

**STRATEGIC BUSINESS PLAN (SBP)**

IEC/TC or SC 23	Secretariat Belgium	Date December 2013
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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
Electrical accessories

A Background

Date of establishment of the Technical Committee and subcommittees, a brief historical background, current title and scope

TC 23 was set up in 1933 in Paris. Close co-operation was established between IEC/TC 23 and the International Commission of rules for the approval of the electrical equipment (CEE-EL). Many CEEEL recommendations were adopted by IEC/TC 23 prior to founding the subcommittees. The subcommittee 23D was handling lamp holders. During the Brussels meeting held in 1974, the chairman retired. SC 34B, already existing, had a meeting in Den Haag in 1975 where the merger of the two subcommittees was discussed and in the minutes it was noted that CA approved the merger. Thus, SC 23D was disbanded.

During the Oslo meeting of TC 23 (2012-10), TC 23 decided to set up SC 23K. This was ratified by the SMB, see document SMB/4991A/RV. SC 23 K deals with Electrical Energy Efficiency products.

After the Oslo meeting, TC 23 reviewed its structure and at the end of 2012, TC 23 decided to disband SC 23C and SC 23F as there was no work ongoing for some time. It was decided to transfer the responsibilities for the SC 23C publications to SC 23B and to transfer the responsibilities for the SC 23F publications together with the responsibility on the Safety Group Function to TC 23.

TC 23: Electrical accessories

To coordinate the work between the different subcommittees of TC 23 and with other technical bodies within and outside IEC

To prepare standards for electrical accessories for household and home and building electronic systems and similar purposes, the word "similar" including locations such as offices, commercial and industrial premises, hospitals, public buildings, etc.

These accessories:

- are intended for fixed installations (including HBES installation), or for use in or with appliances and other electrical or electronic equipment, and may include electronic components.
- are normally installed by instructed or skilled persons and are normally used by ordinary persons.

Include, in particular:

- conduit systems
- cable trunking systems
- cable ducting systems
- cable support systems
- switches (mechanical and electronic)
- Home and Building Electronic Systems (HBES)
- HBES switches and related accessories for use in Home and Building Electronic Systems (HBES)
- plugs and socket-outlets

- cable reels
- cord extension sets and cord sets
- Devices for the Connection of Luminaires (DCLs)
- adaptors
- circuit breakers for overcurrent protection
- devices protecting against electric shock
- contactors
- connecting devices
- enclosures for accessories
- appliance couplers
- electrical Energy Efficiency products

Note 1: For the terms "instructed persons", "skilled persons" and "ordinary persons", see Publication IEC 61140; 3.30, 3.31 and 3.32

A lot of standards for these products are handled by the subcommittees of TC 23. But some products are under the direct responsibility of TC 23 due to their nature, such as:

- a) Standards for single phase and multiphase installation couplers intended for permanent connection in fixed installations with a rated voltage up to and including 500 V a.c. and a rated connecting capacity up to and including 10 mm² in indoor electrical installations.
- b) Standards for sound signalling devices with integral enclosures or sound signalling devices intended to be fitted into or supplied with enclosures according to IEC 60670 intended for household and similar purposes with rated voltages greater than 50 V a.c. or 75 V d.c. and not exceeding 250 V a.c. or 250 V d.c., and with rated power inputs not exceeding 100 VA.
- c) Standards for Electrical safety, Environmental Conditions, Functional Safety, EMC and Installation of HBES
- d) Standards for clamping units for connecting devices for the connection of electrical conductors having a cross-sectional area of 0,2 mm² up to and including 35 mm² copper conductors and up to and including 50 mm² aluminium conductors with a rated voltage not exceeding 1000 V a.c. and 1500 V d.c. intended for household and similar purposes.
- e) Standards for connecting devices as separate entities for the connection of two or more electrical conductors having a cross-sectional area of 0,2 mm² up to and including 35 mm² copper conductors and up to and including 50 mm² aluminium conductors with a rated voltage not exceeding 1000 V a.c. and 1500 V d.c. intended for household and similar purposes.
- f) Standards for male and mating female flat quick-connect terminations for use as either an incorporated or an integrated part of an equipment or of a component, or as a separate entity, for connecting electrical copper conductors up to and including 6 mm² with a rated voltage not exceeding 1000 V a.c. and 1500 V d.c. intended for household and similar purposes.

TC 23 has Group Safety Function for:

Connecting devices, either as separate entities or as integral parts of an end product, primarily for connecting external electrical supply conductors, for use with conductor cross-sectional area of 0,2 mm² up to and including 35 mm² copper conductors and up to and including 50 mm² aluminium conductors, but excluding connecting devices intended for data and signal circuits.

SUBCOMMITTEE 23A: CABLE MANAGEMENT SYSTEMS

Brief History of SC 23A

SC 23A was initiated in 1968, the first meeting was held in Tehran 1973.

Terms of reference:

To prepare international standards for products and systems used for the management of all types of cables, information and communication lines, electrical power distribution conductors and associated accessories.

Management includes support and/or containment and/or retention and/or protection against external influences.

SUBCOMMITTEE 23B: PLUGS, SOCKET-OUTLETS AND SWITCHES

Brief History of SC 23B

The subcommittee 23B was established in 1970. First plenary meeting held in Athens in 1972.

Terms of reference:

a) To prepare standards for general purpose switches including electronic switches, time-delay switches, remote control switches and isolating switches with rated voltage not exceeding 440 V, and with a maximum rated current not exceeding 125 A, intended for household and similar purposes, either indoors or outdoors.

b) To prepare standards for switches and related accessories for use in Home and Building Electronic Systems (HBES), with a working voltage not exceeding 250 V a.c. and a rated current up to and including 16 A, intended for household and similar purposes, either indoors or outdoors and to associated electronic extension units. An HBES switch is a device using two way communication designed to make or break and/or to control, directly (e.g. actuator) or indirectly (e.g. sensor), the current in one or more electric circuits. The communication can use different media e.g. Twisted Pair (TP), Power Line (PL), Infra Red (IR) and Radio Frequency (RF).

