

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: P517483

Luminaire Tested: HVL12-4-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: P517483
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-4-LD4-2HI-30-UNV-C-EDD-90
Description: 4 FOOT, 12 INCH WIDE, HVL LED LUMINAIRE, WITH 3000K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 8935.0 lumens
Efficiency: N/A
Efficacy: 101.0 lumens/watt
Spacing Criteria (0/90/45): 1.18 / 1.32 / 1.37
Luminous Opening: Rectangular w/ Sides (W: 1' x L: 4' x H: 0.17')
CIE Type: Direct

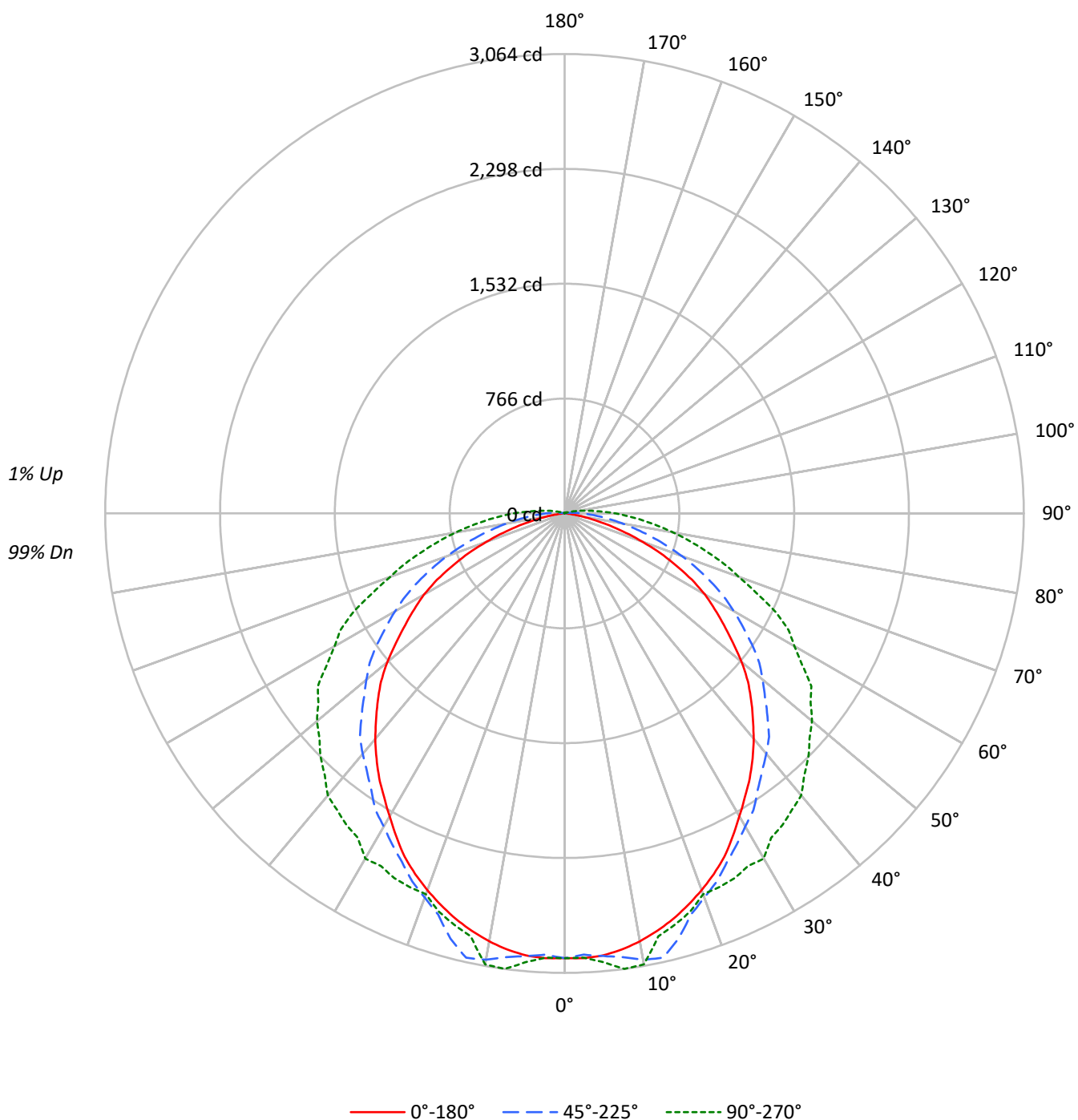
Input Watts (W): 88.5
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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	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°	7981	7981	7981
5°	7963	7902	8000
10°	7859	8049	8105
15°	7715	7870	7576
20°	7542	7409	7296
25°	7357	7126	7396
30°	7078	6903	7533
35°	6879	6695	7460
40°	6665	6549	7571
45°	6434	6351	7505
50°	6154	6143	7527
55°	5744	5920	7615
60°	5429	5598	7396
65°	4799	5206	7286
70°	3915	4680	6681
75°	2795	4025	6281
80°	1568	3367	5881
85°	581	2689	5535

