

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: P518063

Luminaire Tested: HVL8-4-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: P518063
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-4-LD4-2HI-35-UNV-C-EDD-90
Description: 4 FOOT, 8 INCH WIDE, HVL LED LUMINAIRE, WITH 3500K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 8982.0 lumens
Efficiency: N/A
Efficacy: 104.3 lumens/watt
Spacing Criteria (0/90/45): 1.18 / 1.32 / 1.37
Luminous Opening: Rectangular w/ Sides (W: 0.67' x L: 4' x H: 0.17')
CIE Type: Direct

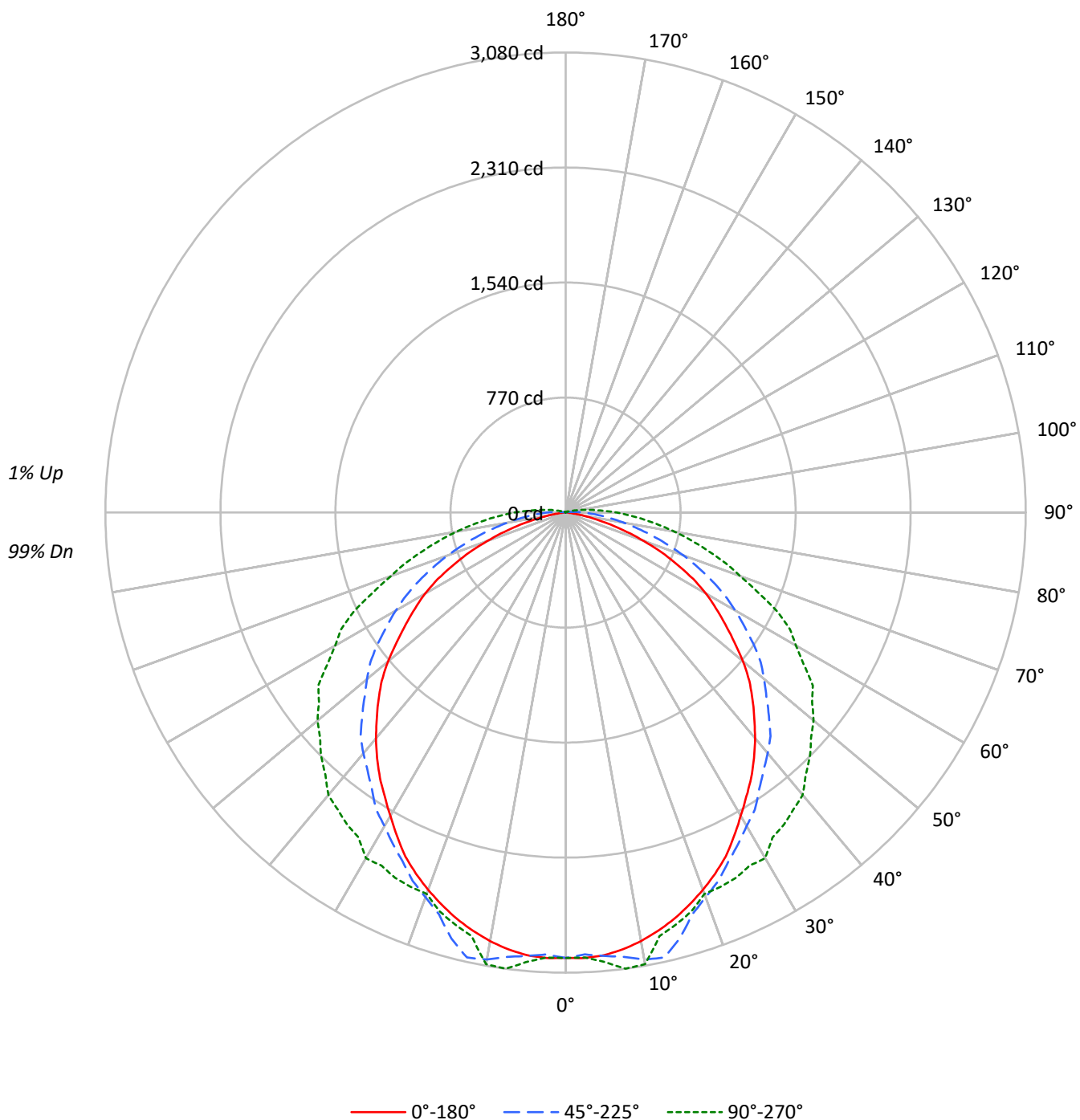
Input Watts (W): 86.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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

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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°	12035	12035	12035
5°	12007	11855	11976
10°	11850	12015	12050
15°	11634	11689	11185
20°	11372	10949	10696
25°	11094	10475	10763
30°	10673	10093	10882
35°	10373	9731	10689
40°	10050	9458	10756
45°	9702	9108	10562
50°	9280	8740	10481
55°	8661	8346	10475
60°	8186	7807	10028
65°	7237	7163	9708
70°	5905	6327	8706
75°	4214	5314	7947
80°	2363	4295	7135
85°	875	3241	6284

