

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: P517467

Luminaire Tested: HVL12-4-LD4-1STD-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: P517467
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-4-LD4-1STD-30-UNV-C-EDD-90
Description: 4 FOOT, 12 INCH WIDE, HVL LED LUMINAIRE, WITH 3000K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3656.0 lumens
Efficiency: N/A
Efficacy: 109.1 lumens/watt
Spacing Criteria (0/90/45): 1.18 / 1.32 / 1.37
Luminous Opening: Rectangular w/ Sides (W: 1' x L: 4' x H: 0.17')
CIE Type: Direct

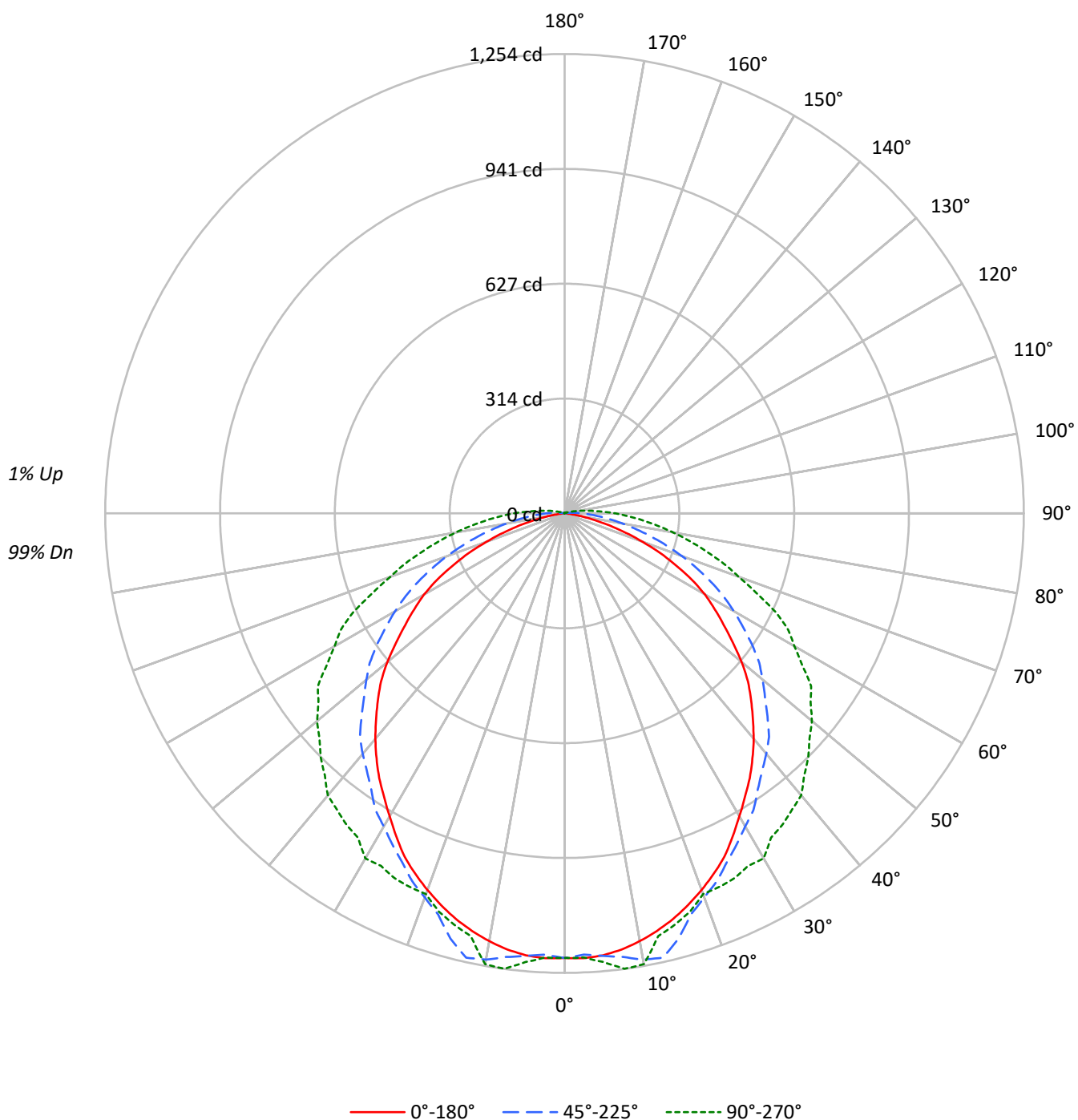
Input Watts (W): 33.5
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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
RCR																	
0	119	119	119	119	116	116	116	116	110	110	110		105	105	105		101
1	108	103	98	94	105	100	96	92	96	92	89		91	89	86		87
2	98	89	82	76	95	87	80	75	83	78	73		80	75	71		76
3	89	78	69	63	86	76	68	62	73	66	61		70	64	59		67
4	81	69	60	53	79	67	59	52	65	57	51		62	56	51		60
5	75	61	52	45	72	60	51	45	58	50	44		56	49	44		54
6	69	55	46	39	67	54	46	39	52	45	39		50	44	38		49
7	64	50	41	35	62	49	41	35	47	40	34		46	39	34		44
8	59	46	37	31	58	45	37	31	43	36	31		42	35	30		41
9	55	42	34	28	54	41	33	28	40	33	28		39	32	27		38
10	52	39	31	25	51	38	30	25	37	30	25		36	29	25		35

