

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: P517508

Luminaire Tested: HVL12-4-LD4-2LO-40-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: P517508
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-4-LD4-2LO-40-UNV-C-EDD
Description: 4 FOOT, 12 INCH WIDE, HVL LED LUMINAIRE, WITH 4000K, 80 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5714.0 lumens
Efficiency: N/A
Efficacy: 120.5 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

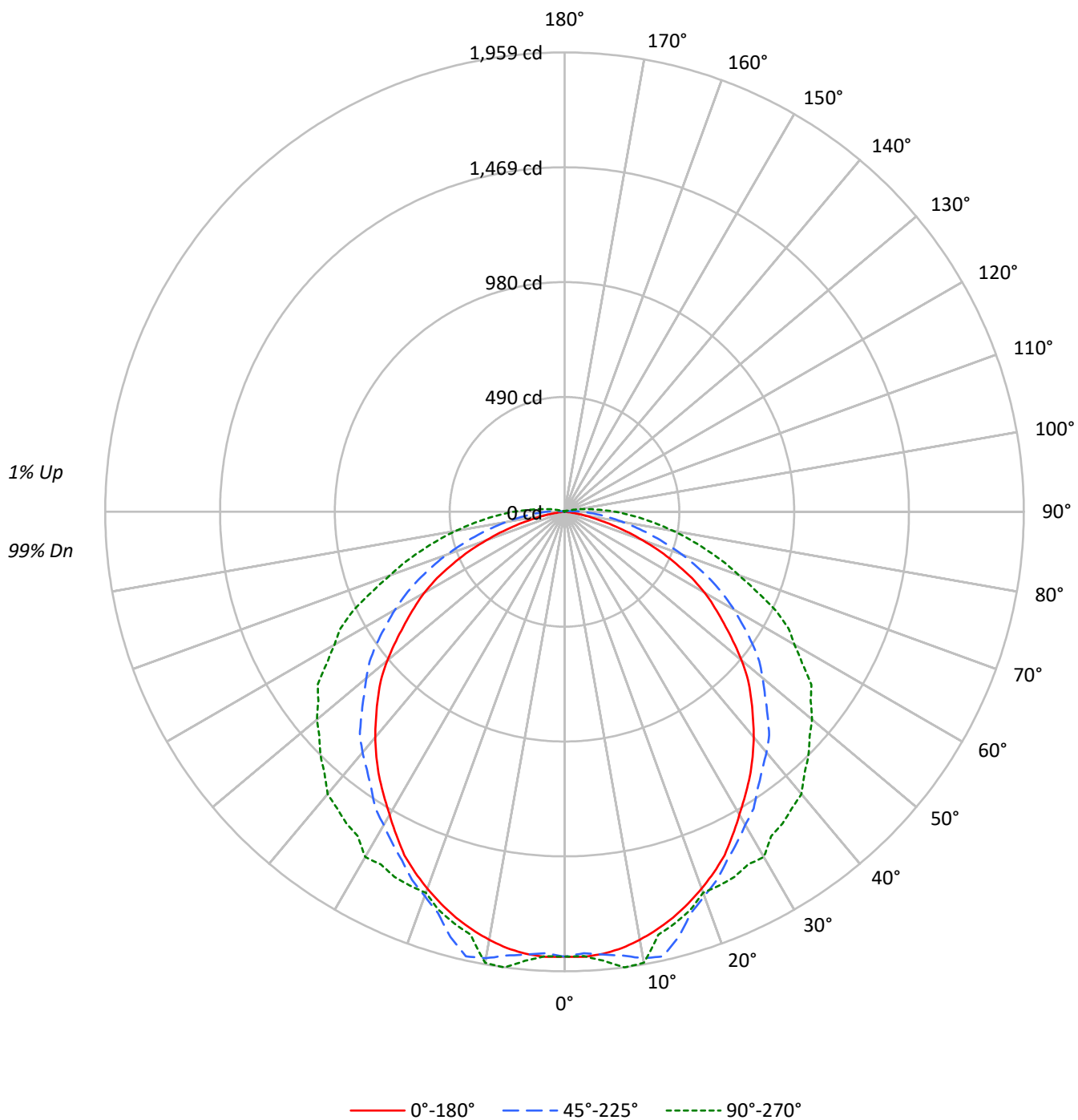
Input Watts (W): 47.4
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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				0
RW	70	50	30	10	70	50	30	10	50	30	10		50	30	10		0
RCR																	
0	119	119	119	119	116	116	116	116	110	110	110		105	105	105		99
1	108	103	98	94	105	100	96	92	96	92	89		91	89	86		81
2	98	89	82	76	95	87	80	75	83	78	73		80	75	71		67
3	89	78	69	63	86	76	68	62	73	66	61		70	64	59		56
4	81	69	60	53	79	67	59	52	65	57	51		62	56	51		47
5	75	61	52	45	72	60	51	45	58	50	44		56	49	44		41
6	69	55	46	39	67	54	46	39	52	45	39		50	44	38		36
7	64	50	41	35	62	49	41	35	47	40	34		46	39	34		32
8	59	46	37	31	58	45	37	31	43	36	31		42	35	30		28
9	55	42	34	28	54	41	33	28	40	33	28		39	32	27		25
10	52	39	31	25	51	38	30	25	37	30	25		36	29	25		23

