

March 17, 2010

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SUBJECT 1699A

OUTLINE OF INVESTIGATION

FOR

OUTLET BRANCH CIRCUIT ARC-FAULT CIRCUIT-INTERRUPTERS

Issue Number 2

MARCH 17, 2010

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INTRODUCTION

1 Scope

1.1 These requirements cover arc-fault circuit-interrupters (AFCIs) of the outlet branch circuit type intended for use in dwelling units. These devices are intended to mitigate the effects of arcing faults that may pose a risk of fire ignition under certain conditions if the arcing persists.

1.2 These devices have a maximum rating of 20 A and are intended for use in 120-V ac, 60-HZ circuits.

1.3 These requirements are intended to be used with the Standard for Arc-Fault Circuit-Interrupters, UL 1699, as these requirements modify the requirements described in that standard.

1.4 Unless otherwise specified, when the term "arc-fault circuit-interrupter" or "AFCI" is used in this Outline, it refers to an arc-fault circuit-interrupter of the outlet branch circuit type, also known as an outlet branch circuit arc-fault circuit-interrupter (OBC AFCI).

2 Glossary

2.1 For the purposes of this Outline of Investigation, the following definition applies.

2.2 **OUTLET BRANCH CIRCUIT ARC-FAULT CIRCUIT-INTERRUPTER** – A device intended to be installed as the first outlet in a branch circuit. It is intended to provide protection to downstream branch circuit wiring, cord sets, and power-supply cords against the unwanted effects of arcing. This device also provides protection to upstream branch circuit wiring. It is intended to be provided with or without receptacle outlets.

3 Components

3.1 Except as indicated in 3.2, a component of a product covered by this Outline of Investigation shall comply with the requirements for that component.

3.2 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 Outline of Investigation, or
- b) Is superseded by a requirement in this Outline of Investigation.

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

3.4 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.

4 Units of Measurement

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

5 Undated References

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

CONSTRUCTION

6 General

6.1 In addition to the construction requirements in Sections 6-15 of the Standard for Arc-Fault Circuit-Interrupters, UL 1699, an outlet branch circuit arc-fault circuit-interrupter shall comply with Sections 20-23 of UL 1699.

6.2 An outlet branch circuit AFCI shall also comply with the construction requirements for receptacles, including the enclosure requirements, in the Standard for Attachment Plugs and Receptacles, UL 498.

7 Spacings

7.1 For Clearance B (controlled overvoltage) requirements in the Standard for Insulation Coordination Including Clearances and Creepage Distances for Electrical Equipment, UL 840, the applicable overvoltage category for line-voltage circuits is Category III for outlet branch circuit AFCIs. Any overvoltage protection device needed to achieve these categories shall be provided as an integral part of the arc-fault circuit-interrupter.

8 Terminals

8.1 An outlet branch circuit AFCI shall comply with the terminal requirements in Terminals, Section 17 of the Standard for Arc-Fault Circuit-Interrupters, UL 1699, except that the minimum wire binding screw size is No. 8 (4.2 mm).