ANNEX B

SMB/8387/QP

STRATEGIC BUSINESS PLAN (SBP)

IEC/TC OR SC:	SECRETARIAT:	DATE:
TC 111	**ITALY**	**2025-02**

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 TC

Title: Environmental standardization for electrical and electronic products and systems

Scope:

To prepare documents in the area of environmental sustainability. Documents include consideration for environmentally conscious design (ECD), environmental impact assessment, chemical substance management, material and environmental declarations, substance testing, and implementing a circular economy — including the use of recycled, reused, and renewable materials, extending the lifetime of products, and the recovery of products, components and materials at the end-of-life to close material loops. The documents cover aspects that help to mitigate environmental impacts such as climate change, resource depletion and biodiversity loss.

TC 111 delivers horizontal publications based on assigned environmental horizontal functions. It collaborates with IEC product committees and ISO technical committees in the elaboration of environmental requirements to foster common technical approaches and solutions.

Electromagnetic compatibility (EMC) and Electromagnetic fields (EMF) aspects are excluded from the scope.

B. MANAGEMENT STRUCTURE OF THE TC

The TC 111 Committee is made up of members from the national standards bodies of 38 countries, of which 27 are P-members and 13 are O-members. Members play a vital role in the committee's standardization work.

TC 111 is chaired by Dr. Miyuki Takenaka (JP) since August 2023. The vice-chair is Walter Jager (CA). In addition to supporting the chair, the vice-chair has specific roles on supply chain communication, circular economy, and collaboration with other committees.

The TC 111 Secretary is Alfonso Sturchio (IT), having taken on the role starting in 2022. Andrea Legnani (IT) and Vittoria Vitagliano (IT) have been appointed as assistant secretaries of TC 111.

A chair's advisory group (CAG), established in 2018, supports experts and working groups in areas not directly related to development of standards, such as promotion, helping establish contacts with other bodies, increasing visibility of the committee through web site, and communication.

TC 111 Committee Strategy

TC 111 is the central point for developing standards on all environmental aspects of electrotechnical products and systems. Work developed at IEC by the TC 111 experts is intended to be applicable worldwide – either directly or by adoption into a local standard.

TC 111 seeks collaboration with IEC committees, Standards Development Organizations (SDOs) and other organizations to develop standards documents on environment related aspects. TC 111 also invites and considers standards published at national or regional level to see if they can be used as a basis for developing IEC standards. For instance, the European CENELEC standards organization has been active in several emerging areas of environmental standardization of electrotechnical products. These standards, once published, are reviewed and considered by TC 111 for possible IEC standardization under the Frankfurt agreement.

TC 111 is a member of ACEA and liaises with various ISO Technical Committees, product technical committees, and external organizations in the elaboration of environmental requirements of product standards in order to foster common technical approaches and solutions for similar problems and thus assure consistency in IEC standards. The list of TC 111 liaisons is provided on the IEC TC 111 dashboard (https://www.iec.ch/tc111) under 'Structure'.

TC 111 maintains an Advisory Group (AG2) that updates the TC 111 Strategic Business Plan (SBP) biennially to provide an up-to-date roadmap on standardization strategy. AG2 scans and compiles emerging information on market activities and requirements for environment standards and guidance that are relevant to TC 111.

Horizontal Functions

As most of TC 111 standards are horizontal or generic in nature, TC 111 will apply for and maintain horizontal functions according to IEC Guide 108 and IEC Guide 123 for all of its fields of activity where it holds horizontal or generic standards. Typical topics for basic, generic, and group horizontal functions that are possible and may be considered are summarized below.

