

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: P518059

Luminaire Tested: HVL8-4-LD4-2HI-30-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: P518059
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-4-LD4-2HI-30-UNV-C-EDD-90
Description: 4 FOOT, 8 INCH WIDE, HVL LED LUMINAIRE, WITH 3000K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 8558.0 lumens
Efficiency: N/A
Efficacy: 99.4 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

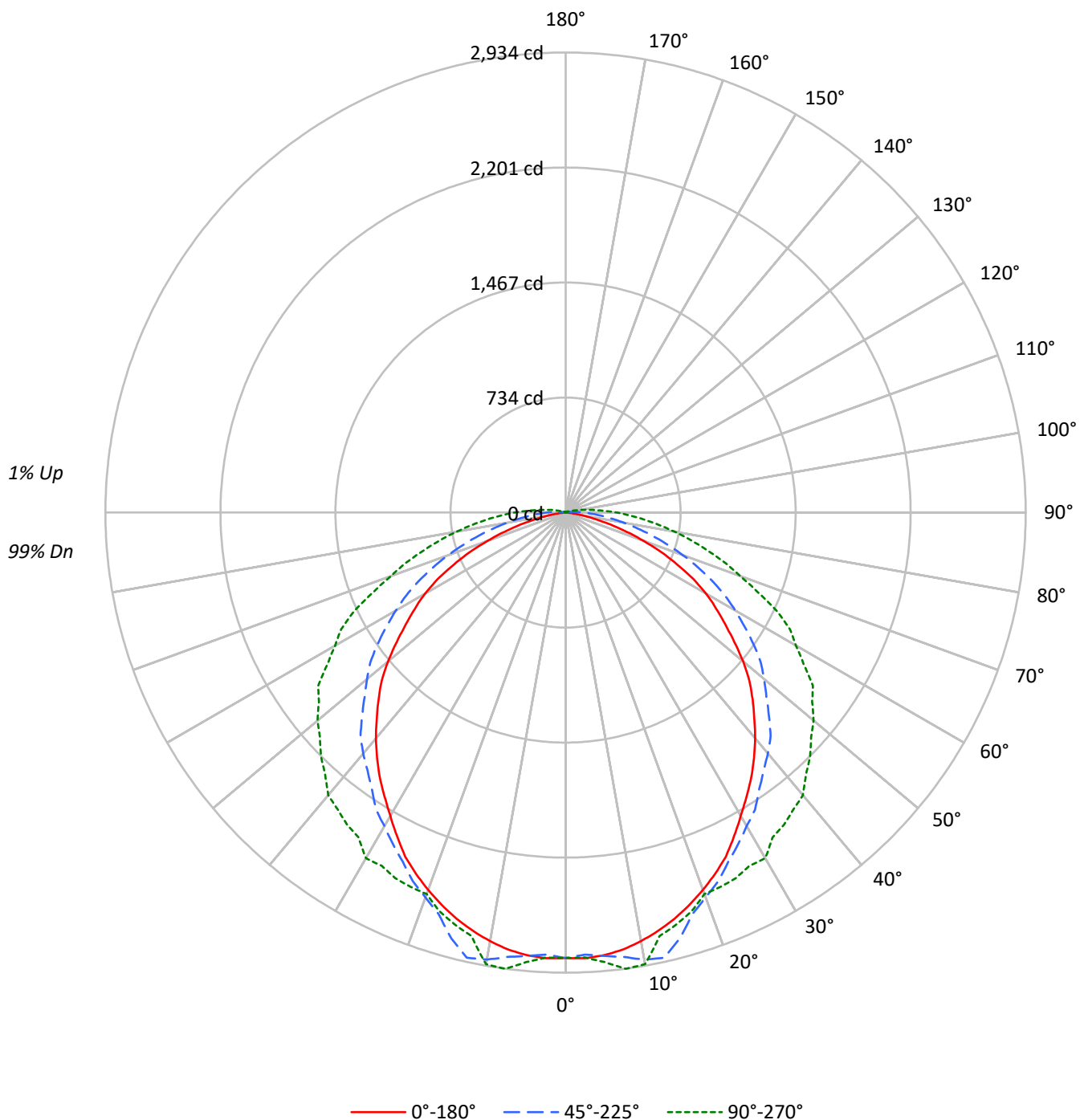
Input Watts (W): 86.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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°	11467	11467	11467
5°	11441	11295	11411
10°	11290	11448	11481
15°	11085	11137	10657
20°	10835	10433	10191
25°	10570	9981	10255
30°	10169	9617	10368
35°	9883	9271	10185
40°	9575	9012	10248
45°	9244	8678	10063
50°	8842	8328	9986
55°	8252	7952	9981
60°	7800	7438	9554
65°	6895	6824	9250
70°	5625	6028	8295
75°	4014	5063	7572
80°	2252	4091	6798
85°	834	3090	5988

