BS 5839-8:2023

BSI Standards Publication

Fire detection and fire alarm systems for buildings

Part 8: Design, installation, commissioning and maintenance of voice alarm systems – Code of practice

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Contents

Summary of pages
This document comprises a front cover, an inside front cover, pages I to VI, pages 1 to 84, an inside back cover and a back cover.

Foreword

Publishing information

This part of BS 5839 is published by BSI Standards Limited, under licence from The British Standards Institution, and came into effect on 31 October 2023. It was prepared by Subcommittee FSH/12/5, *Fire alarm devices*, under the authority of Technical Committee FSH/12, *Fire detection and fire alarm systems*. A list of organizations represented on these committees can be obtained on request to the committee manager.

Supersession

This part of BS 5839 supersedes BS 5839-8:2013, which is withdrawn.

Relationship with other publications

BS 5839 is published in the following parts:

- Part 1: *Code of practice for design, installation, commissioning and maintenance of systems in non-domestic premises*;
- Part 3: *Specification for automatic release mechanisms for certain fire protection equipment*;
- Part 6: *Code of practice for the design, installation, commissioning and maintenance of fire detection and fire alarm systems in domestic premises*;
- Part 8: *Design, installation, commissioning and maintenance of voice alarm systems – Code of practice*;
- Part 9: *Code of practice for the design, installation, commissioning and maintenance of emergency voice communication systems*.

Information about this document

This is a full revision of the document, and introduces the following principal changes.

- The document has undergone a substantive restructuring, with Clause **4** being moved to a new Introduction and Clause **8** being merged with Clause **5**.
- The term "acoustically distinguishable area (a.d.a.)" has been amended to "acoustically distinguishable space (ADS)" because it covers three dimensions, not two.
- A new recommendation states that audio inputs (e.g. telephones, smartphones) that do not conform to BS EN 54-16:2008 are not to be used for emergency messages and control.
- A new recommendation has been added for Type V3 systems to prevent the alert or evacuate messages being interrupted by emergency paging to other zones.
- A new recommendation and associated commentary address the need to limit the level of a monitoring tone to assist people with hyperacusis.
- A new recommendation addresses the need to provide a warning for people who are Deaf or have a hearing impairment in areas where they might be alone.
- A new recommendation states that warning devices for people who are Deaf or have a hearing impairment are to be activated for automatic or manual emergency broadcasts.
- A new recommendation states that voice alarm loudspeakers are not to be located in close proximity to refuges owing to issues associated with excessive sound levels.
- A new clause with recommendations for assistive listening systems has been introduced.

- There is an explanation that the rear cover on ceiling loudspeakers need not be completely sealed unless the ceiling forms part of a fire-resisting barrier.
- A new recommendation states that loudspeakers that require equalization to achieve BS EN 54-24 certification are to be placed on their own dedicated loudspeaker circuit and have the equalization described on their BS EN 54-24 certificate.
- A new recommendation states that if a voice sounder to be used as part of a voice alarm system (VAS) for live emergency broadcasts, it is to conform to BS EN 54-3 and the relevant requirements in BS EN 54-16:2008 and BS EN 54-24.
- The clause relating to emergency message generators has been deleted because the requirements are specified in BS EN 54-16:2008.
- A new recommendation states that active noise cancellation is not to prevent functional system testing.
- The clause on the measurement of intelligibility has been substantially rewritten to provide guidance on subjective and objective intelligibility assessment.
- The title of the clause on networked systems has been changed to "distributed systems" so that it is technology-neutral.
- A new clause on cybersecurity has been included.
- The clause on verification has been simplified.
- A new note points out that the organization carrying out the maintenance of the VAS is not necessarily competent in electro-acoustic design or the corrective works. However, they need to be fully conversant with clarity and audibility to enable identification of intelligibility issues.
- A new recommendation states that any ANS used for emergency broadcasts is to be checked for correct operation in accordance with the VACIE manufacturer's instructions.
- A new recommendation states that all loudspeaker circuit impedances are to be measured and compared to the previous year's measurements and deviations are to be investigated.
- A new recommendation states that subjective intelligibility testing is to be carried out in all loudspeaker zones.
- The equation for calculating I_2 for standby batteries has been simplified by assuming that the current drawn by an emergency message is 1/8 of the full load current.
- New recommendations have been added for the level of the attention-drawing signal preceding emergency messages.

This publication can be withdrawn, revised, partially superseded or superseded. Information regarding the status of this publication can be found in the Standards Catalogue on the BSI website at bsigroup.com/standards, or by contacting the Customer Services team.

Where websites and webpages have been cited, they are provided for ease of reference and are correct at the time of publication. The location of a webpage or website, or its contents, cannot be guaranteed.

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As a code of practice, this part of BS 5839 takes the form of recommendations and guidance. It is not to be quoted as if it were a specification. Users are expected to ensure that claims of compliance are not misleading.

Users may substitute any of the recommendations in this part of BS 5839 with practices of equivalent or better outcome. Any user claiming compliance with this part of BS 5839 is expected to be able to justify any course of action that deviates from its recommendations.

Presentational conventions

The provisions of this document are presented in roman (i.e. upright) type. Its recommendations are expressed in sentences in which the principal auxiliary verb is "should".

Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.

Where words have alternative spellings, the preferred spelling of the *Shorter Oxford English Dictionary* is used (e.g. "organization" rather than "organisation").

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Section 1: General

Introduction

The purpose of a voice alarm system (VAS) is to support the fire evacuation strategy for the building by providing an effective means of alerting and evacuating its occupants. Intelligible recorded or live emergency broadcasts can significantly reduce the time taken to recognize that there is a fire alarm and can direct occupants to take appropriate action.

The need for a VAS is normally determined as part of a fire strategy prepared by the designer of the building. It has therefore been assumed in the preparation of this part of BS 5839, which covers the design, installation, commissioning and maintenance of VASs, that the need for a VAS will already have been agreed.

Where there is any uncertainty regarding the need for a VAS, guidance can be found in one or more of the following:

- BS 9999;
- BS 7827; and
- the fire strategy.

1 Scope

This part of BS 5839 gives recommendations for the design, installation, commissioning and maintenance of voice alarm systems that automatically broadcast speech or warning tones in response to signals from their associated fire detection and fire alarm systems. It also covers voice alarm systems that include a manual facility for the transmission of live emergency broadcasts and pre-recorded messages for emergency purposes.

NOTE 1 The fire detection and fire alarm systems themselves are covered by BS 5839-1.

This part of BS 5839 covers extensions and alterations to existing voice alarm systems, in respect of the design, installation, commissioning, maintenance and certification of the new work.

Voice alarm systems that depend solely upon manual intervention are not covered by this part of BS 5839.

NOTE 2 BS 7827 provides further recommendations in respect of large public buildings, venues and sports grounds.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes provisions, or limits the application, of this document[1]. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

BS 5839-1, *Fire detection and fire alarm systems for buildings – Part 1: Code of practice for design, installation, commissioning and maintenance of systems in non-domestic premises*[2]

BS 7629-1, *Electric cables – Specification for 300/500 V fire resistant screened cables having low emission of smoke and corrosive gases when affected by fire – Part 1: Multicore and multipair cables*

[1] Documents that are referred to solely in an informative manner are listed in the Bibliography.
[2] This document also gives informative references to BS 5839-1:2017.