

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: P517995

Luminaire Tested: HVL8-2-LD4-3STD-30-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: P517995
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL8-2-LD4-3STD-30-UNV-C-EDD-90
Description: 2 FOOT, 8 INCH WIDE, HVL LED LUMINAIRE, WITH 3000K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4544.0 lumens
Efficiency: N/A
Efficacy: 95.1 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

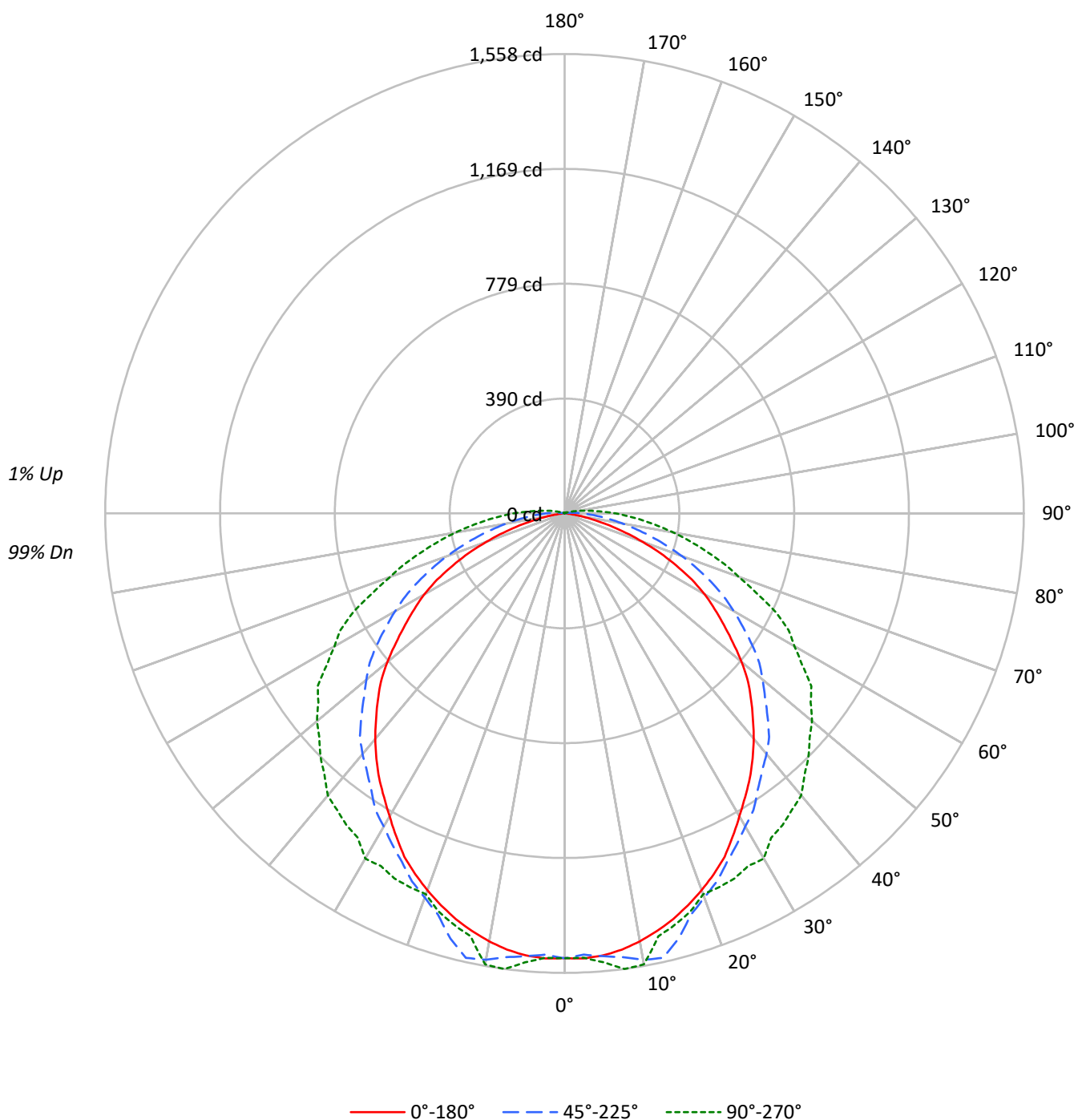
Input Watts (W): 47.8
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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
RCR																	
0	119	119	119	119	116	116	116	116	110	110	110		105	105	105		101
1	108	103	98	94	105	100	96	92	96	92	89		91	89	86		87
2	98	89	82	76	95	87	80	75	83	78	73		80	75	71		76
3	89	78	69	63	86	76	68	62	73	66	61		70	64	59		67
4	81	69	60	53	79	67	59	52	65	57	51		62	56	51		60
5	75	61	52	45	72	60	51	45	58	50	44		56	49	44		54
6	69	55	46	39	67	54	46	39	52	45	39		50	44	38		49
7	64	50	41	35	62	49	41	35	47	40	34		46	39	34		44
8	59	46	37	31	58	45	37	31	43	36	31		42	35	30		41
9	55	42	34	28	54	41	33	28	40	33	28		39	32	27		38
10	52	39	31	25	51	38	30	25	37	30	25		36	29	25		35

