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Fire hazard testing –
Part 2-21: Glowing/hot-wire based test methods – Fire containment test on finished units

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FIRE HAZARD TESTING –

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FOREWORD

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IEC TS 60695-2-21 has been prepared by IEC technical committee 89: Fire hazard testing. It is a Technical Specification.

The text of this Technical Specification is based on the following documents:

Draft	Report on voting
89/1554/DTS	89/1561A/RVDTS

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this Technical Specification is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

This publication has the status of a Technical Specification in accordance with IEC Guide 104 and ISO/IEC Guide 51.

NOTE The following print types are used:

- terms defined in Clause 3: in **bold** type.

A list of all parts in the IEC 60695 series, published under the general title *Fire hazard testing*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

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INTRODUCTION

Fires might create hazards to life and property as a result of the generation of heat (emission of heat on fire hazard), and also as a result of the production of toxic effluent, corrosive effluent and smoke (fire effluents on the fire hazard). Fires start with ignition and then can grow, leading in some cases to flash-over and a fully developed fire. Resistance to ignition is therefore one of the most important parameters of a material to be considered in the assessment of a fire hazard.

Most current fire hazard assessment techniques evaluate the resistance to ignition characteristics of a single material or component. These assessment techniques are able to drive the preselection and validation of materials and components but are not able to evaluate the possible interaction of materials or components in a complex environment such as in a finished unit, once a fire event is initiated.

In a fault condition, a finished unit might be subject to the overheating of electrical connections and contacts. Such overheating can be caused by corrosion, poor crimp connections, incorrect assembly, erosion of contact surfaces, or mechanical fatigue. Insulating materials that are overheated can ignite and cause fire.

It is difficult to simulate the actual conditions of potential faults in finished units; therefore all possible fire hazards should be taken into account at the design stage and subsequently during the preselection of materials and components.

This fire containment test has been developed to verify if a finished unit is able to contain an internal fire event, generated by combustible parts ignited by a simulated overheated electrical connection.

FIRE HAZARD TESTING –

Part 2-21: Glowing/hot-wire based test methods – Fire containment test on finished units

1 Scope

This part of IEC 60695, which is a Technical Specification, specifies a **fire** containment test method for **finished units**. It is intended to verify the capability of containing of a fire event generated by an **effective ignition source** inside a **finished unit**.

Unless otherwise specified by the relevant product standard, determination of the **fire** containment described in this document does not apply to any of the following:

- A single electrical component;
- A single electrical component when incorporated into a **finished unit**;
- Electrical installation products such as distribution boards, circuit protection devices, switchgear, controlgear, cable management system and electrical accessories (wiring devices).

The test method described in this document does not apply to the following electrical connections:

- Low-power electrical connections contained in **finished units**, where the maximum power through the connection does not exceed 15 W.
- Soldered and welded electrical connections are exempted from the evaluations of this document.

This document is intended to be used for evaluating the capability of **fire** containment of **finished units**, during the selection of **finished units** and in the design of **finished units**.

The requirements, test method or test conditions of this document will not apply unless specifically referred to or included in the relevant publications.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 62368-1:2018, *Audio/video, information and communication technology equipment – Part 1: Safety requirements*

ISO 13943:2017, *Fire safety – Vocabulary*