



STRATEGIC BUSINESS PLAN (SBP)

IEC/TC or SC 29	Secretariat DK	Date 2011-07
--------------------	-------------------	-----------------

Please ensure this form is annexed to the Report to the Standardization Management Board if it has been prepared during a meeting, or sent to the Central Office promptly after its contents have been agreed by the committee.

Title of TC  
Electroacoustics

**A Background**

**A.1 Date of establishment of the Technical Committee and a brief historical background**

IEC/TC 29 was established in 1953 following the first International Congress on Acoustics in 1953 in Delft, Netherlands at which the urgent need for international standardization in electroacoustics was recognised, and at which some topics were discussed in detail and some working draft documents produced. These were completed at the first meetings of TC 29 in the Hague, Netherlands in 1953, in Philadelphia, USA in 1954, and in Bern, Switzerland in 1955, and published as IEC 89, Recommendations for the characteristics of audio-apparatus to be specified for application purposes (1957), and IEC 90 Recommendations for the dimensions of polarized plugs for hearing aids (1957).

Terminology, sound level meters, hearing aids, electroacoustics, electromechanical and electroacoustical transducers as well as ultrasonics were also included in the initial broad scope of the Committee. Standardisation of the description and the measurement of vibration, including transducers, was transferred to ISO at an early stage.

The Committee was subsequently organized into four Subcommittees, SC 29A, SC 29B, SC 29C and SC 29D as follows:

SC 29A. The working group for 'Sound recording' was transferred into SC 29A and was later to become a separate Committee - TC 60 "Recording".

SC 29B "Audio engineering" was formed in 1966 and in 1984 merged with SC 60C to become TC 84 (in November 1995 this transformed into SC 100C "Equipment and systems in the field of audio, video and audiovisual engineering").

SC 29C covered "Measuring devices" and SC 29D "Ultrasound".

In 1985 SC 29D "Ultrasound" became IEC/TC 87 "Ultrasonics". At the same time TC 29 and SC 29C were amalgamated to form the new TC 29 with the purpose of preparing international standards related to instruments and methods of measurement for electroacoustical purposes.

**A.2 Current title and scope**

**Title**  
Electroacoustics.

**Scope**  
Standardization of instruments and methods of measurement in the field of electroacoustics. This includes performance requirements, calibration and test methods for electroacoustic transducers (e.g. microphones, sound calibrators, filters, earphones, bone vibrators), sound measuring instruments (e.g. sound level meters), audiometric equipment as well as hearing aids and induction loop systems, and equipment used for measurement of aircraft noise.

Excluded are:

- a) standards for sound and video recording as dealt with by TC 100;
- b) standards for equipment in the field of audio and audio-visual engineering as dealt with by TC 100;
- c) standards and terminology for ultrasonic techniques dealt with by TC 87.

NOTE - Close co-operation is, however, to be maintained with TC 87 in the fields of common interest.

## **B Business Environment**

### **B.1 General**

TC 29's technical work plays a vital role in underpinning large areas of social, environmental, medical and rehabilitation work, which requires the accurate production, and measurement of sound. Acoustical instrumentation and devices are therefore required by a very diverse range of users.

The declaration and verification of noise emission values for all kinds of machinery as presently required by many national or regional regulations presupposes the use of uniformly specified and sophisticated sound measuring instrumentation with tight tolerances.

A major change in the business environment has been the rapid growth of telephone retailing, banking and information provision. Such development has created a demand for the use and development of TC 29 standards in determining the acoustic environment in which these businesses operate.

For the control of noise immission there is a growing need for instrumentation for the measurement and analysis of noise exposure in the work place as well as in residential areas, and within the entertainment sector. The available instruments and measuring methods still represent a high degree of simplification compared to the perception of noise by man and to the effect on the human ear. However, current instrumentation provides a consistent means of measurement, which allows preventative action to be taken where appropriate based on the best available data.

Regulation and law on acoustical instrumentation differs widely from country to country. For example, in some countries pattern evaluation of new models of instrument against the international standard is required before the device can be sold, and regular testing of individual specimens is also required by law. In other countries this is not the case and it is up to the user to follow good measurement practice. Hence the aim of TC29 is also to encourage testing in countries where it is not mandated by use of the same agreed international specified test methods within all countries, ensuring consistency and cost-effective testing across world markets.

