

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: P517348

Luminaire Tested: HVL12-2-LD4-2HI-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: P517348
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-2-LD4-2HI-40-UNV-C-EDD
Description: 2 FOOT, 12 INCH WIDE, HVL LED LUMINAIRE, WITH 4000K, 80 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4735.9 lumens
Efficiency: N/A
Efficacy: 107.1 lumens/watt
Spacing Criteria (0/90/45): 1.18 / 1.32 / 1.37
Luminous Opening: Rectangular w/ Sides (W: 1' x L: 2' x H: 0.17')
CIE Type: Direct

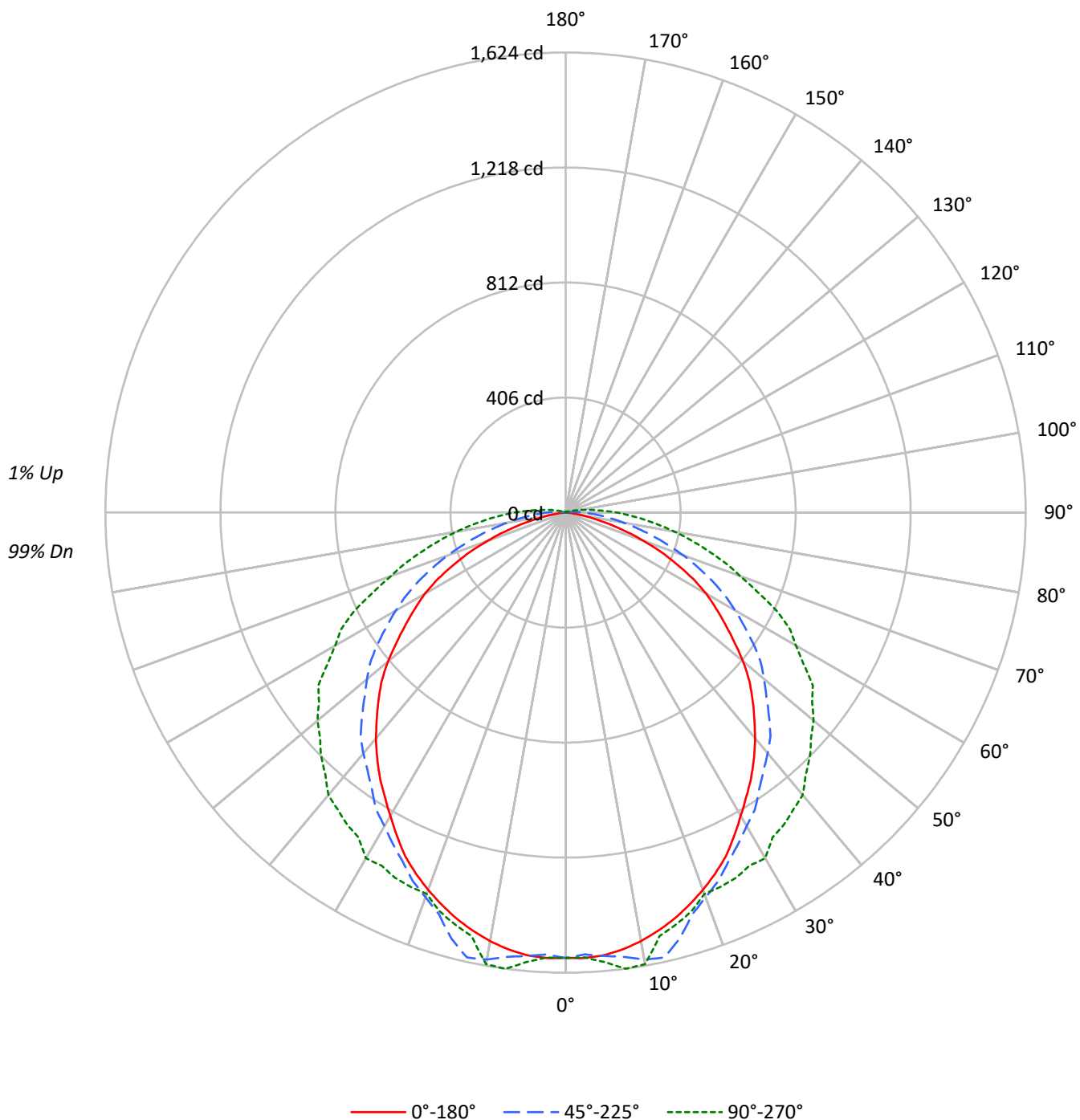
Input Watts (W): 44.2
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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°	8461	8461	8461
5°	8411	8355	8480
10°	8270	8490	8593
15°	8090	8280	8031
20°	7877	7776	7735
25°	7654	7458	7840
30°	7331	7205	7986
35°	7091	6967	7908
40°	6834	6793	8026
45°	6558	6564	7956
50°	6229	6323	7979
55°	5766	6065	8072
60°	5392	5703	7839
65°	4702	5267	7724
70°	3764	4691	7082
75°	2611	3984	6658
80°	1395	3272	6234
85°	465	2533	5868

