



Standard Guide for Measurement of Outdoor A-Weighted Sound Levels¹

This standard is issued under the fixed designation E 1014; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This guide covers the measurement of A-weighted sound levels outdoors at specified locations or along particular site boundaries, using a general purpose sound-level meter.

1.2 Three distinct types of measurement surveys are described:

1.2.1 Survey around a site boundary,

1.2.2 Survey at a specified location,

1.2.3 Survey to find the maximum sound level at a specified distance from a source.

1.3 Since outdoor sound levels almost always vary with time over a wide range, the data obtained using this guide may be presented in the form of a histogram of sound levels. The data obtained using this guide enables calculations of average or statistical sound levels for comparison with appropriate criteria.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*

C 634 Terminology Relating to Environmental Acoustics²

2.2 *ANSI Standard:*

S1.4 Specification for Sound Level Meters³

3. Terminology

3.1 *Definitions*—For definitions of terms used in this guide, see Terminology C 634.⁴

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *barrier*—any obstacle that blocks the line-of-sight between a source and a receiver or a measurement location.

3.2.2 *impulse noise*—a brief, intrusive sound, such as that associated with a tire blowout, operation of a power press, the discharge of a firearm, or a shout.

3.2.3 *measurement set*—the set of data obtained at a measurement location during a specific time period. For the types of measurements covered by this guide, evaluation of a site may require several measurement sets. The time period is flexible but should not extend beyond the time when the conditions influencing noise, or atmospheric conditions affecting noise propagation, are reasonably uniform. As an example, a significant change in traffic density or start-up of a machine indicate the beginning or end of a measurement set.

4. Significance and Use

4.1 There are numerous situations for which outdoor sound level data are required. These include, but are not limited to, the following:

4.1.1 Documentation of sound levels before the introduction of a new sound source (for example, assessment of the impact due to a proposed use).

4.1.2 Comparison of sound levels with and without a specific source (for example, assessment of the impact of an existing source).

4.1.3 Comparison of sound levels with criteria or regulatory limits (for example, indication of exceedence of criteria or non-compliance with laws).

4.2 This guide provides a means for selecting measurement locations, operating a sound level meter, documenting the conditions under which the measurements were performed, and recording the results.

4.3 This guide provides the user with information to (1) make and document the sound level measurements necessary to quantify relatively steady or slowly varying outdoor sound levels over a specific time period and at specific places and (2) make and document the physical observations necessary to qualify the measurements.

4.4 The user is cautioned that there are many nonacoustical factors that can strongly influence the measurement of outdoor sound levels and that this guide is not intended to supplant the experience and judgment of experts in the field of acoustics.

¹ This guide is under the jurisdiction of ASTM Committee E33 on Environmental Acoustics and is the direct responsibility of Subcommittee E33.09 on Community Noise.

Current edition approved July 27, 1984. Published September 1984.

² *Annual Book of ASTM Standards*, Vol. 04.06.

³ Available from American National Standards Institute, 11 W. 42nd St., 13th Floor, New York, NY 10036.

⁴ Terminology C 634 – 81a was used in the development of this guide.

