

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: P517475

Luminaire Tested: HVL12-4-LD4-1STD-40-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: P517475
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-4-LD4-1STD-40-UNV-C-EDD-90
Description: 4 FOOT, 12 INCH WIDE, HVL LED LUMINAIRE, WITH 4000K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3876.0 lumens
Efficiency: N/A
Efficacy: 115.7 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

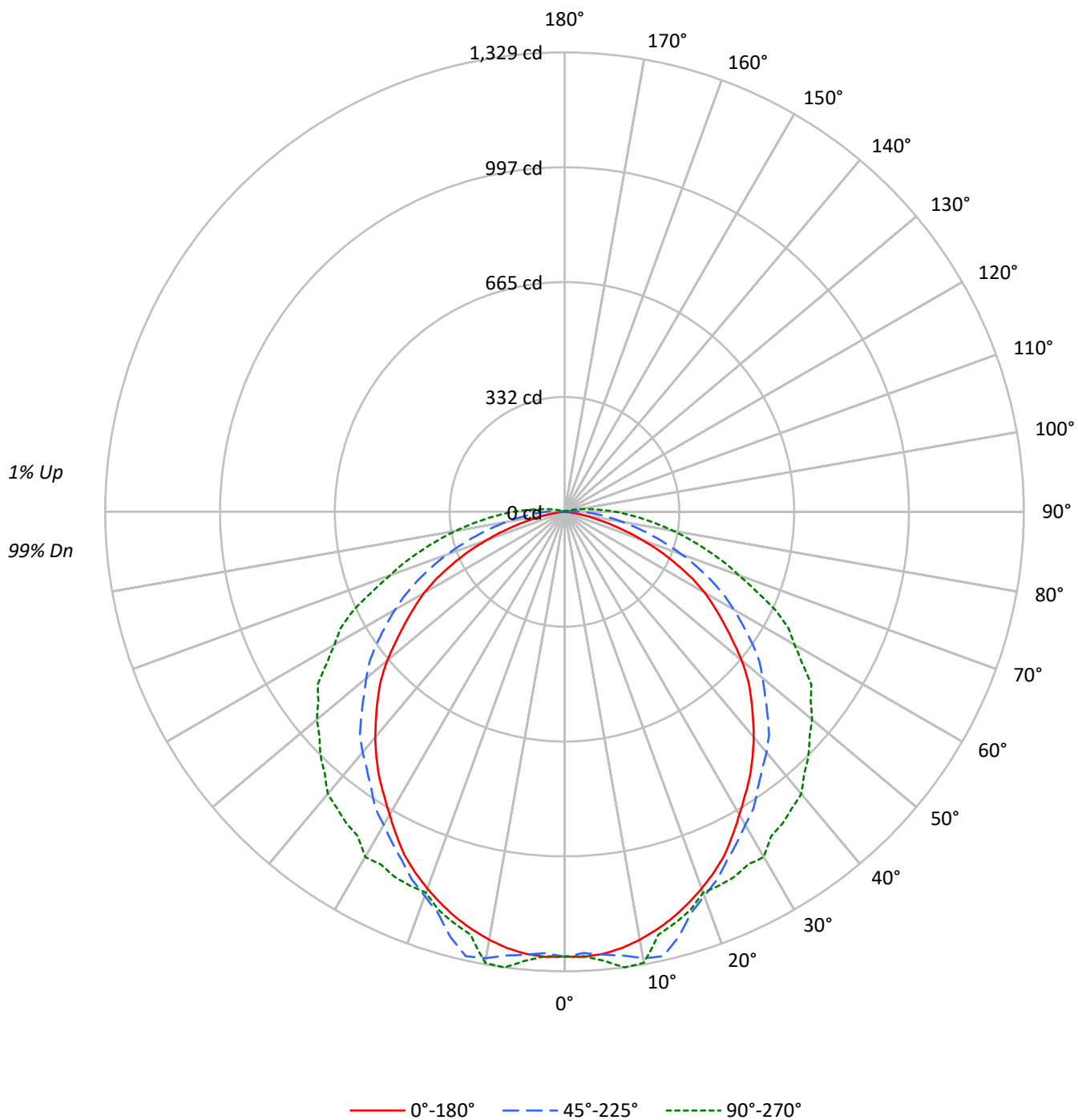
Input Watts (W): 33.5
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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	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°	3462	3462	3462
5°	3454	3428	3470
10°	3409	3492	3516
15°	3347	3414	3287
20°	3272	3214	3165
25°	3192	3091	3208
30°	3070	2995	3268
35°	2984	2904	3236
40°	2891	2841	3284
45°	2791	2755	3256
50°	2670	2665	3265
55°	2492	2568	3303
60°	2355	2429	3208
65°	2082	2259	3161
70°	1699	2030	2898
75°	1212	1746	2725
80°	681	1461	2551
85°	253	1166	2401

