

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: P518015

Luminaire Tested: HVL8-4-LD4-1HI-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: P518015
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-4-LD4-1HI-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: 4729.9 lumens
Efficiency: N/A
Efficacy: 110.0 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

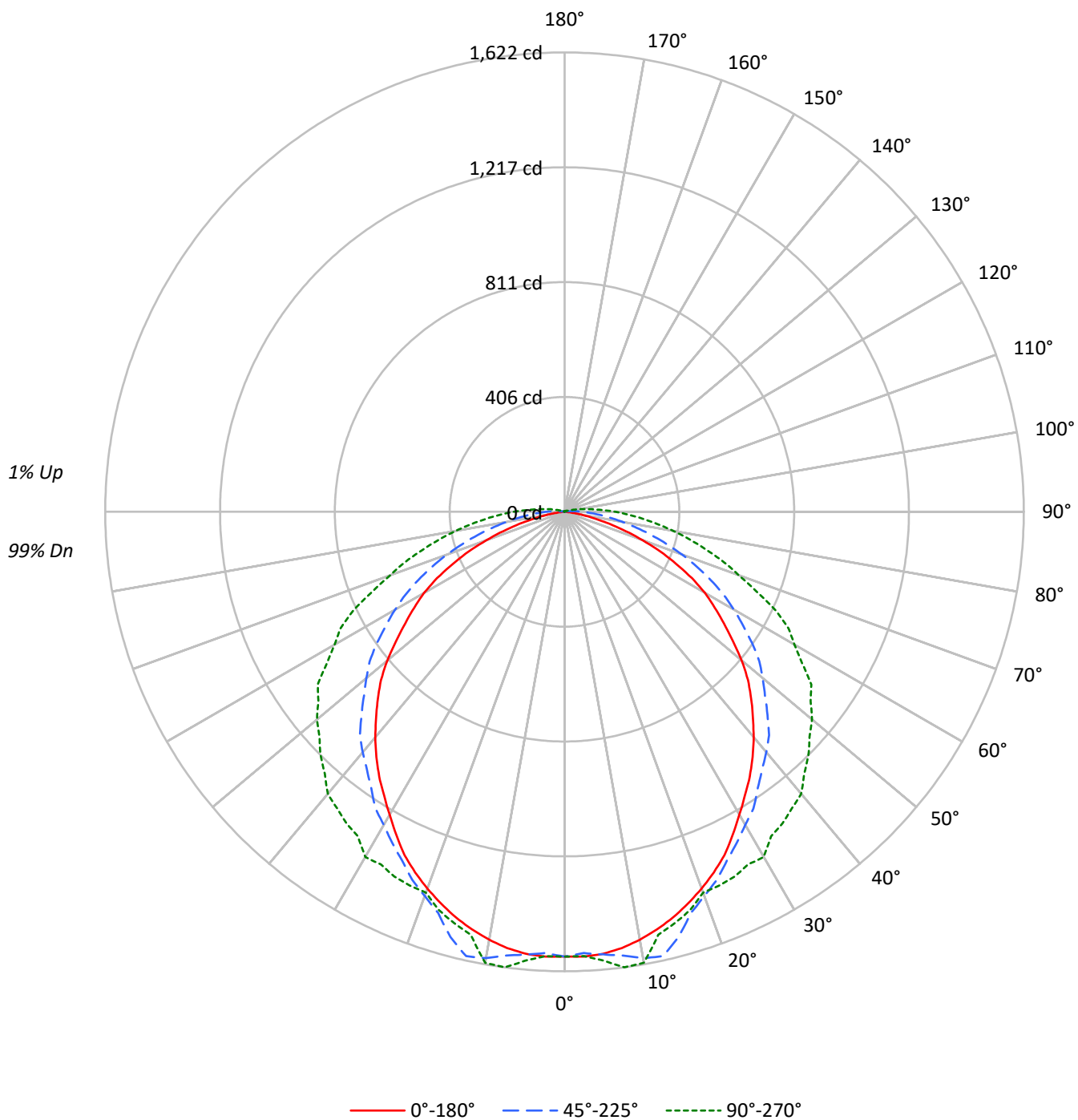
Input Watts (W): 43
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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°	6338	6338	6338
5°	6323	6243	6307
10°	6240	6327	6346
15°	6127	6155	5890
20°	5989	5766	5633
25°	5842	5516	5668
30°	5621	5315	5731
35°	5463	5124	5629
40°	5292	4981	5664
45°	5109	4797	5562
50°	4887	4602	5520
55°	4561	4396	5516
60°	4311	4111	5281
65°	3811	3772	5112
70°	3109	3332	4585
75°	2219	2799	4185
80°	1245	2261	3757
85°	461	1708	3310