ENVIRONMENT TOPIC	ENVIRONMENT HORIZONTAL FUNCTION SUBJECTS
Substances management and assessment	Substances compliance management Material and substances declaration Substance and material analytical test methods Environmentally conscious use of materials (biobased, renewable, recycled, etc.)
Environmental assessment	Product category rules (PCR) Life cycle assessment (LCA) Environmental footprint Greenhouse gases (GHG) Environmental performance (indicator, label, etc.)
Design aspects	Environmentally conscious design (ECD) Product circularity and circular product design Durable and reliable products by design
Material efficiency	Closing material loops (parts reuse, use recycled or renewable content) Product life extension (durability, repair, reuse, upgrade) Industrial product life extension (refurbish, remanufacture) End-of-life management (collection and logistics, depollution, treatment) End-of-life products recovery (products and parts harvest for life extension) End-of-life material recovery (recycling, recyclability) Connecting end-of-life information with design phase
Knowledge management	Terms, definitions, and concept diagrams Environment common data dictionary and ontologies

Standardization Teams

TC 111 contributes to improving the global environment by timely delivery of technical reports, specifications, and standards to users. TC 111 sets up standardization teams to address

environmental issues over the next 5 years, to be able to address in a competent and efficient way work items in the field of material efficiency and resulting from further digital integration. The structure of TC 111 includes working groups (WGs), project teams (PTs), maintenance teams (MTs), ad-hoc groups (AHGs) and Advisory Groups (AGs) as needed. The committee also includes SDB Team(s) (Standard in Database) responsible for regular updates to the database portion of standards that include standardized content in a database.

TC 111 has initiated joint WGs with ISO and will support development of this joint collaboration over the next five years, to be able to address in a competent and efficient way work items in the field of material efficiency and resulting from further digital integration. For such joint activity, the WGs, whenever possible, should try to assign an 8XXXX number to the document, clearly indicating that the document is produced by an ISO/IEC Joint WG (JWG).

The structure of TC 111 is reviewed every three years and updated as needed in response to new and emerging technologies, changes in regulations, and upon publication of standards.

Workgroups and teams working on standardization deliverables related to environmental aspects:

- WG3 Test methods of certain substances: to develop new and improved harmonized test methods for regulated substances;
- WG19 Work Group of IEC 62474 Material Declaration: to revise the IEC 62474 standard and guidance documents;
- SDB Team 62474 Material Declaration for Products of and for the Electrotechnical Industry Database: to maintain and improve material declaration tools by performing two maintenance cycles per year to the IEC 62474 declarable substance list, material classification list, exemption lists and data exchange format;
- JWG ECD - IEC 62430: 2019 Environmentally Conscious Design (ECD) - Principles, requirements and guidance: to prepare guidance documents and other application specific documents related to ECD. The JWG is collaborative joint work of IEC/TC 111 and ISO/TC 207;
- JWG 14 collaborative joint work of IEC/TC 111 and ISO TC 61 to develop test methods for TCEP (Tris(2-chloroethyl) phosphate)) and other certain substances in plastics
- MT 63000 Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances
- WG 5 General method for assessing the proportion of reused components in products - WG5 will also be used for future projects related to the material efficiency and circular economy assessment in design;
- WG 15 Product category rules for LCA of electrical and electronic products and systems;
- JWG 16 collaborative joint work of IEC/TC 111 and ISO TC 207/SC1 on material declaration standardization – an SDB Team will also need to be established upon publication of the standard;
- WG 17 Greenhouse gas (GHG);
- WG 18 E-waste;
- WG 20: Guidance on material circularity considerations in environmentally conscious design;
- MT 21 Terminology Advisory Group: to harmonize environmental terminology between TC 111 and other IEC and ISO groups on terminology;

- AG 2 SBP Advisory Group: periodic maintenance of TC 111 Strategic Business Plan (SBP) as described above;

- JahG22 (linked to SC 3D) to investigation and develop a standardization proposal for “digitalization and data exchange of Carbon Footprint of Products (CFP) – this JahG will evolve into a JWG to develop standards document(s) if approved.

