

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: P517951

Luminaire Tested: HVL8-2-LD4-2STD-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: P517951
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-2-LD4-2STD-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: 2920.0 lumens
Efficiency: N/A
Efficacy: 89.3 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

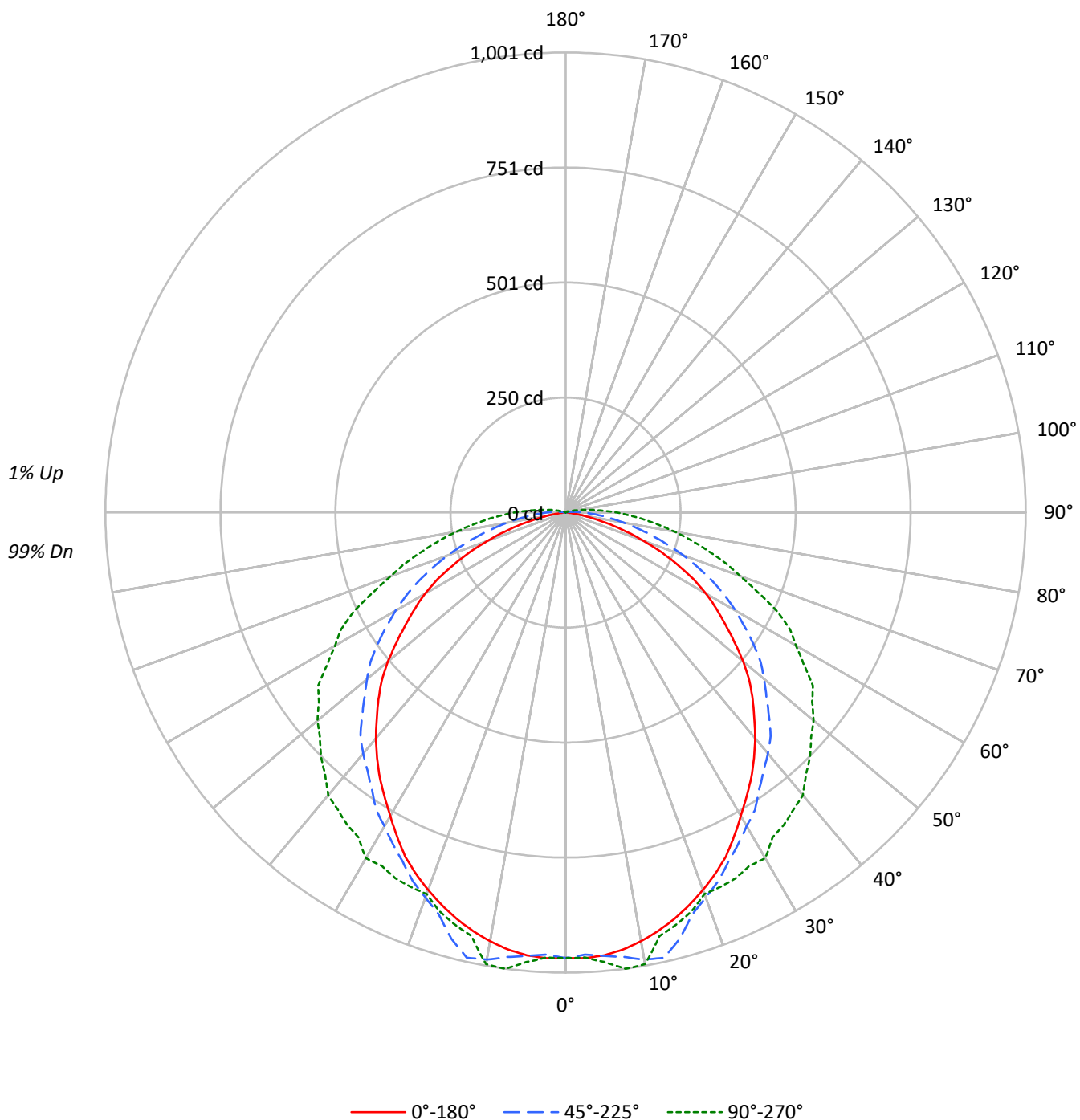
Input Watts (W): 32.7
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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°	7825	7825	7825
5°	7779	7688	7787
10°	7649	7773	7835
15°	7482	7544	7272
20°	7285	7049	6955
25°	7078	6727	6999
30°	6781	6464	7075
35°	6558	6215	6950
40°	6320	6023	6993
45°	6066	5781	6867
50°	5761	5527	6815
55°	5332	5256	6811
60°	4986	4892	6520
65°	4348	4462	6312
70°	3482	3912	5661
75°	2415	3254	5168
80°	1291	2592	4639
85°	432	1915	4086

