

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: P517909

Luminaire Tested: HVL8-2-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: P517909
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-2-LD4-1STD-40-UNV-O-EDD-90
Description: 2 FOOT, 8 INCH WIDE, HVL LED LUMINAIRE, WITH 4000K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1681.0 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: 2' x H: 0.17')
CIE Type: Direct

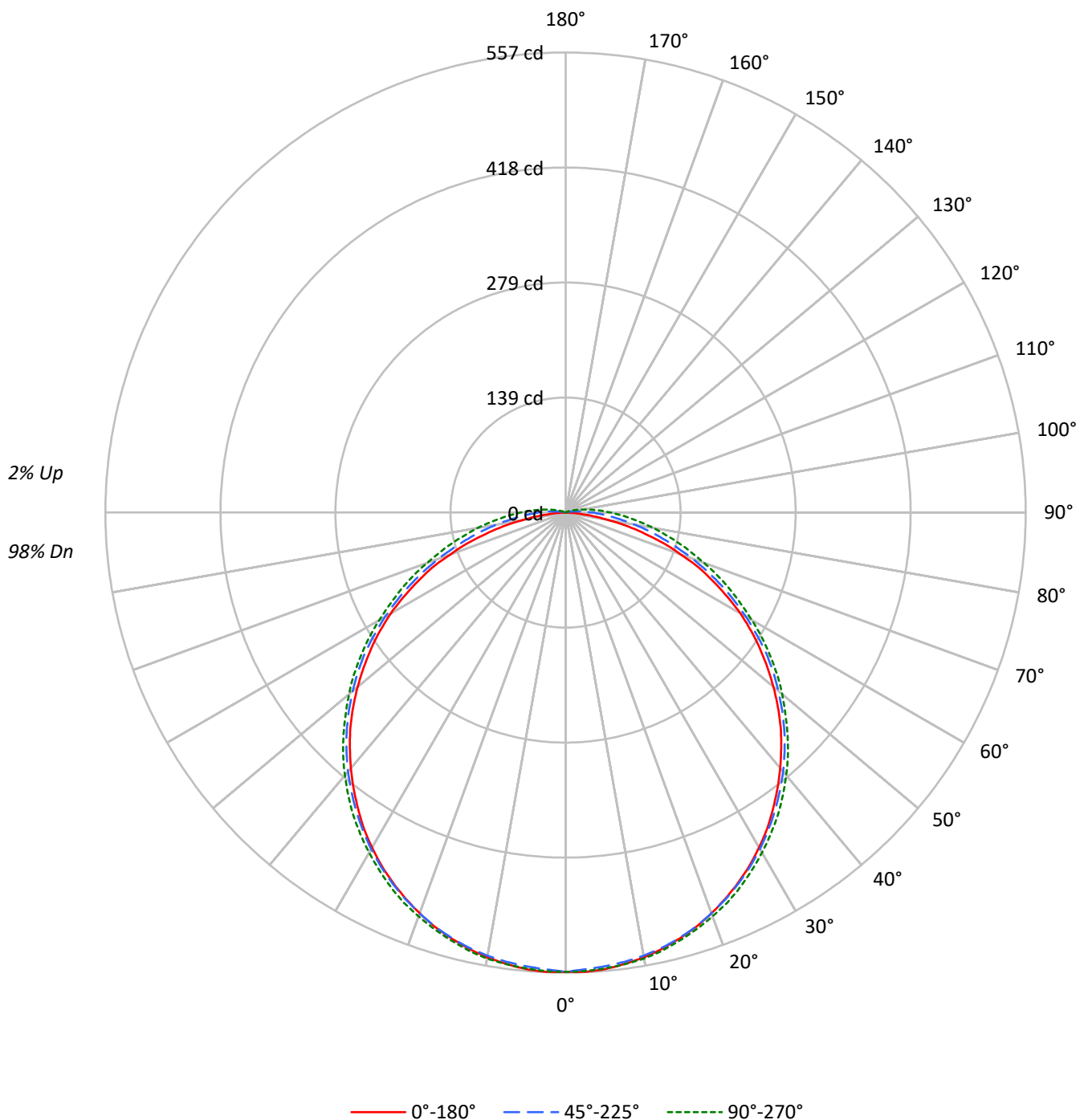
Input Watts (W): 16.3
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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: P517909

CATALOG NUMBER: HVL8-2-LD4-1STD-40-UNV-O-EDD-90

Luminous Intensity Polar Plot



TEST NUMBER: P517909

CATALOG NUMBER: HVL8-2-LD4-1STD-40-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°	4489	4489	4489
5°	4463	4377	4393
10°	4417	4288	4304
15°	4363	4192	4199
20°	4306	4085	4096
25°	4240	3976	3992
30°	4166	3860	3873
35°	4077	3735	3756
40°	3982	3604	3619
45°	3881	3461	3471
50°	3754	3297	3312
55°	3615	3119	3137
60°	3451	2891	2933
65°	3201	2638	2729
70°	2854	2341	2493
75°	2379	2018	2280
80°	1705	1701	2084
85°	821	1376	1897