C. BUSINESS ENVIRONMENT

Environmental sustainability has become more and more important globally, especially regarding the impact on ecosystems, climate change, energy and natural resource depletion and impact on humans. With the advent of global legally binding agreements, such as the Paris agreement to limit global warming, many industry organizations have committed to meeting ambitious environmental targets. In the electrotechnical industry specifically, the exponential growth in the use of electronic devices by individuals and industry is another key factor in the need to address the environmental issues with these devices. The range of environmental issues has widened and now includes the whole life cycle of these products as used within the ecosystem. Accordingly, purchasing of products based on environmental performance is a significant growing factor for government, institutional and consumer purchasing. In response to these trends, legislation as well as voluntary initiatives from business and other organizations have been developed globally.

In the electrical and electronic equipment sector, the focus is on control of chemical substances, circular economy (including product waste management), and environmentally conscious design of products and systems (including the reduction of adverse environmental impacts of a product throughout its entire life cycle, such as the efficient use of materials, energy, and other resources and controlling emissions).

Moreover, material efficiency aspects relating to the circular economy are becoming an increasingly important topic. Other considerations are digitalization of compliance and sustainability information, Digital Product Passport (DPP), climate change, and energy transition.

This will be an area to continue monitoring and assessing what the global response should be.

Reference to standards has been effective for assessing regulatory compliance and can also be equally effective in considering environmental aspects to applicable product life stages. Under the above circumstances, it is strongly desired to provide all stakeholders including product committees (TCs/SCs), industry, and regulators with environmental standardization publications for electrical and electronic products and systems. Attention should be given to maintaining the deliverables as credible and as representative to intended and actual use cases and to avoid unintended or intended circumvention.

D. MARKET DEMAND

Customers of the standards and other deliverables developed by TC 111 are:

- organizations that manufacture and use electrical and electronic products and systems;

- suppliers to the electrotechnical industry;

- IEC technical committees and other SDOs

- test and certification bodies, dealing with product certification and compliance assessment and ecolabel operators;

- waste treatment operators and WEEE recyclers;

- governments and other equivalent organisations, dealing with product conformity, conformity assessment procedures, and digitalization of data (e,g. Digital Product Passport);

- other organizations dealing with climate change, energy and natural resource depletion (for example, United Nations, NGOs and other non-profit organizations);

Avoiding inconsistency between standards on environmental specifications and guidance is necessary for the market. This includes standards developed by product TCs/SCs. TC 111 provides horizontal publications in the area of environment for use by TCs and SCs

E. SUSTAINABILITY 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 Goal
☒	**GOAL 9:** Industry, Innovation & Infrastructure		

F. TRENDS IN TECHNOLOGY AND IN THE MARKET

The progress of technologies, legal requirements and scientific data on environmental impacts have led to additional environmental requirements and opportunities. Examples include worldwide opportunities to establish harmonized international standards to address

- energy saving effects made by energy-efficient products,

- life-cycle evaluation of GHG emission from products, and

- resource scarcity.

Trends in standardization include:

- A continuing shift of focus from a specific life cycle stage to the entire life cycle. This trend leads to new supply-chain requirements including information exchange, cooperation and management;

- Use of Life Cycle Assessment (LCA) methodologies and tools to evaluate the environmental impacts of products and processes across the entire life cycle;

- The scope of environmental assessment is moving from a product to complete system solutions, such as addressing urbanization issues through infrastructures (e.g. Smart Cities).

The market will require further effective guidance and standards since it is anticipated that laws and regulations in the environmental field will continue to diversify and expand. It is increasingly important to have a robust evaluation for the environmental impact such as GHG emission based on a scientific approach.

