

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: P517296

Luminaire Tested: HVL12-2-LD4-1HI-35-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: P517296
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-2-LD4-1HI-35-UNV-C-EDD
Description: 2 FOOT, 12 INCH WIDE, HVL LED LUMINAIRE, WITH 3500K, 80 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2469.0 lumens
Efficiency: N/A
Efficacy: 111.7 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

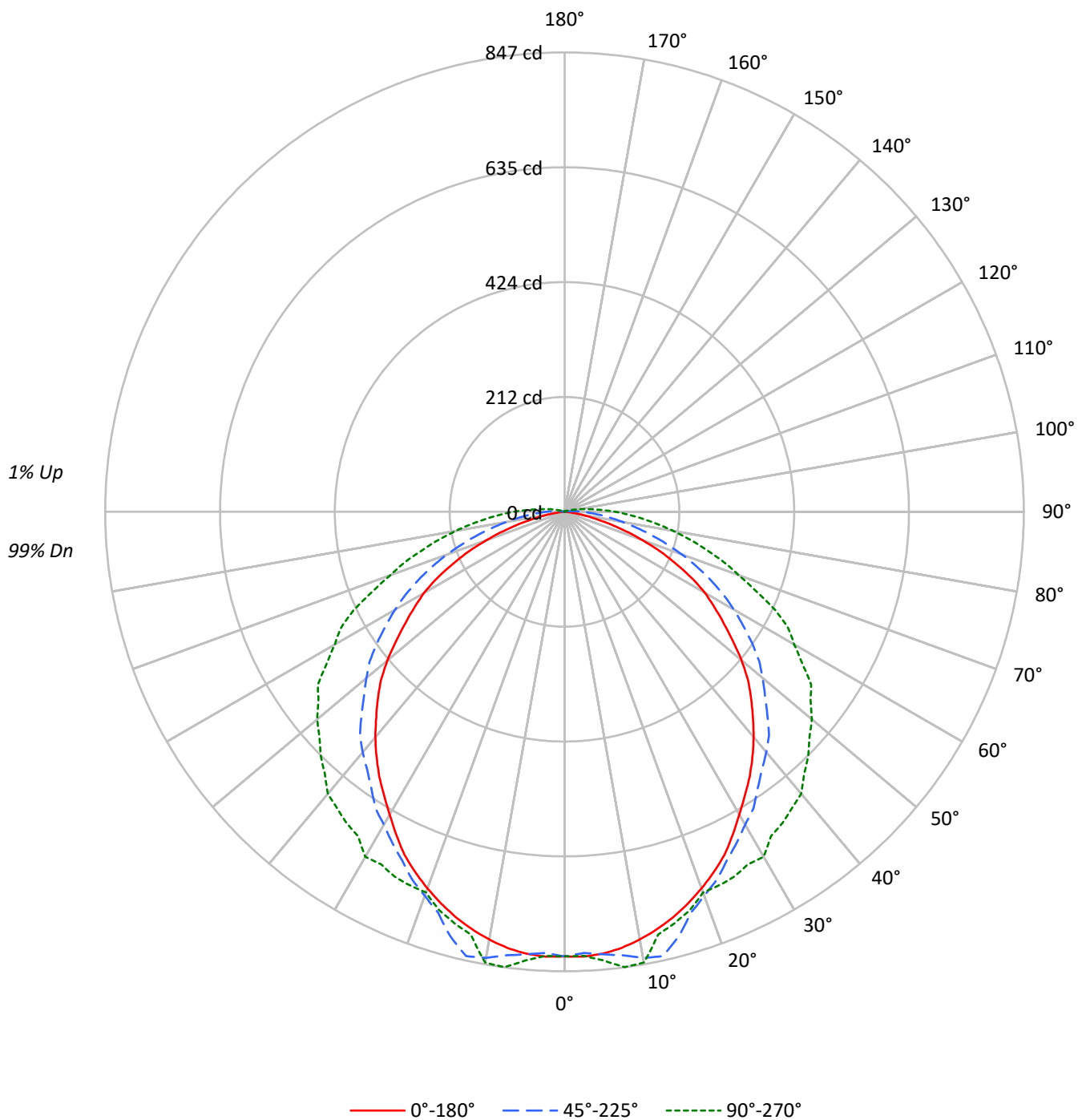
Input Watts (W): 22.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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°	4411	4411	4411
5°	4385	4356	4421
10°	4311	4426	4480
15°	4217	4316	4187
20°	4107	4054	4033
25°	3990	3888	4087
30°	3822	3756	4163
35°	3697	3632	4123
40°	3563	3541	4184
45°	3419	3422	4148
50°	3248	3297	4160
55°	3005	3162	4209
60°	2811	2973	4087
65°	2451	2745	4026
70°	1963	2445	3692
75°	1361	2077	3471
80°	728	1705	3250
85°	244	1320	3058

