

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: P517953

Luminaire Tested: HVL8-2-LD4-2STD-35-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: P517953
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-2-LD4-2STD-35-UNV-O-EDD-90
Description: 2 FOOT, 8 INCH WIDE, HVL LED LUMINAIRE, WITH 3500K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2644.0 lumens
Efficiency: N/A
Efficacy: 80.9 lumens/watt
Spacing Criteria (0/90/45): 1.25 / 1.27 / 1.38
Luminous Opening: Rectangular w/ Sides (W: 0.67' x L: 2' x H: 0.17')
CIE Type: Direct

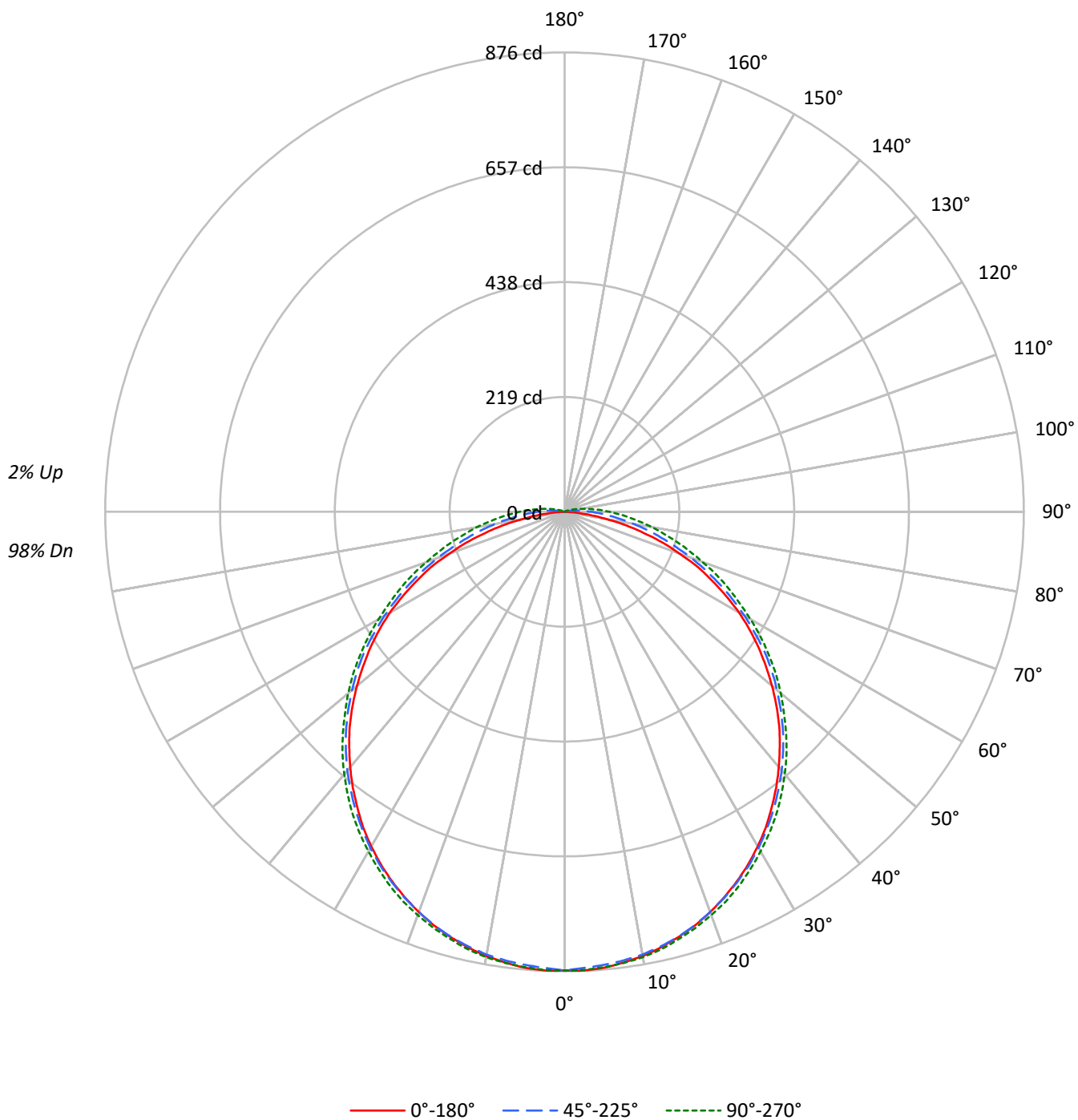
Input Watts (W): 32.7
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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: P517953

