

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: P518079

Luminaire Tested: HVL8-4-LD4-2LO-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: P518079
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-4-LD4-2LO-35-UNV-C-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: 5418.0 lumens
Efficiency: N/A
Efficacy: 117.5 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

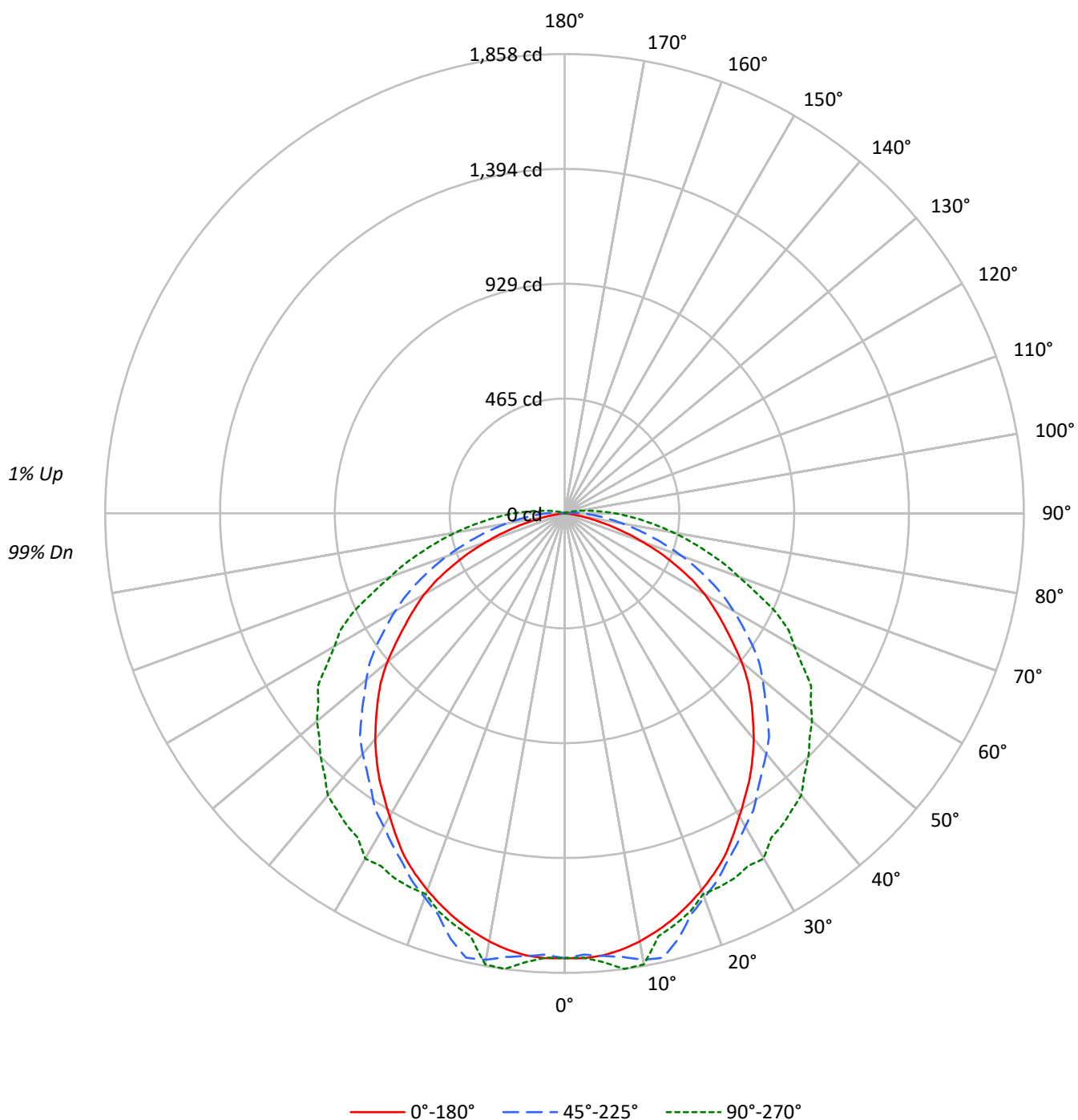
Input Watts (W): 46.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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
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°	7260	7260	7260
5°	7243	7151	7224
10°	7148	7248	7269
15°	7018	7051	6746
20°	6860	6605	6452
25°	6692	6319	6493
30°	6438	6088	6564
35°	6257	5870	6448
40°	6062	5705	6488
45°	5853	5494	6371
50°	5598	5272	6322
55°	5225	5035	6319
60°	4938	4709	6049
65°	4365	4321	5856
70°	3561	3817	5252
75°	2541	3206	4794
80°	1425	2590	4304
85°	530	1956	3791

