

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: P517479

Luminaire Tested: HVL12-4-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: P517479
Test Lab: INNOVATION CENTER
Issue Date: 4/27/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: HVL12-4-LD4-1STD-50-UNV-C-EDD-90
Description: 4 FOOT, 12 INCH WIDE, HVL LED LUMINAIRE, WITH 5000K, 90 CRI LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3941.0 lumens
Efficiency: N/A
Efficacy: 117.6 lumens/watt
Spacing Criteria (0/90/45): 1.18 / 1.32 / 1.37
Luminous Opening: Rectangular w/ Sides (W: 1' x L: 4' x H: 0.17')
CIE Type: Direct

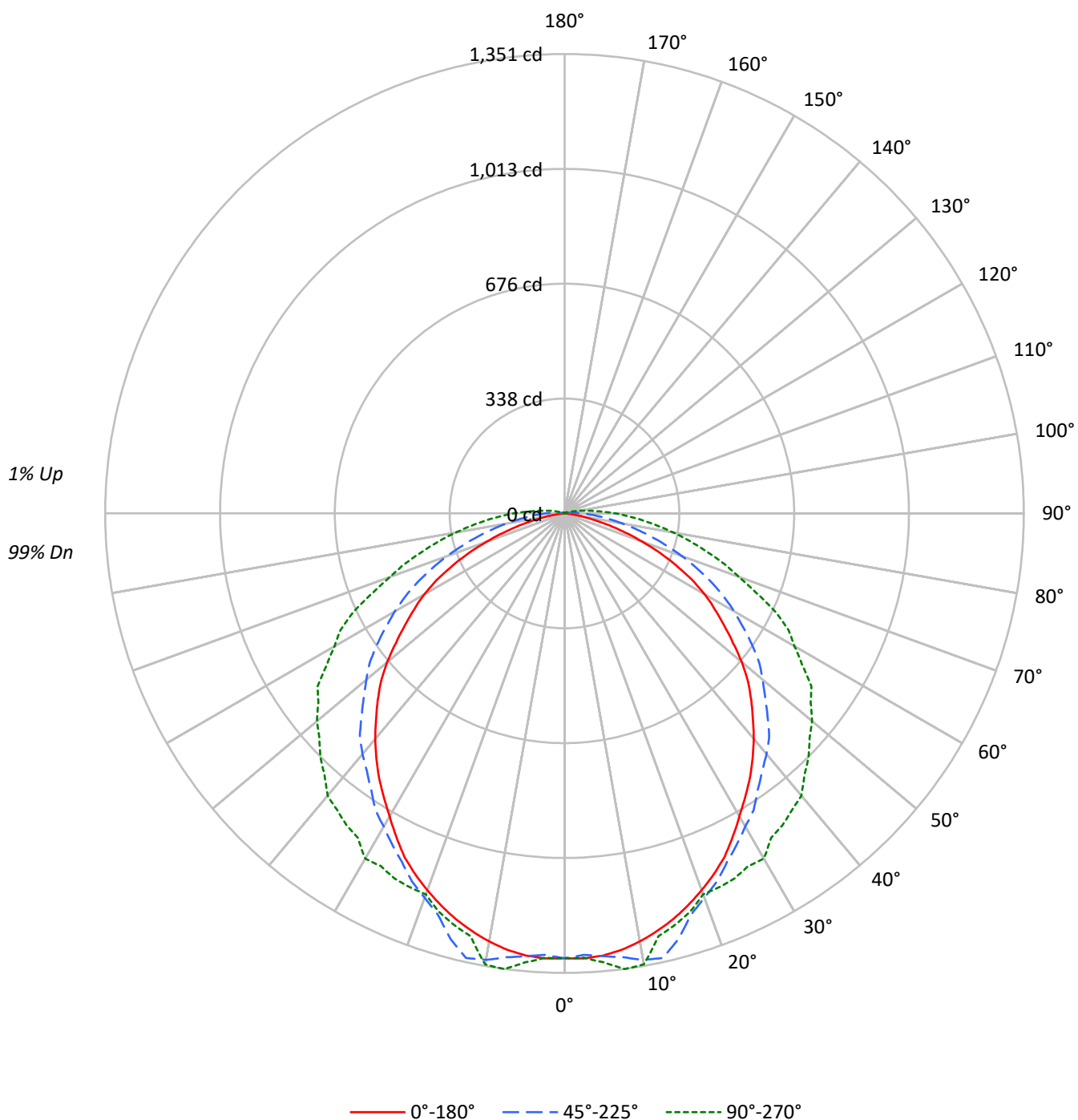
Input Watts (W): 33.5
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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

TEST NUMBER: P517479

CATALOG NUMBER: HVL12-4-LD4-1STD-50-UNV-C-EDD-90

Luminous Intensity Polar Plot



TEST NUMBER: P517479

CATALOG NUMBER: HVL12-4-LD4-1STD-50-UNV-C-EDD-90

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°	3520	3520	3520
5°	3512	3485	3529
10°	3466	3550	3575
15°	3403	3471	3341
20°	3326	3268	3218
25°	3245	3143	3262
30°	3122	3045	3323
35°	3034	2953	3290
40°	2940	2888	3339
45°	2838	2801	3310
50°	2714	2709	3320
55°	2534	2611	3359
60°	2394	2469	3262
65°	2117	2296	3214
70°	1727	2064	2946
75°	1233	1775	2770
80°	692	1485	2594
85°	257	1186	2441

