

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: P517248

Luminaire Tested: HVL12-1-LD4-3HI-35-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: P517248
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-1-LD4-3HI-35-UNV-C-EDD
Description: 1 FOOT, 12 INCH WIDE, HVL LED LUMINAIRE, WITH 3500K, 80 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3696.9 lumens
Efficiency: N/A
Efficacy: 114.5 lumens/watt
Spacing Criteria (0/90/45): 1.18 / 1.32 / 1.37
Luminous Opening: Rectangular w/ Sides (W: 1' x L: 1' x H: 0.17')
CIE Type: Direct

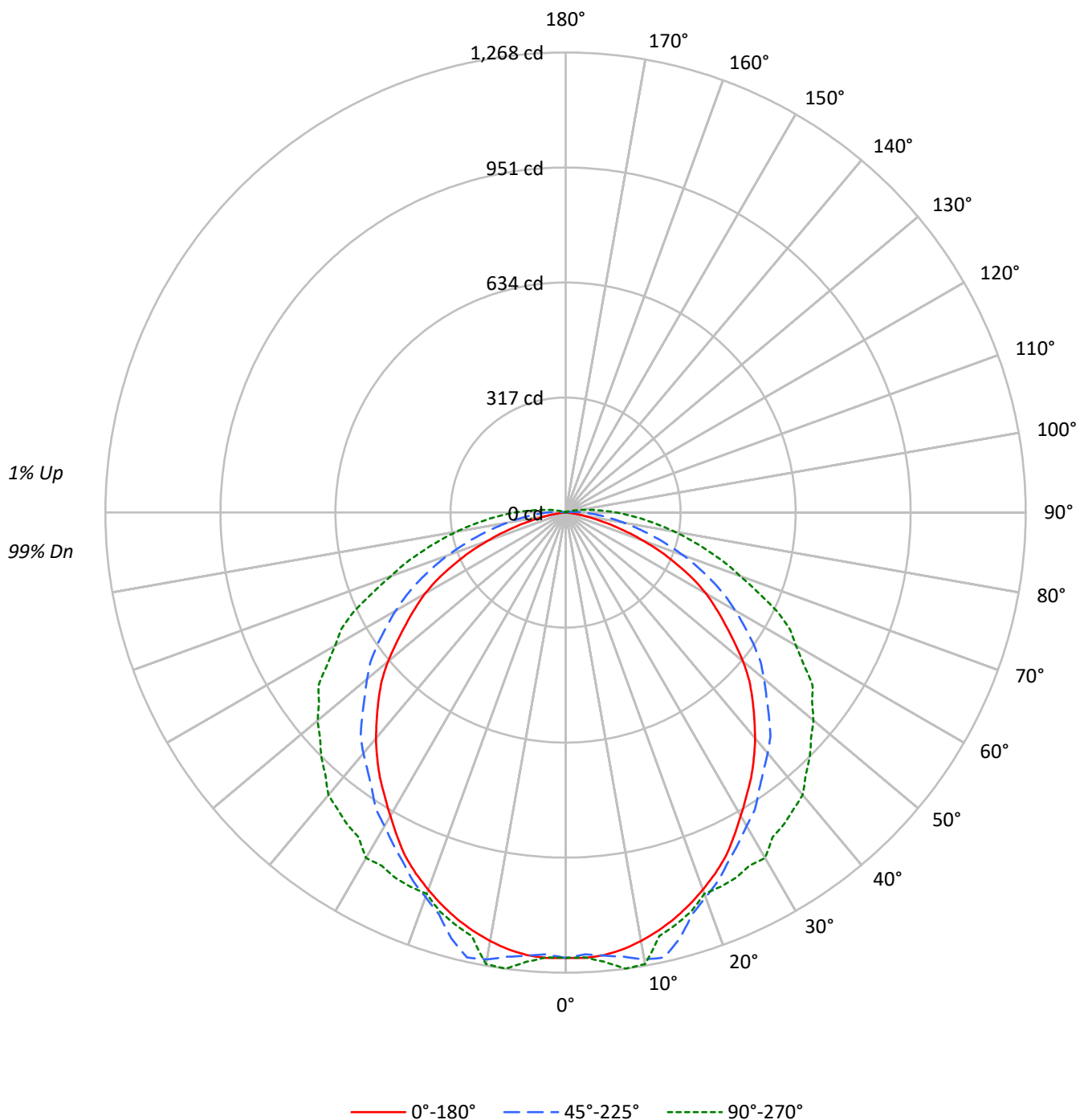
Input Watts (W): 32.3
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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	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°	13209	13209	13209
5°	13037	12979	13240
10°	12728	13122	13416
15°	12360	12735	12539
20°	11946	11900	12076
25°	11518	11355	12240
30°	10943	10913	12468
35°	10492	10491	12346
40°	10016	10167	12530
45°	9508	9759	12421
50°	8920	9330	12457
55°	8135	8873	12604
60°	7475	8258	12239
65°	6374	7531	12059
70°	4954	6603	11056
75°	3295	5491	10396
80°	1647	4376	9734
85°	489	3232	9160

