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Date: 07 May 2021

Origin: International

Latest date for receipt of comments: 30 June 2021

Project No. 2017/03005

Responsible committee: EPL/29 Electroacoustics

Interested committees:

Title: Draft BS IEC 63143 Electroacoustics – Modular instrumentation for acoustic measurement.

Please notify the secretary if you are aware of any keywords that might assist in classifying or identifying the standard or if the content of this standard

- i) has any issues related to 3rd party IPR, patent or copyright
- ii) affects other national standard(s)
- iii) requires additional national guidance or information

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This draft is issued to allow comments from interested parties; all comments will be given consideration prior to publication. No acknowledgement will normally be sent. **See overleaf for information on the submission of comments.**

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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 Please indicate if you are aware of any reason why this draft standard should not be published as a British Standard.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
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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.	



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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CONTENTS

1		
2		
3		
4	FOREWORD.....	4
5	INTRODUCTION.....	6
6	1 Scope.....	7
7	2 Normative references	7
8	3 Terms and definitions	7
9	4 Reference environmental conditions	13
10	5 Performance specifications.....	14
11	5.1 General.....	14
12	5.2 Adjustments at the calibration check frequency	16
13	5.3 Corrections to indicated level	16
14	5.4 Directional response	16
15	5.5 Frequency weightings	16
16	5.6 Level linearity	16
17	5.7 Self-generated noise.....	16
18	5.8 Time weightings F and S.....	16
19	5.9 Toneburst response	16
20	5.10 Response to repeated tonebursts.....	17
21	5.11 Overload indication	17
22	5.12 Under-range indication.....	17
23	5.13 C-weighted peak sound level	17
24	5.14 Stability during continuous operation	17
25	5.15 High-level stability	17
26	5.16 Reset.....	17
27	5.17 Thresholds.....	17
28	5.18 Display	18
29	5.19 Analog or digital output	18
30	5.20 Timing facilities	18
31	5.21 Radio frequency emissions and disturbances to a public power supply	18
32	5.22 Crosstalk	18
33	5.23 Power supply	18
34	5.24 Sampled time data	18
35	5.25 Time alignment	19
36	6 Environmental, electrostatic, and radio-frequency criteria	19
37	6.1 General.....	19
38	6.2 Static pressure.....	19
39	6.3 Air temperature	19
40	6.4 Humidity	19
41	6.5 Electrostatic discharge.....	19
42	6.6 A.C. power-frequency and radio-frequency fields	20
43	6.7 Mechanical vibration	20
44	7 Pattern evaluation, periodic test and configuration process	20
45	7.1 General.....	20

46	7.2	Manufacturer	21
47	7.3	Pattern approval	21
48	7.4	Periodic check	22
49	7.5	Critical configurations	22
50	7.6	Critical components	22
51	7.7	System configuration	23
52	8	Marking	23
53	8.1	General.....	23
54	8.2	Marking of components	23
55	9	Instruction manual	24
56	9.1	General.....	24
57	9.2	Information for operation	24
58	9.2.1	General	24
59	9.2.2	Design features	24
60	9.2.3	Power supply	24
61	9.2.4	Adjustments at the calibration check frequency	24
62	9.2.5	Corrections to indicated levels	24
63	9.2.6	Operating the system.....	25
64	9.2.7	Accessories	25
65	9.2.8	Influence of variations in environmental conditions	25
66	9.3	Configuration space	25
67	9.4	Feature declaration and definitions	26
68	Annex A (informative)	Sample function matrix	27
69	Bibliography.....		28

70

71

72

73

INTERNATIONAL ELECTROTECHNICAL COMMISSION

ELECTROACOUSTICS – MODULAR INSTRUMENTATION FOR ACOUSTIC MEASUREMENT**FOREWORD**

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IEC 63143 has been prepared by IEC technical committee 29: Electroacoustics. It is an International Standard.

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>.

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

- 128 • reconfirmed,
- 129 • withdrawn,
- 130 • replaced by a revised edition, or
- 131 • amended.

132

133

INTRODUCTIONS

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

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

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

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

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

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

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

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

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: