

LOG OF MEETING

DIRECTORATE FOR ENGINEERING SCIENCES P 3: 54

SUBJECT: UL STP Meeting on TV Cart and stand Stability

DATE OF MEETING: October 25-26, 2000 **PLACE:** Homewood Suites, Research Triangle Park, NC

LOG ENTRY SOURCE: Troy Whitfield, Mechanical Engineer, CPSC

DATE OF ENTRY: November 2, 2000

ATTENDEES: See attached

SUMMARY OF MEETING:

The meeting was called to order at 1:00pm by the Standards Technical Panel (STP) chair, Lee Hewitt of Underwriters Laboratories Inc (UL). After introductions, Mark Granata of UL gave the attendants a brief history of UL 1678 - *Household, Commercial, and Professional-Use Carts and Stands*, a review of the standard requirements, and the formation of the STP. After the STP met in June at Research Triangle Park to review the test process, task/work groups were formed to address concerns with the existing standard before it is balloted for ANSI approval. There were 4 working groups (WG) formed, WG-1 looked at the scope of the standard, WG-2 was responsible for reviewing the simulated load and test fixture, WG-3 evaluated the loading and stability requirements of the standard and WG-4 reviewed the markings/labeling requirements of the standard.

The agenda for this meeting was to review the work of the various groups and discuss the proposed changes to the standard. A discussion regarding the 10° static stability test was added to the agenda at the request of several STP members. The proposed changes from the various working groups were provided to the members prior to the meeting to facilitate the discussion

Mark Granata presented the proposed changes suggested by Working Group 1. Gary Bell commented that there are other existing standards (ANSI/BIFMA and UL) and the group should work to harmonize with existing standards. If certain types of tests are already in existence, those could be incorporated into this standard, but one particular concern was the duplication of tests under different conditions such as the amount of weight applied or the duration of application. Some discussion of the different types of furniture (entertainment centers, audio/visual equipment and microwave carts, information technology equipment (ITE)) and crossover units followed. UL representatives responded by informing the group that UL 962 (in the development stages) would cover the different pieces of equipment discussed. UL 1678 would focus only on the carts and stands intended for televisions. Before finishing the WG-1 discussion, there were some questions regarding the use of the term component. There was some concern that the term 'component' could have different meanings to electrical product manufacturers and furniture manufacturers. The wording used was broad and encompassing to purposely describe 'all' parts used in the manufacture of a product. Additional requirements for the individual components can be found in 'Appendix A'

to cover parts requirements.

After a short break, information from WG-2 on the simulated test load and the test fixture was presented. At the earlier STP meeting there was some concern that Table 13.1 in the current standard no longer represents the size and weights televisions manufactured using the new technology components. Brad Rowe of UL presented several ideas that had been suggested, but no real progress has been made in the development of proposed requirements. The suggested options were; 1) a software simulation for tip stability, 2) a new test jig (revised weights and centers of gravity for the current market), 3) a force test w/o the test jig - a single force representation of the television. A summary of data provided to UL for 13" to 53" televisions was shared with the group. The data collected appeared to correlate fairly well with the values currently being used in Table 13.1 of the UL 1678 standard. Several proposed changes to Section 13 were provided on a separate handout and discussed (Attachment 1). A proposal for some wording changes to Section 13.3 for the maximum anticipated load was also provided for the group's review (Attachment 2). The group agreed more data on television sizes, centers of gravity, and weights should be collected. The discussion of televisions continued with the concept of a classification system (suggested at the initial STP meeting). A television would be classified according to its weight, center-of-gravity and base size (footprint) and then the cart or stand could be rated as accepting a certain class or classes of television. This approach was to be shared with the Ad Hoc TV Group for further discussion. There was no information provided on how the proposal was received.

The first day of discussions ended with a short discussion from WG-4 on markings. The working group stated that the current markings' requirements should be evaluated in accordance with ANSI Z535.4 Standard for Product Safety Signs and Labels to maintain harmony between the standard requirements. In addition, there was a proposal to add date code requirements to the standard to assist manufacturers in the event of a recall.

Before discussing the WG-3 (Loading and Stability) proposals, there was a quick review of some wording related to the previous days' 'markings' discussion (Attachment 3). With some rearrangement of the letters and some minor wording changes, the group seemed to be in agreement with the proposal provided.

