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AMERICAN NATIONAL STANDARD Audible Emergency Evacuation Signal

ACCREDITED STANDARDS COMMITTEE S3, BIOACOUSTICS

ABSTRACT

There has been growing interest in the development of an international audible signal which, when heard, would unequivocally mean "evacuate the building immediately." Consequently, an international standard, ISO-8201, entitled "Audible Emergency Evacuation Signal" was approved by ISO and published in December, 1987. This ANSI standard is written to conform with the international standard. In searching for an appropriate audible signal, it was considered that levels of background noise and frequency patterns are so variable, particularly in industry, that no signalling device would be able to "penetrate" all background noises and frequency patterns. For this reason it seemed prudent to select the kind of sound best able to "penetrate" audibly a particular background noise pattern in a given building and then to make that sound unique and understandable by imposing on it a standard recognizable pattern of "on" and "off" times. Frequently it will be found that whatever sounding device is already in place in the building is there because it has been shown to be successful in "penetrating" the background noise inside that building. Consequently, all that will be needed in many cases is to impose a standardized temporal pattern on the existing sounding devices. For new buildings a signal should be selected which can "penetrate" the background noise inside that building and then impose the standardized temporal pattern on that signal. An additional advantage of using a standardized temporal pattern as the distinguishing characteristic of the audible emergency evacuation signal is that the temporal pattern can be applied to visual and tactile signals to aid those who have impaired hearing. Visual and tactile signals incorporating the temporal pattern can also be applied in areas where the background noise is so intense that no signal is capable of "penetrating" audibly. For information some examples of application of temporal patterns to commonly used signals are given in an appendix.

AMERICAN NATIONAL STANDARDS ON ACOUSTICS

The Acoustical Society of America provides the Secretariat for Accredited Standards Committees S1 on Acoustics, S2 on Mechanical Shock and Vibration, S3 on Bioacoustics, and S12 on Noise. These committees have wide representation from the technical community (manufacturers, consumers, and general-interest representatives). The standards are published by the Acoustical Society of America through the American Institute of Physics as American National Standards after approval by their respective standards committees and the American National Standards Institute.

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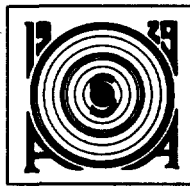
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FOREWORD

[This Foreword is not a part of American National Standard Audible Emergency Evacuation Signal, S3.41-1990.]

This American National Standard is wholly in conformity with the ISO (International Organization for Standardization) Audible Emergency Evacuation Signal, ISO 8201:1987.

International Standard ISO 8201-1987 was prepared by the International Technical Committee ISO/TC 43, Acoustics.

Users should note that all Standards undergo revision from time to time and that any reference made herein to any other International or American National Standard implies its latest edition, unless otherwise stated.

This Standard recommends specifications for an audible signal to be used exclusively for indicating the need for immediate emergency evacuation from buildings in which large numbers of people are present. The signal should not be used for other purposes, i.e., testing, practice drills, etc. Training the public should be accomplished through examples via mass media.

This Standard was developed under the jurisdiction of Accredited Standards Committee S3, Bioacoustics, using the American National Standards Institute (ANSI) Accredited Standards Committee Procedure. The Acoustical Society of America holds the Secretariat for Accredited Standards Committee S3, Bioacoustics.

Accredited Standards Committee S3, Bioacoustics, under whose jurisdiction this Standard was developed, has the following scope:

Standards, specifications, methods of measurement and test, and terminology, in the fields of psychological and physiological acoustics, including aspects of general acoustics, shock, and vibration which pertain to biological safety, tolerance, and comfort.

At the time this Standard was submitted to Accredited Standards Committee S3, Bioacoustics, for approval, the membership was as follows:

L. A. Wilber, *Chairman*
J. L. Fletcher, *Vice-Chairman*
A. Brenig, *Secretary*

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U.S. Department of the Navy, Naval Medical Command ● J. Page, L. Marshall (*Alt*)

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Working Group S3/WG63, Audible Emergency Evacuation Signal, which assisted the Accredited Standards Committee S3, Bioacoustics, in the development of this Standard, has the following membership:

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Suggestions for improvements in this Standard will be welcomed. They should be sent to **Accredited Standards Committee S3 at the Standards Secretariat, in care of the Acoustical Society of America, 335 East 45th Street, New York, NY 10017-3483. Telephone (212) 661-9404.**

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American National Standard

Audible Emergency Evacuation Signal

1 SCOPE

This Standard applies to an audible emergency evacuation signal. The signal shall be used for, and limited to, situations requiring immediate evacuation from a building because of an emergency. When sounded, the signal shall indicate imminent danger and signify unambiguously that evacuation from the building is immediately necessary. The signal may also be applied to outside areas when required by the authority having jurisdiction.

This Standard specifies two parameters of the audible emergency evacuation signal, i.e., the temporal pattern and the required sound pressure level at all places within the intended signal reception area. In order for the audible emergency evacuation signal to be recognizable, it is not necessary to specify the spectral content of the signal. The spectral content of the signal should be selected to satisfy specific site requirements and/or national regulations.

This Standard applies to the audible signal and not to the individual signalling system components.

This Standard does not apply to warning signals, to situations covered by national regulations for public disaster control, to alarm systems onboard ships, or to signals from all outdoor moving vehicles, such as police cars, fire engines, and ambulances.

2 PURPOSE

The audible emergency evacuation signal is intended to draw the attention of all persons within the signal reception area to an emergency situation (fire, gas leaks, explosion, nuclear radiation, etc.) requiring immediate evacuation from the premises. This Standard also applies to signals intended for use in structures where people may be present, day or night, such as schools, hotels, residential buildings, public institutions, and work places (including factories and offices).

3 APPLICATIONS

The audible emergency evacuation signal shall only be used for evacuation. Its use shall be restricted to emergencies where it is desired to have all the occupants in the signal reception area evacuate the building immediately.

Where the evacuation plan requires sequential evacuation with only the affected zones or floors having to be immediately evacuated, the audible emergency evacuation signal shall only be used for the zones or floors to be immediately evacuated. It shall not be used when, with the approval of the authority having jurisdiction, the planned action during an emergency is not evacuation, but relocation of the occupants from the affected area to a safe area inside the building or for their protection in the place where they find themselves (e.g., high-rise buildings, health care facilities and penal institutions).

4 STANDARDS REFERRED TO IN THIS STANDARD

[The following standards contain provisions which, through reference in this text, constitute provisions of this American National Standard. At the time of approval by the American National Standards Institute, Inc. (ANSI), the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this American National Standard are encouraged to investigate the possibility of applying the most recent editions of the standards listed below. Information on the recent editions is available from the ASA Standards Secretariat.]

ISO 7731:1986, Danger signals for work places—Auditory danger signals.

ISO 8201:1987, Audible emergency evacuation signal.

ANSI S1.4A-1985, Amendment to ANSI S1.4-1983 American National Standard Specifications for Sound Level Meters.

5. REQUIREMENTS FOR THE AUDIBLE EMERGENCY EVACUATION SIGNAL

5.1 Temporal Pattern

The audible emergency evacuation signal shall consist of a "three-pulse" temporal pattern applied to any appropriate sounding device, preferably by means of