UL 1711

ISBN 0-7629-1282-0

Amplifiers for Fire Protective Signaling Systems

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333 Pfingsten Road
Northbrook, IL 60062-2096

UL Standard for Safety for Amplifiers for Fire Protective Signaling Systems, UL 1711

Fourth Edition, Dated December 28, 2006

Summary of Topics

This new edition of UL 1711 is being issued through UL's electronic publishing system to ensure format uniformity between the PDF and HTML versions of the document. While numbering and figure placement, where appropriate, may have been updated, no substantive changes have been incorporated in the document.

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The requirements in this Standard are now in effect, except for those paragraphs, sections, tables, figures, and/or other elements of the Standard having future effective dates as indicated in the note following the affected item. The prior text for requirements that have been revised and that have a future effective date are located after the Standard, and are preceded by a ″SUPERSEDED REQUIREMENTS″ notice.

New product submittals made prior to a specified future effective date will be judged under all of the requirements in this Standard including those requirements with a specified future effective date, unless the applicant specifically requests that the product be judged under the current requirements. However, if the applicant elects this option, it should be noted that compliance with all the requirements in this Standard will be required as a condition of continued Listing, Recognition and Follow-Up Services after the effective date, and understanding of this should be signified in writing.

This Standard consists of pages dated as shown in the following checklist:

Page	Date
1-64	December 28, 2006
A1-A2	December 28, 2006

UL 1711

Standard for Amplifiers for Fire Protective Signaling Systems

First Edition – January, 1987
Second Edition – August, 1994
Third Edition – February, 1999

Fourth Edition

December 28, 2006

An effective date included as a note immediately following certain requirements is one established by Underwriters Laboratories Inc.

Revisions of this Standard will be made by issuing revised or additional pages bearing their date of issue. A UL Standard is current only if it incorporates the most recently adopted revisions, all of which are itemized on the transmittal notice that accompanies the latest set of revised requirements. Comments or proposals for revisions on any part of the Standard may be submitted to UL at any time. Proposals should be submitted via a Proposal Request in UL's On-Line Collaborative Standards Development System (CSDS) at http://csds.ul.com.

ISBN 0-7629-1282-0

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APPENDIX A

Standards for Components A1

INTRODUCTION

1 Scope

1.1 These requirements cover electrically- and electronically-operated amplifiers that provide speech communication and distinctive sounds in conjunction with fire protective signaling systems for indoor location in accordance with the following standards:

a) National Electrical Code, NFPA 70.

b) National Fire Alarm Code, NFPA 72.

1.2 These requirements do not cover amplifiers for use in hazardous locations, as defined in the National Electrical Code, NFPA 70.

1.3 These requirements do not cover commercial equipment for institutional and industrial use or theater equipment. Commercial sound equipment is covered by the Standard for Commercial Audio Equipment, UL 813.

1.4 These requirements do not cover signal generating or processing equipment, such as tone generators, tape decks, microphones, and the like.

1.5 These requirements do not include determination of compliance with regulations of the Federal Communications Commission (FCC). Should products covered by these requirements be required to comply with FCC regulations, a report of verification from the manufacturer is required as evidence of such compliance.

1.6 A product that contains features, characteristics, components, materials, or systems new or different from those covered by the requirements in this standard, and that involves a risk of fire, electric shock, or injury to persons shall be evaluated using the appropriate additional component and end-product requirements to determine that the level of safety as originally anticipated by the intent of this standard is maintained. A product whose features, characteristics, components, materials, or systems conflict with specific requirements or provisions of this standard shall not be judged to comply with this standard. Where appropriate, revision of requirements shall be proposed and adopted in conformance with the methods employed for development, revision, and implementation of this standard.

2 General

2.1 Components

2.1.1 Except as indicated in 2.1.2, a component of a product covered by this standard shall comply with the requirements for that component. See Appendix A for a list of standards covering components generally used in the products covered by this standard.

2.1.2 A component need not comply with a specific requirement that:

a) Involves a feature or characteristic not needed in the application of the component in the product covered by this standard or

b) Is superseded by a requirement in this standard.

2.1.3 A component shall be used in accordance with its recognized rating established for the intended conditions of use.

2.1.4 Specific components are recognized as being incomplete in construction features or restricted in performance capabilities. Such components are intended for use only under limited conditions, such as certain temperatures not exceeding specified limits, and shall be used only under those specific conditions for which they have been recognized.

2.2 Units of measurement

2.2.1 If a value for measurement is followed by a value in other units in parentheses, the second value may be only approximate. The first stated value is the requirement.

2.2.2 Unless otherwise indicated, all voltage and current values mentioned in this standard are root-mean-square (rms).

2.3 Undated references

2.3.1 Any undated reference to a code or standard appearing in the requirements of this standard shall be interpreted as referring to the latest edition of that code or standard.

3 Glossary

3.1 For the purpose of this standard the following definitions apply.

3.2 CIRCUITS, ELECTRICAL:

a) High-Voltage – A circuit involving a potential of not more than 300 volts and having circuit characteristics in excess of those of a low-voltage circuit.

b) Low-Voltage – A circuit involving a potential of not more than 30 volts alternating current (AC) rms, 42.4 volts direct current (DC) or AC peak.

c) Power-Limited Circuit – A circuit wherein the power is limited in accordance with Power-Limited Circuits, Section 50.

3.3 FIELD-WIRING TERMINALS – Those terminals to which power supply (including equipment grounding) or control connections will be made in the field when the product is installed as intended.

3.4 OPERATOR – A person who may manipulate the control or amplification functions of a product but does not have access to portions of the product required for servicing and maintenance.

