

Underwriters Laboratories (UL LLC) Safety Certification Report



Model: LWFA2E120-092SS-07
LWFA2E120-092SU-08

Device Description: Electrical Fan

Applicant: Ningbo Longwell Electric Technology Co., Ltd
Xuxiang River 100
Yuyao, Zhejiang Sheng, 315400 China

Manufacturer: Same as Applicant

Manufacturing Facility(ies): Same as Applicant

Report No.: E552586-D1000-1/A0/C0-UL

Report (Re)Issue Date: 2026-02-12

Base Standard(s): AAMI ES60601-1:2005,ES60601-1:2005/AMD1 1:2012 , ES60601-1:2005/AMD2:2021, CAN/CSA-C22.2 No. 60601-1:08, CAN/CSA-C22.2 No. 60601-1:14 (including amendment 1) and Amendment 2:2022 (MOD) to CAN/CSA-C22.2 No. 60601-1:14

Additional Standards: N/A

Report Types: This report consists of the following report types:
[Yes] US Certification (UL Unlisted Component)
[Yes] CAN Certification (cUL Unlisted Component)

This report covers the Safety evaluation of the referenced model(s) according to the standard(s) specified above.

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Report Modifications Summary

The following changes were made to this report. If none listed in the below table, this report is the originally issued report.

The following scheme is used throughout this report to reflect the **Report No.**:

(File No.) – (Report Ref. No.) – (x) / A(y) / C(z) – YYY, where:

(x) = Report (Re)Issue No.

(y) = Amendment No.

(z) = Correction No.

YYY = Report Type (UL/CB/IEC)

Date Modified (Year-Month-Day)	Modifications Made (include Report Reference Number)	Modified By

Test Report issued under the responsibility of:



IEC 60601-1 Medical electrical equipment Part 1: General requirements for basic safety and essential performance	
Report Reference No.....	E552586-D1000-1/A0/C0-UL
Date of issue	2026-02-12
Total number of pages.....	12
Testing Laboratory.....	UL International Demko A/S
Address	Borupvang 5A, DK-2750 Ballerup, Denmark
Applicant's name.....	Ningbo Longwell Electric Technology Co., Ltd
Address	Xuxiang River 100 Yuyao, Zhejiang Sheng, 315400 China
Test specification:	
Standard	IEC 60601-1:2005, IEC 60601-1:2005/AMD1:2012, IEC 60601-1:2005/AMD2:2020
Test procedure	UL Certification
Non-standard test method.....	N/A
Test Report Form No.....	IEC60601_1U
Test Report Form Originator.....	UL(US)
Master TRF	2023-08-24
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General disclaimer:	
The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Issuing UL testing laboratory. The authenticity of this Test Report and its contents can be verified by contacting UL.	

Test item description:	Electrical Fan	
Trade Mark:	N/A	
Manufacturer:	Same as Applicant	
Model/Type reference:	LWFA2E120-092SS-07 LWFA2E120-092SU-08	
Ratings:	LWFA2E120-092SS-07: 230Vac, 50Hz LWFA2E120-092SU-08: 115Vac, 60Hz	
Testing procedure and testing location:		
☒ Testing Laboratory:		
Testing location/ address:	UL International Demko A/S Borupvang 5A, DK-2750 Ballerup, Denmark	
☐ Associated Testing Laboratory:		
Testing location/ address:		
Tested by (name, function, signature):	Lars Groennegaard, Handler	
Approved by (name, function, signature):	Mona H. Nielsen, Reviewer	
☐ Testing procedure: WMT:		
Testing location/ address:		
Tested by (name, function, signature):		
Approved by (name, function, signature):		
☐ Testing procedure: CTF Stage 2:		
Testing location/ address:		
Tested by (name, function, signature):		
Witnessed by (name, function, signature):		
Approved by (name, function, signature):		
☐ Testing procedure: CTF Stage 3:		
☐ Testing procedure: CTF Stage 4:		
Testing location/ address:		
Tested by (name, function, signature):		
Witnessed by (name, function, signature):		
Approved by (name, function, signature):		

signature):		
Supervised by (name, function, signature):		

List of Attachments (including a total number of pages in each attachment):

Refer to Appendix A of this report. All attachments are included within this report.

