STRATEGIC BUSINESS PLAN (SBP)

IEC/COMMITTEE:	SECRETARIAT:	DATE:
TC121	**France**	**2022-11-14**

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 IEC Secretariat promptly after its contents have been agreed by the committee.

A. STATE TITLE AND SCOPE OF COMMITTEE

A.1 TC 121 Switchgear and controlgear and their assemblies for low voltage

Scope:

"To prepare international standards for low-voltage switchgear and controlgear equipment for industrial, commercial and similar use rated below or equal to 1 kV AC and 1,5 kV DC, electromechanical as well as semiconductor (solid state) equipment. The scope includes open and enclosed separate items of equipment as well as assemblies which are the combinations of items of equipment into complete functional units."

Currently there are no new or emerging trends in technology that will impact the scope and work activities of the TC. Therefore, no update of TC 121 scope is deemed necessary. Nevertheless, new market requirements are continuously surveyed and considered when relevant for publications maintenance (embedded software, cybersecurity, wireless communication technologies…).

A.2 SC 121A Low-voltage switchgear and controlgear

Scope:

"To prepare international standards for low-voltage switchgear and controlgear equipment for industrial, commercial and similar use rated below or equal to 1 kV AC and 1,5 kV DC.

The scope includes open and enclosed separate items of equipment as well as combinations of items of equipment into complete functional units, electromechanical as well as semiconductor (solid state) equipment.

Group Safety Function:

Connecting devices, either as separate entities or as integral parts of an end product for connecting external electrical supply conductors, for use with conductor cross-sections above 35 mm² up to and including 300 mm²."

Currently there are no new or emerging trends in technology that will fundamentally impact the scope and work activities of the SC. Therefore, no update of the scope is necessary, however, the growing market of connected smart devices is continuously surveyed and the related impacts (e.g. on EMC, embedded software, cybersecurity, wireless communication technologies) are considered when relevant for SC publication maintenance.

A.3 SC 121B Low-voltage switchgear and controlgear assemblies

Scope:

"To prepare international standards covering assemblies which are combinations of one or more pieces of low-voltage switchgear and controlgear equipment, not exceeding 1 kV AC or 1,5 kV DC together with associated control and/or power equipment, measuring, signalling, protective, regulating equipment, etc."

Currently there are no new or emerging trends in technology that will fundamentally impact the scope and work activities of the SC. Therefore, no update of the scope is necessary, however, the evolution of assemblies (e.g. assemblies for photovoltaic application, internal arc fault limitation and performance, wider use of static switching with an increased need for forced cooling and intelligent assemblies) are being appropriately considered within existing or new standards.

B. MANAGEMENT STRUCTURE OF THE COMMITTEE

B.1 TC 121

TC 121 was set up in December 2013 (see 121/1/AC). It includes all activities of the former SC 17B and SC 17D.

Currently, there are two sub-committees listed below which prepare international standards for their respective products domains:

- SC121A: Low-voltage switchgear and controlgear
- SC121B: Low-voltage switchgear and controlgear assemblies

TC 121 coordinates the work between its subcommittees and its work with other technical bodies within and outside IEC. To this end, it will establish ad hoc groups, working groups etc., as appropriate. A Chairman Co-ordinating Group, including all officers of TC 121 and its SCs, as well as TC 121 WGs convenors, and MT or PT leaders, prepares the decisions which have to be agreed at TC level.

TC121 covers topics of common interest of both subcommittees such as

– Energy efficiency;

