SLOVENSKI STANDARD
SIST-TP CLC/TR 50727:2022

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Gospodinjski in podobni električni aparati - Učinkovitost materiala - Ocena uporabnosti EN 4555X

Household and similar electrical appliances - Material Efficiency - Assessment of applicability of EN 4555X

Elektrische Geräte für den Hausgebrauch und ähnliche Zwecke - Materialeffizienz - Bewertung der Anwendbarkeit von EN 4555X

Appareils électriques ménagers et analogues - Efficience matérielle- Évaluation de l'applicabilité de las normes EN 4555X

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TECHNICAL REPORT

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English Version

Material efficiency - Household and similar electrical appliances - Assessment of applicability of EN 4555X

Efficience matérielle - Appareils électriques ménagers et analogues - Évaluation de l'applicabilité de las normes EN 4555X

Materialeffizienz - Elektrische Geräte für den Hausgebrauch und ähnliche Zwecke - Bewertung der Anwendbarkeit von EN 4555X

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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European foreword

This document (CLC/TR 50727:2022) has been prepared by CLC/TC 59X “Performance of household and similar electrical appliances”.

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Introduction

Material efficiency is one building block of a circular economy. To increase the material efficiency of products, different aspects like durability, reparability, reusability, remanufacturability, recyclability and recycled materials content need to be assessed. The horizontal standards of the EN 4555X series provide general methodologies to assess different material efficiency aspects of energy-related products. These horizontal documents need to be adapted in order to be applicable for specific products / product groups.

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1 Scope

This document summarizes the observations of CLC/TC 59X on the EN 4555X series of standards in view to applying them to household and similar electrical appliances.

This document assesses the applicability of EN 45552 – EN 45559 to household and similar electrical appliances that are in the scope of Ecodesign (2009/125/EC).

NOTE EN 45552, EN 45553, EN 45554, EN 45555, EN 45556, EN 45557, EN 45558 and EN 45559 are referred to as the EN 4555X series of standards to increase readability.

This document highlights where further work on metrics and measurement methodologies is necessary or may be needed for household and similar electrical appliances beyond each of the EN 4555X series of standards listed in Clause 5.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

CLC/TR 45550, *Definitions related to material efficiency*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in CLC/TR 45550 apply. In the absence of a definition in CLC/TR 45550, the user of this document may refer to the following sources:

— IEC Electropedia: available at https://www.electropedia.org/

— ISO Online browsing platform: available at https://www.iso.org/obp

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4 General considerations

The considerations on applying the EN 4555X series of standards to household and similar electrical appliances were developed using the following methodology:

— The respective standards were checked for normative requirements;

— The normative requirements were discussed in light of applicability to household and similar electrical appliances;

— The need for generic adaptation and product specific adaptation were identified;

— For EN 45554:2020, reparability were taken as a proxy for the considerations presented in 5.3. These considerations apply to reusability and upgradeability, too.

EXAMPLE:

EN 45554	EN 45554 - General methods for the assessment of the ability to repair, reuse and upgrade energy-related products	Applicability	Normative/ Informativ	Generic Adaptation	Product specific adaptation
§5 §5.1	**Identification of parts to be assessed** **General conditions**				
p. 8	To assess the ability of a product to be repaired, reused or upgraded, the user of this document shall establish a list of priority parts. This shall be based on available information or criteria as defined in Subclause 5.2.	yes	normative	Maybe certain common parts for all household and similar appliances	Add product specific priority parts
p. 8	In order to identify priority parts, all parts shall be considered taking into account the analysis of EN 45552. The assessment described in Clauses 6 and 7 applies to priority parts only.	yes	normative		

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It is advised to use the same approach to further refine the observations for product specific standards. It is further advised to use the existing structure in the EN 4555X series of standards when developing product specific documents.

A general observation is that the EN 4555X series of standards, excluding EN 45557, EN 45558 and EN 45559, are not directly applicable and need an adaptation in the form of a product/product group specific standard.

