

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: P517979

Luminaire Tested: HVL8-2-LD4-3LO-30-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: P517979
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-2-LD4-3LO-30-UNV-C-EDD-90
Description: 2 FOOT, 8 INCH WIDE, HVL LED LUMINAIRE, WITH 3000K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3528.0 lumens
Efficiency: N/A
Efficacy: 104.7 lumens/watt
Spacing Criteria (0/90/45): 1.18 / 1.32 / 1.37
Luminous Opening: Rectangular w/ Sides (W: 0.67' x L: 2' x H: 0.17')
CIE Type: Direct

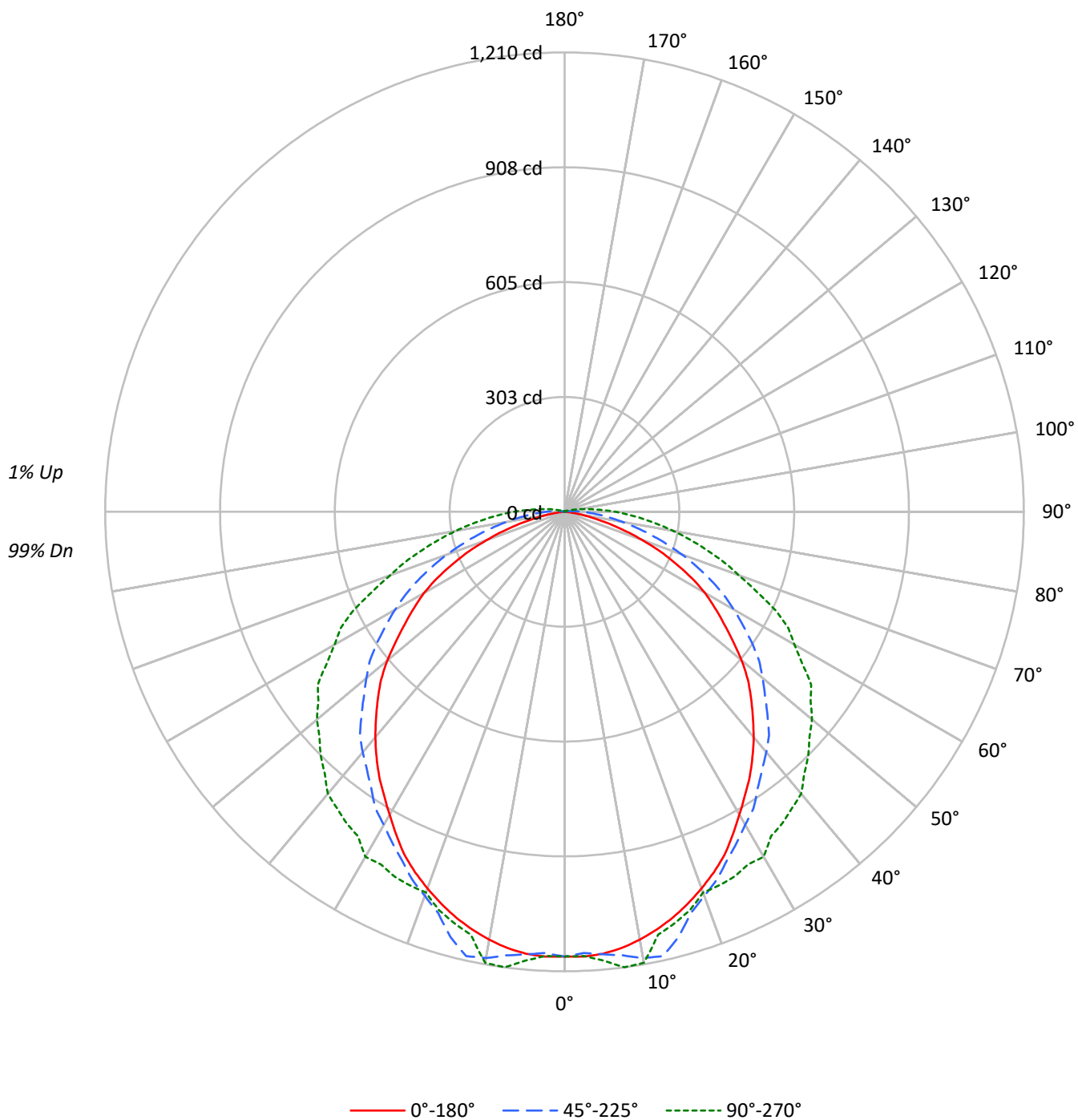
Input Watts (W): 33.7
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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°	9454	9454	9454
5°	9398	9289	9408
10°	9241	9392	9466
15°	9039	9114	8786
20°	8802	8517	8403
25°	8552	8127	8455
30°	8192	7810	8548
35°	7924	7509	8397
40°	7636	7277	8449
45°	7328	6985	8297
50°	6961	6678	8234
55°	6442	6350	8229
60°	6025	5910	7877
65°	5254	5391	7626
70°	4206	4726	6839
75°	2917	3931	6242
80°	1559	3133	5604
85°	522	2314	4936