The UN Conventions on Climate Change and Biodiversity and the abundancy of regional regulations on recyclability and restriction of hazardous substance content in products demonstrate the growing demand for international standards in the environmental field. A range of other international sustainability initiatives and trends have also emerged, including: ESG (environmental, social and governance) investing, Carbon Disclosure Project (CDP), the Task

Force on Climate-related Financial Disclosure (TCFD), and Science Based Targets (SBT). Many of these have significant environmental requirements

IEC TC 111 has worked proactively regarding the standardization needs on environmental topics by publishing standards on substances, environmentally conscious design (also referred to as ecodesign) and other relevant environmental topics. IEC TC 111 is expecting to start new work in response to standardization needs in the areas of circular economy, recyclability, climate change, and environmental performance assessment of products. It is anticipated that there could be future environmental standardization needs associated with resource efficiency and smart cities concepts. IEC TC 111 would respond to such new and prospective business needs by providing expertise in environmental aspects and impacts.

Further expectations on GHG emission reductions by digitalization of electrotechnical products (including services) are also raising attention with Paris Agreement for both mid- and long-term targets.

For economic growth, one must consider natural resource availability. This concept of “Resource Efficiency” is designed to maintain growth and promote improvement in quality of life globally in the face of resource depletion and cost increases. Governments are considering legislative frameworks to provide the economic conditions for an “environmentally-conscious economy”. These legislative frameworks include:

- Implementation of environmentally conscious design in products;
- Waste reduction and recycling requirements to boost a circular economy.

There are many emerging environmental performance programs (certifications, registries and logos) across different products and regions (e.g. EPEAT, ECOLOGO, Ecolabel, Eco Mark, Blue Angel). The creation of these programs is driven by a market and regulatory environment that is trying to interpret the complexity of environmental performance. Such simplification and standardization of environmental performance is needed by purchasers and other stakeholders that are not experts in the evaluation of environmental aspects. The environmental assessment and verification programs have generally been regional and many of the environmental performance criteria for these programs are inconsistent. The lack of standardization results in duplication of work and confusion within the market. There is growing market demand and industry demand for global harmonization of these criteria and verification methods.

The growing use of nanomaterials is a technology trend in electrical and electronic products and systems. The interest from several countries in tracking and regulating nanomaterials is expected to lead to new environmental regulatory requirements.

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

TC 111 is not considered a system committee.

H. CONFORMITY ASSESSMENT

TC 111 has published and/or is developing standardization documents that support conformity assessment of products and processes, such as:

- standards covering test methods for the determination of the levels of substances in materials/products (IEC 62321 series) in support of hazardous substances legislation world-wide
- guidance for evaluation of product with respect to substance-use restrictions and technical documentation requirements (IEC/TR 62476)
- standard for technical documentation for the assessment of products with respect to the restriction of hazardous substances (IEC 63000)

- standards related to exchange of information on materials and substances in products (IEC 62474 database on material declaration)

Due to the structuring potential of standards on (upcoming) environmental legislations, TC 111 standards have the potential to positively influence the harmonisation of requirements specified in legislation and with it conformity assessment worldwide.

