

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: P517375

Luminaire Tested: HVL12-2-LD4-2STD-35-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: P517375
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-2-LD4-2STD-35-UNV-C-EDD-90
Description: 2 FOOT, 12 INCH WIDE, HVL LED LUMINAIRE, WITH 3500K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3049.0 lumens
Efficiency: N/A
Efficacy: 90.7 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

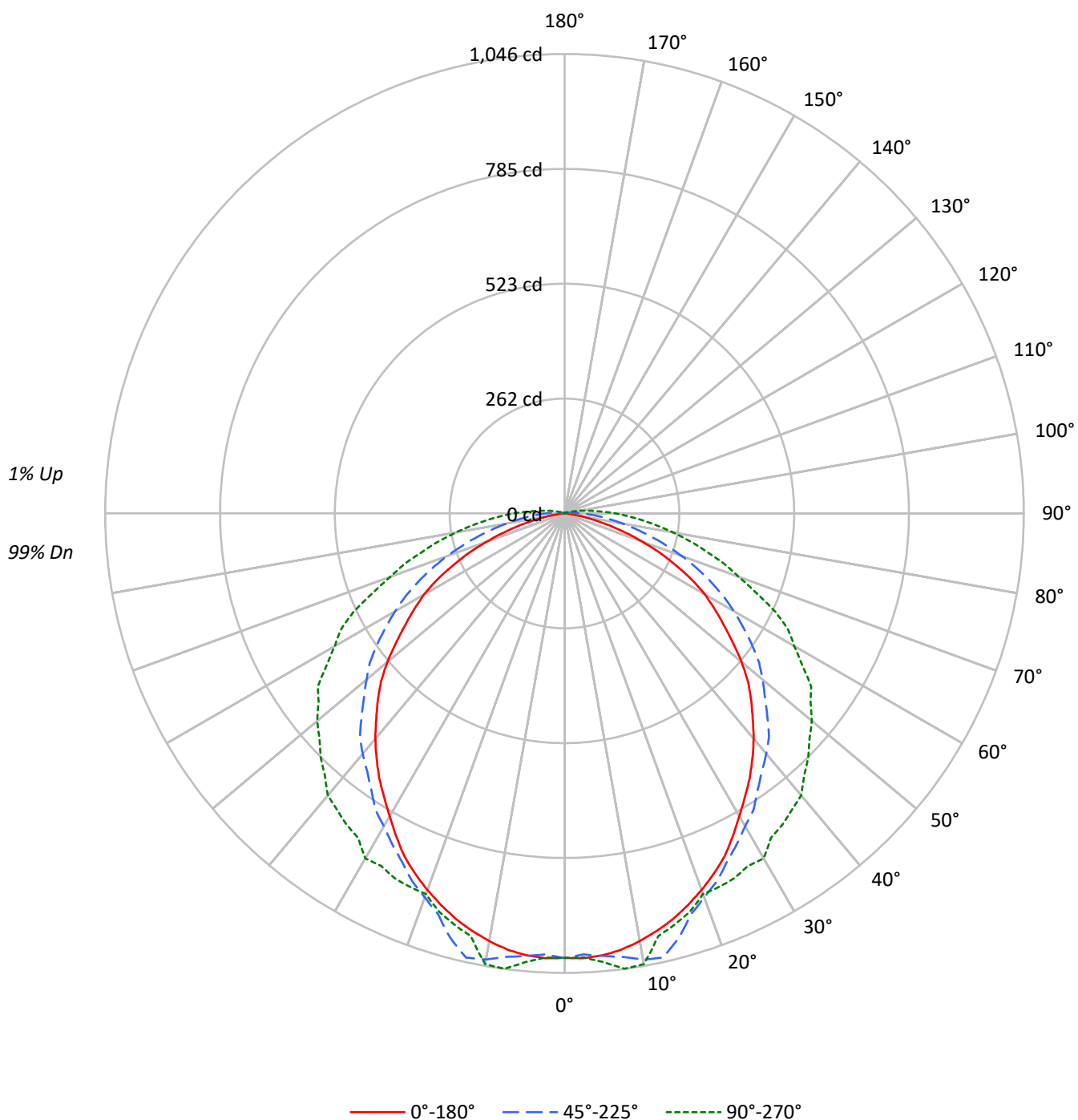
Input Watts (W): 33.6
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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°	5447	5447	5447
5°	5415	5379	5460
10°	5324	5466	5532
15°	5208	5330	5170
20°	5071	5006	4980
25°	4927	4801	5047
30°	4720	4639	5142
35°	4565	4485	5091
40°	4400	4373	5167
45°	4222	4226	5122
50°	4011	4071	5137
55°	3712	3905	5197
60°	3471	3671	5047
65°	3027	3391	4973
70°	2424	3019	4559
75°	1681	2564	4287
80°	899	2106	4013
85°	300	1631	3777

