

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: P518151

Luminaire Tested: HVL8-4-LD4-3STD-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: P518151
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-4-LD4-3STD-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: 11306.0 lumens
Efficiency: N/A
Efficacy: 118.4 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

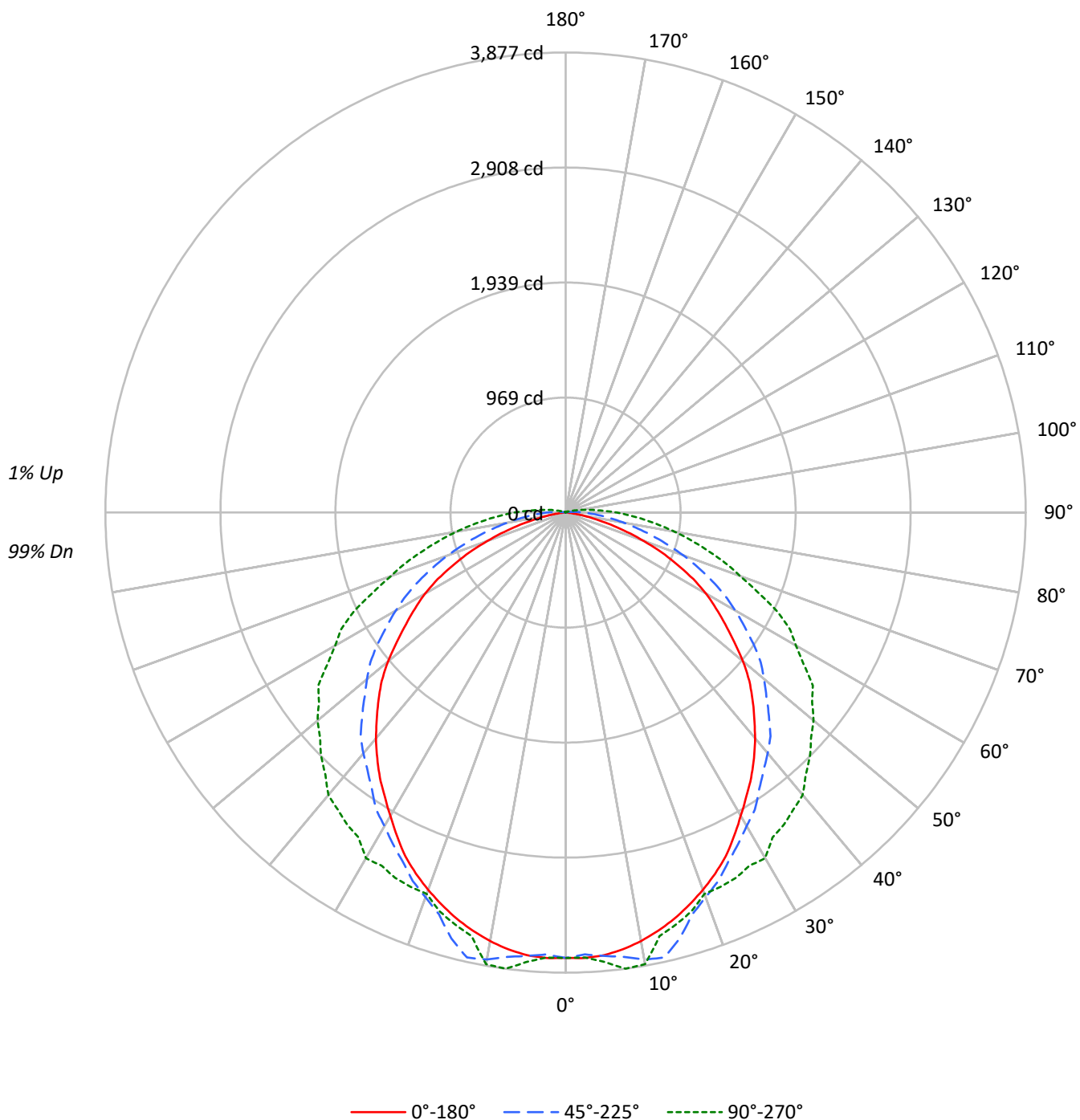
Input Watts (W): 95.5
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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°	15149	15149	15149
5°	15114	14922	15075
10°	14916	15124	15168
15°	14644	14713	14078
20°	14315	13783	13464
25°	13965	13185	13548
30°	13435	12705	13698
35°	13057	12248	13455
40°	12650	11906	13539
45°	12212	11465	13295
50°	11681	11002	13193
55°	10902	10506	13186
60°	10304	9826	12623
65°	9109	9016	12221
70°	7432	7964	10959
75°	5304	6690	10003
80°	2976	5406	8980
85°	1104	4081	7911