Uncertainty reporting is essential to ensure measured or assessed data are interpreted correctly. Especially when data of measurements or assessments are to be compared between laboratories or when normative requirements are set up, it is necessary to know the uncertainty with which data can be measured or assessed.

NOTE IEC TR 63250 “HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – METHOD FOR MEASURING PERFORMANCE – ASSESSMENT OF REPEATABILITY, REPRODUCIBILITY AND UNCERTAINTY” deals with the determination of repeatability and reproducibility of test methods used for assessing the performance characteristics of household and similar electrical appliances. It also provides guidance for carrying out round robin tests. It also specifies the uncertainty reporting of measurements of household and similar electrical appliances. It describes methods to estimate the uncertainty of a measured result and to predict the range of measured values when the same appliance is measured in another laboratory applying the same measurement method.

A test method, where applicable, needs to ensure reproducible results, using e.g. IEC TR 63250.

5 Special considerations for applying the EN 4555X series of standards to household and similar electrical appliances

5.1 EN 45552 - General method for the assessment of the durability of energy-related products

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EN 45552 is not directly applicable. An adaptation in the form of a product/product group specific standard for every product/product group is needed. Consideration will also need to be given to different technologies used in a single product category.

The general method to assess the durability of an energy-related product should be used for household and similar electrical appliances. However, some amendments are needed when drafting standards for these appliances:

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— It is recommended to base the assessment of the durability of a product on its reliability and its reparability related to this durability assessment.

— When defining limiting states, all main/primary functions should be equally considered for multifunctional products.

— It is recommended to work on the definition/concept of limiting state. A clear distinction between reversible and non-reversible limiting state is advisable.

5.2 EN 45553 - General method for the assessment of the ability to remanufacture energy-related products

EN 45553 is not directly applicable. An adaptation is needed of the general method to assess the ability of remanufacturing an energy-related product in the form of a product/product group specific standard for every household and similar electrical appliance product/product group.

5.3 EN 45554 - General methods for the assessment of the ability to repair, reuse and upgrade energy-related products

EN 45554 is not directly applicable. An adaptation is needed to the general method to assess the reparability, reusability and upgradeability of an energy-related product in the form of a product/product group specific standard for every household and similar electrical appliance product/product group.

NOTE 1 Repair encompasses repair by professionals as well as repair by laymen.

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EN 45554 lists various criteria, e.g. disassemblability, which are used to assess the reparability/reusability/upgradeability of a product. Each criterion lists various performance categories.

However, some amendments are needed when drafting standards for household and similar electrical appliances:

— Priority parts need to be determined for specific products.

NOTE 2 Guidance in EN 45552 on reliability can be used to determine list of priority parts.

— Applicable criteria to assess the reparability/reusability/upgradeability (e.g. tools, skills) may need to be adapted depending on the priority part list.

— It is possible that not every category in each criterion is applicable for each priority part.

— For certain products, e.g. products for professional use, certain criteria may be left out or adapted.

— Although in general applicable, disassemblability is of minor importance compared to other criteria presented in EN 45554, e.g. availability of spare parts. If disassemblability is considered in product specific documents, the following hierarchy is recommended: 1. Qualitative (A.2 in EN 45554:2020), 2. Disassembly depth (A.4.2 in EN 45554:2020) 3. Time for disassembly (A.3 in EN 45554:2020)

— Although in general applicable, the criterion working environment is of minor importance compared to other criteria presented in EN 45554. Leaving out this criterion may be considered when drafting a product/product group specific standard, as this criterion may already be covered by other criteria, e.g. skill level.

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NOTE 3 Working environment and skills may have a different relevance for specific product groups, e.g. for air conditioners and refrigerators.

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— When drafting a product/product group specific standard based on EN 45554, it is recommended to clearly define the term “interface” and “standard part”, as mentioned in A.4.8 of EN 45554:2020.

