

UL 1414

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Across-the-Line, Antenna-Coupling and Line-By-Pass Capacitors for Radio-and Television-Type Appliances



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June 1, 1994

Standard for

Across-the-Line, Antenna Coupling, and Line-By-Pass Capacitors for Radio- and Television-Type Appliances

UL 1414, Fifth Edition

Accompanying this transmittal notice is a copy of the Fifth edition of UL 1414.

THIS EDITION OF THE STANDARD IS NOW IN EFFECT.

As indicated on the title page, this UL Standard for Safety is an American National Standard. Attention is directed to the note on the title page of this standard outlining the procedures to be followed to retain the approved text of ANSI/UL 1414-1994.

Revised and/or additional pages may be issued from time to time.

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UL 1414

Standard for

**Across-the-Line, Antenna-Coupling
and Line-By-Pass Capacitors for
Radio- and Television-Type Appliances**

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June 1, 1994

Approval as an American National Standard (ANSI) covers the numbered paragraphs on pages dated June 1, 1994. These pages should not be discarded when revised or additional pages are issued if it is desired to retain the ANSI approved text.

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

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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 published set of revision pages.

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FOREWORD

A. This Standard contains basic requirements for products covered by Underwriters Laboratories Inc. (UL) under its Follow-Up Service for this category within the limitations given below and in the Scope section of this Standard. These requirements are based upon sound engineering principles, research, records of tests and field experience, and an appreciation of the problems of manufacture, installation, and use derived from consultation with and information obtained from manufacturers, users, inspection authorities, and others having specialized experience. They are subject to revision as further experience and investigation may show is necessary or desirable.

B. The observance of the requirements of this Standard by a manufacturer is one of the conditions of the continued coverage of the manufacturer's product.

C. A product which complies with the text of this Standard will not necessarily be judged to comply with the Standard if, when examined and tested, it is found to have other features which impair the level of safety contemplated by these requirements.

D. A product employing materials or having forms of construction differing from those detailed in the requirements of this Standard may be examined and tested according to the intent of the requirements and, if found to be substantially equivalent, may be judged to comply with the Standard.

E. UL, in performing its functions in accordance with its objectives, does not assume or undertake to discharge any responsibility of the manufacturer or any other party. The opinions and findings of UL represent its professional judgment given with due consideration to the necessary limitations of practical operation and state of the art at the time the Standard is processed. UL shall not be responsible to anyone for the use of or reliance upon this Standard by anyone. UL shall not incur any obligation or liability for damages, including consequential damages, arising out of or in connection with the use, interpretation of or reliance upon this Standard.

F. Many tests required by the Standards of UL are inherently hazardous and adequate safeguards for personnel and property shall be employed in conducting such tests.

INTRODUCTION

1 Scope

1.1 These requirements cover capacitors rated not more than 1.0 microfarad, 85°C, 250 volts, and 60 hertz that are employed in radio, television receiving, and similar appliance circuits where breakdown of the capacitor may result in a risk of fire, electric shock, or injury to persons.

1.2 These requirements also cover double protection capacitors rated not more than 1.0 microfarad, 85°C, 125 volts, and 60 hertz that are employed in video, television receiving, and similar appliance circuits where breakdown of the capacitor may result in a risk of fire, electric shock, or injury to persons.

1.3 A product that contains features, characteristics, components, materials, or systems new or different from those in use when the standard was developed, 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 as determined necessary to maintain the level of safety for the user of the product as originally anticipated by the intent of this standard.

2 Terminology

2.1 For the purpose of these requirements, the term capacitor also refers to combinations of capacitors and resistors.

3 Glossary

3.1 ACROSS-THE-LINE CAPACITOR – A capacitor that is connected either across a supply circuit or between one side of a supply circuit and a conductive part that may be connected to earth ground.

3.2 ANTENNA-COUPPLING CAPACITOR – A capacitor that is connected from an antenna terminal to circuits within an appliance.

3.3 DOUBLE PROTECTION CAPACITOR – A capacitor that provides protection against the risk of electric shock in accordance with the requirements for double protection in the Standard for Television Receivers and High-Voltage Video Products, UL 1410.

3.4 LINE-BY-PASS CAPACITOR – A capacitor that is connected between one side of a supply circuit and an accessible conductive part.

4 References

4.1 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.

5 Units of Measurement

5.1 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.

CONSTRUCTION

6 Enclosure

- 6.1 A nonmetallic material used as all or part of the enclosure of a capacitor shall either:
- a) Be classified 94V-0 as determined by the test described in the Standard for Tests for Flammability of Plastic Materials for Parts in Devices and Appliances, UL 94, or
 - b) Perform acceptably when tested in accordance with Capacitor Flammability Test, Section 9.
- 6.2 A material classified 94V-0 or better using 1/16-inch (1.6-mm) thick flat-stock samples may be used in lesser thickness.

7 Sleeving, Tape, Tubing, and Wire Insulation

7.1 Sleeving, tape, tubing, and wire insulation shall be rated for the voltage involved and the temperature attained under any condition of actual use. Tape shall be flame-retardant. Sleeving, tubing, and wire insulation shall have a flame retardant rating VW-1.

8 Spacings

8.1 General

8.1.1 The spacing between uninsulated live parts of opposite polarity, and between an uninsulated live part and a dead metal part, shall not be less than the applicable value specified in Table 8.1.

Table 8.1
Spacings

Capacitor rating, volts	Minimum spacing through air and over surface, inch (mm)
125 or less	1/16 (1.6)
126 to 250	1/8 (3.2)

8.2 Double-protection capacitors

- 8.2.1 The spacing between uninsulated live parts of opposite polarity, and an uninsulated live part and a dead metal part shall not be less than 1/8 inch (3.2 mm) over surface or through air.
- 8.2.2 The spacing between uninsulated live parts of the same polarity but of a different potential shall not be less than 1/16 inch (1.6 mm) over surface or through air. See Figure 8.1.