

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: P517520

Luminaire Tested: HVL12-4-LD4-2STD-35-UNV-C-EDD

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: P517520
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-4-LD4-2STD-35-UNV-C-EDD
Description: 4 FOOT, 12 INCH WIDE, HVL LED LUMINAIRE, WITH 3500K, 80 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 7287.0 lumens
Efficiency: N/A
Efficacy: 108.6 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

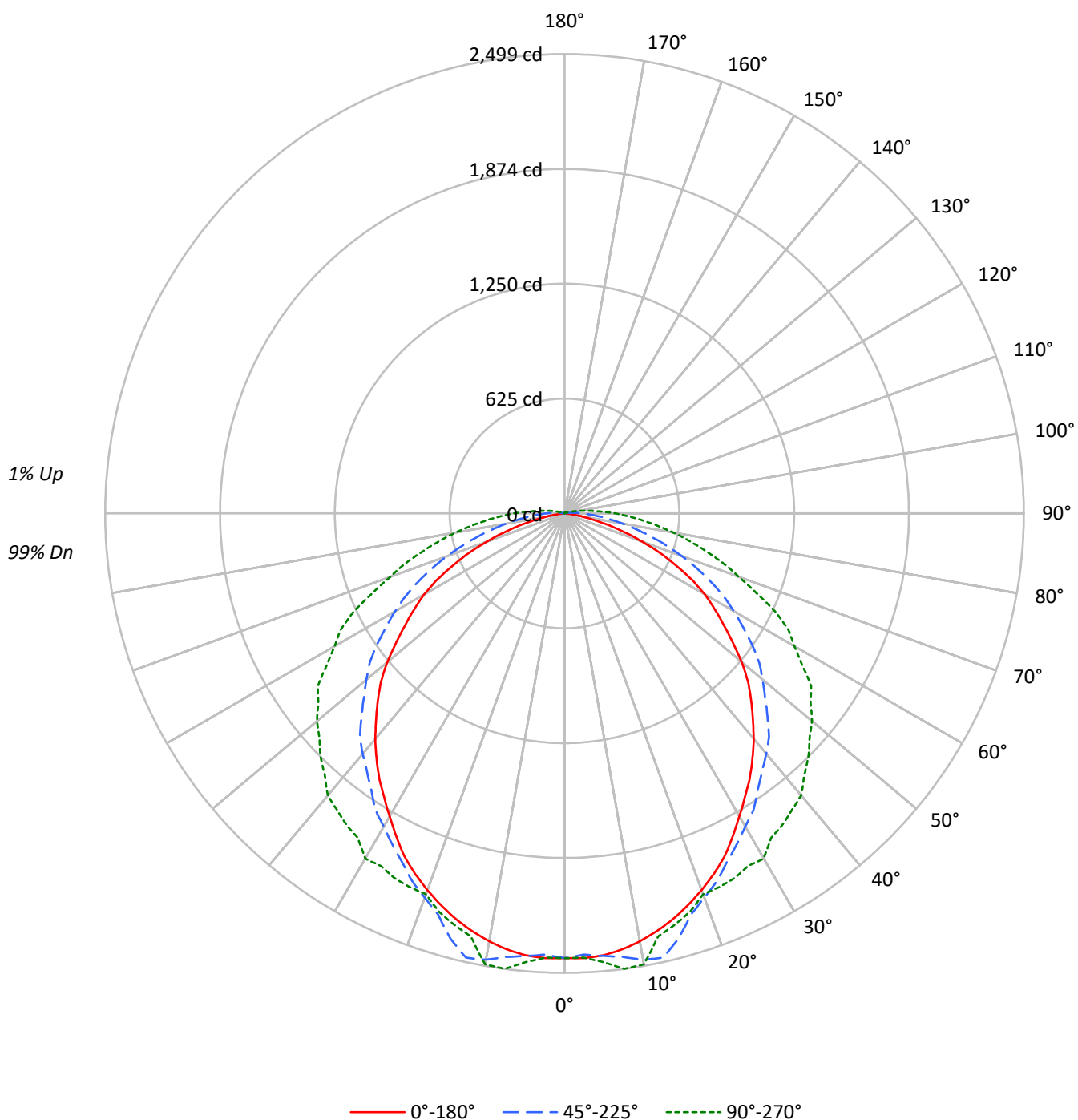
Input Watts (W): 67.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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°	6509	6509	6509
5°	6494	6444	6524
10°	6409	6564	6610
15°	6292	6418	6179
20°	6151	6043	5951
25°	6000	5811	6032
30°	5773	5630	6144
35°	5610	5460	6084
40°	5435	5341	6174
45°	5248	5179	6121
50°	5019	5010	6139
55°	4684	4828	6210
60°	4427	4566	6031
65°	3914	4246	5942
70°	3193	3817	5448
75°	2279	3282	5123
80°	1278	2745	4796
85°	475	2194	4513

