



STRATEGIC BUSINESS PLAN (SBP)

IEC/TC OR SC: <b>TC 55</b>	SECRETARIAT: <b>USA</b>	DATE: <b>11-18-19</b>
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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.

**STRATEGIC BUSINESS PLAN**

**A. STATE TITLE AND SCOPE OF TC**

Are there any new or emerging trends in technology that will impact the scope and work activities of the TC? Please describe briefly.

Do you need to update your scope to reflect new any emerging technologies? If yes, will these changes impact another TC's scope or work activities?

If yes, describe how these will impact another TC(s) and list the TC(s) it would impact

IEC Technical Committee 55: Winding wires.

**Scope:** To prepare international standards for wires for electrical winding, irrespective of conductor material, shape, size or type of covering, taking into account the needs in all fields of electrical engineering, with attention to the need for environmental protection and safety of human health. Winding wire standards cover product specifications, test procedures and packaging.

All of today's major worldwide electrotechnical trends, in particular e-mobility, renewable energy and energy distribution, are sufficiently covered in the broad scope of TC 55.

**B. MANAGEMENT STRUCTURE OF THE TC**

Describe the management structure of the TC (use of an organizational chart is acceptable) (should be integrated by CO automatically) and, if relevant (for example an unusual structure is used), provide the rationale as to why this structure is used.

Note: Check if the information on the IEC website is complete.

When was the last time the TC reviewed its management structure? Describe any changes made. When does the TC intend to review its current management structure? In the future, will the TC change the current structure, for example due to new and emerging technologies, product withdrawal, change in regulations etc. Please describe.

Make sure the overview includes:

- any joint working groups with other committees,
- any special groups like advisory groups, editing groups, etc.

As shown on the TC 55 structure [web page](#), which includes a Joint Working Group 3 with IEC SC 61C. The structure was last reviewed at the TC 55 plenary meeting held 11 October 2019 in Shanghai.

### C. BUSINESS ENVIRONMENT

Provide the rationale for the market relevance of the future standards being produced in the TC.

If readily available, provide an indication of global or regional sales of products or services related to the TC/SC work and state the source of the data.

Specify if standards will be significantly effective for assessing regulatory compliance.

The winding wire industry is a mature industry, one that continually evolves to meet the demands of expanding applications of its products. Present standards reflect the consensus of the members for the technology and materials represented. Changes are based on new technology as they apply to methods of test and material for products and packaging, new product designs, or in addressing environmental and health considerations. Winding wires are used widely throughout a broad spectrum of electrotechnical industries mainly for creating electromagnetic fields and transforming electrical energy. The range of applications of winding wires extends from the use of extremely fine wires for electronics and telecommunications applications, to the use of large insulated and covered wires for large motor and power transformation industries. Demand and use of winding wires are slowly increasing worldwide as industrialization is proceeding and demand for electricity and more automated solutions grows particularly in less industrialized regions. The winding wire industry is renowned for its innovative solutions, both in products and production processes. For example, electrification of vehicles has become an increasingly important factor for new properties (and testing) of winding wires in large volumes.

### D. MARKET DEMAND

Provide a list of likely customers of the standards (suppliers, specifiers, testing bodies, regulators, installers, other TC/SC's etc.). Do not specify company names, only categories of customers.

The Committee continually analyzes and incorporates in its standards, the trends and changes in market demand for all types of winding wires traded between countries. Although some applications are not asking for improved properties of winding wires, an increasing quality standard regarding properties of winding wires such as elongation, continuity, breakdown voltage and thermal characteristics can be observed especially in the automotive sector. In several projects these market expectations are taken into account, since process technology of the production of winding wires have also been improved over the years and the state of the art developed further to higher standards. The increasing expectations from the market are due to increasing quality and performance standards in motor and transformer business. Motors and transformers constantly must become more efficient, have an increased density of power and/ or higher life expectations at higher temperatures. All this leads to less tolerances in winding wires, less faults per given length etc. The automotive industry is driving additional technological trends due to compact, energy efficient traction motors, some of which are required to operate at higher voltages.

### E. TRENDS IN TECHNOLOGY AND IN THE MARKET

If any, indicate the current or expected trends in the technology or in the market covered by the products of your TC/SC.

The winding wire industry is a very mature one, because winding wires are commodities. This is because in the present-day market, the industry is present and well developed virtually everywhere in the world.

Winding wires are not end products, but components used by customers as materials in electrical equipment for creating electromagnetic fields and transforming electrical energy.

TC 55 expects the development of new specifications for higher thermal class winding wires due to manufacturing technology advancements as well as wires that are resistant to high voltage pulses.