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 10562 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	286.6	3.2
10°-20°	816.0	9.1
20°-30°	1214.2	13.5
30°-40°	1459.5	16.2
40°-50°	1536.2	17.1
50°-60°	1425.4	15.9
60°-70°	1127.0	12.5
70°-80°	688.4	7.7
80°-90°	299.9	3.3
90°-100°	93.4	1.0
100°-110°	21.0	0.2
110°-120°	8.4	0.1
120°-130°	4.7	0.1
130°-140°	1.3	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°	2316.8	25.8
0°-40°	3776.3	42.0
0°-60°	6737.8	75.0
0°-90°	8853.2	98.6
90°-120°	122.8	1.4
90°-150°	128.8	1.4
90°-180°	129.0	1.4
0°-180°	8982.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2982	2982	2982	2982	2982	
5°	2974	2968	2978	3012	3020	282
15°	2815	2923	2952	2854	2856	793
25°	2539	2702	2578	2655	2698	1166
35°	2166	2227	2260	2465	2549	1354
45°	1770	1778	1925	2230	2313	1365
55°	1304	1325	1535	1871	2020	1172
65°	825	852	1082	1432	1562	817
75°	312	414	603	927	985	341
85°	28	97	235	456	524	43
90°	1	29	123	289	341	1
95°	1	7	54	158	194	0
105°	1	4	11	31	44	1
115°	1	2	8	14	15	1
125°	1	1	4	9	13	1
135°	1	1	1	3	4	1
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°	2981.5	2981.5	2981.5	2981.5	2981.5
2.5°	2985.2	2977.3	2960.9	2976.7	2980.9
5°	2974.2	2968.2	2978.5	3011.9	3020.4
7.5°	2949.3	2972.4	2999.8	3060.5	3079.9
10°	2912.3	2956.0	3038.0	3089.6	3069.6
12.5°	2867.4	2941.4	3051.4	2950.6	2903.8
15°	2815.1	2923.2	2951.8	2854.0	2855.8
17.5°	2753.8	2908.0	2820.0	2817.5	2799.9
20°	2687.6	2857.0	2740.4	2735.6	2716.7
22.5°	2616.5	2789.6	2670.0	2660.2	2711.3
25°	2539.4	2701.5	2578.2	2655.4	2698.5
27.5°	2442.8	2586.1	2501.7	2611.0	2665.1
30°	2345.0	2467.1	2423.4	2575.8	2671.8
32.5°	2253.3	2342.6	2359.0	2562.5	2578.2
35°	2166.5	2226.6	2260.0	2465.3	2549.1
37.5°	2071.1	2087.5	2176.2	2424.6	2505.4
40°	1973.9	1963.6	2105.7	2357.8	2469.5
42.5°	1869.5	1865.8	2031.0	2324.4	2380.2
45°	1770.5	1778.4	1924.7	2229.6	2312.8
47.5°	1669.0	1679.4	1823.9	2125.8	2229.0
50°	1551.2	1564.6	1734.0	2033.4	2166.5
52.5°	1423.7	1449.2	1646.6	1946.0	2080.2
55°	1304.0	1325.3	1535.4	1871.3	2020.1
57.5°	1194.7	1207.4	1420.6	1777.1	1889.5
60°	1087.2	1090.2	1312.5	1672.7	1780.2
62.5°	963.9	969.3	1201.4	1549.4	1693.3
65°	825.4	851.5	1081.7	1431.6	1561.5
67.5°	696.0	741.6	959.6	1323.4	1391.5
70°	557.6	634.7	840.0	1196.5	1244.5
72.5°	430.6	521.1	717.3	1054.4	1121.8
75°	312.2	413.6	603.1	926.8	985.1
77.5°	210.1	313.4	496.2	785.9	863.1
80°	125.7	229.0	400.9	655.3	742.2
82.5°	64.4	153.7	311.0	549.7	627.4
85°	27.9	97.2	235.0	456.1	523.5
87.5°	7.9	55.3	173.1	368.7	425.8
90°	0.6	29.2	123.3	289.1	340.7
92.5°	0.6	14.0	86.9	218.6	258.1
95°	0.6	7.3	54.1	158.5	193.7
97.5°	0.6	4.3	32.8	112.4	142.1
100°	0.6	3.6	19.4	74.7	101.4
102.5°	0.6	4.3	13.4	47.4	66.2
105°	0.6	4.3	10.9	31.0	43.7
107.5°	1.2	4.3	9.7	23.1	30.4
110°	0.6	3.6	10.3	17.6	23.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1.2	3.0	9.7	14.6	17.6
115°	0.6	2.4	8.5	14.0	14.6
117.5°	1.2	1.8	6.7	14.0	14.6
120°	1.2	1.2	5.5	13.4	15.2
122.5°	1.2	1.2	4.3	12.1	14.6
125°	0.6	1.2	3.6	9.1	12.8
127.5°	1.2	1.2	3.0	7.3	9.7
130°	1.2	1.2	2.4	5.5	7.3
132.5°	1.2	1.2	1.8	4.3	5.5
135°	1.2	1.2	1.2	3.0	4.3
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)