

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: P518053

Luminaire Tested: HVL8-4-LD4-1STD-40-UNV-O-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: P518053
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-4-LD4-1STD-40-UNV-O-EDD-90
Description: 4 FOOT, 8 INCH WIDE, HVL LED LUMINAIRE, WITH 4000K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3361.0 lumens
Efficiency: N/A
Efficacy: 103.1 lumens/watt
Spacing Criteria (0/90/45): 1.25 / 1.27 / 1.38
Luminous Opening: Rectangular w/ Sides (W: 0.67' x L: 4' x H: 0.17')
CIE Type: Direct

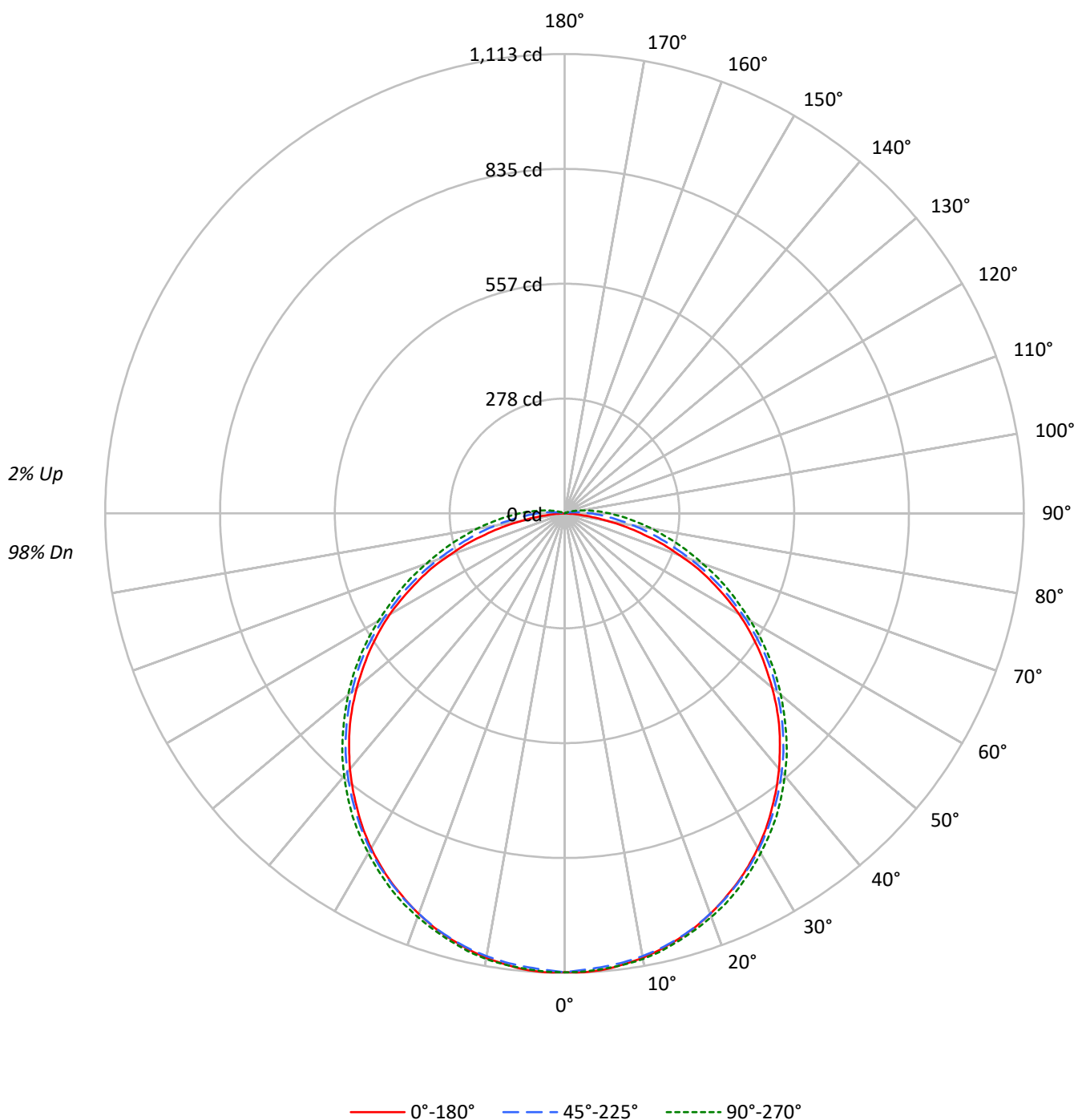
Input Watts (W): 32.6
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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			98
1	108	102	98	94	105	100	96	92	95	92	89	91	88	86	87	85	83			81
2	98	89	82	76	95	87	80	75	83	77	73	79	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	52	62	56	51	60	54	50			47
5	75	61	52	45	72	60	52	45	58	50	44	56	49	44	54	48	43			41
6	69	55	46	40	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°	4487	4487	4487
5°	4478	4387	4391
10°	4448	4308	4303
15°	4410	4221	4198
20°	4369	4124	4095
25°	4319	4024	3991
30°	4263	3918	3872
35°	4190	3801	3755
40°	4116	3678	3618
45°	4036	3544	3470
50°	3931	3389	3312
55°	3817	3219	3136
60°	3682	2999	2932
65°	3462	2752	2729
70°	3147	2462	2493
75°	2698	2143	2279
80°	2031	1831	2083
85°	1085	1514	1897

