

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: P518097

Luminaire Tested: HVL8-4-LD4-2STD-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: P518097
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-4-LD4-2STD-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: 5288.0 lumens
Efficiency: N/A
Efficacy: 80.9 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

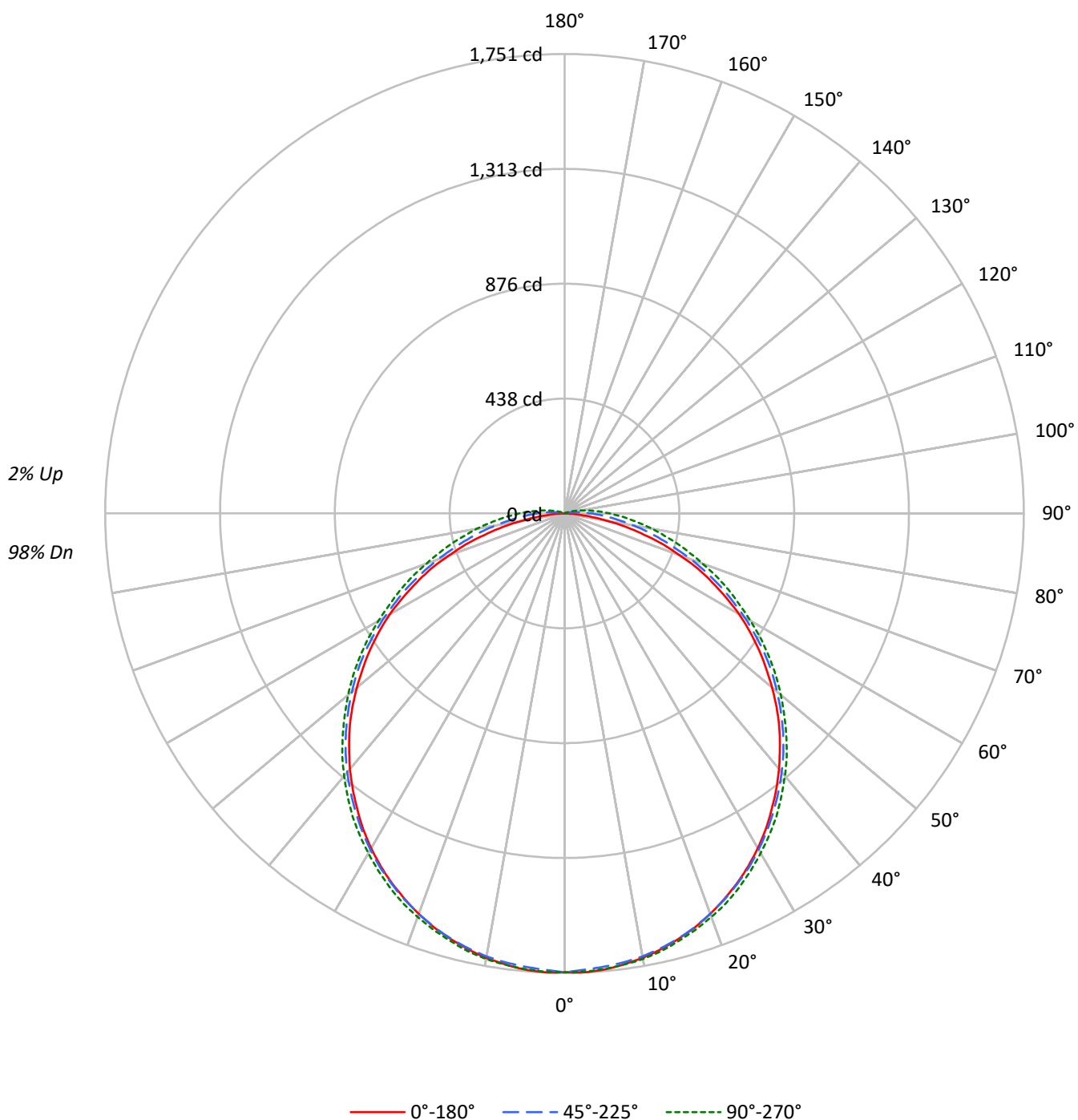
Input Watts (W): 65.4
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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					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			98
1	108	102	98	94	105	100	96	92	95	92	89	91	88	86	87	85	83			81
2	98	89	82	76	95	87	80	75	83	77	73	79	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	52	62	56	51	60	54	50			47
5	75	61	52	45	72	60	52	45	58	50	44	56	49	44	54	48	43			41
6	69	55	46	40	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°	7060	7060	7060
5°	7046	6902	6909
10°	6999	6778	6770
15°	6938	6642	6604
20°	6873	6489	6443
25°	6796	6332	6279
30°	6706	6164	6092
35°	6593	5981	5908
40°	6475	5787	5693
45°	6349	5576	5460
50°	6184	5332	5210
55°	6006	5065	4935
60°	5792	4718	4612
65°	5447	4330	4294
70°	4951	3873	3923
75°	4246	3371	3586
80°	3194	2880	3278
85°	1707	2383	2984

