

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: P517496

Luminaire Tested: HVL12-4-LD4-2HI-50-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: P517496
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-4-LD4-2HI-50-UNV-C-EDD
Description: 4 FOOT, 12 INCH WIDE, HVL LED LUMINAIRE, WITH 5000K, 80 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 9632.0 lumens
Efficiency: N/A
Efficacy: 108.8 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

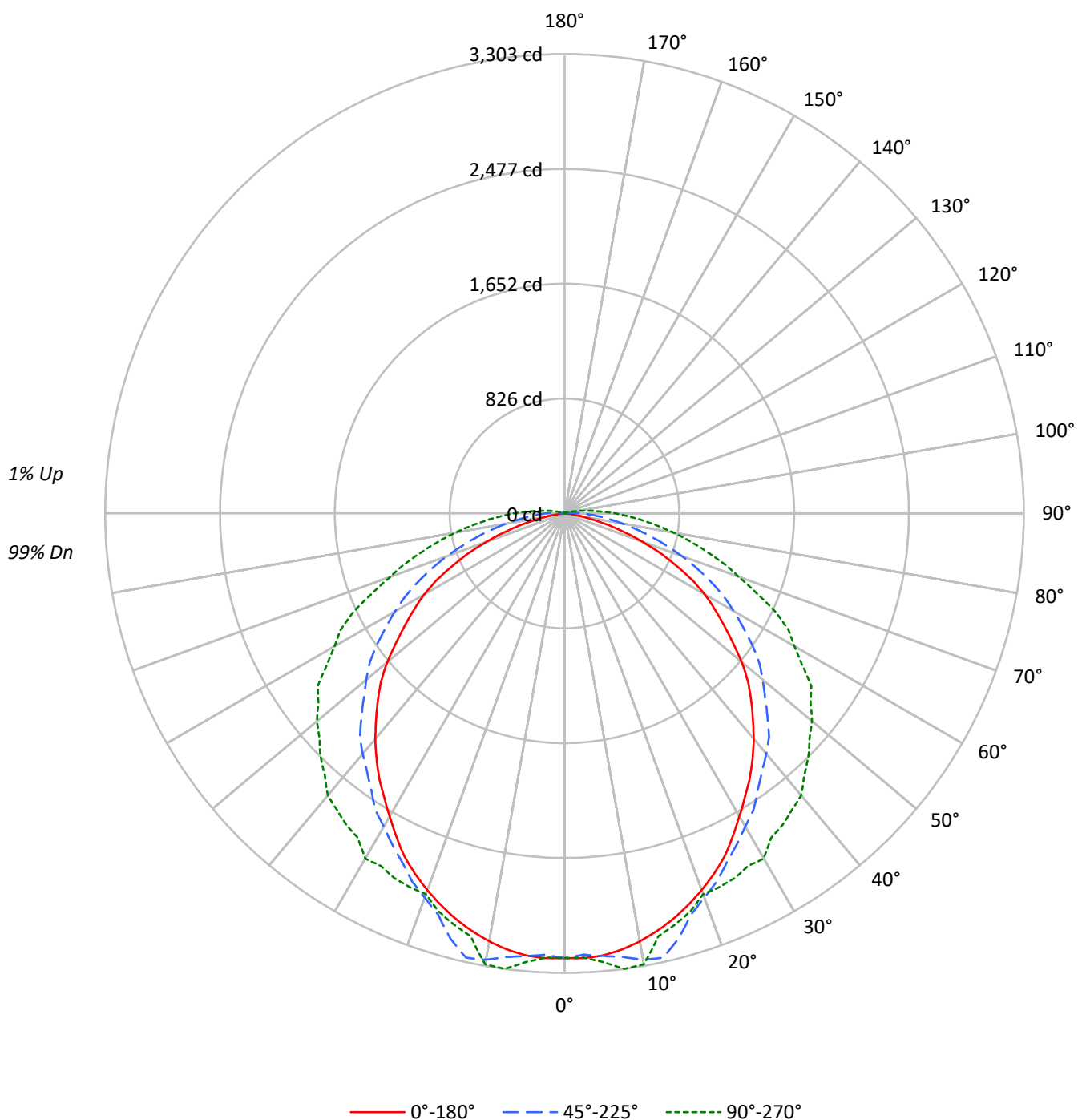
Input Watts (W): 88.5
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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°	8604	8604	8604
5°	8584	8518	8624
10°	8472	8677	8738
15°	8317	8484	8167
20°	8130	7987	7866
25°	7931	7681	7972
30°	7630	7442	8121
35°	7416	7217	8041
40°	7185	7059	8161
45°	6936	6846	8090
50°	6635	6622	8114
55°	6192	6382	8209
60°	5852	6035	7972
65°	5173	5613	7854
70°	4221	5045	7201
75°	3012	4339	6771
80°	1690	3629	6340
85°	627	2900	5966

