



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

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September 7, 2004

Mr. Byron McMillan
Project Manager, STP 1449
12 Laboratory Drive
Research Triangle Park, NC 27709

Re: Request for Comments on the Proposed Requirements for the Second Edition of the
Standard for Transient Voltage Surge Suppressors, UL 1449

Dear Mr. McMillan:

This letter presents comments from the U.S. Consumer Product Safety Commission (CPSC) staff regarding the Underwriters Laboratories, Inc. (UL) bulletin dated June 11, 2004, requesting comments on the Proposed Requirements for the Second Edition of the *Standard for Transient Voltage Surge Suppressors*, UL 1449. These comments are those of the CPSC staff, have not been reviewed or approved by, and may not necessarily reflect the views of, the Commission.

Topic 2 of the bulletin, Intermediate Short Circuit Current Ratings (SCCR) Test Levels, proposes performance tests to reduce overheating and fire incidents involving listed transient voltage surge suppressor (TVSS) cord and plug connected and direct plug-in products. The CPSC staff recently completed limited testing on some UL listed products using the method proposed in Topic 2 (50 ampere short circuit current). A total of 22 samples (seven lots) from four manufacturers were tested. The staff tests found failures with five of ten samples from three lots. These samples were made by a single manufacturer.

During testing, ignition of the enclosure occurred in three of the ten samples tested (see Figures 1 through 3). It should be noted that the pictures indicate the condition of the samples after they were extinguished and that the fire did not self extinguish. Two additional samples sustained overheating damage sufficient to fail the test. For the products tested, these tests resulted in damage similar to that observed in overheating and fire incidents investigated in the

past by CPSC staff.¹ Examples of samples involved in fire and overheating incidents are shown in Figures 4 and 5.

In the CPSC staff testing, five of the ten samples tested failed to pass the proposed test method using a 50 ampere short circuit current. The results indicate that one sample may pass the test, and a second sample of the same model product may fail the test. Therefore, CPSC staff believes that more than one sample should be tested for each conductor pair. If we had tested only one of the ten samples, there would have been a 50 percent chance that we would have tested one that passed.

Given an underlying failure rate for a lot, and a plan where a specific number of items from that lot are tested, a standard statistical calculation can be made to calculate the chance that all samples tested will pass. We urge UL to develop a plan for testing a specific number of samples so that lots with a high probability of individual item failure are unlikely to pass the test.

Thank you for the opportunity to comment on this matter.

Sincerely,



Douglas A. Lee

Attachment: Figures 1 through 5

cc: Colin Church, Voluntary Standards Coordinator, CPSC

¹ Letter to Dale Hallerberg, Underwriters Laboratories, Inc., from Sheela Kadambi, U.S. Consumer Product Safety Commission, regarding proposed changes to requirements in UL 1449 – *Standard for Transient Voltage Surge Suppressors*, November 12, 2002.