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 55°

Luminance: 6210 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	232.5	3.2
10°-20°	662.1	9.1
20°-30°	985.1	13.5
30°-40°	1184.0	16.2
40°-50°	1246.3	17.1
50°-60°	1156.4	15.9
60°-70°	914.3	12.5
70°-80°	558.5	7.7
80°-90°	243.3	3.3
90°-100°	75.8	1.0
100°-110°	17.0	0.2
110°-120°	6.8	0.1
120°-130°	3.9	0.1
130°-140°	1.0	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°	1879.6	25.8
0°-40°	3063.6	42.0
0°-60°	5466.3	75.0
0°-90°	7182.5	98.6
90°-120°	99.6	1.4
90°-150°	104.5	1.4
90°-180°	104.0	1.4
0°-180°	7287.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2419	2419	2419	2419	2419	
5°	2413	2408	2416	2444	2450	229
15°	2284	2372	2395	2315	2317	643
25°	2060	2192	2092	2154	2189	946
35°	1758	1806	1834	2000	2068	1099
45°	1436	1443	1562	1809	1876	1107
55°	1058	1075	1246	1518	1639	951
65°	670	691	878	1161	1267	663
75°	253	336	489	752	799	276
85°	23	79	191	370	425	35
90°	0	24	100	234	276	1
95°	0	6	44	129	157	0
105°	0	3	9	25	36	1
115°	0	2	7	11	12	1
125°	0	1	3	7	10	1
135°	1	1	1	2	3	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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CATALOG NUMBER: HVL12-4-LD4-2STD-35-UNV-C-EDD

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2418.9	2418.9	2418.9	2418.9	2418.9
2.5°	2421.8	2415.4	2402.1	2414.9	2418.4
5°	2413.0	2408.0	2416.4	2443.5	2450.4
7.5°	2392.8	2411.5	2433.7	2482.9	2498.7
10°	2362.7	2398.2	2464.7	2506.6	2490.3
12.5°	2326.3	2386.4	2475.6	2393.8	2355.8
15°	2283.9	2371.6	2394.7	2315.4	2316.9
17.5°	2234.1	2359.3	2287.8	2285.8	2271.6
20°	2180.4	2317.9	2223.3	2219.3	2204.1
22.5°	2122.7	2263.2	2166.1	2158.2	2199.6
25°	2060.2	2191.7	2091.7	2154.3	2189.3
27.5°	1981.8	2098.1	2029.6	2118.3	2162.2
30°	1902.5	2001.5	1966.1	2089.7	2167.6
32.5°	1828.1	1900.5	1913.8	2078.9	2091.7
35°	1757.6	1806.4	1833.5	2000.1	2068.1
37.5°	1680.3	1693.6	1765.5	1967.0	2032.6
40°	1601.4	1593.0	1708.3	1912.8	2003.5
42.5°	1516.7	1513.7	1647.7	1885.7	1931.1
45°	1436.4	1442.8	1561.5	1808.9	1876.4
47.5°	1354.1	1362.4	1479.7	1724.6	1808.4
50°	1258.5	1269.3	1406.8	1649.7	1757.6
52.5°	1155.0	1175.7	1335.8	1578.8	1687.7
55°	1057.9	1075.2	1245.7	1518.1	1638.9
57.5°	969.2	979.6	1152.5	1441.8	1532.9
60°	882.0	884.5	1064.8	1357.0	1444.2
62.5°	782.0	786.4	974.7	1257.0	1373.8
65°	669.6	690.8	877.6	1161.4	1266.8
67.5°	564.7	601.6	778.5	1073.7	1128.9
70°	452.3	514.9	681.5	970.7	1009.6
72.5°	349.4	422.8	581.9	855.4	910.1
75°	253.3	335.6	489.3	751.9	799.2
77.5°	170.5	254.3	402.6	637.6	700.2
80°	102.0	185.8	325.2	531.7	602.1
82.5°	52.2	124.7	252.3	445.9	509.0
85°	22.7	78.8	190.7	370.1	424.7
87.5°	6.4	44.8	140.4	299.1	345.4
90°	0.5	23.7	100.0	234.5	276.4
92.5°	0.5	11.3	70.5	177.4	209.4
95°	0.5	5.9	43.9	128.6	157.2
97.5°	0.5	3.4	26.6	91.2	115.3
100°	0.5	3.0	15.8	60.6	82.3
102.5°	0.5	3.4	10.8	38.4	53.7
105°	0.5	3.4	8.9	25.1	35.5
107.5°	1.0	3.4	7.9	18.7	24.6
110°	0.5	3.0	8.4	14.3	19.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1.0	2.5	7.9	11.8	14.3
115°	0.5	2.0	6.9	11.3	11.8
117.5°	1.0	1.5	5.4	11.3	11.8
120°	1.0	1.0	4.4	10.8	12.3
122.5°	1.0	1.0	3.4	9.9	11.8
125°	0.5	1.0	3.0	7.4	10.3
127.5°	1.0	1.0	2.5	5.9	7.9
130°	1.0	1.0	2.0	4.4	5.9
132.5°	1.0	1.0	1.5	3.4	4.4
135°	1.0	1.0	1.0	2.5	3.4
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)