TC85X/Sec0311/INF

BUSINESS PLAN

CENELEC/TC or SC	Secretariat	Date
TC 85X	Germany	2023-10-10

Please ensure this form is annexed to the TC Report to the CENELEC Technical Board if it has been prepared during a meeting, or sent to CCMC promptly after its contents have been agreed by the Committee by correspondence.

TC or SC title: Measuring equipment for electrical and electromagnetic quantities

A Background

On the international level IEC/TC85 task is to prepare International standards in the field of equipment and systems for measurement, testing, monitoring, generation and analysis of simple and complex electrical and electromagnetic quantities, as well as their calibrators. Such equipment includes instruments, measurement standards, signal generators, monitoring equipment, recorders and electrical measuring transducers together with their accessories. The IEC/TC85 Secretariat is held by China, the Chair by France.

To accommodate the specifics arising from the EU Smart Grid Mandate (M490) this scope is enlarged in CLC/TC85X to accommodate the challenges of controlling energy consumption and to preserve and improve the quality of power supply in order to avoid malfunctioning and overheating of connected electrical devices and appliances particularly due to alternations in the mains voltage.

A.1 General

Equipment in the scope of CLC/TC 85X include power metering or monitoring devices (PMD), insulation monitoring devices (IMD), insulation fault location systems (IFLS) and power quality instruments (PQI), calibrated measurement devices, signal generators, monitoring equipment, recorders and electrical measuring transducers, and devices for testing, measuring or monitoring the effectiveness of protective measures as given by European safety legislation, together with their accessories and test procedures.

A.2 Sustainable development goals

- ☐ **GOAL 1:** No Poverty
- ☐ **GOAL 2:** Zero Hunger
- ☐ **GOAL 3:** Good Health and Well-being
- ☐ **GOAL 4:** Quality Education
- ☐ **GOAL 5:** Gender Equality
- ☐ **GOAL 6:** Clean Water and Sanitation
- ☐ **GOAL 7:** Affordable and Clean Energy
- ☐ **GOAL 8:** Decent Work & Economic Growth
- ☐ **GOAL 9:** Industry, Innovation & Infrastructure
- ☐ **GOAL 10:** Reduced Inequality
- ☐ **GOAL 11:** Sustainable Cities and Communities
- x **GOAL 12:** Responsible Consumption & Production
- ☐ **GOAL 13:** Climate Action
- ☐ **GOAL 14:** Life Below Water
- ☐ **GOAL 15:** Life on Land
- ☐ **GOAL 16:** Peace, Justice Strong Institutions
- ☐ **GOAL 17:** Partnerships to achieve the Goals

A.3 Management structure of the committee

B Business Environment

B.1 General

Through its mirroring function of IEC/TC85, CLC/TC85X is focused on three main markets:

– Power metering market:

– energy efficiency (meters, not used for billing purposes),

– monitoring of installations (power meters),

– power quality (power quality instruments).

– Electrical safety measuring market:

– insulation monitoring devices (IMD), insulation fault location systems (IFLS),

– equipment for insulation resistance, loop impedance, resistance of earth connection and equipotential bonding, phase sequence,

– effectiveness of residual current devices (RCD),

– hand-held and hand-manipulated current clamps and sensors for the measurement of leakage currents. – equipment for testing the effectiveness of the protective measures of electrical and/or medical electrical equipment

– Transducers market:

– electrical measuring transducers for converting AC electrical quantities to analogue or digital signals

B.2 Market demand

The liberalization of European energy market and the growing need for monitoring the power quality require new standards with new requirements. Equipment according to these standards is increasingly accurate, especially in regards to measurement and manufacturing conditions. This need is accentuated by the presence, on industrial sites, of digital electronic equipment integrated in more and more machines; this digital electronic equipment is sensitive to micro-outages, peaks and voltage dips, harmonics. In the optimization process of productivity in the Industry while providing elements to reduce energy costs, environmental considerations become a necessity. The sooner power supply problems are characterized, the sooner any necessary repairs can be done, and less energy is consumed. Ultimately, the quality of energy is part of sustainable development.

Smart Grid Coordination Group and Smart Metering Coordination Group, in their respective reports, are requesting from IEC/TC85 skills in power quality management because there is no existing CLC/TC85X (See documents SGCG/Sec 0030/DC and SMCG/Sec 004/DC). In the report of the Smart Grid Coordination Group, CLC/TC13 56 expressed their need for a liaison with IEC/TC85, because in the past there was no option for liaisons on a purely European level.

Occupational health and safety requirements are largely standardized in Europe and are monitored in particular by public institutions, certification bodies and responsible insurances. In particular, the safety requirements for handling electrical systems and devices require regular checks on the effectiveness of the protective measures.

