

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: P518088

Luminaire Tested: HVL8-4-LD4-2LO-50-UNV-C-EDD

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: P518088
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-4-LD4-2LO-50-UNV-C-EDD
Description: 4 FOOT, 8 INCH WIDE, HVL LED LUMINAIRE, WITH 5000K, 80 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5565.0 lumens
Efficiency: N/A
Efficacy: 120.7 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

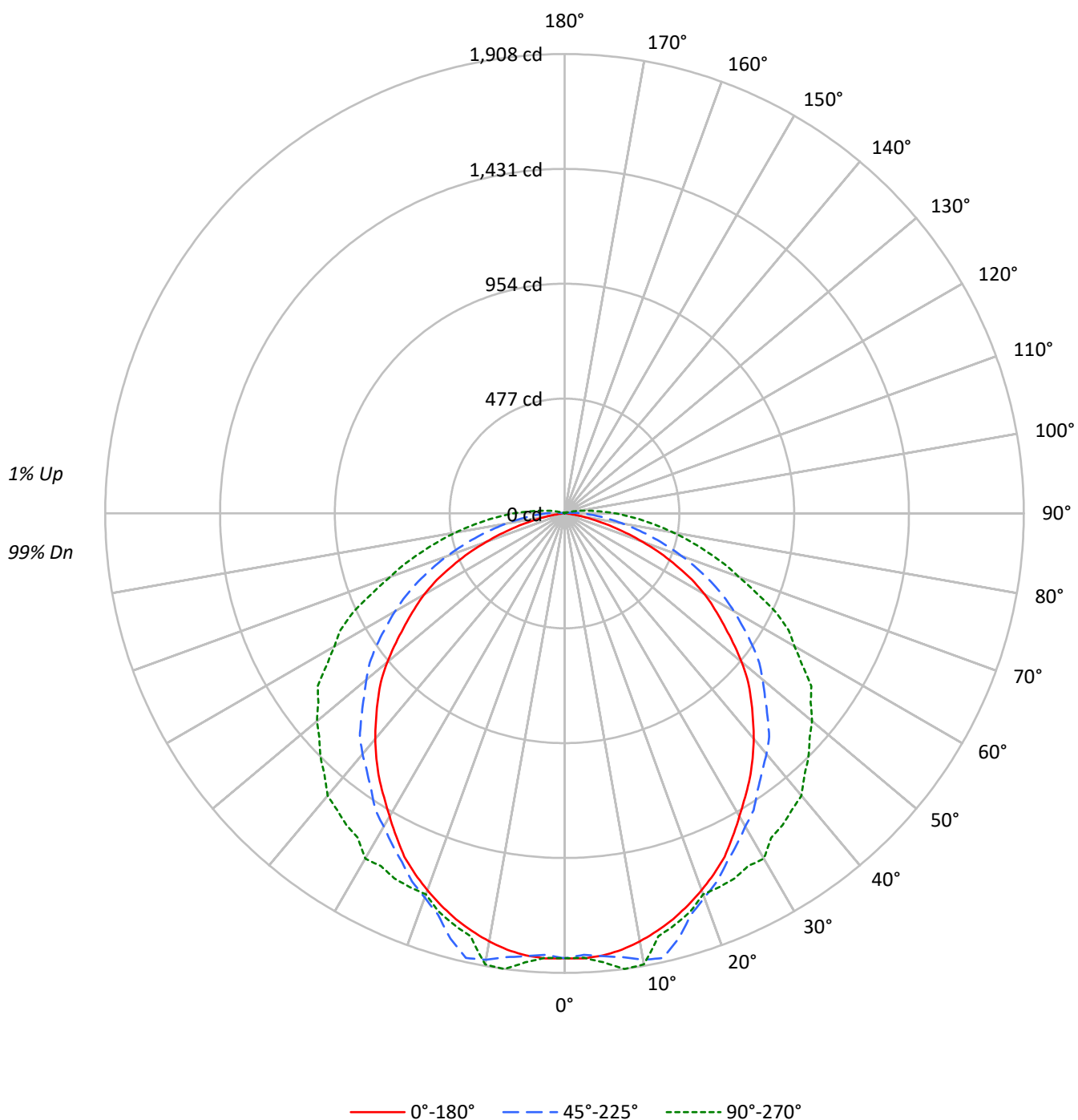
Input Watts (W): 46.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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°	7457	7457	7457
5°	7440	7345	7420
10°	7342	7444	7466
15°	7208	7242	6930
20°	7046	6784	6627
25°	6874	6490	6669
30°	6613	6254	6742
35°	6427	6029	6623
40°	6227	5860	6664
45°	6011	5643	6544
50°	5750	5415	6494
55°	5366	5171	6490
60°	5072	4837	6213
65°	4484	4438	6015
70°	3658	3920	5394
75°	2610	3293	4924
80°	1465	2661	4420
85°	543	2008	3894

