

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: P517527

Luminaire Tested: HVL12-4-LD4-2STD-50-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: P517527
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-4-LD4-2STD-50-UNV-C-EDD-90
Description: 4 FOOT, 12 INCH WIDE, HVL LED LUMINAIRE, WITH 5000K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 7484.9 lumens
Efficiency: N/A
Efficacy: 111.5 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

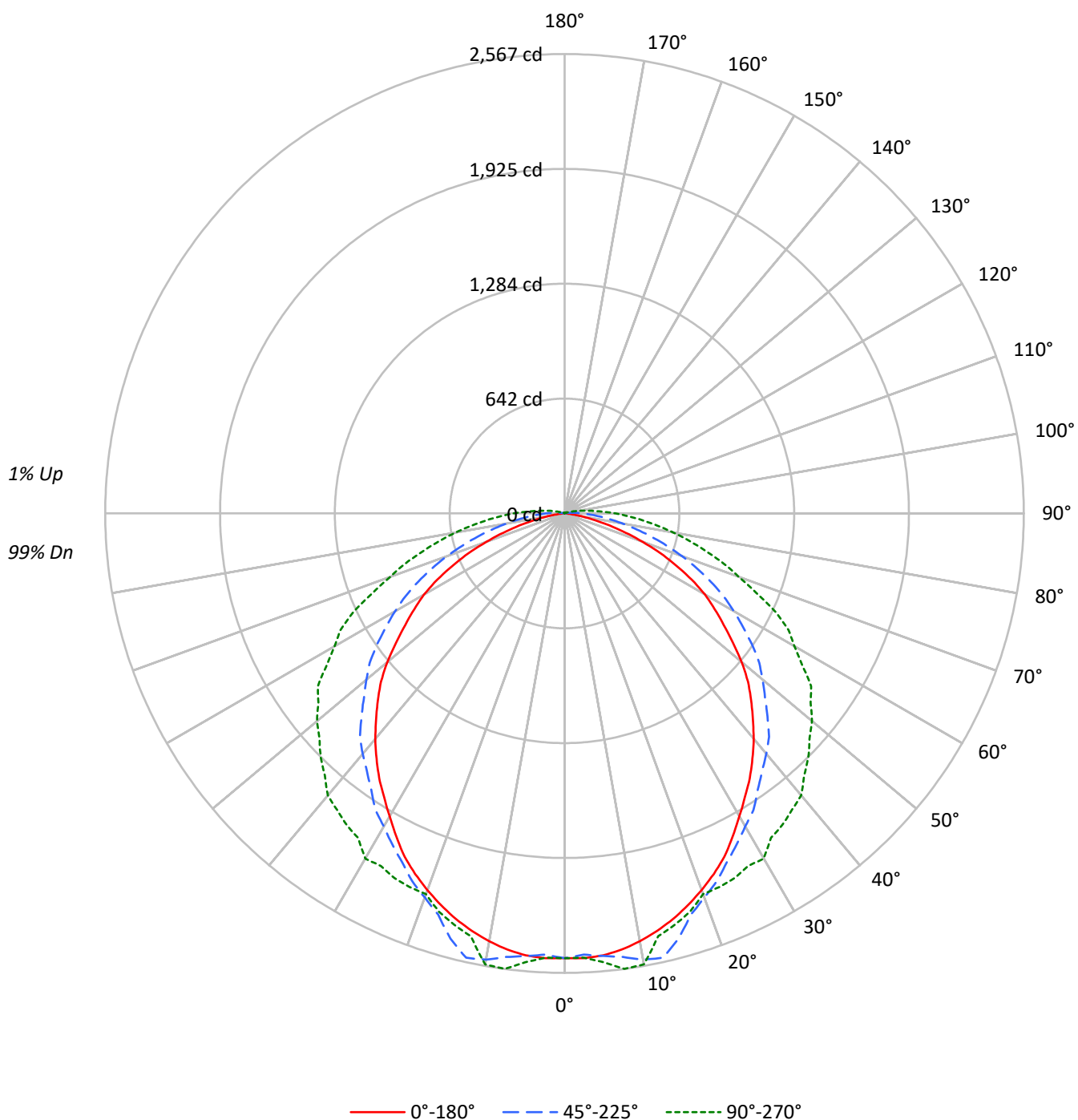
Input Watts (W): 67.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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°	6686	6686	6686
5°	6671	6619	6701
10°	6583	6743	6790
15°	6463	6592	6346
20°	6318	6207	6112
25°	6163	5969	6195
30°	5930	5783	6311
35°	5763	5608	6249
40°	5583	5486	6342
45°	5390	5320	6287
50°	5156	5146	6305
55°	4812	4959	6379
60°	4548	4690	6195
65°	4020	4361	6104
70°	3280	3920	5597
75°	2341	3372	5262
80°	1314	2820	4927
85°	487	2253	4637