B.3 Trends in technology

The advanced functionalities (e.g. integrated screen to view essential parameters, oscillography curve, storage capacities, etc.) become possible by using the latest achievements in electronic information and communication technologies. These new technologies may affect the way requirements and testing methods are specified. The most important trends are the following:

– extended use of electronic technologies, like digital signal processing, mixed signal circuits and firmware, which may have to be updated during the life of the equipment;

– changes in conditions of the power supply, distribution systems and EMC environment due to the growing use of non-linear loads, power lines and radio communications. On the one hand, this requires advanced measurement algorithms to measure power and power quality parameters; on the other hand, better protection is needed against undue influences;

– increased use of interoperable communication and IT technologies, including an increased interaction and integration of systems formerly separated, will be common to most of the Smart Measuring technologies

B.4 Market trends

Europe is launching several initiatives or Mandates that should be covered by CLC/TC 85X which is an important interlocutor by providing expertise. The following are examples where CLC/TC 85 has expertise to bring into:

– Smart grid mandate, e.g. M/490;

– Smart metering mandate, e.g. M/441;

– Electric Vehicle mandate, e.g. M/468;

– Energy Efficiency of Electronic Equipment, e.g. 2012/27/UE;

– Energy rated products 2009/125/EC, e.g. M/495;

– Ecodesign circular economy, M/543;

– Safety and health requirements for the use of work equipment by workers at work, European Directive 2009/104/EG.

On the market for equipment for testing electrical safety, the European market is a mature market with some specifics that should be covered by CLC/TC85X, e.g. the need for testing if electrical equipment is still safe after a repair and after it has been on the market and has been used. For energy efficiency reasons and for safety reasons, there is also a need for assessing maximum admissible limits in European electrical installations in terms of harmonics, inter-harmonics, dips, etc

Parameters to be monitored are multiple: current and voltage, harmonics, flicker, waveform, distortion, phase shift, undervoltage or overvoltage. Over-voltages are destructive, under-voltages can cause a stoppage of the machine and harmonics lead to overheating. The sooner the problem is characterized, the sooner the repairs can be done; and the less energy is consumed.

B.5 Ecological environment

Electronic measuring equipment may have shorter life cycles due to functional obsolescence.

Some types of equipment may contain batteries and other hazardous materials. Therefore, use of hazardous materials and safe disposal of measuring equipment will become an issue to be addressed. Improvements are always made on parameters that are measured and monitored. By providing accurate measurement on the use of electric energy, measuring equipment contributes to improve energy efficiency and power quality (for reducing power pollution) and sparing use of natural resources – consequently – will contribute to the reduction of pollution.

As some measuring devices are continuously powered, low self-consumption is also important. A liaison with CLC/TC111X in the elaboration of environmental requirements may be useful.

B.6 Involvement of societal stakeholders

By providing means to monitor some power quality parameters, CLC/TC 85X will provide means to improve safety of workers, of consumers and of the environment. CLC/TC 85X can also contribute to the reduction of carbon emission. Measuring devices offer tools to collect and analyse data in order to help manufacturers to diagnose their electrical malfunctions with the aim to optimizing production.

B.7 Involvement of SMEs

European Small and Medium sized Enterprises (SME) are involved in IEC/TC85 for many years and are represented in CLC/TC85X.

C System approach aspects

CLC/TC85X activities are in close coordination with IEC/TC85. In addition, CLC/TC85X promotes the establishment of liaisons with other committees:

– Component committees (CLC/TC85X as customer)

– CLC/TC13: Electrical energy measurement, tariff- and load control

– CLC/TC38: Instrument transformers

– CLC/TC65X: Industrial-process measurement, control and automation

– CLC/TC66X: Safety of measuring, control, and laboratory equipment

– CLC/TC210: Electromagnetic Compatibility (EMC)

– System committees (CLC/TC85X as supplier)

– CLC/TC13: Electrical energy measurement, tariff- and load control,

– CLC/TC121A: Low-voltage switchgear and controlgear,

– CLC/TC23E: Circuit breakers and similar devices for household and similar applications,

– CLC/TC44X: Safety of machinery - Electrotechnical aspects,

– CLC/TC64: Electrical installations and protection against electric shock.

D Objectives and strategies (3 to 5 years)

Beyond the identification and development of specific European standards on power quality measurement, CLC/TC85X will be able to contribute to several European standardization efforts such as smart metering, smart grid, and energy efficiency.

Objectives:

– active participation in

  – smart metering standardisation effort,

  – smart grid standardisation effort,

  – energy efficiency standardisation effort;

– creation of standards specific to European needs, e.g.:

  – procedures for verification of the effectiveness of protective measures after repair of electrical equipment as well as for recurrent test

  – power quality of DC installations, e.g. for Electric Vehicle charging stations

  – durability of power meters, power quality instruments, insulation monitoring devices, ….

- Management of the required Annex ZZ for standards intended to be harmonized for European Directives, e.g. EMCD, LVD or RED.

Strategies:

– to act as a ‘think tank’ as a preparation for IEC or CLC standards in working group 159 activities within the TC with participation of European stakeholders;

– to set up strategic liaisons with existing standard committees in projects of interest.

E Action plan

Setting up of two working groups consisting of interested members of TC85X:

- WG1 as a think tank to explore a different subject in the power metering market, maintenance and preliminary future work for measurement applications.

- WG2 for testing and monitoring of protective measures.

Each working group is coordinating the respective standard projects of IEC/TC85 with the CLC/TC85X working groups to consider and incorporate requirements arising through the HAS Framework and related Annex ZZ issues. Procedures for managing this process.

F Digital transformation aspects

G Useful links to CENELEC web site

TC home page giving access to Membership, TC/SC Officers, Scope, Publications, Work programme [password-protected area].

TC home page giving access to Membership, TC/SC Officers, Scope, Publications, Work programme [password-protected area].

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