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 55°

Luminance: 3359 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	125.7	3.2
10°-20°	358.1	9.1
20°-30°	532.7	13.5
30°-40°	640.4	16.2
40°-50°	674.0	17.1
50°-60°	625.4	15.9
60°-70°	494.5	12.5
70°-80°	302.0	7.7
80°-90°	131.6	3.3
90°-100°	41.0	1.0
100°-110°	9.2	0.2
110°-120°	3.7	0.1
120°-130°	2.1	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°	1016.5	25.8
0°-40°	1656.9	42.0
0°-60°	2956.3	75.0
0°-90°	3884.5	98.6
90°-120°	53.9	1.4
90°-150°	56.5	1.4
90°-180°	57.0	1.4
0°-180°	3941.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1308	1308	1308	1308	1308	
5°	1305	1302	1307	1322	1325	124
15°	1235	1283	1295	1252	1253	348
25°	1114	1185	1131	1165	1184	512
35°	951	977	992	1082	1118	594
45°	777	780	844	978	1015	599
55°	572	582	674	821	886	514
65°	362	374	475	628	685	359
75°	137	182	265	407	432	149
85°	12	43	103	200	230	19
90°	0	13	54	127	150	1
95°	0	3	24	70	85	0
105°	0	2	5	14	19	0
115°	0	1	4	6	6	0
125°	0	0	2	4	6	0
135°	0	0	0	1	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

TEST NUMBER: P517479

CATALOG NUMBER: HVL12-4-LD4-1STD-50-UNV-C-EDD-90

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1308.2	1308.2	1308.2	1308.2	1308.2
2.5°	1309.8	1306.3	1299.1	1306.1	1307.9
5°	1305.0	1302.3	1306.9	1321.5	1325.3
7.5°	1294.1	1304.2	1316.2	1342.8	1351.4
10°	1277.8	1297.0	1333.0	1355.6	1346.8
12.5°	1258.1	1290.6	1338.8	1294.6	1274.1
15°	1235.2	1282.6	1295.1	1252.2	1253.0
17.5°	1208.3	1276.0	1237.3	1236.2	1228.5
20°	1179.2	1253.6	1202.4	1200.3	1192.0
22.5°	1148.0	1224.0	1171.5	1167.2	1189.6
25°	1114.2	1185.3	1131.2	1165.1	1184.0
27.5°	1071.8	1134.7	1097.7	1145.6	1169.4
30°	1028.9	1082.5	1063.3	1130.2	1172.3
32.5°	988.7	1027.9	1035.0	1124.3	1131.2
35°	950.6	977.0	991.6	1081.7	1118.5
37.5°	908.7	915.9	954.8	1063.8	1099.3
40°	866.1	861.6	923.9	1034.5	1083.5
42.5°	820.3	818.7	891.1	1019.9	1044.4
45°	776.8	780.3	844.5	978.3	1014.8
47.5°	732.3	736.8	800.3	932.7	978.0
50°	680.6	686.5	760.8	892.2	950.6
52.5°	624.7	635.8	722.5	853.8	912.7
55°	572.2	581.5	673.7	821.1	886.3
57.5°	524.2	529.8	623.3	779.7	829.0
60°	477.0	478.3	575.9	733.9	781.1
62.5°	422.9	425.3	527.1	679.8	743.0
65°	362.2	373.6	474.6	628.1	685.1
67.5°	305.4	325.4	421.1	580.7	610.5
70°	244.6	278.5	368.6	525.0	546.0
72.5°	188.9	228.6	314.7	462.6	492.2
75°	137.0	181.5	264.6	406.7	432.2
77.5°	92.2	137.5	217.7	344.8	378.7
80°	55.2	100.5	175.9	287.5	325.7
82.5°	28.2	67.4	136.4	241.2	275.3
85°	12.3	42.6	103.1	200.1	229.7
87.5°	3.5	24.3	75.9	161.8	186.8
90°	0.3	12.8	54.1	126.8	149.5
92.5°	0.3	6.1	38.1	95.9	113.3
95°	0.3	3.2	23.7	69.6	85.0
97.5°	0.3	1.9	14.4	49.3	62.4
100°	0.3	1.6	8.5	32.8	44.5
102.5°	0.3	1.9	5.9	20.8	29.0
105°	0.3	1.9	4.8	13.6	19.2
107.5°	0.5	1.9	4.3	10.1	13.3
110°	0.3	1.6	4.5	7.7	10.4

TEST NUMBER: P517479

CATALOG NUMBER: HVL12-4-LD4-1STD-50-UNV-C-EDD-90

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	0.5	1.3	4.3	6.4	7.7
115°	0.3	1.1	3.7	6.1	6.4
117.5°	0.5	0.8	2.9	6.1	6.4
120°	0.5	0.5	2.4	5.9	6.7
122.5°	0.5	0.5	1.9	5.3	6.4
125°	0.3	0.5	1.6	4.0	5.6
127.5°	0.5	0.5	1.3	3.2	4.3
130°	0.5	0.5	1.1	2.4	3.2
132.5°	0.5	0.5	0.8	1.9	2.4
135°	0.5	0.5	0.5	1.3	1.9
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)