

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: P517440

Luminaire Tested: HVL12-4-LD4-1HI-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: P517440
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-4-LD4-1HI-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: 4938.0 lumens
Efficiency: N/A
Efficacy: 112.0 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

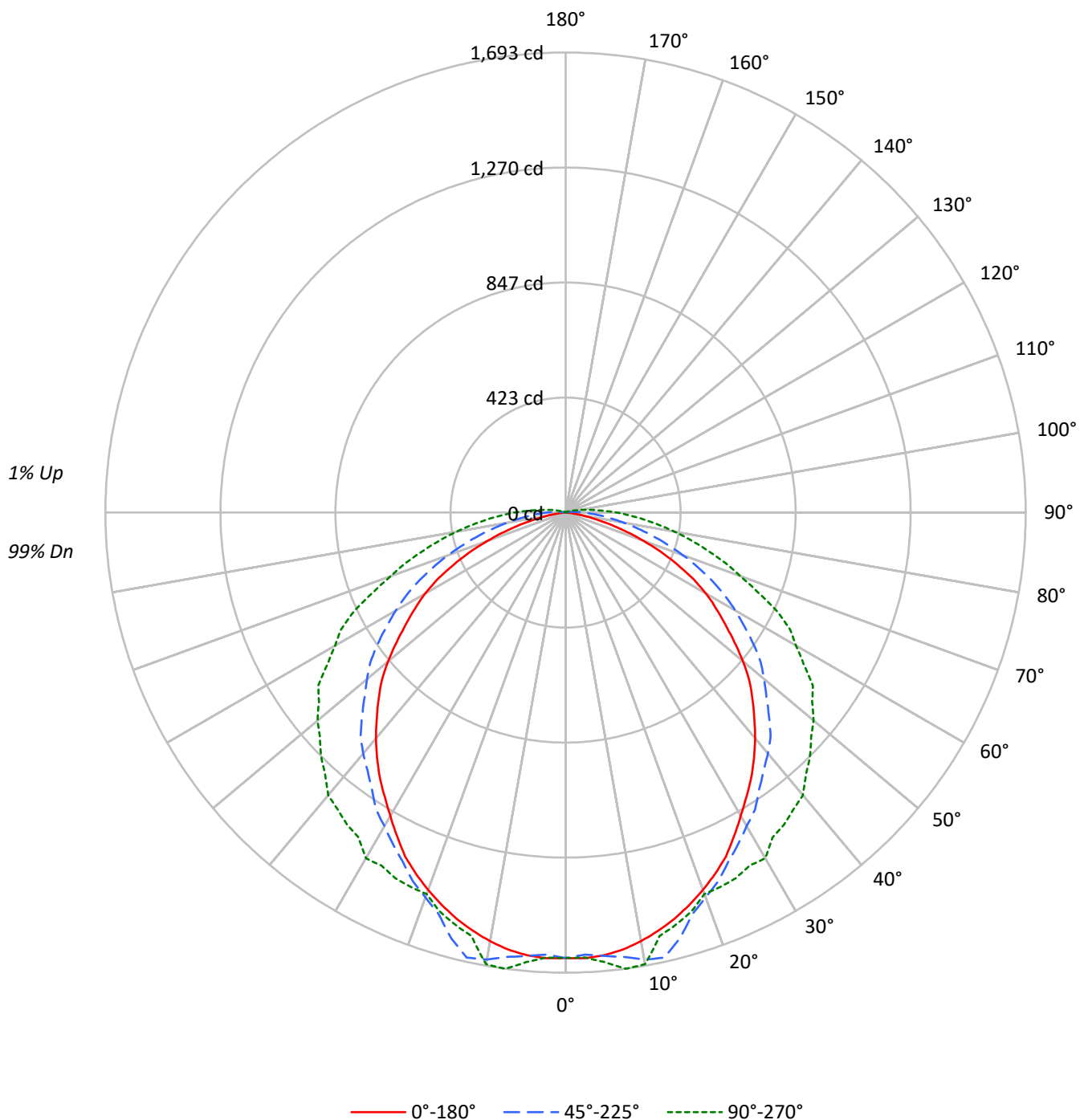
Input Watts (W): 44.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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°	4411	4411	4411
5°	4401	4367	4421
10°	4343	4448	4480
15°	4264	4349	4187
20°	4168	4095	4033
25°	4066	3938	4087
30°	3912	3815	4164
35°	3802	3700	4123
40°	3683	3619	4184
45°	3556	3510	4147
50°	3401	3395	4160
55°	3174	3272	4209
60°	3000	3094	4087
65°	2652	2877	4027
70°	2164	2586	3692
75°	1544	2224	3471
80°	866	1861	3250
85°	322	1486	3058