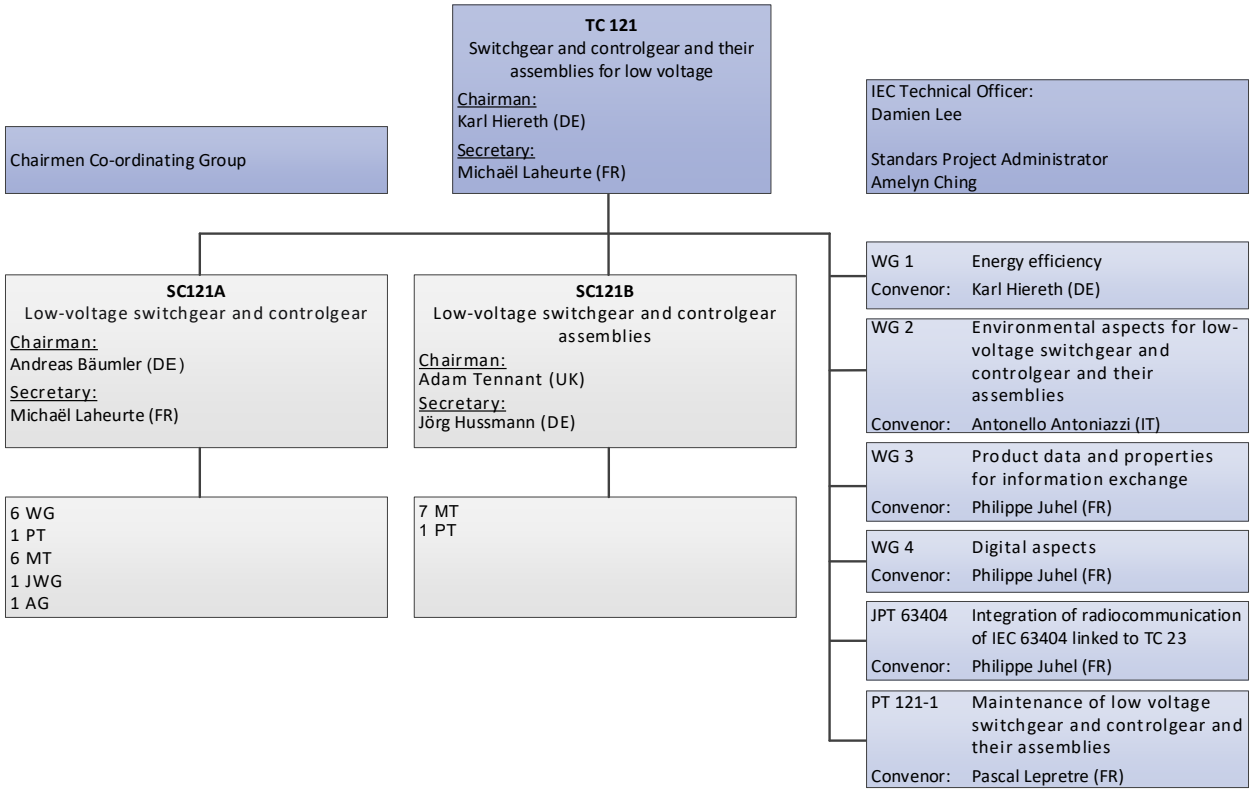
– Environmental aspects;

– Product data and properties for information exchange (e-commerce);

– Security (cybersecurity and related rules for embedded software and firmware);

– Maintenance.

The current structure of TC 121 is the following (updated figure):



TC 121 structure has evolved since last plenary meeting (Busan, KR, 2018-10-26) with the creation of WG3, WG4, PT 121-1 and JPT 63404. Structure will be reviewed during next plenary meeting (2022-11-04).

TC 121 has issued 2 publications.

B.2 SC 121A

SC 121A covers all features of low-voltage switchgear and controlgear devices:

– Product requirements (characteristics, product information, normal service conditions, mounting and transport conditions, constructional and performance requirements) and the associated test requirements;

– Physical and logical interfaces to the control systems (Controller-device interfaces and device profiles);

SC 121A considers the horizontal topics and system aspects that impact low-voltage switchgear and controlgear and also contributes to the improvement of the associated horizontal standards, for example the following topics:

– Insulation coordination;

– Functional safety;