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 55°

Luminance: 8072 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	151.1	3.2
10°-20°	430.3	9.1
20°-30°	640.2	13.5
30°-40°	769.5	16.2
40°-50°	810.0	17.1
50°-60°	751.6	15.9
60°-70°	594.3	12.5
70°-80°	363.0	7.7
80°-90°	158.1	3.3
90°-100°	49.2	1.0
100°-110°	11.0	0.2
110°-120°	4.4	0.1
120°-130°	2.5	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°	1221.6	25.8
0°-40°	1991.1	42.0
0°-60°	3552.7	75.0
0°-90°	4668.1	98.6
90°-120°	64.7	1.4
90°-150°	67.9	1.4
90°-180°	68.0	1.4
0°-180°	4735.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1572	1572	1572	1572	1572	
5°	1568	1565	1570	1588	1593	149
15°	1484	1541	1556	1505	1506	418
25°	1339	1424	1360	1400	1423	615
35°	1142	1174	1192	1300	1344	714
45°	934	938	1015	1176	1220	720
55°	688	699	810	987	1065	618
65°	435	449	570	755	823	431
75°	165	218	318	489	519	180
85°	15	51	124	240	276	23
90°	0	15	65	152	180	1
95°	0	4	28	84	102	0
105°	0	2	6	16	23	0
115°	0	1	4	7	8	0
125°	0	1	2	5	7	0
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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CATALOG NUMBER: HVL12-2-LD4-2HI-40-UNV-C-EDD

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1572.1	1572.1	1572.1	1572.1	1572.1
2.5°	1574.0	1569.9	1561.2	1569.5	1571.8
5°	1568.3	1565.0	1570.5	1588.1	1592.6
7.5°	1555.1	1567.3	1581.7	1613.7	1624.0
10°	1535.6	1558.6	1601.9	1629.1	1618.5
12.5°	1511.9	1551.0	1608.9	1555.8	1531.1
15°	1484.3	1541.4	1556.4	1504.8	1505.8
17.5°	1452.0	1533.3	1486.9	1485.6	1476.3
20°	1417.1	1506.4	1445.0	1442.4	1432.5
22.5°	1379.6	1470.9	1407.8	1402.7	1429.6
25°	1339.0	1424.5	1359.5	1400.1	1422.9
27.5°	1288.0	1363.6	1319.1	1376.7	1405.2
30°	1236.5	1300.8	1277.8	1358.2	1408.8
32.5°	1188.1	1235.2	1243.8	1351.1	1359.5
35°	1142.3	1174.0	1191.6	1299.9	1344.1
37.5°	1092.0	1100.7	1147.4	1278.4	1321.0
40°	1040.8	1035.4	1110.3	1243.2	1302.1
42.5°	985.7	983.8	1070.9	1225.6	1255.0
45°	933.5	937.7	1014.9	1175.6	1219.5
47.5°	880.0	885.5	961.7	1120.9	1175.3
50°	817.9	825.0	914.3	1072.2	1142.3
52.5°	750.7	764.1	868.2	1026.1	1096.8
55°	687.6	698.8	809.6	986.7	1065.1
57.5°	629.9	636.7	749.1	937.0	996.3
60°	573.2	574.8	692.1	882.0	938.6
62.5°	508.2	511.1	633.4	817.0	892.8
65°	435.2	449.0	570.4	754.8	823.4
67.5°	367.0	391.0	506.0	697.8	733.7
70°	294.0	334.7	442.9	630.9	656.2
72.5°	227.1	274.8	378.2	555.9	591.5
75°	164.6	218.1	318.0	488.7	519.4
77.5°	110.8	165.2	261.6	414.4	455.1
80°	66.3	120.7	211.4	345.5	391.3
82.5°	33.9	81.0	164.0	289.8	330.8
85°	14.7	51.2	123.9	240.5	276.1
87.5°	4.2	29.1	91.3	194.4	224.5
90°	0.3	15.4	65.0	152.4	179.7
92.5°	0.3	7.4	45.8	115.3	136.1
95°	0.3	3.8	28.5	83.6	102.2
97.5°	0.3	2.2	17.3	59.2	74.9
100°	0.3	1.9	10.2	39.4	53.5
102.5°	0.3	2.2	7.0	25.0	34.9
105°	0.3	2.2	5.8	16.3	23.1
107.5°	0.6	2.2	5.1	12.2	16.0
110°	0.3	1.9	5.4	9.3	12.5

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CATALOG NUMBER: HVL12-2-LD4-2HI-40-UNV-C-EDD

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.6	1.6	5.1	7.7	9.3
115°	0.3	1.3	4.5	7.4	7.7
117.5°	0.6	1.0	3.5	7.4	7.7
120°	0.6	0.6	2.9	7.0	8.0
122.5°	0.6	0.6	2.2	6.4	7.7
125°	0.3	0.6	1.9	4.8	6.7
127.5°	0.6	0.6	1.6	3.8	5.1
130°	0.6	0.6	1.3	2.9	3.8
132.5°	0.6	0.6	1.0	2.2	2.9
135°	0.6	0.6	0.6	1.6	2.2
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)