UL 1283

STANDARD FOR SAFETY

Electromagnetic Interference Filters

UL Standard for Safety for Electromagnetic Interference Filters, UL 1283

Eighth Edition, Dated June 13, 2025

SUMMARY OF TOPICS

This new Eighth Edition of ANSI/UL 1283 dated June 13, 2025 includes requirements for open-type facility filters and other editorial changes.

The requirements are substantially in accordance with Proposal(s) on this subject dated April 18, 2024.

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Standard for Electromagnetic Interference Filters

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The most recent designation of ANSI/UL 1283 as an American National Standard (ANSI) occurred on June 13, 2025. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, and Title Page.

The Department of Defense (DoD) has adopted UL 1283 on August 2, 1989. The publication of revised pages or a new edition of this Standard will not invalidate the DoD adoption.

Comments or proposals for revisions on any part of the Standard may be submitted to ULSE at any time. Proposals should be submitted via a Proposal Request in ULSE's Collaborative Standards Development System (CSDS) at https://csds.ul.com.

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INTRODUCTION

1 Scope

1.1 These requirements cover enclosed and open-type electromagnetic interference (EMI) filters installed on, or connected to, 1,000 V or lower potential circuits, 50 – 60 Hz, or up to 1,500 Vdc, and installed in accordance with the National Electrical Code, NFPA 70.

1.2 These requirements cover filters used to attenuate unwanted radio-frequency signals (such as noise or interference) generated from electromagnetic sources. These filters consist of capacitors and inductors used alone or in combination with each other and may be provided with resistors.

1.3 These requirements cover open-type or enclosed facility filters, cord-connected filters, and direct plug-in filters.

1.4 These requirements do not cover transient-voltage surge suppressors (that is, devices for repeated limiting of voltage surges on power circuits such as silicone avalanche diodes, metal oxide varistors, gas tubes, spark-gaps, etc). Transient Voltage Surge Suppressors are evaluated under the Standard for Surge Protective Devices, UL 1449. These requirements also do not cover EMI filters for outdoor use. Appliance filters are covered under the Standard for Passive Filter Units for Electromagnetic Interference Suppression – Part 3: Passive Filter Units for Which Safety Tests are Appropriate, UL 60939-3.

1.5 These requirements do not cover direct plug-in products and cord-connected products provided with more than two receptacles. A direct plug-in product employing more than two receptacles and having an EMI filter is evaluated under the requirements for current taps in the Standard for Attachment Plugs and Receptacles, UL 498. A cord-connected product employing more than two receptacles and having an EMI filter is evaluated under the Standard for Relocatable Power Taps, UL 1363. The EMI filter part of these products would be evaluated to determine compliance with the requirements in this Standard in so far as they apply.

2 Components

2.1 A component of a product covered by this Standard shall:

a) Comply with the requirements for that component as specified in this Standard;

b) Be used in accordance with its rating(s) established for the intended conditions of use; and

c) Be used within its established use limitations or conditions of acceptability.

2.2 A component of a product covered by this Standard is not required to comply with a specific component requirement that:

a) Involves a feature or characteristic not required in the application of the component in the product;

b) Is superseded by a requirement in this Standard; or

c) Is separately evaluated when forming part of another component, provided the component is used within its established ratings and limitations.

2.3 Specific components are 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.

3 Units of Measurement

3.1 Values stated without parentheses are the requirement. Values in parentheses are explanatory or approximate information.

4 Referenced Publications

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.

4.2 The following publications are referenced in this Standard:

ASTM E230/E230M, *Standard Specification and Temperature-Electromotive Force (emf) Tables for Standardized Thermocouples*

IEEE C37.09, *Standard Test Procedures for AC High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis*

NFPA 70, *National Electrical Code*

UL 50E, *Enclosures for Electrical Equipment, Environmental Considerations*

UL 94, *Tests for Flammability of Plastic Materials for Parts in Devices and Appliances*

UL 508, *Industrial Control Equipment*

UL 746A, *Polymeric Materials – Short Term Property Evaluations*

UL 746B, *Polymeric Materials – Long Term Property Evaluations*

UL 746C, *Polymeric Materials – Use in Electrical Equipment Evaluations*

UL 796, *Printed Wiring Boards*

UL 840, *Insulation Coordination Including Clearance and Creepage Distances for Electrical Equipment*

UL 969, *Marking and Labeling Systems*

UL 60384-14, *Fixed Capacitors for Use in Electronic Equipment – Part 14: Sectional Specification: Fixed Capacitors for Electromagnetic Interference Suppression and Connection to the Supply Mains*

UL 61800-5-1, *Adjustable Speed Electrical Power Drive Systems – Part 5-1: Safety Requirements – Electrical, Thermal and Energy*

5 Glossary

5.1 CORD-CONNECTED FILTER – A filter provided with a supply cord having an attachment plug for connecting the filter to a branch-circuit receptacle. It is also provided with one or two receptacles for distribution of the filtered voltage to an external (other equipment) load.

5.2 DIRECT PLUG-IN FILTER – A filter provided with blades at the filter body that plug directly into a 15 A, 120 V branch-circuit receptacle. It is also provided with one or two receptacles for the distribution of the filtered voltage to an external (other equipment) load.

5.3 FACILITY FILTER – A filter intended for installation on the load side of the service equipment overcurrent device; including filters located at the branch panel.

5.4 FIELD-WIRING TERMINAL – Any terminal to which a supply conductor or other wire can be connected by an installer in the field. However, if a wire is provided as part of the filter and a pressure terminal, connector, soldering lug, crimped eyelet, or other means for making the field connection is factory assembled to the wire, the combination of the wire and the connecting means is not considered to be a field-wiring terminal.

5.5 OPEN-TYPE FACILITY FILTER - A filter with an incomplete or partial enclosure and with field-wiring terminals and/or leads suitable for field installation in accordance with the National Electrical Code, NFPA 70, within a suitable enclosure.

5.6 OPPOSITE POLARITY – A difference in potential between two points, such that shorting of these two points would result in a condition involving an overload, rupturing of printed wiring board tracks, components, or fuses, and similar results.

CONSTRUCTION

6 General

6.1 Only materials that are acceptable for the particular use shall be used in an EMI filter. Every filter shall be made and finished with the degree of uniformity and grade of workmanship that are practicable in a well-equipped factory.

6.2 Unless specified otherwise, an open-type facility filter shall comply with the applicable requirements for facility filter types as specified in this Standard.

7 Frame and Enclosure

7.1 General

7.1.1 The following conditions indicate the maximum acceptable size for any opening in the enclosure of a filter including a hole, louver, or an opening protected by means of wire screening, expanded metal, or a perforated cover:

a) A floor-mounted filter over 48 inches (1.22 m) high and a table- or desk-mounted filter shall have no top openings having a maximum linear dimension (in any direction) greater than 3/16 inch (4.8 mm). Any other type of filter shall have no top openings.

b) Bottom openings of perforated metal not larger than described in Table 7.1 are acceptable. Other patterns and hole sizes are acceptable if they comply with the ignition test described in Ignition Through Bottom Openings Test, Section 37.

c) Any opening in other than the bottom or top shall not permit the entrance of a rod greater than 25/32 inch (20 mm) in diameter. See also Accessibility of Live Parts, Section 18.