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 4036 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	105.2	3.1
10°-20°	301.7	9.0
20°-30°	457.8	13.6
30°-40°	553.6	16.5
40°-50°	577.6	17.2
50°-60°	528.1	15.7
60°-70°	411.7	12.2
70°-80°	257.6	7.7
80°-90°	117.0	3.5
90°-100°	39.2	1.2
100°-110°	9.8	0.3
110°-120°	1.6	0.0
120°-130°	0.0	0.0
130°-140°	0.0	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°	864.8	25.7
0°-40°	1418.4	42.2
0°-60°	2524.2	75.1
0°-90°	3310.4	98.5
90°-120°	50.6	1.5
90°-150°	50.6	1.5
90°-180°	51.0	1.5
0°-180°	3361.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1112	1112	1112	1112	1112	
5°	1109	1107	1102	1107	1107	105
15°	1067	1069	1066	1072	1072	301
25°	989	990	990	999	1000	456
35°	875	879	883	892	895	548
45°	736	743	749	756	760	567
55°	575	582	592	601	605	513
65°	395	402	416	432	439	391
75°	200	212	243	272	282	213
85°	35	64	110	145	158	44
90°	0	24	65	97	109	1
95°	0	6	34	61	70	0
105°	0	1	6	16	22	1
115°	1	1	1	3	4	1
125°	0	0	0	0	0	0
135°	0	0	0	0	0	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°	1111.6	1111.6	1111.6	1111.6	1111.6
2.5°	1112.9	1111.4	1106.4	1111.4	1111.1
5°	1109.3	1107.2	1102.2	1107.4	1107.4
7.5°	1101.9	1101.1	1096.7	1102.7	1102.7
10°	1093.3	1093.0	1089.3	1095.9	1096.2
12.5°	1081.2	1082.3	1078.9	1085.1	1085.9
15°	1067.1	1068.9	1066.0	1072.0	1071.8
17.5°	1051.6	1052.7	1050.6	1057.4	1057.1
20°	1032.5	1033.8	1032.2	1039.3	1040.1
22.5°	1011.3	1013.1	1012.8	1020.2	1022.3
25°	988.7	989.5	990.5	998.9	1000.5
27.5°	963.8	965.1	967.0	974.6	976.1
30°	936.6	938.7	940.8	948.6	950.7
32.5°	907.7	909.8	912.5	922.7	923.7
35°	875.2	879.2	882.8	891.8	895.4
37.5°	842.8	847.7	851.1	860.6	863.5
40°	808.4	813.4	818.9	828.9	830.7
42.5°	772.5	778.3	784.8	793.7	796.9
45°	736.4	742.9	748.9	756.3	759.9
47.5°	697.3	703.9	711.2	719.6	721.9
50°	657.0	664.6	672.4	680.3	684.5
52.5°	615.6	624.7	633.6	642.0	646.0
55°	574.7	581.5	592.2	600.9	604.8
57.5°	532.2	538.0	547.7	561.8	563.9
60°	489.0	494.2	504.2	515.7	520.4
62.5°	441.3	448.4	458.8	473.5	477.7
65°	394.9	401.7	415.6	432.1	438.9
67.5°	350.1	352.5	370.3	387.6	398.6
70°	297.2	306.1	326.8	348.0	356.4
72.5°	251.6	260.5	283.3	308.2	318.7
75°	199.9	212.3	243.2	272.3	282.5
77.5°	154.6	168.2	206.5	235.8	247.6
80°	108.0	129.2	170.9	203.9	216.7
82.5°	67.9	94.1	138.6	173.2	184.5
85°	34.6	63.9	109.8	145.2	158.0
87.5°	9.2	41.4	85.4	119.2	132.3
90°	0.3	23.8	64.7	97.2	109.0
92.5°	0.3	13.4	48.2	77.3	89.4
95°	0.3	6.3	33.5	60.8	70.2
97.5°	0.3	2.6	23.1	45.9	55.3
100°	0.3	1.3	14.7	33.3	41.4
102.5°	0.5	0.8	9.2	23.8	30.4
105°	0.5	0.8	5.5	16.2	21.8
107.5°	0.5	0.8	3.1	11.0	14.9
110°	0.8	0.8	1.8	6.8	10.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.8	0.8	1.0	4.5	6.6
115°	0.8	0.8	1.0	2.9	4.2
117.5°	0.0	0.0	0.0	0.0	0.0
120°	0.0	0.0	0.0	0.0	0.0
122.5°	0.0	0.0	0.0	0.0	0.0
125°	0.0	0.0	0.0	0.0	0.0
127.5°	0.0	0.0	0.0	0.0	0.0
130°	0.0	0.0	0.0	0.0	0.0
132.5°	0.0	0.0	0.0	0.0	0.0
135°	0.0	0.0	0.0	0.0	0.0
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)