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TECHNICAL REPORT

colour inside

Harmonization of environmental performance criteria for electrical and electronic products – Feasibility study

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HARMONIZATION OF ENVIRONMENTAL PERFORMANCE CRITERIA FOR ELECTRICAL AND ELECTRONIC PRODUCTS – FEASIBILITY STUDY

FOREWORD

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IEC TR 63212, which is a Technical Report, has been prepared by IEC technical committee TC 111: Environmental standardization for electrical and electronic products and systems.

The text of this Technical Report is based on the following documents:

Draft TR	Report on voting
111/537/DTR	111/571/RVDTR

Full information on the voting for the approval of this Technical Report can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific document. At this date, the document will be

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INTRODUCTION

Environmental issues have become more and more important globally, especially regarding the impact on ecosystems, climate change, energy and natural resource depletion and impact on human health. In the electrotechnical industry specifically, the exponential growth in the use of electronic devices is another key factor in the need to address the environmental issues with these devices.

The users of electrical and electronic equipment (EEE) products are becoming more aware of these emerging issues and the purchasing of products is no longer based only on preference or technical quality. There is a significant growth for governments, institutions and consumers to also base their decision on the environmental performance of such products.

In response to these trends, we are seeing exponential growth of policies and initiatives aiming to provide information to users about one or more aspects of the environmental performance of a product or service. This is often done through the creation of ecolabels that are bound to a certification procedure by the ecolabel operator. The exact meaning of such ecolabels and their criteria are not well understood by the users. Furthermore, the differences in definitions and certification requirements may hinder trans-regional trade.

Ecolabel programmes that cover a broad range of products operate in countries and regions around the world. Today over 80 ecolabels applying to EEE exist, all focusing on similar types of criteria, but often with slight differences in definitions, levels of ambitions associated with the criteria, and ways to show compliance.

This document assesses the feasibility to harmonize the criteria associated with environmental performance of EEE and provides recommendations. It also includes potential hurdles and challenges of such a harmonization.

This document contains the learnings and outcomes (geographical and eco-benefits) from the review of several prominent ecolabel standards. The conclusions and recommendations are also based on perspectives and opinions provided by outreach discussions with internal and external stakeholders, including ecolabel operators, government bodies, national standards development organizations.

It is important to note that a potential future standard on environmental performance criteria is not intended as an ecolabel standard but is intended to harmonize the criteria that are used for creating such an ecolabel standard. As such, the content of the harmonized criteria should be supportive to ecolabel operators (public or private) and product technical committees wishing to develop or revise an environmental performance standard for a specific product or product group, and is not intended to compete with or replace them.

HARMONIZATION OF ENVIRONMENTAL PERFORMANCE CRITERIA FOR ELECTRICAL AND ELECTRONIC PRODUCTS – FEASIBILITY STUDY

1 Scope

This document provides a feasibility assessment to determine if harmonization of environmental performance criteria is possible and would benefit the electrotechnical industry.

This document is intended as a feasibility study report rather than a standard. It reports the possibility/opportunity to harmonize environmental performance criteria and, with it, the feasibility for future development of an international standard on environmental performance criteria. The learnings and recommendations of this document are based on the review of a number of prominent ecolabel standards available worldwide as well as outreach discussions with internal and external stakeholders.

To enable users of this document to visualize and better evaluate what such a future standard could look like, a concept for an international standard on harmonized criteria for environmental performance assessment of electrotechnical products has been proposed in Clause 8. It is not intended as a final proposal but rather a vision of how such a standard would be structured and how it could be implemented to meet the specific requirements that were identified in the study.

Once again, it is important to emphasize that the potential IEC standard on environmental performance criteria is not intended as an ecolabel standard, but it is intended to be a means for harmonization of the criteria (including the verification requirements of them) that are needed for creating such an ecolabel standard.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

4 Background

4.1 Benefits of the use of ecolabels in general

4.1.1 Ecological benefits

The primary objective of ecolabel programmes is to contribute to a reduction in the environmental impacts associated with products.

