

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: P518067

Luminaire Tested: HVL8-4-LD4-2HI-40-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: P518067
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-4-LD4-2HI-40-UNV-C-EDD-90
Description: 4 FOOT, 8 INCH WIDE, HVL LED LUMINAIRE, WITH 4000K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 9072.0 lumens
Efficiency: N/A
Efficacy: 105.4 lumens/watt
Spacing Criteria (0/90/45): 1.18 / 1.32 / 1.37
Luminous Opening: Rectangular w/ Sides (W: 0.67' x L: 4' x H: 0.17')
CIE Type: Direct

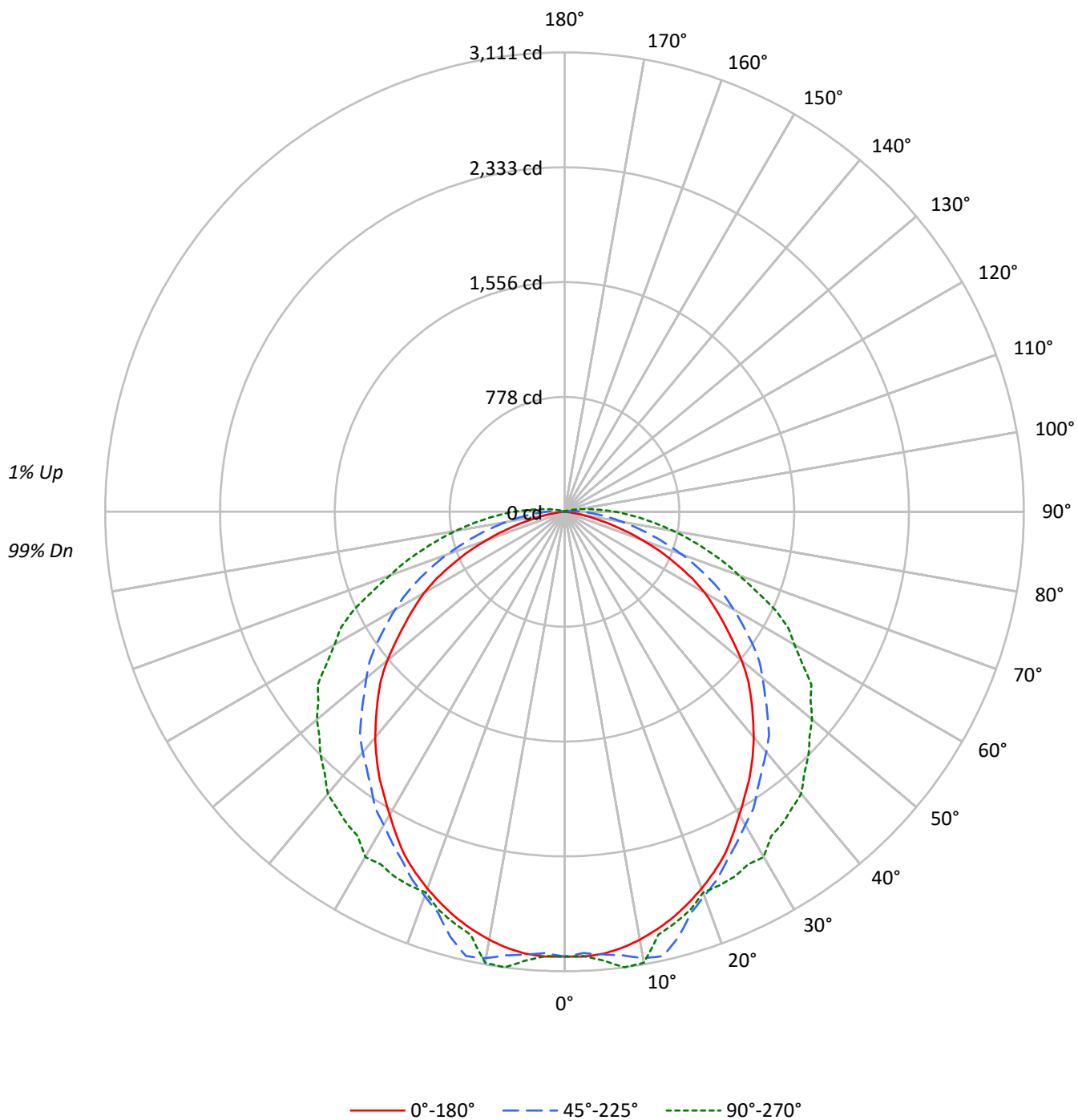
Input Watts (W): 86.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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°	12155	12155	12155
5°	12128	11973	12096
10°	11968	12136	12171
15°	11751	11806	11297
20°	11486	11059	10803
25°	11205	10580	10871
30°	10780	10194	10991
35°	10477	9828	10796
40°	10150	9553	10864
45°	9799	9200	10667
50°	9373	8828	10586
55°	8748	8430	10580
60°	8268	7885	10128
65°	7309	7234	9806
70°	5963	6391	8794
75°	4255	5368	8027
80°	2388	4338	7206
85°	885	3274	6348