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 10063 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	273.0	3.2
10°-20°	777.5	9.1
20°-30°	1156.9	13.5
30°-40°	1390.6	16.2
40°-50°	1463.6	17.1
50°-60°	1358.1	15.9
60°-70°	1073.8	12.5
70°-80°	655.9	7.7
80°-90°	285.8	3.3
90°-100°	89.0	1.0
100°-110°	20.0	0.2
110°-120°	8.0	0.1
120°-130°	4.5	0.1
130°-140°	1.2	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°	2207.4	25.8
0°-40°	3598.0	42.0
0°-60°	6419.7	75.0
0°-90°	8435.2	98.6
90°-120°	117.0	1.4
90°-150°	122.8	1.4
90°-180°	123.0	1.4
0°-180°	8558.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2841	2841	2841	2841	2841	
5°	2834	2828	2838	2870	2878	269
15°	2682	2785	2812	2719	2721	756
25°	2420	2574	2456	2530	2571	1111
35°	2064	2122	2153	2349	2429	1290
45°	1687	1694	1834	2124	2204	1300
55°	1242	1263	1463	1783	1925	1116
65°	786	811	1031	1364	1488	779
75°	297	394	575	883	939	325
85°	27	93	224	435	499	41
90°	1	28	118	276	325	1
95°	1	7	52	151	185	0
105°	1	4	10	30	42	1
115°	1	2	8	13	14	1
125°	1	1	4	9	12	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°	2840.8	2840.8	2840.8	2840.8	2840.8
2.5°	2844.3	2836.7	2821.1	2836.2	2840.2
5°	2833.8	2828.1	2837.9	2869.7	2877.8
7.5°	2810.1	2832.1	2858.2	2916.0	2934.5
10°	2774.8	2816.5	2894.6	2943.8	2924.7
12.5°	2732.0	2802.6	2907.3	2811.3	2766.7
15°	2682.2	2785.2	2812.4	2719.3	2721.0
17.5°	2623.8	2770.8	2686.9	2684.5	2667.8
20°	2560.7	2722.2	2611.1	2606.4	2588.5
22.5°	2493.0	2657.9	2543.9	2534.7	2583.3
25°	2419.5	2574.0	2456.5	2530.0	2571.1
27.5°	2327.5	2464.1	2383.6	2487.8	2539.3
30°	2234.3	2350.6	2309.0	2454.2	2545.7
32.5°	2146.9	2232.0	2247.6	2441.5	2456.5
35°	2064.2	2121.5	2153.3	2348.9	2428.8
37.5°	1973.3	1989.0	2073.4	2310.1	2387.1
40°	1880.7	1870.9	2006.3	2246.5	2353.0
42.5°	1781.2	1777.7	1935.1	2214.6	2267.9
45°	1686.9	1694.4	1833.9	2124.4	2203.7
47.5°	1590.2	1600.1	1737.8	2025.4	2123.8
50°	1478.0	1490.7	1652.2	1937.5	2064.2
52.5°	1356.4	1380.8	1568.8	1854.1	1982.0
55°	1242.4	1262.7	1462.9	1782.9	1924.7
57.5°	1138.3	1150.4	1353.6	1693.2	1800.3
60°	1035.9	1038.7	1250.5	1593.7	1696.1
62.5°	918.4	923.6	1144.6	1476.2	1613.4
65°	786.4	811.3	1030.6	1364.0	1487.8
67.5°	663.2	706.6	914.3	1261.0	1325.8
70°	531.2	604.7	800.3	1140.0	1185.7
72.5°	410.3	496.5	683.4	1004.6	1068.8
75°	297.4	394.1	574.6	883.1	938.6
77.5°	200.2	298.6	472.8	748.8	822.3
80°	119.8	218.2	381.9	624.4	707.2
82.5°	61.3	146.4	296.3	523.7	597.8
85°	26.6	92.6	224.0	434.6	498.8
87.5°	7.5	52.7	164.9	351.3	405.7
90°	0.6	27.8	117.5	275.5	324.6
92.5°	0.6	13.3	82.8	208.3	245.9
95°	0.6	6.9	51.5	151.0	184.6
97.5°	0.6	4.1	31.2	107.1	135.4
100°	0.6	3.5	18.5	71.2	96.6
102.5°	0.6	4.1	12.7	45.1	63.1
105°	0.6	4.1	10.4	29.5	41.7
107.5°	1.2	4.1	9.3	22.0	28.9
110°	0.6	3.5	9.8	16.8	22.6

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1.2	2.9	9.3	13.9	16.8
115°	0.6	2.3	8.1	13.3	13.9
117.5°	1.2	1.7	6.4	13.3	13.9
120°	1.2	1.2	5.2	12.7	14.5
122.5°	1.2	1.2	4.1	11.6	13.9
125°	0.6	1.2	3.5	8.7	12.2
127.5°	1.2	1.2	2.9	6.9	9.3
130°	1.2	1.2	2.3	5.2	6.9
132.5°	1.2	1.2	1.7	4.1	5.2
135°	1.2	1.2	1.2	2.9	4.1
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)