**Draft for Public Comment**

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**BSI Group Headquarters**

389 Chiswick High Road London W4 4AL

Tel: +44 (0)20 8996 9000
Fax: +44 (0)20 8996 7400
www.bsigroup.com

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Responsible committee: EPL/29 Electroacoustics

Interested committees:

| |
|---|
| Title: Draft BS EN 63143 Electroacoustics. Modular instrumentation for acoustical measurements. Part 1. Specifications. |
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Responsible Committee Secretary: Committee Service Centre (BSI)
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E-mail: csc@bsigroup.com

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**Introduction**

This draft standard is based on national and international discussions. Your comments on this draft are invited and will assist in the preparation of the consequent standard.

For international standards, comments will be reviewed by the relevant UK national committee before sending the consensus UK vote and comments to the international committee, which will then decide appropriate action. If the international standard is approved, it is usual for the text to be published as a British Standard.

For national standards, comments will be reviewed by the relevant UK national committee and the resulting standards published as a British Standard.

**UK Vote**

Please indicate whether you consider the UK should submit a negative (with supporting technical reasons) or positive vote on this draft. Please indicate if you are aware of any reason why this draft standard should not be published as a British Standard.

**Submission of Comments**

- **Annotated drafts are not acceptable and will be rejected.**
- All comments should be submitted online at **https://standardsdevelopment.bsigroup.com/**. You will need to register in order to comment.

**Template for comments and secretariat observations**

| Date: xx/xx/20xx | Document: ISO/DIS xxxx |
|---|---|

| 1 | 2 | (3) | 4 | 5 | (6) | 7 |
|---|---|---|---|---|---|---|
| **MB** | Clause No./ Subclause No./Annex **(e.g. 3.1)** | Paragraph/ Figure/Table/Note | **Type of comment** | **Commend (justification for change) by the MB** | **Proposed change by the MB** | **Secretariat observations on each comment submitted** |
| | 3.1 | Definition 1 | ed | Definition is ambiguous and needs clarifying. | Amend to read '...so that the mains connector to which no connection...' | |
| | 6.4 | Paragraph 2 | te | The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK. | Delete reference to UV photometer. | |

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# 29/1086/CD

COMMITTEE DRAFT (CD)

| | |
|---|---|
| PROJECT NUMBER: **IEC 63143 ED1** | |
| DATE OF CIRCULATION: **2021-05-07** | CLOSING DATE FOR COMMENTS: **2021-07-30** |
| SUPERSEDES DOCUMENTS: **29/953/NP, 29/960A/RVN** | |

| | |
|---|---|
| IEC TC 29 : ELECTROACOUSTICS | |
| SECRETARIAT: Denmark | SECRETARY: Ms Lise Aagesen |
| OF INTEREST TO THE FOLLOWING COMMITTEES: | PROPOSED HORIZONTAL STANDARD: ☐ |
| | Other TC/SCs are requested to indicate their interest, if any, in this CD to the secretary. |
| FUNCTIONS CONCERNED: ☐ EMC ☐ ENVIRONMENT ☐ QUALITY ASSURANCE ☐ SAFETY | |

This document is still under study and subject to change. It should not be used for reference purposes.

Recipients of this document are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

TITLE:

**Electroacoustics – Modular instrumentation for acoustic measurement**

NOTE FROM TC/SC OFFICERS:

A Webinar on the background for the CD will be held on 2021-05-18 from 16:00-18:00 CEST. See doc. 29/1087/INF for further information.

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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# ELECTROACOUSTICS – MODULAR INSTRUMENTATION FOR ACOUSTIC MEASUREMENT

## FOREWORD

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The text of this International Standard is based on the following documents:

| Draft | Report on voting |
|---|---|
| XX/XX/FDIS | XX/XX/RVD |

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at http://www.iec.ch/standardsdev/publications.

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The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

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# INTRODUCTIONs

Standardized methods for measurement of acoustical quantities rely on the ability of measurement instruments to be perform correctly. ISO/TC 43/SC 1 “Noise” has prepared a *Guide for drafting instrumentation requirements in documents* which provide a harmonized set of specifications for measuring instruments to be used when drafting new or revised documents. This Guide refers to IEC 61183, IEC 61260, IEC 61672 in relation to standards for the measurement of quantities such as frequency-weighted sound levels, sound levels in fractional-octave bands, or sound exposure levels, but there are no equivalent international standards to specify the performance of measurement systems that are used to measure acoustical quantities other than sound levels, such as sound power levels, sound absorption, or reverberation time.

Many such measurement systems are not designed to measure sound levels or sound exposure levels and therefore are not designed to conform to the requirements of existing international standards. In addition, some users create measurement systems comprised of components that are not all produced by the same manufacturer and are therefore unlikely to have sufficient information about the interactions between components to enable comprehensive performance testing of the measurement systems according to existing standardized test methods.

This situation leads to an inability of standardized measurement methods to ensure the accuracy of measurement results, confusion in the market, and reduced acceptance of international standards by practitioners.

There is therefore a need to address the capabilities of user-configurable measurement systems that are suitable for measurement requirements and instrumentation which have evolved in some areas and for which additional or alternative considerations are necessary.

The intention of this document is to cater for the following system characteristics while ensuring that acoustics performance requirements are equivalent to those defined in IEC 61672:

– Modularity, where a measurement system may be configured and reconfigured by the user on an ongoing basis, using different configurations of hardware and software for varying measurement applications.
– Selectability of features, where only the performance characteristics necessary for realization of the intended applications are required. Where performance characteristics are required to enable accurate and reliable measurements of intended physical quantities, the requirements are equivalent to the applicable requirements of IEC 61672.
– Suitability for applications involving complex post-processing where access to sampled time data is essential.

This document addresses these considerations by treating the measurement system as a ‘white box’ and defining the documentation and processes necessary to enable suitable specification of performance characteristics and to enable type approvals and periodic verifications of performance to be made.

Clause 5 “Performance specifications” in this document is structured in a way that is similar to the same clause in IEC 61672-1. This is done to make it easier to understand the functional equivalence between the two standards. As a side effect a few subclauses of Clause 5 are intentionally left blank.

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# ELECTROACOUSTICS – MODULAR INSTRUMENTATION FOR ACOUSTIC MEASUREMENT

## 1 Scope

This document gives design requirements and validation methods for modular acoustic measurement systems including their electroacoustic performance specifications. Such systems are often computer based, user configurable and multichannel sound measuring instruments.

This document is applicable to a range of designs for reconfigurable acoustic measurement systems. A system level meter may be comprised of separate components in one or more enclosures and may be capable of measuring a variety of acoustical signal levels. Systems may include extensive analogue or digital signal processing, separately or in combination, with multiple analogue and digital outputs. Systems may include general-purpose computers, recorders, printers, and other devices.

Systems designed to be reconfigured for different measurements are covered by this document.

Systems conforming to the requirements of this document have a specified frequency response for sound incident on microphones from one principal direction in an acoustic free field or successively from random directions.

System specified in this document are intended to measure sounds generally in the range of human hearing.

Systems may be designed for use with an operator present or for automatic and continuous measurements of sound level without an operator present. Specifications in this document for the response to sound waves apply without an operator present in the sound field.

This document does not cover software updates, the use of open software platforms as well as data integrity. These may be subject for possible future versions of the document.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 61672-1:2013, *Electroacoustics - Sound level meters - Part 1: Specifications*

IEC 62585: 2012, *Electroacoustics – Methods to determine corrections to obtain the free-field response of a sound level meter*

## 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

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