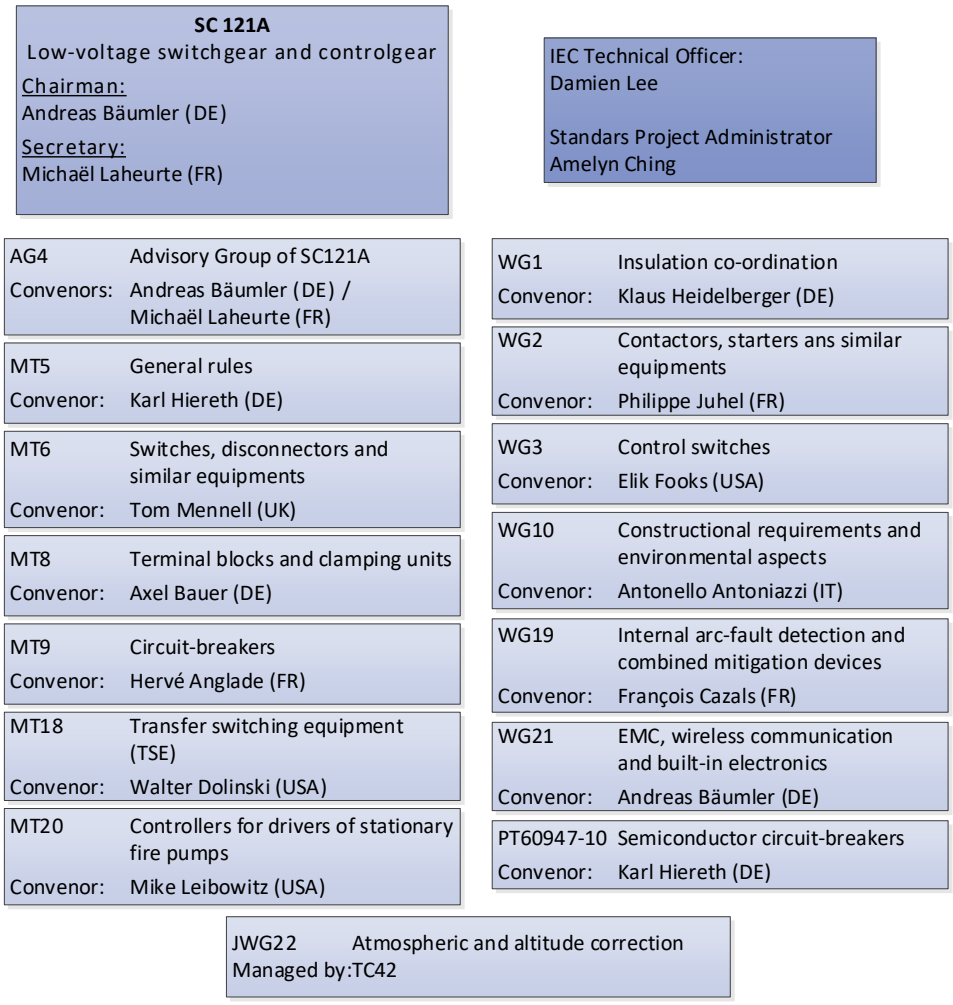
– Electromagnetic compatibility (EMC);

SC 121A also issues publications dealing with the correct association of low-voltage switchgear and controlgear (short-circuit, selectivity…).

SC 121A publication IEC 60999-2:2003 has Group Safety Function for “Connecting devices - Electrical copper conductors - Safety requirements for screw-type and screwless-type clamping units - Part 2: Particular requirements for clamping units for conductors above 35 mm² up to 300 mm² (included)”.

SC 121A publication IEC 60715 ED2 “Dimensions of low-voltage switchgear and controlgear – Standardized mounting on rails for mechanical support of switchgear, controlgear and accessories” is a horizontal standard.

The current structure of SC 121A is the following (updated figure):



Changes since last Busan (KR) 2018-10-25 plenary meeting:

- creation of MT 20;
- creation of PT 60947-10
- disbanding of WG17
- disbanding of PT 60947-7-5
- disbanding of PT 60947-9-1
- change from MT7 in WG21
- appointment of secretary
- appointment of chairman

