

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: P518083

Luminaire Tested: HVL8-4-LD4-2LO-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: P518083
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-4-LD4-2LO-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: 5473.0 lumens
Efficiency: N/A
Efficacy: 118.7 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

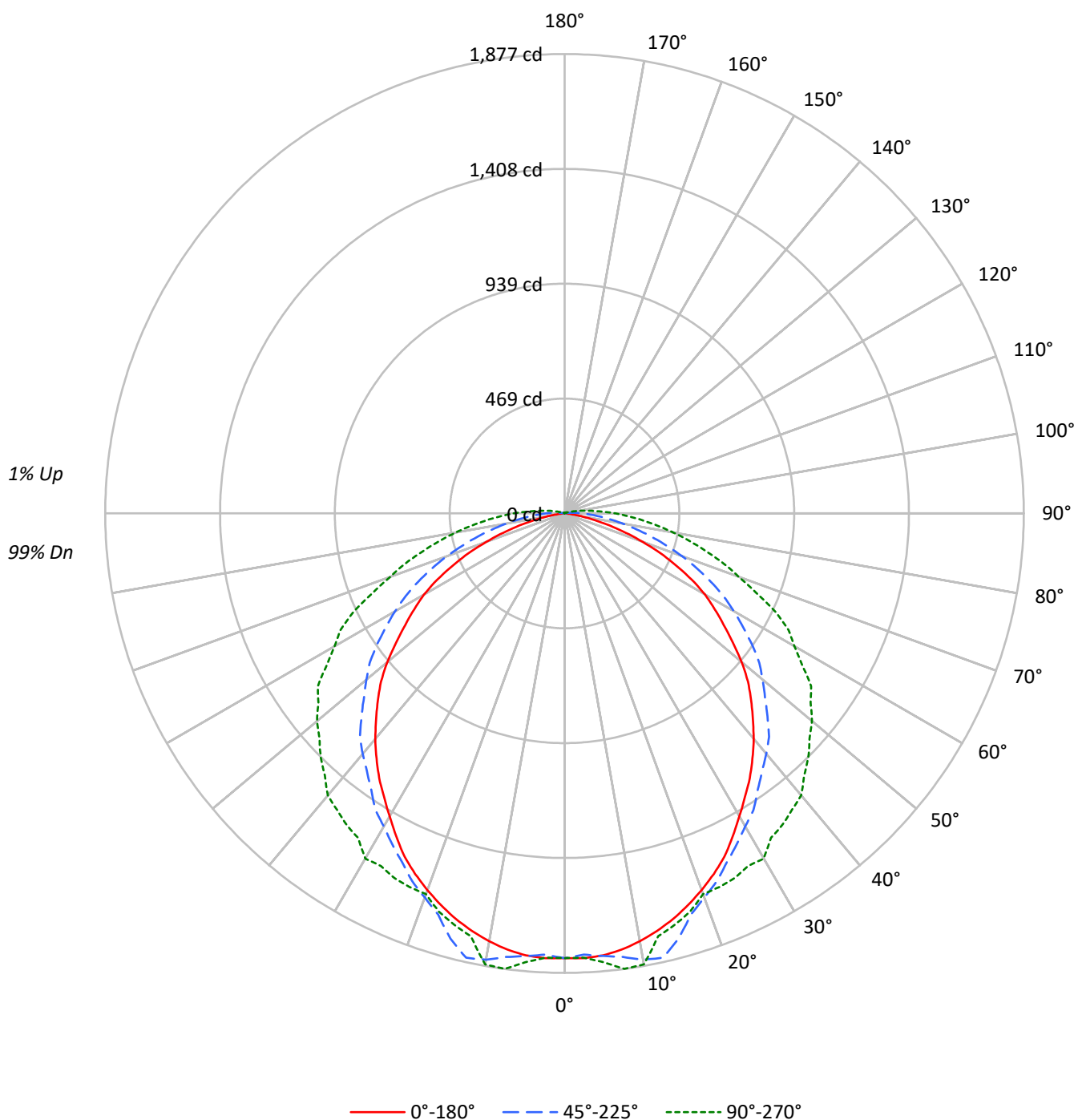
Input Watts (W): 46.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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°	7333	7333	7333
5°	7317	7223	7297
10°	7220	7321	7343
15°	7089	7122	6815
20°	6929	6672	6518
25°	6760	6383	6559
30°	6503	6150	6631
35°	6321	5929	6513
40°	6124	5763	6554
45°	5912	5550	6436
50°	5655	5326	6387
55°	5278	5086	6383
60°	4987	4756	6110
65°	4409	4364	5916
70°	3597	3855	5305
75°	2567	3238	4843
80°	1440	2617	4347
85°	533	1975	3829