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3266	3266	3266
5°	3258	3233	3273
10°	3215	3293	3316
15°	3157	3220	3100
20°	3086	3032	2986
25°	3010	2916	3026
30°	2896	2825	3082
35°	2815	2739	3052
40°	2727	2680	3098
45°	2633	2598	3071
50°	2518	2513	3080
55°	2350	2422	3116
60°	2221	2290	3026
65°	1964	2130	2981
70°	1602	1915	2733
75°	1144	1647	2570
80°	642	1378	2406
85°	238	1101	2265

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 55°

Luminance: 3116 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	116.6	3.2
10°-20°	332.2	9.1
20°-30°	494.2	13.5
30°-40°	594.1	16.2
40°-50°	625.3	17.1
50°-60°	580.2	15.9
60°-70°	458.7	12.5
70°-80°	280.2	7.7
80°-90°	122.1	3.3
90°-100°	38.0	1.0
100°-110°	8.5	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°	943.0	25.8
0°-40°	1537.1	42.0
0°-60°	2742.5	75.0
0°-90°	3603.6	98.6
90°-120°	50.0	1.4
90°-150°	52.4	1.4
90°-180°	52.0	1.4
0°-180°	3656.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1214	1214	1214	1214	1214	
5°	1211	1208	1212	1226	1229	115
15°	1146	1190	1202	1162	1162	323
25°	1034	1100	1049	1081	1098	475
35°	882	906	920	1004	1038	551
45°	721	724	783	908	941	556
55°	531	539	625	762	822	477
65°	336	347	440	583	636	333
75°	127	168	246	377	401	139
85°	11	40	96	186	213	18
90°	0	12	50	118	139	1
95°	0	3	22	64	79	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°	1213.6	1213.6	1213.6	1213.6	1213.6
2.5°	1215.1	1211.9	1205.2	1211.6	1213.3
5°	1210.6	1208.2	1212.4	1226.0	1229.4
7.5°	1200.5	1209.9	1221.0	1245.7	1253.6
10°	1185.4	1203.2	1236.6	1257.6	1249.4
12.5°	1167.1	1197.3	1242.0	1201.0	1181.9
15°	1145.9	1189.9	1201.5	1161.7	1162.4
17.5°	1120.9	1183.7	1147.8	1146.8	1139.7
20°	1093.9	1162.9	1115.4	1113.5	1105.8
22.5°	1065.0	1135.5	1086.8	1082.8	1103.6
25°	1033.6	1099.6	1049.4	1080.8	1098.4
27.5°	994.3	1052.7	1018.3	1062.8	1084.8
30°	954.5	1004.2	986.4	1048.5	1087.5
32.5°	917.2	953.5	960.2	1043.0	1049.4
35°	881.8	906.3	919.9	1003.5	1037.6
37.5°	843.0	849.7	885.8	986.9	1019.8
40°	803.5	799.3	857.1	959.7	1005.2
42.5°	760.9	759.5	826.7	946.1	968.8
45°	720.6	723.9	783.4	907.5	941.4
47.5°	679.4	683.6	742.4	865.3	907.3
50°	631.4	636.8	705.8	827.7	881.8
52.5°	579.5	589.9	670.2	792.1	846.7
55°	530.8	539.4	625.0	761.7	822.2
57.5°	486.3	491.5	578.2	723.4	769.1
60°	442.5	443.8	534.2	680.8	724.6
62.5°	392.3	394.6	489.0	630.7	689.2
65°	336.0	346.6	440.3	582.7	635.6
67.5°	283.3	301.9	390.6	538.7	566.4
70°	226.9	258.3	341.9	487.0	506.5
72.5°	175.3	212.1	292.0	429.2	456.6
75°	127.1	168.4	245.5	377.3	401.0
77.5°	85.5	127.6	202.0	319.9	351.3
80°	51.2	93.2	163.2	266.7	302.1
82.5°	26.2	62.5	126.6	223.7	255.4
85°	11.4	39.6	95.7	185.7	213.1
87.5°	3.2	22.5	70.5	150.1	173.3
90°	0.2	11.9	50.2	117.7	138.7
92.5°	0.2	5.7	35.4	89.0	105.1
95°	0.2	3.0	22.0	64.5	78.9
97.5°	0.2	1.7	13.3	45.7	57.8
100°	0.2	1.5	7.9	30.4	41.3
102.5°	0.2	1.7	5.4	19.3	26.9
105°	0.2	1.7	4.4	12.6	17.8
107.5°	0.5	1.7	4.0	9.4	12.4
110°	0.2	1.5	4.2	7.2	9.6

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.5	1.2	4.0	5.9	7.2
115°	0.2	1.0	3.5	5.7	5.9
117.5°	0.5	0.7	2.7	5.7	5.9
120°	0.5	0.5	2.2	5.4	6.2
122.5°	0.5	0.5	1.7	4.9	5.9
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)