

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: P517967

Luminaire Tested: HVL8-2-LD4-3HI-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: P517967
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-2-LD4-3HI-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: 5926.0 lumens
Efficiency: N/A
Efficacy: 94.1 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

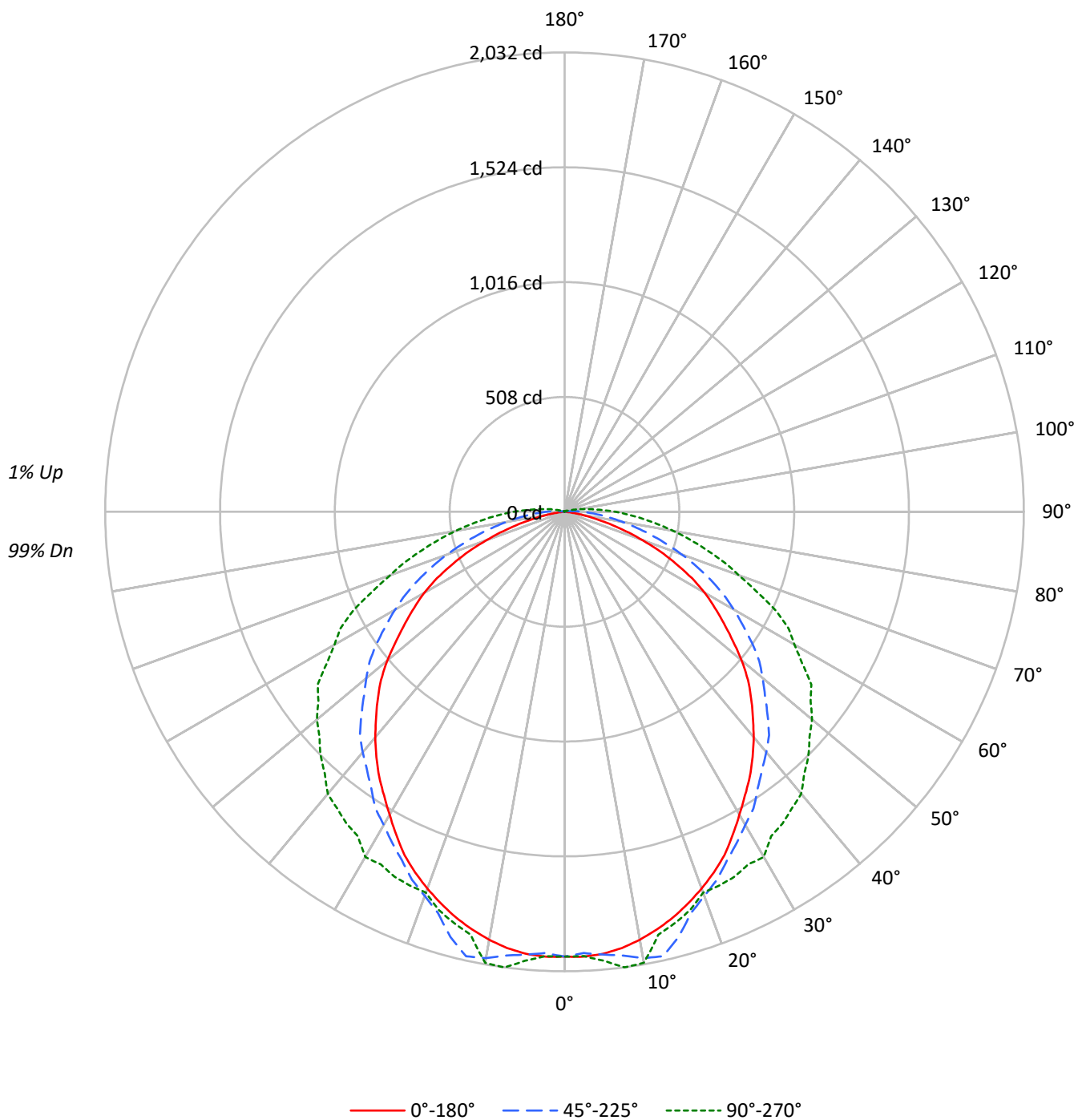
Input Watts (W): 63
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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
RCR																	
0	119	119	119	119	116	116	116	116	110	110	110		105	105	105		101
1	108	103	98	94	105	100	96	92	96	92	89		91	89	86		87
2	98	89	82	76	95	87	80	75	83	78	73		80	75	71		76
3	89	78	69	63	86	76	68	62	73	66	61		70	64	59		67
4	81	69	60	53	79	67	59	52	65	57	51		62	56	51		60
5	75	61	52	45	72	60	51	45	58	50	44		56	49	44		54
6	69	55	46	39	67	54	46	39	52	45	39		50	44	38		49
7	64	50	41	35	62	49	41	35	47	40	34		46	39	34		44
8	59	46	37	31	58	45	37	31	43	36	31		42	35	30		41
9	55	42	34	28	54	41	33	28	40	33	28		39	32	27		38
10	52	39	31	25	51	38	30	25	37	30	25		36	29	25		35