3.5 POWER, EVACUATE – Rated output power for a square wave signal used for evacuation purposes.

3.6 POWER, SPEECH – Rated output power while delivering audio frequency signals over the rated frequency band within the constraints of the distortion limits specified in this standard. Audio frequency signals are considered to be within the 15-hertz to 15-kilohertz frequency range.

3.7 PRODUCT – Any type of amplifier covered by these requirements.

3.8 RADIO FREQUENCY – All frequencies above 20 kilohertz.

INSTRUCTIONS AND DRAWINGS

4 General

4.1 Each product shall be provided with installation instructions and drawings that shall include the following information:

a) Typical installation drawing layouts and complete representative installation wiring diagram for the product indicating recommended locations and wiring methods. The recommended locations and methods shall be in accordance with the National Electrical Code, ANSI/NFPA 70.

b) A concise description of the operation, testing, and proper maintenance procedures for the product. The frequency of testing shall be in accordance with the requirements of the authorities having jurisdiction.

c) Identification of replacement parts, such as lamps or batteries, by a part number, manufacturer's model number, or the equivalent.

d) Typical installation wiring diagrams showing the interconnection of the product in a manner verifying electrical supervision in a complete system. See 4.3 for interconnection diagram specifications.

4.2 The instructions may be incorporated on the inside of the product, on a separate sheet, or as part of a manual. If not included directly on the product, the instructions or manual shall be referenced in the marking information on the product.

4.3 With reference to 7.1, the interconnection diagram that includes speakers and amplifiers interconnected as part of a fire protective signaling system is to be reviewed to verify that electrical supervision is provided for the amplifier and speaker circuits. The interconnection diagram shall be included with the installation wiring diagram or operating instructions, or both, furnished by the manufacturer, and shall indicate connections required for supervision.

CONSTRUCTION

ASSEMBLY

5 General

5.1 Unless specifically indicated otherwise, the construction requirements specified for a product also apply to any remote accessories with which it is to be used.

5.2 If provision is made for testing the operability of a product, the means provided shall not involve a risk of electric shock or injury to persons.

5.3 A test means shall be constructed and located so as to reduce the likelihood of tampering by unauthorized personnel.

6 Protection of Service Personnel

6.1 An uninsulated live part of a high-voltage circuit within the enclosure shall be located, guarded, or enclosed to reduce the likelihood of unintentional contact by persons performing service functions that may be performed while the equipment is energized.

6.2 During the examination of a product in connection with the requirements of 6.1, a part of the outer enclosure that may be removed without the use of tools, or part of the outer enclosure that may be removed by the user to allow access for making intended operating adjustments, is to be disregarded; it will not be assumed that the part in question affords protection against electric shock.

6.3 An electrical component requiring examination, replacement, adjustment, servicing, or maintenance while the product is energized shall be located and mounted with regard to other components and grounded metal so that it is accessible for such service without subjecting the service person to a risk of electric shock from adjacent uninsulated high-voltage live parts.

6.4 The following are not considered to be uninsulated live parts:

a) Coils of relays and solenoids, and transformer windings, if the coils and windings are provided with insulating overwraps rated for the potentials involved;

b) Terminals and splices having insulation rated for the potential involved; and

c) Insulated wire.

6.5 If the linear distance from a component requiring servicing to an uninsulated high-voltage live part is less than 6 inches (152 mm), the part shall be protected by insulating tape, barriers, or the equivalent.

Exception: A product need not comply with this requirement if either:

a) An interlock is provided on the cover that de-energizes all live parts in the enclosure when the cover is removed or

b) The cover is marked in accordance with 56.9.

7 Electrical Supervision

7.1 An amplifier shall be provided with means for interconnection into a system of electrical supervision that will provide an audible trouble signal in the event of an open circuit in the input or output circuits of the amplifier or other malfunction (including internal malfunction of tone generators, preamplifiers, and amplifiers resulting in loss of their intended output or reduction of performance below the level required by this standard) that will impair intended signaling operation. See 4.3 for interconnection diagram specifications.

8 Enclosures

8.1 General

8.1.1 The frame and enclosure of a product shall have the strength and rigidity to resist total or partial collapse with attendant reduction of spacings, loosening or displacement of parts, and development of other conditions that could impair operation of the product and result in a risk of fire, electric shock, or injury to persons.

8.1.2 Uninsulated high-voltage live parts of a product shall be located or enclosed to provide protection from unintentional contact.

8.1.3 An operating part, such as a gear mechanism, a light-duty relay, or similar device, shall be enclosed to protect against malfunction from dust or other foreign material that may impair the intended operation.

8.1.4 The mounting means of an enclosure shall be accessible without disassembly of any operating part of the product. Removal of a completely assembled panel to mount the enclosure is not considered to be disassembly of an operating part.

8.1.5 A material used within an enclosure shall be classified V-2 or HF-2, or less flammable, in accordance with the Standard for Tests for Flammability of Plastic Materials for Parts in Devices and Appliances, UL 94.

Exception No. 1: A motor, relay, capacitor, semiconductor, transformer, switch, insulating tubing or tape, or other electrical element need not comply with this requirement if it complies with the flame test applicable to the component.

Exception No. 2: A meter face and case (if intended for mounting live parts) and indicator lamp or jewel need not comply with this requirement.

Exception No. 3: The material used to form a gear, cam, belt, bearing, strain-relief bushing applied over a PVC-jacketed cord, or other small part that contributes negligible fuel to a fire need not be investigated, if the part is isolated from uninsulated electrical parts that are not power limited either by at least 0.5 inch (12.5 mm) of air, or a solid barrier of material classified V-2 or less flammable.