

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: P517937

Luminaire Tested: HVL8-2-LD4-2LO-35-UNV-O-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: P517937
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-2-LD4-2LO-35-UNV-O-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: 2053.0 lumens
Efficiency: N/A
Efficacy: 88.9 lumens/watt
Spacing Criteria (0/90/45): 1.25 / 1.27 / 1.38
Luminous Opening: Rectangular w/ Sides (W: 0.67' x L: 2' x H: 0.17')
CIE Type: Direct

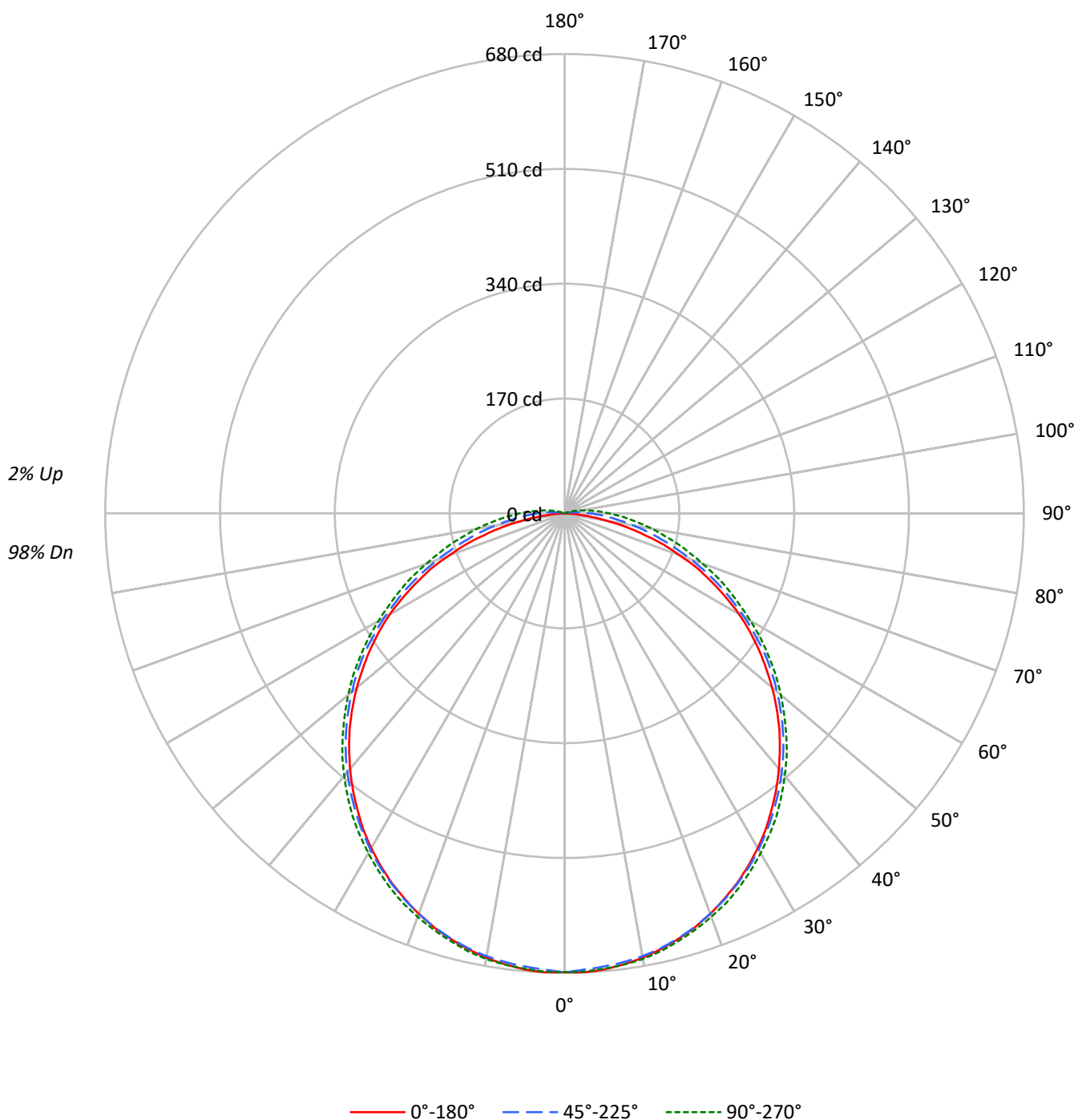
Input Watts (W): 23.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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: P517937

CATALOG NUMBER: HVL8-2-LD4-2LO-35-UNV-O-EDD-90

Luminous Intensity Polar Plot



TEST NUMBER: P517937

CATALOG NUMBER: HVL8-2-LD4-2LO-35-UNV-O-EDD-90

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			98
1	108	102	98	94	105	100	96	92	95	92	89	91	88	86	87	85	83			81
2	98	89	82	76	95	87	80	75	83	77	73	79	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	52	62	56	51	60	54	50			47
5	75	61	52	45	72	60	52	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°	5482	5482	5482
5°	5451	5345	5364
10°	5395	5237	5257
15°	5329	5119	5128
20°	5259	4989	5003
25°	5178	4856	4875
30°	5088	4715	4730
35°	4978	4562	4588
40°	4864	4401	4420
45°	4740	4227	4240
50°	4585	4027	4045
55°	4415	3810	3831
60°	4214	3531	3582
65°	3909	3221	3334
70°	3486	2859	3046
75°	2905	2464	2785
80°	2080	2077	2546
85°	1001	1682	2317