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 5562 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	150.9	3.2
10°-20°	429.7	9.1
20°-30°	639.4	13.5
30°-40°	768.6	16.2
40°-50°	809.0	17.1
50°-60°	750.6	15.9
60°-70°	593.5	12.5
70°-80°	362.5	7.7
80°-90°	158.0	3.3
90°-100°	49.2	1.0
100°-110°	11.0	0.2
110°-120°	4.4	0.1
120°-130°	2.5	0.1
130°-140°	0.7	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°	1220.0	25.8
0°-40°	1988.6	42.0
0°-60°	3548.2	75.0
0°-90°	4662.1	98.6
90°-120°	64.6	1.4
90°-150°	67.8	1.4
90°-180°	68.0	1.4
0°-180°	4729.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1570	1570	1570	1570	1570	
5°	1566	1563	1568	1586	1591	148
15°	1482	1539	1554	1503	1504	418
25°	1337	1423	1358	1398	1421	614
35°	1141	1172	1190	1298	1342	713
45°	932	936	1014	1174	1218	719
55°	687	698	809	985	1064	617
65°	435	448	570	754	822	430
75°	164	218	318	488	519	179
85°	15	51	124	240	276	23
90°	0	15	65	152	179	1
95°	0	4	28	84	102	0
105°	0	2	6	16	23	0
115°	0	1	4	7	8	0
125°	0	1	2	5	7	0
135°	1	1	1	2	2	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-LD4-1HI-35-UNV-C-EDD-90

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1570.1	1570.1	1570.1	1570.1	1570.1
2.5°	1572.0	1567.9	1559.2	1567.5	1569.8
5°	1566.3	1563.1	1568.5	1586.1	1590.6
7.5°	1553.2	1565.3	1579.7	1611.7	1621.9
10°	1533.6	1556.7	1599.8	1627.0	1616.5
12.5°	1510.0	1549.0	1606.9	1553.8	1529.2
15°	1482.5	1539.4	1554.4	1502.9	1503.9
17.5°	1450.2	1531.4	1485.0	1483.7	1474.5
20°	1415.3	1504.5	1443.1	1440.6	1430.7
22.5°	1377.9	1469.0	1406.0	1400.9	1427.8
25°	1337.3	1422.7	1357.7	1398.3	1421.1
27.5°	1286.4	1361.9	1317.4	1375.0	1403.5
30°	1234.9	1299.2	1276.2	1356.4	1407.0
32.5°	1186.6	1233.6	1242.3	1349.4	1357.7
35°	1140.9	1172.5	1190.1	1298.2	1342.4
37.5°	1090.7	1099.3	1146.0	1276.8	1319.3
40°	1039.5	1034.0	1108.9	1241.6	1300.5
42.5°	984.5	982.6	1069.6	1224.0	1253.5
45°	932.3	936.5	1013.6	1174.1	1218.0
47.5°	878.9	884.4	960.5	1119.4	1173.8
50°	816.9	823.9	913.1	1070.8	1140.9
52.5°	749.7	763.1	867.1	1024.8	1095.5
55°	686.7	697.9	808.6	985.4	1063.8
57.5°	629.1	635.8	748.1	935.9	995.0
60°	572.5	574.1	691.2	880.8	937.5
62.5°	507.6	510.5	632.6	815.9	891.7
65°	434.7	448.4	569.6	753.9	822.3
67.5°	366.5	390.5	505.3	696.9	732.8
70°	293.6	334.2	442.3	630.1	655.4
72.5°	226.8	274.4	377.7	555.2	590.7
75°	164.4	217.8	317.6	488.1	518.8
77.5°	110.7	165.0	261.3	413.9	454.5
80°	66.2	120.6	211.1	345.1	390.8
82.5°	33.9	80.9	163.8	289.5	330.4
85°	14.7	51.2	123.8	240.2	275.7
87.5°	4.2	29.1	91.2	194.1	224.2
90°	0.3	15.4	64.9	152.2	179.4
92.5°	0.3	7.4	45.7	115.1	135.9
95°	0.3	3.8	28.5	83.5	102.0
97.5°	0.3	2.2	17.3	59.2	74.8
100°	0.3	1.9	10.2	39.3	53.4
102.5°	0.3	2.2	7.0	24.9	34.9
105°	0.3	2.2	5.8	16.3	23.0
107.5°	0.6	2.2	5.1	12.2	16.0
110°	0.3	1.9	5.4	9.3	12.5

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.6	1.6	5.1	7.7	9.3
115°	0.3	1.3	4.5	7.4	7.7
117.5°	0.6	1.0	3.5	7.4	7.7
120°	0.6	0.6	2.9	7.0	8.0
122.5°	0.6	0.6	2.2	6.4	7.7
125°	0.3	0.6	1.9	4.8	6.7
127.5°	0.6	0.6	1.6	3.8	5.1
130°	0.6	0.6	1.3	2.9	3.8
132.5°	0.6	0.6	1.0	2.2	2.9
135°	0.6	0.6	0.6	1.6	2.2
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)