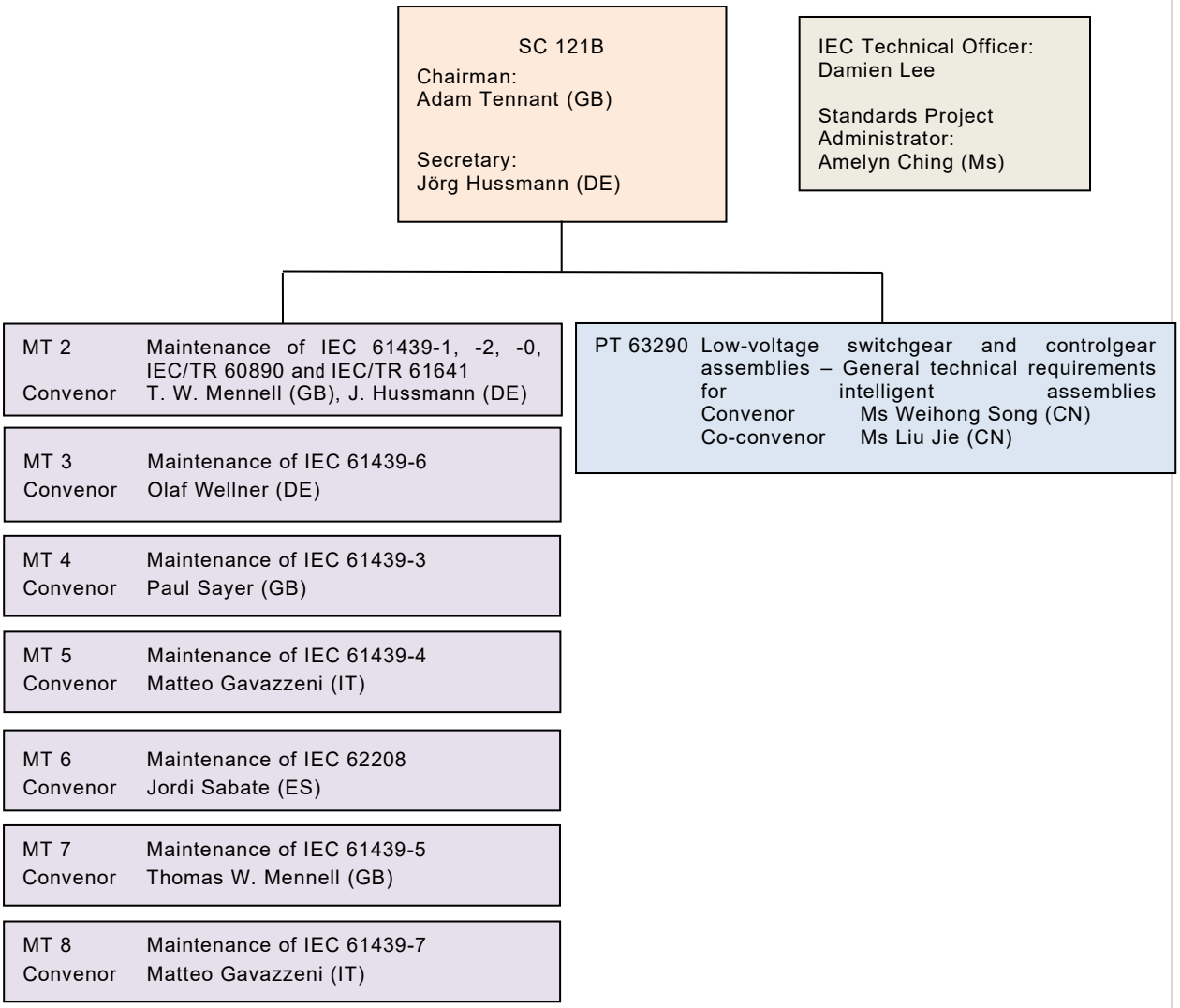
The structure will be reviewed during next SC 121A plenary meeting to be held on 2022-11-03.

SC 121A has issued 73 publications within which the main series is IEC 60947.

B.3 SC 121B

SC 121B covers the product requirements (characteristics, product information, normal service conditions, mounting and transport conditions, constructional and performance requirements...) and the associated verification requirements for stationary and movable low-voltage switchgear and controlgear assemblies. These assemblies incorporate low-voltage switchgear and controlgear, generally complying with standards prepared by SC 121A or SC 23E, and associated equipment.

The current structure of SC 121B is the following (updated figure):



Changes made since last Busan (KR) 2018-10-26 plenary meeting: creation of new PT 63290, appointment of secretary, appointment of chairman.

SC 121B structure will be formally reviewed during next plenary meeting 2022-11-04. Currently there are no changes planned, apart from automatic disbanding of PT 63107 due to publication of IEC TS 63107 ED1.

SC 121B has issued 18 publications within which the main series is IEC 61439.

C. Business Environment

C.1 TC 121

The expanding worldwide market for industrial applications, machinery and big infrastructural projects requires switchgear and controlgear and their assemblies which are designed, verified and produced in compliance to internationally harmonized, readily accessible and easy to understand standards.

The importance of these products is increasing due to a growing demand of sustainability, automation and control in factories, power plants, buildings, construction sites, offices etc.

Due to the wide range of applications and depending on the particular type of product possible handling by unskilled operators cannot be excluded and has to be taken into account. Therefore, increasing demands including those for safety, necessitate the development of new standards and the adaptation of existing standards.

Requirements for upmost product safety and reliability lead to high levels of performance verification during development and manufacturing, all based on the provisions of the relevant product standards.

C.2 SC 121A

Manufacture of switchgear and controlgear is mostly undertaken by global players, although some regional manufacturers take significant market share.

The products are manufactured by serial or mass production. Therefore, performance verification is generally based on testing (type and routine tests).