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 6436 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	174.6	3.2
10°-20°	497.2	9.1
20°-30°	739.8	13.5
30°-40°	889.3	16.2
40°-50°	936.0	17.1
50°-60°	868.5	15.9
60°-70°	686.7	12.5
70°-80°	419.5	7.7
80°-90°	182.8	3.3
90°-100°	56.9	1.0
100°-110°	12.8	0.2
110°-120°	5.1	0.1
120°-130°	2.9	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°	1411.7	25.8
0°-40°	2301.0	42.0
0°-60°	4105.6	75.0
0°-90°	5394.5	98.6
90°-120°	74.8	1.4
90°-150°	78.5	1.4
90°-180°	78.0	1.4
0°-180°	5473.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1817	1817	1817	1817	1817	
5°	1812	1809	1815	1835	1840	172
15°	1715	1781	1799	1739	1740	483
25°	1547	1646	1571	1618	1644	710
35°	1320	1357	1377	1502	1553	825
45°	1079	1084	1173	1359	1409	832
55°	795	808	936	1140	1231	714
65°	503	519	659	872	952	498
75°	190	252	368	565	600	208
85°	17	59	143	278	319	26
90°	0	18	75	176	208	1
95°	0	4	33	97	118	0
105°	0	3	7	19	27	1
115°	0	2	5	8	9	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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CATALOG NUMBER: HVL8-4-LD4-2LO-40-UNV-C-EDD-90

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1816.7	1816.7	1816.7	1816.7	1816.7
2.5°	1819.0	1814.1	1804.2	1813.8	1816.4
5°	1812.3	1808.6	1814.9	1835.2	1840.4
7.5°	1797.1	1811.2	1827.8	1864.8	1876.7
10°	1774.5	1801.2	1851.2	1882.6	1870.4
12.5°	1747.2	1792.3	1859.3	1797.9	1769.4
15°	1715.3	1781.2	1798.6	1739.0	1740.1
17.5°	1678.0	1772.0	1718.3	1716.8	1706.1
20°	1637.6	1740.9	1669.8	1666.9	1655.4
22.5°	1594.3	1699.8	1626.9	1621.0	1652.1
25°	1547.3	1646.1	1571.0	1618.0	1644.3
27.5°	1488.5	1575.8	1524.4	1591.0	1623.9
30°	1428.9	1503.3	1476.6	1569.5	1628.0
32.5°	1373.0	1427.4	1437.4	1561.4	1571.0
35°	1320.1	1356.7	1377.1	1502.2	1553.2
37.5°	1262.0	1272.0	1326.0	1477.4	1526.6
40°	1202.8	1196.5	1283.1	1436.7	1504.8
42.5°	1139.1	1136.9	1237.6	1416.3	1450.4
45°	1078.8	1083.6	1172.8	1358.6	1409.3
47.5°	1017.0	1023.3	1111.4	1295.3	1358.2
50°	945.2	953.3	1056.6	1239.0	1320.1
52.5°	867.5	883.0	1003.3	1185.7	1267.5
55°	794.6	807.5	935.6	1140.2	1230.9
57.5°	728.0	735.7	865.6	1082.9	1151.3
60°	662.4	664.3	799.7	1019.2	1084.7
62.5°	587.3	590.7	732.0	944.1	1031.8
65°	502.9	518.9	659.1	872.3	951.5
67.5°	424.1	451.9	584.7	806.4	847.9
70°	339.7	386.7	511.8	729.1	758.3
72.5°	262.4	317.5	437.1	642.5	683.5
75°	190.2	252.0	367.5	564.7	600.3
77.5°	128.0	191.0	302.4	478.9	525.9
80°	76.6	139.5	244.3	399.3	452.2
82.5°	39.2	93.6	189.5	334.9	382.3
85°	17.0	59.2	143.2	277.9	319.0
87.5°	4.8	33.7	105.5	224.6	259.4
90°	0.4	17.8	75.1	176.2	207.6
92.5°	0.4	8.5	52.9	133.2	157.3
95°	0.4	4.4	32.9	96.6	118.1
97.5°	0.4	2.6	20.0	68.5	86.6
100°	0.4	2.2	11.8	45.5	61.8
102.5°	0.4	2.6	8.1	28.9	40.3
105°	0.4	2.6	6.7	18.9	26.6
107.5°	0.7	2.6	5.9	14.1	18.5
110°	0.4	2.2	6.3	10.7	14.4

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.7	1.9	5.9	8.9	10.7
115°	0.4	1.5	5.2	8.5	8.9
117.5°	0.7	1.1	4.1	8.5	8.9
120°	0.7	0.7	3.3	8.1	9.3
122.5°	0.7	0.7	2.6	7.4	8.9
125°	0.4	0.7	2.2	5.6	7.8
127.5°	0.7	0.7	1.9	4.4	5.9
130°	0.7	0.7	1.5	3.3	4.4
132.5°	0.7	0.7	1.1	2.6	3.3
135°	0.7	0.7	0.7	1.9	2.6
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)