In terms of worldwide market this varies considerably for the different instruments within the scope of the Committee's remit, and as the number of key manufacturers in some areas is quite small, data on sales is often not available for commercial reasons. However, as examples some 8 million hearing aids are manufactured worldwide each year, and it is known that in some countries lost productivity due to noise can equate to up to approximately 2% of GDP.

### **B.2 Market demand**

The demand for acoustical devices and measurement is worldwide, with many applications and stakeholders, and in many countries the control and measurement of noise is covered by law or legislative directives.

The range of users of the standards will include governments, local authorities, planners, the medical profession, manufacturers of acoustical devices, those measuring environmental noise, consultants as well as the many laboratories and test houses around the world.

Users of TC 29 standards include international and national standards organizations, and in many countries the international standards are directly adopted with no change as equivalent national standards.

As an example, up to 170 million citizens in the EU alone are said to be living in areas where the noise levels were such as to cause serious annoyance during daytime. Also, reports from some countries found that some 30% of the population are highly disturbed by road traffic noise. Measures to be taken to reduce the noise are normally very expensive and must be based on proven facts. Similarly ability to make reliable measurement of aircraft noise is vital to the industries concerned, airport operators and the general population.

Noise induced hearing impairment is one of the most frequent occupational hazards resulting in large social expense. Equipment for the measurement and analysis of noise as covered by TC 29, is in high demand and allows facts to be gathered based on accurate and reproducible measurements. Worldwide research in psychoacoustics is aiming at a better understanding of human reactions to noise exposure that certainly will call for further development of measuring techniques and instrumentation. Monitoring of hearing functions with improved audiometric equipment may contribute to an early detection and the minimizing of related risks.

Hearing aid performance, specification and measurement is the subject of a series of standards produced by TC 29. The associated standardization of ear simulators and head and torso simulators for measuring performance has allowed a better understanding to be found of the relationship between subjective and objective measurements. The effect of these standards has been to improve the means by which the vast majority of hard of hearing people communicate, and so improve their quality of life.

The ability to accurately measure the threshold of hearing is crucial to hearing conservation programmes, the early detection of hearing loss in children and the diagnosis of hearing loss. TC 29 works in conjunction with ISO/TC 43 to ensure that standards for thresholds of hearing and other techniques for audiometry are integrated. The same close cooperation also takes place on the integration of measurement methods and the necessary instrumentation for determination of acoustic power emission from machinery, total noise exposure of workers during a work day, etc.

### **B.3 Trends in technology**

The current rapid development in digital measurement, manufacturing techniques and miniaturisation offers increased capabilities and more sophistication in sound measuring instrumentation in general, and for audiometry and hearing aids. The advent of automated methods of testing and calibration also have a key role to play, and newer digital designs may mean that in practice reduced test procedures are appropriate. Hence the international standards require continuous revision and updating to ensure specifications and test procedures remain appropriate and fit-for-purpose.

New technologies are continually evolving, for example in terms of hearing aids and microphones, and the Committee needs to ensure that as time progresses the standardisation keeps pace with the new products and systems introduced.

### **B.4 Market trends**

Market trends are broadly in line with the technology trends mentioned in B.3, which is often allowing greater flexibility, more customisation and enhanced functionality of device, whilst maintaining a static cost base. Similarly miniaturisation in hearing aids and other areas has progressed considerably over recent years, and although some further change may occur the usability of devices will continue to be a key factor. TC 29 has liaisons with relevant TCs and these are unlikely to change substantially as TC29 only provides specifications of measurement performance.

### **B.5 Ecological environment**

This is not directly relevant as TC 29 standards specify only measurement performance requirements, although impact of manufacture and disposal on the environment will be of interest to manufacturers using the standards.

## C System approach aspects

TC 29 will actively continue to promote the ongoing liaisons to other committees and to system committees where relevant.