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 55°

Luminance: 7615 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	285.1	3.2
10°-20°	811.8	9.1
20°-30°	1207.8	13.5
30°-40°	1451.8	16.2
40°-50°	1528.1	17.1
50°-60°	1417.9	15.9
60°-70°	1121.1	12.5
70°-80°	684.8	7.7
80°-90°	298.4	3.3
90°-100°	92.9	1.0
100°-110°	20.9	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°	2304.7	25.8
0°-40°	3756.5	42.0
0°-60°	6702.6	75.0
0°-90°	8806.9	98.6
90°-120°	122.1	1.4
90°-150°	128.1	1.4
90°-180°	128.0	1.4
0°-180°	8935.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2966	2966	2966	2966	2966	
5°	2959	2953	2963	2996	3005	280
15°	2800	2908	2936	2839	2841	789
25°	2526	2687	2565	2642	2684	1160
35°	2155	2215	2248	2452	2536	1347
45°	1761	1769	1915	2218	2301	1358
55°	1297	1318	1527	1862	2010	1166
65°	821	847	1076	1424	1553	813
75°	311	411	600	922	980	339
85°	28	97	234	454	521	43
90°	1	29	123	288	339	1
95°	1	7	54	158	193	0
105°	1	4	11	31	44	1
115°	1	2	8	14	14	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°	2965.9	2965.9	2965.9	2965.9	2965.9
2.5°	2969.6	2961.7	2945.4	2961.1	2965.3
5°	2958.7	2952.6	2962.9	2996.1	3004.6
7.5°	2933.9	2956.9	2984.1	3044.5	3063.8
10°	2897.1	2940.6	3022.1	3073.5	3053.5
12.5°	2852.3	2926.1	3035.4	2935.1	2888.6
15°	2800.4	2907.9	2936.3	2839.1	2840.9
17.5°	2739.4	2892.8	2805.2	2802.8	2785.3
20°	2673.5	2842.1	2726.1	2721.2	2702.5
22.5°	2602.8	2775.0	2656.0	2646.3	2697.1
25°	2526.1	2687.4	2564.8	2641.5	2684.4
27.5°	2430.0	2572.6	2488.6	2597.4	2651.2
30°	2332.8	2454.2	2410.7	2562.3	2657.8
32.5°	2241.5	2330.3	2346.6	2549.0	2564.8
35°	2155.1	2214.9	2248.2	2452.4	2535.8
37.5°	2060.3	2076.6	2164.8	2411.9	2492.3
40°	1963.6	1953.3	2094.7	2345.4	2456.6
42.5°	1859.7	1856.0	2020.4	2312.2	2367.8
45°	1761.2	1769.0	1914.7	2218.0	2300.7
47.5°	1660.3	1670.6	1814.4	2114.6	2217.4
50°	1543.1	1556.4	1724.9	2022.8	2155.1
52.5°	1416.2	1441.6	1637.9	1935.8	2069.3
55°	1297.2	1318.3	1527.4	1861.5	2009.5
57.5°	1188.4	1201.1	1413.2	1767.8	1879.6
60°	1081.5	1084.5	1305.6	1663.9	1770.9
62.5°	958.8	964.3	1195.1	1541.3	1684.5
65°	821.1	847.1	1076.0	1424.1	1553.4
67.5°	692.4	737.7	954.6	1316.5	1384.2
70°	554.6	631.4	835.6	1190.2	1238.0
72.5°	428.4	518.4	713.5	1048.9	1115.9
75°	310.6	411.4	600.0	922.0	980.0
77.5°	209.0	311.8	493.6	781.8	858.5
80°	125.1	227.8	398.8	651.9	738.3
82.5°	64.0	152.9	309.3	546.8	624.1
85°	27.8	96.7	233.8	453.7	520.8
87.5°	7.9	55.0	172.2	366.7	423.5
90°	0.6	29.0	122.6	287.6	338.9
92.5°	0.6	13.9	86.4	217.5	256.8
95°	0.6	7.3	53.8	157.7	192.7
97.5°	0.6	4.2	32.6	111.8	141.4
100°	0.6	3.6	19.3	74.3	100.9
102.5°	0.6	4.2	13.3	47.1	65.9
105°	0.6	4.2	10.9	30.8	43.5
107.5°	1.2	4.2	9.7	23.0	30.2
110°	0.6	3.6	10.3	17.5	23.6

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1.2	3.0	9.7	14.5	17.5
115°	0.6	2.4	8.5	13.9	14.5
117.5°	1.2	1.8	6.6	13.9	14.5
120°	1.2	1.2	5.4	13.3	15.1
122.5°	1.2	1.2	4.2	12.1	14.5
125°	0.6	1.2	3.6	9.1	12.7
127.5°	1.2	1.2	3.0	7.3	9.7
130°	1.2	1.2	2.4	5.4	7.3
132.5°	1.2	1.2	1.8	4.2	5.4
135°	1.2	1.2	1.2	3.0	4.2
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)