In particular:

- HBES switches can be used for the operation of lamp circuits and the control of the brightness of lamps (dimmers) as well as the control of the speed of motors (e.g. those used in ventilating fans) and for other purposes (e.g. heating installations),
- HBES switch are all kind of HBES devices e.g. switches, sensors, actuators, switched socket-outlets, associated electronic extension units, etc.
- The operation and control of the HBES switches are performed:
 - intentionally by a person via an actuating member, a key, a card, etc., via a sensing surface or a sensing unit, by means of touch, proximity, turn, optical, acoustic, thermal,
 - by physical means, e.g. light, temperature, humidity, time, wind velocity, presence of people,
 - by any other influence;
- And transmitted
 - by an electronic signal via several media, e.g. powerline (mains), twisted pair, optical fiber, radio frequency, infra-red, etc...

c) To prepare standards for plugs, fixed and portable socket-outlets, fused plugs, socket-outlets for appliances, switched socket-outlets with and without interlock, plugs and socket-outlets for SELV, with a rated voltage not exceeding 440 V and a rated current not exceeding 32 A, intended for household and similar purposes, either indoors or outdoors.

d) To prepare standards for boxes and enclosures for household devices, boxes and enclosures with provision for suspension means, connecting boxes and enclosures, floor boxes and enclosures, enclosures for housing protective devices and similar power consuming devices with a rated voltage not exceeding 1000 V a.c. and 1500 V d.c., intended for household and similar purposes, either indoors or outdoors. These standards are applicable to boxes, enclosures intended to house accessories which are in the field of other TC 23 subcommittees and are produced in conjunction with other subcommittees.

e) To prepare standards for ancillary products which are related to/incorporate in products covered by a), b), c), d) e.g. Devices for the Connection of Luminaires (DCLs), adaptors, cable reels, indicator light units, cord extension sets etc.

f) To prepare dimensional standards for an IEC system for plugs and socket-outlets for household and similar general purposes.

g) To elaborate the basic characteristics of a modular system, if possible suitable for all kinds of household installations and the definition of principles for its use.

h) To co-ordinate information for the introduction of the unified system and to make all efforts to ensure the harmonization of supplementary or transitional configurations necessary for certain countries, as stated by TC 64.

SUBCOMMITTEE 23E: CIRCUIT-BREAKERS AND SIMILAR EQUIPMENT FOR HOUSEHOLD USE

Brief History of SC 23E

SC 23E was set up in 1970 at TC 23 Washington/USA meeting. First plenary meeting was held in Athens in 1972.

Terms of reference:

To prepare and to update standards for:

- circuit-breakers and residual current devices of rated currents not exceeding 125 A and rated voltages not exceeding 440 V for protection against overcurrent and/or against electric shock in domestic and similar installations,
- residual current devices for monitoring the conditions of insulation of domestic and similar installations,
- circuit-breakers for equipment of rated currents not exceeding 125 A and rated voltages not exceeding 440 V designed to protect equipment for use in domestic and similar installations,
- electromechanical contactors for household and similar purposes,
- control and protection devices for battery-powered vehicle supplies.

The standards concern devices intended to be used by ordinary persons in installations or equipment not subject to maintenance and contain all specifications necessary for certification purposes: sets of samples to be submitted, test sequences to be applied and conditions for approval.

They shall also include all specifications necessary for certification purposes concerning the groups of samples, the tests sequences each group shall be submitted and the number of failures admitted.

In working out such standards and according to the guidelines given by the SMB, close coordination is being kept continuously with SC 17B, dealing with the standards for low voltage switchgear and controlgear mainly intended to be used by instructed persons in installations subject to supervision and maintenance (In particular SC 17B is the leader for the preparation of standards for circuit breaker, whilst SC 23E is the leader for the preparation of standards for RCDs).

Coordination of parallel work of Technical Committee 23E of CENELEC is ensured by Chairman and Secretary being the same in both bodies, and by following the Dresden Agreement.

The work of the subcommittees takes into account the specifications prepared by TC 109, SC 77A and by TC 64.

An official liaison with CTL has been established by nominating a liaison member who is also member of the parallel WG in the CTL organization

SC 23E has Group Safety Function for:

Residual Current Devices (RCDs)

Definition of Residual Current Devices taken from IEC 60755

a residual current device is a mechanical switching device designed to make, carry and break currents under normal service conditions and to cause the opening of the contacts when the residual current attains a given value under specified conditions

SUBCOMMITTEE 23G: APPLIANCE COUPLERS

Brief History of SC 23G

SC 23G, Appliance couplers, was established at the TC 23 meeting in Athens on the 10th of November 1972. The first meeting of the subcommittee took place in Milan on the 8th and 9th of March 1974.

Terms of reference:

To prepare standard sheets, tests and requirements for safety and interchangeability of the couplers, which allow for detachable connections between flexible cords and electrical appliances or equipment, and between parts of

multi-part appliances. The appliances or equipment may have a detachable input connection and also detachable output connections to other appliances or equipment. The couplers are not intended for use in fixed installations.

SUBCOMMITTEE 23H: PLUGS, SOCKET-OUTLETS AND COUPLERS FOR INDUSTRIAL AND SIMILAR APPLICATIONS, AND FOR ELECTRIC VEHICLES

Brief History of SC 23H

Plugs, socket-outlets and couplers for industrial purpose used to be within SC 23B. Anyhow, SC 23B deals essentially with accessories for household applications. Given the different constraints in industry, it was decided in Brussels in 1976 to create a specific subcommittee: SC 23H.