The loading and stability working group changes were then discussed. There was little disagreement with any of the proposals except for the individual loading test (Section 16.2) which requires 4x the weight specified in various parts of Section 13 for each supporting surface. The contention was that in the case of larger TVs, the test weight could be near 1000 pounds. The manufacturers believed this weight (even for a 1-minute application) was excessive. UL representatives cited the 4x-safety factor where casualty hazards can exist. The group discussed an upper limit, but without technical rationale for changing the 4x factor, the wording would remain the same.

Discussion shifted to the current UL 10° static tilt test requirement for carts and stands. Previously, UL had proposed a push test (Section 15A) that some of the members believed was to replace the current static tilt test. Several of the members do not believe the 10° static tilt test is realistic test of the TV and cart/stand combination and would like to remove it from the requirements. It was explained that an existing requirement could not simply be removed, but

rationale explaining the reasons would be needed. One manufacturer discussed the results of tests using several manufacturers' units and an actual television. There was further deliberation surrounding the television requirements for stability and sliding as stand alone units, while the carts and stands are not test alone, but rather with a simulated television load. The derivation of 10° vs. angles such as 8° or even 12° and the data to justify the use of 10° was discussed. The topic concluded with a reminder that requirements are not just removed from standards, but rather changed or replaced with technical data and rationale to support such changes.

Before the meeting concluded, there was some discussion regarding a ballot of the standard as it was changed during this meeting. Some felt that it was not yet ready, especially regarding the concerns surrounding the 10° static tilt test. Others felt that the standard could go to ballot and areas not of concern could be easily handled and negative responses would elicit alternative proposals and technical data.

The time, date, and location of the next meeting will be determined at a future date.

Attachments(4)

TV Cart and Stand Meeting Attendees (Oct. 25-26, 2000):

UL Representatives:

1. Lee Hewitt
2. Mark Granata
3. Patricia Sena
4. Brad Rowe

Other attendees:

- | | |
|-------------------------|---|
| 1. Ted Marks | JVC |
| 2. Tom Mock | Consumer Electronics Association (CEA) - consultant |
| 3. Dave Wilson | CEA |
| 4. Victor Lee | Matsushita Electronics Corporation (Panasonic) |
| 5. Gary Bell | Sauder Woodworking Co. |
| 6. Sara McGowan-Weidman | Sauder Woodworking Co. |
| 7. Jerry Geering | Thornwood Furniture |
| 8. Tom Malcho | Bush |
| 9. Khalid Pervaiz | Ameriwood |
| 10. Bill Fiske | Intertek Testing |
| 11. Keith Cooley | O'Sullivan |
| 12. Troy Whitfield | U.S. Consumer Product Safety Commission |

#1

UL 1678

ISBN 0-7629-0328-7

Household, Commercial,
and Professional-Use
Carts and Stands

Table 13.1
Simulated television load parameters

Maximum recommended screen diagonal measurement, inches (cm)	Total weight ^b , lbs (kg)	Height of center of gravity above supporting surface, inches (cm)	Angle of unstable equilibrium ^a
Up to 13 (33.02)	25 (11.34)	6-3/4 (17.15)	25°
14 - 16 (35.56 - 40.64)	35 (15.88)	7-1/2 (19.05)	25°
17 - 20 (43.18 - 50.80)	50 (22.68)	9 (22.86)	22°
21 - 24 (53.34 - 60.96)	70 (31.75)	10 (25.40)	21°
25 - 27 (63.50 - 68.58)	95 (43.09)	11 (27.94)	20°
28 - 32 (71.12 - 81.28)	135 (61.23)	13 (33.02)	15°
33 - 35 (83.82 - 88.90)	175 (79.38)	15 (38.10)	15°
36 - 40 (91.44 - 101.60)	240 (108.86)	17 (43.18)	13°

