

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: P517887

Luminaire Tested: HVL8-2-LD4-1LO-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: P517887
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-2-LD4-1LO-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: 1194.1 lumens
Efficiency: N/A
Efficacy: 103.8 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

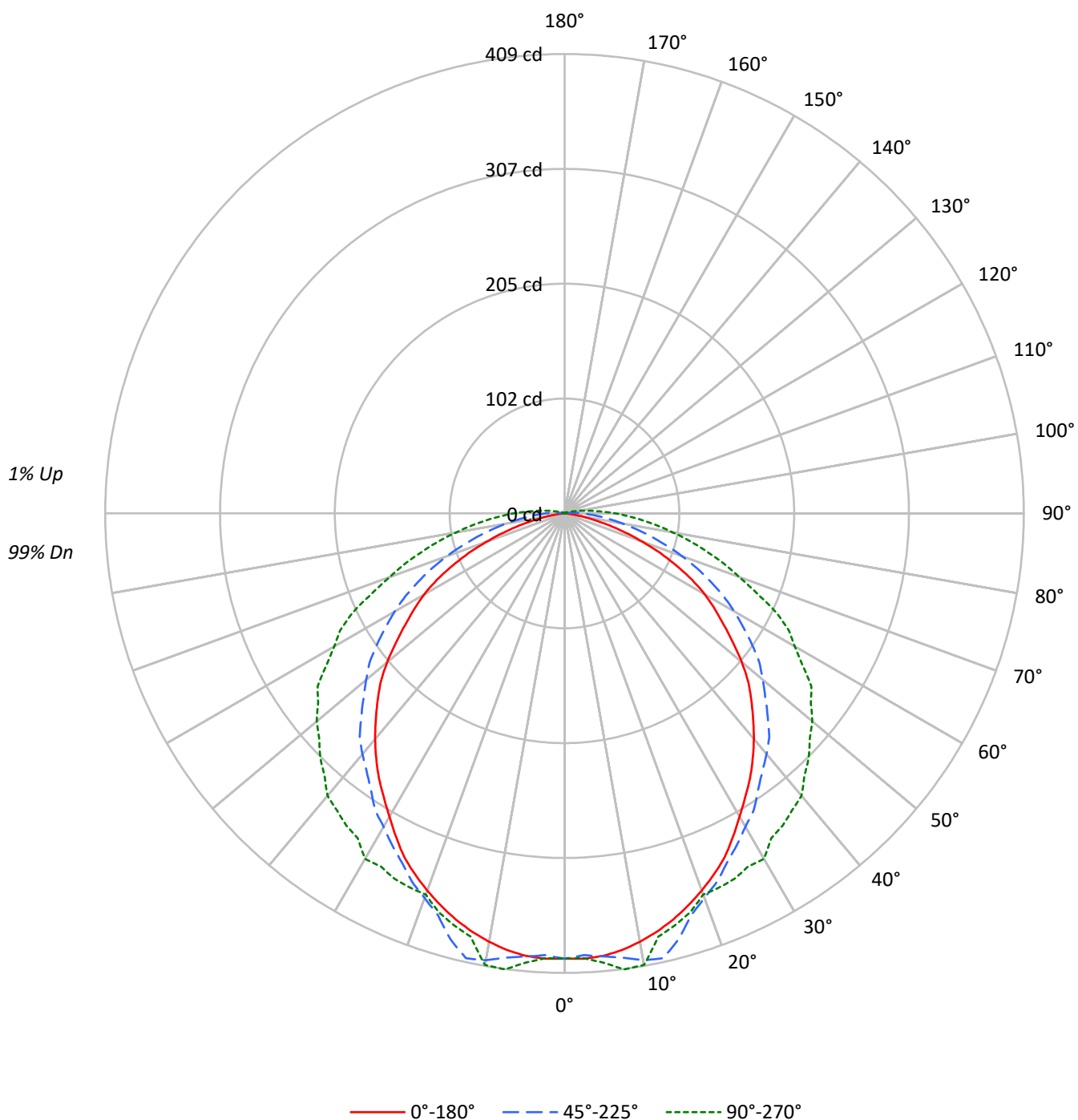
Input Watts (W): 11.5
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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	44	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°	3199	3199	3199
5°	3181	3143	3184
10°	3127	3179	3204
15°	3059	3085	2973
20°	2979	2882	2843
25°	2895	2750	2861
30°	2772	2643	2893
35°	2682	2541	2842
40°	2585	2463	2860
45°	2481	2364	2808
50°	2356	2260	2787
55°	2180	2149	2785
60°	2039	2001	2666
65°	1778	1824	2581
70°	1423	1600	2314
75°	987	1331	2114
80°	527	1060	1898
85°	176	782	1671

