

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: P518013

Luminaire Tested: HVL8-4-LD4-1HI-30-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: P518013
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-4-LD4-1HI-30-UNV-O-EDD-90
Description: 4 FOOT, 8 INCH WIDE, HVL LED LUMINAIRE, WITH 3000K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4080.0 lumens
Efficiency: N/A
Efficacy: 94.9 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

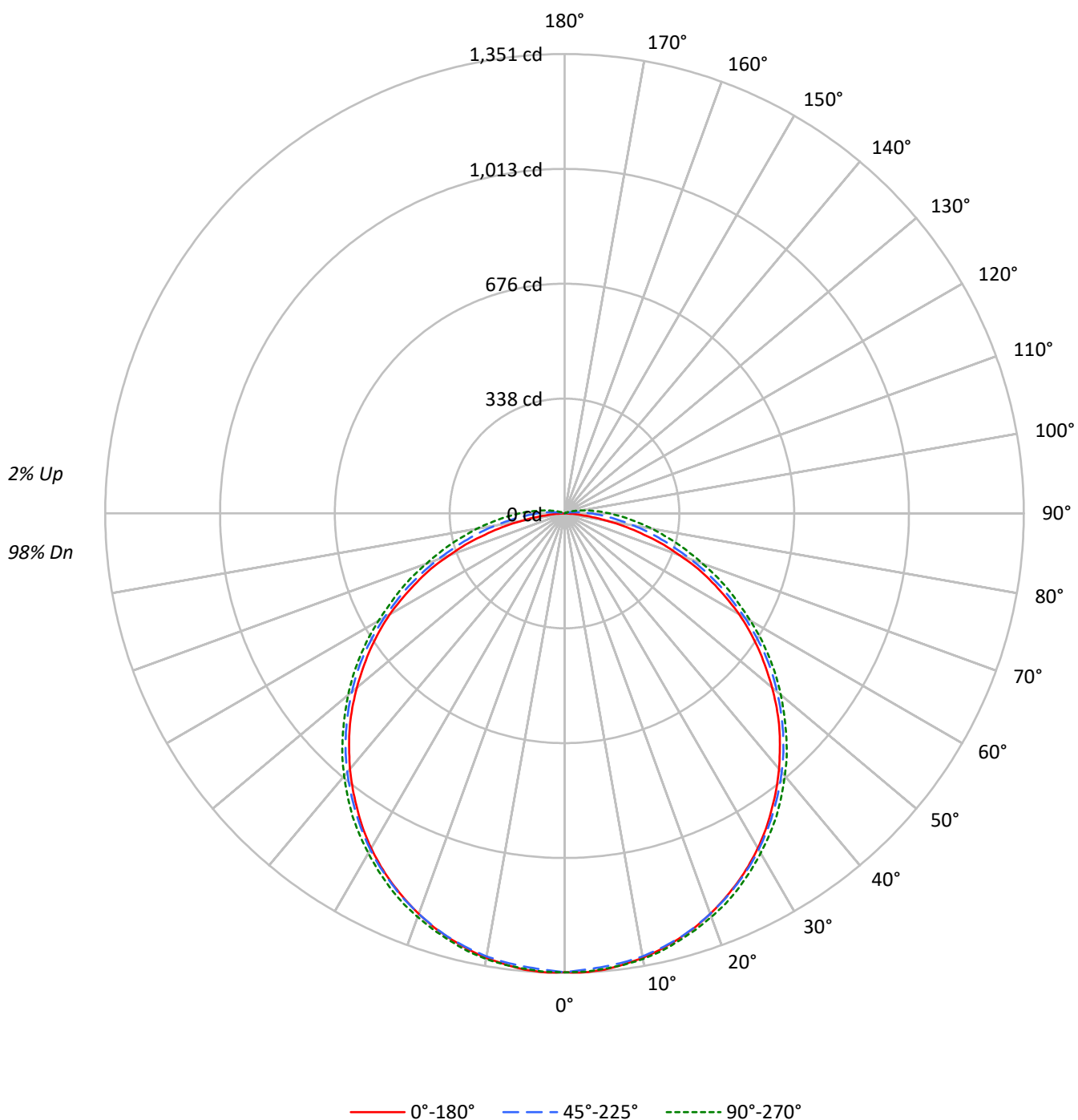
Input Watts (W): 43
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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				0
RW	70	50	30	10	70	50	30	10	50	30	10		50	30	10		0
RCR																	
0	119	119	119	119	116	116	116	116	110	110	110		105	105	105		98
1	108	102	98	94	105	100	96	92	95	92	89		91	88	86		81
2	98	89	82	76	95	87	80	75	83	77	73		79	75	71		67
3	89	78	69	63	86	76	68	62	73	66	61		70	64	59		56
4	81	69	60	53	79	67	59	52	65	57	52		62	56	51		47
5	75	61	52	45	72	60	52	45	58	50	44		56	49	44		41
6	69	55	46	40	67	54	46	39	52	45	39		50	44	38		36
7	64	50	41	35	62	49	41	35	47	40	34		46	39	34		32
8	59	46	37	31	58	45	37	31	43	36	31		42	35	30		28
9	55	42	34	28	54	41	33	28	40	33	28		39	32	27		25
10	52	39	31	25	51	38	30	25	37	30	25		36	29	25		23

