



Standard Guide for Measuring Outdoor Sound Received from a Nearby Fixed Source¹

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INTRODUCTION

This is one of a series of standards and guidelines for measurement and evaluation of community noise. Techniques and precautions in this guide are not fixed or mandatory and cannot replace the judgment of acoustical professionals. Rather, this guide is a summary of processes found to be productive and useful in ensuring that meaningful information will be gathered in an efficient manner about fixed sources of noise in a community as they each may exist. Others in this series include Guide [E1014](#), which covers manual A-Weighted measurements of outdoor noise using a simple meter, and Test Method [E1503](#). ANSI 12.18 provides a method of obtaining repeatable sound pressure level measurements of the sound emitted by a source. This document differs in that atmospheric and ground effects are not controlled. Thus, the results may not repeat if atmospheric conditions or ground conditions between the source and the measurement position change. This guide provides only a method of accurately documenting the sound levels occurring at the measurement position at the time of measurement.

1. Scope

1.1 This guide covers the measurement of outdoor sound due to a fixed sound source such as a siren, stationary pump, power plant, or music amphitheater. Procedures characterize the location, sound level, spectral content, and temporal characteristics of that sound source at the time of measurement. Users should be aware that wind and temperature gradients can cause significant variations in sound levels beyond 300 m. With appropriate caution, the use of measurements resulting from this guide include but are not limited to:

- 1.1.1 Assessing compliance with applicable regulations,
- 1.1.2 Monitoring the effectiveness of a noise reduction plan,
- 1.1.3 Verifying the effectiveness of measures for mitigation of noise impact,
- 1.1.4 Validating sound prediction models, and
- 1.1.5 Obtaining source data for use in sound prediction models.

1.2 *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 appro-*

priate safety and health practices and determine the applicability of regulatory limitations prior to use.

2. Referenced Documents

2.1 ASTM Standards:²

[C634](#) Terminology Relating to Building and Environmental Acoustics

[E1014](#) Guide for Measurement of Outdoor A-Weighted Sound Levels

[E1503](#) Test Method for Conducting Outdoor Sound Measurements Using a Digital Statistical Sound Analysis System

2.2 ANSI Standards:³

[S1.4](#) Specification for Sound Level Meters

[S1.11](#) Octave-band and Fractional Octave-band Analog and Digital Filters, Specifications for

[S1.13](#) Methods for the Measurement of Sound Pressure Levels in Air

[S1.14](#) Recommendations For Specifying And Testing The Susceptibility Of Acoustical Instruments To Radiated Radiofrequency Electromagnetic Fields, 25 Mhz To 1 Ghz

¹ This guide is under the jurisdiction of ASTM Committee [E33](#) on Building and Environmental Acoustics and is the direct responsibility of Subcommittee [E33.09](#) on Community Noise.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

³ Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, <http://www.ansi.org>.