

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: P518011

Luminaire Tested: HVL8-4-LD4-1HI-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: P518011
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-C-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: 4506.0 lumens
Efficiency: N/A
Efficacy: 104.8 lumens/watt
Spacing Criteria (0/90/45): 1.18 / 1.32 / 1.37
Luminous Opening: Rectangular w/ Sides (W: 0.67' x L: 4' x H: 0.17')
CIE Type: Direct

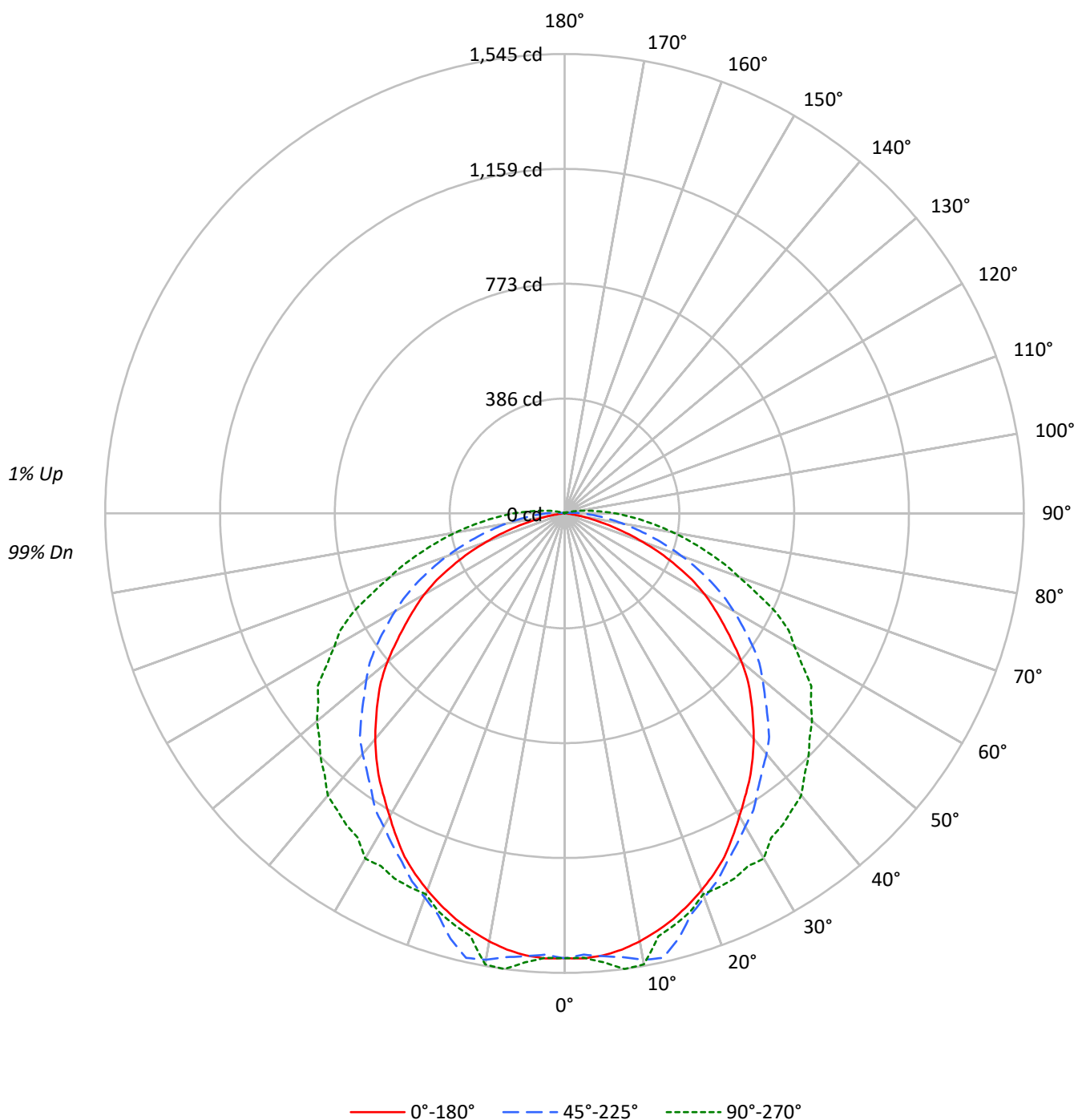
Input Watts (W): 43
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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				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°	6037	6037	6037
5°	6024	5947	6008
10°	5945	6028	6045
15°	5837	5864	5611
20°	5705	5493	5366
25°	5565	5255	5400
30°	5354	5063	5459
35°	5203	4882	5363
40°	5042	4745	5396
45°	4867	4569	5299
50°	4656	4385	5258
55°	4345	4187	5255
60°	4107	3916	5031
65°	3631	3594	4871
70°	2962	3174	4367
75°	2114	2666	3987
80°	1186	2154	3579
85°	439	1626	3152

