

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: P517871

Luminaire Tested: HVL8-2-LD4-1HI-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: P517871
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-2-LD4-1HI-35-UNV-C-EDD-90
Description: 2 FOOT, 8 INCH WIDE, HVL LED LUMINAIRE, WITH 3500K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1979.0 lumens
Efficiency: N/A
Efficacy: 92.0 lumens/watt
Spacing Criteria (0/90/45): 1.18 / 1.32 / 1.37
Luminous Opening: Rectangular w/ Sides (W: 0.67' x L: 2' x H: 0.17')
CIE Type: Direct

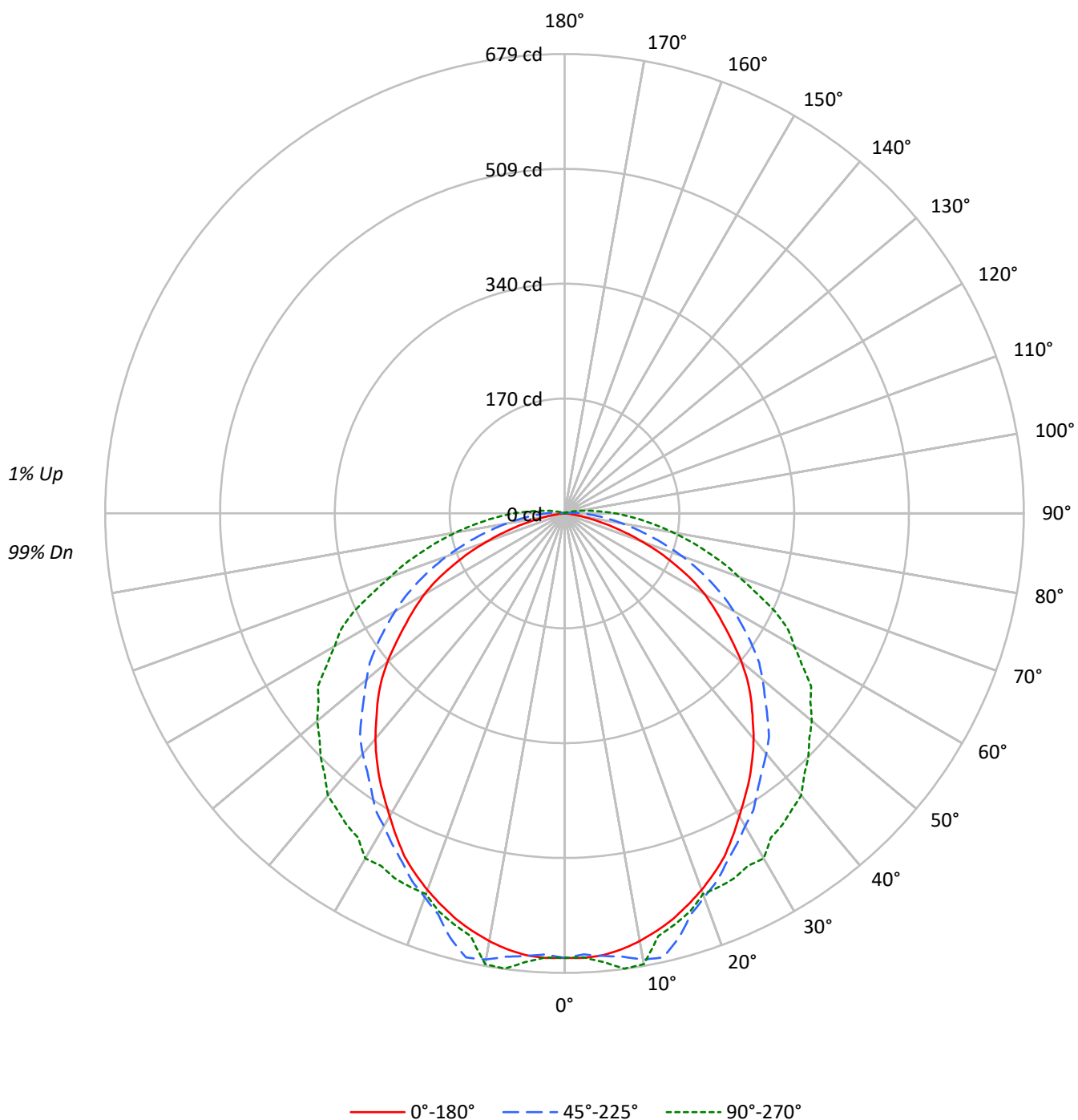
Input Watts (W): 21.5
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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°	5303	5303	5303
5°	5272	5211	5278
10°	5184	5268	5310
15°	5071	5113	4928
20°	4938	4777	4714
25°	4797	4559	4743
30°	4595	4381	4795
35°	4445	4212	4710
40°	4284	4082	4740
45°	4111	3918	4654
50°	3905	3746	4618
55°	3614	3562	4616
60°	3379	3316	4419
65°	2948	3023	4279
70°	2358	2652	3836
75°	1637	2205	3503
80°	874	1757	3143
85°	294	1299	2771

