

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: P517491

Luminaire Tested: HVL12-4-LD4-2HI-40-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: P517491
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-4-LD4-2HI-40-UNV-C-EDD-90
Description: 4 FOOT, 12 INCH WIDE, HVL LED LUMINAIRE, WITH 4000K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 9472.0 lumens
Efficiency: N/A
Efficacy: 107.0 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

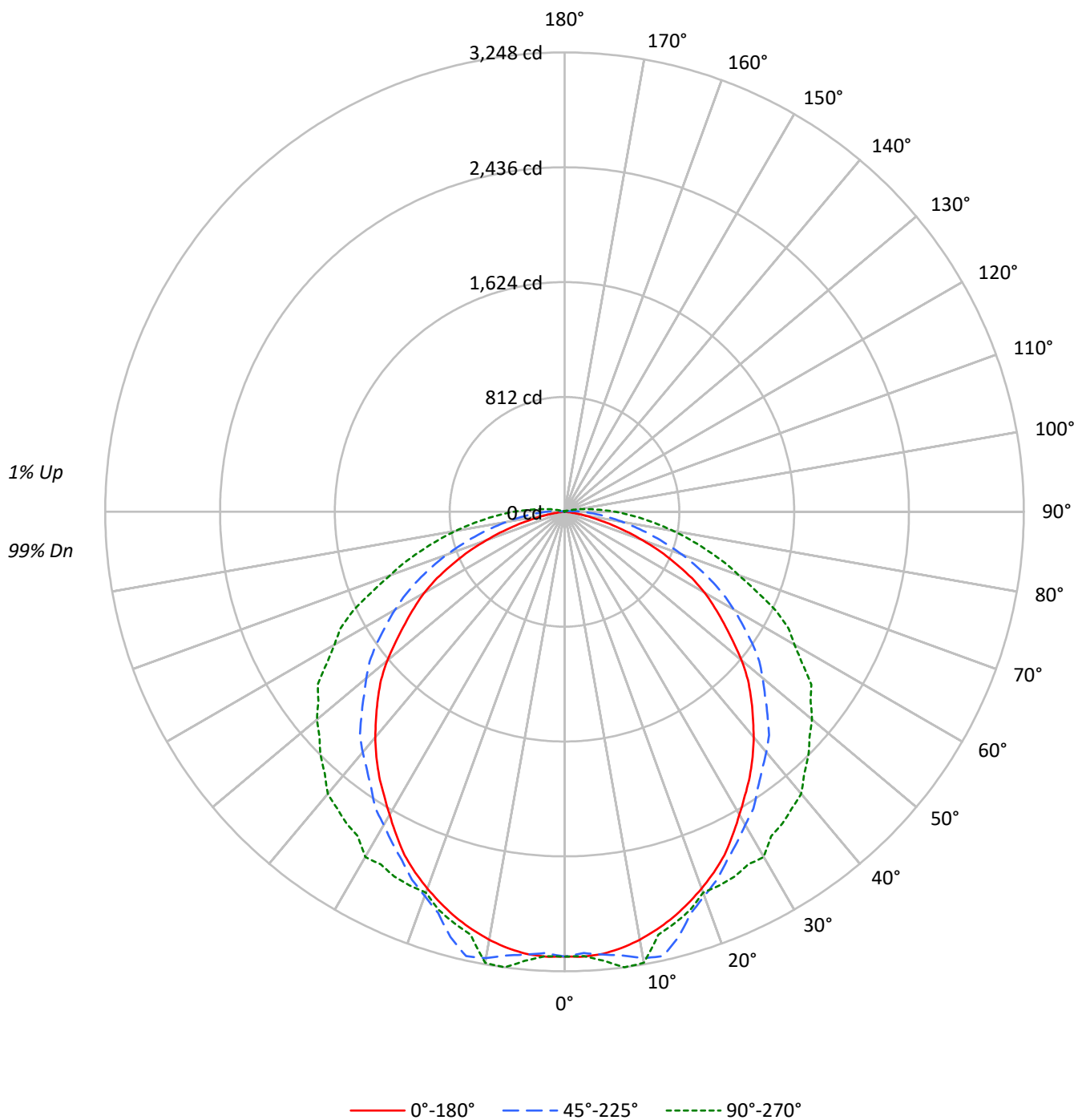
Input Watts (W): 88.5
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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°	8442	8377	8480
10°	8331	8533	8593
15°	8179	8343	8031
20°	7995	7855	7735
25°	7800	7554	7840
30°	7504	7318	7986
35°	7292	7097	7908
40°	7065	6942	8026
45°	6821	6732	7956
50°	6524	6512	7979
55°	6089	6276	8073
60°	5755	5935	7840
65°	5088	5519	7724
70°	4151	4961	7082
75°	2962	4266	6659
80°	1662	3569	6235
85°	617	2852	5867

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 55°

Luminance: 8073 cd/sqm

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CATALOG NUMBER: HVL12-4-LD4-2HI-40-UNV-C-EDD-90

