

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: P518047

Luminaire Tested: HVL8-4-LD4-1STD-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: P518047
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-4-LD4-1STD-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: 3675.0 lumens
Efficiency: N/A
Efficacy: 112.7 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

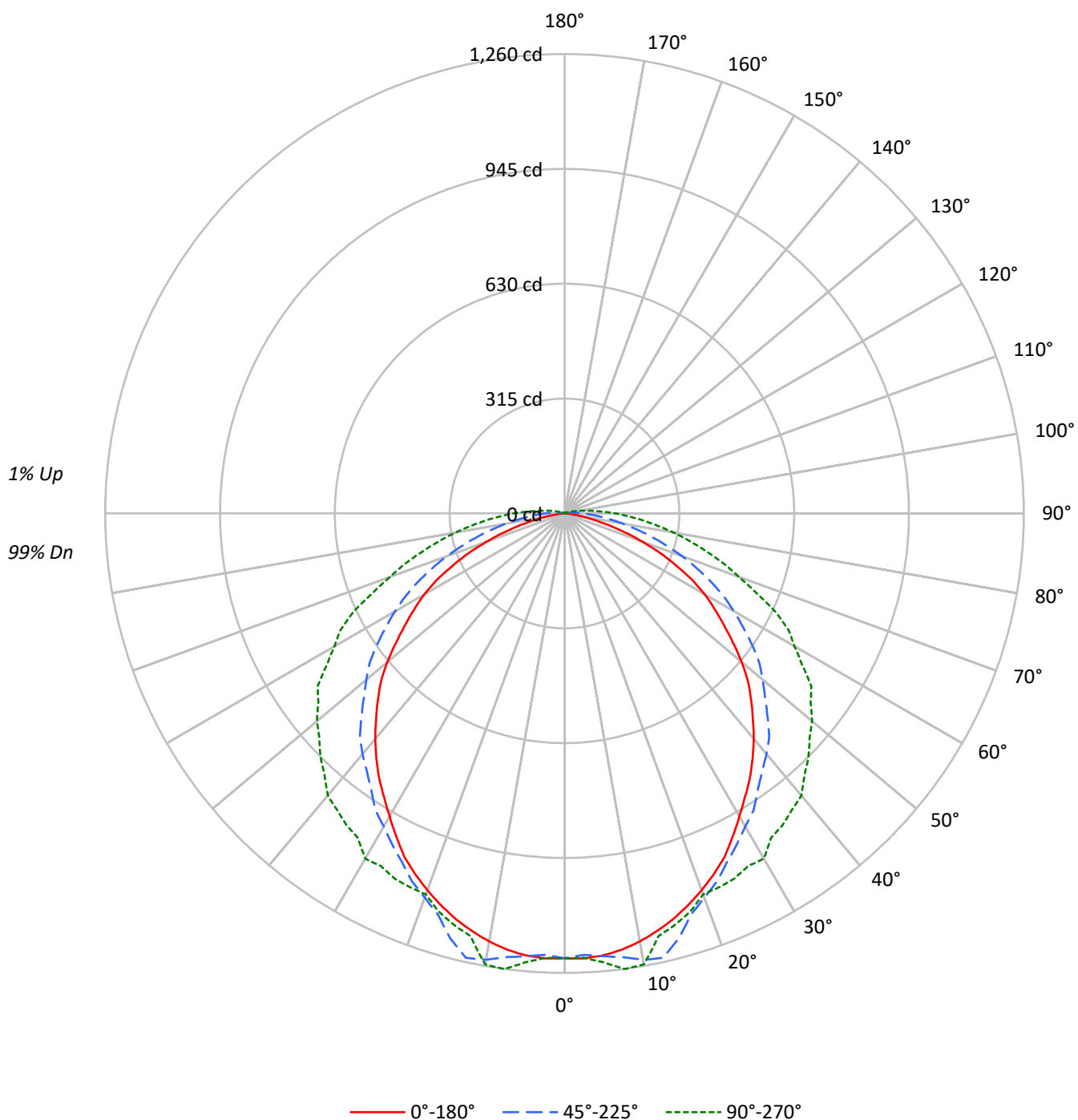
Input Watts (W): 32.6
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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				0
RW	70	50	30	10	70	50	30	10	50	30	10		50	30	10		0
RCR																	
0	119	119	119	119	116	116	116	116	110	110	110		105	105	105		99
1	108	103	98	94	105	100	96	92	96	92	89		91	89	86		81
2	98	89	82	76	95	87	80	75	83	78	73		80	75	71		67
3	89	78	69	63	86	76	68	62	73	66	61		70	64	59		56
4	81	69	60	53	79	67	59	52	65	57	51		62	56	51		47
5	75	61	52	45	72	60	51	45	58	50	44		56	49	44		41
6	69	55	46	39	67	54	46	39	52	45	39		50	44	38		36
7	64	50	41	35	62	49	41	35	47	40	34		46	39	34		32
8	59	46	37	31	58	45	37	31	43	36	31		42	35	30		28
9	55	42	34	28	54	41	33	28	40	33	28		39	32	27		25
10	52	39	31	25	51	38	30	25	37	30	25		36	29	25		23

