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**NATIONAL STANDARD OF THE  
PEOPLE'S REPUBLIC OF CHINA**

**GB/T 27902-2026**

Replacing GB/T 27902-2011

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**Technical specification for fire investigation simulation  
experiments**

火灾调查模拟实验技术规范

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## Table of Contents

|     |                                              |
|-----|----------------------------------------------|
| 6   | Experimental Requirements                    |
| 6.1 | Experimental Organization                    |
| 6.2 | Experimental Personnel                       |
| 6.3 | Experimental Equipment                       |
| 6.4 | Experimental Materials                       |
| 6.5 | Experimental Environment                     |
| 6.6 | Experimental Methods                         |
| 6.7 | Experiment Implementation                    |
| 7   | Data Processing and Experimental Conclusions |
| 9   | Experimental Records                         |

### Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part

1. Structure and Drafting Rules of Standardization Documents". Drafting. This document replaces GB/T 27902-2011 "Technical Specification for Electrical Fire Simulation Tests". Compared with GB/T 27902-2011, except for the structural... Aside from structural adjustments and editorial changes, the main technical changes are as follows:

---The terms and definitions of "simulation test" and "local overheating" have been removed (see sections

2.2 of the 2011 edition);

---Added "Fire Investigation Simulation Experiment", "Same-Scale Experiment", "Scaled-Down Experiment", "Special Experiment", "Unfavorable Condition Experiment", and "Favorable Condition Experiment". The terms and definitions of "experimentation," "audio-visual investigation experiment," and "plot verification experiment" are provided in sections

---Added "Experimental Objectives" (see Chapter 4);

---The experiment type has been changed (see Chapter 5, Chapter 3 in the 2011 edition);

---Added technical requirements for experimental organization, personnel, and environment (see 6.1, 6.2, and 6.5);

---The technical requirements for experimental equipment, methods, and implementation

have been revised (see 6.3, 6.6, 6.7; 4.1, 4.2, 4.4 of the.2011 edition);

---Data processing and experimental conclusions have been added (see Chapter 7);

---The lab report content has been revised (see Chapter 8, Chapter 6 of the.2011 edition);

---Experimental records have been added, specifying their content and retention period (see Chapter 9);

---Changes were made to the fire ignition experiment, trace feature investigation experiment, fire development and spread experiment, audio and video investigation experiment, and scenario verification experiment. The experimental methods for the experiment are described in Appendix A to Appendix E, Appendix A of the.2011 edition. This document was proposed by the National Fire and Rescue Administration. This document is under the jurisdiction of the National Fire Protection Standardization Technical Committee (SAC/TC113). This document was drafted by: Zhejiang Provincial Fire and Rescue Corps, Shenyang Fire Research Institute of the Ministry of Emergency Management, and Tianjin Fire Research Institute of the Ministry of Emergency Management. Shanghai Fire Research Institute of the Ministry of Emergency Management, Sichuan Fire Research Institute of the Ministry of Emergency Management, Ningxia Hui Autonomous Region Fire and Rescue Corps, Liaoning Provincial Fire Department Rescue Team. The main drafters of this document are. Zhang Xiaoqin, Bao Renlie, Wang Xin, Wang Liantie, Jin Hui, Lü Zhong, Liao Dinggen, Song Yibing, Wang Lei, and Zhang Xiangzhi. Zhu Mengru and Zhang Miaoquan. The release history of this document and the document it replaces is as follows:

## 6.1 Experimental Organization

6.1.1 Fire investigation simulation experiments may be organized and implemented by the accident investigation team or the investigating unit itself, or they may be entrusted to other units for implementation; If the experiment is carried out by another organization, a commissioning procedure should be completed and the experimental requirements should be submitted.

6.1.2 The implementing unit of the fire investigation simulation experiment shall designate an experiment leader, who shall determine the fire investigation model based on the investigation requirements. The purpose and type of the proposed experiment.