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 55°

Luminance: 8209 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	307.3	3.2
10°-20°	875.1	9.1
20°-30°	1302.1	13.5
30°-40°	1565.1	16.2
40°-50°	1647.3	17.1
50°-60°	1528.5	15.9
60°-70°	1208.6	12.5
70°-80°	738.2	7.7
80°-90°	321.6	3.3
90°-100°	100.1	1.0
100°-110°	22.5	0.2
110°-120°	9.1	0.1
120°-130°	5.1	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°	2484.5	25.8
0°-40°	4049.5	42.0
0°-60°	7225.4	75.0
0°-90°	9493.9	98.6
90°-120°	131.7	1.4
90°-150°	138.2	1.4
90°-180°	138.0	1.4
0°-180°	9632.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3197	3197	3197	3197	3197	
5°	3190	3183	3194	3230	3239	302
15°	3019	3135	3165	3060	3062	850
25°	2723	2897	2765	2848	2894	1250
35°	2323	2388	2424	2644	2734	1452
45°	1899	1907	2064	2391	2480	1464
55°	1398	1421	1646	2007	2166	1256
65°	885	913	1160	1535	1674	877
75°	335	444	647	994	1056	365
85°	30	104	252	489	561	46
90°	1	31	132	310	365	1
95°	1	8	58	170	208	1
105°	1	5	12	33	47	1
115°	1	3	9	15	16	1
125°	1	1	4	10	14	1
135°	1	1	1	3	5	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

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3197.3	3197.3	3197.3	3197.3	3197.3
2.5°	3201.2	3192.7	3175.2	3192.1	3196.6
5°	3189.5	3183.0	3194.0	3229.9	3239.0
7.5°	3162.8	3187.5	3216.8	3282.0	3302.8
10°	3123.1	3169.9	3257.9	3313.2	3291.7
12.5°	3074.9	3154.3	3272.2	3164.1	3113.9
15°	3018.8	3134.8	3165.4	3060.5	3062.5
17.5°	2953.1	3118.5	3024.1	3021.4	3002.6
20°	2882.1	3063.8	2938.7	2933.5	2913.3
22.5°	2805.9	2991.5	2863.2	2852.8	2907.5
25°	2723.1	2897.0	2764.8	2847.5	2893.8
27.5°	2619.6	2773.3	2682.8	2800.0	2858.0
30°	2514.7	2645.6	2598.7	2762.2	2865.1
32.5°	2416.4	2512.1	2529.7	2747.9	2764.8
35°	2323.2	2387.7	2423.5	2643.7	2733.6
37.5°	2221.0	2238.6	2333.7	2600.0	2686.7
40°	2116.8	2105.7	2258.1	2528.4	2648.2
42.5°	2004.7	2000.8	2178.0	2492.6	2552.5
45°	1898.6	1907.0	2064.0	2391.0	2480.2
47.5°	1789.8	1800.9	1955.9	2279.6	2390.3
50°	1663.5	1677.8	1859.5	2180.6	2323.2
52.5°	1526.7	1554.0	1765.7	2086.8	2230.8
55°	1398.4	1421.2	1646.5	2006.7	2166.3
57.5°	1281.1	1294.8	1523.4	1905.7	2026.2
60°	1165.9	1169.1	1407.5	1793.7	1909.0
62.5°	1033.6	1039.5	1288.3	1661.5	1815.9
65°	885.1	913.1	1160.0	1535.1	1674.5
67.5°	746.4	795.3	1029.1	1419.2	1492.2
70°	597.9	680.6	900.8	1283.1	1334.5
72.5°	461.8	558.8	769.2	1130.7	1203.0
75°	334.8	443.5	646.8	993.9	1056.4
77.5°	225.4	336.1	532.1	842.8	925.5
80°	134.8	245.5	429.9	702.8	795.9
82.5°	69.0	164.8	333.5	589.4	672.8
85°	30.0	104.2	252.1	489.1	561.4
87.5°	8.5	59.3	185.6	395.3	456.6
90°	0.7	31.3	132.2	310.0	365.4
92.5°	0.7	15.0	93.1	234.5	276.8
95°	0.7	7.8	58.0	170.0	207.8
97.5°	0.7	4.6	35.2	120.5	152.4
100°	0.7	3.9	20.8	80.1	108.8
102.5°	0.7	4.6	14.3	50.8	71.0
105°	0.7	4.6	11.7	33.2	46.9
107.5°	1.3	4.6	10.4	24.7	32.6
110°	0.7	3.9	11.1	18.9	25.4

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1.3	3.3	10.4	15.6	18.9
115°	0.7	2.6	9.1	15.0	15.6
117.5°	1.3	2.0	7.2	15.0	15.6
120°	1.3	1.3	5.9	14.3	16.3
122.5°	1.3	1.3	4.6	13.0	15.6
125°	0.7	1.3	3.9	9.8	13.7
127.5°	1.3	1.3	3.3	7.8	10.4
130°	1.3	1.3	2.6	5.9	7.8
132.5°	1.3	1.3	2.0	4.6	5.9
135°	1.3	1.3	1.3	3.3	4.6
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)