



STRATEGIC BUSINESS PLAN (SBP)

IEC/TC or SC 87	Secretariat United Kingdom	Date December 2010
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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
Ultrasonics

A Background

A.1 History

Activity started on medical ultrasonic safety standards in 1955 within Working Group 7 of TC 29. SC 29D 'Ultrasonics' was formed following the 1966 Prague meeting and a decision to transform SC 29D into a full Technical Committee (TC 87) was made at the 1985 Budapest meeting.

A.2 Scope, Working Groups & Relationships

The scope of TC 87 is to prepare standards related to the characteristics, methods of measurement, safety, and specifications of fields, equipment and systems in the domain of ultrasonics.

Excluded from this scope is:

Safety for medical electrical equipment and systems.

NOTE - Close liaison is maintained with TC 62 and TC 29 in fields of common interest.

B Business Environment

B.1 General

Ultrasonic technology finds a wide range of applications across virtually all business sectors including medicine, electronics, consumer products, food, manufacturing industries, defence, etc. Medical uses are mainly at megahertz frequencies and include diagnostic, monitoring, surgical and therapeutic applications. Medical uses represent a major area of development and continuing evolution. Industrial use of ultrasound is mainly in the kilohertz frequency range and includes ultrasonic cleaning, welding and industrial monitoring and processing, and underwater acoustics. Although most industrial applications involve the use of ultrasound to perform some sort of process, human exposure to ultrasonic fields and the need to determine the performance of medical ultrasonic equipment, represent the drivers for the work of TC 87. The majority of the current work of TC 87 is therefore oriented towards the ultrasonic aspects of medical equipment and to safety of non-medical applications of ultrasonic fields. This is reflected by the structure of its working groups and by the qualification of its active experts. Underwater acoustic systems play a wide role in off-shore oil and gas industries. Communication, control, surveying, and exploration systems all use water-borne sound in some form or another

B.2 Market demand

Medical diagnostic ultrasonic equipment is an area of high expansion, more rapid than any other imaging modality. Surgical and therapeutic ultrasound has seen a significant continuous growth over the last decade and this trend is expected to continue. A particular area of recent growth has

been high intensity focused ultrasound applied to certain surgical procedures. The need to characterise the ultrasonic fields and to establish means for determining exposure levels is a recognised requirement to meet regulations worldwide. Although some of the industrial applications of ultrasound are well established, there is a need to provide quantitative test methods to enable the performance and safety of these systems. For example, in the case of ultrasonic cleaning, there is a need to provide quantitative test methods to enable the performance of the cleaning systems and the cleaning process to be monitored. Furthermore, the need to understand new industrial processes involving the application of high power ultrasound is leading to a need to measure and characterise high power ultrasonic fields. These needs together with the need for test methods and procedures to support quality systems require the continued development of specification standards in these areas. There is also a growing need to develop methods of measurement and characterisation of underwater acoustic fields, in particular for the measurement of radiated noise from remote-operated vehicles.

B.3 Technology & Market Trends

Ultrasonic technology finds a wide and increasing range of medical and industrial applications. Medical uses are continuing to develop and evolve. Although industrial uses of ultrasound at kilohertz frequencies have been established for many years, there are significant new developments in areas such as sonochemistry and industrial processing. In summary, trends in these areas are as follows:

- Technology is continually changing and developing and this situation is likely to continue for the foreseeable future;
- Slower but significant changes are occurring in the well-established industrial applications of ultrasonics;
- There is no major field of ultrasonic technology which is decreasing in importance;
- Underwater acoustic systems play an increasing role in off-shore oil and gas industries.
- Therapeutic, high frequency and surgical applications are undergoing rapid development.

B.4 Ecological environment

The effect of underwater noise on sea-life is increasingly of concern in the world's oceans.

C System approach aspects

TC 87 actively promotes the establishment and maintenance of communication with other committees to ensure consistent and integrated standards. TC 87 presently maintains formal liaisons with:

- IEC/TC 29
- IEC/TC 62
- WFUMB (World Federation of Ultrasound in Medicine and Biology) (A-type)

As a customer, TC 87 uses standards created by:

- TC 1: IEV
- TC 62/SC62D/MT18: Therapy equipment

TC 87 serves as a supplier of standards to:

- TC 62/SC 62A: Common aspects
- TC 62/SC 62B: Diagnostic imaging equipment
- TC 62/SC 62B/MT 34: Revision of IEC 60601-2-37
- TC 62/SC 62D: Electromedical equipment
- TC 62/SC 62D/MT 18: Therapy equipment

- TC 62/SC 62D/MT 24: Extracorporeal lithotripsy equipment

D Objectives and strategies (3 to 5 years)

The current work program of TC 87 is shown on the IEC database.

TC 87's goal is to respond to market needs for standards involving new developments in ultrasonics including:

- New developments in power transducer design for low ultrasonic frequency application in industry.
- More sophisticated arrays and signal processing techniques in the medical ultrasonic imaging applications such as 3-D techniques.
- New advances at the ultra high ultrasonic frequency range up to 75 MHz.
- New technologies in therapeutic and surgical applications including HITU.

E Action plan

IEC Collaboration Tools:

As electronic communication means has expanded, the IEC Central Office has made a variety of collaboration tools available to Technical Committees and their Working Groups. It is anticipated that efficient use of these tools by the WG convenors will contribute to better and timely standards while decreasing the expenses of the TC and WG experts. TC 87 encourages the use of these tools by all convenors (ongoing).

Maintenance:

TC 87 will continue to establish Maintenance Teams for the review and update of its published standards to ensure market relevance (ongoing).

New projects:

TC 87 will continue to advance existing projects while evaluating new NPs offered by the WGs and National Committees (ongoing).

Market analysis:

TC 87 will continue to examine the market and technology advancements developing new standards that are within the scope of the committee. TC 87 WGs will develop projects as needed in anticipation of future technologies and market needs (ongoing).

F Useful links to IEC web site

[IEC/TC 87 dashboard](#) giving access to Membership, TC/SC Officers, Scope, Liaisons, WG/MT/PT structure, Publications issued along with their stability dates, Work Programme and similar information for SCs, if any.

Name or signature of the secretary

Nick Bradfield