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	12177	12177	12177
5°	12105	11964	12117
10°	11902	12096	12192
15°	11643	11739	11317
20°	11336	10969	10823
25°	11015	10467	10891
30°	10551	10059	11011
35°	10206	9671	10816
40°	9836	9373	10882
45°	9439	8996	10687
50°	8966	8601	10605
55°	8297	8179	10599
60°	7760	7612	10147
65°	6767	6943	9823
70°	5418	6087	8809
75°	3757	5062	8041
80°	2008	4034	7219
85°	669	2981	6360

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 45°

Luminance: 10687 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	145.0	3.2
10°-20°	412.8	9.1
20°-30°	614.3	13.5
30°-40°	738.3	16.2
40°-50°	777.2	17.1
50°-60°	721.1	15.9
60°-70°	570.2	12.5
70°-80°	348.3	7.7
80°-90°	151.7	3.3
90°-100°	47.2	1.0
100°-110°	10.6	0.2
110°-120°	4.3	0.1
120°-130°	2.4	0.1
130°-140°	0.6	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°	1172.1	25.8
0°-40°	1910.4	42.0
0°-60°	3408.7	75.0
0°-90°	4478.8	98.6
90°-120°	62.1	1.4
90°-150°	65.2	1.4
90°-180°	65.0	1.4
0°-180°	4544.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1508	1508	1508	1508	1508	
5°	1505	1502	1507	1524	1528	143
15°	1424	1479	1493	1444	1445	401
25°	1285	1367	1304	1343	1365	590
35°	1096	1126	1143	1247	1290	685
45°	896	900	974	1128	1170	690
55°	660	670	777	947	1022	593
65°	418	431	547	724	790	414
75°	158	209	305	469	498	172
85°	14	49	119	231	265	22
90°	0	15	62	146	172	1
95°	0	4	27	80	98	0
105°	0	2	6	16	22	0
115°	0	1	4	7	7	0
125°	0	1	2	5	6	0
135°	1	1	1	2	2	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°	1508.4	1508.4	1508.4	1508.4	1508.4
2.5°	1510.2	1506.2	1497.9	1505.9	1508.1
5°	1504.7	1501.6	1506.8	1523.7	1528.0
7.5°	1492.1	1503.8	1517.6	1548.3	1558.1
10°	1473.3	1495.5	1536.9	1563.1	1552.9
12.5°	1450.6	1488.1	1543.7	1492.7	1469.0
15°	1424.2	1478.9	1493.3	1443.8	1444.8
17.5°	1393.1	1471.2	1426.6	1425.4	1416.5
20°	1359.6	1445.4	1386.4	1383.9	1374.4
22.5°	1323.7	1411.3	1350.7	1345.8	1371.6
25°	1284.7	1366.7	1304.3	1343.4	1365.2
27.5°	1235.8	1308.3	1265.6	1320.9	1348.3
30°	1186.3	1248.1	1226.0	1303.1	1351.7
32.5°	1140.0	1185.1	1193.4	1296.3	1304.3
35°	1096.0	1126.4	1143.3	1247.2	1289.6
37.5°	1047.8	1056.1	1100.9	1226.6	1267.5
40°	998.6	993.4	1065.3	1192.8	1249.3
42.5°	945.8	943.9	1027.5	1175.9	1204.2
45°	895.7	899.7	973.7	1128.0	1170.1
47.5°	844.4	849.6	922.7	1075.4	1127.7
50°	784.8	791.5	877.2	1028.7	1096.0
52.5°	720.2	733.1	833.0	984.5	1052.4
55°	659.7	670.5	776.8	946.7	1022.0
57.5°	604.4	610.8	718.7	899.1	955.9
60°	550.0	551.5	664.0	846.2	900.6
62.5°	487.6	490.4	607.8	783.8	856.7
65°	417.6	430.8	547.2	724.2	790.0
67.5°	352.1	375.2	485.5	669.5	703.9
70°	282.1	321.1	424.9	605.3	629.6
72.5°	217.9	263.6	362.9	533.4	567.5
75°	157.9	209.2	305.1	468.9	498.4
77.5°	106.3	158.5	251.0	397.6	436.6
80°	63.6	115.8	202.8	331.5	375.5
82.5°	32.6	77.7	157.3	278.1	317.4
85°	14.1	49.2	118.9	230.8	264.9
87.5°	4.0	28.0	87.6	186.5	215.4
90°	0.3	14.7	62.4	146.3	172.4
92.5°	0.3	7.1	43.9	110.6	130.6
95°	0.3	3.7	27.3	80.2	98.0
97.5°	0.3	2.2	16.6	56.8	71.9
100°	0.3	1.8	9.8	37.8	51.3
102.5°	0.3	2.2	6.8	24.0	33.5
105°	0.3	2.2	5.5	15.7	22.1
107.5°	0.6	2.2	4.9	11.7	15.4
110°	0.3	1.8	5.2	8.9	12.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.6	1.5	4.9	7.4	8.9
115°	0.3	1.2	4.3	7.1	7.4
117.5°	0.6	0.9	3.4	7.1	7.4
120°	0.6	0.6	2.8	6.8	7.7
122.5°	0.6	0.6	2.2	6.1	7.4
125°	0.3	0.6	1.8	4.6	6.5
127.5°	0.6	0.6	1.5	3.7	4.9
130°	0.6	0.6	1.2	2.8	3.7
132.5°	0.6	0.6	0.9	2.2	2.8
135°	0.6	0.6	0.6	1.5	2.2
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)