

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: P517515

Luminaire Tested: HVL12-4-LD4-2STD-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: P517515
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-4-LD4-2STD-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: 6943.0 lumens
Efficiency: N/A
Efficacy: 103.5 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

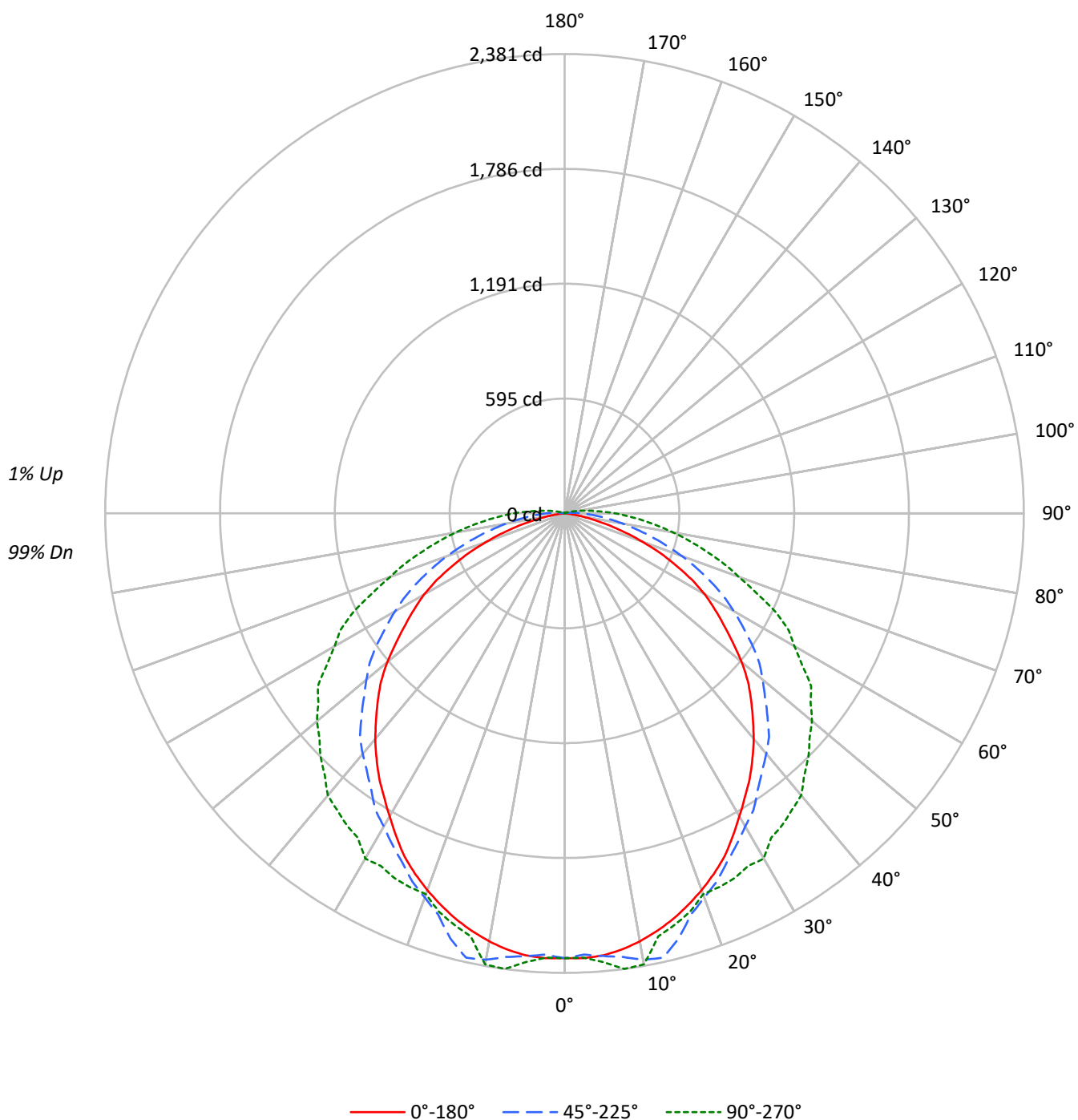
Input Watts (W): 67.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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°	6202	6202	6202
5°	6188	6140	6216
10°	6107	6254	6299
15°	5995	6115	5887
20°	5860	5757	5670
25°	5717	5537	5747
30°	5500	5364	5854
35°	5346	5202	5796
40°	5179	5089	5883
45°	5000	4935	5832
50°	4782	4773	5849
55°	4463	4600	5917
60°	4218	4350	5747
65°	3729	4046	5662
70°	3043	3636	5191
75°	2171	3127	4881
80°	1218	2616	4570
85°	452	2090	4301