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 10667 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	289.4	3.2
10°-20°	824.2	9.1
20°-30°	1226.4	13.5
30°-40°	1474.1	16.2
40°-50°	1551.6	17.1
50°-60°	1439.7	15.9
60°-70°	1138.3	12.5
70°-80°	695.3	7.7
80°-90°	302.9	3.3
90°-100°	94.3	1.0
100°-110°	21.2	0.2
110°-120°	8.5	0.1
120°-130°	4.8	0.1
130°-140°	1.3	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°	2340.0	25.8
0°-40°	3814.1	42.0
0°-60°	6805.3	75.0
0°-90°	8941.9	98.6
90°-120°	124.0	1.4
90°-150°	130.1	1.4
90°-180°	130.0	1.4
0°-180°	9072.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3011	3011	3011	3011	3011	
5°	3004	2998	3008	3042	3051	285
15°	2843	2952	2981	2883	2884	801
25°	2565	2729	2604	2682	2726	1177
35°	2188	2249	2283	2490	2575	1368
45°	1788	1796	1944	2252	2336	1378
55°	1317	1338	1551	1890	2040	1183
65°	834	860	1092	1446	1577	826
75°	315	418	609	936	995	344
85°	28	98	237	461	529	44
90°	1	29	124	292	344	1
95°	1	7	55	160	196	0
105°	1	4	11	31	44	1
115°	1	2	9	14	15	1
125°	1	1	4	9	13	1
135°	1	1	1	3	4	1
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°	3011.4	3011.4	3011.4	3011.4	3011.4
2.5°	3015.1	3007.1	2990.6	3006.5	3010.8
5°	3004.0	2997.9	3008.3	3042.1	3050.7
7.5°	2978.9	3002.2	3029.8	3091.2	3110.8
10°	2941.5	2985.6	3068.5	3120.6	3100.4
12.5°	2896.1	2970.9	3082.0	2980.1	2932.9
15°	2843.3	2952.5	2981.4	2882.6	2884.4
17.5°	2781.4	2937.2	2848.2	2845.8	2828.0
20°	2714.5	2885.7	2767.9	2763.0	2743.9
22.5°	2642.7	2817.6	2696.7	2686.9	2738.4
25°	2564.8	2728.6	2604.1	2682.0	2725.5
27.5°	2467.3	2612.1	2526.8	2637.2	2691.8
30°	2368.5	2491.8	2447.7	2601.6	2698.6
32.5°	2275.9	2366.1	2382.6	2588.1	2604.1
35°	2188.2	2248.9	2282.6	2490.0	2574.6
37.5°	2091.9	2108.4	2198.0	2448.9	2530.5
40°	1993.7	1983.3	2126.8	2381.4	2494.3
42.5°	1888.2	1884.5	2051.4	2347.7	2404.1
45°	1788.2	1796.2	1944.0	2252.0	2336.0
47.5°	1685.8	1696.2	1842.2	2147.1	2251.3
50°	1566.7	1580.2	1751.4	2053.8	2188.2
52.5°	1437.9	1463.7	1663.1	1965.5	2101.1
55°	1317.1	1338.5	1550.8	1890.0	2040.3
57.5°	1206.6	1219.5	1434.9	1794.9	1908.4
60°	1098.1	1101.1	1325.7	1689.4	1798.0
62.5°	973.5	979.1	1213.4	1564.9	1710.3
65°	833.7	860.1	1092.5	1445.9	1577.2
67.5°	703.0	749.0	969.2	1336.7	1405.4
70°	563.1	641.1	848.4	1208.5	1257.0
72.5°	434.9	526.3	724.5	1064.9	1133.0
75°	315.3	417.8	609.2	936.1	995.0
77.5°	212.3	316.5	501.2	793.8	871.7
80°	127.0	231.3	404.9	661.9	749.6
82.5°	65.0	155.2	314.1	555.2	633.7
85°	28.2	98.2	237.4	460.7	528.8
87.5°	8.0	55.8	174.8	372.4	430.0
90°	0.6	29.4	124.5	292.0	344.1
92.5°	0.6	14.1	87.7	220.8	260.7
95°	0.6	7.4	54.6	160.1	195.7
97.5°	0.6	4.3	33.1	113.5	143.5
100°	0.6	3.7	19.6	75.5	102.4
102.5°	0.6	4.3	13.5	47.8	66.9
105°	0.6	4.3	11.0	31.3	44.2
107.5°	1.2	4.3	9.8	23.3	30.7
110°	0.6	3.7	10.4	17.8	23.9

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1.2	3.1	9.8	14.7	17.8
115°	0.6	2.5	8.6	14.1	14.7
117.5°	1.2	1.8	6.7	14.1	14.7
120°	1.2	1.2	5.5	13.5	15.3
122.5°	1.2	1.2	4.3	12.3	14.7
125°	0.6	1.2	3.7	9.2	12.9
127.5°	1.2	1.2	3.1	7.4	9.8
130°	1.2	1.2	2.5	5.5	7.4
132.5°	1.2	1.2	1.8	4.3	5.5
135°	1.2	1.2	1.2	3.1	4.3
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)