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 55°

Luminance: 5197 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	97.3	3.2
10°-20°	277.0	9.1
20°-30°	412.2	13.5
30°-40°	495.4	16.2
40°-50°	521.5	17.1
50°-60°	483.9	15.9
60°-70°	382.6	12.5
70°-80°	233.7	7.7
80°-90°	101.8	3.3
90°-100°	31.7	1.0
100°-110°	7.1	0.2
110°-120°	2.8	0.1
120°-130°	1.6	0.1
130°-140°	0.4	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°	786.5	25.8
0°-40°	1281.9	42.0
0°-60°	2287.2	75.0
0°-90°	3005.3	98.6
90°-120°	41.6	1.4
90°-150°	43.7	1.4
90°-180°	44.0	1.4
0°-180°	3049.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1012	1012	1012	1012	1012	
5°	1010	1008	1011	1022	1025	96
15°	956	992	1002	969	969	269
25°	862	917	875	901	916	396
35°	735	756	767	837	865	460
45°	601	604	653	757	785	463
55°	443	450	521	635	686	398
65°	280	289	367	486	530	278
75°	106	140	205	315	334	116
85°	10	33	80	155	178	15
90°	0	10	42	98	116	0
95°	0	2	18	54	66	0
105°	0	1	4	10	15	0
115°	0	1	3	5	5	0
125°	0	0	1	3	4	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°	1012.1	1012.1	1012.1	1012.1	1012.1
2.5°	1013.3	1010.7	1005.1	1010.5	1011.9
5°	1009.6	1007.6	1011.1	1022.4	1025.3
7.5°	1001.2	1009.0	1018.3	1038.9	1045.5
10°	988.6	1003.4	1031.3	1048.8	1042.0
12.5°	973.3	998.5	1035.8	1001.6	985.7
15°	955.6	992.3	1002.0	968.8	969.4
17.5°	934.8	987.2	957.3	956.4	950.5
20°	912.3	969.8	930.3	928.6	922.2
22.5°	888.2	947.0	906.3	903.0	920.4
25°	862.0	917.1	875.2	901.4	916.0
27.5°	829.2	877.9	849.2	886.3	904.7
30°	796.0	837.5	822.6	874.4	907.0
32.5°	764.9	795.2	800.8	869.8	875.2
35°	735.4	755.8	767.2	836.9	865.3
37.5°	703.0	708.6	738.7	823.0	850.5
40°	670.1	666.6	714.8	800.4	838.3
42.5°	634.6	633.4	689.4	789.0	808.0
45°	601.0	603.7	653.4	756.9	785.1
47.5°	566.6	570.1	619.1	721.6	756.7
50°	526.6	531.1	588.6	690.3	735.4
52.5°	483.3	491.9	558.9	660.6	706.1
55°	442.7	449.9	521.2	635.2	685.7
57.5°	405.5	409.9	482.2	603.3	641.4
60°	369.0	370.1	445.5	567.8	604.3
62.5°	327.2	329.1	407.8	525.9	574.8
65°	280.2	289.1	367.2	485.9	530.1
67.5°	236.3	251.7	325.8	449.3	472.3
70°	189.3	215.5	285.1	406.2	422.4
72.5°	146.2	176.9	243.5	357.9	380.8
75°	106.0	140.4	204.7	314.6	334.4
77.5°	71.3	106.4	168.4	266.8	293.0
80°	42.7	77.7	136.1	222.5	251.9
82.5°	21.9	52.2	105.6	186.6	213.0
85°	9.5	33.0	79.8	154.8	177.7
87.5°	2.7	18.8	58.8	125.1	144.5
90°	0.2	9.9	41.9	98.1	115.7
92.5°	0.2	4.7	29.5	74.2	87.6
95°	0.2	2.5	18.3	53.8	65.8
97.5°	0.2	1.4	11.1	38.1	48.2
100°	0.2	1.2	6.6	25.4	34.4
102.5°	0.2	1.4	4.5	16.1	22.5
105°	0.2	1.4	3.7	10.5	14.8
107.5°	0.4	1.4	3.3	7.8	10.3
110°	0.2	1.2	3.5	6.0	8.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.4	1.0	3.3	4.9	6.0
115°	0.2	0.8	2.9	4.7	4.9
117.5°	0.4	0.6	2.3	4.7	4.9
120°	0.4	0.4	1.9	4.5	5.2
122.5°	0.4	0.4	1.4	4.1	4.9
125°	0.2	0.4	1.2	3.1	4.3
127.5°	0.4	0.4	1.0	2.5	3.3
130°	0.4	0.4	0.8	1.9	2.5
132.5°	0.4	0.4	0.6	1.4	1.9
135°	0.4	0.4	0.4	1.0	1.4
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)