

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: P518021

Luminaire Tested: HVL8-4-LD4-1HI-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: P518021
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-4-LD4-1HI-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: 4325.0 lumens
Efficiency: N/A
Efficacy: 100.6 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

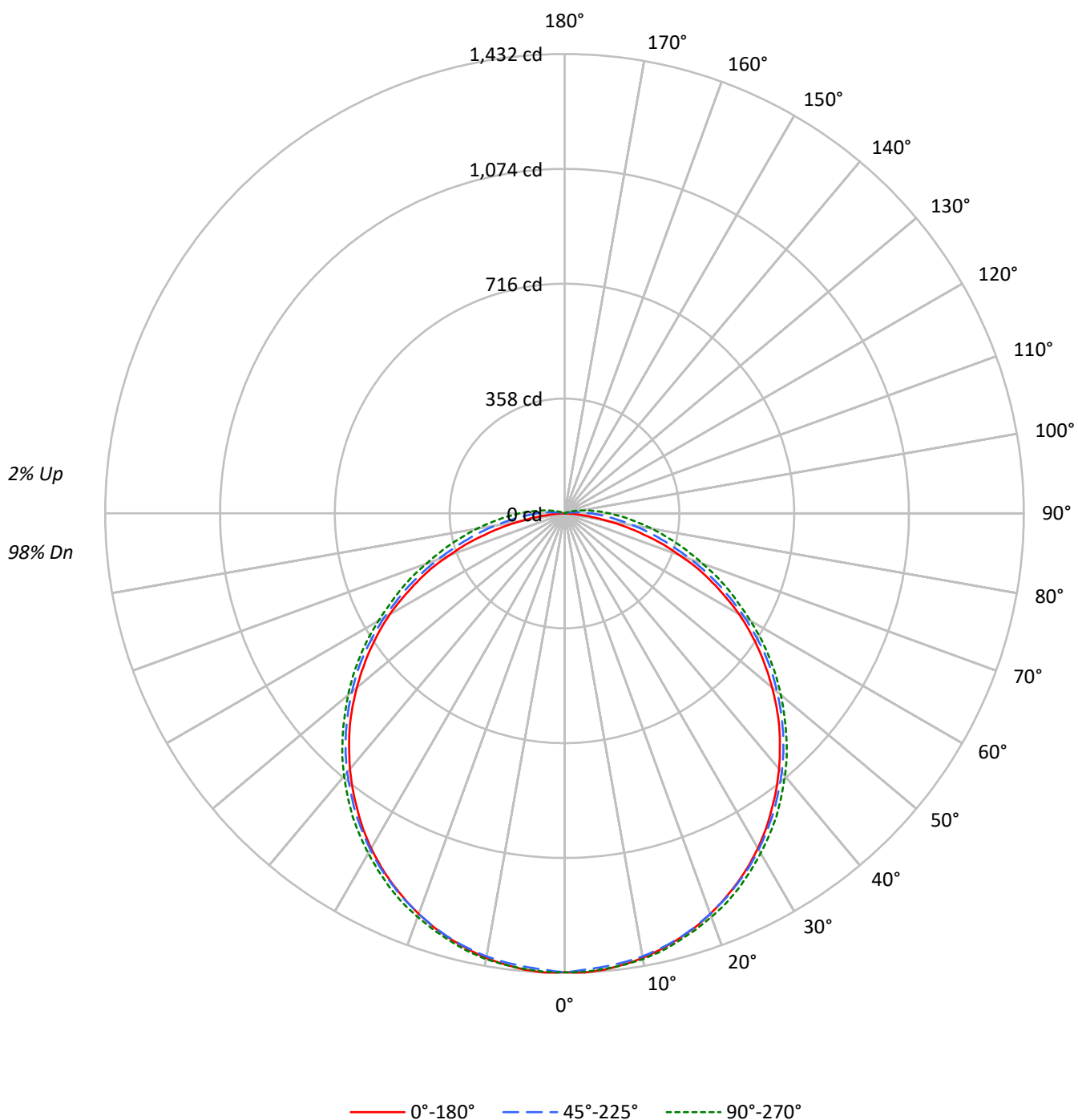
Input Watts (W): 43
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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

TEST NUMBER: P518021

CATALOG NUMBER: HVL8-4-LD4-1HI-40-UNV-O-EDD-90

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		98
1	108	102	98	94	105	100	96	92	95	92	89		91	88	86		81
2	98	89	82	76	95	87	80	75	83	77	73		79	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	52		62	56	51		47
5	75	61	52	45	72	60	52	45	58	50	44		56	49	44		41
6	69	55	46	40	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°	5774	5774	5774
5°	5763	5645	5651
10°	5724	5544	5538
15°	5675	5432	5402
20°	5622	5307	5270
25°	5558	5179	5135
30°	5485	5042	4983
35°	5393	4892	4832
40°	5296	4733	4656
45°	5193	4560	4466
50°	5058	4362	4261
55°	4912	4143	4036
60°	4738	3859	3773
65°	4456	3541	3511
70°	4049	3167	3208
75°	3473	2757	2932
80°	2612	2356	2681
85°	1396	1949	2440