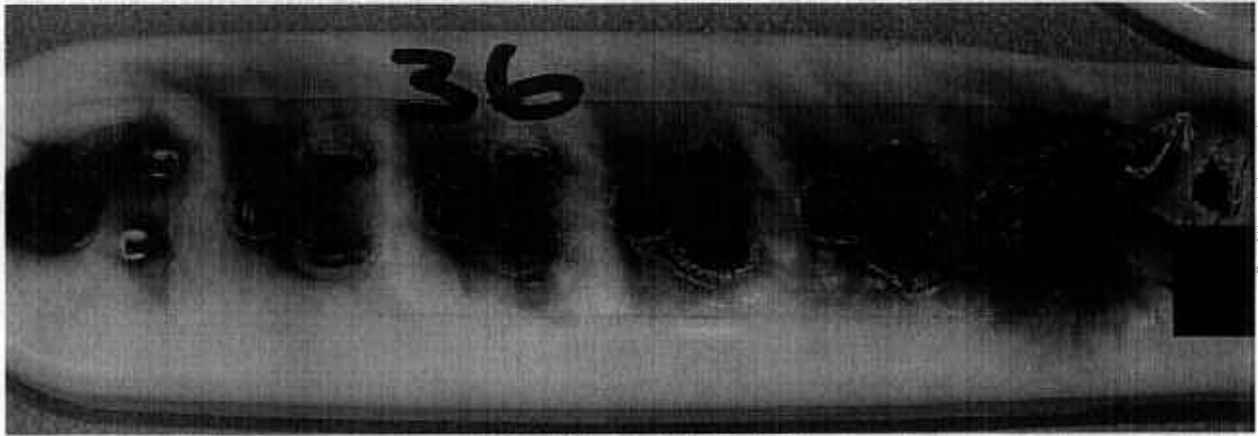


Figure 1 - Test Sample

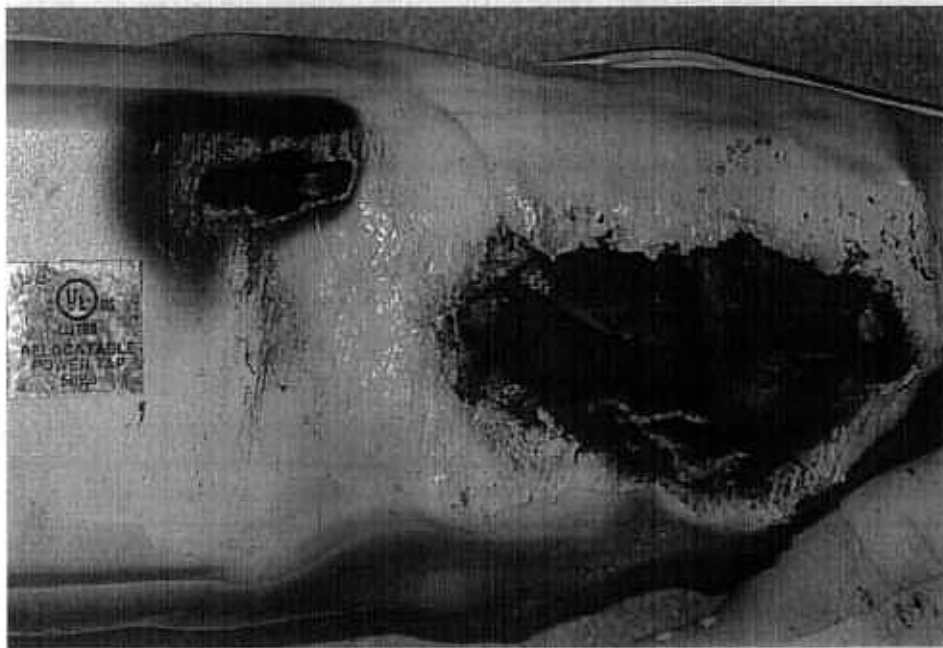


Figure 2 - Test Sample

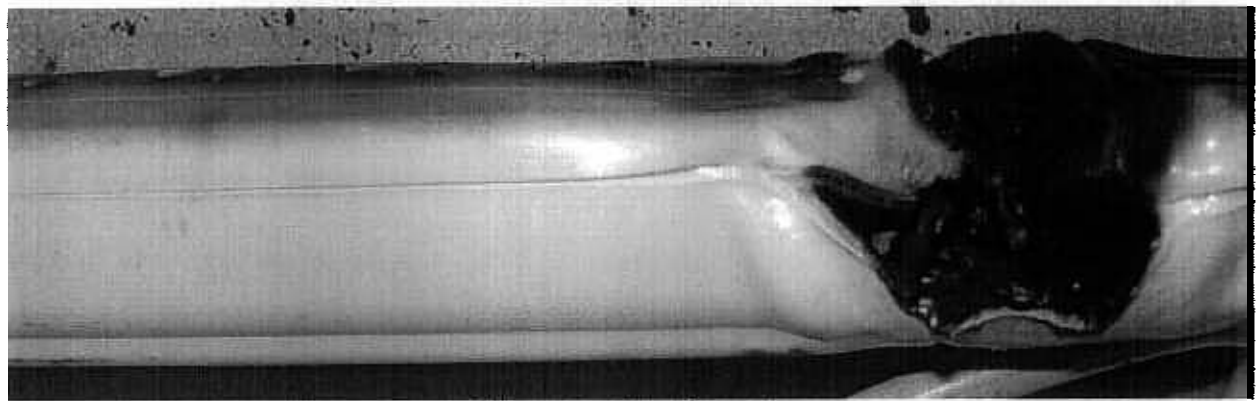


Figure 3 - Test Sample



Figure 4 – Incident Sample

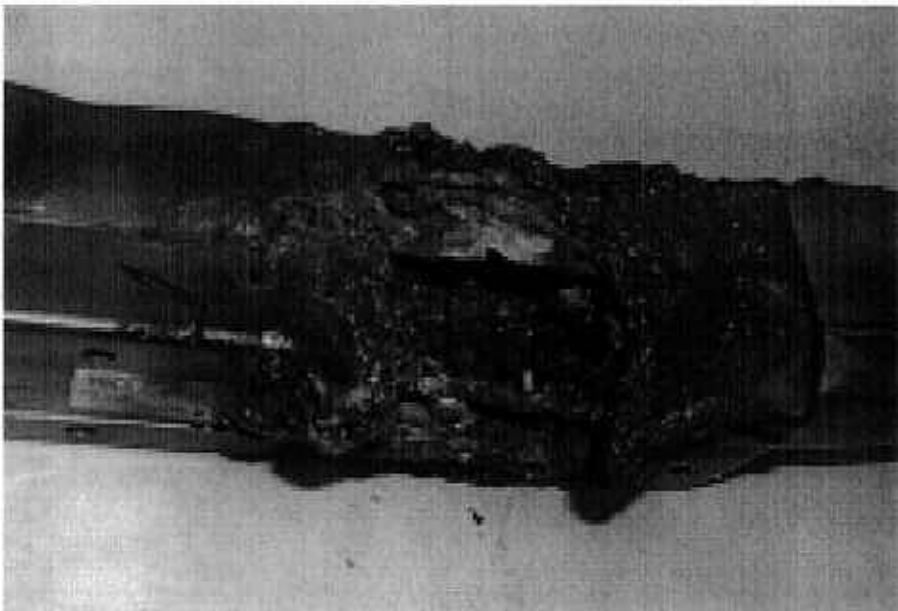


Figure 5 – Incident Sample