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 8297 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	112.6	3.2
10°-20°	320.5	9.1
20°-30°	476.9	13.5
30°-40°	573.3	16.2
40°-50°	603.4	17.1
50°-60°	559.9	15.9
60°-70°	442.7	12.5
70°-80°	270.4	7.7
80°-90°	117.8	3.3
90°-100°	36.7	1.0
100°-110°	8.2	0.2
110°-120°	3.3	0.1
120°-130°	1.9	0.1
130°-140°	0.5	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°	910.0	25.8
0°-40°	1483.3	42.0
0°-60°	2646.5	75.0
0°-90°	3477.4	98.6
90°-120°	48.2	1.4
90°-150°	50.6	1.4
90°-180°	51.0	1.4
0°-180°	3528.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1171	1171	1171	1171	1171	
5°	1168	1166	1170	1183	1186	111
15°	1106	1148	1159	1121	1122	311
25°	997	1061	1013	1043	1060	458
35°	851	875	888	968	1001	532
45°	695	698	756	876	908	536
55°	512	520	603	735	794	460
65°	324	334	425	562	613	321
75°	123	162	237	364	387	134
85°	11	38	92	179	206	17
90°	0	12	48	114	134	1
95°	0	3	21	62	76	0
105°	0	2	4	12	17	0
115°	0	1	3	6	6	0
125°	0	0	1	4	5	0
135°	0	0	0	1	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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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1171.1	1171.1	1171.1	1171.1	1171.1
2.5°	1172.5	1169.4	1163.0	1169.2	1170.9
5°	1168.2	1165.9	1169.9	1183.0	1186.4
7.5°	1158.5	1167.5	1178.3	1202.1	1209.8
10°	1143.9	1161.1	1193.3	1213.6	1205.7
12.5°	1126.3	1155.4	1198.5	1158.9	1140.6
15°	1105.7	1148.2	1159.4	1121.0	1121.7
17.5°	1081.6	1142.2	1107.6	1106.7	1099.8
20°	1055.6	1122.2	1076.4	1074.5	1067.1
22.5°	1027.7	1095.7	1048.7	1044.9	1064.9
25°	997.4	1061.1	1012.7	1043.0	1059.9
27.5°	959.5	1015.8	982.6	1025.6	1046.8
30°	921.1	969.0	951.9	1011.7	1049.4
32.5°	885.1	920.1	926.6	1006.5	1012.7
35°	851.0	874.6	887.7	968.3	1001.2
37.5°	813.5	819.9	854.8	952.3	984.1
40°	775.3	771.3	827.1	926.1	970.0
42.5°	734.3	732.9	797.8	913.0	934.9
45°	695.4	698.5	756.0	875.8	908.4
47.5°	655.6	659.6	716.4	835.0	875.5
50°	609.3	614.5	681.1	798.7	851.0
52.5°	559.2	569.2	646.7	764.4	817.1
55°	512.2	520.5	603.1	735.0	793.5
57.5°	469.3	474.3	558.0	698.0	742.2
60°	427.0	428.2	515.5	657.0	699.2
62.5°	378.6	380.7	471.9	608.6	665.1
65°	324.2	334.5	424.9	562.3	613.3
67.5°	273.4	291.3	376.9	519.8	546.5
70°	219.0	249.3	329.9	470.0	488.8
72.5°	169.1	204.7	281.7	414.1	440.6
75°	122.6	162.5	236.9	364.0	386.9
77.5°	82.5	123.1	194.9	308.7	339.0
80°	49.4	89.9	157.5	257.4	291.5
82.5°	25.3	60.4	122.1	215.9	246.4
85°	11.0	38.2	92.3	179.2	205.6
87.5°	3.1	21.7	68.0	144.8	167.2
90°	0.2	11.5	48.4	113.6	133.8
92.5°	0.2	5.5	34.1	85.9	101.4
95°	0.2	2.9	21.2	62.3	76.1
97.5°	0.2	1.7	12.9	44.1	55.8
100°	0.2	1.4	7.6	29.3	39.8
102.5°	0.2	1.7	5.2	18.6	26.0
105°	0.2	1.7	4.3	12.2	17.2
107.5°	0.5	1.7	3.8	9.1	11.9
110°	0.2	1.4	4.1	6.9	9.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.5	1.2	3.8	5.7	6.9
115°	0.2	1.0	3.3	5.5	5.7
117.5°	0.5	0.7	2.6	5.5	5.7
120°	0.5	0.5	2.1	5.2	6.0
122.5°	0.5	0.5	1.7	4.8	5.7
125°	0.2	0.5	1.4	3.6	5.0
127.5°	0.5	0.5	1.2	2.9	3.8
130°	0.5	0.5	1.0	2.1	2.9
132.5°	0.5	0.5	0.7	1.7	2.1
135°	0.5	0.5	0.5	1.2	1.7
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)