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 5193 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	135.4	3.1
10°-20°	388.3	9.0
20°-30°	589.2	13.6
30°-40°	712.4	16.5
40°-50°	743.3	17.2
50°-60°	679.6	15.7
60°-70°	529.8	12.2
70°-80°	331.4	7.7
80°-90°	150.5	3.5
90°-100°	50.5	1.2
100°-110°	12.7	0.3
110°-120°	2.0	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°	1112.8	25.7
0°-40°	1825.2	42.2
0°-60°	3248.2	75.1
0°-90°	4259.9	98.5
90°-120°	65.1	1.5
90°-150°	65.1	1.5
90°-180°	65.0	1.5
0°-180°	4325.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1430	1430	1430	1430	1430	
5°	1427	1425	1418	1425	1425	136
15°	1373	1376	1372	1380	1379	388
25°	1272	1273	1275	1285	1288	586
35°	1126	1131	1136	1148	1152	705
45°	948	956	964	973	978	730
55°	740	748	762	773	778	661
65°	508	517	535	556	565	503
75°	257	273	313	350	364	274
85°	44	82	141	187	203	56
90°	0	31	83	125	140	2
95°	0	8	43	78	90	0
105°	1	1	7	21	28	1
115°	1	1	1	4	5	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

TEST NUMBER: P518021

CATALOG NUMBER: HVL8-4-LD4-1HI-40-UNV-O-EDD-90

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1430.4	1430.4	1430.4	1430.4	1430.4
2.5°	1432.1	1430.1	1423.7	1430.1	1429.8
5°	1427.4	1424.7	1418.3	1425.1	1425.1
7.5°	1418.0	1417.0	1411.2	1419.0	1419.0
10°	1406.8	1406.5	1401.8	1410.2	1410.6
12.5°	1391.3	1392.7	1388.3	1396.4	1397.4
15°	1373.1	1375.5	1371.8	1379.5	1379.2
17.5°	1353.2	1354.6	1351.9	1360.6	1360.3
20°	1328.6	1330.3	1328.3	1337.4	1338.4
22.5°	1301.3	1303.7	1303.3	1312.8	1315.5
25°	1272.3	1273.3	1274.7	1285.4	1287.5
27.5°	1240.3	1241.9	1244.3	1254.1	1256.1
30°	1205.2	1207.9	1210.6	1220.7	1223.4
32.5°	1168.1	1170.8	1174.2	1187.3	1188.7
35°	1126.3	1131.3	1136.1	1147.5	1152.2
37.5°	1084.5	1090.9	1095.3	1107.4	1111.1
40°	1040.3	1046.7	1053.8	1066.6	1069.0
42.5°	994.1	1001.5	1009.9	1021.4	1025.5
45°	947.6	956.0	963.7	973.2	977.9
47.5°	897.3	905.7	915.2	926.0	929.0
50°	845.4	855.2	865.3	875.4	880.8
52.5°	792.1	803.9	815.4	826.2	831.2
55°	739.5	748.3	762.1	773.2	778.3
57.5°	684.9	692.3	704.8	723.0	725.7
60°	629.2	636.0	648.8	663.6	669.7
62.5°	567.9	577.0	590.5	609.3	614.7
65°	508.2	516.9	534.8	556.1	564.8
67.5°	450.5	453.5	476.5	498.7	512.9
70°	382.4	393.9	420.5	447.8	458.6
72.5°	323.7	335.2	364.5	396.6	410.0
75°	257.3	273.1	312.9	350.4	363.5
77.5°	199.0	216.5	265.7	303.5	318.7
80°	138.9	166.2	219.9	262.4	278.9
82.5°	87.3	121.1	178.4	222.9	237.4
85°	44.5	82.3	141.3	186.8	203.3
87.5°	11.8	53.3	109.9	153.4	170.3
90°	0.3	30.7	83.3	125.1	140.3
92.5°	0.3	17.2	62.0	99.5	115.0
95°	0.3	8.1	43.2	78.2	90.4
97.5°	0.3	3.4	29.7	59.0	71.2
100°	0.3	1.7	18.9	42.8	53.3
102.5°	0.7	1.0	11.8	30.7	39.1
105°	0.7	1.0	7.1	20.9	28.0
107.5°	0.7	1.0	4.0	14.2	19.2
110°	1.0	1.0	2.4	8.8	12.8

TEST NUMBER: P518021

CATALOG NUMBER: HVL8-4-LD4-1HI-40-UNV-O-EDD-90

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1.0	1.0	1.3	5.7	8.4
115°	1.0	1.0	1.3	3.7	5.4
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)