	764	772	774	72
15°	722	750	757	732	732	203
25°	651	693	661	681	692	299
35°	556	571	580	632	654	347
45°	454	456	494	572	593	350
55°	334	340	394	480	518	300
65°	212	218	277	367	400	210
75°	80	106	155	238	253	87
85°	7	25	60	117	134	11
90°	0	8	32	74	87	0
95°	0	2	14	41	50	0
105°	0	1	3	8	11	0
115°	0	1	2	4	4	0
125°	0	0	1	2	3	0
135°	0	0	0	1	1	0
145°	0	0	0	0	0	0
155°	0	0	0	0	0	0
165°	0	0	0	0	0	0
175°	0	0	0	0	0	0
180°	0	0	0	0	0	0

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	764.5	764.5	764.5	764.5	764.5
2.5°	765.4	763.4	759.2	763.2	764.3
5°	762.6	761.0	763.7	772.3	774.4
7.5°	756.2	762.1	769.1	784.7	789.7
10°	746.7	757.9	779.0	792.2	787.1
12.5°	735.2	754.2	782.4	756.5	744.5
15°	721.8	749.5	756.8	731.8	732.2
17.5°	706.1	745.6	723.0	722.4	717.9
20°	689.1	732.5	702.6	701.4	696.6
22.5°	670.9	715.3	684.6	682.1	695.2
25°	651.1	692.7	661.1	680.8	691.9
27.5°	626.3	663.1	641.4	669.5	683.3
30°	601.3	632.6	621.4	660.4	685.0
32.5°	577.8	600.6	604.8	657.0	661.1
35°	555.5	570.9	579.5	632.1	653.6
37.5°	531.0	535.2	558.0	621.7	642.4
40°	506.1	503.5	539.9	604.5	633.2
42.5°	479.3	478.4	520.8	596.0	610.3
45°	453.9	456.0	493.5	571.7	593.0
47.5°	427.9	430.6	467.7	545.0	571.5
50°	397.7	401.2	444.6	521.4	555.5
52.5°	365.0	371.6	422.2	499.0	533.4
55°	334.3	339.8	393.7	479.8	518.0
57.5°	306.3	309.6	364.2	455.7	484.5
60°	278.8	279.5	336.5	428.9	456.4
62.5°	247.1	248.5	308.0	397.3	434.2
65°	211.6	218.3	277.4	367.1	400.4
67.5°	178.5	190.1	246.1	339.3	356.8
70°	143.0	162.7	215.4	306.8	319.1
72.5°	110.4	133.6	183.9	270.3	287.6
75°	80.0	106.1	154.6	237.6	252.6
77.5°	53.9	80.4	127.2	201.5	221.3
80°	32.2	58.7	102.8	168.0	190.3
82.5°	16.5	39.4	79.7	140.9	160.9
85°	7.2	24.9	60.3	117.0	134.2
87.5°	2.0	14.2	44.4	94.5	109.2
90°	0.2	7.5	31.6	74.1	87.4
92.5°	0.2	3.6	22.3	56.1	66.2
95°	0.2	1.9	13.9	40.6	49.7
97.5°	0.2	1.1	8.4	28.8	36.4
100°	0.2	0.9	5.0	19.2	26.0
102.5°	0.2	1.1	3.4	12.1	17.0
105°	0.2	1.1	2.8	7.9	11.2
107.5°	0.3	1.1	2.5	5.9	7.8
110°	0.2	0.9	2.6	4.5	6.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.3	0.8	2.5	3.7	4.5
115°	0.2	0.6	2.2	3.6	3.7
117.5°	0.3	0.5	1.7	3.6	3.7
120°	0.3	0.3	1.4	3.4	3.9
122.5°	0.3	0.3	1.1	3.1	3.7
125°	0.2	0.3	0.9	2.3	3.3
127.5°	0.3	0.3	0.8	1.9	2.5
130°	0.3	0.3	0.6	1.4	1.9
132.5°	0.3	0.3	0.5	1.1	1.4
135°	0.3	0.3	0.3	0.8	1.1
137.5°	0.0	0.0	0.0	0.0	0.0
140°	0.0	0.0	0.0	0.0	0.0
142.5°	0.0	0.0	0.0	0.0	0.0
145°	0.0	0.0	0.0	0.0	0.0
147.5°	0.0	0.0	0.0	0.0	0.0
150°	0.0	0.0	0.0	0.0	0.0
152.5°	0.0	0.0	0.0	0.0	0.0
155°	0.0	0.0	0.0	0.0	0.0
157.5°	0.0	0.0	0.0	0.0	0.0
160°	0.0	0.0	0.0	0.0	0.0
162.5°	0.0	0.0	0.0	0.0	0.0
165°	0.0	0.0	0.0	0.0	0.0
167.5°	0.0	0.0	0.0	0.0	0.0
170°	0.0	0.0	0.0	0.0	0.0
172.5°	0.0	0.0	0.0	0.0	0.0
175°	0.0	0.0	0.0	0.0	0.0
177.5°	0.0	0.0	0.0	0.0	0.0
180°	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)