SC 121A product standards are used for assessing regulatory compliance in countries such as India (ISI), China (CCC), EU, etc.

C.3 SC 121B

Assemblies are generally manufactured or assembled on a one-off basis; incorporating various combinations of devices and components, to suit the needs of the specific customer application and safety requirements. Verification of the assembly design solely by test is therefore not always feasible.

In many cases the design and manufacture of an assembly is made by different parties. One manufacturer may provide a basic design and possibly also supply a kit of parts to another manufacturer, who completes the design and produces the final assembly for the particular application. Alternatively, the complete design and manufacturing process can also be executed under the control and responsibility of a single manufacturer.

The current business environment demands an increased focus on sustainability, use of digitization, data processing, condition monitoring and communication to optimise energy management, use of renewables, aid maintenance, etc.

SC 121B assembly standards are used for assessing regulatory compliance in countries such as India (ISI), China (CCC), EU, etc.

D. Market Demand

D.1 TC 121

The international standards published by TC 121 and its subcommittees are a reference for many parties, for example:

- low-voltage switchgear and controlgear manufacturers;
- assembly manufacturers/panel builders;
- specifiers and consultant engineers;
- certification bodies and test houses;
- contractors;
- market surveillance authorities;
- insurance companies;
- other users of the products, for example electrical utilities and major industrial organisations.

The IEC standards developed by TC 121 and their subcommittees are used at regional and local levels. They are adopted and/or translated to local languages, e.g.:

- In Europe, harmonized EN standards are accepted through a parallel voting procedure with IEC. These standards fulfil the requirements of the applicable European directives;
- In China, modified IEC standards are adopted in Chinese language as GB standards.

D.2 SC 121A

As most manufacturers of low-voltage switchgear and controlgear devices and components supply their products worldwide, harmonization of these product standards is of utmost importance.

SC 121A hosts harmonization projects, e.g. task forces which are actively working on the harmonization of the IEC and North American standards (CANENA). UL/CSA 60947-1 and UL/CSA 60947-4-1 are already issued.

D.3 SC 121B

Major industrial companies acting internationally today often require assemblies for their sites which are assembled and maintained locally, but which are of the same design, according to the IEC 61439 series.

Also, for the majority of applications where local assembly designs are accepted and/or required there is a need for harmonized safety requirements, taking into account the basic safety publications of IEC. Additionally, the nature and characteristics of the incorporated components and devices have to be taken into account. These are defined in the standards of SC 121A and other IEC committees and reflected as far as necessary in the IEC 61439 series.

Further, to support evolving market trends, specific standards are developed to reflect the needs of particular applications, e.g., assemblies for photovoltaic applications considering onerous loading arrangements, harsh environmental conditions and the impact of solar irradiance.

There is a need to ensure correct incorporation of arc fault mitigation systems and digital equipment within assemblies. These topics are being addressed by new documents, e.g. IEC TS 63107, in line with market evolution.

IEC standardization for switchgear and controlgear assemblies has reached a high level of application worldwide. SC 121B strives to achieve full coverage of all applications.

E. SUSTAINABLE DEVELOPMENT GOALS

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

F. TRENDS IN TECHNOLOGY AND IN THE MARKET

F.1 TC 121

The development of mechanical switching devices and of assemblies has been relatively stable in recent years. This has made it possible to effectively define and verify the functionality of highly-efficient products. Fundamental changes in these core technologies are not anticipated in the medium-term future.

Renewable energy sources are creating an increasing demand for DC applications. This is necessitating the review of the corresponding design and verification rules in some standards.

New techniques in arc-flash detection and arc extinguishing will also be considered for application in industrial, commercial and infrastructures environments.

Current market trends generally require:

- increased product safety and reliability;
- increased “intelligence” within the products (automation functions, communication etc.);
- increased power-handling capability (load currents, fault currents, voltage);
- more information concerning materials and compliance with environmental regulations;

- optimization in the use of natural resources;
- cybersecurity;
- increased international trade;
- continuous cost reduction.

Growing e-commerce and digitalization are increasing the interest in data exchange in electronic format describing products through a defined structure for the information.

The continuous need to increase the energy efficiency pushes the market of electronic intelligence capable of providing more information to the monitoring and control systems.

The need to reduce any adverse impact on the natural environment by a product during all phases of its life is recognized (environmental footprint). This includes environmental-conscious design of TC 121 products and the contribution of TC 121 products to the efficiency of their associated systems.

