

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: P517860

Luminaire Tested: HVL8-1-LD4-3STD-40-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: P517860
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-1-LD4-3STD-40-UNV-C-EDD
Description: 1 FOOT, 8 INCH WIDE, HVL LED LUMINAIRE, WITH 4000K, 80 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2779.0 lumens
Efficiency: N/A
Efficacy: 116.3 lumens/watt
Spacing Criteria (0/90/45): 1.18 / 1.32 / 1.37
Luminous Opening: Rectangular w/ Sides (W: 0.67' x L: 1' x H: 0.17')
CIE Type: Direct

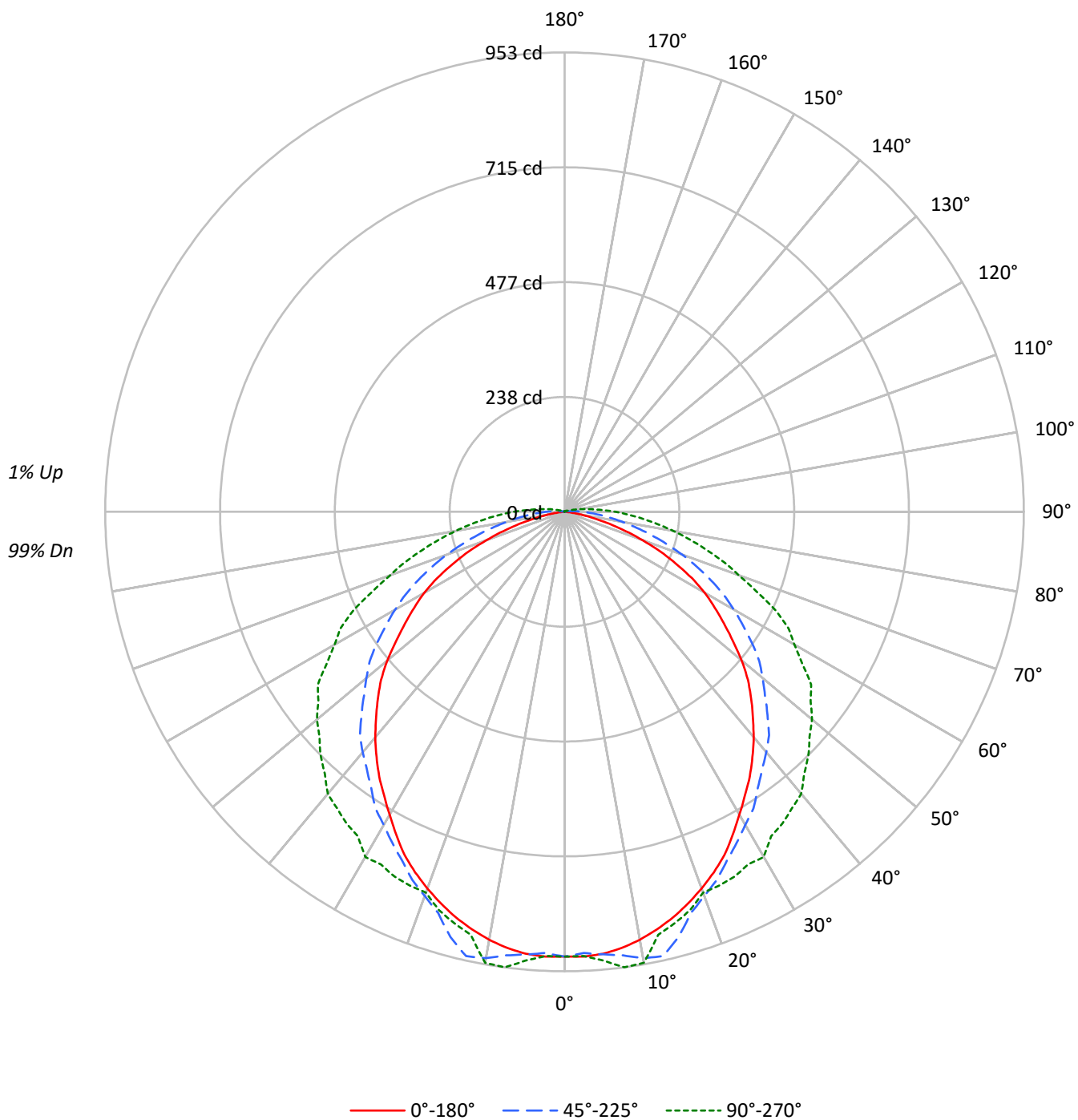
Input Watts (W): 23.9
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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°	14895	14895	14895
5°	14700	14560	14822
10°	14352	14650	14913
15°	13937	14149	13842
20°	13470	13157	13237
25°	12988	12494	13321
30°	12338	11946	13467
35°	11831	11424	13229
40°	11292	11009	13312
45°	10721	10503	13071
50°	10056	9973	12971
55°	9174	9413	12964
60°	8429	8682	12411
65°	7188	7835	12014
70°	5585	6780	10773
75°	3715	5544	9836
80°	1859	4316	8829
85°	548	3083	7779

