

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: P518129

Luminaire Tested: HVL8-4-LD4-3LO-35-UNV-O-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: P518129
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-4-LD4-3LO-35-UNV-O-EDD-90
Description: 4 FOOT, 8 INCH WIDE, HVL LED LUMINAIRE, WITH 3500K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 7737.0 lumens
Efficiency: N/A
Efficacy: 114.8 lumens/watt
Spacing Criteria (0/90/45): 1.25 / 1.27 / 1.38
Luminous Opening: Rectangular w/ Sides (W: 0.67' x L: 4' x H: 0.17')
CIE Type: Direct

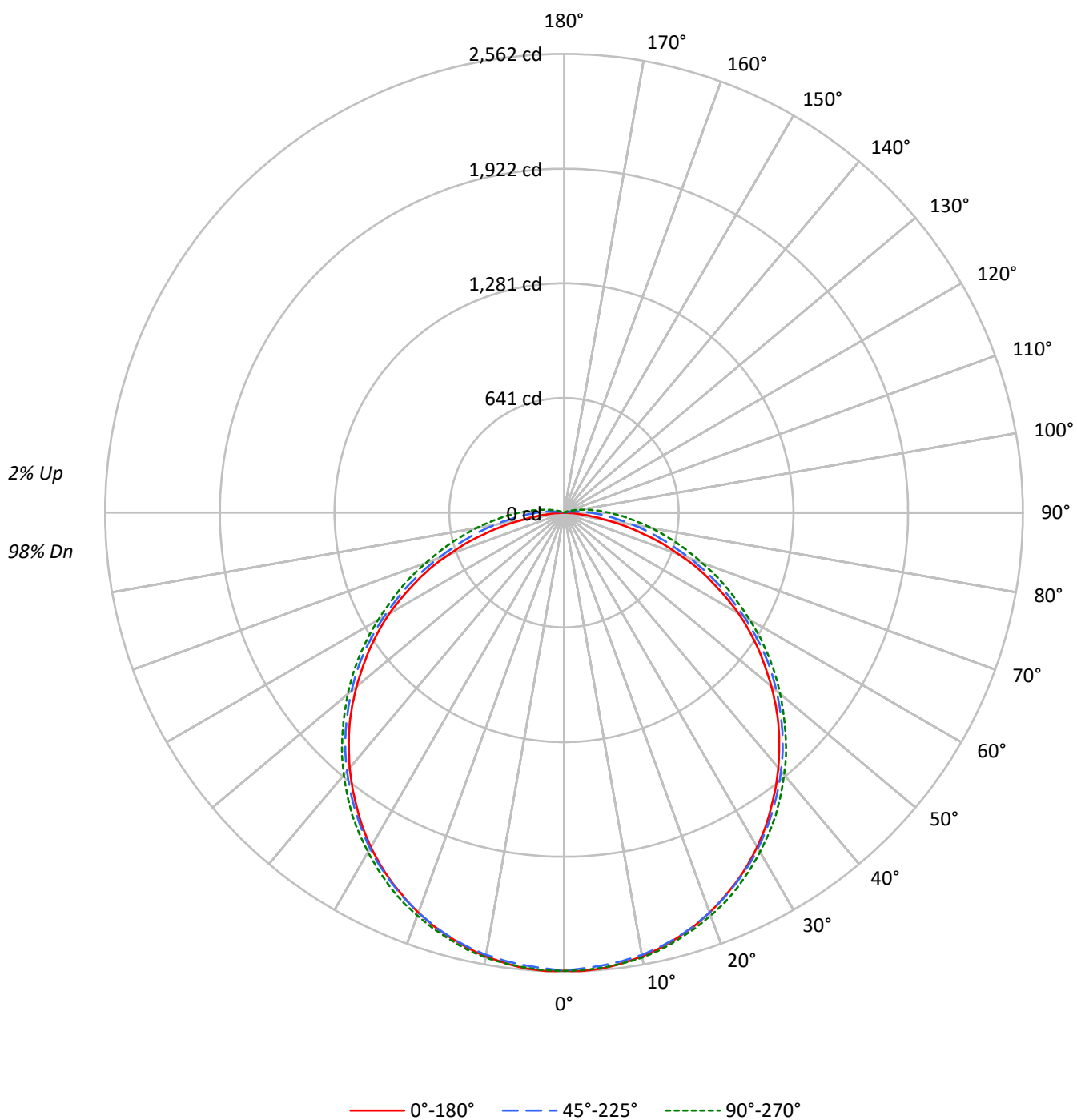
Input Watts (W): 67.4
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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				0
RW	70	50	30	10	70	50	30	10	50	30	10		50	30	10		0
RCR																	
0	119	119	119	119	116	116	116	116	110	110	110		105	105	105		98
1	108	102	98	94	105	100	96	92	95	92	89		91	88	86		81
2	98	89	82	76	95	87	80	75	83	77	73		79	75	71		67
3	89	78	69	63	86	76	68	62	73	66	61		70	64	59		56
4	81	69	60	53	79	67	59	52	65	57	52		62	56	51		47
5	75	61	52	45	72	60	52	45	58	50	44		56	49	44		41
6	69	55	46	40	67	54	46	39	52	45	39		50	44	38		36
7	64	50	41	35	62	49	41	35	47	40	34		46	39	34		32
8	59	46	37	31	58	45	37	31	43	36	31		42	35	30		28
9	55	42	34	28	54	41	33	28	40	33	28		39	32	27		25
10	52	39	31	25	51	38	30	25	37	30	25		36	29	25		23

