

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: P518139

Luminaire Tested: HVL8-4-LD4-3STD-30-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: P518139
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-4-LD4-3STD-30-UNV-C-EDD-90
Description: 4 FOOT, 8 INCH WIDE, HVL LED LUMINAIRE, WITH 3000K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 10487.0 lumens
Efficiency: N/A
Efficacy: 109.8 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

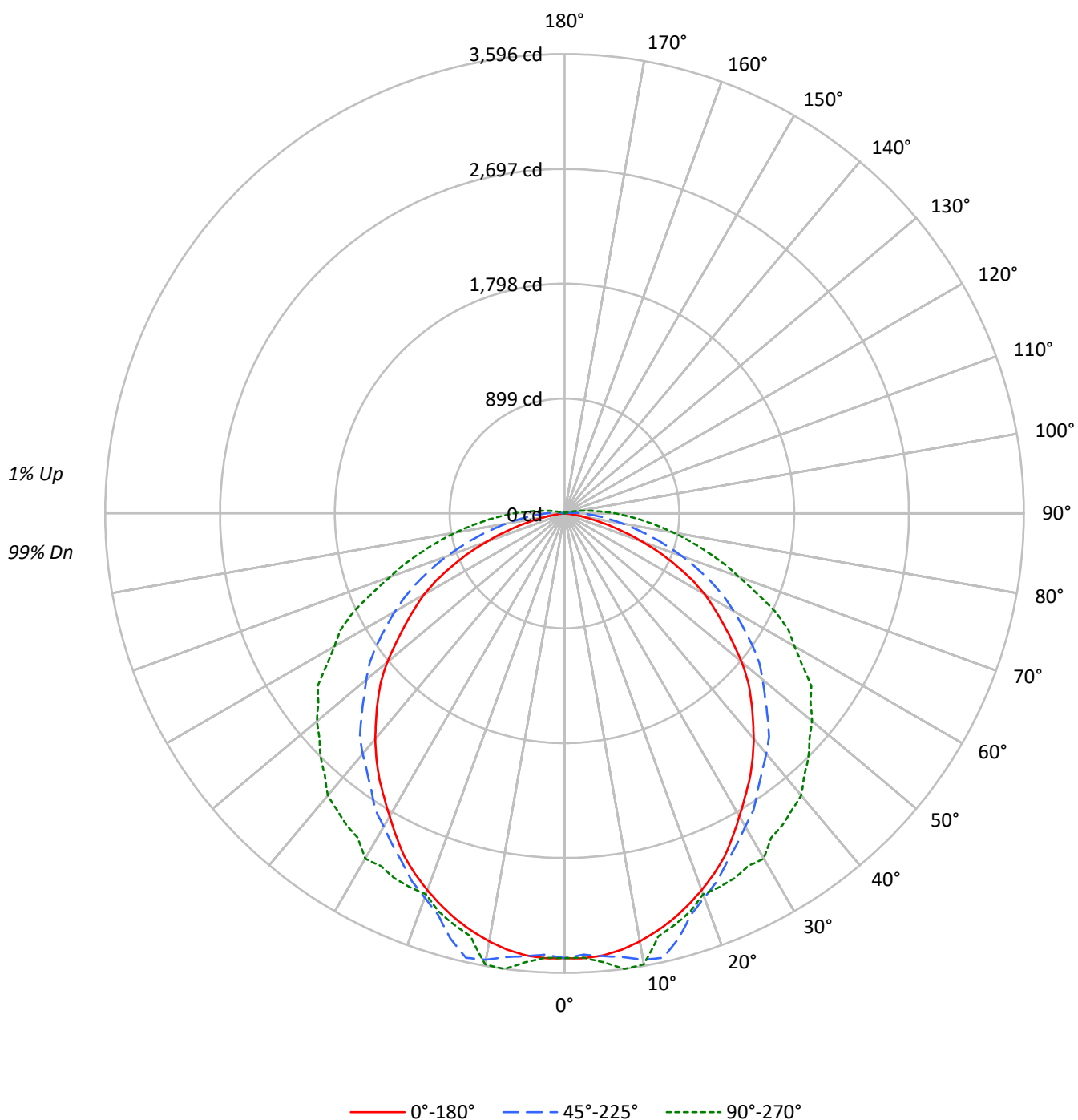
Input Watts (W): 95.5
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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°	14051	14051	14051
5°	14019	13841	13983
10°	13835	14028	14069
15°	13583	13648	13059
20°	13278	12784	12488
25°	12953	12231	12567
30°	12461	11784	12705
35°	12111	11361	12480
40°	11734	11043	12558
45°	11328	10634	12332
50°	10835	10205	12238
55°	10113	9745	12231
60°	9557	9114	11709
65°	8449	8363	11335
70°	6894	7387	10165
75°	4919	6205	9279
80°	2760	5014	8331
85°	1023	3785	7338