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4924	4924	4924
5°	4913	4850	4900
10°	4848	4916	4930
15°	4760	4782	4576
20°	4653	4480	4377
25°	4539	4286	4404
30°	4367	4129	4453
35°	4244	3981	4374
40°	4112	3870	4401
45°	3970	3727	4321
50°	3797	3576	4288
55°	3544	3415	4286
60°	3349	3194	4103
65°	2961	2931	3972
70°	2415	2589	3562
75°	1724	2175	3252
80°	966	1757	2919
85°	358	1327	2571

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 4321 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	117.2	3.2
10°-20°	333.9	9.1
20°-30°	496.8	13.5
30°-40°	597.1	16.2
40°-50°	628.5	17.1
50°-60°	583.2	15.9
60°-70°	461.1	12.5
70°-80°	281.7	7.7
80°-90°	122.7	3.3
90°-100°	38.2	1.0
100°-110°	8.6	0.2
110°-120°	3.4	0.1
120°-130°	1.9	0.1
130°-140°	0.5	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°	947.9	25.8
0°-40°	1545.1	42.0
0°-60°	2756.8	75.0
0°-90°	3622.3	98.6
90°-120°	50.2	1.4
90°-150°	52.7	1.4
90°-180°	53.0	1.4
0°-180°	3675.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1220	1220	1220	1220	1220	
5°	1217	1214	1219	1232	1236	115
15°	1152	1196	1208	1168	1168	324
25°	1039	1105	1055	1086	1104	477
35°	886	911	925	1009	1043	554
45°	724	728	788	912	946	558
55°	534	542	628	766	826	479
65°	338	348	443	586	639	334
75°	128	169	247	379	403	139
85°	11	40	96	187	214	18
90°	0	12	50	118	139	1
95°	0	3	22	65	79	0
105°	0	2	4	13	18	0
115°	0	1	4	6	6	0
125°	0	0	2	4	5	0
135°	0	0	0	1	2	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°	1219.9	1219.9	1219.9	1219.9	1219.9
2.5°	1221.4	1218.2	1211.5	1217.9	1219.7
5°	1216.9	1214.4	1218.7	1232.3	1235.8
7.5°	1206.7	1216.2	1227.4	1252.2	1260.2
10°	1191.6	1209.5	1243.0	1264.1	1255.9
12.5°	1173.2	1203.5	1248.5	1207.2	1188.1
15°	1151.8	1196.0	1207.7	1167.7	1168.5
17.5°	1126.7	1189.8	1153.8	1152.8	1145.6
20°	1099.6	1169.0	1121.2	1119.3	1111.6
22.5°	1070.5	1141.4	1092.4	1088.4	1109.3
25°	1039.0	1105.3	1054.9	1086.5	1104.1
27.5°	999.5	1058.1	1023.6	1068.3	1090.4
30°	959.5	1009.4	991.5	1053.9	1093.2
32.5°	921.9	958.5	965.2	1048.4	1054.9
35°	886.4	911.0	924.7	1008.7	1043.0
37.5°	847.4	854.1	890.4	992.0	1025.1
40°	807.6	803.4	861.6	964.7	1010.4
42.5°	764.9	763.4	831.0	951.0	973.9
45°	724.4	727.6	787.5	912.3	946.3
47.5°	682.9	687.1	746.3	869.8	912.0
50°	634.7	640.1	709.5	832.0	886.4
52.5°	582.5	592.9	673.7	796.2	851.1
55°	533.5	542.2	628.2	765.6	826.5
57.5°	488.8	494.0	581.2	727.1	773.1
60°	444.8	446.1	537.0	684.4	728.4
62.5°	394.4	396.6	491.5	633.9	692.8
65°	337.7	348.4	442.6	585.7	638.9
67.5°	284.8	303.4	392.6	541.5	569.3
70°	228.1	259.7	343.7	489.6	509.2
72.5°	176.2	213.2	293.5	431.4	459.0
75°	127.7	169.2	246.8	379.2	403.1
77.5°	86.0	128.2	203.0	321.6	353.1
80°	51.4	93.7	164.0	268.1	303.7
82.5°	26.3	62.9	127.2	224.9	256.7
85°	11.4	39.8	96.2	186.6	214.2
87.5°	3.2	22.6	70.8	150.8	174.2
90°	0.2	11.9	50.4	118.3	139.4
92.5°	0.2	5.7	35.5	89.5	105.6
95°	0.2	3.0	22.1	64.9	79.3
97.5°	0.2	1.7	13.4	46.0	58.1
100°	0.2	1.5	8.0	30.6	41.5
102.5°	0.2	1.7	5.5	19.4	27.1
105°	0.2	1.7	4.5	12.7	17.9
107.5°	0.5	1.7	4.0	9.4	12.4
110°	0.2	1.5	4.2	7.2	9.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.5	1.2	4.0	6.0	7.2
115°	0.2	1.0	3.5	5.7	6.0
117.5°	0.5	0.7	2.7	5.7	6.0
120°	0.5	0.5	2.2	5.5	6.2
122.5°	0.5	0.5	1.7	5.0	6.0
125°	0.2	0.5	1.5	3.7	5.2
127.5°	0.5	0.5	1.2	3.0	4.0
130°	0.5	0.5	1.0	2.2	3.0
132.5°	0.5	0.5	0.7	1.7	2.2
135°	0.5	0.5	0.5	1.2	1.7
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)