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 6544 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	177.5	3.2
10°-20°	505.6	9.1
20°-30°	752.3	13.5
30°-40°	904.2	16.2
40°-50°	951.8	17.1
50°-60°	883.1	15.9
60°-70°	698.3	12.5
70°-80°	426.5	7.7
80°-90°	185.8	3.3
90°-100°	57.9	1.0
100°-110°	13.0	0.2
110°-120°	5.2	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°	1435.4	25.8
0°-40°	2339.7	42.0
0°-60°	4174.6	75.0
0°-90°	5485.2	98.6
90°-120°	76.1	1.4
90°-150°	79.8	1.4
90°-180°	80.0	1.4
0°-180°	5565.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1847	1847	1847	1847	1847	
5°	1843	1839	1845	1866	1871	175
15°	1744	1811	1829	1768	1769	491
25°	1573	1674	1597	1645	1672	722
35°	1342	1380	1400	1527	1579	839
45°	1097	1102	1192	1381	1433	846
55°	808	821	951	1159	1252	726
65°	511	528	670	887	968	506
75°	193	256	374	574	610	211
85°	17	60	146	283	324	27
90°	0	18	76	179	211	1
95°	0	4	34	98	120	0
105°	0	3	7	19	27	1
115°	0	2	5	9	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-50-UNV-C-EDD

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1847.3	1847.3	1847.3	1847.3	1847.3
2.5°	1849.5	1844.6	1834.5	1844.3	1846.9
5°	1842.8	1839.0	1845.4	1866.1	1871.4
7.5°	1827.3	1841.6	1858.6	1896.2	1908.2
10°	1804.4	1831.5	1882.3	1914.3	1901.8
12.5°	1776.5	1822.4	1890.6	1828.1	1799.1
15°	1744.2	1811.2	1828.8	1768.3	1769.4
17.5°	1706.2	1801.7	1747.2	1745.7	1734.8
20°	1665.1	1770.1	1697.9	1694.9	1683.2
22.5°	1621.1	1728.4	1654.2	1648.2	1679.8
25°	1573.3	1673.8	1597.4	1645.2	1671.9
27.5°	1513.5	1602.3	1550.0	1617.7	1651.2
30°	1452.9	1528.5	1501.5	1595.9	1655.4
32.5°	1396.1	1451.4	1461.6	1587.6	1597.4
35°	1342.3	1379.5	1400.2	1527.4	1579.3
37.5°	1283.2	1293.4	1348.3	1502.2	1552.3
40°	1223.0	1216.6	1304.6	1460.8	1530.1
42.5°	1158.3	1156.0	1258.4	1440.1	1474.7
45°	1096.9	1101.8	1192.5	1381.4	1433.0
47.5°	1034.1	1040.5	1130.0	1317.1	1381.0
50°	961.1	969.4	1074.3	1259.9	1342.3
52.5°	882.1	897.9	1020.2	1205.7	1288.8
55°	807.9	821.1	951.3	1159.4	1251.6
57.5°	740.2	748.1	880.2	1101.1	1170.7
60°	673.6	675.5	813.2	1036.3	1102.9
62.5°	597.2	600.6	744.3	960.0	1049.1
65°	511.4	527.6	670.2	886.9	967.5
67.5°	431.2	459.5	594.6	820.0	862.1
70°	345.4	393.2	520.4	741.3	771.0
72.5°	266.8	322.9	444.4	653.3	695.0
75°	193.4	256.3	373.7	574.2	610.4
77.5°	130.2	194.2	307.4	486.9	534.7
80°	77.9	141.9	248.4	406.0	459.8
82.5°	39.9	95.2	192.7	340.6	388.7
85°	17.3	60.2	145.6	282.6	324.4
87.5°	4.9	34.2	107.2	228.4	263.8
90°	0.4	18.1	76.4	179.1	211.1
92.5°	0.4	8.7	53.8	135.5	159.9
95°	0.4	4.5	33.5	98.2	120.0
97.5°	0.4	2.6	20.3	69.6	88.1
100°	0.4	2.3	12.0	46.3	62.8
102.5°	0.4	2.6	8.3	29.4	41.0
105°	0.4	2.6	6.8	19.2	27.1
107.5°	0.8	2.6	6.0	14.3	18.8
110°	0.4	2.3	6.4	10.9	14.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.8	1.9	6.0	9.0	10.9
115°	0.4	1.5	5.3	8.7	9.0
117.5°	0.8	1.1	4.1	8.7	9.0
120°	0.8	0.8	3.4	8.3	9.4
122.5°	0.8	0.8	2.6	7.5	9.0
125°	0.4	0.8	2.3	5.6	7.9
127.5°	0.8	0.8	1.9	4.5	6.0
130°	0.8	0.8	1.5	3.4	4.5
132.5°	0.8	0.8	1.1	2.6	3.4
135°	0.8	0.8	0.8	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)