

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: P517908

Luminaire Tested: HVL8-2-LD4-1STD-40-UNV-C-EDD

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: P517908
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-C-EDD
Description: 2 FOOT, 8 INCH WIDE, HVL LED LUMINAIRE, WITH 4000K, 80 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1856.1 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: 2' x H: 0.17')
CIE Type: Direct

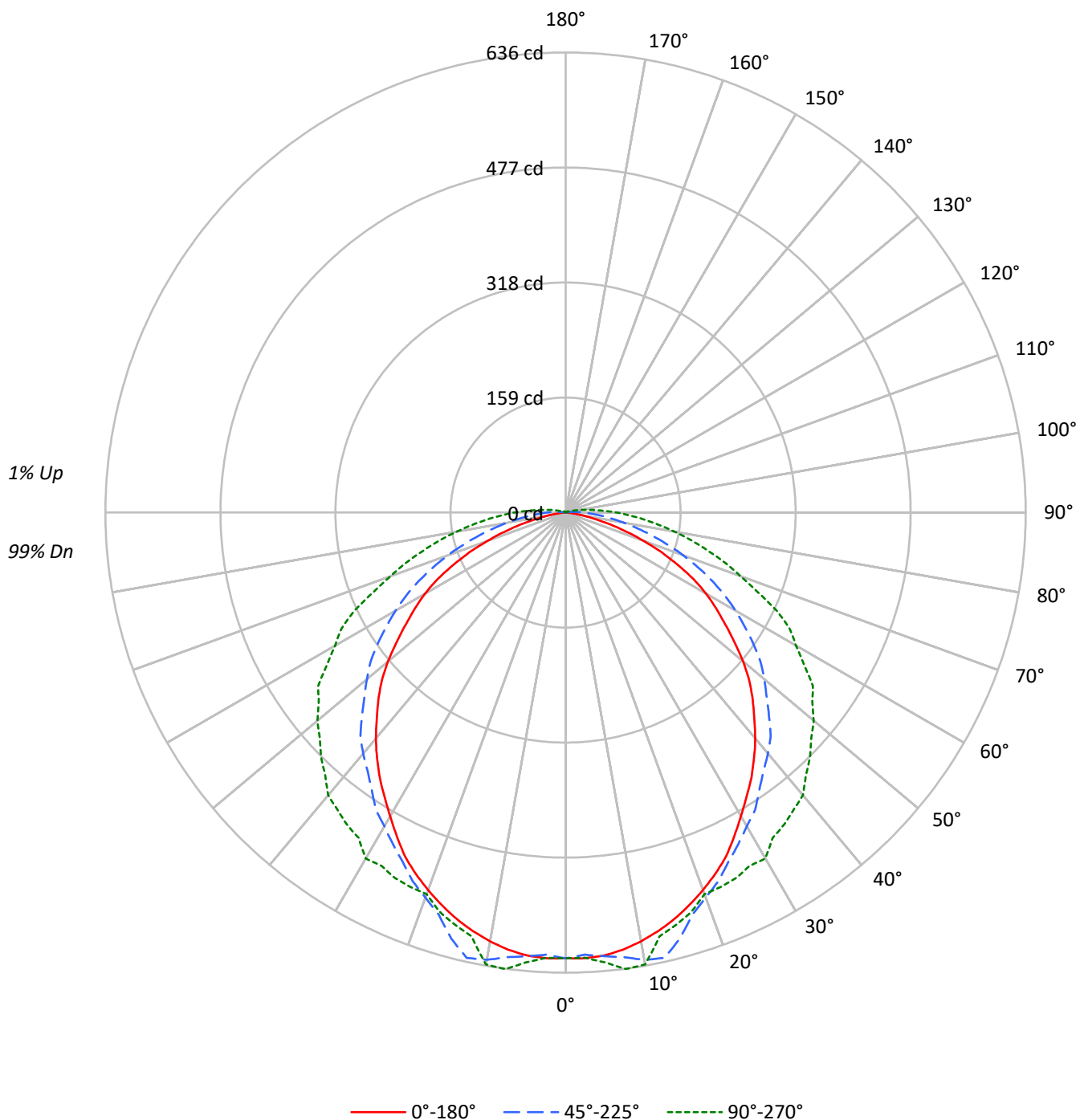
Input Watts (W): 16.3
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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: P517908

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

Luminous Intensity Polar Plot



TEST NUMBER: P517908

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

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	44	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°	4945	4887	4949
10°	4862	4941	4980
15°	4755	4795	4622
20°	4630	4481	4421
25°	4499	4276	4448
30°	4310	4109	4497
35°	4169	3950	4417
40°	4018	3828	4445
45°	3855	3674	4365
50°	3662	3513	4332
55°	3390	3341	4329
60°	3169	3109	4144
65°	2765	2836	4013
70°	2212	2487	3599
75°	1535	2067	3285
80°	821	1647	2949
85°	275	1218	2598