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 4740 cd/sqm

TEST NUMBER: P517937

CATALOG NUMBER: HVL8-2-LD4-2LO-35-UNV-O-EDD-90

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	64.3	3.1
10°-20°	184.3	9.0
20°-30°	279.7	13.6
30°-40°	338.2	16.5
40°-50°	352.8	17.2
50°-60°	322.6	15.7
60°-70°	251.5	12.3
70°-80°	157.3	7.7
80°-90°	71.5	3.5
90°-100°	24.0	1.2
100°-110°	6.0	0.3
110°-120°	0.9	0.0
120°-130°	0.0	0.0
130°-140°	0.0	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°	528.2	25.7
0°-40°	866.4	42.2
0°-60°	1541.8	75.1
0°-90°	2022.1	98.5
90°-120°	30.9	1.5
90°-150°	30.9	1.5
90°-180°	31.0	1.5
0°-180°	2053.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	679	679	679	679	679	
5°	678	676	673	676	676	64
15°	652	653	651	655	655	184
25°	604	604	605	610	611	278
35°	535	537	539	545	547	335
45°	450	454	458	462	464	347
55°	351	355	362	367	369	314
65°	241	245	254	264	268	239
75°	122	130	148	166	173	130
85°	21	39	67	89	96	27
90°	0	15	40	59	67	1
95°	0	4	20	37	43	0
105°	0	0	3	10	13	0
115°	0	0	1	2	3	0
125°	0	0	0	0	0	0
135°	0	0	0	0	0	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: P517937

CATALOG NUMBER: HVL8-2-LD4-2LO-35-UNV-O-EDD-90

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	679.0	679.0	679.0	679.0	679.0
2.5°	679.8	678.8	675.8	678.8	678.7
5°	677.6	676.3	673.2	676.4	676.4
7.5°	673.1	672.6	669.9	673.6	673.6
10°	667.8	667.6	665.4	669.4	669.6
12.5°	660.4	661.1	659.0	662.8	663.3
15°	651.8	652.9	651.2	654.8	654.7
17.5°	642.4	643.0	641.7	645.9	645.7
20°	630.7	631.5	630.5	634.8	635.3
22.5°	617.7	618.8	618.7	623.1	624.4
25°	603.9	604.4	605.1	610.2	611.1
27.5°	588.7	589.5	590.7	595.3	596.3
30°	572.1	573.4	574.6	579.4	580.7
32.5°	554.5	555.8	557.4	563.6	564.2
35°	534.6	537.0	539.3	544.7	547.0
37.5°	514.8	517.8	519.9	525.7	527.4
40°	493.8	496.9	500.2	506.3	507.4
42.5°	471.9	475.4	479.4	484.8	486.8
45°	449.8	453.8	457.5	462.0	464.2
47.5°	425.9	429.9	434.4	439.5	441.0
50°	401.3	405.9	410.7	415.5	418.1
52.5°	376.0	381.6	387.0	392.2	394.6
55°	351.0	355.2	361.8	367.0	369.4
57.5°	325.1	328.6	334.5	343.2	344.5
60°	298.7	301.9	308.0	315.0	317.9
62.5°	269.6	273.9	280.3	289.2	291.8
65°	241.2	245.4	253.9	264.0	268.1
67.5°	213.9	215.3	226.2	236.7	243.5
70°	181.5	187.0	199.6	212.6	217.7
72.5°	153.7	159.1	173.0	188.2	194.6
75°	122.1	129.7	148.5	166.3	172.6
77.5°	94.4	102.8	126.1	144.1	151.3
80°	65.9	78.9	104.4	124.5	132.4
82.5°	41.5	57.5	84.7	105.8	112.7
85°	21.1	39.1	67.1	88.7	96.5
87.5°	5.6	25.3	52.2	72.8	80.8
90°	0.2	14.6	39.5	59.4	66.6
92.5°	0.2	8.2	29.5	47.2	54.6
95°	0.2	3.8	20.5	37.1	42.9
97.5°	0.2	1.6	14.1	28.0	33.8
100°	0.2	0.8	9.0	20.3	25.3
102.5°	0.3	0.5	5.6	14.6	18.6
105°	0.3	0.5	3.4	9.9	13.3
107.5°	0.3	0.5	1.9	6.7	9.1
110°	0.5	0.5	1.1	4.2	6.1

TEST NUMBER: P517937

CATALOG NUMBER: HVL8-2-LD4-2LO-35-UNV-O-EDD-90

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.5	0.5	0.6	2.7	4.0
115°	0.5	0.5	0.6	1.8	2.6
117.5°	0.0	0.0	0.0	0.0	0.0
120°	0.0	0.0	0.0	0.0	0.0
122.5°	0.0	0.0	0.0	0.0	0.0
125°	0.0	0.0	0.0	0.0	0.0
127.5°	0.0	0.0	0.0	0.0	0.0
130°	0.0	0.0	0.0	0.0	0.0
132.5°	0.0	0.0	0.0	0.0	0.0
135°	0.0	0.0	0.0	0.0	0.0
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)