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	5104	5104	5104
5°	5092	5053	5116
10°	5026	5147	5184
15°	4934	5033	4845
20°	4823	4738	4666
25°	4705	4557	4730
30°	4527	4415	4818
35°	4399	4281	4770
40°	4262	4188	4841
45°	4115	4061	4799
50°	3936	3928	4813
55°	3673	3786	4870
60°	3472	3580	4730
65°	3069	3329	4660
70°	2504	2993	4272
75°	1787	2574	4017
80°	1003	2153	3761
85°	372	1720	3540

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 55°

Luminance: 4870 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	182.3	3.2
10°-20°	519.1	9.1
20°-30°	772.4	13.5
30°-40°	928.5	16.2
40°-50°	977.2	17.1
50°-60°	906.8	15.9
60°-70°	717.0	12.5
70°-80°	438.0	7.7
80°-90°	190.8	3.3
90°-100°	59.4	1.0
100°-110°	13.3	0.2
110°-120°	5.4	0.1
120°-130°	3.0	0.1
130°-140°	0.8	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°	1473.9	25.8
0°-40°	2402.3	42.0
0°-60°	4286.3	75.0
0°-90°	5632.1	98.6
90°-120°	78.1	1.4
90°-150°	82.0	1.4
90°-180°	82.0	1.4
0°-180°	5714.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1897	1897	1897	1897	1897	
5°	1892	1888	1895	1916	1922	179
15°	1791	1860	1878	1816	1817	504
25°	1616	1719	1640	1689	1717	742
35°	1378	1416	1438	1568	1622	861
45°	1126	1131	1224	1418	1471	868
55°	830	843	977	1190	1285	745
65°	525	542	688	911	993	520
75°	199	263	384	590	627	217
85°	18	62	150	290	333	28
90°	0	18	78	184	217	1
95°	0	5	34	101	123	0
105°	0	3	7	20	28	1
115°	0	2	5	9	9	1
125°	0	1	2	6	8	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°	1896.7	1896.7	1896.7	1896.7	1896.7
2.5°	1899.1	1894.0	1883.6	1893.6	1896.4
5°	1892.1	1888.2	1894.8	1916.1	1921.5
7.5°	1876.3	1890.9	1908.3	1947.0	1959.3
10°	1852.7	1880.5	1932.7	1965.5	1952.8
12.5°	1824.1	1871.2	1941.2	1877.0	1847.3
15°	1790.9	1859.6	1877.8	1815.6	1816.8
17.5°	1751.8	1850.0	1794.0	1792.4	1781.2
20°	1709.7	1817.5	1743.3	1740.3	1728.3
22.5°	1664.5	1774.6	1698.5	1692.3	1724.8
25°	1615.5	1718.6	1640.2	1689.3	1716.7
27.5°	1554.0	1645.2	1591.5	1661.0	1695.4
30°	1491.8	1569.5	1541.7	1638.6	1699.7
32.5°	1433.5	1490.3	1500.7	1630.1	1640.2
35°	1378.2	1416.5	1437.7	1568.3	1621.6
37.5°	1317.6	1328.0	1384.4	1542.4	1593.8
40°	1255.7	1249.2	1339.6	1499.9	1571.0
42.5°	1189.3	1187.0	1292.1	1478.7	1514.2
45°	1126.3	1131.3	1224.4	1418.4	1471.3
47.5°	1061.8	1068.3	1160.3	1352.3	1418.0
50°	986.8	995.3	1103.1	1293.6	1378.2
52.5°	905.7	921.9	1047.5	1238.0	1323.3
55°	829.6	843.1	976.8	1190.4	1285.1
57.5°	760.0	768.1	903.7	1130.5	1202.0
60°	691.6	693.6	835.0	1064.1	1132.5
62.5°	613.2	616.7	764.3	985.7	1077.2
65°	525.1	541.7	688.1	910.7	993.4
67.5°	442.8	471.8	610.5	841.9	885.2
70°	354.7	403.8	534.4	761.2	791.7
72.5°	273.9	331.5	456.3	670.8	713.6
75°	198.6	263.1	383.7	589.6	626.7
77.5°	133.7	199.4	315.7	500.0	549.0
80°	80.0	145.7	255.0	416.9	472.2
82.5°	41.0	97.8	197.8	349.7	399.1
85°	17.8	61.8	149.5	290.2	333.1
87.5°	5.0	35.2	110.1	234.5	270.9
90°	0.4	18.5	78.4	183.9	216.8
92.5°	0.4	8.9	55.3	139.1	164.2
95°	0.4	4.6	34.4	100.8	123.3
97.5°	0.4	2.7	20.9	71.5	90.4
100°	0.4	2.3	12.4	47.5	64.5
102.5°	0.4	2.7	8.5	30.1	42.1
105°	0.4	2.7	7.0	19.7	27.8
107.5°	0.8	2.7	6.2	14.7	19.3
110°	0.4	2.3	6.6	11.2	15.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.8	1.9	6.2	9.3	11.2
115°	0.4	1.5	5.4	8.9	9.3
117.5°	0.8	1.2	4.3	8.9	9.3
120°	0.8	0.8	3.5	8.5	9.7
122.5°	0.8	0.8	2.7	7.7	9.3
125°	0.4	0.8	2.3	5.8	8.1
127.5°	0.8	0.8	1.9	4.6	6.2
130°	0.8	0.8	1.5	3.5	4.6
132.5°	0.8	0.8	1.2	2.7	3.5
135°	0.8	0.8	0.8	1.9	2.7
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)