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3881 cd/sqm

TEST NUMBER: P517909

CATALOG NUMBER: HVL8-2-LD4-1STD-40-UNV-O-EDD-90

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	52.6	3.1
10°-20°	150.9	9.0
20°-30°	229.0	13.6
30°-40°	276.9	16.5
40°-50°	288.9	17.2
50°-60°	264.1	15.7
60°-70°	205.9	12.2
70°-80°	128.8	7.7
80°-90°	58.5	3.5
90°-100°	19.6	1.2
100°-110°	4.9	0.3
110°-120°	0.8	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°	432.5	25.7
0°-40°	709.4	42.2
0°-60°	1262.5	75.1
0°-90°	1655.7	98.5
90°-120°	25.3	1.5
90°-150°	25.3	1.5
90°-180°	25.0	1.5
0°-180°	1681.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	556	556	556	556	556	
5°	555	554	551	554	554	53
15°	534	535	533	536	536	151
25°	494	495	495	500	500	228
35°	438	440	442	446	448	274
45°	368	372	375	378	380	284
55°	287	291	296	300	302	257
65°	198	201	208	216	220	195
75°	100	106	122	136	141	107
85°	17	32	55	73	79	22
90°	0	12	32	49	54	1
95°	0	3	17	30	35	0
105°	0	0	3	8	11	0
115°	0	0	0	1	2	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: P517909

CATALOG NUMBER: HVL8-2-LD4-1STD-40-UNV-O-EDD-90

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	556.0	556.0	556.0	556.0	556.0
2.5°	556.6	555.8	553.4	555.8	555.7
5°	554.8	553.7	551.3	553.9	553.9
7.5°	551.1	550.7	548.5	551.5	551.5
10°	546.8	546.7	544.8	548.1	548.2
12.5°	540.8	541.3	539.6	542.7	543.1
15°	533.7	534.6	533.2	536.2	536.1
17.5°	526.0	526.5	525.4	528.8	528.7
20°	516.4	517.0	516.3	519.8	520.2
22.5°	505.8	506.7	506.6	510.2	511.3
25°	494.5	494.9	495.4	499.6	500.4
27.5°	482.1	482.7	483.6	487.4	488.2
30°	468.4	469.5	470.5	474.5	475.5
32.5°	454.0	455.1	456.4	461.5	462.0
35°	437.8	439.7	441.6	446.0	447.8
37.5°	421.5	424.0	425.7	430.4	431.9
40°	404.3	406.8	409.6	414.6	415.5
42.5°	386.4	389.3	392.5	397.0	398.6
45°	368.3	371.6	374.6	378.3	380.1
47.5°	348.8	352.0	355.7	359.9	361.1
50°	328.6	332.4	336.3	340.2	342.3
52.5°	307.9	312.5	316.9	321.1	323.1
55°	287.4	290.8	296.2	300.5	302.5
57.5°	266.2	269.1	273.9	281.0	282.0
60°	244.6	247.2	252.2	257.9	260.3
62.5°	220.7	224.3	229.5	236.8	238.9
65°	197.5	200.9	207.9	216.1	219.5
67.5°	175.1	176.3	185.2	193.8	199.3
70°	148.6	153.1	163.4	174.1	178.2
72.5°	125.8	130.3	141.7	154.1	159.4
75°	100.0	106.2	121.6	136.2	141.3
77.5°	77.3	84.1	103.3	118.0	123.9
80°	54.0	64.6	85.5	102.0	108.4
82.5°	33.9	47.1	69.3	86.6	92.3
85°	17.3	32.0	54.9	72.6	79.0
87.5°	4.6	20.7	42.7	59.6	66.2
90°	0.1	11.9	32.4	48.6	54.5
92.5°	0.1	6.7	24.1	38.7	44.7
95°	0.1	3.1	16.8	30.4	35.1
97.5°	0.1	1.3	11.5	22.9	27.7
100°	0.1	0.7	7.3	16.6	20.7
102.5°	0.3	0.4	4.6	11.9	15.2
105°	0.3	0.4	2.8	8.1	10.9
107.5°	0.3	0.4	1.6	5.5	7.5
110°	0.4	0.4	0.9	3.4	5.0

TEST NUMBER: P517909

CATALOG NUMBER: HVL8-2-LD4-1STD-40-UNV-O-EDD-90

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.4	0.4	0.5	2.2	3.3
115°	0.4	0.4	0.5	1.4	2.1
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)