Summary of testing

Tests performed (name of test and test clause):

Testing location:

Refer to the Test List in Appendix D of this report if testing was performed as part of this evaluation.

Statement concerning the uncertainty of the measurement systems used for the tests

(may be required by the product standard or client)

☐ **Internal procedure used for type testing through which traceability of the measuring uncertainty has been established:**

Procedure number, issue date and title:

Calculations leading to the reported values are on file with the NCB and testing laboratory that conducted the testing.

☐ **Statement not required by the standard used for type testing**

(Note: When IEC or ISO standard requires a statement concerning the uncertainty of the measurement systems used for tests, this should be reported above. The informative text in parenthesis should be delete in both cases after selecting the applicable option)

Copy of marking plate

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective owners of these marks.

Refer to the enclosure(s) titled Marking Label in the Enclosures section in Appendix A of this report for a copy.

GENERAL INFORMATION	
Test item particulars(see also Clause 6):	
Classification of Installation and Use:	N/A
Supply Connection:	N/A
Device type (component/sub-assembly/ equipment/ system):	Unlisted Component
Intended use (Including type of patient, application location):	Intended for The surgical Company devise MA1400 described in report E348441-D1001
Mode of Operation:	Continuous
Accessories and detachable parts included:	
Other Options Include:	
Supply Connection	
Testing	
Date of receipt of test item(s)	N/A
Dates tests performed	N/A
Possible test case verdicts:	
- test case does not apply to the test object	N/A
- test object does meet the requirement.....	Pass (P)
- test object was not evaluated for the requirement	N/E
- test object does not meet the requirement.....	Fail (F)
Abbreviations used in the report:	
- normal condition: N.C.	- single fault condition: S.F.C.
- means of Operator protection: MOOP	- means of Patient protection: MOPP
General remarks: "(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report. Throughout this report a point is used as the decimal separator.	
GENERAL PRODUCT INFORMATION:	
Report Summary	
All applicable tests according to the referenced standard(s) have been carried out.	
Refer to the Report Modifications for any modifications made to this report.	
Product Description	
Electrical Fan	
Model Differences	
N/A	
Additional Information	
N/A	
Technical Considerations	
The product was investigated to the following standards:	
<u>Main Standard(s):</u>	

AAMI ES60601-1:2005,ES60601-1:2005/AMD1 1:2012 , ES60601-1:2005/AMD2:2021,
CAN/CSA-C22.2 No. 60601-1:08, CAN/CSA-C22.2 No. 60601-1:14 (including amendment 1)
and Amendment 2:2022 (MOD) to CAN/CSA-C22.2 No. 60601-1:14

From Country Differences:

- United States of America: AAMI ES60601-1:2005,ES60601-1:2005/AMD1 1:2012 , ES60601-1:2005/AMD2:2021
- Canada: CAN/CSA-C22.2 No. 60601-1:08, CAN/CSA-C22.2 No. 60601-1:14 (including amendment 1) and Amendment 2:2022 (MOD) to CAN/CSA-C22.2 No. 60601-1:14

Additional Standards:

N/A

- The following additional investigations were conducted: N/A
- The product was not investigated to the following standards or clauses: N/A
- The following accessories were investigated for use with the product: N/A
- No Other Considerations

Engineering Conditions of Acceptability

When installed in an end-product, consideration must be given to the following:

To be used in Devise MA1400 described in E348441-D1001

IEC 60601-1			
Clause	Requirement + Test	Result - Remark	Verdict

TABLE: INSULATION DIAGRAM									N/A
Pollution Degree:									-
Overvoltage category:									-
Altitude:				(m)					-
Additional details on parts considered as applied parts:				[] None [X] Areas: (See Clause 4.6 for details)					-
Area	Number and type of Means of Protection: MOOP, MOPP	CTI	Working Voltage V_{rms}	Working Voltage V_{pk}	Required creepage (mm)	Required clearance (mm)	Measured creepage (mm)	Measured clearance (mm)	Remarks

Supplementary Information:

INSULATION DIAGRAM CONVENTIONS and GUIDANCE:

A measured value must be provided in the value columns for the device under evaluation. The symbol > (greater than sign) must not be used. Switch-mode power supplies must be re-evaluated in the device under evaluation therefore N/A must not be used with a generic statement that the component is certified. Insulation diagram is a graphical representation of equipment insulation barriers, protective impedance and protective earthing. If feasible, use the following conventions to generate the diagram:

- All isolation barriers are identified by letters between separate parts of diagram, for example separate transformer windings, optocouplers, wire insulation, creepage and clearance distances.
- Parts connected to earth with large dots are protectively earthed. Other connections to earth are functional
- Applied parts are extended beyond the equipment enclosure and terminated with an arrow.
- Parts accessible to the operator only are extended outside of the enclosure, but are not terminated with an arrow.

IEC 60601-1			
Clause	Requirement + Test	Result - Remark	Verdict

The list of clauses, verdicts and results can be found in the original CB Test Report that serves as the basis for this UL Test Report.

IEC 60601-1			
Clause	Requirement + Test	Result - Remark	Verdict

8.10	TABLE: List of critical components					Pass
Component/ Part No.	Manufacturer/ Trademark	Type No./model No./	Technical data	Standard No. / Edition ²	Mark(s) & Certificates of conformity ¹	
Fan	Longwell	LWFA2E120-092SS-07	230V AC, 0.33A, 2200rpm, cap. 2μF/450V , Class F	-	- Evaluated in this investigation See enclosure for details	
Fan	Longwell	LWFA2E120-092SU-08	115 V AC, 0.77A, 2200rpm, cap. 8μF/250V , Class F	-	- Evaluated in this investigation See enclosure for details	
Rear Insulation Board	Basf Se	A3X2G5	PA66		E41871, QMFZ2, 8	
Wiring Board Insulation Gasket	SICHUAN DONGFANG INSULATING MATERIAL CO LTD	DMD 6641	155 degrees, Class F isolation system		E324567, OBJS2	
Slot Wedge	Basf Se	A3X2G5	PA66		E41871, QMFZ2, 8	
Phase Separation Paper	SICHUAN DONGFANG INSULATING MATERIAL CO LTD	Polyester Imide PI	rated min 155C		E229667, OANZ2	
Front Insulation Board	Basf Se	A3X2G5	PA66		E41871, QMFZ2	
Enamelled Round Copper Wire	NINGBO JINTIAN NEW MATERIAL CO LTD	QZY-2/180	180C		E227047, OBMV2	
Core Wrapping Insulation	Basf Se	A3X2G5	PA66		E41871, QMFZ2, 8	
Thermal Protector	Baoying Safty Electronic Technology Co Ltd	BW-BCP	155°C		E336656, XAPX2,8	
Power Lead Wire	Yuyao Kaian Cable Technology Co Ltd	Style 1332	20AWG		E345435, AVLV2,8	
Capacitor for 115V model	Shenge	CBB61	8μF/250V square medium ear with two 4.5 terminals	IEC60252:2001	E213054, CZDS2, 8 TUV Certificate No. R 50156392	
Capacitor for 230V model	Shenge	CBB61	2μF/450V square medium ear with two 4.5 terminals	IEC60252:2001	E213054, CZDS2, 8 TUV Certificate No. R 50156392	

Supplementary information:

The Test Laboratory has verified the component information.

- 1) An asterisk indicates a mark which assures the agreed level of surveillance. See Licenses and Certificates of Conformity for verification.
- 2) Anything specified within brackets "()" is for reference purposes only and can be used to specify the UL Product Category CCN(s)/File Number if the component includes an UL Certification. This can be useful for the UL Follow-Up Service Inspection associated with the UL Mark; however if in brackets, should not be a required element of the UL Inspection.

IEC 60601-1			
Clause	Requirement + Test	Result - Remark	Verdict

National Differences

The following National Differences are included in this Report. If not 'Selected', the device was not evaluated to these Differences.

