

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: P517523

Luminaire Tested: HVL12-4-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: P517523
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-4-LD4-2STD-40-UNV-C-EDD-90
Description: 4 FOOT, 12 INCH WIDE, HVL LED LUMINAIRE, WITH 4000K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 7360.0 lumens
Efficiency: N/A
Efficacy: 109.7 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

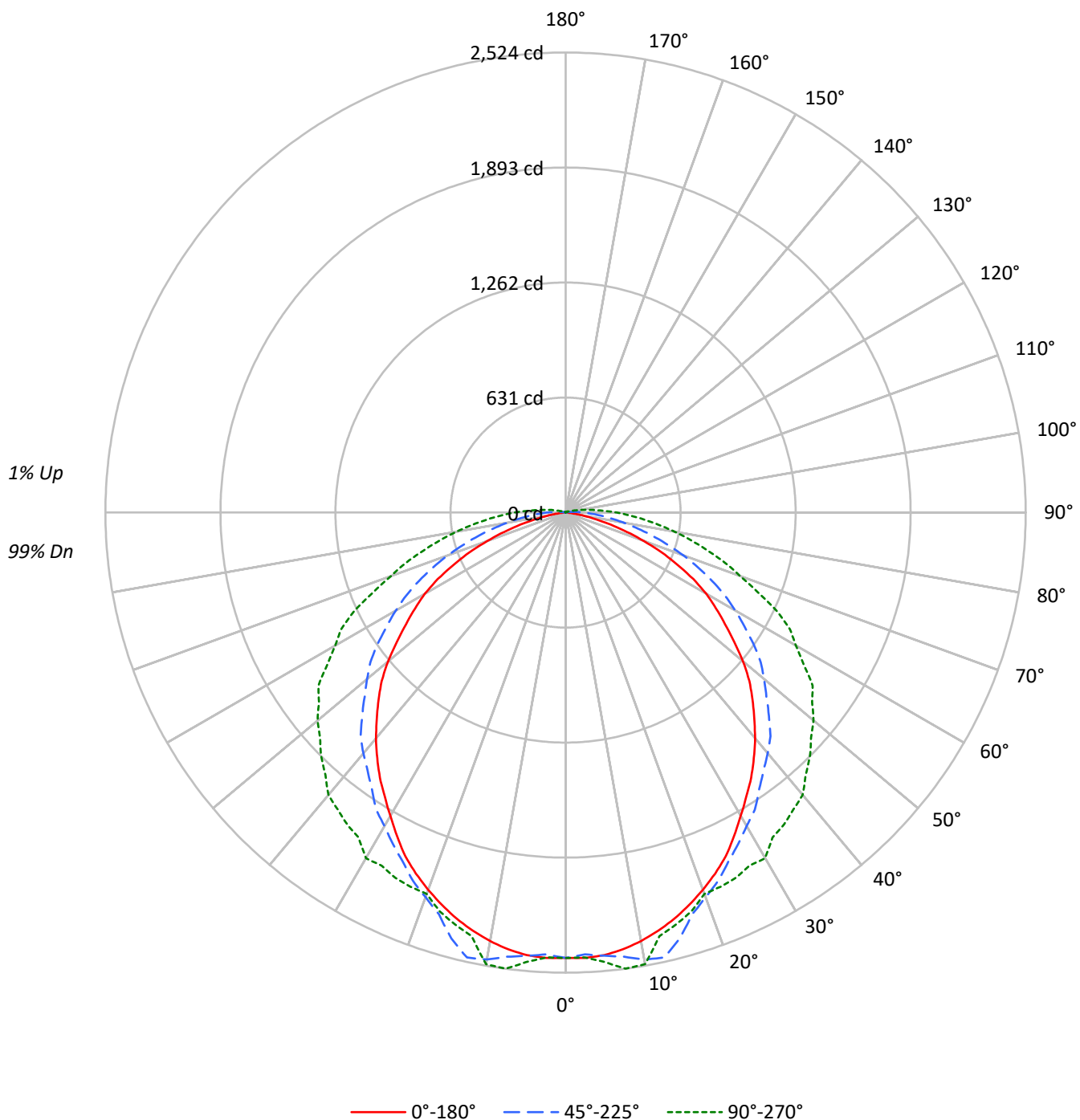
Input Watts (W): 67.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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°	6574	6574	6574
5°	6559	6509	6590
10°	6473	6630	6677
15°	6356	6482	6241
20°	6212	6103	6010
25°	6060	5870	6092
30°	5830	5687	6206
35°	5666	5515	6145
40°	5490	5394	6236
45°	5300	5231	6182
50°	5070	5060	6200
55°	4731	4876	6273
60°	4472	4611	6092
65°	3953	4289	6002
70°	3226	3855	5503
75°	2302	3315	5174
80°	1291	2773	4845
85°	479	2215	4559