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 5299 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	143.8	3.2
10°-20°	409.4	9.1
20°-30°	609.1	13.5
30°-40°	732.2	16.2
40°-50°	770.6	17.1
50°-60°	715.1	15.9
60°-70°	565.4	12.5
70°-80°	345.4	7.7
80°-90°	150.5	3.3
90°-100°	46.8	1.0
100°-110°	10.5	0.2
110°-120°	4.2	0.1
120°-130°	2.4	0.1
130°-140°	0.6	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°	1162.3	25.8
0°-40°	1894.4	42.0
0°-60°	3380.1	75.0
0°-90°	4441.4	98.6
90°-120°	61.6	1.4
90°-150°	64.6	1.4
90°-180°	65.0	1.4
0°-180°	4506.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1496	1496	1496	1496	1496	
5°	1492	1489	1494	1511	1515	141
15°	1412	1466	1481	1432	1433	398
25°	1274	1355	1293	1332	1354	585
35°	1087	1117	1134	1237	1279	679
45°	888	892	966	1118	1160	685
55°	654	665	770	939	1013	588
65°	414	427	543	718	783	410
75°	157	208	303	465	494	171
85°	14	49	118	229	263	22
90°	0	15	62	145	171	1
95°	0	4	27	80	97	0
105°	0	2	6	16	22	0
115°	0	1	4	7	7	0
125°	0	1	2	5	6	0
135°	1	1	1	2	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°	1495.7	1495.7	1495.7	1495.7	1495.7
2.5°	1497.6	1493.6	1485.4	1493.3	1495.4
5°	1492.1	1489.0	1494.2	1511.0	1515.2
7.5°	1479.6	1491.2	1504.9	1535.4	1545.1
10°	1461.0	1482.9	1524.1	1550.0	1539.9
12.5°	1438.5	1475.6	1530.8	1480.2	1456.7
15°	1412.3	1466.5	1480.8	1431.8	1432.7
17.5°	1381.5	1458.9	1414.7	1413.5	1404.6
20°	1348.3	1433.3	1374.8	1372.3	1362.9
22.5°	1312.6	1399.5	1339.4	1334.6	1360.2
25°	1273.9	1355.3	1293.4	1332.1	1353.8
27.5°	1225.5	1297.4	1255.0	1309.9	1337.0
30°	1176.4	1237.7	1215.7	1292.2	1340.4
32.5°	1130.4	1175.2	1183.4	1285.5	1293.4
35°	1086.8	1117.0	1133.8	1236.8	1278.8
37.5°	1039.0	1047.2	1091.7	1216.3	1256.9
40°	990.3	985.1	1056.4	1182.8	1238.9
42.5°	937.9	936.0	1018.9	1166.1	1194.1
45°	888.2	892.1	965.6	1118.5	1160.3
47.5°	837.3	842.5	915.0	1066.4	1118.2
50°	778.2	784.9	869.9	1020.1	1086.8
52.5°	714.2	727.0	826.0	976.2	1043.6
55°	654.2	664.8	770.3	938.8	1013.4
57.5°	599.3	605.7	712.7	891.5	947.9
60°	545.4	546.9	658.4	839.1	893.1
62.5°	483.6	486.3	602.7	777.3	849.5
65°	414.1	427.2	542.7	718.2	783.4
67.5°	349.2	372.0	481.4	663.9	698.1
70°	279.7	318.4	421.4	600.2	624.3
72.5°	216.0	261.4	359.8	529.0	562.8
75°	156.6	207.5	302.6	465.0	494.2
77.5°	105.4	157.2	248.9	394.3	433.0
80°	63.1	114.9	201.1	328.8	372.3
82.5°	32.3	77.1	156.0	275.7	314.7
85°	14.0	48.8	117.9	228.8	262.6
87.5°	4.0	27.7	86.8	184.9	213.6
90°	0.3	14.6	61.9	145.0	170.9
92.5°	0.3	7.0	43.6	109.7	129.5
95°	0.3	3.7	27.1	79.5	97.2
97.5°	0.3	2.1	16.5	56.4	71.3
100°	0.3	1.8	9.8	37.5	50.9
102.5°	0.3	2.1	6.7	23.8	33.2
105°	0.3	2.1	5.5	15.5	21.9
107.5°	0.6	2.1	4.9	11.6	15.2
110°	0.3	1.8	5.2	8.8	11.9

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.6	1.5	4.9	7.3	8.8
115°	0.3	1.2	4.3	7.0	7.3
117.5°	0.6	0.9	3.4	7.0	7.3
120°	0.6	0.6	2.7	6.7	7.6
122.5°	0.6	0.6	2.1	6.1	7.3
125°	0.3	0.6	1.8	4.6	6.4
127.5°	0.6	0.6	1.5	3.7	4.9
130°	0.6	0.6	1.2	2.7	3.7
132.5°	0.6	0.6	0.9	2.1	2.7
135°	0.6	0.6	0.6	1.5	2.1
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)