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	302.2	3.2
10°-20°	860.6	9.1
20°-30°	1280.4	13.5
30°-40°	1539.1	16.2
40°-50°	1620.0	17.1
50°-60°	1503.2	15.9
60°-70°	1188.5	12.5
70°-80°	726.0	7.7
80°-90°	316.3	3.3
90°-100°	98.5	1.0
100°-110°	22.1	0.2
110°-120°	8.9	0.1
120°-130°	5.0	0.1
130°-140°	1.4	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°	2443.2	25.8
0°-40°	3982.3	42.0
0°-60°	7105.4	75.0
0°-90°	9336.2	98.6
90°-120°	129.5	1.4
90°-150°	135.8	1.4
90°-180°	136.0	1.4
0°-180°	9472.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3144	3144	3144	3144	3144	
5°	3136	3130	3141	3176	3185	297
15°	2969	3083	3113	3010	3012	836
25°	2678	2849	2719	2800	2846	1229
35°	2285	2348	2383	2600	2688	1428
45°	1867	1875	2030	2351	2439	1439
55°	1375	1398	1619	1973	2130	1236
65°	870	898	1141	1510	1647	862
75°	329	436	636	977	1039	359
85°	30	102	248	481	552	46
90°	1	31	130	305	359	1
95°	1	8	57	167	204	0
105°	1	4	12	33	46	1
115°	1	3	9	15	15	1
125°	1	1	4	10	14	1
135°	1	1	1	3	4	1
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

TEST NUMBER: P517491

CATALOG NUMBER: HVL12-4-LD4-2HI-40-UNV-C-EDD-90

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3144.2	3144.2	3144.2	3144.2	3144.2
2.5°	3148.0	3139.7	3122.4	3139.1	3143.5
5°	3136.5	3130.1	3141.0	3176.2	3185.2
7.5°	3110.2	3134.6	3163.4	3227.5	3247.9
10°	3071.2	3117.3	3203.8	3258.2	3237.1
12.5°	3023.8	3101.9	3217.8	3111.5	3062.2
15°	2968.7	3082.7	3112.8	3009.7	3011.6
17.5°	2904.0	3066.7	2973.8	2971.3	2952.7
20°	2834.2	3012.9	2889.9	2884.8	2864.9
22.5°	2759.3	2941.8	2815.6	2805.4	2859.2
25°	2677.9	2848.9	2718.9	2800.2	2845.7
27.5°	2576.1	2727.2	2638.2	2753.5	2810.5
30°	2473.0	2601.7	2555.6	2716.3	2817.5
32.5°	2376.2	2470.4	2487.7	2702.2	2718.9
35°	2284.6	2348.1	2383.3	2599.8	2688.2
37.5°	2184.1	2201.4	2294.9	2556.9	2642.0
40°	2081.6	2070.7	2220.6	2486.4	2604.3
42.5°	1971.4	1967.6	2141.8	2451.2	2510.1
45°	1867.0	1875.4	2029.7	2351.3	2439.0
47.5°	1760.1	1771.0	1923.4	2241.7	2350.6
50°	1635.8	1649.9	1828.6	2144.4	2284.6
52.5°	1501.3	1528.2	1736.4	2052.1	2193.7
55°	1375.1	1397.6	1619.2	1973.4	2130.3
57.5°	1259.9	1273.3	1498.1	1874.1	1992.6
60°	1146.5	1149.7	1384.1	1763.9	1877.3
62.5°	1016.5	1022.2	1266.9	1633.9	1785.7
65°	870.4	898.0	1140.7	1509.6	1646.7
67.5°	734.0	782.0	1012.0	1395.6	1467.4
70°	588.0	669.3	885.8	1261.8	1312.4
72.5°	454.1	549.5	756.4	1111.9	1183.0
75°	329.2	436.2	636.0	977.4	1038.9
77.5°	221.6	330.5	523.3	828.8	910.1
80°	132.6	241.5	422.7	691.1	782.7
82.5°	67.9	162.0	327.9	579.6	661.6
85°	29.5	102.5	247.9	481.0	552.1
87.5°	8.3	58.3	182.5	388.8	449.0
90°	0.6	30.7	130.0	304.9	359.3
92.5°	0.6	14.7	91.6	230.6	272.2
95°	0.6	7.7	57.0	167.2	204.3
97.5°	0.6	4.5	34.6	118.5	149.9
100°	0.6	3.8	20.5	78.8	107.0
102.5°	0.6	4.5	14.1	50.0	69.8
105°	0.6	4.5	11.5	32.7	46.1
107.5°	1.3	4.5	10.2	24.3	32.0
110°	0.6	3.8	10.9	18.6	25.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1.3	3.2	10.2	15.4	18.6
115°	0.6	2.6	9.0	14.7	15.4
117.5°	1.3	1.9	7.0	14.7	15.4
120°	1.3	1.3	5.8	14.1	16.0
122.5°	1.3	1.3	4.5	12.8	15.4
125°	0.6	1.3	3.8	9.6	13.5
127.5°	1.3	1.3	3.2	7.7	10.2
130°	1.3	1.3	2.6	5.8	7.7
132.5°	1.3	1.3	1.9	4.5	5.8
135°	1.3	1.3	1.3	3.2	4.5
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)