The initial task given to SC 23H was to produce two standards:

- one for the general requirements for all kind of plugs, socket-outlets and couplers, whatever their construction and contact technology, and
- one for the dimensional compatibility and interchangeability requirements for accessories using cylindrical pin and contact-tubes with harmonised configurations.

The first editions were published in 1979 (60309 Part 1) and 1981 (60309 Part 2).

These works were expanded in 2006 with a Part 4, dealing with switched socket-outlets and connectors. (Part 3 had been allocated to explosion proof accessories, then withdrawn)

A new field of work was identified in 2008, for 7,2 kV and 12 kV accessories for shore supply to various types of ships.

SC 23H is also in-charge of standards for Electric Vehicle connecting devices and High Voltage accessories.

Terms of reference

To prepare standards for plugs, socket-outlets and couplers suitable for use in industrial, commercial, private or public locations, either indoors or outdoors.

To prepare standards for other accessories such as, among others, industrial cable reels, intended for use with plugs, socket-outlets and couplers for industrial purpose.

To prepare standards for connecting devices intended for the connection of electric vehicles to the supply network and/or to dedicated supply equipment.

To prepare standards for connecting devices intended for the connection of ships to a shore supply.

The rated voltages of accessories covered by these standards lie within IEC 60038.

SUBCOMMITTEE 23J: SWITCHES FOR APPLIANCES

Brief History of SC 23J:

SC 23J, Switches for appliances, was established at the TC 23 meeting in Oslo 1977. The first meeting of the subcommittee took place in Stockholm 1980.

The work of the subcommittee takes into account the specifications prepared by TC 34, TC 61, TC 108. In 1994 the work of SC 48C was transferred to SC 23J in order to get a good harmonization of the requirements and tests for switches.

Close cooperation is kept with the other subcommittees within TC 23 and with TC 72.

Terms of reference:

To prepare standards related to switches (mechanical, electromechanical or electronic) for appliances actuated by hand, by foot or by other human activity, to operate or control electrical appliances and other equipment for household or similar purposes with a rated voltage not exceeding 440 V and a rated current not exceeding 63 A.

It covers also switches intended to be incorporated in or with appliance equipment.

It covers also the general requirements and test methods for electromechanical switches with optional quality assurance procedures.

SUBCOMMITTEE 23K: ELECTRICAL ENERGY EFFICIENCY PRODUCTS

Brief History of SC 23K

The subcommittee was initiated and set up in Oslo during the October 2012 plenary meeting. The SMB has approved the request for the establishment of the new SC 23K see document SMB/4991A/RV in April 2013. Its first meeting was held in New Delhi in 2013.

Terms of reference:

To prepare and to update standards for Energy Efficiency products, devices and solutions used within an efficient Management system of Electrical Energy in existing or new electrical installation which includes loads and/or local production and storage. These products provide functions including monitoring, measuring, controlling, managing and optimizing the overall efficiency use of a.c. or d.c. electrical energy for household and similar.

The work also includes equipment intended to improve electrical energy performance, energy supply, procurement practices for energy using equipment and systems, and energy use as well as measurement of current electrical energy usage.

The work addresses the requirements and testing procedures for electrical energy efficiency products or combinations of products, devices and solutions whose purpose is to monitor, to manage and to optimise the energy use of electricity within an electrical installation supplying energy to loads, either from the grid or from local energy production and/or storage.

The work does not cover requirements and testing procedures already covered by existing standards published in TC 23 and its SCs.

Note: For example if a switch or a circuit breaker covered by an IEC published standard from TC 23 or its SCs includes any function dealing with energy efficiency management (e.g. measurement, features for load shedding, transfer switch etc.) SC 23K will refer to these existing standards within a global system approach.

B Business Environment

B.1 General

TECHNICAL COMMITTEE N° 23: ELECTRICAL ACCESSORIES

Electrical Accessories are widely used either in electrical installations or systems including appliances and machineries in dwellings, commercial or public buildings where people are unstructured.

These accessories are normally installed or mounted by skilled people and are used by ordinary persons having no knowledge about danger of electricity. For these reasons a special attention to safety linked to foreseeable risks relating to ordinary persons is taken into consideration.

The standards produced are in accordance with the principles of IEC guide 104 taking into account the safety pilot and safety group functions of other TCs/SCs. TC 23 has a safety group function for connecting devices and is responsible for connecting devices which are essential parts of any electrical equipment since most of equipment are either powered or linked to other equipment through cables. The wide spread of information technology is an additional factor increasing the use of connecting devices and making them more popular.

Wide range of materials and designs makes standardisation a challenge.

SUBCOMMITTEE 23A: CABLE MANAGEMENT SYSTEMS

Cable management systems and products should generally be considered as mature items but nevertheless they can be strongly influenced by external economic factors. The products generally fall into two broad categories i.e. those made from metals such as steel and aluminium and those made from plastics such as PVC, PE and PP. In both cases fluctuating raw material prices continue to have an effect. In comparison with many others electrical products, the value per cubic metre or tonne is low. Cost is highly influenced by raw material cost, less by labour cost with possible significant influence of transport cost.

SUBCOMMITTEE 23B: PLUGS, SOCKET-OUTLETS AND SWITCHES

The demand for safety, comfort and reliable performances in a country is closely linked with the relevant economical and technological development. As a consequence the need for standards ensuring safe and reliable performances of the devices is necessary in all countries. Moreover, for devices to be used by uninstructed persons, like those dealt with by SC 23B, the certification of compliance with the qualified Standards has become a must.