In general, the ecolabel programmes are defined by and operate according to ISO 14020 and ISO 14024, considering the entire life cycle of the products. An ecolabel mark can be attached to products after strict examination (certification).

By getting certified to one or more of the ecolabel programmes and, with manufacturers committing to reduce the targeted environmental impacts throughout the entire life cycle of the products, products can benefit by differentiating themselves from similar products which do not adhere to such ecolabel requirements.

For EEE products, the intent of the various ecolabel programmes is to accomplish one or more of the following improvements in the environment:

- Energy conservation/low or less energy consumption: EEE products bearing an ecolabel consume less energy during their use than similar products in the market that do not bear an ecolabel.
- Avoidance/reduction of materials hazardous to the environment: EEE products bearing an ecolabel have to meet strict criteria for the reduction of hazardous substances used in their components, their package and during their manufacture, to avoid harm to the environment or human health.
- Material efficiency/conservation: EEE products bearing an ecolabel use less non-renewable resources by improving design for recyclability or by using recycled materials.
- Improvement of product durability/longevity: EEE products bearing an ecolabel are designed to be repairable and upgradable, and to be supplied with spare parts and consumables, hence they could be used for a longer time.
- Relatively low emissions and waste: EEE products bearing an ecolabel are required to generate low emissions to the water and air, to limit noise emissions and to produce less solid waste in their end-of-life.

Most ecolabel programmes which exist for EEE are for office equipment (e.g. printers), ICT equipment (e.g. computers), consumer products (e.g. home theatre), and household appliances (e.g. washing machines).

4.1.2 Economic benefits

Governments, businesses and consumers have been raising their concern on the environmental impacts of products and, because of this, to bear an ecolabel could be a market advantage for a product. For instance, governments often adopt ecolabel requirements as a tool for encouraging environmental practices through "green procurement". In such cases, an ecolabel could be a vital aspect to open up new public business. Likewise, when consumers are consciously looking for products that pose less impact on the environment, a visible and widely-recognized ecolabel could give them more confidence and encouragement in the purchase choice.

NOTE The term "green procurement" is used by organizations (especially governments) to describe their purchasing policies and practices of reducing environmental impacts of product procurement.

4.2 Problem definition and reason to perform this study

As mentioned earlier, over 80 ecolabels applying to EEE currently exist. Although the ecolabels represent environmental and economic benefits for manufacturers and the users of products, they may also represent a burden because of their large number, diversity, and sometimes, conflicting requirements.

Manufacturers often face requirements for certification in accordance with multiple ecolabel programmes, sometimes even within a single country/region. This can represent significant costs, sometimes with limited revenue opportunity. Ecolabel standards can potentially also lead to diverging design requirements or contain unnecessary differences that create design or verification conflicts. Consumers and governments are faced with a broad variety of products claiming a better performance in some environmental aspects and bearing different ecolabels for which they do not understand the meaning.

Likewise, each ecolabel operator is faced with significant costs and burden to develop basic criteria addressed in such schemes. This represents n-times duplication of similar work in each of the 80 schemes.

The study presented in this document is carried out to compare and analyse a selected number of such ecolabel programmes, and to provide recommendations, including a concept proposal on a possible international standard, on the potential for harmonization of environmental criteria.

Ecolabel programmes are typically operated as voluntary initiatives, although some programmes may be referenced in Green Public Procurement (GPP) requirements of a country or region. The study for this document was carried out holding a neutral position to such voluntary initiatives of any ecolabel scheme and not intending to be related to any regulatory scheme.