F.2 SC 121A

New electronic devices, as well as hybrid devices, have been combining mechanical, electronic and semiconductor technologies. These new technologies bring new functionality to the products and an improved ability for communication.

There are divergent tendencies:

- high-volume production of the devices bringing cost reduction, and
- devices suitable for a specific environment,
- both need to be optimized by standards.

The increased demand for reliability clearly creates a need for rigorous standards. It also creates the necessity for:

- more effective quality monitoring;
- more engineering improvements.

International organizations, for example machine manufacturers and their customers, require easy access to devices complying with international standards.

DERs (Distributed Energy Resources) and their applications are of growing interest. For example, widespread use of battery storage, energy production (e.g. PV), AC/DC, DC/AC and DC/DC converters, will lead to energy exchange flows which are much more complex than in a traditional "top-down" network. Therefore, in such applications, some essential characteristics of protection (e.g. overload or short-circuit protection) and functionalities (e.g. selectivity), provided by low-voltage switchgear and controlgear, must be managed differently in order to maintain safety, reliability and availability of electrical energy in all topologies. The focus for SC 121A will in part be determined by the activities of TC 64. As a consequence, SC121 A will consider the new requirements for protective and control devices.

F.3 SC 121B

As a result of an increasing drive for sustainability, use of electronic equipment in the main and digitization of the control circuits, assemblies continue to grow in complexity. This may result in a review of the associated environmental, cyber security and electromagnetic compatibility aspects in assembly standards.

The growing safety demands in conjunction with growing load currents and powers to be distributed, and the demand for increased packing density inside the assemblies increase the importance of design and verification rules (e.g. temperature rise, short-circuit strength, dielectric properties).

The evolution of switchgear and controlgear technologies, the trends towards higher AC and DC voltages, more compact assemblies, higher degrees of automation, greater dependability and growth of international trade all require more exacting standards for low-voltage switchgear and controlgear assemblies.

The increased use of local, renewable generation of energy, energy storage and energy management requires use of greater quantities of sophisticated assemblies. This has created a market need for the intended intelligent assemblies publication.

Environmental aspects are of growing importance for low-voltage switchgear and controlgear assemblies. The environmental aspects of assemblies are to some extent determined by the incorporation of devices and components that have already taken environmental aspects into account. In addition, the document

IEC TS 63058 gives guidance on aspects associated with the assembly. During operation detrimental emissions are considered not to occur.

The nature of the primary technologies used for assemblies is such that their constructional elements can in general be recycled. Depletion of materials and the need for a circular economy is recognised and will be a consideration in the future creation or revision of standards.

G. SYSTEMS APPROACH ASPECTS (SEE DIRECTIVES PART 1 ANNEX SP)

G.1 TC 121

Liaisons are essentially established at SCs level. However, the following liaisons at TC level are currently established:

- TC3/SC3D “Classes, Properties and Identification of products - Common Data Dictionary (CDD)”;
- TC22 “Power electronic systems and equipment”;
- TC23 “Electrical accessories”;
- TC 23/SC 23K “Electrical Energy Efficiency products”;
- TC 32/SC 32B “Low voltage fuses”;
- TC 111 “Environmental standardization for electrical and electronic products and systems”.

To note TC121/WG3 has established D-type liaison with consortium eCl@ss (classification and product description).

In addition, TC 121 is represented in ACEE (Advisory Committee on Energy Efficiency), ACEA (Advisory Committee on Environmental Aspects) and ACSEC (Advisory Committee on Information security and data privacy).

Currently, there is no Systems Evaluation Group (SEG), Systems Committee (SyC), or Systems Resource Group, and no need to establish any. There are no known consortia working on the same topics in parallel to IEC.

G.2 SC 121A

SC 121A, as a component supplier for many systems, is linked to many other committees. It is crucial to harmonize the requirements coming from all these different applications.

Therefore, SC 121A is in favour of a few well-implemented horizontal standards and group safety standards.

Note: Some TCs (or SCs) appear twice in the spreadsheet below, because SC 121A has several types of relationship with these TCs (or SCs). I.e. TC 22/SC 22G is a system committee for SC 121A because contactors are used in Power Drive Systems, and also an interacting/partner committee, because included in the same industrial control systems.