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	15880	15880	15880
5°	15787	15603	15803
10°	15522	15775	15900
15°	15184	15310	14759
20°	14785	14305	14114
25°	14365	13651	14203
30°	13761	13119	14359
35°	13310	12613	14105
40°	12827	12223	14193
45°	12310	11732	13936
50°	11692	11216	13831
55°	10820	10666	13823
60°	10120	9927	13232
65°	8826	9055	12810
70°	7066	7939	11488
75°	4901	6602	10488
80°	2617	5262	9415
85°	873	3888	8293

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 13936 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	189.1	3.2
10°-20°	538.4	9.1
20°-30°	801.1	13.5
30°-40°	962.9	16.2
40°-50°	1013.5	17.1
50°-60°	940.4	15.9
60°-70°	743.6	12.5
70°-80°	454.2	7.7
80°-90°	197.9	3.3
90°-100°	61.6	1.0
100°-110°	13.8	0.2
110°-120°	5.6	0.1
120°-130°	3.1	0.1
130°-140°	0.8	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°	1528.5	25.8
0°-40°	2491.4	42.0
0°-60°	4445.4	75.0
0°-90°	5841.0	98.6
90°-120°	81.0	1.4
90°-150°	85.0	1.4
90°-180°	85.0	1.4
0°-180°	5926.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1967	1967	1967	1967	1967	
5°	1962	1958	1965	1987	1993	186
15°	1857	1929	1948	1883	1884	523
25°	1675	1782	1701	1752	1780	769
35°	1429	1469	1491	1626	1682	893
45°	1168	1173	1270	1471	1526	900
55°	860	874	1013	1235	1333	773
65°	545	562	714	944	1030	539
75°	206	273	398	612	650	225
85°	18	64	155	301	345	29
90°	0	19	81	191	225	1
95°	0	5	36	105	128	0
105°	0	3	7	20	29	1
115°	0	2	6	9	10	1
125°	0	1	2	6	8	1
135°	1	1	1	2	3	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°	1967.1	1967.1	1967.1	1967.1	1967.1
2.5°	1969.5	1964.3	1953.5	1963.9	1966.7
5°	1962.3	1958.3	1965.1	1987.1	1992.8
7.5°	1945.9	1961.1	1979.1	2019.2	2032.0
10°	1921.4	1950.3	2004.4	2038.4	2025.2
12.5°	1891.8	1940.7	2013.2	1946.7	1915.8
15°	1857.3	1928.6	1947.5	1883.0	1884.2
17.5°	1816.8	1918.6	1860.5	1858.9	1847.3
20°	1773.2	1885.0	1808.0	1804.8	1792.4
22.5°	1726.3	1840.5	1761.5	1755.1	1788.8
25°	1675.4	1782.4	1701.0	1751.9	1780.4
27.5°	1611.7	1706.2	1650.5	1722.7	1758.3
30°	1547.2	1627.7	1598.9	1699.4	1762.7
32.5°	1486.7	1545.6	1556.4	1690.6	1701.0
35°	1429.4	1469.0	1491.1	1626.5	1681.8
37.5°	1366.4	1377.3	1435.8	1599.7	1652.9
40°	1302.3	1295.5	1389.3	1555.6	1629.3
42.5°	1233.4	1231.0	1340.0	1533.5	1570.4
45°	1168.1	1173.3	1269.9	1471.0	1525.9
47.5°	1101.2	1108.0	1203.3	1402.5	1470.6
50°	1023.4	1032.2	1144.0	1341.6	1429.4
52.5°	939.3	956.1	1086.3	1283.9	1372.4
55°	860.3	874.4	1013.0	1234.6	1332.8
57.5°	788.2	796.6	937.3	1172.5	1246.6
60°	717.3	719.3	865.9	1103.6	1174.5
62.5°	635.9	639.5	792.6	1022.2	1117.2
65°	544.6	561.8	713.7	944.5	1030.2
67.5°	459.2	489.3	633.1	873.2	918.0
70°	367.9	418.7	554.2	789.4	821.1
72.5°	284.1	343.8	473.2	695.6	740.1
75°	206.0	272.9	397.9	611.5	650.0
77.5°	138.6	206.8	327.4	518.5	569.4
80°	82.9	151.1	264.5	432.4	489.7
82.5°	42.5	101.4	205.2	362.6	413.9
85°	18.4	64.1	155.1	300.9	345.4
87.5°	5.2	36.5	114.2	243.2	280.9
90°	0.4	19.2	81.3	190.7	224.8
92.5°	0.4	9.2	57.3	144.3	170.3
95°	0.4	4.8	35.7	104.6	127.8
97.5°	0.4	2.8	21.6	74.1	93.8
100°	0.4	2.4	12.8	49.3	66.9
102.5°	0.4	2.8	8.8	31.3	43.7
105°	0.4	2.8	7.2	20.4	28.9
107.5°	0.8	2.8	6.4	15.2	20.0
110°	0.4	2.4	6.8	11.6	15.6

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.8	2.0	6.4	9.6	11.6
115°	0.4	1.6	5.6	9.2	9.6
117.5°	0.8	1.2	4.4	9.2	9.6
120°	0.8	0.8	3.6	8.8	10.0
122.5°	0.8	0.8	2.8	8.0	9.6
125°	0.4	0.8	2.4	6.0	8.4
127.5°	0.8	0.8	2.0	4.8	6.4
130°	0.8	0.8	1.6	3.6	4.8
132.5°	0.8	0.8	1.2	2.8	3.6
135°	0.8	0.8	0.8	2.0	2.8
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)