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 12332 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	334.6	3.2
10°-20°	952.8	9.1
20°-30°	1417.6	13.5
30°-40°	1704.0	16.2
40°-50°	1793.6	17.1
50°-60°	1664.2	15.9
60°-70°	1315.9	12.5
70°-80°	803.8	7.7
80°-90°	350.2	3.3
90°-100°	109.0	1.0
100°-110°	24.5	0.2
110°-120°	9.8	0.1
120°-130°	5.5	0.1
130°-140°	1.5	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°	2705.0	25.8
0°-40°	4409.0	42.0
0°-60°	7866.8	75.0
0°-90°	10336.6	98.6
90°-120°	143.4	1.4
90°-150°	150.4	1.4
90°-180°	150.0	1.4
0°-180°	10487.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3481	3481	3481	3481	3481	
5°	3473	3466	3478	3517	3526	329
15°	3287	3413	3446	3332	3334	926
25°	2965	3154	3010	3100	3151	1361
35°	2530	2600	2639	2878	2976	1581
45°	2067	2076	2247	2603	2700	1593
55°	1522	1547	1793	2185	2359	1368
65°	964	994	1263	1671	1823	954
75°	364	483	704	1082	1150	398
85°	33	114	274	533	611	50
90°	1	34	144	338	398	2
95°	1	8	63	185	226	1
105°	1	5	13	36	51	1
115°	1	3	10	16	17	1
125°	1	1	4	11	15	1
135°	1	1	1	4	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°	3481.1	3481.1	3481.1	3481.1	3481.1
2.5°	3485.4	3476.1	3457.0	3475.4	3480.4
5°	3472.6	3465.5	3477.6	3516.6	3526.5
7.5°	3443.5	3470.5	3502.4	3573.3	3596.0
10°	3400.3	3451.3	3547.1	3607.3	3583.9
12.5°	3347.8	3434.3	3562.7	3444.9	3390.3
15°	3286.8	3413.0	3446.4	3332.2	3334.3
17.5°	3215.2	3395.3	3292.5	3289.6	3269.1
20°	3137.9	3335.7	3199.6	3193.9	3171.9
22.5°	3054.9	3257.0	3117.3	3106.0	3165.6
25°	2964.9	3154.2	3010.3	3100.3	3150.7
27.5°	2852.1	3019.5	2920.9	3048.5	3111.7
30°	2737.9	2880.5	2829.4	3007.4	3119.5
32.5°	2630.9	2735.1	2754.3	2991.8	3010.3
35°	2529.5	2599.7	2638.7	2878.4	2976.2
37.5°	2418.1	2437.3	2540.8	2830.8	2925.2
40°	2304.7	2292.6	2458.5	2752.8	2883.3
42.5°	2182.7	2178.4	2371.3	2713.8	2779.1
45°	2067.1	2076.3	2247.2	2603.2	2700.4
47.5°	1948.7	1960.7	2129.5	2482.0	2602.5
50°	1811.1	1826.7	2024.6	2374.2	2529.5
52.5°	1662.2	1692.0	1922.4	2272.0	2428.8
55°	1522.5	1547.3	1792.7	2184.8	2358.6
57.5°	1394.9	1409.7	1658.7	2074.9	2206.1
60°	1269.3	1272.9	1532.4	1952.9	2078.5
62.5°	1125.4	1131.8	1402.7	1809.0	1977.1
65°	963.7	994.2	1263.0	1671.4	1823.2
67.5°	812.7	865.8	1120.4	1545.2	1624.6
70°	651.0	741.0	980.7	1397.0	1453.0
72.5°	502.8	608.4	837.5	1231.0	1309.8
75°	364.5	482.9	704.2	1082.1	1150.2
77.5°	245.4	365.9	579.4	917.6	1007.7
80°	146.8	267.3	468.0	765.2	866.6
82.5°	75.2	179.4	363.1	641.8	732.5
85°	32.6	113.5	274.4	532.6	611.3
87.5°	9.2	64.5	202.1	430.4	497.1
90°	0.7	34.0	144.0	337.5	397.8
92.5°	0.7	16.3	101.4	255.3	301.4
95°	0.7	8.5	63.1	185.1	226.2
97.5°	0.7	5.0	38.3	131.2	165.9
100°	0.7	4.3	22.7	87.2	118.4
102.5°	0.7	5.0	15.6	55.3	77.3
105°	0.7	5.0	12.8	36.2	51.1
107.5°	1.4	5.0	11.3	26.9	35.5
110°	0.7	4.3	12.1	20.6	27.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1.4	3.5	11.3	17.0	20.6
115°	0.7	2.8	9.9	16.3	17.0
117.5°	1.4	2.1	7.8	16.3	17.0
120°	1.4	1.4	6.4	15.6	17.7
122.5°	1.4	1.4	5.0	14.2	17.0
125°	0.7	1.4	4.3	10.6	14.9
127.5°	1.4	1.4	3.5	8.5	11.3
130°	1.4	1.4	2.8	6.4	8.5
132.5°	1.4	1.4	2.1	5.0	6.4
135°	1.4	1.4	1.4	3.5	5.0
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)