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

STRATEGIC OBJECTIVES 3-5 YEARS	ACTIONS TO SUPPORT THE STRATEGIC OBJECTIVES	TARGET DATE(S) TO COMPLETE THE ACTIONS
1. New and improved harmonized **test methods for regulated substances** 5 years strategy: ・Expansion of collaboration with other ISO/TCs	Continue to develop new and improved harmonized test methods for regulated substances. New substances include: • Phthalate substances (IEC 62321-8 Ed 2 with expanded scope) • BPA (IEC 62321-13) • SCCP/MCCP (IEC 62321-14) • TBBPA (IEC 62321-15) • XRF (62321-3-1 Ed 2) expanding the set of elements covered. (Cl, P, Sb, Sn) • PAHs (IEC 62321-10 ED.2) • PFAS • Other substances as identified by IEC TR 62936 Test method development - Guidelines for substance selection Collaboration with ISO TC 61/SC 5 on TCEP (IEC 62321-11) test method Request for HF to ACEA	On-going FDIS: 2025-12 FDIS: 2025-05 FDIS: 2025-06 CDV: 2025-04 FDIS: 2025-08 FDIS: 2025-08 TR: 2026-12 IS: 2023-12 2024-09
2. Material Declaration standards Up to date and comprehensive material declaration requirements for the electrotechnical industry Joint ISO/IEC standard for material declaration. *Note: The joint standard is to reflect the disappearing boundary between electrotechnical and other products, supply chain overlaps and the need for harmonization across product sectors.*	a) Maintenance of IEC 62474 database by SDB Team 62474 (includes declarable substance list, material class list, exemption lists and data exchange format b) Expansion of material declaration SDB to add ISO/IEC 82474-1 SDB elements c) Development of Dual IEC/ISO 82474-1 standard on material declaration (cross-sectors) d) Request for Horizontal Function and approval of IEC/ISO 82474-1 as horizontal standard	Two updates per year Publication in 2024 FDIS: 2023-09 Forecast IS: 2024-12 Approved: Q3 2024
3. Develop standards and guidance for demonstration of **due diligence for substance restriction conformity**	Evaluate the need for an update of IEC/TR 62476 on Guidance for Restricted Substance Controls Maintain IEC 63000 to meet industry needs and alignment with to reference documents Approval of Horizontal Standard within TC 111 and request for HF to ACEA	2024 by AG2 to review the contents of the TR to investigate the need for a revision or withdrawal of this document Q3 2024
4. Develop technical guidance and examples to support the published dual-logo ISO/IEC standard (IEC 62430 Ed.2) on **Environmentally Conscious Design**	a) Develop strategy for maintenance/evolution of IEC/ISO 62430 (ECD) and supporting guidance	2025

	b) Joint TC111/TC207 and/or TC323 activity on dual logo material circularity guidance linked to ECD c) Develop TS on "Guidance on material circularity considerations in environmentally conscious design". • When TS needs to be revised, consider IS as dual-logo (combined/linked with ISO 14009). d) JWG ECD to request HF to ACEA	Start discussions with TC207/SC1/WG12 in 2024 Q4 / 2025 Q1 Published: 2024-08 TBD 2024- Q3
5. Develop minimum requirements for the **collection, logistics and treatment of WEEE** in order to minimize environmental impacts.	TC 111 WG18 to prepare IEC 63395 Approval of Horizontal Standard within TC 111 and request for HF to ACEA	2024 IEC 63395 CDV 2024 IEC 63395 publication 2024 Q4
6. Standardized methodologies and rules for **carbon footprint, emission** reductions and avoided emissions calculation of EEE Integrate #11 below on CFP digitalization	Develop new standard (IEC 63372) by considering neutral framework quantification methods and communication for GHG emission, emission reductions and avoided emissions by EE products, service and system. The intention is that the new standardization documents will supersede TR 62725 and TR 62726. Approval of Horizontal Standard within TC 111 and request for HF to ACEA	NWIP: 2021 Q2 CD: 2022 Q1 CD2: 2023 Q2 CDV: 2024 Q1 Forecast IS: 2024 end Q3 2024
7. **Environmental performance criteria** that are consistent and compatible. Develop a standard that enables the effective application of environmental performance measures by stakeholders and helps drive harmonization for consistency. The standard is expected to include: (1) a document that specifies the requirements and protocol for developing viable and effective environmental performance criteria and (2) SDB content of harmonized environmental performance criteria with requirements and guidance to adapt to product categories where appropriate (additional information is provided in the recommendations of IEC TR 63212).	Study was completed in 2019. The study concluded that a standard is feasible for environmental performance criteria. Develop IS	NWIP expected; NCs are invited to propose.
8. **Product Category Rules** (PCRs) for full LCA of multiple environmental impacts to enable transparency for EPD development and improve comparability between different EPDs based on the same PCR.	Study was completed in 2020 NWIP approved and WG launched 2021 Q1 Development of IS (IEC 63366) Proposal to be a generic horizontal standard in TC111, in consultation with ACEA HF Approval	Published IS: 2024 Q1 2024-06 2024-08
9. Standardization documents related to **circular economy** (CE) covering: • Efficient use of materials (reused, recycled, renewable content) • Product lifetime / durability strategies [products designed to last longer] • Product life extension assessments [repair, reuse, upgrade, refurbish)]	Consolidate circular economy projects into Horizontal Function based WGs to develop standards in a consistent and efficient manner as follows. **Circularity and closing material loops assessment methods** (assigned to WG5): a) Publish IS on assessing the proportion of reused components (IEC 63333).	IS: 2023-08 (published) 2024-08 (Approved)