SUBCOMMITTEE 23E: CIRCUIT-BREAKERS AND SIMILAR EQUIPMENT FOR HOUSEHOLD USE

There is a continuous and increasing demand for improving the protection of people, livestock and property wherever in the world. This demand is of utmost importance for ordinary persons living in homes and for any person having no knowledge about the electrical danger during the use of an electrical installation. The standardisation work, aiming to provide requirements and testing procedures to check the performances of safe and reliable devices designed for the protection of the users of the electrical installations and equipment is increasingly asked in all countries.

Moreover, for devices to be used by ordinary persons the certification of compliance with the qualified standards is increasingly required in every country.

The above trends, together with the ever growing world-wide trade have increased the demand in qualified standards of the largest possible acceptance so as to facilitate the circulation of products in the framework of the WTO guidelines.

SUBCOMMITTEE 23G: APPLIANCE COUPLERS

The widespread acceptance and use of appliance couplers means that appliance manufacturers can supply the same appliance to countries with different plug and socket-outlet configurations.

Only a separate cord set or an interconnection cord set must be packaged with the product so that it can connect to the local socket-outlets.

SUBCOMMITTEE 23H: INDUSTRIAL PLUGS AND SOCKET-OUTLETS

Two, three and four-wheel light electric vehicles (LEV) are becoming increasingly popular. An NP is underway for the standardization of specific couplers.

To address pollution problems in ports, SC 23H had prepared standards regarding 7,2 kV and 12 kV plugs, socket-outlets, ship connectors and ship inlets, allowing to connect various types of ships to the shore during their stays in ports. A similar work is now under consideration for low voltage plugs, socket-outlets, ship connectors and ship inlets.

SUBCOMMITTEE 23J: SWITCHES FOR APPLIANCES

The demand for requirements and additional operating conditions for the switches for appliances are the initial factor for the development of these standards:

For switches for electronic equipment SC 23J also provides guidelines for appropriate quality assurance procedures.

SUBCOMMITTEE 23K: ELECTRICAL ENERGY EFFICIENCY PRODUCTS

Demand for energy efficiency based strategies, reconstructions and new installations are being driven by public and governmental perception that energy optimization activities are critical for improvement if not maintenance of current quality of life. In addition, regulators are increasingly imposing minimal energy efficiency rating levels on individual products, and in some cases on systems. There are also new classes of market actors – “prosumers” (individuals or entities who act in the capacity of both producers and consumers of electrical energy in this case) – who are becoming involved in seeking the means, through products, systems and applications specifically aimed at optimization of electrical energy usage. Market opportunities, for those who can demonstrate achievement of desired efficiency levels or who can project reduced energy consumption while providing the same or even enhanced performance, seem to be expanding from industrial and commercial applications into more and more residential purposes.

B.2 Market demand

TECHNICAL COMMITTEE N° 23: ELECTRICAL ACCESSORIES

The diversity of electricity supply systems and local habits have to be taken into consideration and, as far as possible electrical accessories should be used without restriction whatever the electricity supply system, the type

of wiring and the type of system earthing are. These electrical accessories are incorporated in electrical installations which are intended to be used for a long period of time, they do not need maintenance.

The large demand of safety, comfort and reliable performances, together with the ever-growing worldwide trade calls for the largest possible acceptance of qualified standards. This allows TC 23 standards to be published in the largest number of countries aiming to ease the circulation of products.

The users of the issued standards are manufacturers, testing stations, original equipment manufacturers, electricity supplier, market surveillance authorities and installers.

In addition, TC 23 provides two types of standards.

- General requirements and safety requirements are provided in series 60999 published in the frame of the safety group function. Other committees wishing to introduce prescription on connecting devices in product standards use these standards as horizontal standards. It has to be mentioned that manufacturers and laboratories in the frame of conformity assessment may also use these standards which are recognised as essential standards from a safety point of view.
- Standards for products
 - o Connecting devices are commonly used as components either in other electrical equipment or electrical installations. There is a strong demand from industry, certification bodies and laboratories to refer to these standards.
 - o Sound and signalling devices
 - o Single phase and multiphase installation couplers

SUBCOMMITTEE 23A: CABLE MANAGEMENT SYSTEMS

Product manufacturers, consultants, test laboratories and main contractors use the standards which are used extensively at national level and are frequently cited in documents of both contractual and commercial nature.

SUBCOMMITTEE 23B: PLUGS, SOCKET-OUTLETS AND SWITCHES

The demand of safety, comfort and reliable performances, together with the ever-growing worldwide trade involves the need of qualified standards having the largest possible acceptance in order to ease the circulation of products.

The customers of the issued standards are manufacturers, testing stations, electricity supplier and installers.

SUBCOMMITTEE 23E: CIRCUIT-BREAKERS AND SIMILAR EQUIPMENT FOR HOUSEHOLD USE

The users of the standards issued by SC 23E are the manufacturers, the certification bodies, the national regulators and authorised bodies. These standards are also used by insurance companies, the power supplies authorities and other TCs and in particular those dealing with installation rules and system approach.

They may be represented in the subcommittee and also in the various WGs..

SUBCOMMITTEE 23G: APPLIANCE COUPLERS

The use of IT equipment, household and similar general purposes appliances has resulted in the demand of safety also for the connection of the equipment to the electrical supply. The connection with appliance couplers, cord sets and interconnection cord sets has the advantage of easy and safe use.

A further benefit is the simple and low cost replacement of damaged cords, compared with cords terminated in the appliance.

The benefits of the standards include cost savings, interoperability, elimination of barriers to trade and opening of global markets.

