INTERNATIONAL STANDARD

ISO 7240-3

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Fire detection and alarm systems —

Part 3: Audible alarm devices

Systèmes de détection et d'alarme d'incendie —

Partie 3: Dispositifs d'alarme sonores

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 7240-3 was prepared by Technical Committee ISO/TC 21, *Equipment for fire protection and fire fighting*, Subcommittee SC 3, *Fire detection and alarm systems*.

ISO 7240 consists of the following parts, under the general title *Fire detection and alarm systems*:

— *Part 1: General and definitions*

— *Part 2: Control and indicating equipment*

— *Part 3: Audible alarm devices*

— *Part 4: Power supply equipment*

— *Part 5: Point-type heat detectors*

— *Part 6: Carbon monoxide fire detectors using electro-chemical cells*

— *Part 7: Point-type smoke detectors using scattered light, transmitted light or ionization*

— *Part 8: Carbon monoxide fire detectors using an electro-chemical cell in combination with a heat sensor*

— *Part 9: Test fires for fire detectors* (Technical Specification)

— *Part 10: Point-type flame detectors*

— *Part 11: Manual call points*

— *Part 12: Line type smoke detectors using a transmitted optical beam*

— *Part 13: Compatibility assessment of system components*

— *Part 14: Guidelines for drafting codes of practice for design, installation and use of fire detection and fire alarm systems in and around buildings* (Technical Report)

— *Part 15: Point type fire detectors using scattered light, transmitted light or ionization sensors in combination with a heat sensor*

— *Part 16: Sound system control and indicating equipment*

— *Part 17: Short-circuit isolators*

— *Part 18: Input/output devices*

— *Part 19: Design, installation, commissioning and service of sound systems for emergency purposes*

— *Part 20: Aspirating smoke detectors*

— *Part 21: Routing equipment*

— *Part 22: Smoke-detection equipment for ducts*

— *Part 23: Visual alarm devices*[1)]

— *Part 24: Sound-system loudspeakers*

— *Part 25: Components using radio transmission paths*

— *Part 27: Point-type fire detectors using a scattered-light, transmitted-light or ionization smoke sensor, an electrochemical-cell carbon-monoxide sensor and a heat sensor*

— *Part 28: Fire protection control equipment*

1) To be published.

Introduction

In a fire detection and alarm system, the purpose of the audible alarm devices is to warn person(s) within, or in the vicinity of, a building of the occurrence of a fire emergency situation in order to enable such a person(s) to take appropriate measures.

Audible alarm devices using voice messages are also for warning the occupants of a building of the occurrence of a fire risk. These use a combination of an attention-drawing signal and dedicated voice message(s). Additional requirements, test methods and performance criteria specific to audible alarm devices with voice are also incorporated in this International Standard.

Attention is drawn to ISO 8201, which specifies the temporal pattern and the required sound pressure level of an audible emergency evacuation signal.

This part of ISO 7240 recognizes that the exact nature of the sound requirements, i.e. its frequency range, temporal pattern and output level, will vary according to the nature of the installation, the type of risk present and appropriate measures to be taken, the type of signals used by other non-emergency alarms (see for example ISO 7731) and national differences in custom and practice. The resulting standard specifies, therefore, a common method for testing of the operational performance of audible alarm devices against the specification declared by the manufacturer, rather than imposing common requirements.

This part of ISO 7240 gives common requirements for the construction and robustness of audible alarm devices, as well as for their performance under climatic, mechanical and electrical interference conditions which are likely to occur in the service environment. Audible alarm devices have been classified in either an indoor or an outdoor application environment category.

Fire detection and alarm systems —

Part 3:
Audible alarm devices

1 Scope

This part of ISO 7240 specifies the requirements, test methods and performance criteria for audible alarm devices intended to signal an audible warning of fire between a detection and alarm system and the occupants of a building. It is intended to cover only those devices which derive their operating power by means of a physical electrical connection to an external source such as a fire alarm system.

This part of ISO 7240 is also intended to cover audible alarm devices capable of giving voice messages by the application of specific requirements, tests and performance criteria.

This part of ISO 7240 specifies fire alarm audible alarm devices for two types of application environment, type A for indoor use and type B for outdoor use.

This part of ISO 7240 is not intended to cover:

a) loudspeaker-type devices primarily intended for emitting emergency voice messages that are generated from an external audio source;

b) supervisory audible alarm devices, e.g. within the control and indicating equipment.

2 Normative references

The following referenced documents are indispensable for the application 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.

ISO 7240-1, *Fire detection and alarm systems — Part 1: General and definitions*

ISO 8201, *Acoustics — Audible emergency evacuation signal*

IEC 60068-1:1988/Corr. 1:1988/A1:1992, *Environmental testing — Part 1: General and guidance*

IEC 60068-2-1:2007, *Environmental testing — Part 2-1: Tests — Test A: Cold*

IEC 60068-2-2:2007, *Environmental testing — Part 2-2: Tests — Test B: Dry heat*

IEC 60068-2-6:2007, *Environmental testing — Part 2-6: Tests — Test Fc: Vibration (sinusoidal)*

IEC 60068-2-27:2008, *Environmental testing — Part 2-27: Tests — Test Ea and guidance: Shock*

IEC 60068-2-30:2005, *Environmental testing — Part 2-30*: *Tests — Test Db: Damp heat, cyclic (12 h + 12 h cycle)*

IEC 60068-2-42:2003, *Environmental testing — Part 2-42: Tests — Test Kc: Sulphur dioxide test for contacts and connections*

IEC 60068-2-75:1997, *Environmental testing — Part 2-75: Tests — Test Eh: Hammer tests*

IEC 60068-2-78:2001, *Environmental testing — Part 2-78: Tests — Test Cab: Damp heat, steady state*

IEC 60529:2001/Corr. 1:2003/Corr. 2:2007, *Degrees of protection provided by enclosures (IP code)*

IEC 60695-11-10:2003, *Fire hazard testing — Part 11-10: Test flames — 50 W horizontal and vertical flame test methods*

IEC 60695-11-20:2003, *Fire hazard testing — Part 11-20: Test flames — 500 W flame test methods*

IEC 61672-1:2002, *Electroacoustics — Sound level meters — Part 1: Specifications*

EN 50130-4:1995/A1:1998/A2:2003, *Alarm systems — Part 4: Electromagnetic compatibility — Product family standard: Immunity requirements for components of fire, intruder and social alarm systems*

3 Terms, definitions and abbreviated terms

For the purposes of this document, the terms, definitions and abbreviated terms given in ISO 7240-1 and the following apply.

3.1 Terms and definitions

3.1.1
A-weighted sound pressure level
sound pressure, which is 20 times the logarithm to base ten of the ratio of the A-weighted sound pressure to the reference pressure of 20 µPa at 1 kHz

NOTE The A-weighting characteristics are given in IEC 61672-1.

3.1.2
audible alarm device
a.a.d.
device intended to signal an audible warning of fire between a fire detection and alarm system and the occupants of a building

NOTE Audible alarm devices are sometimes referred to as “fire alarm sounders”.

3.1.3
mode (of operation)
one of a possible number of predefined sounds of the audible alarm device which can be selected by means specified by the manufacturer

EXAMPLE Sound patterns, sound pressure levels.

3.1.4
reference point
point representing the origin of the sound within or on the surface of the audible alarm device as specified by the manufacturer

NOTE The reference point is used in Annex A.