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 55°

Luminance: 5917 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	221.5	3.2
10°-20°	630.8	9.1
20°-30°	938.6	13.5
30°-40°	1128.1	16.2
40°-50°	1187.4	17.1
50°-60°	1101.8	15.9
60°-70°	871.2	12.5
70°-80°	532.1	7.7
80°-90°	231.9	3.3
90°-100°	72.2	1.0
100°-110°	16.2	0.2
110°-120°	6.5	0.1
120°-130°	3.6	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°	1790.9	25.8
0°-40°	2919.0	42.0
0°-60°	5208.3	75.0
0°-90°	6843.5	98.6
90°-120°	94.9	1.4
90°-150°	99.5	1.4
90°-180°	100.0	1.4
0°-180°	6943.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2305	2305	2305	2305	2305	
5°	2299	2294	2302	2328	2335	218
15°	2176	2260	2282	2206	2208	613
25°	1963	2088	1993	2053	2086	901
35°	1675	1721	1747	1906	1970	1047
45°	1368	1375	1488	1724	1788	1055
55°	1008	1024	1187	1446	1562	906
65°	638	658	836	1107	1207	632
75°	241	320	466	716	762	263
85°	22	75	182	353	405	33
90°	0	22	95	224	263	1
95°	0	6	42	122	150	0
105°	0	3	8	24	34	1
115°	0	2	7	11	11	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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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2304.7	2304.7	2304.7	2304.7	2304.7
2.5°	2307.5	2301.4	2288.7	2300.9	2304.2
5°	2299.1	2294.4	2302.4	2328.2	2334.7
7.5°	2279.8	2297.7	2318.8	2365.7	2380.8
10°	2251.2	2285.0	2348.4	2388.3	2372.8
12.5°	2216.4	2273.7	2358.7	2280.8	2244.6
15°	2176.1	2259.6	2281.7	2206.1	2207.5
17.5°	2128.6	2247.9	2179.8	2177.9	2164.3
20°	2077.5	2208.5	2118.3	2114.6	2100.0
22.5°	2022.5	2156.3	2063.9	2056.3	2095.8
25°	1962.9	2088.3	1993.0	2052.6	2085.9
27.5°	1888.3	1999.1	1933.8	2018.3	2060.1
30°	1812.7	1907.0	1873.2	1991.1	2065.3
32.5°	1741.8	1810.8	1823.5	1980.8	1993.0
35°	1674.7	1721.1	1747.0	1905.6	1970.4
37.5°	1600.9	1613.6	1682.2	1874.2	1936.6
40°	1525.8	1517.8	1627.7	1822.5	1908.9
42.5°	1445.1	1442.3	1570.0	1796.7	1839.9
45°	1368.5	1374.6	1487.8	1723.5	1787.8
47.5°	1290.1	1298.1	1409.9	1643.2	1723.0
50°	1199.1	1209.4	1340.4	1571.8	1674.7
52.5°	1100.5	1120.2	1272.8	1504.2	1608.0
55°	1008.0	1024.4	1186.9	1446.5	1561.5
57.5°	923.5	933.3	1098.1	1373.7	1460.6
60°	840.4	842.7	1014.6	1293.0	1376.1
62.5°	745.1	749.3	928.6	1197.7	1308.9
65°	638.0	658.2	836.2	1106.6	1207.0
67.5°	538.0	573.2	741.8	1023.0	1075.6
70°	431.0	490.6	649.3	924.9	962.0
72.5°	332.9	402.8	554.5	815.0	867.1
75°	241.3	319.7	466.2	716.4	761.5
77.5°	162.4	242.3	383.6	607.5	667.1
80°	97.2	177.0	309.9	506.6	573.7
82.5°	49.8	118.8	240.4	424.9	485.0
85°	21.6	75.1	181.7	352.6	404.7
87.5°	6.1	42.7	133.8	285.0	329.1
90°	0.5	22.5	95.3	223.5	263.4
92.5°	0.5	10.8	67.1	169.0	199.5
95°	0.5	5.6	41.8	122.5	149.8
97.5°	0.5	3.3	25.4	86.9	109.9
100°	0.5	2.8	15.0	57.7	78.4
102.5°	0.5	3.3	10.3	36.6	51.2
105°	0.5	3.3	8.5	23.9	33.8
107.5°	0.9	3.3	7.5	17.8	23.5
110°	0.5	2.8	8.0	13.6	18.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.9	2.3	7.5	11.3	13.6
115°	0.5	1.9	6.6	10.8	11.3
117.5°	0.9	1.4	5.2	10.8	11.3
120°	0.9	0.9	4.2	10.3	11.7
122.5°	0.9	0.9	3.3	9.4	11.3
125°	0.5	0.9	2.8	7.0	9.9
127.5°	0.9	0.9	2.3	5.6	7.5
130°	0.9	0.9	1.9	4.2	5.6
132.5°	0.9	0.9	1.4	3.3	4.2
135°	0.9	0.9	0.9	2.3	3.3
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)