

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: P518051

Luminaire Tested: HVL8-4-LD4-1STD-40-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: P518051
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-C-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: 3712.0 lumens
Efficiency: N/A
Efficacy: 113.9 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

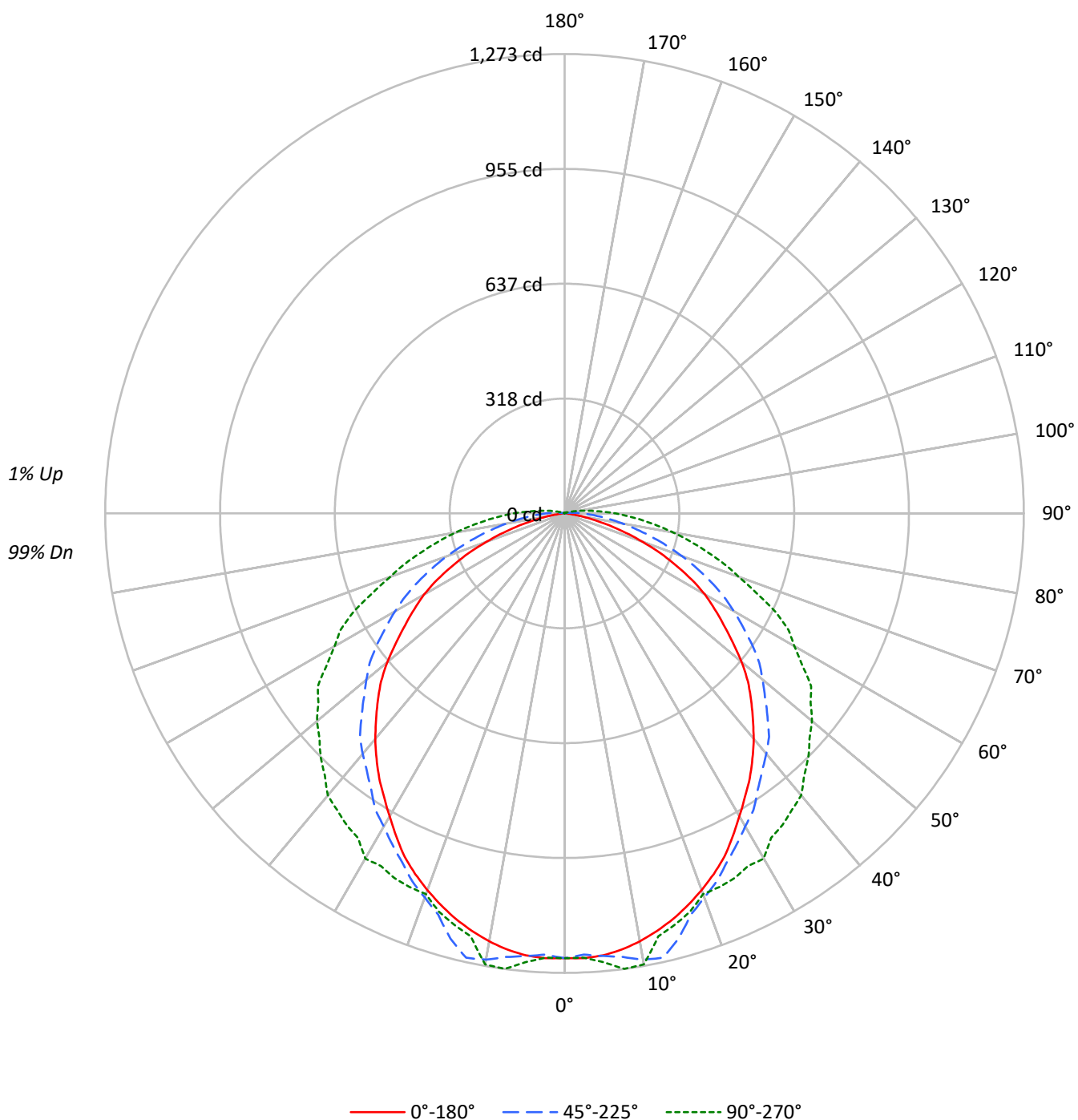
Input Watts (W): 32.6
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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					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°	4974	4974	4974
5°	4962	4899	4949
10°	4897	4965	4980
15°	4808	4831	4622
20°	4700	4525	4420
25°	4585	4329	4448
30°	4411	4171	4497
35°	4287	4022	4418
40°	4153	3909	4445
45°	4010	3764	4365
50°	3835	3612	4331
55°	3579	3449	4329
60°	3383	3226	4144
65°	2991	2960	4012
70°	2440	2615	3598
75°	1741	2196	3284
80°	978	1775	2948
85°	361	1339	2598