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 55°

Luminance: 4209 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	78.8	3.2
10°-20°	224.3	9.1
20°-30°	333.8	13.5
30°-40°	401.2	16.2
40°-50°	422.3	17.1
50°-60°	391.8	15.9
60°-70°	309.8	12.5
70°-80°	189.2	7.7
80°-90°	82.4	3.3
90°-100°	25.7	1.0
100°-110°	5.8	0.2
110°-120°	2.3	0.1
120°-130°	1.3	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°	636.9	25.8
0°-40°	1038.0	42.0
0°-60°	1852.1	75.0
0°-90°	2433.6	98.6
90°-120°	33.8	1.4
90°-150°	35.4	1.4
90°-180°	35.0	1.4
0°-180°	2469.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	820	820	820	820	820	
5°	818	816	819	828	830	77
15°	774	804	811	784	785	218
25°	698	743	709	730	742	320
35°	596	612	621	678	701	372
45°	487	489	529	613	636	375
55°	358	364	422	514	555	322
65°	227	234	297	394	429	225
75°	86	114	166	255	271	94
85°	8	27	65	125	144	12
90°	0	8	34	80	94	0
95°	0	2	15	44	53	0
105°	0	1	3	8	12	0
115°	0	1	2	4	4	0
125°	0	0	1	2	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°	819.6	819.6	819.6	819.6	819.6
2.5°	820.6	818.4	813.9	818.2	819.4
5°	817.6	815.9	818.7	827.9	830.3
7.5°	810.7	817.1	824.6	841.3	846.6
10°	800.5	812.6	835.1	849.3	843.8
12.5°	788.2	808.6	838.8	811.1	798.2
15°	773.8	803.5	811.4	784.5	785.0
17.5°	757.0	799.4	775.2	774.5	769.7
20°	738.8	785.3	753.3	752.0	746.8
22.5°	719.2	766.8	733.9	731.3	745.3
25°	698.0	742.6	708.7	729.9	741.8
27.5°	671.5	710.9	687.7	717.7	732.6
30°	644.6	678.2	666.1	708.0	734.4
32.5°	619.4	643.9	648.4	704.4	708.7
35°	595.5	612.1	621.2	677.7	700.7
37.5°	569.3	573.8	598.2	666.5	688.7
40°	542.6	539.8	578.8	648.1	678.8
42.5°	513.9	512.9	558.3	638.9	654.3
45°	486.7	488.8	529.1	612.9	635.8
47.5°	458.8	461.6	501.4	584.3	612.7
50°	426.4	430.1	476.7	559.0	595.5
52.5°	391.3	398.4	452.6	534.9	571.8
55°	358.4	364.3	422.1	514.4	555.3
57.5°	328.4	331.9	390.5	488.5	519.4
60°	298.8	299.7	360.8	459.8	489.3
62.5°	265.0	266.5	330.2	425.9	465.5
65°	226.9	234.1	297.3	393.5	429.2
67.5°	191.3	203.8	263.8	363.8	382.5
70°	153.3	174.5	230.9	328.9	342.1
72.5°	118.4	143.2	197.2	289.8	308.4
75°	85.8	113.7	165.8	254.8	270.8
77.5°	57.8	86.1	136.4	216.0	237.2
80°	34.6	62.9	110.2	180.1	204.0
82.5°	17.7	42.2	85.5	151.1	172.5
85°	7.7	26.7	64.6	125.4	143.9
87.5°	2.2	15.2	47.6	101.3	117.0
90°	0.2	8.0	33.9	79.5	93.7
92.5°	0.2	3.8	23.9	60.1	71.0
95°	0.2	2.0	14.9	43.6	53.3
97.5°	0.2	1.2	9.0	30.9	39.1
100°	0.2	1.0	5.3	20.5	27.9
102.5°	0.2	1.2	3.7	13.0	18.2
105°	0.2	1.2	3.0	8.5	12.0
107.5°	0.3	1.2	2.7	6.3	8.3
110°	0.2	1.0	2.8	4.8	6.5

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.3	0.8	2.7	4.0	4.8
115°	0.2	0.7	2.3	3.8	4.0
117.5°	0.3	0.5	1.8	3.8	4.0
120°	0.3	0.3	1.5	3.7	4.2
122.5°	0.3	0.3	1.2	3.3	4.0
125°	0.2	0.3	1.0	2.5	3.5
127.5°	0.3	0.3	0.8	2.0	2.7
130°	0.3	0.3	0.7	1.5	2.0
132.5°	0.3	0.3	0.5	1.2	1.5
135°	0.3	0.3	0.3	0.8	1.2
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)