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	5447	5447	5447
5°	5436	5325	5330
10°	5400	5230	5223
15°	5353	5125	5096
20°	5303	5006	4971
25°	5243	4886	4844
30°	5174	4756	4701
35°	5087	4614	4558
40°	4997	4465	4392
45°	4899	4303	4213
50°	4771	4115	4020
55°	4633	3908	3807
60°	4469	3640	3559
65°	4203	3341	3313
70°	3820	2988	3026
75°	3276	2601	2766
80°	2465	2222	2529
85°	1318	1839	2302

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 4899 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	127.7	3.1
10°-20°	366.3	9.0
20°-30°	555.8	13.6
30°-40°	672.0	16.5
40°-50°	701.2	17.2
50°-60°	641.1	15.7
60°-70°	499.8	12.2
70°-80°	312.6	7.7
80°-90°	142.0	3.5
90°-100°	47.6	1.2
100°-110°	11.9	0.3
110°-120°	1.9	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°	1049.8	25.7
0°-40°	1721.8	42.2
0°-60°	3064.2	75.1
0°-90°	4018.6	98.5
90°-120°	61.4	1.5
90°-150°	61.4	1.5
90°-180°	61.0	1.5
0°-180°	4080.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1349	1349	1349	1349	1349	
5°	1347	1344	1338	1344	1344	128
15°	1295	1298	1294	1301	1301	366
25°	1200	1201	1202	1213	1214	553
35°	1062	1067	1072	1082	1087	665
45°	894	902	909	918	922	689
55°	698	706	719	729	734	623
65°	479	488	504	525	533	474
75°	243	258	295	330	343	259
85°	42	78	133	176	192	53
90°	0	29	79	118	132	2
95°	0	8	41	74	85	0
105°	1	1	7	20	26	1
115°	1	1	1	4	5	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°	1349.4	1349.4	1349.4	1349.4	1349.4
2.5°	1351.0	1349.1	1343.1	1349.1	1348.8
5°	1346.6	1344.0	1338.0	1344.3	1344.3
7.5°	1337.6	1336.7	1331.3	1338.6	1338.6
10°	1327.1	1326.8	1322.4	1330.3	1330.6
12.5°	1312.5	1313.8	1309.7	1317.3	1318.2
15°	1295.3	1297.6	1294.1	1301.4	1301.1
17.5°	1276.6	1277.8	1275.3	1283.6	1283.3
20°	1253.3	1254.9	1253.0	1261.6	1262.6
22.5°	1227.6	1229.8	1229.5	1238.4	1240.9
25°	1200.2	1201.2	1202.5	1212.6	1214.5
27.5°	1170.0	1171.6	1173.8	1183.0	1185.0
30°	1136.9	1139.5	1142.0	1151.6	1154.1
32.5°	1101.9	1104.5	1107.7	1120.1	1121.3
35°	1062.5	1067.3	1071.7	1082.5	1087.0
37.5°	1023.0	1029.1	1033.2	1044.7	1048.2
40°	981.4	987.4	994.1	1006.2	1008.4
42.5°	937.8	944.8	952.7	963.6	967.4
45°	893.9	901.8	909.2	918.1	922.5
47.5°	846.5	854.4	863.3	873.5	876.4
50°	797.5	806.7	816.3	825.8	830.9
52.5°	747.2	758.4	769.2	779.4	784.1
55°	697.6	705.9	718.9	729.4	734.2
57.5°	646.1	653.1	664.8	682.0	684.6
60°	593.6	600.0	612.0	626.0	631.8
62.5°	535.7	544.3	557.0	574.8	579.9
65°	479.4	487.7	504.5	524.6	532.8
67.5°	425.0	427.9	449.5	470.5	483.8
70°	360.7	371.6	396.7	422.4	432.6
72.5°	305.4	316.2	343.9	374.1	386.8
75°	242.7	257.7	295.2	330.5	342.9
77.5°	187.7	204.2	250.7	286.3	300.6
80°	131.1	156.8	207.4	247.5	263.1
82.5°	82.4	114.2	168.3	210.3	223.9
85°	42.0	77.6	133.3	176.2	191.8
87.5°	11.1	50.3	103.7	144.7	160.6
90°	0.3	28.9	78.6	118.0	132.3
92.5°	0.3	16.2	58.5	93.8	108.5
95°	0.3	7.6	40.7	73.8	85.3
97.5°	0.3	3.2	28.0	55.7	67.1
100°	0.3	1.6	17.8	40.4	50.3
102.5°	0.6	1.0	11.1	28.9	36.9
105°	0.6	1.0	6.7	19.7	26.4
107.5°	0.6	1.0	3.8	13.4	18.1
110°	1.0	1.0	2.2	8.3	12.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1.0	1.0	1.3	5.4	8.0
115°	1.0	1.0	1.3	3.5	5.1
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)