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 4365 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	118.4	3.2
10°-20°	337.2	9.1
20°-30°	501.8	13.5
30°-40°	603.1	16.2
40°-50°	634.9	17.1
50°-60°	589.1	15.9
60°-70°	465.8	12.5
70°-80°	284.5	7.7
80°-90°	124.0	3.3
90°-100°	38.6	1.0
100°-110°	8.7	0.2
110°-120°	3.5	0.1
120°-130°	2.0	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°	957.5	25.8
0°-40°	1560.6	42.0
0°-60°	2784.5	75.0
0°-90°	3658.7	98.6
90°-120°	50.8	1.4
90°-150°	53.3	1.4
90°-180°	53.0	1.4
0°-180°	3712.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1232	1232	1232	1232	1232	
5°	1229	1227	1231	1245	1248	116
15°	1163	1208	1220	1180	1180	328
25°	1050	1116	1066	1097	1115	482
35°	895	920	934	1019	1054	560
45°	732	735	795	921	956	564
55°	539	548	634	773	835	484
65°	341	352	447	592	645	338
75°	129	171	249	383	407	141
85°	12	40	97	188	216	18
90°	0	12	51	120	141	1
95°	0	3	22	66	80	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

TEST NUMBER: P518051

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1232.2	1232.2	1232.2	1232.2	1232.2
2.5°	1233.7	1230.4	1223.6	1230.2	1231.9
5°	1229.2	1226.7	1230.9	1244.7	1248.2
7.5°	1218.9	1228.4	1239.7	1264.8	1272.8
10°	1203.6	1221.6	1255.5	1276.9	1268.6
12.5°	1185.0	1215.6	1261.0	1219.4	1200.1
15°	1163.4	1208.1	1219.9	1179.5	1180.2
17.5°	1138.1	1201.8	1165.4	1164.4	1157.1
20°	1110.7	1180.7	1132.5	1130.5	1122.7
22.5°	1081.3	1152.9	1103.4	1099.4	1120.5
25°	1049.5	1116.5	1065.5	1097.4	1115.2
27.5°	1009.5	1068.8	1033.9	1079.1	1101.4
30°	969.1	1019.6	1001.5	1064.5	1104.2
32.5°	931.2	968.1	974.9	1059.0	1065.5
35°	895.3	920.2	934.0	1018.8	1053.5
37.5°	855.9	862.7	899.3	1002.0	1035.4
40°	815.8	811.5	870.2	974.4	1020.6
42.5°	772.6	771.1	839.4	960.6	983.7
45°	731.7	734.9	795.4	921.4	955.8
47.5°	689.8	694.0	753.8	878.5	921.2
50°	641.1	646.6	716.6	840.4	895.3
52.5°	588.4	598.9	680.5	804.2	859.7
55°	538.9	547.7	634.5	773.3	834.8
57.5°	493.7	499.0	587.1	734.4	780.9
60°	449.3	450.6	542.4	691.3	735.7
62.5°	398.3	400.6	496.5	640.3	699.8
65°	341.1	351.9	447.0	591.6	645.3
67.5°	287.7	306.5	396.6	546.9	575.1
70°	230.4	262.3	347.1	494.5	514.3
72.5°	178.0	215.4	296.4	435.7	463.6
75°	129.0	170.9	249.2	383.0	407.1
77.5°	86.8	129.5	205.1	324.8	356.7
80°	52.0	94.6	165.7	270.8	306.7
82.5°	26.6	63.5	128.5	227.2	259.3
85°	11.5	40.2	97.1	188.5	216.4
87.5°	3.3	22.8	71.5	152.4	176.0
90°	0.3	12.0	51.0	119.5	140.8
92.5°	0.3	5.8	35.9	90.4	106.7
95°	0.3	3.0	22.3	65.5	80.1
97.5°	0.3	1.8	13.6	46.4	58.7
100°	0.3	1.5	8.0	30.9	41.9
102.5°	0.3	1.8	5.5	19.6	27.4
105°	0.3	1.8	4.5	12.8	18.1
107.5°	0.5	1.8	4.0	9.5	12.6
110°	0.3	1.5	4.3	7.3	9.8

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.5	1.3	4.0	6.0	7.3
115°	0.3	1.0	3.5	5.8	6.0
117.5°	0.5	0.8	2.8	5.8	6.0
120°	0.5	0.5	2.3	5.5	6.3
122.5°	0.5	0.5	1.8	5.0	6.0
125°	0.3	0.5	1.5	3.8	5.3
127.5°	0.5	0.5	1.3	3.0	4.0
130°	0.5	0.5	1.0	2.3	3.0
132.5°	0.5	0.5	0.8	1.8	2.3
135°	0.5	0.5	0.5	1.3	1.8
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)