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 55°

Luminance: 6379 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	238.8	3.2
10°-20°	680.0	9.1
20°-30°	1011.8	13.5
30°-40°	1216.2	16.2
40°-50°	1280.1	17.1
50°-60°	1187.8	15.9
60°-70°	939.2	12.5
70°-80°	573.7	7.7
80°-90°	249.9	3.3
90°-100°	77.8	1.0
100°-110°	17.5	0.2
110°-120°	7.0	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°	1930.7	25.8
0°-40°	3146.9	42.0
0°-60°	5614.8	75.0
0°-90°	7377.7	98.6
90°-120°	102.3	1.4
90°-150°	107.3	1.4
90°-180°	107.0	1.4
0°-180°	7484.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2485	2485	2485	2485	2485	
5°	2478	2474	2482	2510	2517	235
15°	2346	2436	2460	2378	2380	661
25°	2116	2251	2148	2213	2249	971
35°	1805	1856	1883	2054	2124	1128
45°	1475	1482	1604	1858	1927	1137
55°	1087	1104	1280	1559	1683	976
65°	688	710	901	1193	1301	681
75°	260	345	503	772	821	284
85°	23	81	196	380	436	36
90°	0	24	103	241	284	1
95°	0	6	45	132	162	0
105°	0	4	9	26	36	1
115°	0	2	7	12	12	1
125°	0	1	3	8	11	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°	2484.6	2484.6	2484.6	2484.6	2484.6
2.5°	2487.6	2481.1	2467.4	2480.6	2484.1
5°	2478.5	2473.5	2482.1	2509.9	2517.0
7.5°	2457.8	2477.0	2499.8	2550.4	2566.6
10°	2426.9	2463.4	2531.7	2574.7	2558.0
12.5°	2389.5	2451.2	2542.8	2458.8	2419.8
15°	2345.9	2436.0	2459.8	2378.3	2379.8
17.5°	2294.8	2423.4	2350.0	2348.0	2333.3
20°	2239.6	2380.9	2283.7	2279.6	2263.9
22.5°	2180.4	2324.7	2225.0	2216.9	2259.4
25°	2116.1	2251.3	2148.5	2212.8	2248.8
27.5°	2035.7	2155.1	2084.8	2175.9	2220.9
30°	1954.2	2055.9	2019.5	2146.5	2226.5
32.5°	1877.8	1952.2	1965.8	2135.4	2148.5
35°	1805.4	1855.5	1883.3	2054.4	2124.2
37.5°	1725.9	1739.6	1813.5	2020.5	2087.8
40°	1644.9	1636.3	1754.8	1964.8	2057.9
42.5°	1557.9	1554.8	1692.5	1937.0	1983.5
45°	1475.4	1482.0	1603.9	1858.0	1927.4
47.5°	1390.9	1399.5	1519.9	1771.5	1857.5
50°	1292.7	1303.8	1445.0	1694.5	1805.4
52.5°	1186.4	1207.6	1372.1	1621.7	1733.5
55°	1086.7	1104.4	1279.5	1559.4	1683.4
57.5°	995.6	1006.2	1183.8	1480.9	1574.6
60°	906.0	908.5	1093.8	1393.9	1483.5
62.5°	803.2	807.8	1001.1	1291.1	1411.1
65°	687.8	709.6	901.4	1193.0	1301.3
67.5°	580.0	618.0	799.7	1102.9	1159.6
70°	464.6	528.9	700.0	997.1	1037.1
72.5°	358.8	434.3	597.7	878.6	934.8
75°	260.2	344.7	502.6	772.4	820.9
77.5°	175.1	261.2	413.5	654.9	719.2
80°	104.8	190.8	334.0	546.1	618.5
82.5°	53.7	128.1	259.1	458.1	522.8
85°	23.3	81.0	195.9	380.1	436.3
87.5°	6.6	46.1	144.2	307.2	354.8
90°	0.5	24.3	102.7	240.9	283.9
92.5°	0.5	11.6	72.4	182.2	215.1
95°	0.5	6.1	45.0	132.1	161.5
97.5°	0.5	3.5	27.3	93.6	118.4
100°	0.5	3.0	16.2	62.3	84.5
102.5°	0.5	3.5	11.1	39.5	55.2
105°	0.5	3.5	9.1	25.8	36.4
107.5°	1.0	3.5	8.1	19.2	25.3
110°	0.5	3.0	8.6	14.7	19.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1.0	2.5	8.1	12.1	14.7
115°	0.5	2.0	7.1	11.6	12.1
117.5°	1.0	1.5	5.6	11.6	12.1
120°	1.0	1.0	4.6	11.1	12.7
122.5°	1.0	1.0	3.5	10.1	12.1
125°	0.5	1.0	3.0	7.6	10.6
127.5°	1.0	1.0	2.5	6.1	8.1
130°	1.0	1.0	2.0	4.6	6.1
132.5°	1.0	1.0	1.5	3.5	4.6
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)