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 55°

Luminance: 3303 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	123.7	3.2
10°-20°	352.2	9.1
20°-30°	524.0	13.5
30°-40°	629.8	16.2
40°-50°	662.9	17.1
50°-60°	615.1	15.9
60°-70°	486.3	12.5
70°-80°	297.1	7.7
80°-90°	129.4	3.3
90°-100°	40.3	1.0
100°-110°	9.1	0.2
110°-120°	3.6	0.1
120°-130°	2.0	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°	999.8	25.8
0°-40°	1629.6	42.0
0°-60°	2907.6	75.0
0°-90°	3820.4	98.6
90°-120°	53.0	1.4
90°-150°	55.6	1.4
90°-180°	56.0	1.4
0°-180°	3876.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1287	1287	1287	1287	1287	
5°	1284	1281	1285	1300	1303	122
15°	1215	1262	1274	1232	1232	342
25°	1096	1166	1113	1146	1164	503
35°	935	961	975	1064	1100	584
45°	764	767	831	962	998	589
55°	563	572	663	808	872	506
65°	356	368	467	618	674	353
75°	135	178	260	400	425	147
85°	12	42	101	197	226	19
90°	0	13	53	125	147	1
95°	0	3	23	68	84	0
105°	0	2	5	13	19	0
115°	0	1	4	6	6	0
125°	0	0	2	4	6	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°	1286.6	1286.6	1286.6	1286.6	1286.6
2.5°	1288.2	1284.8	1277.7	1284.5	1286.4
5°	1283.5	1280.9	1285.3	1299.7	1303.4
7.5°	1272.7	1282.7	1294.5	1320.7	1329.1
10°	1256.7	1275.6	1311.0	1333.3	1324.6
12.5°	1237.3	1269.3	1316.8	1273.3	1253.1
15°	1214.8	1261.5	1273.8	1231.6	1232.4
17.5°	1188.3	1254.9	1216.9	1215.9	1208.3
20°	1159.8	1232.9	1182.6	1180.5	1172.3
22.5°	1129.1	1203.8	1152.2	1148.0	1170.0
25°	1095.8	1165.8	1112.6	1145.9	1164.5
27.5°	1054.1	1116.0	1079.6	1126.7	1150.1
30°	1011.9	1064.6	1045.8	1111.5	1153.0
32.5°	972.4	1010.9	1018.0	1105.8	1112.6
35°	934.9	960.8	975.3	1063.8	1100.0
37.5°	893.7	900.8	939.1	1046.3	1081.1
40°	851.8	847.4	908.7	1017.5	1065.7
42.5°	806.7	805.2	876.4	1003.0	1027.1
45°	764.0	767.4	830.6	962.1	998.1
47.5°	720.2	724.7	787.1	917.3	961.9
50°	669.4	675.2	748.3	877.5	934.9
52.5°	614.3	625.4	710.5	839.8	897.7
55°	562.7	571.9	662.6	807.5	871.7
57.5°	515.5	521.0	613.0	766.9	815.4
60°	469.1	470.5	566.4	721.8	768.2
62.5°	415.9	418.3	518.4	668.6	730.7
65°	356.2	367.5	466.8	617.8	673.8
67.5°	300.4	320.0	414.1	571.1	600.5
70°	240.6	273.9	362.5	516.3	537.0
72.5°	185.8	224.9	309.5	455.0	484.1
75°	134.7	178.5	260.3	400.0	425.1
77.5°	90.7	135.2	214.1	339.2	372.4
80°	54.3	98.8	173.0	282.8	320.3
82.5°	27.8	66.3	134.2	237.2	270.7
85°	12.1	41.9	101.4	196.8	225.9
87.5°	3.4	23.9	74.7	159.1	183.7
90°	0.3	12.6	53.2	124.8	147.0
92.5°	0.3	6.0	37.5	94.4	111.4
95°	0.3	3.1	23.3	68.4	83.6
97.5°	0.3	1.8	14.2	48.5	61.3
100°	0.3	1.6	8.4	32.2	43.8
102.5°	0.3	1.8	5.8	20.4	28.6
105°	0.3	1.8	4.7	13.4	18.9
107.5°	0.5	1.8	4.2	10.0	13.1
110°	0.3	1.6	4.5	7.6	10.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.5	1.3	4.2	6.3	7.6
115°	0.3	1.0	3.7	6.0	6.3
117.5°	0.5	0.8	2.9	6.0	6.3
120°	0.5	0.5	2.4	5.8	6.6
122.5°	0.5	0.5	1.8	5.2	6.3
125°	0.3	0.5	1.6	3.9	5.5
127.5°	0.5	0.5	1.3	3.1	4.2
130°	0.5	0.5	1.0	2.4	3.1
132.5°	0.5	0.5	0.8	1.8	2.4
135°	0.5	0.5	0.5	1.3	1.8
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)