SUBCOMMITTEE 23H: INDUSTRIAL PLUGS AND SOCKET-OUTLETS

Light Electric Vehicles connecting devices

Low voltage plugs, socket-outlets, ship connectors and ship inlets for shore-to-ship power supply

SUBCOMMITTEE 23J: SWITCHES FOR APPLIANCES

There is an important demand for standards for switches for appliances and CENELEC has adopted IEC 61058-1 as a European Standard. The demand for particular standards for special switches, which will be published as part 2 in the 61058-series, is also important.

The demand for verification of the compliance with the safety requirements by independent certification bodies has also increased.

The IEC 61020 Generic Standard will be generalized for use with optional QA procedure during procurement and provides general requirements and test methods for electromechanical switches.

SUBCOMMITTEE 23K: ELECTRICAL ENERGY EFFICIENCY PRODUCTS

Demand for energy efficiency based strategies, reconstructions and new installations are being driven by public and governmental perception that energy optimization activities are critical for improvement if not maintenance of current quality of life. In addition, governments are increasingly imposing minimal energy efficiency rating levels on individual products, and in some cases on systems. There are also new classes of market actors – “prosumers” (individuals or entities who act in the capacity of both producers and consumers of electrical energy) – who are becoming involved in seeking the means, through products, systems and applications specifically aimed at optimization of electrical energy usage. Market opportunities, for those who can demonstrate achievement of desired efficiency levels or who can project reduced energy consumption while providing the same or even enhanced performance, seem to be expanding from industrial and commercial applications into residential purposes.

B.3 Trends in technology

TECHNICAL COMMITTEE N° 23: ELECTRICAL ACCESSORIES

Since the market for electrical accessories is calling for more communication, data transfer and automatisms there is an influence on technology. In addition to the basic functions of equipment commonly well known and recognised there is a trend in technology, calling for the integration of new functions asking for the introduction of more electronic components in the electrical accessories. This makes it important that the standards include additional requirements related to the presence of electronics in accessories and the subsequent electromagnetic compatibility.

In addition due to the recent emphasis on the forecasted mid-term shortage of natural resources, growing environmental concerns, the inclusion of new energy sources in electrical installation and greenhouse gas problems, a new study is started in TC 23 related to the use of direct current to provide electrical products of energy.

SUBCOMMITTEE 23A: CABLE MANAGEMENT SYSTEMS

The technology for cable management systems is well established. Standards are developed for new families of products as required by the market and existing standards are updated in order to remain relevant with new applications.

SUBCOMMITTEE 23B: PLUGS, SOCKET-OUTLETS AND SWITCHES

Home and building electronic systems which have influence on accessories related to control imply some extensions of existing standards. In particular to take into account the presence of electronics in accessories and the subsequent electromagnetic compatibility.

SUBCOMMITTEE 23E: CIRCUIT-BREAKERS AND SIMILAR EQUIPMENT FOR HOUSEHOLD USE

SC 23E acknowledged the numerous market request regarding

- the increasing use of technologies quickly spreading such as motor speed control or solar photovoltaic application,
- the reduction of the risk of fire,
- the introduction of additional functions
- the need for RCD incorporated within a socket-outlet.

Therefore SC 23E either produced new standards or decided to start work on new issues most of them using more electronic components.

SC 23E is using basic safety standards e.g. those dealing with to the physiological effects of the current within the human body

SUBCOMMITTEE 23G: APPLIANCE COUPLERS

The technical development of electrical appliances and equipment also influences their electrical supply. Appliance couplers with characteristics other than those of the couplers used today are needed, i.e. the use of appliance couplers is more extended.

There is an increasing use of appliance outlets and interconnection cord sets for groups of related appliances and accordingly there is a new demand for multiple portable appliance outlet devices, adaptors and split cord sets.

These trends make it necessary to develop new specifications for the connections with appliance couplers.

SUBCOMMITTEE 23H: INDUSTRIAL PLUGS AND SOCKET-OUTLETS

No major change is expected in plugs, socket-outlets and couplers contact technology (pin and contact-tube) due to the set dimensions required for product compatibility and interchangeability.

SUBCOMMITTEE 23J: SWITCHES FOR APPLIANCES

The number of types of switches and the complexity of them has increased which has led to an enlargement of scope of the standards.

The above trend, together with the ever growing worldwide trade, makes it necessary to have qualified standards of the largest possible acceptance so as to facilitate the circulation of products.

SUBCOMMITTEE 23K: ELECTRICAL ENERGY EFFICIENCY PRODUCTS

The overall energy efficiency success will depend of the trend to move from stand alone products to Energy Efficiency functions integrated and shared between several products whose interaction will result in a system able to manage and optimize the efficiency of an "electrical installation supplying energy to loads either from the grid or from local energy production and/or storage" (ILP&S).

B.4 Market trends

TECHNICAL COMMITTEE N° 23: ELECTRICAL ACCESSORIES

The market for products raising both safety and comfort to live is increasing. This results in a need for communicating products and thus more and more products containing electronic components

In the frame of global warming, the market requests to take into account energy efficiency which needs a global analyse claiming for more automatism and measurement. This may lead in the near future to new developments for new products.

SUBCOMMITTEE 23A: CABLE MANAGEMENT SYSTEMS

A reduction of individual manufacturers through acquisitions and takeovers as well as companies ceasing trading and falling under ever increasing cost and restraints is proving more burdensome each year when it comes to providing experts for WG activities. Existing experts are experiencing increasing difficulties in attending meetings and as a result it can be expected that there may be an increase in the number of extension requests to target dates

SUBCOMMITTEE 23B: PLUGS, SOCKET-OUTLETS AND SWITCHES

Home and building electronic systems which have influence on accessories related to control imply some extensions of existing standards. In particular to take into account the presence of electronics in accessories and the subsequent electromagnetic compatibility.

