



U.S. CONSUMER PRODUCT SAFETY COMMISSION
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Ms. Barbara Davis
STP 60065 Project Manager
Underwriters Laboratories Inc.
455 E. Trimble Road
San Jose, CA 95131-1230

Re: Preliminary Review and Comment of Proposed Changes in Requirements to the *Standard for Audio, Video, and Similar Electronic Apparatus – Safety Requirements*, UL 60065

Dear Ms. Davis:

The U.S. Consumer Product Safety Commission (CPSC) staff appreciates this opportunity to provide comments on the proposed changes to UL 60065.* CPSC staff strongly supports adding requirements to UL 60065 to address hazards associated with battery ingestion. New requirements are urgently needed to reduce battery ingestion incidents associated with various consumer products that use small batteries. Many of these incidents have led to serious life-long injuries or death.

The staff's recommendations are attached as Enclosure 1. (New/revised text is double underlined, and deleted text is shown with ~~two lines through it~~.) The rationales to support the recommended changes are located at the end of Enclosure 1.

Again, thank you for this opportunity to comment. If you have any questions or need additional information, please feel free to contact me.

Sincerely,

A handwritten signature in cursive script that reads "Douglas Lee".

Douglas Lee

Enclosure:
CPSC Staff Comments on Annex I DU (NEW)

cc:
Colin Church, CPSC Voluntary Standards Coordinator

*The views expressed in this letter are those of CPSC staff and have not been reviewed or approved by, and may not reflect the views of, the Commission.

CPSC Staff Comments on Annex I DU (NEW)
(normative)

Safety requirements for coin/button cell or other small batteries

The requirements of this standard, supplemented or replaced by those contained in this annex, apply to apparatus which include COIN / BUTTON CELL BATTERIES with a diameter of 32 mm or less and batteries that fit within the small parts cylinder (Figure 1, 16 CFR part 1501).

I.2.7.15

COIN / BUTTON CELL BATTERY

a small, single cell battery having a diameter greater than its height

Add the following to sub-clause 5.4.1:

i) If an apparatus contains a user-replaceable COIN / BUTTON CELL BATTERY or a battery that fits within the small parts cylinder (Figure 1, 16 CFR part 1501), the following symbols shall be placed on the apparatus close to the battery compartment:



In addition, there shall be a warning in the accompanying documentation. The warning shall contain the following text or equivalent.



~~Chemical burns due to battery ingestion~~

~~[The remote control supplied with] This product contains a button cell battery. Keep batteries out of reach of children. If swallowed, the battery can cause serious injury or death. Severe burns can occur within hours of ingestion. If you suspect that a battery has been swallowed or placed inside any part of the body, seek immediate medical attention.~~

~~Use care when changing batteries. Keep all new and used batteries out of reach of children and ensure that the battery compartment is completely secured after replacing the battery.~~

~~If the battery compartment cannot be completely secured, discontinue use of the product, keep out of reach of children and contact the manufacturer.~~

⚠ WARNING

CHEMICAL BURN HAZARD

[The remote control supplied with] This product contains a small [button cell] battery. If swallowed, this battery can cause severe internal burns [within 2 hours] and can lead to death.

- Keep new and used batteries away from children. If battery compartment will not close securely, stop using product and keep it away from children.
- If you think batteries might have been swallowed or placed inside any part of the body, seek immediate medical attention.

Add new clause I.21 - **COIN / BUTTON CELL OR OTHER SMALL BATTERIES**

I.21 COIN / BUTTON CELL OR OTHER SMALL BATTERIES

I.21.1 General

Apparatus, including **REMOTE CONTROLS**, containing a user replaceable **COIN / BUTTON CELL BATTERY** with a diameter of 32 mm or less or a battery that fits within the small parts cylinder (Figure 1, 16 CFR 1501) shall comply with the applicable requirements in this annex.

I.21.2 Construction

Apparatus shall be designed to prevent children from removing the battery by one of the following methods:

- a) A tool, such as a screwdriver or coin, is required to open the battery compartment; or
- b) Access to the battery requires a minimum of two independent and simultaneous movements of the securing mechanism to open by hand.

