

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: P517199

Luminaire Tested: HVL12-1-LD4-2HI-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: P517199
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-1-LD4-2HI-35-UNV-C-EDD-90
Description: 1 FOOT, 12 INCH WIDE, HVL LED LUMINAIRE, WITH 3500K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1962.0 lumens
Efficiency: N/A
Efficacy: 88.8 lumens/watt
Spacing Criteria (0/90/45): 1.18 / 1.32 / 1.36
Luminous Opening: Rectangular w/ Sides (W: 1' x L: 1' x H: 0.17')
CIE Type: Direct

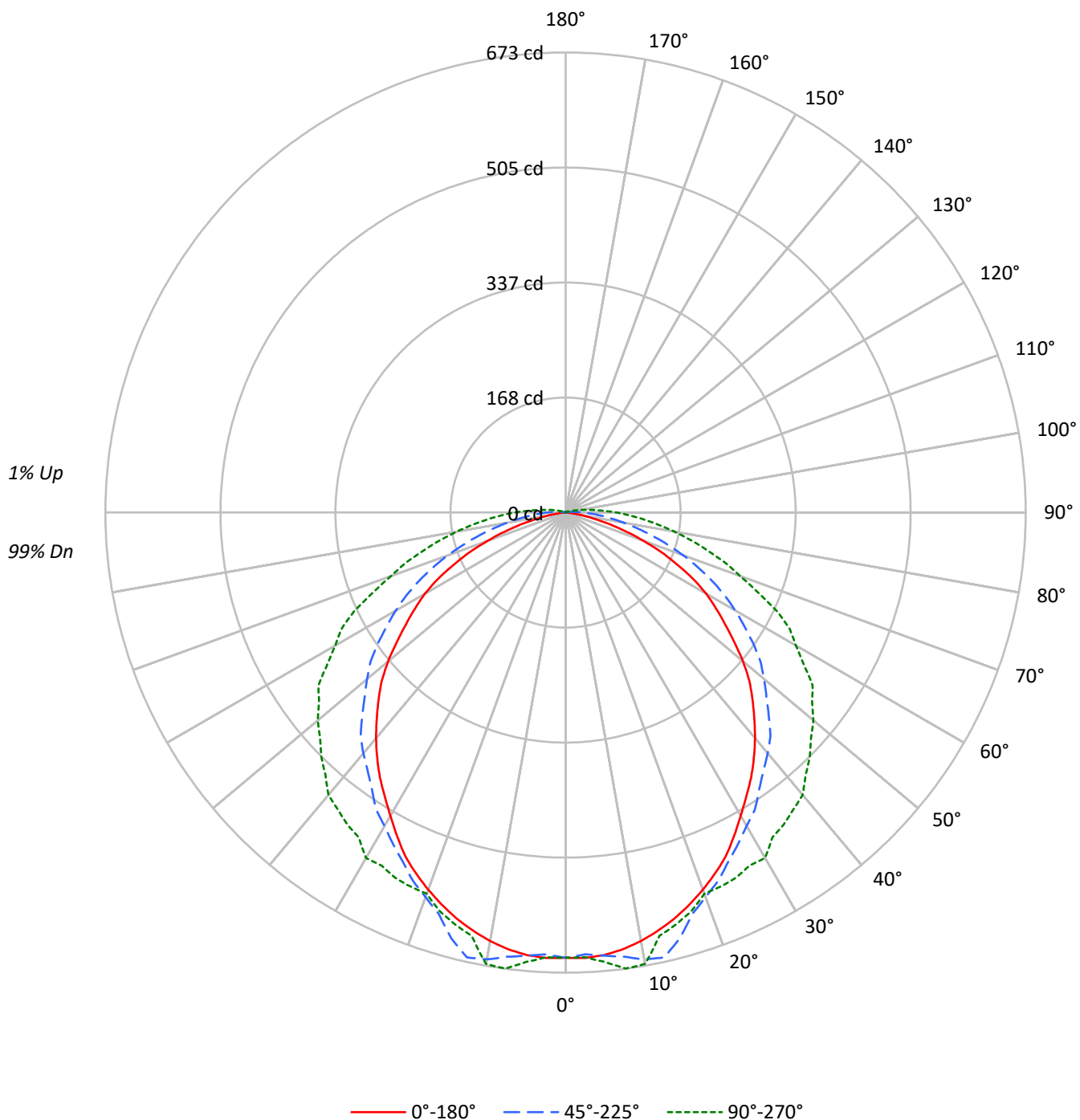
Input Watts (W): 22.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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°	7011	7011	7011
5°	6919	6888	7027
10°	6755	6964	7119
15°	6559	6758	6654
20°	6340	6315	6408
25°	6113	6026	6496
30°	5807	5792	6617
35°	5568	5568	6552
40°	5315	5396	6649
45°	5045	5179	6592
50°	4733	4952	6611
55°	4317	4709	6689
60°	3967	4383	6496
65°	3383	3997	6400
70°	2629	3505	5867
75°	1749	2914	5517
80°	876	2324	5165
85°	259	1715	4863