6.1.3 Ignition source experiments and trace characteristic investigation experiments can be conducted using scaled-down experiments or specialized experiments; fire development and spread experiments and scenario verification experiments... The same-scale test should be used for verification; the same-scale test should be used for audio and video investigation experiments, and priority should be given to using the fire scene for these

experiments.

## 6.2 Experimental Personnel

6.2.1 The experimental personnel should be technical personnel belonging to the investigating unit or temporarily hired by it, as well as technical personnel of the entrusted unit.

6.2.2 Experimental personnel include those responsible for experimental design, command, operation, recording, data processing, result analysis, and report preparation; not... This includes personnel involved in cleaning, maintenance, and other tasks unrelated to the experimental results.

6.2.3 The experiment leader is responsible for organizing the entire experiment process, including experimental design, experimental command, and experimental data processing and conclusion. The task includes result analysis and report preparation. The person in charge of the experiment should possess relevant professional skills in fire cause investigation and hold an intermediate or higher technical title. Or have worked in this field for more than 3 years.

6.2.4 The experiment should be conducted by at least two experimenters.

## 6.3 Experimental Equipment

6.3.1 Select experimental equipment according to the purpose and type of the experiment, including photographic and video recording equipment for experimental recording, and equipment for experimental implementation and data collection. The instruments and equipment used for data collection, as well as equipment used for safety protection, power supply and communication, and fire fighting.

6.3.2 Instruments and equipment include ignition, light emission, sound emission, monitoring, photography, video recording, timing, distance measurement, environmental data acquisition, electrical signal monitoring, and temperature measurement devices. Equipment for temperature data acquisition and flue gas composition detection.

6.3.3 Equipment includes fire extinguishing, ventilation, isolation, communication, and safety protection equipment.

6.3.4 As needed, provide high-temperature protection for the sensors, power supply, and data transmission lines of the data acquisition and video recording equipment at the experimental site. Protect and extend its operating time in high-temperature experimental environments.

6.3.5 The equipment for ignition source tests, trace feature investigation tests, fire development and spread tests, audio-visual investigation tests, and scenario verification tests should be... They comply with the provisions of Appendices A through E respectively.

## 6.4 Experimental Materials

6.4.1 Experimental materials include ignition sources, items to be tested (verified), materials used to construct experimental apparatus and arrange the experimental site, etc., and should preferably be kept away from fire. If the materials at the disaster site are of the same model and batch, prioritize materials that were not damaged at the fire scene. If identical materials cannot be obtained or it cannot be confirmed that the materials are from the same fire scene, then... If the materials are not identical, they should be selected as needed based on the actual fire situation.

6.4.2 When commissioning experiments, the commissioning unit shall provide the experimental materials, and the commissioned unit shall, upon receiving the experimental materials, verify their type, quantity, condition, etc. Please confirm.

6.4.3 If it is necessary to temporarily hire professional personnel to assist in the transportation and installation of experimental materials, the experimental implementation unit shall be responsible for the condition of the materials after installation and commissioning. The status needs to be confirmed.

## 6.5 Experimental Environment

6.5.1 The experimental environment includes natural environmental factors such as temperature, humidity, wind speed, wind direction, and lighting, as well as building structure, ventilation conditions, and distribution of combustible materials. The environment of the testing site should be determined according to the purpose and type of the experiment.

6.5.2 Scale-on-scale tests should be conducted at the fire scene or in a location with similar environmental conditions. Scale-down tests and specialized tests should be conducted according to actual conditions. Set up the experimental environment according to the purpose and type of the experiment.

6.5.3 Favorable and unfavorable condition experiments can be conducted in locations with different environmental conditions than the fire scene.

## 6.6 Experimental Methods

6.6.1 Experimental methods should be selected according to the purpose and type of the experiment, such as ignition source experiments, trace characteristic investigation experiments, and fire development and spread experiments. The experimental methods for audio-visual investigation experiments and scenario verification experiments shall comply with the provisions of Appendices A to E.

6.6.2 When the experimental methods specified in this document cannot meet the needs of the investigation, other scientific methods provided by standards or literature may be