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 13071 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	88.7	3.2
10°-20°	252.5	9.1
20°-30°	375.7	13.5
30°-40°	451.6	16.2
40°-50°	475.3	17.1
50°-60°	441.0	15.9
60°-70°	348.7	12.5
70°-80°	213.0	7.7
80°-90°	92.8	3.3
90°-100°	28.9	1.0
100°-110°	6.5	0.2
110°-120°	2.6	0.1
120°-130°	1.5	0.1
130°-140°	0.4	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°	716.8	25.8
0°-40°	1168.4	42.0
0°-60°	2084.7	75.0
0°-90°	2739.1	98.6
90°-120°	38.0	1.4
90°-150°	39.8	1.4
90°-180°	40.0	1.4
0°-180°	2779.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	922	922	922	922	922	
5°	920	918	922	932	934	87
15°	871	904	913	883	884	245
25°	786	836	798	822	835	361
35°	670	689	699	763	789	419
45°	548	550	596	690	716	422
55°	404	410	475	579	625	363
65°	255	264	335	443	483	253
75°	97	128	187	287	305	105
85°	9	30	73	141	162	13
90°	0	9	38	89	105	0
95°	0	2	17	49	60	0
105°	0	1	3	10	14	0
115°	0	1	3	4	4	0
125°	0	0	1	3	4	0
135°	0	0	0	1	1	0
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°	922.5	922.5	922.5	922.5	922.5
2.5°	923.6	921.2	916.1	921.0	922.3
5°	920.2	918.3	921.5	931.9	934.5
7.5°	912.5	919.7	928.1	946.9	952.9
10°	901.1	914.6	940.0	955.9	949.7
12.5°	887.1	910.1	944.1	912.9	898.4
15°	871.0	904.4	913.3	883.0	883.6
17.5°	852.0	899.7	872.5	871.7	866.3
20°	831.5	884.0	847.9	846.4	840.5
22.5°	809.5	863.1	826.1	823.1	838.9
25°	785.7	835.8	797.7	821.6	834.9
27.5°	755.8	800.1	774.0	807.8	824.6
30°	725.5	763.3	749.8	796.9	826.6
32.5°	697.2	724.8	729.9	792.8	797.7
35°	670.3	688.9	699.2	762.7	788.7
37.5°	640.8	645.9	673.3	750.2	775.2
40°	610.7	607.5	651.5	729.5	764.1
42.5°	578.4	577.3	628.4	719.2	736.4
45°	547.8	550.2	595.5	689.8	715.6
47.5°	516.4	519.6	564.3	657.7	689.6
50°	479.9	484.1	536.5	629.1	670.3
52.5°	440.5	448.4	509.4	602.1	643.6
55°	403.5	410.0	475.1	579.0	625.0
57.5°	369.6	373.6	439.5	549.8	584.6
60°	336.4	337.3	406.1	517.5	550.8
62.5°	298.2	299.9	371.7	479.4	523.9
65°	255.4	263.5	334.7	442.9	483.1
67.5°	215.4	229.4	296.9	409.5	430.5
70°	172.5	196.4	259.9	370.2	385.0
72.5°	133.2	161.2	221.9	326.2	347.1
75°	96.6	128.0	186.6	286.8	304.8
77.5°	65.0	97.0	153.5	243.2	267.0
80°	38.9	70.8	124.0	202.8	229.6
82.5°	19.9	47.5	96.2	170.1	194.1
85°	8.6	30.1	72.7	141.1	162.0
87.5°	2.4	17.1	53.6	114.1	131.7
90°	0.2	9.0	38.1	89.4	105.4
92.5°	0.2	4.3	26.9	67.6	79.9
95°	0.2	2.3	16.7	49.0	59.9
97.5°	0.2	1.3	10.1	34.8	44.0
100°	0.2	1.1	6.0	23.1	31.4
102.5°	0.2	1.3	4.1	14.7	20.5
105°	0.2	1.3	3.4	9.6	13.5
107.5°	0.4	1.3	3.0	7.1	9.4
110°	0.2	1.1	3.2	5.4	7.3

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CATALOG NUMBER: HVL8-1-LD4-3STD-40-UNV-C-EDD

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.4	0.9	3.0	4.5	5.4
115°	0.2	0.8	2.6	4.3	4.5
117.5°	0.4	0.6	2.1	4.3	4.5
120°	0.4	0.4	1.7	4.1	4.7
122.5°	0.4	0.4	1.3	3.8	4.5
125°	0.2	0.4	1.1	2.8	3.9
127.5°	0.4	0.4	0.9	2.3	3.0
130°	0.4	0.4	0.8	1.7	2.3
132.5°	0.4	0.4	0.6	1.3	1.7
135°	0.4	0.4	0.4	0.9	1.3
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)