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	10329	10329	10329
5°	10309	10098	10108
10°	10240	9918	9906
15°	10152	9718	9663
20°	10057	9494	9426
25°	9943	9264	9187
30°	9813	9019	8914
35°	9647	8750	8644
40°	9475	8467	8329
45°	9289	8159	7989
50°	9047	7802	7623
55°	8787	7411	7220
60°	8475	6903	6749
65°	7971	6335	6282
70°	7244	5666	5739
75°	6212	4933	5246
80°	4672	4213	4796
85°	2497	3487	4367

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 9289 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	242.2	3.1
10°-20°	694.6	9.0
20°-30°	1053.9	13.6
30°-40°	1274.4	16.5
40°-50°	1329.7	17.2
50°-60°	1215.8	15.7
60°-70°	947.8	12.2
70°-80°	592.9	7.7
80°-90°	269.3	3.5
90°-100°	90.3	1.2
100°-110°	22.7	0.3
110°-120°	3.6	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°	1990.7	25.7
0°-40°	3265.1	42.2
0°-60°	5810.6	75.1
0°-90°	7620.5	98.5
90°-120°	116.5	1.5
90°-150°	116.5	1.5
90°-180°	116.0	1.5
0°-180°	7737.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2559	2559	2559	2559	2559	
5°	2554	2549	2537	2549	2549	242
15°	2456	2461	2454	2468	2467	693
25°	2276	2278	2280	2300	2303	1049
35°	2015	2024	2032	2053	2061	1261
45°	1695	1710	1724	1741	1749	1306
55°	1323	1339	1363	1383	1392	1182
65°	909	925	957	995	1010	899
75°	460	489	560	627	650	491
85°	80	147	253	334	364	101
90°	1	55	149	224	251	3
95°	1	14	77	140	162	0
105°	1	2	13	37	50	1
115°	2	2	2	7	10	1
125°	0	0	0	0	0	0
135°	0	0	0	0	0	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°	2558.9	2558.9	2558.9	2558.9	2558.9
2.5°	2561.9	2558.3	2546.9	2558.3	2557.7
5°	2553.5	2548.7	2537.2	2549.3	2549.3
7.5°	2536.6	2534.8	2524.5	2538.4	2538.4
10°	2516.7	2516.1	2507.7	2522.7	2523.3
12.5°	2489.0	2491.4	2483.5	2498.0	2499.8
15°	2456.4	2460.6	2454.0	2467.8	2467.2
17.5°	2420.8	2423.2	2418.4	2434.1	2433.5
20°	2376.8	2379.8	2376.2	2392.4	2394.2
22.5°	2327.9	2332.1	2331.5	2348.4	2353.2
25°	2276.0	2277.8	2280.2	2299.5	2303.2
27.5°	2218.7	2221.7	2225.9	2243.4	2247.1
30°	2156.0	2160.8	2165.6	2183.7	2188.5
32.5°	2089.6	2094.4	2100.5	2124.0	2126.4
35°	2014.8	2023.9	2032.3	2052.8	2061.3
37.5°	1940.0	1951.5	1959.3	1981.0	1987.7
40°	1861.0	1872.4	1885.1	1908.0	1912.3
42.5°	1778.3	1791.6	1806.7	1827.2	1834.4
45°	1695.1	1710.2	1724.1	1740.9	1749.4
47.5°	1605.2	1620.3	1637.2	1656.5	1661.9
50°	1512.3	1529.8	1547.9	1566.0	1575.7
52.5°	1417.0	1438.1	1458.6	1477.9	1487.0
55°	1322.9	1338.6	1363.3	1383.2	1392.3
57.5°	1225.2	1238.4	1260.8	1293.3	1298.2
60°	1125.6	1137.7	1160.6	1187.2	1198.0
62.5°	1015.9	1032.1	1056.3	1090.0	1099.7
65°	909.1	924.8	956.7	994.7	1010.4
67.5°	805.9	811.4	852.4	892.2	917.5
70°	684.1	704.6	752.2	801.1	820.4
72.5°	579.1	599.6	652.1	709.4	733.5
75°	460.3	488.6	559.8	626.8	650.3
77.5°	355.9	387.3	475.4	542.9	570.1
80°	248.5	297.4	393.3	469.3	498.9
82.5°	156.2	216.6	319.1	398.7	424.7
85°	79.6	147.2	252.8	334.2	363.8
87.5°	21.1	95.3	196.7	274.5	304.6
90°	0.6	54.9	149.0	223.8	250.9
92.5°	0.6	30.8	111.0	178.0	205.7
95°	0.6	14.5	77.2	140.0	161.7
97.5°	0.6	6.0	53.1	105.6	127.3
100°	0.6	3.0	33.8	76.6	95.3
102.5°	1.2	1.8	21.1	54.9	70.0
105°	1.2	1.8	12.7	37.4	50.1
107.5°	1.2	1.8	7.2	25.3	34.4
110°	1.8	1.8	4.2	15.7	22.9

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1.8	1.8	2.4	10.3	15.1
115°	1.8	1.8	2.4	6.6	9.7
117.5°	0.0	0.0	0.0	0.0	0.0
120°	0.0	0.0	0.0	0.0	0.0
122.5°	0.0	0.0	0.0	0.0	0.0
125°	0.0	0.0	0.0	0.0	0.0
127.5°	0.0	0.0	0.0	0.0	0.0
130°	0.0	0.0	0.0	0.0	0.0
132.5°	0.0	0.0	0.0	0.0	0.0
135°	0.0	0.0	0.0	0.0	0.0
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)