

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: P517921

Luminaire Tested: HVL8-2-LD4-2HI-35-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: P517921
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-2-LD4-2HI-35-UNV-O-EDD-90
Description: 2 FOOT, 8 INCH WIDE, HVL LED LUMINAIRE, WITH 3500K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3403.0 lumens
Efficiency: N/A
Efficacy: 79.0 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

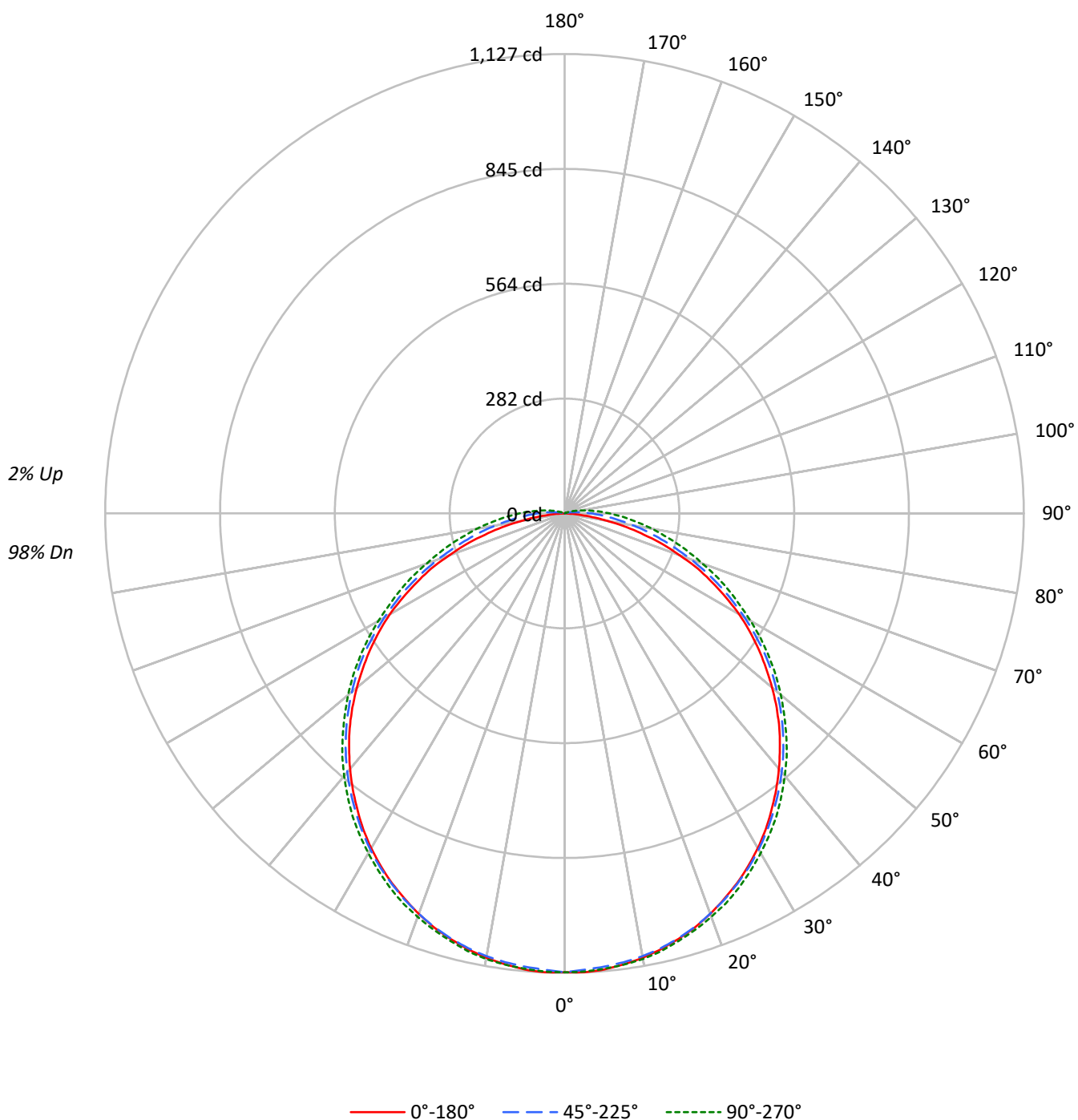
Input Watts (W): 43.1
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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			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°	9086	9086	9086
5°	9035	8861	8892
10°	8942	8681	8714
15°	8832	8485	8500
20°	8717	8269	8293
25°	8584	8049	8081
30°	8434	7815	7841
35°	8252	7561	7603
40°	8062	7294	7327
45°	7857	7006	7027
50°	7600	6675	6705
55°	7319	6314	6351
60°	6985	5853	5936
65°	6479	5339	5526
70°	5779	4740	5048
75°	4815	4085	4615
80°	3450	3442	4218
85°	1660	2788	3841

