

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: P517919

Luminaire Tested: HVL8-2-LD4-2HI-35-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: P517919
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-2-LD4-2HI-35-UNV-C-EDD-90
Description: 2 FOOT, 8 INCH WIDE, HVL LED LUMINAIRE, WITH 3500K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3758.0 lumens
Efficiency: N/A
Efficacy: 87.2 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

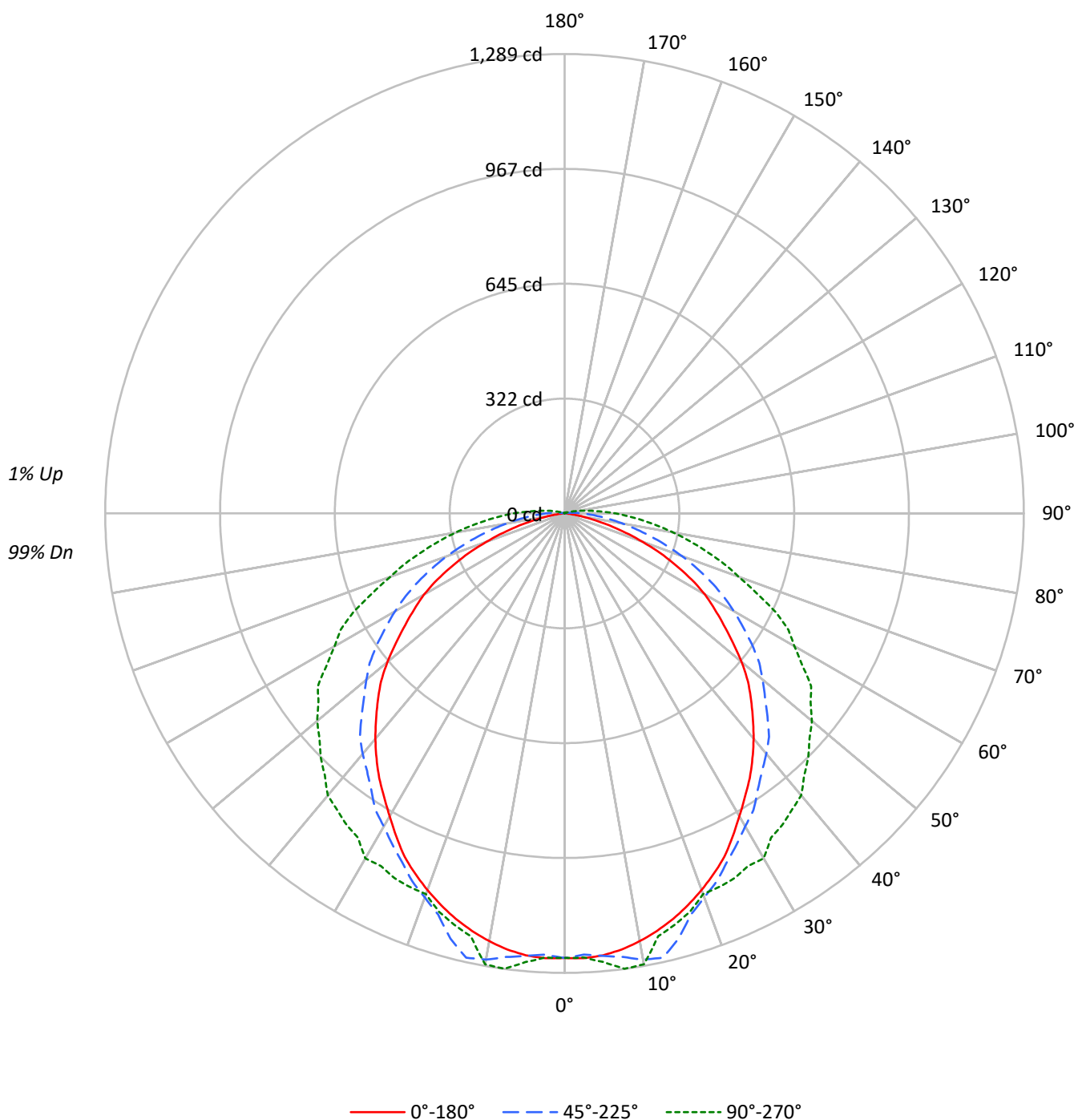
Input Watts (W): 43.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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

TEST NUMBER: P517919

CATALOG NUMBER: HVL8-2-LD4-2HI-35-UNV-C-EDD-90

Luminous Intensity Polar Plot



TEST NUMBER: P517919

CATALOG NUMBER: HVL8-2-LD4-2HI-35-UNV-C-EDD-90

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				20
RC	80				70				50				30				0
RW	70	50	30	10	70	50	30	10	50	30	10		50	30	10		0
RCR																	
0	119	119	119	119	116	116	116	116	110	110	110		105	105	105		99
1	108	103	98	94	105	100	96	92	96	92	89		91	89	86		81
2	98	89	82	76	95	87	80	75	83	78	73		80	75	71		67
3	89	78	69	63	86	76	68	62	73	66	61		70	64	59		56
4	81	69	60	53	79	67	59	52	65	57	51		62	56	51		47
5	75	61	52	45	72	60	51	45	58	50	44		56	49	44		41
6	69	55	46	39	67	54	46	39	52	45	39		50	44	38		36
7	64	50	41	35	62	49	41	35	47	40	34		46	39	34		32
8	59	46	37	31	58	45	37	31	43	36	31		42	35	30		28
9	55	42	34	28	54	41	33	28	40	33	28		39	32	27		25
10	52	39	31	25	51	38	30	25	37	30	25		36	29	25		23