SUBCOMMITTEE 23E: CIRCUIT-BREAKERS AND SIMILAR EQUIPMENT FOR HOUSEHOLD USE

Home and building electronic systems which have influence on accessories related to control imply some extensions of existing standards. In particular to take into account the presence of electronics in accessories and the subsequent electromagnetic compatibility.

SUBCOMMITTEE 23G: APPLIANCE COUPLERS

The technical development of electrical appliances and equipment also influences their electrical supply. This is true also for new kinds of equipment. Appliance couplers with characteristics other than those of the couplers used today are needed, i.e. the use of appliance couplers is more extended.

There is an increasing use of appliance outlets and interconnection cord sets for groups of related appliances and accordingly there is a new demand for multiple portable appliance outlet devices, adaptors and split cord sets.

These trends make it necessary to develop new specifications for the connections with appliance couplers.

SUBCOMMITTEE 23H: INDUSTRIAL PLUGS AND SOCKET-OUTLETS

See "market demand".

SUBCOMMITTEE 23J: SWITCHES FOR APPLIANCES

The number of types of switches and the complexity of them has increased which has led to an enlargement of scope of the standards.

The above trend, together with the ever growing worldwide trade, makes it necessary to have qualified standards of the largest possible acceptance so as to facilitate the circulation of products.

SUBCOMMITTEE 23K: ELECTRICAL ENERGY EFFICIENCY PRODUCTS

Consumers, energy producers and prosumers are asking for a global energy efficiency management to take into account local availability of production and storage which becomes possible and flexible due to progress in technologies (see B.3). The local use, production and storage will enable taking into account local needs and demand request. These entities are also seeking to optimize the usage of energy to perform their desired and needed tasks with respect to timing, load balancing, demand response etc...

The increase of regulations demanding building owners to optimize the overall consumption is increasing the opportunities for the development of new products systems and services in the field of electrical energy efficiency management systems.

Improvements in communication between system devices will improve responsiveness and ability to minimize consumption of electricity while keeping the same level of service.

B.5 Ecological environment

TECHNICAL COMMITTEE N° 23: ELECTRICAL ACCESSORIES

Due to the further evolution of the work in TC 111, TC 23 decided to disband the MT62139 and to withdraw the TR 62139. For following up the further evolution of the issue, TC 23 has a liaison with TC 111.

SUBCOMMITTEE 23A: CABLE MANAGEMENT SYSTEMS

National or regional regulations restricting the content of some substances considered to be hazardous for the environment are taken into account by the market even if cable management systems do not fall in the scope of the regulation. Examples of such substances are lead and hexavalent chromium. Similar comment can be made on waste disposal management.

SUBCOMMITTEE 23B: PLUGS, SOCKET-OUTLETS AND SWITCHES

The impact on the environment during the life cycle of product dealt with by SC 23B has not been studied. SC 23B is waiting for the result of the work under consideration by TC 23 on this matter.

SUBCOMMITTEE 23E: CIRCUIT-BREAKERS AND SIMILAR EQUIPMENT FOR HOUSEHOLD USE

The subcommittee has not studied the impact on the environment during the life cycle of products dealt with by SC 23E. SC 23E is waiting for the result of the work under consideration by TC 23 on this matter.

SUBCOMMITTEE 23G: APPLIANCE COUPLERS

Appliance couplers are designed to be as small as safety aspects allow. That implies that they have a minimum material content which makes an efficient use of resources.

Further impact on the environment during the life cycle of the appliance couplers has not been studied. It is proposed to review the standards with consideration based on Guide 109.

SUBCOMMITTEE 23H: INDUSTRIAL PLUGS AND SOCKET-OUTLETS

Although products covered by SC 23H have little impact on the environment, some of SC 23H work is closely linked to environmental concerns, e.g. Electric Vehicle couplers and Ship-to-shore connecting devices.

SUBCOMMITTEE 23J: SWITCHES FOR APPLIANCES

SC 23J is following the guidelines from TC 23 in this issue and will implement the parts that are applicable to SC 23J.

SUBCOMMITTEE 23K: ELECTRICAL ENERGY EFFICIENCY PRODUCTS

A better and optimized use of electrical energy allows a most efficient use of energy and by consequence a reduction of the ecological impact of electrical appliances within household and similar applications and even during the day to day life of people and families. It reduces ecological impact through minimizing the needs for additional production plant.

C System approach aspects

To TC 23 and its subcommittees, the system approach is very important in order to achieve a consistent set of standards. In order to achieve this, TC 23 has set up a Coordination Group - attended by all Chairmen, Secretaries and convenors of TC 23 MT's, PT's and WG's - in addition to the different liaisons with advisory committees, other technical and subcommittees in order to be able to manage the standardisation due to the evolution of linked standards. The work on Energy Efficiency would certainly introduce a system approach as used in the field of EMC.

TC 23 standards reference many horizontal standards in the frame of specific issues, material specifications, components specification and are also referenced in system and product standards.

The TR 61916 gives general rules on what to apply and how it applies to products.