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— Assessment criteria for the criterion “repair information available” in EN 45554 should be clearly defined.

— The criterion on return options (see A.4.10 in EN 45554:2020) is not suitable for all products.

— Considering the criterion on data management (A.4.11 in EN 45554:2020), it is only relevant to personal data. It is recommended to consider an additional category in this criterion, to anonymise use data. In addition, it is recommended to prevent the possibility to delete/reset an installed use-meter to ensure a transparent market for second-hand products.

— The aggregation of criteria scores (see A.13 in EN 45554:2020) is only relevant if a scoring system is desired.

5.4 EN 45555 - General methods for assessing the recyclability and recoverability of energy-related products

EN 45555 is not directly applicable. An adaptation is needed to the general method to assess the recyclability and recoverability of an energy-related product in the form of a product/product group specific standard for every household and similar electrical appliance product/product group.

However, some amendments are needed when drafting standards for household and similar electrical appliances:

— One of the major tasks is to specify an End-of-Life treatment scenario. It is advised to develop End-of-Life treatment scenarios on a horizontal level, grouping products according to WEEE categories. As an input for the End-of-Life treatment scenarios, WEEE treatment standards as well as data from WEEE monitoring should be used.

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NOTE 1 WEEE refers to Directive 2012/19/EU of the European parliament and of the council of 4 July 2012 on waste electrical and electronic equipment (WEEE).

NOTE 2 WEEE treatment standards refer to the EN 50625 series of standards.

— “Products of the same type” need to be clearly defined/explained.

— Design-related criteria as well as the relevance of the assessment of the recyclability of critical raw materials are highly product/product group specific. Whether the recyclability of critical raw materials is relevant for a specific product/product group needs to be assessed separately.

NOTE 3 At the time this document was drafted, CLC/TC 111X WG 11 “Ancillary Action on Material efficient recycling and preparation for re-use of CRMs” was established. CLC/TC 111X WG 11 will focus on a mapping exercise on existing standards and other standardization documents on the management of waste containing significant amounts of critical raw materials (CRMs), including the production of secondary critical raw materials of some key waste streams – including household and similar electrical appliances and batteries.

NOTE 4 CRMs can be important for battery operated appliances (Lithium), motors (rare earths) as well as in certain alloys.

— Considering the calculation of the recyclability in Clause 7 of EN 45555:2019, deviations may be needed. A possible amendment to the formulas would be to assess the product in terms of one or more specific material(s), thus dividing by the total mass of the respective material(s) instead of the total mass of the product.

5.5 EN 45556 - General method for assessing the proportion of reused components in energy-related products

EN 45556 is not directly applicable. An adaptation is needed to the general method to assess the proportion of reused components in an energy-related product in the form of a product/product group specific standard for every household and similar electrical appliance product/product group.

When drafting a product/product group specific standard, one of the methods presented in EN 45556 should be chosen. In addition, if the number-based approach, i.e. counting the reused components by number, is chosen, a method on how to consider components, e.g. fasteners, needs to be defined.

5.6 EN 45557 - General method for assessing the proportion of recycled material content in energy-related products

In principle, EN 45557 can be applied directly, as the proportion of recycled material content is rather independent of the assessed product/product group. However, if comparability of similar products is sought, a common scope of the assessment, i.e. which parts/materials of a product are assessed, should be agreed on. This can be done in form of a product/product group specific document.

NOTE At the time of writing, no method is available to physically verify the declared recycled content.

In addition, it is advised to define what constitutes “same process”, as mentioned in EN 45557.

5.7 EN 45558 - General method to declare the use of critical raw materials in energy-related products

In principle, as EN 45558 is directly applicable, a product/product group specific document is not needed. However, if comparability of similar products is sought, a common scope of the assessment, i.e. which parts/materials of a product are assessed, should be agreed on. This can be done in form of a product/product group specific document.

However, it is very difficult to gather the relevant information.