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SPECIFICATION

IEC
PAS 62458

Pre-Standard

First edition
2006-01

**Sound system equipment –
Electroacoustical transducers –
Measurement of large signal parameters**

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**SOUND SYSTEM EQUIPMENT –
Electroacoustical transducers –
Measurement of large signal parameters**

FOREWORD

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IEC-PAS 62458 has been processed by IEC technical committee 100: Audio, video and multimedia systems and equipment.

The text of this PAS is based on the following document:

This PAS was approved for publication by the P-members of the committee concerned as indicated in the following document:

Draft PAS	Report on voting
100/991/NP	100/1058/RVN

Following publication of this PAS, which is a pre-standard publication, the technical committee or subcommittee concerned will transform it into an International Standard.

This PAS shall remain valid for an initial maximum period of three years starting from 2006-02. The validity may be extended for a single three-year period, following which it shall be revised to become another type of normative document or shall be withdrawn.

INTRODUCTION

The behaviour of loudspeakers is traditionally described by parameters according to IEC 60268-5, assuming a linear behaviour. By adding parameters, derived from a non-linear model, a more precise description can be made for design purposes and quality control in order to get a more reproducible behaviour for the manufacturing of equipment.

The dominant non-linearities in electro-dynamical transducers are directly related to the displacement x of the voice coil. The force factor, $Bl(x)$, of the motor, the voice coil inductance, $L_e(x)$, and the stiffness, $K(x)$, of the mechanical suspension are not constant but vary significantly with the instantaneous displacement, x . This generates distortion and limits the maximal output of the transducer. The measurement of harmonic and intermodulation distortion according to IEC 60268-5 with special test stimulus only gives characteristic symptoms of the non-linearities. The measurement of the non-linear parameters reveals the physical cause of the dominant distortion directly. This information is not only important for loudspeaker diagnostics but also for the synthesis of loudspeaker systems and the development of electrical control systems dedicated to loudspeakers.

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