



UL 1650

STANDARD FOR SAFETY

Portable Power Cable

UL 1650 Standard for Safety Portable Power Cable



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UL Standard for Safety for Portable Power Cable, UL 1650

First Edition, Dated January 28, 2015

Summary of Topics

This is the first edition of the Standard for Portable Power Cable, ANSI/UL 1650.

The new requirements are substantially in accordance with Proposal(s) on this subject dated May 30, 2014, September 19, 2014, and December 12, 2014.

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The following table lists the future effective dates with the corresponding reference.

Future Effective Dates	References
January 28, 2017	Entire Standard



January 28, 2015



ANSI/UL 1650-2015

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UL 1650

Standard for Portable Power Cables

Prior to the first edition, the requirements for the products covered by this standard were included in the Outline of Investigation for Portable Power Cable, UL 1650.

First Edition

January 28, 2015

This ANSI/UL Standard for Safety consists of the First Edition.

The most recent designation of ANSI/UL 1650 as an American National Standard (ANSI) occurred on January 28, 2015. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, Title Page, or effective date information.

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>.

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INTRODUCTION

1 Scope

1.1 General

1.1.1 This Standard specifies the requirements for Portable Power Cables for use in accordance with the National Electrical Code, NFPA 70.

1.1.2 Any references to UL 2556, refer to the Standard for Wire and Cable Test Methods, UL 2556.

2 Units of Measurement

2.1 The values stated without parentheses are the requirements. Values in parentheses are explanatory or approximate information.

3 Undated References

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.

4 Glossary

4.1 For the purpose of this standard the following definitions apply:

4.2 GROUND-CHECK CONDUCTOR – A conductor used in cables to monitor the continuity of the grounding circuit, so that a discontinuity or “open” in the grounding circuit causes the power conductors to be de-energized.

4.3 PORTABLE POWER CABLE – Cable used to supply power to mobile equipment and machinery.

4.4 XL – A thermoset compound whose characteristic constituent is cross-linked polyethylene (XLPE), cross-linked polyvinyl chloride (XLPVC), cross-linked ethylene vinyl acetate (XLEVA), or blends thereof.

CONSTRUCTION

5 General

5.1 Portable power cables consist of either a single insulated conductor or two or more insulated circuit conductors with or without grounding conductors with an overall reinforced jacket. They employ flexible stranded copper conductors in a size range of 12 AWG to 500 kcmil (3.31 – 253 mm²), except for single conductor Type W that employs flexible stranded copper conductors in sizes 12 AWG to 1000 kcmil (3.31 – 507 mm²). This cable is rated 2000 V, 75°C (167°F) or 90°C (194°F) dry, and 60°C (140°F) or 75°C (167°F) where exposed to oil. For cable so marked, ratings of 60°C (140°F), 75°C (167°F), or 90°C (194°F) “wet” are also assigned. The term “wet” indicates that the cable is acceptable for immersion in water. Wet rated cable that has been additionally investigated for use where exposed to the direct rays of the sun is marked “Sunlight Resistant” or “Sun Res.”

5.2 Portable power cables shall consist of the following circuit, grounding and ground-check conductors:

- a) Type G – Contains two to six circuit conductors and a grounding conductor. The grounding conductor is either bare or covered with a green-colored braid or tape or extruded layer, and may either be a single conductor or be sectioned into two or more parts.
- b) Type G-GC – Same as Type G except that the cable also contains one 12 AWG (3.31 mm²) or larger, yellow insulated conductor which is used as a ground check.
- c) Type W – Contains one to six circuit conductors and may or may not contain a grounding conductor in cables with three or more conductors. If included, the grounding conductor is fully insulated and colored green.
- d) Type PPE – Contains one to six circuit conductors and may or may not contain a grounding conductor in cables with three or more conductors. If included, the grounding conductor is fully insulated and colored green.

6 Conductors

6.1 General

6.1.1 The circuit conductors shall be annealed, stranded copper, bare, or tin-coated.

6.2 Coated copper conductors

6.2.1 Each tin-coated conductor shall comply with the requirements of the Standard Specification for Tin-Coated Soft or Annealed Copper Wire for Electrical Purposes, ASTM B33.

6.2.2 A tin coating is appropriate for use on individual wires (strands) or selected wires, such as the outer layer of wires of a stranded conductor. The tin coating shall comply with 6.2.1.

6.3 Uncoated copper conductors

6.3.1 Each wire in an uncoated copper conductor shall comply with the requirements of Standard Specification for Soft or Annealed Copper Wire, ASTM B3.