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IEEE Standard for Translating Head and Torso Simulator Measurements from Eardrum to Other Acoustic Reference Points

IEEE Communications Society

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New York, NY 10016-5997
USA

IEEE Std 1652™-2016
(Revision of IEEE Std 1652-2008)

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IEEE Standard for Translating Head and Torso Simulator Measurements from Eardrum to Other Acoustic Reference Points

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Abstract: The data and rationale for translating head and torso simulator measurements from eardrum to other acoustic reference points such as free field and diffuse field are provided in this standard.

Keywords: DF, diffuse field, DRP, drum reference point, eardrum, ear reference point, ERP, FF, free field, HATS, HATS head and torso simulator, IEEE 1652™, receiver, telephone, telephony

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Introduction

This introduction is not part of IEEE Std 1652-2016, IEEE Standard for Translating Head and Torso Simulator Measurements from Eardrum to Other Acoustic Reference Points.

This standard is a revision to IEEE Standard 1652-2008. The revision includes free field, diffuse field, and ear reference point (ERP). Explanations on use of each have been revised. New, more accurate diffuse field data has become available, and it is included in this revision.

Acknowledgments

The values in Table 1, Table 2, Table 3, and Table 4 were derived from B&K Type 4128 calibration file information used with permission from Bruel and Kjaer.

Contents

IEEE Standard for Translating Head and Torso Simulator Measurements from Eardrum to Other Acoustic Reference Points

1. Overview

1.1 Scope

This standard provides the data, techniques, and rationale for translating head and torso simulator measurements from the eardrum to other acoustic reference points, such as the free field and the diffuse field. It applies primarily to measurements of devices that contact the ear, such as headsets and handsets. It can also be used for devices that do not contact the ear, such as speakerphones and wearable devices. It is applicable to communication and multimedia audio devices over the frequency range of 20 Hz to 20 kHz

1.2 Purpose

Common acoustic reference points are needed for comparing electroacoustic performance of handsets, headsets, speakerphones and other kinds of communication devices. It is also needed for comparing communication devices with other devices such as loudspeakers, multimedia terminals and consumer audio equipment. The free field and diffuse field are appropriate reference points because the results relate closely to what we hear. For measurements on communication devices, the free field or diffuse field are more widely applicable reference points than the legacy ear reference point (ERP).

1.3 How to use this standard

When *reading* this standard for the first time, it is helpful to begin with Clause 4 and read the remainder of the document. When *applying* the standard, go to the applicable clause and use the tables as instructed.

2. Normative references

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