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 55°

Luminance: 4209 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	157.5	3.2
10°-20°	448.6	9.1
20°-30°	667.5	13.5
30°-40°	802.4	16.2
40°-50°	844.5	17.1
50°-60°	783.6	15.9
60°-70°	619.6	12.5
70°-80°	378.5	7.7
80°-90°	164.9	3.3
90°-100°	51.3	1.0
100°-110°	11.5	0.2
110°-120°	4.6	0.1
120°-130°	2.6	0.1
130°-140°	0.7	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°	1273.7	25.8
0°-40°	2076.1	42.0
0°-60°	3704.2	75.0
0°-90°	4867.2	98.6
90°-120°	67.5	1.4
90°-150°	70.8	1.4
90°-180°	71.0	1.4
0°-180°	4938.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1639	1639	1639	1639	1639	
5°	1635	1632	1638	1656	1660	155
15°	1548	1607	1623	1569	1570	436
25°	1396	1485	1417	1460	1484	641
35°	1191	1224	1242	1355	1401	744
45°	973	978	1058	1226	1272	750
55°	717	729	844	1029	1111	644
65°	454	468	595	787	858	449
75°	172	227	332	510	542	187
85°	15	53	129	251	288	24
90°	0	16	68	159	187	1
95°	0	4	30	87	106	0
105°	0	2	6	17	24	0
115°	0	1	5	8	8	1
125°	0	1	2	5	7	1
135°	1	1	1	2	2	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°	1639.1	1639.1	1639.1	1639.1	1639.1
2.5°	1641.2	1636.8	1627.8	1636.5	1638.8
5°	1635.1	1631.8	1637.5	1655.8	1660.5
7.5°	1621.5	1634.1	1649.2	1682.6	1693.2
10°	1601.1	1625.1	1670.2	1698.6	1687.6
12.5°	1576.4	1617.1	1677.5	1622.1	1596.4
15°	1547.7	1607.1	1622.8	1569.0	1570.0
17.5°	1513.9	1598.7	1550.3	1549.0	1539.3
20°	1477.5	1570.7	1506.6	1503.9	1493.6
22.5°	1438.5	1533.6	1467.9	1462.5	1490.6
25°	1396.1	1485.2	1417.4	1459.8	1483.5
27.5°	1343.0	1421.8	1375.4	1435.5	1465.2
30°	1289.2	1356.3	1332.3	1416.1	1468.9
32.5°	1238.8	1287.9	1296.9	1408.8	1417.4
35°	1191.0	1224.1	1242.5	1355.3	1401.4
37.5°	1138.6	1147.6	1196.4	1333.0	1377.4
40°	1085.2	1079.5	1157.7	1296.2	1357.7
42.5°	1027.8	1025.8	1116.6	1277.9	1308.6
45°	973.3	977.7	1058.1	1225.8	1271.5
47.5°	917.6	923.3	1002.7	1168.7	1225.4
50°	852.8	860.1	953.3	1117.9	1191.0
52.5°	782.7	796.7	905.2	1069.8	1143.6
55°	716.9	728.6	844.1	1028.8	1110.6
57.5°	656.8	663.8	781.0	977.0	1038.8
60°	597.7	599.4	721.6	919.6	978.7
62.5°	529.9	532.9	660.5	851.8	930.9
65°	453.8	468.1	594.7	787.0	858.5
67.5°	382.7	407.7	527.6	727.6	765.0
70°	306.5	348.9	461.8	657.8	684.2
72.5°	236.7	286.5	394.3	579.7	616.7
75°	171.6	227.4	331.6	509.5	541.6
77.5°	115.5	172.3	272.8	432.1	474.5
80°	69.1	125.9	220.4	360.3	408.0
82.5°	35.4	84.5	171.0	302.2	344.9
85°	15.4	53.4	129.2	250.8	287.8
87.5°	4.3	30.4	95.2	202.7	234.1
90°	0.3	16.0	67.8	158.9	187.3
92.5°	0.3	7.7	47.7	120.2	141.9
95°	0.3	4.0	29.7	87.1	106.5
97.5°	0.3	2.3	18.0	61.8	78.1
100°	0.3	2.0	10.7	41.1	55.8
102.5°	0.3	2.3	7.3	26.0	36.4
105°	0.3	2.3	6.0	17.0	24.0
107.5°	0.7	2.3	5.3	12.7	16.7
110°	0.3	2.0	5.7	9.7	13.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.7	1.7	5.3	8.0	9.7
115°	0.3	1.3	4.7	7.7	8.0
117.5°	0.7	1.0	3.7	7.7	8.0
120°	0.7	0.7	3.0	7.3	8.3
122.5°	0.7	0.7	2.3	6.7	8.0
125°	0.3	0.7	2.0	5.0	7.0
127.5°	0.7	0.7	1.7	4.0	5.3
130°	0.7	0.7	1.3	3.0	4.0
132.5°	0.7	0.7	1.0	2.3	3.0
135°	0.7	0.7	0.7	1.7	2.3
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)