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 55°

Luminance: 6689 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	62.6	3.2
10°-20°	178.3	9.1
20°-30°	265.2	13.5
30°-40°	318.8	16.2
40°-50°	335.5	17.1
50°-60°	311.4	15.9
60°-70°	246.2	12.5
70°-80°	150.4	7.7
80°-90°	65.5	3.3
90°-100°	20.4	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°	506.1	25.8
0°-40°	824.9	42.0
0°-60°	1471.8	75.0
0°-90°	1933.9	98.6
90°-120°	26.8	1.4
90°-150°	28.2	1.4
90°-180°	28.0	1.4
0°-180°	1962.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	651	651	651	651	651	
5°	650	648	651	658	660	62
15°	615	638	645	623	624	173
25°	555	590	563	580	590	255
35°	473	486	494	538	557	296
45°	387	388	420	487	505	298
55°	285	290	335	409	441	256
65°	180	186	236	313	341	179
75°	68	90	132	202	215	74
85°	6	21	51	100	114	9
90°	0	6	27	63	74	0
95°	0	2	12	35	42	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°	651.3	651.3	651.3	651.3	651.3
2.5°	652.1	650.3	646.8	650.2	651.1
5°	649.7	648.4	650.6	657.9	659.8
7.5°	644.2	649.3	655.3	668.5	672.8
10°	636.2	645.7	663.6	674.9	670.5
12.5°	626.3	642.5	666.5	644.5	634.3
15°	614.9	638.5	644.8	623.4	623.8
17.5°	601.5	635.2	616.0	615.5	611.6
20°	587.1	624.1	598.6	597.5	593.4
22.5°	571.5	609.4	583.2	581.1	592.2
25°	554.7	590.1	563.2	580.0	589.5
27.5°	533.6	564.9	546.5	570.3	582.2
30°	512.2	538.9	529.4	562.7	583.6
32.5°	492.2	511.7	515.3	559.7	563.2
35°	473.2	486.4	493.7	538.5	556.8
37.5°	452.4	456.0	475.4	529.6	547.3
40°	431.2	428.9	460.0	515.0	539.4
42.5°	408.4	407.6	443.6	507.7	519.9
45°	386.7	388.5	420.4	487.0	505.2
47.5°	364.6	366.8	398.4	464.3	486.9
50°	338.8	341.8	378.8	444.2	473.2
52.5°	311.0	316.6	359.7	425.1	454.4
55°	284.8	289.5	335.4	408.8	441.3
57.5°	261.0	263.7	310.3	388.2	412.7
60°	237.5	238.1	286.7	365.4	388.9
62.5°	210.5	211.7	262.4	338.4	369.9
65°	180.3	186.0	236.3	312.7	341.1
67.5°	152.0	162.0	209.6	289.1	303.9
70°	121.8	138.6	183.5	261.4	271.8
72.5°	94.1	113.8	156.7	230.3	245.0
75°	68.2	90.3	131.7	202.5	215.2
77.5°	45.9	68.5	108.4	171.7	188.5
80°	27.5	50.0	87.6	143.2	162.1
82.5°	14.1	33.6	67.9	120.1	137.0
85°	6.1	21.2	51.3	99.6	114.4
87.5°	1.7	12.1	37.8	80.5	93.0
90°	0.1	6.4	26.9	63.2	74.4
92.5°	0.1	3.1	19.0	47.8	56.4
95°	0.1	1.6	11.8	34.6	42.3
97.5°	0.1	0.9	7.2	24.5	31.0
100°	0.1	0.8	4.2	16.3	22.2
102.5°	0.1	0.9	2.9	10.3	14.5
105°	0.1	0.9	2.4	6.8	9.6
107.5°	0.3	0.9	2.1	5.0	6.6
110°	0.1	0.8	2.3	3.8	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	3.8
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)