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 13295 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	360.7	3.2
10°-20°	1027.2	9.1
20°-30°	1528.4	13.5
30°-40°	1837.1	16.2
40°-50°	1933.6	17.1
50°-60°	1794.2	15.9
60°-70°	1418.6	12.5
70°-80°	866.5	7.7
80°-90°	377.5	3.3
90°-100°	117.5	1.0
100°-110°	26.4	0.2
110°-120°	10.6	0.1
120°-130°	6.0	0.1
130°-140°	1.6	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°	2916.3	25.8
0°-40°	4753.3	42.0
0°-60°	8481.2	75.0
0°-90°	11143.9	98.6
90°-120°	154.6	1.4
90°-150°	162.1	1.4
90°-180°	162.0	1.4
0°-180°	11306.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3753	3753	3753	3753	3753	
5°	3744	3736	3749	3791	3802	355
15°	3544	3680	3716	3592	3595	998
25°	3196	3400	3245	3342	3397	1467
35°	2727	2803	2845	3103	3209	1704
45°	2228	2238	2423	2806	2911	1718
55°	1641	1668	1933	2356	2543	1475
65°	1039	1072	1362	1802	1966	1029
75°	393	521	759	1167	1240	429
85°	35	122	296	574	659	54
90°	1	37	155	364	429	2
95°	1	9	68	200	244	1
105°	1	5	14	39	55	1
115°	1	3	11	18	18	1
125°	1	2	5	12	16	1
135°	2	2	2	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°	3753.0	3753.0	3753.0	3753.0	3753.0
2.5°	3757.6	3747.6	3727.0	3746.9	3752.2
5°	3743.8	3736.2	3749.2	3791.2	3801.9
7.5°	3712.5	3741.5	3775.9	3852.4	3876.8
10°	3665.8	3720.9	3824.1	3889.1	3863.8
12.5°	3609.2	3702.5	3840.9	3714.0	3655.1
15°	3543.5	3679.6	3715.5	3592.4	3594.7
17.5°	3466.3	3660.5	3549.6	3546.6	3524.4
20°	3383.0	3596.3	3449.5	3443.4	3419.7
22.5°	3293.5	3511.4	3360.8	3348.6	3412.8
25°	3196.4	3400.5	3245.3	3342.4	3396.7
27.5°	3074.9	3255.3	3149.0	3286.6	3354.7
30°	2951.8	3105.4	3050.4	3242.3	3363.1
32.5°	2836.3	2948.7	2969.4	3225.5	3245.3
35°	2727.0	2802.7	2844.7	3103.1	3208.6
37.5°	2607.0	2627.6	2739.2	3051.9	3153.6
40°	2484.7	2471.7	2650.6	2967.8	3108.5
42.5°	2353.2	2348.6	2556.5	2925.8	2996.1
45°	2228.5	2238.5	2422.7	2806.5	2911.3
47.5°	2100.9	2113.9	2295.8	2675.8	2805.7
50°	1952.6	1969.4	2182.7	2559.6	2727.0
52.5°	1792.0	1824.1	2072.6	2449.5	2618.4
55°	1641.4	1668.2	1932.7	2355.5	2542.8
57.5°	1503.8	1519.8	1788.2	2237.0	2378.4
60°	1368.5	1372.3	1652.1	2105.5	2240.8
62.5°	1213.3	1220.2	1512.2	1950.3	2131.5
65°	1039.0	1071.8	1361.6	1801.9	1965.6
67.5°	876.1	933.5	1207.9	1665.9	1751.5
70°	701.8	798.9	1057.3	1506.1	1566.5
72.5°	542.0	655.9	902.9	1327.2	1412.0
75°	393.0	520.6	759.2	1166.6	1240.0
77.5°	264.5	394.5	624.6	989.3	1086.4
80°	158.3	288.2	504.6	824.9	934.2
82.5°	81.0	193.4	391.4	691.9	789.7
85°	35.2	122.3	295.9	574.1	659.0
87.5°	9.9	69.6	217.9	464.1	535.9
90°	0.8	36.7	155.2	363.9	428.9
92.5°	0.8	17.6	109.3	275.2	324.9
95°	0.8	9.2	68.0	199.5	243.9
97.5°	0.8	5.4	41.3	141.4	178.9
100°	0.8	4.6	24.5	94.0	127.7
102.5°	0.8	5.4	16.8	59.6	83.3
105°	0.8	5.4	13.8	39.0	55.0
107.5°	1.5	5.4	12.2	29.1	38.2
110°	0.8	4.6	13.0	22.2	29.8

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1.5	3.8	12.2	18.3	22.2
115°	0.8	3.1	10.7	17.6	18.3
117.5°	1.5	2.3	8.4	17.6	18.3
120°	1.5	1.5	6.9	16.8	19.1
122.5°	1.5	1.5	5.4	15.3	18.3
125°	0.8	1.5	4.6	11.5	16.1
127.5°	1.5	1.5	3.8	9.2	12.2
130°	1.5	1.5	3.1	6.9	9.2
132.5°	1.5	1.5	2.3	5.4	6.9
135°	1.5	1.5	1.5	3.8	5.4
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)