

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: P517955

Luminaire Tested: HVL8-2-LD4-2STD-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: P517955
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-2-LD4-2STD-40-UNV-C-EDD-90
Description: 2 FOOT, 8 INCH WIDE, HVL LED LUMINAIRE, WITH 4000K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2962.0 lumens
Efficiency: N/A
Efficacy: 90.6 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

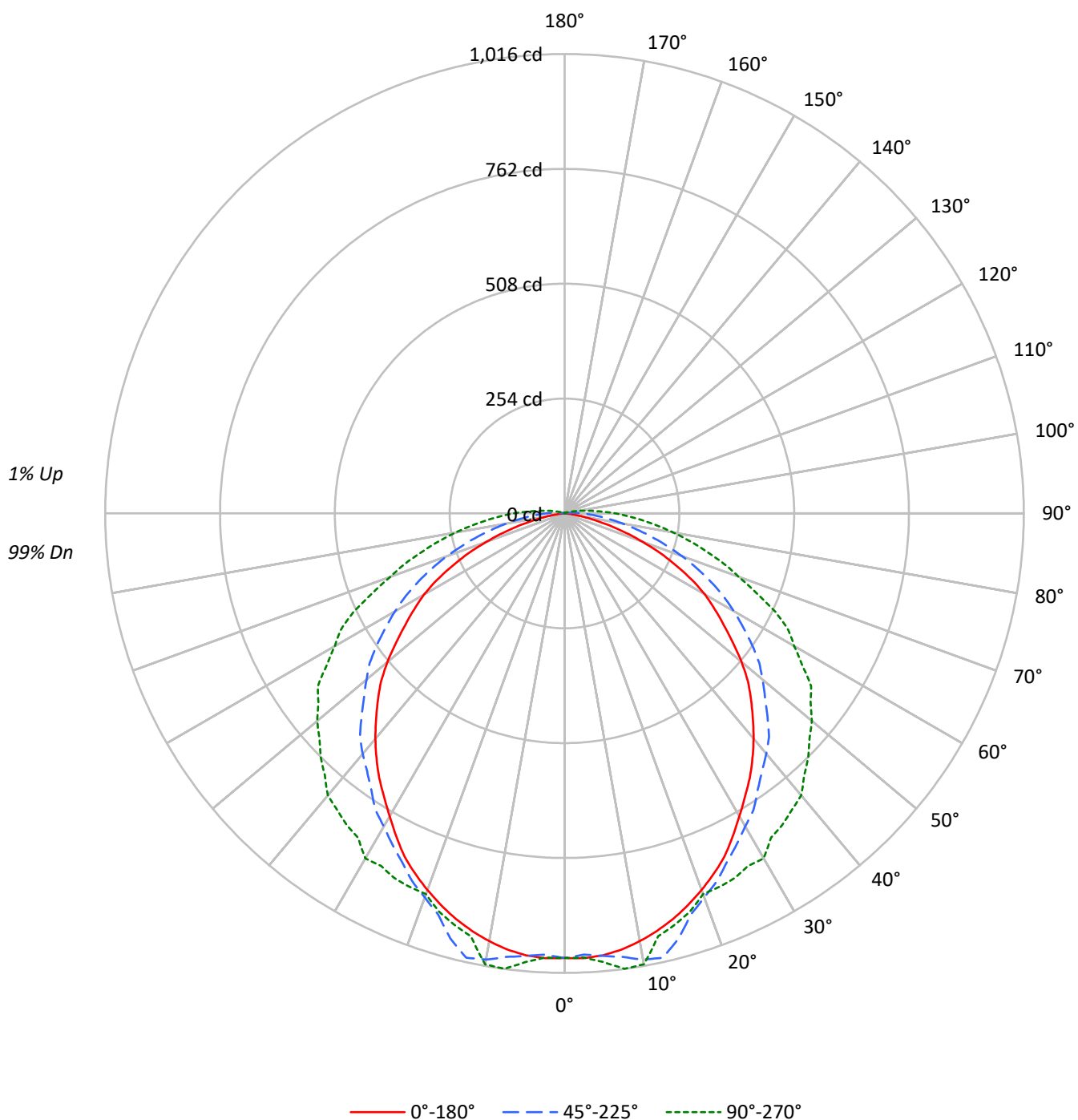
Input Watts (W): 32.7
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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
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°	7937	7937	7937
5°	7891	7799	7899
10°	7759	7884	7948
15°	7589	7652	7377
20°	7390	7150	7055
25°	7180	6823	7099
30°	6878	6557	7177
35°	6652	6304	7050
40°	6411	6109	7094
45°	6152	5864	6966
50°	5844	5606	6912
55°	5408	5331	6909
60°	5058	4962	6613
65°	4411	4526	6402
70°	3532	3968	5742
75°	2448	3300	5242
80°	1310	2630	4706
85°	436	1943	4144