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 7857 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	106.5	3.1
10°-20°	305.5	9.0
20°-30°	463.6	13.6
30°-40°	560.5	16.5
40°-50°	584.9	17.2
50°-60°	534.7	15.7
60°-70°	416.9	12.2
70°-80°	260.8	7.7
80°-90°	118.4	3.5
90°-100°	39.7	1.2
100°-110°	10.0	0.3
110°-120°	1.6	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°	875.6	25.7
0°-40°	1436.1	42.2
0°-60°	2555.7	75.1
0°-90°	3351.8	98.5
90°-120°	51.2	1.5
90°-150°	51.2	1.5
90°-180°	51.0	1.5
0°-180°	3403.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1126	1126	1126	1126	1126	
5°	1123	1121	1116	1121	1121	107
15°	1080	1082	1079	1085	1085	305
25°	1001	1002	1003	1011	1013	461
35°	886	890	894	903	907	555
45°	746	752	758	766	769	575
55°	582	589	600	608	612	520
65°	400	407	421	438	444	396
75°	202	215	246	276	286	216
85°	35	65	111	147	160	44
90°	0	24	66	98	110	1
95°	0	6	34	62	71	0
105°	0	1	6	16	22	1
115°	1	1	1	3	4	1
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

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1125.5	1125.5	1125.5	1125.5	1125.5
2.5°	1126.8	1125.2	1120.2	1125.2	1125.0
5°	1123.1	1121.0	1116.0	1121.3	1121.3
7.5°	1115.7	1114.9	1110.4	1116.5	1116.5
10°	1106.9	1106.7	1103.0	1109.6	1109.9
12.5°	1094.7	1095.8	1092.3	1098.7	1099.5
15°	1080.4	1082.3	1079.3	1085.4	1085.2
17.5°	1064.7	1065.8	1063.7	1070.6	1070.3
20°	1045.4	1046.7	1045.1	1052.3	1053.1
22.5°	1023.9	1025.7	1025.5	1032.9	1035.0
25°	1001.1	1001.9	1002.9	1011.4	1013.0
27.5°	975.9	977.2	979.0	986.7	988.3
30°	948.3	950.4	952.5	960.5	962.6
32.5°	919.1	921.2	923.9	934.2	935.3
35°	886.2	890.2	893.9	902.9	906.6
37.5°	853.3	858.3	861.8	871.3	874.2
40°	818.5	823.6	829.1	839.2	841.1
42.5°	782.2	788.0	794.6	803.7	806.9
45°	745.6	752.2	758.3	765.7	769.4
47.5°	706.0	712.7	720.1	728.6	731.0
50°	665.2	672.9	680.8	688.8	693.0
52.5°	623.2	632.5	641.6	650.0	654.0
55°	581.9	588.8	599.6	608.4	612.4
57.5°	538.9	544.7	554.5	568.9	571.0
60°	495.1	500.4	510.5	522.2	526.9
62.5°	446.8	454.0	464.6	479.4	483.7
65°	399.8	406.7	420.8	437.5	444.4
67.5°	354.5	356.9	374.9	392.4	403.6
70°	300.9	309.9	330.9	352.4	360.8
72.5°	254.7	263.7	286.8	312.0	322.6
75°	202.4	214.9	246.2	275.7	286.0
77.5°	156.5	170.3	209.1	238.8	250.7
80°	109.3	130.8	173.0	206.4	219.4
82.5°	68.7	95.3	140.4	175.4	186.8
85°	35.0	64.7	111.2	147.0	160.0
87.5°	9.3	41.9	86.5	120.7	134.0
90°	0.3	24.1	65.5	98.4	110.4
92.5°	0.3	13.5	48.8	78.3	90.5
95°	0.3	6.4	34.0	61.6	71.1
97.5°	0.3	2.7	23.3	46.4	56.0
100°	0.3	1.3	14.9	33.7	41.9
102.5°	0.5	0.8	9.3	24.1	30.8
105°	0.5	0.8	5.6	16.5	22.0
107.5°	0.5	0.8	3.2	11.1	15.1
110°	0.8	0.8	1.9	6.9	10.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.8	0.8	1.1	4.5	6.6
115°	0.8	0.8	1.1	2.9	4.2
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)