

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: P518135

Luminaire Tested: HVL8-4-LD4-3LO-50-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: P518135
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-4-LD4-3LO-50-UNV-C-EDD-90
Description: 4 FOOT, 8 INCH WIDE, HVL LED LUMINAIRE, WITH 5000K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 8777.1 lumens
Efficiency: N/A
Efficacy: 130.2 lumens/watt
Spacing Criteria (0/90/45): 1.18 / 1.32 / 1.37
Luminous Opening: Rectangular w/ Sides (W: 0.67' x L: 4' x H: 0.17')
CIE Type: Direct

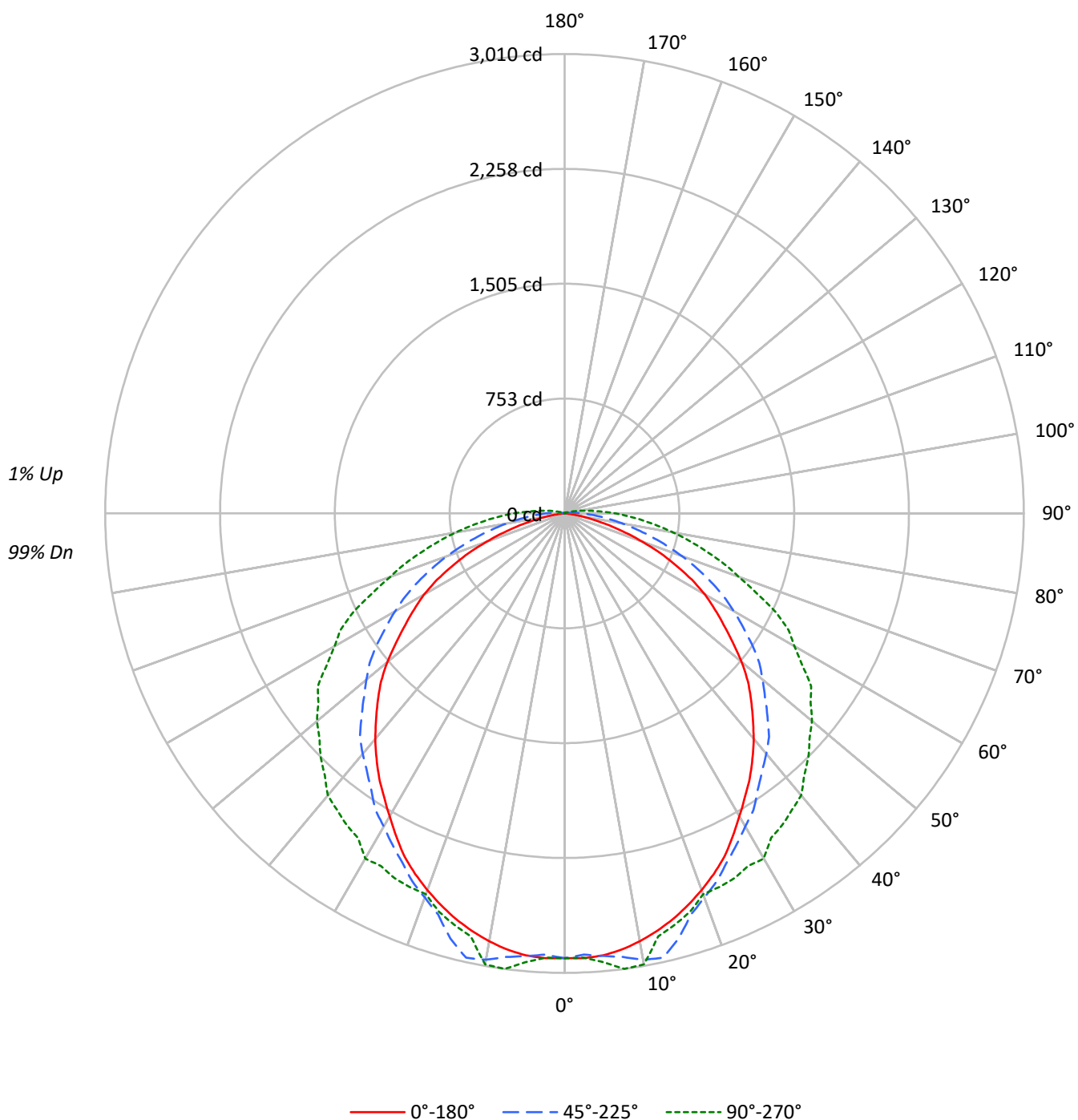
Input Watts (W): 67.4
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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					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°	11760	11760	11760
5°	11734	11584	11703
10°	11579	11741	11775
15°	11369	11422	10929
20°	11112	10700	10452
25°	10841	10236	10518
30°	10430	9863	10634
35°	10136	9509	10445
40°	9820	9243	10510
45°	9480	8900	10320
50°	9068	8541	10242
55°	8463	8156	10236
60°	7999	7629	9799
65°	7072	6999	9487
70°	5769	6183	8508
75°	4118	5193	7766
80°	2311	4196	6972
85°	856	3168	6141

