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Standard Guide for Preparing a Measurement Plan for Conducting Outdoor Sound Measurements¹

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INTRODUCTION

This is one of a series of standards on the measurement and evaluation of community noise. Others in the series include Guide E 1014 for Measurement of Outdoor A-Weighted Sound Levels, which covers manual measurement, using a simple meter, and analysis of the resulting data, and Test Method E 1503 for Conducting Outdoor Sound Measurements Using a Digital Statistical Analysis System. Also under consideration or in preparation are: a standard guide for the selection of environmental noise metrics and criteria, a standard guide for determining the validity and significance of data, and a standard guide for measuring sound received from a nearby discrete fixed sound source.

1. Scope

1.1 This guide covers the preparation of a formal plan for measurement of outdoor sound levels. A documented, detailed plan is highly desirable and useful for major environmental noise studies requiring measurements at several locations over a long period. This guide is intended primarily for use in such cases. Many simple measurements can be made without extensive prior planning or documentation. It is recommended that persons or organizations routinely performing such measurements draft and use a brief generic plan based on, but not referencing, this guide.

NOTE 1—The extent of planning and plan documentation should be consistent with the budget and needs of the project. In a large measurement program it is possible that use of a formal measurement plan could result in cost savings greater than the cost of preparing the plan. A formal documented plan can be prepared for even the simplest measurement. However, on a small project, the cost of preparation of a formal plan may not be cost effective. In such cases, plan documentation could be limited to inclusion in the final report.

1.1.1 This guide addresses the following aspects of outdoor sound level measurements:

Reporting Requirements	4.8
Plan Format	5
Defining the Scope of the Measurement	5.1
Selecting the Appropriate Survey Class	5.1.1
Requirements for Unattended Measurements	5.2, Annex A2

Operator Qualifications	5.3, Annex A3
Identification of Interferences	5.4.1.2, Annex A1
Measurement Procedures	5.8
Procedures for Dealing with Impulsive Sounds, Tonal Sounds, and Infra-Sound	5.8.1.3, 5.8.3
Analysis and Post-analysis Requirements	5.9
Requirements for Measurement and Reporting of Supporting Data	5.10
Procedures for Mitigating Interferences	Annex A1
Specification of the following:	
Precision and Accuracy Requirements	5.1.2.4, 5.6.4
Measurement Locations	5.4, Annex A4, Appendix X1
Measurement Schedule	5.5
Measurement Durations	5.5
Amount of Data Required	5.5.3
Sound Measurement Equipment	5.6
Calibration Requirements	5.6.4

1.1.2 Test Method E 1503 for Conducting Outdoor Sound Measurements Using a Digital Statistical Analysis System addresses listed aspects of outdoor sound level measurements for situations that are normally encountered. Many other formal and informal practices also address most of these issues. However, there is sometimes a need to depart from the normal methods in order to accommodate a special situation or a regulatory requirement. This guide provides options that are technically correct for specific situations, and provides the information needed for selecting appropriate options.

1.1.3 This guide may be used when planning a program for obtaining either a single measurement set of sound level data or multiple sets of data, as well as related supporting data.

1.2 Measurements that may be planned using this guide include, but are not limited, to the following:

1.2.1 Characterization of the acoustical environment of a site.

¹ This guide is under the jurisdiction of ASTM Committee E-33 on Environmental Acoustics and is the direct responsibility of Subcommittee E33.09 on Community Noise.

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