4.3 Benefits from harmonizing environmental performance criteria

4.3.1 Potential benefits for regulators and ecolabel operators

- Harmonized criteria adopted by different countries will ensure that their environmental goals are met based on the same requirements.
- Programmes with standards containing different requirements may make international trade cumbersome, as lack of harmonization could potentially have a negative effect on importing and exporting of products. The clearly defined, harmonized and regularly monitored criteria could ensure barriers to international trade are minimized.
- Products that display different ecolabels may not be recognized as providing comparable environmental performance which can create an undue burden by requiring unnecessary and repeated testing and certification.
- Harmonized criteria will improve mutual recognition of ecolabels between countries and regions.
- Harmonized criteria will significantly reduce the effort and resources of individual operators to develop criteria and the respective verification methods.

4.3.2 Potential benefits for standards development organizations (SDOs) and product technical committees (TCs)

- By leveraging the expertise of a global team of environmental assessment experts, product TCs and other SDOs can maintain a set of criteria which provide a best in class environmental performance target for their EEE products and markets.
- It can reduce effort/cost in developing ecolabel standards by leveraging existing harmonized criteria where appropriate.
- It focuses efforts on specific criteria that provides differentiation for various product types.

4.3.3 Potential benefits for product users/consumers

- Harmonized criteria and unified ecolabels will help consumers to recognize "eco-designed" products more easily, so as to increase the choice for such products.
- It will help to promote consumption with less environmental impacts by applying harmonized criteria.
- It will help to identify higher level eco-designed products as they become available and accepted in the market.

4.3.4 Potential benefits for manufacturers and designers

- Harmonized criteria will provide a benchmark for the manufacturers and designers with consistent requirements to enhance resource/energy conservation and ensure environmental protection is considered throughout the life cycle of the product.
- Cost reductions may be realized through consistent requirements for design and manufacturing.

- Enhancing the supply chain understanding around harmonized requirements will support global commerce.
- It will be easier to compare different products by harmonized criteria.

4.3.5 Potential benefits for industry

- Harmonized criteria will contribute to the promotion of technology development in eco-design and manufacturing worldwide.
- An international standard on harmonized environmental performance criteria developed by global professionals will offer an easier and unified way to achieve the balance of environmental performance, safety and functionality, which would also motivate the manufacturers to enhance the technology so that their products could satisfy the standard and expand their presence within the market.
- Harmonized criteria will improve the efficiency of applying the technology to future innovations, reduce the conflicts between ecolabel programmes and promote the further development of technologies with reduced environmental impacts.
- Harmonized criteria will help drive consistent requirements and messages for environmental improvement into a supply chain that typically supports a broad range of EEE products. Inconsistent requirements may create conflicts in design choices, whereas harmonized requirements allow all types of products to leverage eco-design benefits.

5 Selection and review of ecolabel programmes

5.1 Structure of the study

This study was carried out by the following steps focusing on the applied evaluation criteria of Type I Ecolabels (according to ISO 14024) operated in major countries and regions:

STEP 1: Selection and review of a number of ecolabel programmes ensuring product and geographical distribution (Clause 5) and interviews of stakeholders (Clause 6).

STEP 2: Feasibility analysis of the potential for harmonization (Clause 7) including recommendations from internal and external stakeholders (Clause 6).

STEP 3: Concept proposal for possible international standard and potential added value for the stakeholders (Clause 8).

STEP 4: Final conclusion and recommendations (Clause 9).

5.2 Ecolabel programmes review

Among the wide range of ecolabel standards worldwide, this study focused on the most influential ecolabels available in Europe, Asia, and North America. Seven ecolabel programmes[1] that are applicable to EEE, covering the different geographies worldwide, were reviewed and are listed below:

- China Environmental Labelling (China);
- EU Ecolabel (Ecoflower, Europe);
- The Blue Angel Ecolabel (Germany, Europe);
- Nordic Environmental Label - the Swan (Nordic countries, Europe);
- TCO Certified (International);
- EPEAT™ (International);
- Eco Mark labelling scheme (Japan).

[1] The trademarks and trade names mentioned in this document are given for the convenience of users of this document. This information does not constitute an endorsement by IEC of the products named.