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 4365 cd/sqm

TEST NUMBER: P517908

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

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	59.2	3.2
10°-20°	168.6	9.1
20°-30°	250.9	13.5
30°-40°	301.6	16.2
40°-50°	317.4	17.1
50°-60°	294.5	15.9
60°-70°	232.9	12.5
70°-80°	142.3	7.7
80°-90°	62.0	3.3
90°-100°	19.3	1.0
100°-110°	4.3	0.2
110°-120°	1.7	0.1
120°-130°	1.0	0.1
130°-140°	0.3	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°	478.7	25.8
0°-40°	780.3	42.0
0°-60°	1392.3	75.0
0°-90°	1829.4	98.6
90°-120°	25.4	1.4
90°-150°	26.7	1.4
90°-180°	27.0	1.5
0°-180°	1856.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	616	616	616	616	616	
5°	615	613	616	622	624	58
15°	582	604	610	590	590	164
25°	525	558	533	549	558	241
35°	448	460	467	509	527	280
45°	366	368	398	461	478	282
55°	270	274	317	387	417	242
65°	171	176	224	296	323	169
75°	64	86	125	192	204	70
85°	6	20	49	94	108	9
90°	0	6	26	60	70	0
95°	0	2	11	33	40	0
105°	0	1	2	6	9	0
115°	0	0	2	3	3	0
125°	0	0	1	2	3	0
135°	0	0	0	1	1	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: P517908

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

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	616.1	616.1	616.1	616.1	616.1
2.5°	616.8	615.2	611.8	615.1	616.0
5°	614.6	613.3	615.5	622.4	624.1
7.5°	609.4	614.2	619.9	632.4	636.4
10°	601.8	610.8	627.8	638.4	634.3
12.5°	592.5	607.8	630.5	609.7	600.0
15°	581.7	604.0	609.9	589.7	590.1
17.5°	569.0	600.9	582.7	582.2	578.6
20°	555.3	590.4	566.3	565.3	561.4
22.5°	540.7	576.4	551.7	549.7	560.2
25°	524.7	558.2	532.8	548.7	557.6
27.5°	504.8	534.4	516.9	539.5	550.7
30°	484.6	509.8	500.8	532.3	552.1
32.5°	465.6	484.1	487.5	529.5	532.8
35°	447.7	460.1	467.0	509.4	526.7
37.5°	428.0	431.4	449.7	501.0	517.7
40°	407.9	405.7	435.1	487.2	510.3
42.5°	386.3	385.5	419.7	480.3	491.8
45°	365.8	367.5	397.7	460.7	477.9
47.5°	344.9	347.0	376.9	439.3	460.6
50°	320.5	323.3	358.3	420.2	447.7
52.5°	294.2	299.4	340.2	402.1	429.8
55°	269.5	273.8	317.3	386.7	417.4
57.5°	246.9	249.5	293.6	367.2	390.4
60°	224.6	225.3	271.2	345.6	367.8
62.5°	199.2	200.3	248.2	320.2	349.9
65°	170.6	176.0	223.5	295.8	322.7
67.5°	143.8	153.2	198.3	273.5	287.5
70°	115.2	131.1	173.6	247.2	257.2
72.5°	89.0	107.7	148.2	217.9	231.8
75°	64.5	85.5	124.6	191.5	203.6
77.5°	43.4	64.8	102.5	162.4	178.3
80°	26.0	47.3	82.8	135.4	153.4
82.5°	13.3	31.8	64.3	113.6	129.6
85°	5.8	20.1	48.6	94.3	108.2
87.5°	1.6	11.4	35.8	76.2	88.0
90°	0.1	6.0	25.5	59.7	70.4
92.5°	0.1	2.9	17.9	45.2	53.3
95°	0.1	1.5	11.2	32.8	40.0
97.5°	0.1	0.9	6.8	23.2	29.4
100°	0.1	0.8	4.0	15.4	21.0
102.5°	0.1	0.9	2.8	9.8	13.7
105°	0.1	0.9	2.3	6.4	9.0
107.5°	0.3	0.9	2.0	4.8	6.3
110°	0.1	0.8	2.1	3.6	4.9

TEST NUMBER: P517908

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

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.3	0.6	2.0	3.0	3.6
115°	0.1	0.5	1.8	2.9	3.0
117.5°	0.3	0.4	1.4	2.9	3.0
120°	0.3	0.3	1.1	2.8	3.1
122.5°	0.3	0.3	0.9	2.5	3.0
125°	0.1	0.3	0.8	1.9	2.6
127.5°	0.3	0.3	0.6	1.5	2.0
130°	0.3	0.3	0.5	1.1	1.5
132.5°	0.3	0.3	0.4	0.9	1.1
135°	0.3	0.3	0.3	0.6	0.9
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)