CATALOG NUMBER: HVL8-2-LD4-2STD-35-UNV-O-EDD-90

Luminous Intensity Polar Plot



TEST NUMBER: P517953

CATALOG NUMBER: HVL8-2-LD4-2STD-35-UNV-O-EDD-90

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°	7060	7060	7060
5°	7020	6885	6909
10°	6948	6745	6770
15°	6862	6592	6604
20°	6772	6425	6443
25°	6669	6253	6279
30°	6553	6073	6092
35°	6411	5875	5908
40°	6264	5668	5693
45°	6105	5444	5460
50°	5904	5187	5210
55°	5686	4906	4935
60°	5428	4547	4612
65°	5035	4148	4294
70°	4490	3683	3923
75°	3742	3174	3585
80°	2680	2674	3278
85°	1290	2166	2984

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 6105 cd/sqm

TEST NUMBER: P517953

CATALOG NUMBER: HVL8-2-LD4-2STD-35-UNV-O-EDD-90

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	82.8	3.1
10°-20°	237.4	9.0
20°-30°	360.2	13.6
30°-40°	435.5	16.5
40°-50°	454.4	17.2
50°-60°	415.5	15.7
60°-70°	323.9	12.2
70°-80°	202.6	7.7
80°-90°	92.0	3.5
90°-100°	30.8	1.2
100°-110°	7.7	0.3
110°-120°	1.2	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°	680.3	25.7
0°-40°	1115.8	42.2
0°-60°	1985.7	75.1
0°-90°	2604.2	98.5
90°-120°	39.8	1.5
90°-150°	39.8	1.5
90°-180°	40.0	1.5
0°-180°	2644.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	874	874	874	874	874	
5°	873	871	867	871	871	83
15°	839	841	839	843	843	237
25°	778	778	779	786	787	358
35°	688	692	694	702	704	431
45°	579	584	589	595	598	446
55°	452	457	466	473	476	404
65°	311	316	327	340	345	307
75°	157	167	191	214	222	168
85°	27	50	86	114	124	34
90°	0	19	51	76	86	1
95°	0	5	26	48	55	0
105°	0	1	4	13	17	0
115°	1	1	1	2	3	0
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: P517953

CATALOG NUMBER: HVL8-2-LD4-2STD-35-UNV-O-EDD-90

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	874.5	874.5	874.5	874.5	874.5
2.5°	875.5	874.3	870.4	874.3	874.1
5°	872.6	871.0	867.1	871.2	871.2
7.5°	866.8	866.2	862.7	867.5	867.5
10°	860.0	859.8	857.0	862.1	862.3
12.5°	850.6	851.4	848.7	853.7	854.3
15°	839.4	840.9	838.6	843.3	843.1
17.5°	827.3	828.1	826.4	831.8	831.6
20°	812.2	813.2	812.0	817.6	818.2
22.5°	795.5	797.0	796.8	802.5	804.2
25°	777.8	778.4	779.2	785.8	787.1
27.5°	758.2	759.2	760.7	766.7	767.9
30°	736.8	738.4	740.1	746.3	747.9
32.5°	714.1	715.7	717.8	725.8	726.7
35°	688.5	691.6	694.5	701.5	704.4
37.5°	663.0	666.9	669.6	677.0	679.3
40°	636.0	639.9	644.2	652.0	653.5
42.5°	607.7	612.3	617.4	624.4	626.9
45°	579.3	584.4	589.2	594.9	597.8
47.5°	548.6	553.7	559.5	566.1	567.9
50°	516.8	522.8	529.0	535.2	538.5
52.5°	484.2	491.5	498.5	505.1	508.2
55°	452.1	457.4	465.9	472.7	475.8
57.5°	418.7	423.2	430.8	442.0	443.6
60°	384.7	388.8	396.6	405.7	409.4
62.5°	347.2	352.7	361.0	372.5	375.8
65°	310.7	316.0	326.9	339.9	345.3
67.5°	275.4	277.3	291.3	304.9	313.5
70°	233.8	240.8	257.1	273.8	280.4
72.5°	197.9	204.9	222.8	242.4	250.7
75°	157.3	167.0	191.3	214.2	222.2
77.5°	121.6	132.3	162.4	185.5	194.8
80°	84.9	101.6	134.4	160.4	170.5
82.5°	53.4	74.0	109.1	136.3	145.1
85°	27.2	50.3	86.4	114.2	124.3
87.5°	7.2	32.6	67.2	93.8	104.1
90°	0.2	18.8	50.9	76.5	85.8
92.5°	0.2	10.5	37.9	60.8	70.3
95°	0.2	4.9	26.4	47.8	55.2
97.5°	0.2	2.1	18.1	36.1	43.5
100°	0.2	1.0	11.5	26.2	32.6
102.5°	0.4	0.6	7.2	18.8	23.9
105°	0.4	0.6	4.3	12.8	17.1
107.5°	0.4	0.6	2.5	8.7	11.8
110°	0.6	0.6	1.4	5.4	7.8

TEST NUMBER: P517953

CATALOG NUMBER: HVL8-2-LD4-2STD-35-UNV-O-EDD-90

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.6	0.6	0.8	3.5	5.2
115°	0.6	0.6	0.8	2.3	3.3
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)