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 6966 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	94.5	3.2
10°-20°	269.1	9.1
20°-30°	400.4	13.5
30°-40°	481.3	16.2
40°-50°	506.6	17.1
50°-60°	470.0	15.9
60°-70°	371.7	12.5
70°-80°	227.0	7.7
80°-90°	98.9	3.3
90°-100°	30.8	1.0
100°-110°	6.9	0.2
110°-120°	2.8	0.1
120°-130°	1.6	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°	764.0	25.8
0°-40°	1245.3	42.0
0°-60°	2221.9	75.0
0°-90°	2919.5	98.6
90°-120°	40.5	1.4
90°-150°	42.5	1.4
90°-180°	42.0	1.4
0°-180°	2962.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	983	983	983	983	983	
5°	981	979	982	993	996	93
15°	928	964	973	941	942	262
25°	837	891	850	876	890	384
35°	714	734	745	813	841	447
45°	584	586	635	735	763	450
55°	430	437	506	617	666	386
65°	272	281	357	472	515	270
75°	103	136	199	306	325	112
85°	9	32	78	150	173	14
90°	0	10	41	95	112	0
95°	0	2	18	52	64	0
105°	0	1	4	10	14	0
115°	0	1	3	5	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°	983.2	983.2	983.2	983.2	983.2
2.5°	984.4	981.8	976.4	981.6	983.0
5°	980.8	978.8	982.2	993.2	996.0
7.5°	972.6	980.2	989.2	1009.3	1015.7
10°	960.4	974.8	1001.8	1018.9	1012.3
12.5°	945.6	970.0	1006.3	973.0	957.6
15°	928.3	964.0	973.4	941.2	941.8
17.5°	908.1	959.0	929.9	929.1	923.3
20°	886.3	942.2	903.7	902.1	895.9
22.5°	862.8	919.9	880.5	877.3	894.1
25°	837.4	890.9	850.2	875.7	889.9
27.5°	805.6	852.8	825.0	861.0	878.9
30°	773.3	813.6	799.2	849.4	881.1
32.5°	743.1	772.5	777.9	845.0	850.2
35°	714.4	734.3	745.3	813.0	840.6
37.5°	683.0	688.4	717.6	799.6	826.2
40°	650.9	647.5	694.4	777.5	814.4
42.5°	616.5	615.3	669.8	766.5	784.9
45°	583.8	586.4	634.7	735.3	762.7
47.5°	550.4	553.8	601.5	701.0	735.1
50°	511.5	515.9	571.8	670.6	714.4
52.5°	469.5	477.9	543.0	641.7	686.0
55°	430.0	437.0	506.3	617.1	666.2
57.5°	394.0	398.2	468.5	586.0	623.1
60°	358.5	359.5	432.8	551.6	587.0
62.5°	317.9	319.7	396.2	510.9	558.4
65°	272.2	280.8	356.7	472.1	514.9
67.5°	229.5	244.6	316.5	436.4	458.9
70°	183.9	209.3	277.0	394.6	410.4
72.5°	142.0	171.8	236.5	347.7	369.9
75°	102.9	136.4	198.9	305.6	324.9
77.5°	69.3	103.3	163.6	259.2	284.6
80°	41.5	75.5	132.2	216.1	244.8
82.5°	21.2	50.7	102.5	181.3	206.9
85°	9.2	32.0	77.5	150.4	172.6
87.5°	2.6	18.2	57.1	121.6	140.4
90°	0.2	9.6	40.7	95.3	112.4
92.5°	0.2	4.6	28.6	72.1	85.1
95°	0.2	2.4	17.8	52.3	63.9
97.5°	0.2	1.4	10.8	37.1	46.9
100°	0.2	1.2	6.4	24.6	33.4
102.5°	0.2	1.4	4.4	15.6	21.8
105°	0.2	1.4	3.6	10.2	14.4
107.5°	0.4	1.4	3.2	7.6	10.0
110°	0.2	1.2	3.4	5.8	7.8

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.4	1.0	3.2	4.8	5.8
115°	0.2	0.8	2.8	4.6	4.8
117.5°	0.4	0.6	2.2	4.6	4.8
120°	0.4	0.4	1.8	4.4	5.0
122.5°	0.4	0.4	1.4	4.0	4.8
125°	0.2	0.4	1.2	3.0	4.2
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)