If screws or similar fasteners are used to secure the door/cover providing access to the battery compartment, the fasteners shall be captive to ensure that they remain with the door/cover.

I.21.3 Pre-conditioning tests

Test samples shall be subjected to the following pre-conditioning prior to test.

I.21.3.1 Battery replacement test

The battery compartment shall be opened and closed and the battery removed and replaced ~~ten~~ 50 times to simulate normal replacement according to the manufacturer's instructions. If the battery compartment is secured with a screw, the screws are loosened and then tightened by means of a suitable test screwdriver, spanner or key, applying a continuous, linear torque according to table 20. The screws are to be completely removed and reinserted each time.

I.21.3.2 Stress relief test

If the battery compartment utilizes molded or formed thermoplastic materials, the sample consisting of the complete apparatus, or of the complete enclosure together with any supporting framework, is subjected in a circulating air oven to a temperature 10 K higher than the maximum temperature observed on the enclosure during the test of 7.1.3, but not less than 70°C, for a period of 7 h, then permitted to cool to room temperature.

I.21.4 Abuse tests

The tests included in I.21.4 shall be performed on one sample of the apparatus.

I.21.4.1 Drop test

PORTABLE APPARATUS having a mass of 7 kg or less are subjected to a drop test. All drops shall be performed on one sample of the complete apparatus. The apparatus is subjected to three drops through a distance of 1,0 m onto a horizontal surface in positions likely to produce the maximum force on the battery compartment. If the apparatus is a **REMOTE CONTROL**, it shall be subject to ten drops.

The horizontal surface consists of hardwood at least 13 mm thick, mounted on two layers of plywood each 19 mm to 20 mm thick, all supported on a concrete or equivalent non-resilient floor.

I.21.4.2 Impact test

The battery compartment door or mechanism shall be subject to three 2-Joule impacts.

The impact shall be caused by allowing a solid, smooth, steel ball of 50 ± 1 mm in diameter and with the mass of approximately 500 g to fall freely from rest through a vertical distance, as illustrated in figure 8, and strike the battery compartment with the specified impact in a direction perpendicular to the enclosure surface.

I.21.4.3 Crush test

REMOTE CONTROL devices held in hand are to be supported by a fixed rigid supporting surface, in positions likely to produce the most adverse results as long as the position can be self supported. A crushing force of 334 N is applied to the exposed surfaces of the apparatus for a period of 10 seconds. The force is to be applied by a flat surface measuring 102 by 254 mm.

I.21.5 Compliance

After the tests in I.21.4, the apparatus shall meet the construction requirements specified in I.21.2, in particular, the **COIN/BUTTON CELL OR SMALL BATTERY** shall not become **ACCESSIBLE**.

Compliance is checked by inspection and, in case of doubt, by applying a force of 45 N for 10 seconds at the most unfavorable place and in the most unfavorable direction. The force shall be applied in only one direction at a time. Application of the 45 N force shall not release a locking mechanism for the battery compartment door.

The door/cover providing access to the battery compartment and its associated securing means shall remain fully functional and shall not be dislodged or damaged.

Rationales:

I.2.7.15, 1.21

The proposed requirements should also address other small batteries that present a risk of ingestion and/or choking hazards. CPSC databases contain reports of ingestion incidents with small batteries other than coin/button cells.

With respect to the warning, the type of hazard should be communicated to the reader. The proposed format and wording is based on ANSI Z535.4-2007, *American National Standard for Product Safety Signs and Labels*. According to medical professionals, to prevent serious injury or death, it is imperative to determine within 2 hours if a lithium 3V cell has been ingested.

I.21.2

Small parts that are not captive may easily get lost, preventing further securing of the battery compartment. Additionally, these small pieces may also become a choking hazard.

I.21.3.1

Ten cycles of preconditioning are too few cycles to evaluate the durability of the mechanism. CPSC staff supports 50 cycles of preconditioning proposed previously by UL.

1.21.5

As stated previously, the proposed requirements should also address other small batteries that present a risk of ingestion and/or choking hazards.

The additional text proposed by CPSC staff is needed to provide a positive criterion to determine compliance with the requirements. The text proposed by CPSC staff is similar to ASTM F963 and/or was proposed previously by UL.