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 6867 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	93.2	3.2
10°-20°	265.3	9.1
20°-30°	394.7	13.5
30°-40°	474.5	16.2
40°-50°	499.4	17.1
50°-60°	463.4	15.9
60°-70°	366.4	12.5
70°-80°	223.8	7.7
80°-90°	97.5	3.3
90°-100°	30.4	1.0
100°-110°	6.8	0.2
110°-120°	2.7	0.1
120°-130°	1.5	0.1
130°-140°	0.4	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°	753.2	25.8
0°-40°	1227.6	42.0
0°-60°	2190.4	75.0
0°-90°	2878.1	98.6
90°-120°	39.9	1.4
90°-150°	41.9	1.4
90°-180°	42.0	1.4
0°-180°	2920.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	969	969	969	969	969	
5°	967	965	968	979	982	92
15°	915	950	960	928	928	258
25°	826	878	838	863	877	379
35°	704	724	735	801	829	440
45°	576	578	626	725	752	444
55°	424	431	499	608	657	381
65°	268	277	352	465	508	266
75°	102	134	196	301	320	111
85°	9	32	76	148	170	14
90°	0	10	40	94	111	0
95°	0	2	18	52	63	0
105°	0	1	4	10	14	0
115°	0	1	3	4	5	0
125°	0	0	1	3	4	0
135°	0	0	0	1	1	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°	969.3	969.3	969.3	969.3	969.3
2.5°	970.5	967.9	962.6	967.7	969.1
5°	966.9	964.9	968.3	979.2	981.9
7.5°	958.8	966.3	975.2	994.9	1001.3
10°	946.8	961.0	987.6	1004.4	997.9
12.5°	932.2	956.2	992.0	959.2	944.0
15°	915.2	950.3	959.6	927.8	928.4
17.5°	895.2	945.4	916.8	916.0	910.2
20°	873.7	928.8	890.9	889.3	883.2
22.5°	850.6	906.9	868.0	864.8	881.4
25°	825.5	878.3	838.2	863.3	877.3
27.5°	794.1	840.7	813.3	848.8	866.4
30°	762.4	802.0	787.8	837.4	868.6
32.5°	732.5	761.6	766.9	833.0	838.2
35°	704.3	723.9	734.7	801.4	828.7
37.5°	673.3	678.6	707.5	788.2	814.5
40°	641.7	638.4	684.6	766.5	802.8
42.5°	607.8	606.6	660.3	755.6	773.8
45°	575.6	578.1	625.7	724.8	751.9
47.5°	542.6	545.9	592.9	691.1	724.6
50°	504.3	508.6	563.7	661.1	704.3
52.5°	462.8	471.1	535.3	632.6	676.3
55°	423.9	430.8	499.2	608.3	656.7
57.5°	388.4	392.5	461.8	577.7	614.3
60°	353.4	354.4	426.7	543.8	578.7
62.5°	313.4	315.1	390.6	503.7	550.5
65°	268.3	276.8	351.7	465.4	507.6
67.5°	226.3	241.1	312.0	430.2	452.4
70°	181.3	206.3	273.1	389.0	404.6
72.5°	140.0	169.4	233.2	342.8	364.7
75°	101.5	134.5	196.1	301.3	320.3
77.5°	68.3	101.9	161.3	255.5	280.6
80°	40.9	74.4	130.3	213.0	241.3
82.5°	20.9	50.0	101.1	178.7	204.0
85°	9.1	31.6	76.4	148.3	170.2
87.5°	2.6	18.0	56.3	119.9	138.4
90°	0.2	9.5	40.1	94.0	110.8
92.5°	0.2	4.5	28.2	71.1	83.9
95°	0.2	2.4	17.6	51.5	63.0
97.5°	0.2	1.4	10.7	36.5	46.2
100°	0.2	1.2	6.3	24.3	33.0
102.5°	0.2	1.4	4.3	15.4	21.5
105°	0.2	1.4	3.6	10.1	14.2
107.5°	0.4	1.4	3.2	7.5	9.9
110°	0.2	1.2	3.4	5.7	7.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.4	1.0	3.2	4.7	5.7
115°	0.2	0.8	2.8	4.5	4.7
117.5°	0.4	0.6	2.2	4.5	4.7
120°	0.4	0.4	1.8	4.3	4.9
122.5°	0.4	0.4	1.4	3.9	4.7
125°	0.2	0.4	1.2	3.0	4.1
127.5°	0.4	0.4	1.0	2.4	3.2
130°	0.4	0.4	0.8	1.8	2.4
132.5°	0.4	0.4	0.6	1.4	1.8
135°	0.4	0.4	0.4	1.0	1.4
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)