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 2808 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	38.1	3.2
10°-20°	108.5	9.1
20°-30°	161.4	13.5
30°-40°	194.0	16.2
40°-50°	204.2	17.1
50°-60°	189.5	15.9
60°-70°	149.8	12.5
70°-80°	91.5	7.7
80°-90°	39.9	3.3
90°-100°	12.4	1.0
100°-110°	2.8	0.2
110°-120°	1.1	0.1
120°-130°	0.6	0.1
130°-140°	0.2	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°	308.0	25.8
0°-40°	502.0	42.0
0°-60°	895.7	75.0
0°-90°	1176.9	98.6
90°-120°	16.3	1.4
90°-150°	17.2	1.4
90°-180°	17.0	1.4
0°-180°	1194.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	396	396	396	396	396	
5°	395	395	396	400	402	37
15°	374	389	392	379	380	105
25°	338	359	343	353	359	155
35°	288	296	300	328	339	180
45°	235	236	256	296	308	181
55°	173	176	204	249	268	156
65°	110	113	144	190	208	109
75°	42	55	80	123	131	45
85°	4	13	31	61	70	6
90°	0	4	16	38	45	0
95°	0	1	7	21	26	0
105°	0	1	2	4	6	0
115°	0	0	1	2	2	0
125°	0	0	0	1	2	0
135°	0	0	0	0	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°	396.3	396.3	396.3	396.3	396.3
2.5°	396.8	395.8	393.6	395.7	396.3
5°	395.4	394.6	395.9	400.4	401.5
7.5°	392.1	395.1	398.8	406.8	409.4
10°	387.1	393.0	403.9	410.7	408.1
12.5°	381.2	391.0	405.6	392.2	386.0
15°	374.2	388.6	392.4	379.4	379.6
17.5°	366.1	386.6	374.9	374.5	372.2
20°	357.3	379.8	364.3	363.6	361.1
22.5°	347.8	370.8	354.9	353.6	360.4
25°	337.6	359.1	342.7	353.0	358.7
27.5°	324.7	343.8	332.6	347.1	354.3
30°	311.7	328.0	322.1	342.4	355.2
32.5°	299.5	311.4	313.6	340.6	342.7
35°	288.0	296.0	300.4	327.7	338.9
37.5°	275.3	277.5	289.3	322.3	333.0
40°	262.4	261.0	279.9	313.4	328.3
42.5°	248.5	248.0	270.0	309.0	316.4
45°	235.4	236.4	255.9	296.4	307.5
47.5°	221.9	223.2	242.5	282.6	296.3
50°	206.2	208.0	230.5	270.3	288.0
52.5°	189.2	192.6	218.9	258.7	276.5
55°	173.3	176.2	204.1	248.8	268.5
57.5°	158.8	160.5	188.8	236.2	251.2
60°	144.5	144.9	174.5	222.4	236.6
62.5°	128.1	128.9	159.7	206.0	225.1
65°	109.7	113.2	143.8	190.3	207.6
67.5°	92.5	98.6	127.6	175.9	185.0
70°	74.1	84.4	111.7	159.1	165.4
72.5°	57.2	69.3	95.4	140.2	149.1
75°	41.5	55.0	80.2	123.2	131.0
77.5°	27.9	41.7	66.0	104.5	114.7
80°	16.7	30.4	53.3	87.1	98.7
82.5°	8.6	20.4	41.3	73.1	83.4
85°	3.7	12.9	31.2	60.6	69.6
87.5°	1.0	7.3	23.0	49.0	56.6
90°	0.1	3.9	16.4	38.4	45.3
92.5°	0.1	1.9	11.5	29.1	34.3
95°	0.1	1.0	7.2	21.1	25.8
97.5°	0.1	0.6	4.4	14.9	18.9
100°	0.1	0.5	2.6	9.9	13.5
102.5°	0.1	0.6	1.8	6.3	8.8
105°	0.1	0.6	1.5	4.1	5.8
107.5°	0.2	0.6	1.3	3.1	4.0
110°	0.1	0.5	1.4	2.3	3.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.2	0.4	1.3	1.9	2.3
115°	0.1	0.3	1.1	1.9	1.9
117.5°	0.2	0.2	0.9	1.9	1.9
120°	0.2	0.2	0.7	1.8	2.0
122.5°	0.2	0.2	0.6	1.6	1.9
125°	0.1	0.2	0.5	1.2	1.7
127.5°	0.2	0.2	0.4	1.0	1.3
130°	0.2	0.2	0.3	0.7	1.0
132.5°	0.2	0.2	0.2	0.6	0.7
135°	0.2	0.2	0.2	0.4	0.6
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)