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 10320 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	280.0	3.2
10°-20°	797.4	9.1
20°-30°	1186.5	13.5
30°-40°	1426.2	16.2
40°-50°	1501.1	17.1
50°-60°	1392.9	15.9
60°-70°	1101.3	12.5
70°-80°	672.7	7.7
80°-90°	293.1	3.3
90°-100°	91.3	1.0
100°-110°	20.5	0.2
110°-120°	8.2	0.1
120°-130°	4.6	0.1
130°-140°	1.3	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°	2263.9	25.8
0°-40°	3690.1	42.0
0°-60°	6584.0	75.0
0°-90°	8651.1	98.6
90°-120°	120.0	1.4
90°-150°	125.9	1.4
90°-180°	126.0	1.4
0°-180°	8777.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2914	2914	2914	2914	2914	
5°	2906	2900	2910	2943	2952	275
15°	2751	2856	2884	2789	2791	775
25°	2481	2640	2519	2595	2637	1139
35°	2117	2176	2208	2409	2491	1323
45°	1730	1738	1881	2179	2260	1334
55°	1274	1295	1500	1829	1974	1145
65°	807	832	1057	1399	1526	799
75°	305	404	589	906	963	333
85°	27	95	230	446	512	42
90°	1	28	120	282	333	1
95°	1	7	53	155	189	0
105°	1	4	11	30	43	1
115°	1	2	8	14	14	1
125°	1	1	4	9	12	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

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2913.5	2913.5	2913.5	2913.5	2913.5
2.5°	2917.0	2909.3	2893.3	2908.7	2912.9
5°	2906.4	2900.4	2910.5	2943.2	2951.5
7.5°	2882.0	2904.6	2931.3	2990.6	3009.6
10°	2845.8	2888.6	2968.7	3019.1	2999.5
12.5°	2801.9	2874.3	2981.7	2883.2	2837.5
15°	2750.9	2856.5	2884.4	2788.9	2790.6
17.5°	2690.9	2841.7	2755.6	2753.2	2736.0
20°	2626.2	2791.8	2677.9	2673.1	2654.7
22.5°	2556.8	2725.9	2609.0	2599.5	2649.4
25°	2481.4	2639.9	2519.4	2594.8	2636.9
27.5°	2387.1	2527.1	2444.6	2551.5	2604.3
30°	2291.5	2410.8	2368.1	2517.0	2610.8
32.5°	2201.9	2289.1	2305.2	2504.0	2519.4
35°	2117.0	2175.8	2208.4	2409.0	2490.9
37.5°	2023.8	2039.9	2126.5	2369.2	2448.2
40°	1928.9	1918.8	2057.7	2304.0	2413.2
42.5°	1826.8	1823.2	1984.7	2271.3	2325.9
45°	1730.0	1737.8	1880.8	2178.7	2260.0
47.5°	1630.9	1641.0	1782.3	2077.2	2178.1
50°	1515.8	1528.9	1694.4	1987.0	2117.0
52.5°	1391.2	1416.1	1609.0	1901.6	2032.7
55°	1274.2	1295.0	1500.4	1828.6	1974.0
57.5°	1167.4	1179.9	1388.2	1736.6	1846.4
60°	1062.4	1065.3	1282.6	1634.5	1739.5
62.5°	941.9	947.2	1173.9	1514.0	1654.7
65°	806.6	832.1	1057.0	1398.9	1525.9
67.5°	680.1	724.7	937.7	1293.2	1359.7
70°	544.8	620.2	820.8	1169.2	1216.1
72.5°	420.8	509.2	700.9	1030.3	1096.2
75°	305.1	404.2	589.3	905.7	962.7
77.5°	205.4	306.2	484.9	768.0	843.4
80°	122.9	223.7	391.7	640.4	725.3
82.5°	62.9	150.2	303.9	537.1	613.1
85°	27.3	95.0	229.7	445.7	511.6
87.5°	7.7	54.0	169.1	360.3	416.0
90°	0.6	28.5	120.5	282.5	333.0
92.5°	0.6	13.7	84.9	213.7	252.2
95°	0.6	7.1	52.8	154.9	189.3
97.5°	0.6	4.2	32.0	109.8	138.9
100°	0.6	3.6	19.0	73.0	99.1
102.5°	0.6	4.2	13.1	46.3	64.7
105°	0.6	4.2	10.7	30.3	42.7
107.5°	1.2	4.2	9.5	22.6	29.7
110°	0.6	3.6	10.1	17.2	23.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1.2	3.0	9.5	14.2	17.2
115°	0.6	2.4	8.3	13.7	14.2
117.5°	1.2	1.8	6.5	13.7	14.2
120°	1.2	1.2	5.3	13.1	14.8
122.5°	1.2	1.2	4.2	11.9	14.2
125°	0.6	1.2	3.6	8.9	12.5
127.5°	1.2	1.2	3.0	7.1	9.5
130°	1.2	1.2	2.4	5.3	7.1
132.5°	1.2	1.2	1.8	4.2	5.3
135°	1.2	1.2	1.2	3.0	4.2
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)