System aspect approach according to AC/37/2006

IEC/TC 23 -

Component / Product Committees (TC 23 role of customer)	IEC TC 8	Systems aspects for electrical energy supply
	IEC TC 20	Electric cables
	IEC SC 48B	Connectors
Component / Product Committees (TC 23 role of supplier)	CTL	Committee of Testing Laboratories
	IEC TC 61	Safety of household and similar electrical appliances
	IEC TC 64	Electrical installations and protection against electric shock
	IEC TC 69	Electric road vehicles and industrial trucks
Other committees (Close relation for safety issues)	IEC SMB SG3	Smart Grid
	IEC SMB SG4	LVDC distribution systems up to 1500V DC
	ACOS	Advisory committee on safety
	ACEC	Advisory committee on electromagnetic compatibility
	ACEE	Advisory committee on energy efficiency
	IEC TC 112	Evaluation and Qualification of Insulating materials and Systems
	IEC TC 111	Environmental standardization for electrical and electronic products and systems
	IEC TC 109	Insulation coordination for low-voltage equipment
	IEC TC 89	Fire hazard testing
	IEC TC 77	Electromagnetic compatibility
IEC SC 17B	Low-voltage switchgear and controlgear	

IEC/SC 23A

Component / Product Committees (SC 23A role of customer)	IEC TC 20	Electric cables
Component / Product Committees (SC 23A role of supplier)	CTL	Committee of Testing Laboratories
	IEC TC 64	Electrical installations and protection against electric shock
Other committees (Close relation for safety issues)	IEC SMB SG1	Energy Efficiency and renewable resources
	ACOS	Advisory committee on safety
	ACEC	Advisory committee on electromagnetic compatibility
	IEC TC 112	Evaluation and Qualification of Insulating materials and Systems
	IEC TC 111	Environmental standardization for electrical and electronic products and systems
	IEC TC 109	Insulation coordination for low-voltage equipment
	IEC TC 89	Fire hazard testing
IEC TC 77	Electromagnetic compatibility	

IEC/SC 23B

Component / Product Committees (SC 23B role of customer)		
Component / Product Committees (SC 23B role of supplier)	CTL	Committee of Testing Laboratories
	IEC TC 61	Safety of household and similar electrical appliances
	IEC TC 64	Electrical installations and protection against electric shock
Other committees (Close relation for safety issues)	ACEC	Advisory committee on electromagnetic compatibility
	IEC TC 109	Insulation coordination for low-voltage equipment
	IEC TC 89	Fire hazard testing
	IEC TC 72	Automatic controls for household use
	IEC SC 77A/WG1	Electromagnetic compatibility - Low frequency phenomena - Harmonics and other low-frequency disturbances
	ACOS	Advisory committee on safety

IEC/SC 23E

Component / Product Committees (SC 23E role of customer)		
Component / Product Committees (SC 23E role of supplier)	CTL	Committee of Testing Laboratories
	IEC TC 61	Safety of household and similar electrical appliances
	IEC TC 64	Electrical installations and protection against electric shock
	IEC TC 69	Electric road vehicles and industrial trucks
Other committees (Close relation for safety issues)	IEC SC 17B	Low-voltage switchgear and controlgear
	IEC SC 17D	Low-voltage switchgear and controlgear assemblies
	IEC SC 32B	Low-voltage fuses
	JWG 17B/17D	Device substitution

IEC/SC 23G

Component / Product Committees (SC 23G role of supplier)	IEC TC 61	Safety of household and similar electrical appliances
	IEC SC 34D	Lamps and related equipment
Other committees (Close relation for safety issues)	IEC TC 89	Fire hazard testing

IEC/SC 23H

Component / Product Committees (SC 23H role of customer)	IEC SC 17A	High-voltage switchgear and controlgear
	IEC SC 17B	Low-voltage switchgear and controlgear
	IEC SC 17C	High-voltage switchgear and controlgear assemblies
	IEC SC 18A	Electric cables for ships and mobile and fixed offshore units
	IEC TC 20	Electric cables
	IEC SC 32B	Low-voltage fuses
	IEC SC 23F	Connecting devices
	IEC SC 23G	Appliance couplers
	ISO TC 107	Metallic and other inorganic coatings
Component / Product Committees / Installations	IEC TC 18	Electrical installations of ships and of mobile and fixed offshore units

(SC 23H role of supplier)	IEC TC 64	Electrical installations and protection against electric shock
	IEC TC 69	Electric road vehicles and industrial trucks
	ISO TC 22	Road vehicles
	ISO TC 131/SC 5	Fluid power systems
Other committees (Close relation for safety issues)	IEC TC 89	Fire hazard testing
	IEC TC 109	Insulation coordination for low-voltage equipment

IEC/SC 23J

Component / Product Committees (SC 23J role of supplier)	IEC TC 116	Safety of motor-operated electric tools
	IEC TC 108	Safety of electronic equipment within the field of audio/video, information technology and communication technology
	IEC TC 72	Automatic controls for household use
	IEC TC 62	Electrical equipment in medical practice
	IEC TC 61	Safety of household and similar electrical appliances
	IEC TC 34	Lamps and related equipment
Other committees (Close relation for safety issues)	IEC TC 89	Fire hazard testing
	IEC TC 77	Electromagnetic compatibility

SUBCOMMITTEE 23K: ELECTRICAL ENERGY EFFICIENCY PRODUCTS

Subcommittee 23K is preparing standards within the scope of TC 23. It will develop and maintain a close working relationship with TC 23/WG9 (general principles for energy efficiency management) and with all other 23 SCs. In addition it will establish a liaison with TC 64 and in particular with TC 64 PT8-1 preparing installation standards for the design and erection of electrical energy taking into account the energy management needs.

The SC is responsible for starting liaison with any technical committee in the field of reduction of electrical consumption and/or energy efficiency (e.g. IEC ACEE, SG3, TC 8, SC 17B, TC 22, TC 57, TC 64, TC 65, ... ISO TC 242).