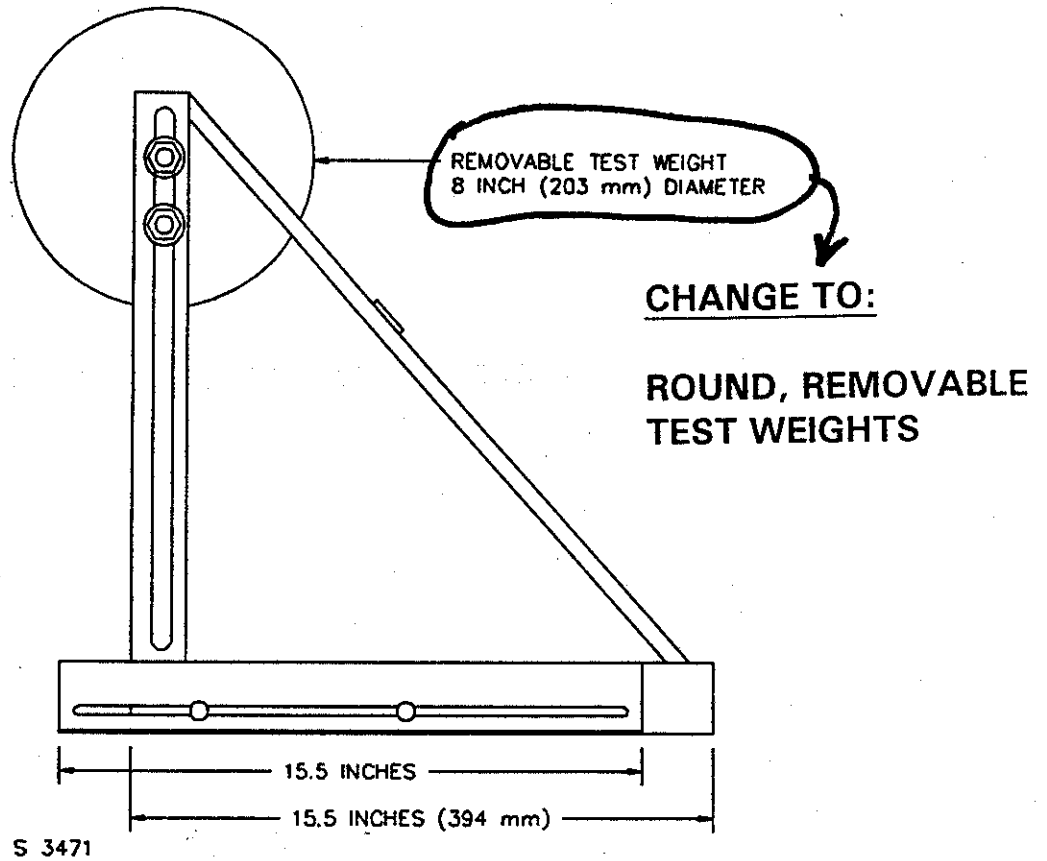
^a The fixture shall be stable in the forward direction at the angle specified and become unstable (tip over) when the angle is increased by 1 degree.

^b Includes weight of test fixture.

NO CHANGES PROPOSED ON THIS PAGE

Figure 13.1 (Cont'd)

Right side view



ADD:

Example of test fixture for simulated television load

CURRENT

13.3 A "maximum anticipated load" is to be used to represent the worst case product loading when the use of a supporting surface is not specified and is not limited. The weight of the maximum anticipated load is to be computed by the following formula.....

PROPOSED

13.3 A "maximum anticipated load" is to be used to represent the worst case product loading when the use of a supporting surface is not specified ~~and is not limited.~~ or limited by a manufacturer's designated load. The weight of the maximum anticipated load is to be computed by the following formula.....

MARKINGS

23 General

23.1 A marking required in Sections 24 – 26 shall comply with each of the following requirements:

- a) The marking required to be on a cart or stand shall be permanent so as to resist the deleterious effects of handling, cleaning agents (as specified in the instructions), or similar causes, expected in the normal use of the cart or stand, and
- b) The marking shall be legible.

23.2 The markings requiring the use of the precautionary signal word, "CAUTION", are able to be combined at one location and used with the signal word "CAUTION" appearing just once at that location.

23.3 The markings required in 26.4 – 26.6 shall have lettering that complies with the following requirements:

- a) The lettering style shall be any of the following: Arial, Arial Bold, Folio Medium, Franklin Gothic, Helvetica, Helvetica Bold, Meta Bold, News Gothic Bold, Poster Gothic and Universal.
- b) The precautionary signal word (such as "CAUTION") shall be in letters not less than ~~7/64~~ 0.12 inch (~~2.8~~ 3.0 mm) high.
- b c) The other words shall be in letters not less than ~~1/16~~ 0.08 inch (~~1.6~~ 2.0 mm) high and contrasting in color to the background.
- c-d) When molded or stamped in a material not having a contrasting background color, all letters, including the precautionary signal word, shall have a height of not less than ~~7/64~~ 0.12 inch (~~2.8~~ 3.0 mm) and a ~~raised (or lowered)~~ depth of not less than 0.020 _____ inch (0.51 _____ mm). shall be legible.