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 6371 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	172.9	3.2
10°-20°	492.2	9.1
20°-30°	732.4	13.5
30°-40°	880.4	16.2
40°-50°	926.6	17.1
50°-60°	859.8	15.9
60°-70°	679.8	12.5
70°-80°	415.3	7.7
80°-90°	180.9	3.3
90°-100°	56.3	1.0
100°-110°	12.7	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°	1397.5	25.8
0°-40°	2277.9	42.0
0°-60°	4064.3	75.0
0°-90°	5340.3	98.6
90°-120°	74.1	1.4
90°-150°	77.7	1.4
90°-180°	78.0	1.4
0°-180°	5418.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1798	1798	1798	1798	1798	
5°	1794	1790	1797	1817	1822	170
15°	1698	1763	1780	1722	1723	478
25°	1532	1630	1555	1602	1628	703
35°	1307	1343	1363	1487	1538	817
45°	1068	1073	1161	1345	1395	823
55°	787	799	926	1129	1218	707
65°	498	514	652	864	942	493
75°	188	250	364	559	594	206
85°	17	59	142	275	316	26
90°	0	18	74	174	206	1
95°	0	4	33	96	117	0
105°	0	3	7	19	26	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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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1798.5	1798.5	1798.5	1798.5	1798.5
2.5°	1800.7	1795.9	1786.0	1795.6	1798.1
5°	1794.1	1790.4	1796.6	1816.8	1821.9
7.5°	1779.1	1793.0	1809.5	1846.1	1857.8
10°	1756.7	1783.1	1832.6	1863.7	1851.6
12.5°	1729.6	1774.3	1840.6	1779.8	1751.6
15°	1698.1	1763.3	1780.5	1721.5	1722.6
17.5°	1661.1	1754.2	1701.0	1699.6	1688.9
20°	1621.2	1723.4	1653.0	1650.1	1638.7
22.5°	1578.3	1682.7	1610.5	1604.7	1635.4
25°	1531.8	1629.6	1555.2	1601.7	1627.8
27.5°	1473.5	1560.0	1509.1	1575.0	1607.6
30°	1414.5	1488.2	1461.8	1553.8	1611.6
32.5°	1359.2	1413.1	1423.0	1545.7	1555.2
35°	1306.8	1343.1	1363.2	1487.1	1537.6
37.5°	1249.3	1259.2	1312.7	1462.5	1511.3
40°	1190.7	1184.5	1270.2	1422.2	1489.6
42.5°	1127.7	1125.5	1225.1	1402.1	1435.8
45°	1068.0	1072.7	1161.0	1344.9	1395.1
47.5°	1006.8	1013.0	1100.2	1282.3	1344.6
50°	935.7	943.8	1046.0	1226.6	1306.8
52.5°	858.8	874.1	993.2	1173.8	1254.8
55°	786.6	799.4	926.2	1128.8	1218.5
57.5°	720.6	728.3	856.9	1072.0	1139.8
60°	655.8	657.6	791.7	1009.0	1073.8
62.5°	581.4	584.7	724.7	934.6	1021.4
65°	497.9	513.6	652.5	863.5	941.9
67.5°	419.9	447.3	578.9	798.3	839.3
70°	336.3	382.9	506.7	721.7	750.7
72.5°	259.8	314.3	432.7	636.0	676.7
75°	188.3	249.5	363.8	559.1	594.2
77.5°	126.8	189.0	299.3	474.1	520.6
80°	75.8	138.1	241.8	395.3	447.7
82.5°	38.8	92.7	187.6	331.6	378.5
85°	16.9	58.6	141.8	275.1	315.8
87.5°	4.8	33.3	104.4	222.4	256.8
90°	0.4	17.6	74.4	174.4	205.5
92.5°	0.4	8.4	52.4	131.9	155.7
95°	0.4	4.4	32.6	95.6	116.9
97.5°	0.4	2.6	19.8	67.8	85.7
100°	0.4	2.2	11.7	45.1	61.2
102.5°	0.4	2.6	8.1	28.6	39.9
105°	0.4	2.6	6.6	18.7	26.4
107.5°	0.7	2.6	5.9	13.9	18.3
110°	0.4	2.2	6.2	10.6	14.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.7	1.8	5.9	8.8	10.6
115°	0.4	1.5	5.1	8.4	8.8
117.5°	0.7	1.1	4.0	8.4	8.8
120°	0.7	0.7	3.3	8.1	9.2
122.5°	0.7	0.7	2.6	7.3	8.8
125°	0.4	0.7	2.2	5.5	7.7
127.5°	0.7	0.7	1.8	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	1.8	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)