<b>Systems committees (TC 29 as a supplier of standards)</b>	<b>TC 87</b>	Ultrasonics
	<b>TC 100</b>	Audio, video and multimedia systems and equipment
	<b>TC 108</b>	Safety of electronic equipment within the field of audio/video, information technology and communication technology
	<b>ISO/TC 43</b>	Acoustics
	<b>ISO/TC 43/SC 1</b>	Noise
	<b>ISO/TC 108/SC 3</b>	Use and calibration of vibration and shock measuring instruments
<b>Systems committees (TC 29 as a customer of standards)</b>	<b>SC 77B</b>	High frequency phenomena
	<b>TC 87</b>	Ultrasonics
	<b>TC 100</b>	Audio, video and multimedia systems and equipment
	<b>TC 106</b>	Methods for the assessment of electric, magnetic and electromagnetic fields associated with human exposure
	<b>TC 108</b>	Safety of electronic equipment within the field of audio/video, information technology and communication technology

Cooperation established:

- Through liaison with the following international organisations:
  - ITU-T "International Telecommunication Union – Telecommunication Standardization Sector"
  - OIML "International Organization Of Legal Metrology"
  - ICAO "International Civil Aviation Organization"
- Through experts working on other TCs or with other bodies eg. TC 106, ISO/TC 43, OIML, ICAO
- Previous experience of joint WG with ISO/TC 43.

## D Objectives and strategies (3 to 5 years)

### D.1 Objectives

1. To keep TC 29 standards up-to-date to reflect new/changing technologies and user requirements both in the marketplace and via customer IEC and ISO Technical Committees.
2. Respond to requests for development of new standards to meet new marketplace and business needs and environmental noise protection concerns following IEC guidelines in a timely manner.
3. Ensure consistency within TC 29 standards on common aspects e.g. uncertainties of measurement and ensure the standards are written in such a way that requirements are clear to end-users.
4. Promote the work of the Committee and increase the awareness of TC 29 publications.
5. Encourage new membership of the Committee.

## D.2 Strategies

1. Make more active regular reviews of the Stability Result Dates for each document and ensure a comprehensive review of the options available for each.
2. Raise early awareness of new technologies or market requirements, likely to have an impact on existing standards or likely to trigger NWIPs, by using WG and MT members expert knowledge to identify.
3. Identify any additional guidance documents that would be useful to Convenors/Project Leaders on common aspects, clarity of wording or Committee decisions.
4. Include Strategy and Action Plans on a website (see E.4).
5. Discuss with IEC Central Office marketing staff effective methods to increase awareness of the work of TC 29 and of its publications. Encourage experts to perform a similar task at National Committee level.

## E Action plan

1. Maintain current record of Stability Dates, including additional list in date order and in WG/MT order to ease identification of those due for review in the immediate future. **This covers all existing TC 29 standards over the next 4 years.** In advance of plenary meetings, Convenors/Project Leaders to review and add relevant documents to their WG/MT Agendas to ensure members have an opportunity to consider requirement for revision prior to WG/MT meeting. *Initiate RR forms as appropriate. Ongoing at plenary meetings from November 2009.*
2. Agendas to include an item for discussion on new technologies or market requirements likely to impact the work of the Committee. *Convenors/Project Leaders to document, using a basic Road Map if desired. Initiate RR or NP as appropriate. Ongoing at plenary meetings from November 2009.*
3. Guidance document – prepare example on TC 29 implementation of inclusion of uncertainties of measurement in TC 29 documents. Invite suggestions for other guidance from Convenors/Project leaders and identify expert willing to prepare. *Chairman/Secretary to arrange and circulate a second draft prior to plenary meeting 2012. Convenors/Project Leaders to respond.*
4. Setting up of a secretariat website jointly with the secretariat of ISO/TC 43 “Acoustics” with the purpose to both provide tools for easy and updated access to information on activities and documents and to support initiatives to increase awareness of the work of TC 29 and of its publications. This will include relevant contributions from TC 29 members. e.g. relevant technical conference presentations or presentations on the work of the committee. *Ongoing from 2010.*

## F Useful links to IEC website

[IEC/TC 29 dashboard](#) giving access to Membership, TC/SC Officers, Scope, Liaisons, WG/MT/PT structure, Publications issued along with their stability dates and Work Programme.

Name or signature of the secretary

*Leif Nielsen*