

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: P518143

Luminaire Tested: HVL8-4-LD4-3STD-35-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: P518143
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-4-LD4-3STD-35-UNV-C-EDD-90
Description: 4 FOOT, 8 INCH WIDE, HVL LED LUMINAIRE, WITH 3500K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 11007.0 lumens
Efficiency: N/A
Efficacy: 115.3 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

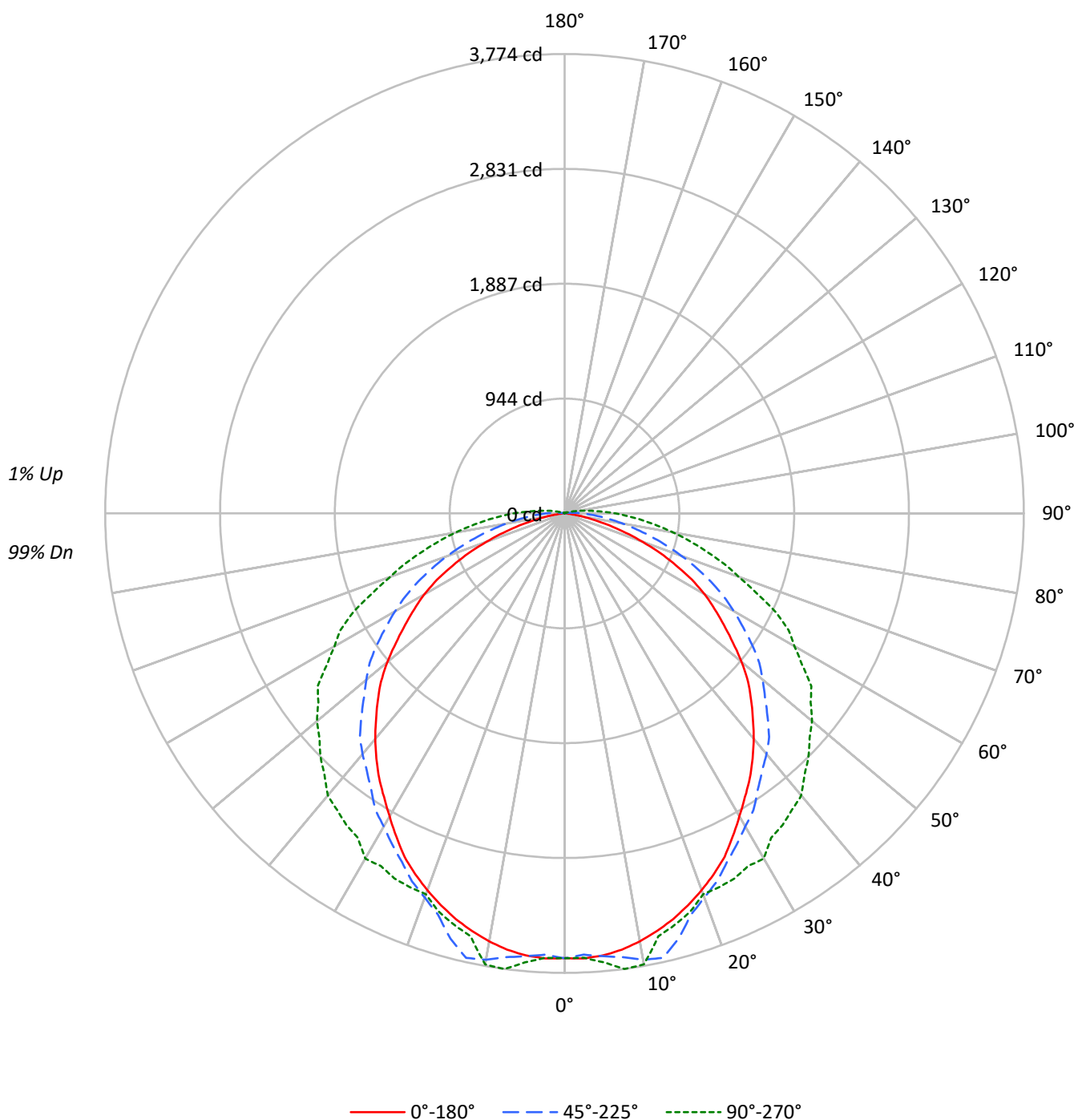
Input Watts (W): 95.5
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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°	14748	14748	14748
5°	14715	14527	14677
10°	14521	14724	14767
15°	14257	14324	13706
20°	13936	13418	13108
25°	13595	12837	13190
30°	13079	12368	13335
35°	12711	11925	13099
40°	12315	11591	13181
45°	11890	11162	12943
50°	11372	10711	12844
55°	10614	10228	12837
60°	10031	9567	12289
65°	8868	8778	11897
70°	7236	7754	10669
75°	5164	6513	9739
80°	2897	5262	8743
85°	1073	3972	7702

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 12943 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	351.2	3.2
10°-20°	1000.0	9.1
20°-30°	1487.9	13.5
30°-40°	1788.5	16.2
40°-50°	1882.5	17.1
50°-60°	1746.8	15.9
60°-70°	1381.1	12.5
70°-80°	843.6	7.7
80°-90°	367.6	3.3
90°-100°	114.4	1.0
100°-110°	25.7	0.2
110°-120°	10.3	0.1
120°-130°	5.8	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°	2839.1	25.8
0°-40°	4627.6	42.0
0°-60°	8256.9	75.0
0°-90°	10849.2	98.6
90°-120°	150.5	1.4
90°-150°	157.8	1.4
90°-180°	158.0	1.4
0°-180°	11007.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3654	3654	3654	3654	3654	
5°	3645	3637	3650	3691	3701	345
15°	3450	3582	3617	3497	3500	972
25°	3112	3311	3160	3254	3307	1429
35°	2655	2729	2770	3021	3124	1659
45°	2170	2179	2359	2732	2834	1672
55°	1598	1624	1882	2293	2476	1436
65°	1012	1044	1326	1754	1914	1002
75°	383	507	739	1136	1207	418
85°	34	119	288	559	642	53
90°	1	36	151	354	418	2
95°	1	9	66	194	237	1
105°	1	5	13	38	54	1
115°	1	3	10	17	18	1
125°	1	2	4	11	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°	3653.7	3653.7	3653.7	3653.7	3653.7
2.5°	3658.2	3648.5	3628.4	3647.8	3653.0
5°	3644.8	3637.4	3650.0	3690.9	3701.4
7.5°	3614.3	3642.6	3676.1	3750.5	3774.3
10°	3568.9	3622.5	3722.9	3786.2	3761.6
12.5°	3513.8	3604.6	3739.3	3615.8	3558.5
15°	3449.8	3582.3	3617.3	3497.4	3499.7
17.5°	3374.6	3563.7	3455.7	3452.8	3431.2
20°	3293.5	3501.1	3358.2	3352.3	3329.2
22.5°	3206.4	3418.5	3271.9	3260.0	3322.5
25°	3111.9	3310.6	3159.5	3254.0	3306.9
27.5°	2993.5	3169.2	3065.7	3199.7	3265.9
30°	2873.7	3023.3	2969.7	3156.5	3274.1
32.5°	2761.3	2870.7	2890.8	3140.2	3159.5
35°	2654.9	2728.6	2769.5	3021.1	3123.8
37.5°	2538.0	2558.1	2666.8	2971.2	3070.2
40°	2418.9	2406.3	2580.5	2889.3	3026.3
42.5°	2290.9	2286.5	2488.9	2848.4	2916.9
45°	2169.6	2179.3	2358.7	2732.3	2834.3
47.5°	2045.3	2058.0	2235.1	2605.0	2731.5
50°	1900.9	1917.3	2125.0	2491.9	2654.9
52.5°	1744.6	1775.9	2017.8	2384.7	2549.2
55°	1598.0	1624.0	1881.6	2293.2	2475.5
57.5°	1464.0	1479.7	1740.9	2177.8	2315.5
60°	1332.3	1336.0	1608.4	2049.8	2181.5
62.5°	1181.2	1187.9	1472.2	1898.7	2075.1
65°	1011.5	1043.5	1325.6	1754.3	1913.6
67.5°	853.0	908.8	1176.0	1621.8	1705.2
70°	683.3	777.8	1029.4	1466.3	1525.1
72.5°	527.7	638.6	879.0	1292.1	1374.7
75°	382.6	506.9	739.1	1135.8	1207.2
77.5°	257.5	384.1	608.1	963.1	1057.6
80°	154.1	280.6	491.2	803.1	909.5
82.5°	78.9	188.3	381.1	673.6	768.9
85°	34.2	119.1	288.0	559.0	641.6
87.5°	9.7	67.7	212.1	451.8	521.7
90°	0.7	35.7	151.1	354.3	417.5
92.5°	0.7	17.1	106.4	267.9	316.3
95°	0.7	8.9	66.2	194.3	237.4
97.5°	0.7	5.2	40.2	137.7	174.2
100°	0.7	4.5	23.8	91.5	124.3
102.5°	0.7	5.2	16.4	58.1	81.1
105°	0.7	5.2	13.4	38.0	53.6
107.5°	1.5	5.2	11.9	28.3	37.2
110°	0.7	4.5	12.7	21.6	29.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1.5	3.7	11.9	17.9	21.6
115°	0.7	3.0	10.4	17.1	17.9
117.5°	1.5	2.2	8.2	17.1	17.9
120°	1.5	1.5	6.7	16.4	18.6
122.5°	1.5	1.5	5.2	14.9	17.9
125°	0.7	1.5	4.5	11.2	15.6
127.5°	1.5	1.5	3.7	8.9	11.9
130°	1.5	1.5	3.0	6.7	8.9
132.5°	1.5	1.5	2.2	5.2	6.7
135°	1.5	1.5	1.5	3.7	5.2
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)