If selected, Group Differences are applicable for CENELEC member countries: Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Selected? (y/n)	Group / Country	Standard	Abbreviation
Yes	United States of America	AAMI ES60601-1:2005, ES60601-1:2005/AMD1 1:2012, ES60601-1:2005/AMD2:2021	US
Yes	Canada	CAN/CSA-C22.2 No. 60601-1:08, CAN/CSA-C22.2 No. 60601-1:14 (including amendment 1) and Amendment 2:2022 (MOD) to CAN/CSA-C22.2 No. 60601-1:14	CAN

The list of clauses, verdicts and results can be found in the original CB Test Report that serves as the basis for this UL Test Report.

-----END OF MAIN REPORT-----

APPENDIX A: Enclosures

Collateral/Particular Standard Enclosures

Enclosures

<u>Supplement ID</u>	<u>Description</u>
N/A	No Collateral or Particular Standards Apply

Other Enclosures

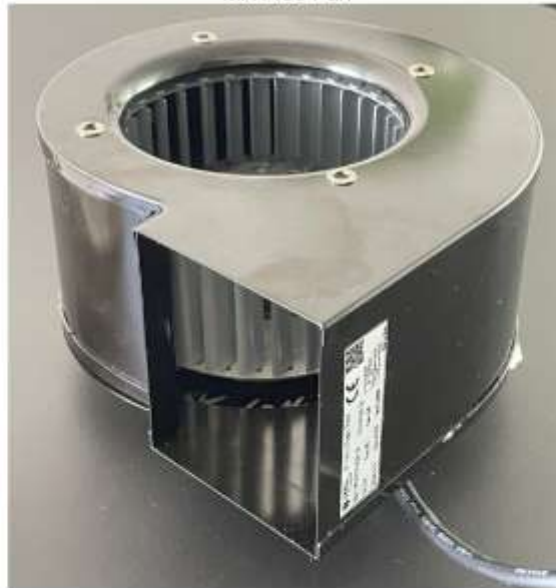
All Enclosures associated with this report are shown below.

Enclosures

<u>Supplement - (ID)</u>	<u>Description</u>
Diagrams - (001)	Fan assembly - TSC005_LWFA-120-01
Photographs - (001)	MA1400 Fan

Photographs - (001) MA1400 FanPhotographs - (001) MA1400 Fan

MA1400 Fan



Photographs - (001) MA1400 Fan

Fan motor capacitor 230V



Fan motor capacitor 115V



Photographs - (001) MA1400 Fan

Fan motor bottom lid removed



Fan motor top



Photographs - (001) MA1400 Fan

Motor Wd



Motor lid



UL CERTIFICATION DOCUMENTATION:

APPENDIX B: UL Certification Documentation

This Appendix includes additional documentation for the UL Certification.

Test Record

Test in report E348441-D1001

All applicable tests according to the referenced standard(s) have been carried out.

The following tests were conducted:

Refer to the Test List in Appendix D of this report if testing was performed as part of this evaluation.

Test results are valid only for the tested equipment. These tests are considered representative of the products covered by this Test Report. The test methods and results of the above tests have been reviewed and found to be in accordance with the requirements in the Standard(s) referenced at the beginning of this Test Report.

Compliance of the tested equipment was determined based on the requirements of the below listed standards.

Base Standard(s): AAMI ES60601-1:2005, ES60601-1:2005/AMD1 1:2012, ES60601-1:2005/AMD2:2021, CAN/CSA-C22.2 No. 60601-1:08, CAN/CSA-C22.2 No. 60601-1:14 (including amendment 1) and Amendment 2:2022 (MOD) to CAN/CSA-C22.2 No. 60601-1:14

Additional Standards: N/A

Any supplements provided as a part of this Test Record are located in Appendix A of this report.

NOTE: If there is a Multiple Listee associated with this report, the ML Correlation Sheet is not included in this report and is located as a separate file in UL's CDA system.

-----END OF APPENDIX B-----

TEST RESULTS:

APPENDIX D: Test Datasheets Enclosures

The following tests have been performed as part of this report:

Standard	Clause No.	Test Name	Testing Location / Comments
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NOTE: If testing location is blank then the test was performed at the Testing Laboratory as specified at the beginning of this report.

The following datasheet enclosures are provided in this section of the report. If blank, no separate enclosures are attached.

Enclosures

<u>Supplement ID</u>	<u>Description</u>
-	No separate datasheet enclosures attached.

----- END OF APPENDIX D -----