A first proposal for a table is the following

Component / Product Committees (SC 23K role of customer)	IEC TC 22	Power electronic systems and equipment
	IEC PC 118	Smart grid user interface
	IEC TC 57	Power systems management and associated information exchange
Component / Product Committees / Installations (SC 23K role of supplier)	IEC TC 23 SCs	Electrical accessories
	IEC TC 64	Electrical installations and protection against electric shock
	SC 17B	Low-voltage switchgear and controlgear
	TC 32	Fuses
	SC 32B	Low-voltage fuses
Other committees (Close relation for safety issues)	TC 65 JWG14	Energy Efficiency in Industrial Automation (EEIA)
	ISO TC 242	Energy Management

D Objectives and strategies (3 to 5 years)

D1 Objectives

- To keep TC 23 standards up to date to reflect new/changing technologies and user requirements both in the marketplace and customer IEC and ISO Technical committees.
- To start discussions on the requirements for electrical accessories to be used in LVDC distribution systems

- To prepare guidelines to establish requirements for electrical accessories in the frame of energy efficiency
- The step-by-step plan as given in section E is proposed by which TC 23 and its subcommittees will develop IEC standards covering products commonly used in many countries around the globe. The resulting standards may use any of the tools referenced in the global relevance tool box, AC/22/2007. These standards must be consistent with the IEC Global Relevance Policy, IEC basic safety standards and the SMB Decision 136/6.

The published standards shall be robust, comprehensive and sufficiently complete so that products can be fully evaluated.

Such an approach will provide the basis for future standardisation efforts. It will allow countries to develop, publish and use national standards based on the IEC standards (with or without national deviations) during the standardisation process.

- To ensure development times for deliverables are achieved within the time scales set by the market
- To fully support the market requests for comprehensive standards and respond to the need of all stakeholders in the frame of interpretation if any

SUBCOMMITTEE 23K: ELECTRICAL ENERGY EFFICIENCY PRODUCTS

Taking into consideration the very recent set up of the subcommittee, it is evident that specific objectives are required.

Electrical Energy Efficiency Management needs to follow both market trends and trends in technology (see above).

The first goal is therefore to produce the most urgent proposals for standalone products within the installation e.g. for load shedding products and functions.

Then, with a high degree of urgency, to start working on combination of products where the energy efficiency management functions are shared between several products communicating within the installation but also with remote centres.

It will therefore be important to focus on switching, monitoring and managing power sources and storage considering the work produced in TC 23/WG9. Consideration will need to be given to balancing technological and economic aspects.

D2 Strategy

- to create and or activate liaisons in order to be kept up to date about horizontal committees, component committees, end product committees and system committees evolutions
- to fully implement the system approach by creating TR's (if necessary) containing the general requirements specifically to be applied to TC 23 products.
- to coordinate the work between the different subcommittees in order to arrive at a consistent set of standards responding to the market need.
- The standards shall provide requirements for the safety of persons, livestock and property against dangers and damage which may arise in the reasonable use of electrical installations and to provide for the proper functioning of those installations.
- In determining consistency with accepted safety principles, subcommittees shall use compliance with IEC basic safety standards.

SUBCOMMITTEE 23K: ELECTRICAL ENERGY EFFICIENCY PRODUCTS

The strategy for SC 23K is to attract the necessary experts from around the world in order to gather the experience and knowledge to make market relevant standards.

E Action plan

- TC 23 has set up different WG's in order to have exchange of views on the major new topics

- TC 23 intends to establish TR's with general requirements (based on horizontal standards) applicable to all subcommittees to be implemented in the different standards under the responsibility of TC 23 and its subcommittees
- TC 23 to coordinate the work by delegating the creation of product standards by the subcommittees responsible for the relevant product standards

The Step-by-Step Plan in order to address the concerns of the US NC, given in document SMB/4042A/CC, and supported by other NCs, about several TC 23 standards covered by SC 23B and SC 23H not reflecting the needs of significant markets is as follows:

- National committees of TC 23 and its subcommittees may submit document(s) through the relevant secretariat by requesting the publication of a DC, NP or similar document to initiate the process for modifying existing standards in order to reflect the needs of significant markets. The document(s) shall be in accordance with IEC Directives.

The process initiation date is

- In case of an NP, the date of the RVN,
 - In case of other documents, it is the issuing date of the documents when agreed within the TC/SC
- By fixing process initiation date and following the IEC procedures and rules, a clear timeline is fixed and the necessary management tools are in place for easy follow up by the SMB.
 - Work will be done in the relevant WG, PT, MT or ahG
 - In order to facilitate understanding it may be useful to support the document(s) by defining the differences between the national standard and the IEC standard. These may be categorised following their nature. Some differences are permanent, some differences are temporary and are to be removed in time and other differences are linked to legal requirements.

Note – MT61916 will provide the necessary definitions

- TC 23 and its subcommittees SC 23B and SC 23H, shall start work to introduce modification in the IEC standards in order to partially or completely reduce differences between the national standard and the IEC standard.

Concurrently, TC 23 members submitting those document(s) should further reduce the differences – in relation to the IEC standard – in their national standards.

- The final document may take any appropriate form in accordance with AC/22/2007.
- Simultaneously and for the purpose of this process,
- * TC 23 will analyse the global relevance toolbox with the objective to facilitate the discussion on the most appropriate tools to be used in order to meet the different needs of major segments of the global market.
- * TC 23 will analyse the IEC basic safety publications in order to agree on the relevant safety levels for the appropriate parameters but without defining the methodology for compliance.

SUBCOMMITTEE 23K: ELECTRICAL ENERGY EFFICIENCY PRODUCTS

Proposal for the work program for discussion in SC 23K

As some short term needs have been identified, the work program should include the preparation of standards in the field of:

- Particular requirements and testing procedures for load-shedding equipment.
- And particular requirements and testing procedures for switches which control power.

Should this be undertaken in the frame of a Working Group?

Further work on requirements applying to equipment having to manage bi-directional flow of energy would be suitable.

F Useful links to IEC web site

[TC 23 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

Wim De Kesel