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 4654 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	63.1	3.2
10°-20°	179.8	9.1
20°-30°	267.5	13.5
30°-40°	321.6	16.2
40°-50°	338.5	17.1
50°-60°	314.1	15.9
60°-70°	248.3	12.5
70°-80°	151.7	7.7
80°-90°	66.1	3.3
90°-100°	20.6	1.0
100°-110°	4.6	0.2
110°-120°	1.9	0.1
120°-130°	1.0	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°	510.5	25.8
0°-40°	832.0	42.0
0°-60°	1484.5	75.0
0°-90°	1950.6	98.6
90°-120°	27.0	1.4
90°-150°	28.4	1.4
90°-180°	28.0	1.4
0°-180°	1979.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	657	657	657	657	657	
5°	655	654	656	664	666	62
15°	620	644	650	629	629	175
25°	560	595	568	585	595	257
35°	477	491	498	543	562	298
45°	390	392	424	491	510	301
55°	287	292	338	412	445	258
65°	182	188	238	315	344	180
75°	69	91	133	204	217	75
85°	6	21	52	100	115	10
90°	0	6	27	64	75	0
95°	0	2	12	35	43	0
105°	0	1	2	7	10	0
115°	0	0	2	3	3	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°	656.9	656.9	656.9	656.9	656.9
2.5°	657.7	656.0	652.4	655.8	656.8
5°	655.3	654.0	656.3	663.6	665.5
7.5°	649.8	654.9	660.9	674.3	678.6
10°	641.7	651.3	669.4	680.7	676.3
12.5°	631.8	648.1	672.3	650.1	639.8
15°	620.3	644.1	650.4	628.8	629.2
17.5°	606.7	640.7	621.3	620.8	616.9
20°	592.2	629.5	603.8	602.7	598.6
22.5°	576.5	614.6	588.3	586.1	597.4
25°	559.5	595.2	568.1	585.1	594.6
27.5°	538.2	569.8	551.2	575.3	587.2
30°	516.7	543.6	533.9	567.5	588.7
32.5°	496.5	516.1	519.8	564.6	568.1
35°	477.3	490.6	497.9	543.2	561.6
37.5°	456.3	459.9	479.5	534.2	552.0
40°	434.9	432.6	464.0	519.5	544.1
42.5°	411.9	411.1	447.5	512.1	524.4
45°	390.1	391.8	424.1	491.3	509.6
47.5°	367.7	370.0	401.9	468.4	491.1
50°	341.8	344.7	382.1	448.0	477.3
52.5°	313.7	319.3	362.8	428.8	458.3
55°	287.3	292.0	338.3	412.3	445.1
57.5°	263.2	266.0	313.0	391.6	416.3
60°	239.5	240.2	289.2	368.5	392.2
62.5°	212.4	213.6	264.7	341.4	373.1
65°	181.9	187.6	238.3	315.4	344.1
67.5°	153.4	163.4	211.4	291.6	306.6
70°	122.8	139.8	185.1	263.6	274.2
72.5°	94.9	114.8	158.0	232.3	247.2
75°	68.8	91.1	132.9	204.2	217.1
77.5°	46.3	69.1	109.3	173.2	190.2
80°	27.7	50.4	88.3	144.4	163.5
82.5°	14.2	33.9	68.5	121.1	138.2
85°	6.2	21.4	51.8	100.5	115.4
87.5°	1.7	12.2	38.1	81.2	93.8
90°	0.1	6.4	27.2	63.7	75.1
92.5°	0.1	3.1	19.1	48.2	56.9
95°	0.1	1.6	11.9	34.9	42.7
97.5°	0.1	0.9	7.2	24.8	31.3
100°	0.1	0.8	4.3	16.5	22.3
102.5°	0.1	0.9	2.9	10.4	14.6
105°	0.1	0.9	2.4	6.8	9.6
107.5°	0.3	0.9	2.1	5.1	6.7
110°	0.1	0.8	2.3	3.9	5.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.3	0.7	2.1	3.2	3.9
115°	0.1	0.5	1.9	3.1	3.2
117.5°	0.3	0.4	1.5	3.1	3.2
120°	0.3	0.3	1.2	2.9	3.3
122.5°	0.3	0.3	0.9	2.7	3.2
125°	0.1	0.3	0.8	2.0	2.8
127.5°	0.3	0.3	0.7	1.6	2.1
130°	0.3	0.3	0.5	1.2	1.6
132.5°	0.3	0.3	0.4	0.9	1.2
135°	0.3	0.3	0.3	0.7	0.9
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)