• End-of-life circularity with materials, parts and products recovery [recycling, parts for reuse, remanufacturing] Consideration of EEE specific standards vs. joint ISO/IEC standards. Leverage TC1/JWG2 work on product lifecycle circularity definitions in all activities. Consideration should be given to (1) market need and (2) optimizing the full life cycle of Electrotechnical products and in particular the trade-offs between different potential ecodesign measures.	• Proposal for IEC 63333 to be a basic horizontal standard in TC111 and then request HF from ACEA/SMB. b) Request HF "Closing material loops (parts reuse, use recycled or renewable content)". c) Proportion of recycled content (short term); (adopt EN 45557 with minimal changes) d) Consideration of other "proportion"-related assessment methods (longer term) • Proportion of renewable content e) Measuring and assessing circularity (possibly adapted from ISO 59020 with focus on EEE) **End-of-life material recovery – recycling, recyclability** (assigned to WG 18): f) Projects related to product end of life aspects linked to design; Specific focus on EEE treatment scenarios and data. • Revision of recyclability rate TR 62635 (leveraging EN 45555) into an IS. • Horizontal Standard approval in TC 111 **Durability and lifecycle extension assessment methods** g) Develop an IS: framework for durability assessment from a circularity perspective (taking into consideration reliability, maintenance, reparability, update, upgrade, refurbishment and product reuse); • leverage EN 45552 and IEC TS 63428 as appropriate, • reference IEC standards instead of embedding assessment methods where possible (e.g. reliability, dependability, other TC 56 topics). h) General methods for the assessment of the ability to repair, upgrade, and reuse parts of products Adopt EN45554 with minimal changes). **Circular Economy terminology (assigned to TC 1 / JWG2 joint group with TC 111)** i) Leverage TC1/JWG2 work on circularity definitions in above projects.	2024-08 (Approved) First meeting: 2024-11 CD: 2025-05 TBD based on market need TBD based on market need CD: 2025 Q1 IS: 2026 Q3 HP After CD: 2025-Q2 NP: 2025 NP: 2025 CDV: 2024-Q4
10. Harmonization of **environmental terminology** in the scope of TC 111	a) Collaboration of TC 111/MT21 with TC 111 work groups to maintain IEC 62542 and contribution to a respective maintenance of IEV 904 b) Collaboration of TC 111/MT 21 with IEC TC1 and ISO TC 207 Terminology Coordination Group c) Formation of a JWG between TC 111 and TC 1 JWG2 to develop Terminology on Circular Economy and Material Efficiency	CD: 2025-03 CDV: 2024-10
11. CFP digitalization and data exchange	a) Establish Joint ahG (TC111/SC3D) to develop NWIP for SDB and guidance standards	JahG launch: 2023 Q3 (DONE) NWIP launch: 2025 Q1

SMB Decision 175/6 - SMB also asked SC 3D, in close cooperation with TC 111 and ACEA, to start work on carbon footprint data and digitalization.	b) Develop NWIP for CFP Digitalization and data exchange • Investigate environmental impacts for CFP digitalization • Investigating standardization projects and standards on CFP calculation and representation • Identify information needed for CFP calculation c) Development of data model (SDB) and guidance document • Identify properties of CFP for data exchange • Publish data models • Publish guidance standard on using the data model	JWG launch: 2025 Q1 Publication of data model and guidance standard: TBD
Note: The progress on the actions should be reported in the RSMB.		