

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: P517335

Luminaire Tested: HVL12-2-LD4-1STD-50-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: P517335
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-2-LD4-1STD-50-UNV-C-EDD-90
Description: 2 FOOT, 12 INCH WIDE, HVL LED LUMINAIRE, WITH 5000K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1715.0 lumens
Efficiency: N/A
Efficacy: 102.7 lumens/watt
Spacing Criteria (0/90/45): 1.18 / 1.32 / 1.37
Luminous Opening: Rectangular w/ Sides (W: 1' x L: 2' x H: 0.17')
CIE Type: Direct

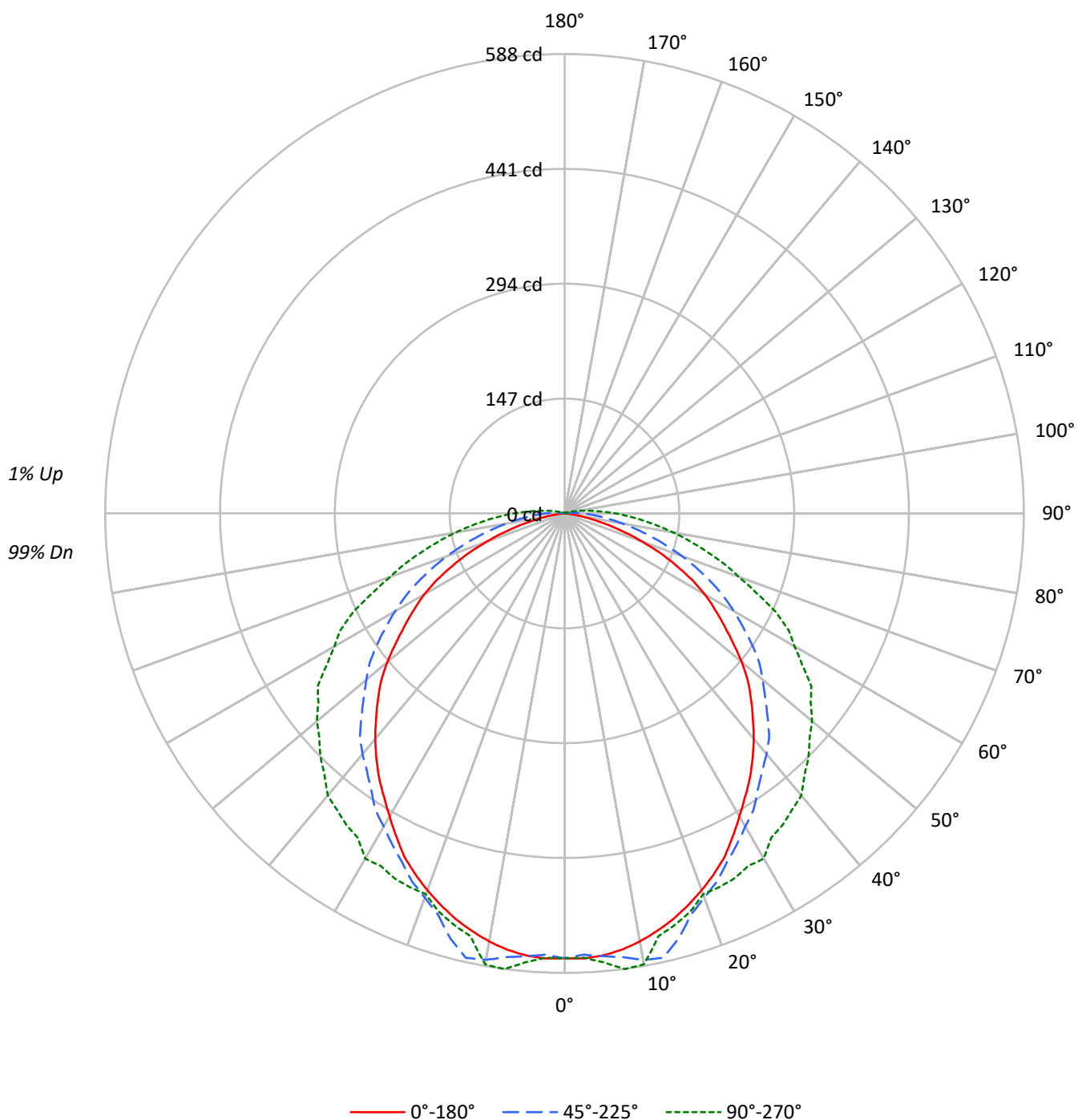
Input Watts (W): 16.7
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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

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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°	3064	3064	3064
5°	3046	3026	3071
10°	2995	3074	3112
15°	2929	2998	2908
20°	2853	2815	2801
25°	2772	2701	2839
30°	2655	2609	2892
35°	2568	2523	2863
40°	2475	2460	2906
45°	2375	2377	2881
50°	2256	2290	2890
55°	2088	2196	2923
60°	1953	2065	2839
65°	1703	1907	2797
70°	1364	1699	2564
75°	945	1443	2411
80°	505	1184	2258
85°	168	918	2125

