



U.S. CONSUMER PRODUCT SAFETY COMMISSION
WASHINGTON, DC 20207

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November 12, 2002

Mr. Dale Hallerberg
Staff Engineer
Underwriters Laboratories Inc.
333 Pfingsten Road,
Northbrook, IL 60062-2096

Subject: Proposed changes to requirements in UL 1449 – *Standard for Transient Voltage Surge Suppressors*

Dear Mr. Hallerberg:

The U.S. Consumer Product Safety Commission (CPSC) staff recently completed a review of incidents associated with power strips with surge suppression components (subsequently referred to as surge suppressors). We would like to take this opportunity to share our findings with Underwriters Laboratories Inc. (UL) and recommend that you consider changes to the *Standard for Transient Voltage Surge Suppressors*, UL 1449, to increase the effectiveness of selected provisions of this standard.

CPSC technical staff reviewed 74 in-depth investigation reports (IDIs) on surge suppressor-related incidents that CPSC Field staff investigated between January 1, 1997 and September 1, 2002. Most of these incidents were investigated because of a fire or potential fire. Copies of the IDIs are enclosed for your review (Attachment A).

CPSC technical staff also conducted 39 technical evaluations of surge suppressors that were collected from incidents that occurred between January 1, 1997 and September 1, 2002. In 25 of the 39 incidents, it was reported that internal failure within the surge suppressor resulted in fire that penetrated the product enclosure. A fire that breaches the enclosure presents a risk of fire propagation. Technical analysis showed that 16 of these 25 incidents were associated with overheating of the printed circuit board or internal wiring system. Nine of the 25 were attributed to the metal oxide varistor (MOV) failing. Some of the incidents associated with an MOV failure involved units manufactured after February 1998, when new requirements for fusing and thermal protection became effective. CPSC technical staff recommends that a new requirement, such as the addition of a barrier, be added to UL 1449 to address fire propagation with an MOV

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failure. (Examples of assessments conducted in which the failure resulted in overheating that penetrated the product enclosure are enclosed as Attachment B).

Among the 39 incidents reviewed was one in which a screw intended to use for mounting a surge suppressor fell inside the unit (see Attachment C); the product was listed to the applicable standard. According to the IDI, the mounting screw fell inside the unit while the consumer was attempting to mount the surge suppressor on a tabletop. As a result, the screw caused arcing and became welded to the MOV ground lead between the line-ground connection. Although this incident resulted in tripping of the branch circuit breaker, potentially hazardous arcing that could lead to fire is possible if the circuit breaker does not trip, perhaps due to a high-impedance fault or low short-circuit current availability. CPSC staff recommends that a requirement be included in the standard that will prevent mounting hardware from falling through the mounting slots.

Thank you for the opportunity to make these recommendations. Please feel free to contact me for further discussions. The views expressed in this letter are those of the staff and have not been reviewed or considered by the Commission.

Sincerely,

Sheela Kadambi

cc:

James Beyreis, UL/Northbrook
Gordon Gillerman, UL/Washington
Colin Church, Voluntary Standards Coordinator, CPSC

Attachments:

Attachment A – In depth investigation reports
Attachment B1 & B2 – Product safety assessments, PSA No. 0640.02 & 0450.02
Attachment C – PSA No. 0354.02