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 55°

Luminance: 6273 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	234.8	3.2
10°-20°	668.7	9.1
20°-30°	994.9	13.5
30°-40°	1195.9	16.2
40°-50°	1258.8	17.1
50°-60°	1168.0	15.9
60°-70°	923.5	12.5
70°-80°	564.1	7.7
80°-90°	245.8	3.3
90°-100°	76.5	1.0
100°-110°	17.2	0.2
110°-120°	6.9	0.1
120°-130°	3.9	0.1
130°-140°	1.1	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°	1898.4	25.8
0°-40°	3094.3	42.0
0°-60°	5521.1	75.0
0°-90°	7254.4	98.6
90°-120°	100.6	1.4
90°-150°	105.6	1.4
90°-180°	106.0	1.4
0°-180°	7360.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2443	2443	2443	2443	2443	
5°	2437	2432	2441	2468	2475	231
15°	2307	2395	2419	2339	2340	650
25°	2081	2214	2113	2176	2211	955
35°	1775	1824	1852	2020	2089	1110
45°	1451	1457	1577	1827	1895	1118
55°	1068	1086	1258	1533	1655	960
65°	676	698	886	1173	1280	670
75°	256	339	494	760	807	279
85°	23	80	193	374	429	35
90°	0	24	101	237	279	1
95°	0	6	44	130	159	0
105°	0	4	9	25	36	1
115°	0	2	7	11	12	1
125°	0	1	3	8	10	1
135°	1	1	1	2	4	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°	2443.1	2443.1	2443.1	2443.1	2443.1
2.5°	2446.1	2439.6	2426.2	2439.1	2442.6
5°	2437.1	2432.2	2440.6	2468.0	2475.0
7.5°	2416.7	2435.7	2458.1	2507.8	2523.7
10°	2386.4	2422.2	2489.4	2531.7	2515.3
12.5°	2349.6	2410.3	2500.4	2417.7	2379.4
15°	2306.8	2395.3	2418.7	2338.6	2340.1
17.5°	2256.5	2382.9	2310.7	2308.7	2294.3
20°	2202.2	2341.1	2245.5	2241.6	2226.1
22.5°	2144.0	2285.9	2187.8	2179.8	2221.7
25°	2080.8	2213.7	2112.7	2175.9	2211.2
27.5°	2001.7	2119.1	2050.0	2139.5	2183.8
30°	1921.5	2021.6	1985.8	2110.7	2189.3
32.5°	1846.4	1919.6	1933.0	2099.7	2112.7
35°	1775.2	1824.5	1851.9	2020.1	2088.8
37.5°	1697.1	1710.5	1783.2	1986.7	2052.9
40°	1617.5	1609.0	1725.5	1932.0	2023.6
42.5°	1531.9	1528.9	1664.2	1904.6	1950.4
45°	1450.7	1457.2	1577.2	1827.0	1895.2
47.5°	1367.6	1376.1	1494.5	1741.9	1826.5
50°	1271.1	1282.0	1420.9	1666.2	1775.2
52.5°	1166.6	1187.5	1349.2	1594.6	1704.6
55°	1068.5	1085.9	1258.1	1533.4	1655.3
57.5°	978.9	989.4	1164.1	1456.2	1548.3
60°	890.9	893.3	1075.5	1370.6	1458.7
62.5°	789.8	794.3	984.4	1269.6	1387.5
65°	676.3	697.7	886.4	1173.0	1279.5
67.5°	570.3	607.7	786.3	1084.4	1140.2
70°	456.9	520.1	688.3	980.4	1019.7
72.5°	352.9	427.0	587.8	864.0	919.2
75°	255.8	338.9	494.2	759.5	807.2
77.5°	172.2	256.8	406.6	644.0	707.2
80°	103.0	187.6	328.5	537.0	608.2
82.5°	52.8	125.9	254.8	450.4	514.1
85°	22.9	79.6	192.6	373.8	429.0
87.5°	6.5	45.3	141.8	302.1	348.9
90°	0.5	23.9	101.0	236.9	279.2
92.5°	0.5	11.4	71.2	179.2	211.5
95°	0.5	6.0	44.3	129.9	158.8
97.5°	0.5	3.5	26.9	92.1	116.5
100°	0.5	3.0	15.9	61.2	83.1
102.5°	0.5	3.5	10.9	38.8	54.2
105°	0.5	3.5	9.0	25.4	35.8
107.5°	1.0	3.5	8.0	18.9	24.9
110°	0.5	3.0	8.5	14.4	19.4

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1.0	2.5	8.0	11.9	14.4
115°	0.5	2.0	7.0	11.4	11.9
117.5°	1.0	1.5	5.5	11.4	11.9
120°	1.0	1.0	4.5	10.9	12.4
122.5°	1.0	1.0	3.5	10.0	11.9
125°	0.5	1.0	3.0	7.5	10.5
127.5°	1.0	1.0	2.5	6.0	8.0
130°	1.0	1.0	2.0	4.5	6.0
132.5°	1.0	1.0	1.5	3.5	4.5
135°	1.0	1.0	1.0	2.5	3.5
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)