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 6349 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	165.5	3.1
10°-20°	474.7	9.0
20°-30°	720.3	13.6
30°-40°	871.0	16.5
40°-50°	908.8	17.2
50°-60°	831.0	15.7
60°-70°	647.8	12.2
70°-80°	405.2	7.7
80°-90°	184.0	3.5
90°-100°	61.7	1.2
100°-110°	15.5	0.3
110°-120°	2.4	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°	1360.6	25.7
0°-40°	2231.6	42.2
0°-60°	3971.4	75.1
0°-90°	5208.4	98.5
90°-120°	79.6	1.5
90°-150°	79.6	1.5
90°-180°	80.0	1.5
0°-180°	5288.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1749	1749	1749	1749	1749	
5°	1745	1742	1734	1742	1742	166
15°	1679	1682	1677	1687	1686	474
25°	1556	1557	1558	1572	1574	717
35°	1377	1383	1389	1403	1409	862
45°	1158	1169	1178	1190	1196	893
55°	904	915	932	945	952	808
65°	621	632	654	680	691	615
75°	315	334	383	428	444	335
85°	54	101	173	228	249	69
90°	0	38	102	153	172	2
95°	0	10	53	96	110	0
105°	1	1	9	26	34	1
115°	1	1	2	4	7	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°	1749.0	1749.0	1749.0	1749.0	1749.0
2.5°	1751.0	1748.5	1740.7	1748.5	1748.1
5°	1745.2	1741.9	1734.1	1742.4	1742.4
7.5°	1733.7	1732.5	1725.5	1734.9	1734.9
10°	1720.1	1719.7	1713.9	1724.2	1724.6
12.5°	1701.1	1702.8	1697.4	1707.3	1708.5
15°	1678.9	1681.7	1677.2	1686.7	1686.3
17.5°	1654.5	1656.2	1652.9	1663.6	1663.2
20°	1624.4	1626.5	1624.0	1635.2	1636.4
22.5°	1591.0	1593.9	1593.5	1605.1	1608.4
25°	1555.6	1556.8	1558.5	1571.7	1574.1
27.5°	1516.4	1518.5	1521.4	1533.3	1535.8
30°	1473.5	1476.8	1480.1	1492.5	1495.8
32.5°	1428.2	1431.5	1435.6	1451.7	1453.3
35°	1377.1	1383.2	1389.0	1403.0	1408.8
37.5°	1325.9	1333.8	1339.1	1354.0	1358.5
40°	1271.9	1279.8	1288.4	1304.1	1307.0
42.5°	1215.4	1224.5	1234.8	1248.8	1253.8
45°	1158.5	1168.9	1178.3	1189.9	1195.7
47.5°	1097.1	1107.4	1119.0	1132.2	1135.9
50°	1033.6	1045.6	1057.9	1070.3	1076.9
52.5°	968.5	982.9	996.9	1010.1	1016.3
55°	904.2	914.9	931.8	945.4	951.6
57.5°	837.4	846.4	861.7	884.0	887.3
60°	769.3	777.6	793.3	811.4	818.8
62.5°	694.3	705.4	721.9	745.0	751.6
65°	621.3	632.0	653.9	679.9	690.6
67.5°	550.8	554.5	582.6	609.8	627.1
70°	467.5	481.6	514.1	547.5	560.7
72.5°	395.8	409.8	445.7	484.9	501.3
75°	314.6	334.0	382.6	428.4	444.5
77.5°	243.3	264.7	324.9	371.1	389.6
80°	169.9	203.3	268.8	320.8	341.0
82.5°	106.8	148.0	218.1	272.5	290.3
85°	54.4	100.6	172.8	228.4	248.6
87.5°	14.4	65.1	134.4	187.6	208.2
90°	0.4	37.5	101.8	153.0	171.5
92.5°	0.4	21.0	75.9	121.6	140.6
95°	0.4	9.9	52.8	95.7	110.5
97.5°	0.4	4.1	36.3	72.2	87.0
100°	0.4	2.1	23.1	52.4	65.1
102.5°	0.8	1.2	14.4	37.5	47.8
105°	0.8	1.2	8.7	25.6	34.2
107.5°	0.8	1.2	4.9	17.3	23.5
110°	1.2	1.2	2.9	10.7	15.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1.2	1.2	1.6	7.0	10.3
115°	1.2	1.2	1.6	4.5	6.6
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)