The sustainability of the market is difficult since it is closely linked with the fluctuations of general economic trends. Since the winding wire industry is strongly connected with the trends of end user markets (automotive, domestic appliances, electrical rotating machinery, transformers, solar and wind energy conversion and distribution, other electrical equipment), the specific technical demands of the end users are very influential on the market. One recent trend was the continual growing demand for aluminium winding wires due to increases in the price of copper, which led to new specifications for rectangular aluminium wires. As such, IEC TC 55 strives to maintain a cooperative relationship with main end user representatives on the Committee and with other relevant IEC TC's, in order to open new scenarios in the future of the industry, to:

1. Maintain an awareness of new trends in relevant technology to the winding wires industry;
  - a) Investigation into improved test methods, e.g. thermal class;
  - b) Investigation into new tests such as tensile strength for round copper enamelled wires, windability, and new methods for flexibility and adherence, in order to adapt to changing usage conditions.
  - c) Standardization for new types of winding wires in response to market demand
  - d) Investigation into aging testing for plastic spools; and
2. Support the use of environmentally sound materials and processes in the production and use of winding wires. Examples of this support through standardization include
  - a) Standardization of special alloys (for soldering the enameled wires) not containing lead or other potentially hazardous metals;
  - b) Recognition of environmentally friendly refrigerants for use in the IEC 60851-4 Resistance to refrigerants test procedure.
  - c) Increased activity toward environmental protection led to lower exposition limits of the solvent NMP (N-Methylpyrrolidone) (in the EU), but compliance can be achieved by existing winding wire manufacturers.

Ongoing participation in the work of the Technical Committee and its Working Groups by producers, suppliers and users is highly encouraged. TC 55 actions to take place:

1. Support test methods respecting environmental protection and human health.
2. Collaborate with the chemical industry in order to find alternative solvents and components not containing NMP or other environmentally hazardous solvents.

**F. SYSTEMS APPROACH ASPECTS (REFERENCE - AC/33/2013)**

Does your TC/SC have a need for a systems approach?

If so:

- Will the Systems work be in a single TC or in multiple TCs?
- Will a Systems Evaluation Group (SEG), Systems Committee (SyC), or Systems Resource Group be required?
- Is your TC/SC work of relevance to ISO?
- Is or are there fora or consortia working in parallel to IEC? Is there a chance to integrate this work in your TC/SC?

This should not only be restricted to the customer/supplier relationships with other TC/SCs indicating types of co-operation (e.g. liaisons, joint working groups) but be of a more generic nature.

If there is no need for a systems approach as outlined in AC/33/2013, is it intended a TC would not be requested to report on general systems approach considerations such as customer/supplier relationships, liaisons, joint WGs, etc. as referenced in the system approach matrix illustrated in slide 14 of the presentation attached to AC/37/2006?

In general, the winding wire industry serves the role of material supplier to end product manufacturing industries represented in the following TC's:

IEC TC 2, Rotating machinery  
IEC TC 14, Power transformers  
IEC SC 61C, Safety of refrigeration appliances for household and commercial use  
IEC TC 96, Transformers, reactors, power supply units, and similar products for low voltage up to 1100 V  
IEC TC 108, Safety of Electronic Equipment within the field of Audio/Video, Information Technology and Communication Technology

The winding wire industry is a supplier to, but also the customer of sectors represented in the following TC's:

IEC TC 15, Solid electrical insulating materials  
IEC TC 112, Evaluation and Qualification of Electrical Insulating Materials and Systems  
IEC TC 113, Nanotechnology for electrical and electronic products and systems

Cooperation with these TC's is demonstrated through the exchange of documents and liaisons.

In order to maintain contact, interface, and obtain current information/documents with these other IEC committees, TC 55/WG 1 members are assigned to be liaisons to these other committees. The assigned liaisons will be expected to report on the activities of these parallel IEC committees at TC55/WG1 meetings.

**G. CONFORMITY ASSESSMENT**

With reference to clause 33 of Part 2 of the ISO/IEC directives, are all your publications in line with the requirements related to conformity assessment aspects?

Will the TC/SC publications be used for IEC Conformity Assessment Systems (IECEE, IECEx, IECQ, IECRE)?

Will any of your standards include test specifications, reproducible test requirements, and test methods?

Are there likely to be special conformity assessment requirements generated by any standards projects? If yes, list which projects.

TC 55 standards do not specify how to deal with the management of tests (routine vs. non-routine/periodic). These are certification issues not governed by the standards. In some countries there are some local rules, but generally decisions are taken by agreement between customer and supplier.

The scope of TC55 standards encompasses only the product requirements and does not extend to the management of certification matters or supplier-customer agreements.

**H. HORIZONTAL ISSUES**

Indicate here how the TC/SC deals with horizontal issues such as energy efficiency, environmental aspects, safety, security...

Provide information on the interaction with SMB Advisory Committees, if applicable.

These issues are generally not germane to winding wires.

**I. 3-5 YEAR PROJECTED STRATEGIC OBJECTIVES, ACTIONS, TARGET DATES**

STRATEGIC OBJECTIVES 3-5 YEARS	ACTIONS TO SUPPORT THE STRATEGIC OBJECTIVES	TARGET DATE(S) TO COMPLETE THE ACTIONS
Publish new electrical endurance tests under high frequency voltage impulses	Conduct round robin tests to verify reproducibility and repeatability of procedure	2021-03-31
Publish new standards for paper covered aluminium and copper wires	Advance through current approval process steps	2020-03-31

Note: The progress on the actions shall be reported in the RSMB.