SC 121A	Committee	Description
Component committees (SC 121A - role of a customer)	TC 32/SC 32B	Low-voltage fuses
	TC 32/SC 32C	Miniature fuses
	TC 94	All-or-nothing electrical relays
System committees SC 121A - role of a supplier)	TC 18	Electrical installations of ships and of mobile and fixed offshore units
	TC 22	Power electronic systems and equipment
	TC 22/SC 22G	Adjustable speed electric drive systems incorporating semiconductor power converters
	TC 44	Safety of machinery - Electrotechnical aspects
	TC 64	Electrical installations and protection against electric shock
	TC 65	Industrial-process measurement, control and automation
	TC 82	Solar photovoltaic energy systems
	TC 121/SC 121B	Low-voltage switchgear and controlgear assemblies
	SyC LVDC	Low Voltage Direct Current and Low Voltage Direct Current for Electricity Access
Other committees (interacting/ partner committees,	TC 2	Rotating machinery
	TC 3	Information structures, documentation and graphical symbols
	TC 3/SC 3C	Graphical symbols for use on equipment

committees providing generic guidance or horizontal standards, boundary committees, etc.)	TC 22/SC 22G	Adjustable speed electric drive systems incorporating semiconductor power converters
	TC 22/SC 22H [a]	Uninterruptible Power Systems (UPS)
	TC23	Electrical accessories
	TC 31	Equipment for explosive atmospheres
	TC 32/SC 32B	Low-voltage fuses
	TC 34/SC 34C	Auxiliaries for lamps
	TC 37/SC 37A [b]	Low-voltage surge protective devices
	TC 44	Safety of machinery - Electrotechnical aspects
	TC 65	Industrial-process measurement, control and automation
	TC 65/SC 65C [c]	Industrial networks
	TC 65/SC 65E	Devices and integration in enterprise systems
	TC 77	Electromagnetic compatibility
	TC 77/SC 77A	Electromagnetic compatibility – Low-frequency phenomena
	TC 85	Measuring equipment for electrical and electromagnetic quantities
	TC 89	Fire hazard testing
	TC 94	All-or-nothing electrical relays
	TC 109	Insulation co-ordination for low-voltage equipment
	TC 112	Evaluation and qualification of electrical insulating materials and systems
	CISPR/CIS/B	Interference relating to industrial, scientific and medical radio-frequency apparatus, to other (heavy) industrial equipment, to overhead power lines, to high voltage equipment and to electric traction
	ISO JTC 1/SC 27 [c]	Information security, cybersecurity and privacy protection

[a] Disbanding under consideration.
[b] Under creation.
[c] Shifting at TC level.

In addition, SC 121A is in ACEC (Advisory Committee on Electromagnetic Compatibility)

G.3 SC 121B

Effective liaison with system committees is important so as to avoid conflicting requirements and tests for assemblies.

SC 121B	Committee	Description
Component committees (SC 121B - role of a customer)	CLC TC 121A	Low-voltage switchgear and controlgear
	TC 23	Electrical accessories
	TC 121/SC 121A	Low-voltage switchgear and controlgear
System committees (SC 121B - role of a supplier)	TC17/SC 17C	HV Assemblies
	TC 44	Safety of machinery – Electrotechnical aspects
	TC 69	Electric road vehicles and electric industrial trucks
	TC 82	Solar photovoltaic energy systems
Other committees (interacting/partner committees, committees providing generic guidance or horizontal standards, boundary committees, etc.)	TC 64	Electrical installations and protection against electric shock
	CIS/B	Interference relating to industrial, scientific and medical radio-frequency apparatus, to other (heavy) industrial equipment, to overhead power lines, to high voltage equipment and to electric traction

H. CONFORMITY ASSESSMENT

Product standards under the responsibility of TC 121 and its subcommittees define the necessary test methods and test requirements to ensure a reproducible verification of the design of the products with the requirements of the corresponding standard.

The standards developed in the SCs of TC 121 are in line with requirements related to conformity assessment, and already used by IECEE for conformity assessment (categories EMC, INDA, POW, INST).

Therefore, no special conformity assessment requirements need to be generated.