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	10071	10071	10071
5°	10011	9895	10022
10°	9844	10004	10083
15°	9629	9709	9359
20°	9376	9072	8951
25°	9110	8657	9006
30°	8726	8319	9106
35°	8440	7999	8945
40°	8135	7751	9000
45°	7806	7440	8838
50°	7414	7113	8770
55°	6862	6764	8766
60°	6418	6295	8391
65°	5596	5742	8123
70°	4481	5034	7285
75°	3107	4186	6651
80°	1660	3336	5970
85°	555	2464	5258

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 8838 cd/sqm

TEST NUMBER: P517919

CATALOG NUMBER: HVL8-2-LD4-2HI-35-UNV-C-EDD-90

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	119.9	3.2
10°-20°	341.4	9.1
20°-30°	508.0	13.5
30°-40°	610.6	16.2
40°-50°	642.7	17.1
50°-60°	596.4	15.9
60°-70°	471.5	12.5
70°-80°	288.0	7.7
80°-90°	125.5	3.3
90°-100°	39.1	1.0
100°-110°	8.8	0.2
110°-120°	3.5	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°	969.3	25.8
0°-40°	1580.0	42.0
0°-60°	2819.0	75.0
0°-90°	3704.1	98.6
90°-120°	51.4	1.4
90°-150°	53.9	1.4
90°-180°	54.0	1.4
0°-180°	3758.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1248	1248	1248	1248	1248	
5°	1244	1242	1246	1260	1264	118
15°	1178	1223	1235	1194	1195	332
25°	1062	1130	1079	1111	1129	488
35°	906	932	946	1032	1066	567
45°	741	744	805	933	968	571
55°	546	554	642	783	845	490
65°	345	356	453	599	653	342
75°	131	173	252	388	412	143
85°	12	41	98	191	219	18
90°	0	12	52	121	143	1
95°	0	3	23	66	81	0
105°	0	2	5	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

TEST NUMBER: P517919

CATALOG NUMBER: HVL8-2-LD4-2HI-35-UNV-C-EDD-90

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1247.5	1247.5	1247.5	1247.5	1247.5
2.5°	1249.0	1245.7	1238.8	1245.4	1247.2
5°	1244.4	1241.9	1246.2	1260.2	1263.7
7.5°	1234.0	1243.6	1255.1	1280.5	1288.6
10°	1218.5	1236.8	1271.1	1292.7	1284.3
12.5°	1199.7	1230.7	1276.7	1234.5	1214.9
15°	1177.8	1223.1	1235.0	1194.1	1194.8
17.5°	1152.2	1216.7	1179.9	1178.8	1171.5
20°	1124.5	1195.4	1146.6	1144.5	1136.7
22.5°	1094.7	1167.2	1117.1	1113.0	1134.4
25°	1062.5	1130.3	1078.7	1111.0	1129.0
27.5°	1022.1	1082.0	1046.7	1092.4	1115.1
30°	981.1	1032.2	1013.9	1077.7	1117.9
32.5°	942.8	980.1	987.0	1072.1	1078.7
35°	906.4	931.6	945.6	1031.5	1066.5
37.5°	866.5	873.4	910.5	1014.4	1048.2
40°	825.9	821.6	881.0	986.5	1033.2
42.5°	782.2	780.6	849.8	972.5	995.9
45°	740.7	744.0	805.3	932.9	967.7
47.5°	698.3	702.6	763.1	889.4	932.6
50°	649.0	654.6	725.5	850.8	906.4
52.5°	595.6	606.3	688.9	814.2	870.3
55°	545.6	554.5	642.4	782.9	845.2
57.5°	499.8	505.2	594.4	743.5	790.6
60°	454.9	456.1	549.1	699.8	744.8
62.5°	403.3	405.6	502.6	648.2	708.5
65°	345.3	356.3	452.6	598.9	653.3
67.5°	291.2	310.3	401.5	553.7	582.2
70°	233.3	265.6	351.4	500.6	520.7
72.5°	180.2	218.0	300.1	441.1	469.4
75°	130.6	173.1	252.3	387.8	412.2
77.5°	87.9	131.1	207.6	328.8	361.1
80°	52.6	95.8	167.7	274.2	310.5
82.5°	26.9	64.3	130.1	230.0	262.5
85°	11.7	40.7	98.3	190.8	219.0
87.5°	3.3	23.1	72.4	154.2	178.1
90°	0.3	12.2	51.6	121.0	142.6
92.5°	0.3	5.8	36.3	91.5	108.0
95°	0.3	3.0	22.6	66.3	81.1
97.5°	0.3	1.8	13.7	47.0	59.5
100°	0.3	1.5	8.1	31.3	42.4
102.5°	0.3	1.8	5.6	19.8	27.7
105°	0.3	1.8	4.6	13.0	18.3
107.5°	0.5	1.8	4.1	9.7	12.7
110°	0.3	1.5	4.3	7.4	9.9

TEST NUMBER: P517919

CATALOG NUMBER: HVL8-2-LD4-2HI-35-UNV-C-EDD-90

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.5	1.3	4.1	6.1	7.4
115°	0.3	1.0	3.6	5.8	6.1
117.5°	0.5	0.8	2.8	5.8	6.1
120°	0.5	0.5	2.3	5.6	6.4
122.5°	0.5	0.5	1.8	5.1	6.1
125°	0.3	0.5	1.5	3.8	5.3
127.5°	0.5	0.5	1.3	3.0	4.1
130°	0.5	0.5	1.0	2.3	3.0
132.5°	0.5	0.5	0.8	1.8	2.3
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)