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 55°

Luminance: 2923 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	54.7	3.2
10°-20°	155.8	9.1
20°-30°	231.8	13.5
30°-40°	278.7	16.2
40°-50°	293.3	17.1
50°-60°	272.2	15.9
60°-70°	215.2	12.5
70°-80°	131.4	7.7
80°-90°	57.3	3.3
90°-100°	17.8	1.0
100°-110°	4.0	0.2
110°-120°	1.6	0.1
120°-130°	0.9	0.1
130°-140°	0.2	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°	442.4	25.8
0°-40°	721.0	42.0
0°-60°	1286.5	75.0
0°-90°	1690.4	98.6
90°-120°	23.5	1.4
90°-150°	24.6	1.4
90°-180°	25.0	1.5
0°-180°	1715.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	569	569	569	569	569	
5°	568	567	569	575	577	54
15°	538	558	564	545	545	151
25°	485	516	492	507	515	223
35°	414	425	432	471	487	259
45°	338	340	368	426	442	261
55°	249	253	293	357	386	224
65°	158	163	206	273	298	156
75°	60	79	115	177	188	65
85°	5	19	45	87	100	8
90°	0	6	24	55	65	0
95°	0	1	10	30	37	0
105°	0	1	2	6	8	0
115°	0	0	2	3	3	0
125°	0	0	1	2	2	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

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	569.3	569.3	569.3	569.3	569.3
2.5°	570.0	568.5	565.3	568.4	569.2
5°	567.9	566.7	568.7	575.1	576.7
7.5°	563.1	567.5	572.8	584.4	588.1
10°	556.1	564.4	580.1	589.9	586.1
12.5°	547.5	561.6	582.6	563.4	554.4
15°	537.5	558.2	563.6	544.9	545.3
17.5°	525.8	555.3	538.4	538.0	534.6
20°	513.2	545.5	523.2	522.3	518.7
22.5°	499.6	532.6	509.8	507.9	517.7
25°	484.9	515.8	492.3	507.0	515.2
27.5°	466.4	493.8	477.7	498.5	508.9
30°	447.8	471.1	462.7	491.8	510.1
32.5°	430.2	447.3	450.4	489.3	492.3
35°	413.7	425.1	431.5	470.7	486.7
37.5°	395.5	398.6	415.5	462.9	478.4
40°	376.9	374.9	402.1	450.2	471.5
42.5°	356.9	356.3	387.8	443.8	454.5
45°	338.0	339.6	367.5	425.7	441.6
47.5°	318.7	320.7	348.3	405.9	425.6
50°	296.2	298.7	331.1	388.3	413.7
52.5°	271.8	276.7	314.4	371.6	397.2
55°	249.0	253.0	293.2	357.3	385.7
57.5°	228.1	230.5	271.2	339.3	360.8
60°	207.6	208.2	250.6	319.4	339.9
62.5°	184.0	185.1	229.4	295.8	323.3
65°	157.6	162.6	206.5	273.3	298.2
67.5°	132.9	141.6	183.2	252.7	265.7
70°	106.5	121.2	160.4	228.5	237.6
72.5°	82.2	99.5	137.0	201.3	214.2
75°	59.6	79.0	115.2	177.0	188.1
77.5°	40.1	59.8	94.7	150.1	164.8
80°	24.0	43.7	76.5	125.1	141.7
82.5°	12.3	29.3	59.4	105.0	119.8
85°	5.3	18.6	44.9	87.1	100.0
87.5°	1.5	10.6	33.1	70.4	81.3
90°	0.1	5.6	23.5	55.2	65.1
92.5°	0.1	2.7	16.6	41.7	49.3
95°	0.1	1.4	10.3	30.3	37.0
97.5°	0.1	0.8	6.3	21.5	27.1
100°	0.1	0.7	3.7	14.3	19.4
102.5°	0.1	0.8	2.6	9.0	12.6
105°	0.1	0.8	2.1	5.9	8.3
107.5°	0.2	0.8	1.9	4.4	5.8
110°	0.1	0.7	2.0	3.4	4.5

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.2	0.6	1.9	2.8	3.4
115°	0.1	0.5	1.6	2.7	2.8
117.5°	0.2	0.3	1.3	2.7	2.8
120°	0.2	0.2	1.0	2.6	2.9
122.5°	0.2	0.2	0.8	2.3	2.8
125°	0.1	0.2	0.7	1.7	2.4
127.5°	0.2	0.2	0.6	1.4	1.9
130°	0.2	0.2	0.5	1.0	1.4
132.5°	0.2	0.2	0.3	0.8	1.0
135°	0.2	0.2	0.2	0.6	0.8
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)