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

I.1 TC 121

STRATEGIC OBJECTIVES 3-5 YEARS	ACTIONS TO SUPPORT THE STRATEGIC OBJECTIVES	TARGET DATE(S) TO COMPLETE THE ACTIONS
To promote and provide continuous improvements through developing technologies, with additional recommendations, for low-voltage switchgear and controlgear and their assemblies in the field of energy efficiency	To maintain IEC/TR "Switchgear and controlgear and their assemblies for low voltage - General guidelines on Energy Efficiency"	Revision of IEC TR 63196 ED1 to be initiated. On-going activity Publication forecasted date: 2025
To support sustainability through - establishing environmentally-conscious product design principles; - evaluating and improving ecodesign performance; - assessing and improving potential environmental impacts; - improving material efficiency and supporting circular economy; for low voltage switchgear and controlgear and their assemblies	To revise IEC/TS 63058 "Environmental aspects for Low-Voltage Switchgear and Controlgear and their assemblies"	Revision of IEC TS 63058 "Environmental aspects for Low-Voltage Switchgear and Controlgear and their assemblies") Publication forecasted date: 2025
To ensure, publications fulfil essential safety requirements.	Subject applicable documents to a risk assessment in accordance to IEC Guide 116.	On-going activity
To provide system standards to simplify business: - Simplify e-commerce (e.g. product properties) and digitalization; - To facilitate integration of equipment into customers application using software design tools	- To publish standards on product classification and properties: conversion of IEC 62683 to Database format (DB, on-going revision); - To investigate the engineering aspects concerning the products.	On-going, maintenance of IEC 62683-1 as database, On-going, project for IEC 62683-2-2
To provide minimum safety-related cyber-security protection levels to equipment	To develop protection profiles by equipment family	On-going, revision of IEC TS 63208 ED1 under preparation

I.2 SC 121A

STRATEGIC OBJECTIVES 3-5 YEARS	ACTIONS TO SUPPORT THE STRATEGIC OBJECTIVES	TARGET DATE(S) TO COMPLETE THE ACTIONS
To provide standards for new and anticipated products	To have a continuous survey of customer/market needs and related decisions, when relevant (e.g. for arc-fault detection and mitigation devices, semiconductor devices)	On-going
To maintain the appropriate safety level	To continuously align our publications with basic safety	On-going

	standards and group safety standards	
To provide product standards to simplify business: - Simplify integration of SC 121A devices into systems (e.g. communication, device profiles and device data models);	- To maintain and publish standards on device profiles; - To maintain and develop communication interface description in the relevant product standards; - To develop device data models in product standards.	On-going
To increase the application of the SC 121A IEC standards worldwide	- To continue the harmonization projects with CANENA (UL, CSA, ANCE); - To involve all regions of the world in the IEC SC121A work program.	On-going
To harmonize EMC requirements throughout SC 121A publications	- Overall analysis of EMC requirements in publications; - Experts from WG21 to support each product group when maintenance decided; - Each MT/WG to update – when relevant – their publications.	On-going On-going On-going
To specify test requirements for terminals for the use of Aluminium conductors	- Future integration of new requirements in 60947-1	Preparation of Edition 7 of IEC 60947-1

I.3 SC 121B

STRATEGIC OBJECTIVES 3-5 YEARS	ACTIONS TO SUPPORT THE STRATEGIC OBJECTIVES	TARGET DATE(S) TO COMPLETE THE ACTIONS
To improve the user-friendliness	The series of assembly standards is not easy to apply for those parties not involved in the development and verification process, in particular persons/bodies specifying assemblies for the end-user. This matter is being addressed by SC 121B. In a first instance a guidance document for specifying assemblies, IEC 61439-0, is incorporated in the IEC 61439 series as a Technical Report.	On-going
To improve the design verification methods	For assemblies which are to a large extent customized, design verification solely by test is not always feasible. To increase the application of the standards so as to include all assemblies the design verification methods, other by test, will be further reviewed, taking care to ensure safety and reliability are not impaired.	On-going
To reduce the standards development time	The difficulties in establishing the first edition of IEC 61439-1 with the "General rules" for the new series of assembly standards resulted in severe delays to this project and resulted in immediate maintenance work and the	On-going

	subsequent publication of the second edition of IEC 61439-1. In the medium-term future the regular development of the IEC 61439 series is envisaged	
Future works	Future considerations may include: - Use of Aluminium conductors; - Derating for altitude and specific frequencies; - Conversion of IEC/TR 61641 to an IS, and further considerations of personnel safety and alignment to IEC TS 63107; - Development of IEC TS 63290 to ensure correct incorporation of digital products in assemblies; - Alignment of product parts in the IEC 61439 series with IEC 61439-1 ED3. - Development of IEC 61439-X for photovoltaic assemblies	2025
The universal acceptance of IEC 61439 series for all types of assemblies	To encourage the widely use of IEC 61439 series by continuously reflecting market evolutions	On-going