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 55°

Luminance: 12604 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	117.9	3.2
10°-20°	335.9	9.1
20°-30°	499.8	13.5
30°-40°	600.7	16.2
40°-50°	632.3	17.1
50°-60°	586.7	15.9
60°-70°	463.9	12.5
70°-80°	283.3	7.7
80°-90°	123.4	3.3
90°-100°	38.4	1.0
100°-110°	8.6	0.2
110°-120°	3.4	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°	953.6	25.8
0°-40°	1554.3	42.0
0°-60°	2773.3	75.0
0°-90°	3644.0	98.6
90°-120°	50.5	1.4
90°-150°	52.9	1.4
90°-180°	53.0	1.4
0°-180°	3696.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1227	1227	1227	1227	1227	
5°	1224	1222	1226	1240	1243	116
15°	1159	1203	1215	1175	1176	326
25°	1045	1112	1061	1093	1111	480
35°	892	916	930	1015	1049	557
45°	729	732	792	918	952	562
55°	537	546	632	770	832	482
65°	340	350	445	589	643	336
75°	128	170	248	382	406	140
85°	12	40	97	188	216	18
90°	0	12	51	119	140	1
95°	0	3	22	65	80	0
105°	0	2	4	13	18	0
115°	0	1	4	6	6	0
125°	0	0	2	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°	1227.2	1227.2	1227.2	1227.2	1227.2
2.5°	1228.7	1225.5	1218.7	1225.2	1227.0
5°	1224.2	1221.7	1226.0	1239.7	1243.2
7.5°	1214.0	1223.5	1234.7	1259.7	1267.7
10°	1198.7	1216.7	1250.5	1271.7	1263.5
12.5°	1180.2	1210.7	1256.0	1214.5	1195.2
15°	1158.7	1203.2	1215.0	1174.7	1175.5
17.5°	1133.5	1197.0	1160.7	1159.7	1152.5
20°	1106.2	1176.0	1128.0	1126.0	1118.2
22.5°	1077.0	1148.2	1099.0	1095.0	1116.0
25°	1045.2	1112.0	1061.2	1093.0	1110.7
27.5°	1005.5	1064.5	1029.7	1074.7	1097.0
30°	965.2	1015.5	997.5	1060.2	1099.7
32.5°	927.5	964.2	971.0	1054.7	1061.2
35°	891.7	916.5	930.2	1014.7	1049.2
37.5°	852.5	859.2	895.7	998.0	1031.2
40°	812.5	808.2	866.7	970.5	1016.5
42.5°	769.5	768.0	836.0	956.7	979.7
45°	728.7	732.0	792.2	917.7	952.0
47.5°	687.0	691.2	750.7	875.0	917.5
50°	638.5	644.0	713.7	837.0	891.7
52.5°	586.0	596.5	677.7	801.0	856.2
55°	536.7	545.5	632.0	770.2	831.5
57.5°	491.7	497.0	584.7	731.5	777.7
60°	447.5	448.7	540.2	688.5	732.7
62.5°	396.7	399.0	494.5	637.7	697.0
65°	339.7	350.5	445.2	589.2	642.7
67.5°	286.5	305.2	395.0	544.7	572.7
70°	229.5	261.2	345.7	492.5	512.2
72.5°	177.2	214.5	295.2	434.0	461.7
75°	128.5	170.2	248.2	381.5	405.5
77.5°	86.5	129.0	204.2	323.5	355.2
80°	51.7	94.2	165.0	269.7	305.5
82.5°	26.5	63.2	128.0	226.2	258.2
85°	11.5	40.0	96.7	187.7	215.5
87.5°	3.2	22.7	71.2	151.7	175.2
90°	0.2	12.0	50.7	119.0	140.2
92.5°	0.2	5.7	35.7	90.0	106.2
95°	0.2	3.0	22.2	65.2	79.7
97.5°	0.2	1.7	13.5	46.2	58.5
100°	0.2	1.5	8.0	30.7	41.7
102.5°	0.2	1.7	5.5	19.5	27.2
105°	0.2	1.7	4.5	12.7	18.0
107.5°	0.5	1.7	4.0	9.5	12.5
110°	0.2	1.5	4.2	7.2	9.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.5	1.2	4.0	6.0	7.2
115°	0.2	1.0	3.5	5.7	6.0
117.5°	0.5	0.7	2.7	5.7	6.0
120°	0.5	0.5	2.2	5.5	6.2
122.5°	0.5	0.5	1.7	5.0	6.0
125°	0.2	0.5	1.5	3.7	5.2
127.5°	0.5	0.5	1.2	3.0	4.0
130°	0.5	0.5	1.0	2.2	3.0
132.5°	0.5	0.5	0.7	1.7	2.2
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)