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Access, Terminals, Transmission and Multiplexing (ATTM);
Broadband Deployment and Lifecycle Resource Management;
Part 5: Customer network infrastructures;
Sub-part 1: Homes (single-tenant)

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ETSI

650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C
Association à but non lucratif enregistrée à la
Sous-Préfecture de Grasse (06) N° 7803/88

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Foreword

This European Standard (EN) has been produced by ETSI Technical Committee Access, Terminals, Transmission and Multiplexing (ATTM).

The present document is part 5, sub-part 1 of a multi-part deliverable. Full details of the entire series can be found in part 1 [i.25].

National transposition dates	
Date of adoption of this EN:	26 June 2018
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Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the ETSI Drafting Rules (Verbal forms for the expression of provisions).

"**must**" and "**must not**" are **NOT** allowed in ETSI deliverables except when used in direct citation.

Introduction

The increasing interaction between the different elements of the Information Communication Technology (ICT) sector (hardware, middleware, software and services) supports the concept of convergence in which:

- multi-service packages can be delivered over a common infrastructure;
- a variety of infrastructures is able to deliver these packages;
- a single multi-service-package may be delivered over different infrastructures.

As a result of this convergence, the development of new services, applications and content has resulted in:

- an increased demand for bandwidth, reliability, quality and performance, with a consequent increase in the demand for power which has implications for cost and, in some cases, availability;
- an associated continuous evolution of ICT equipment.

It is therefore important to consider the environmental viability of all network elements necessary to deliver the required services in terms of the management of their operational aspects i.e. energy management (including energy efficiency) and the management of the End-of-Life (EoL) of the ICT equipment.

NOTE: The term "environmental viability" is used while recognizing that well established treatments of "sustainability" feature three separate viability objectives (environmental, economic and social). For the purposes of the multi-part deliverable, only operational aspects of environmental viability are considered. A wider approach to environmental viability takes other factors into account including the use of raw materials and avoidance of hazardous substances in the construction of infrastructure or ICT equipment- these factors are not considered.

New technologies and infrastructure strategies are expected to enable operators to decrease the energy consumption, for a given level of service, of their existing and future infrastructures thus decreasing their costs. This requires a common understanding among market participants that only standards can produce.

The multi-part deliverable specifies the general engineering of various broadband infrastructures to enable the most effective energy management (and management of other resources) and the appropriate measures for EoL treatment of ICT equipment. Certain of the standards may specify requirements for interoperability.

The present document is part 5, sub-part 1 of a multi-part deliverable and specifies requirements for customer network infrastructures within homes (single-tenant) as recipients of broadband deployment in response to the increasing amount of ICT equipment and demand for services. As energy costs in homes continues to rise, strategies are required to optimize energy consumption of all segments of ICT.

The present document been produced by ETSI Technical Committees Access, Terminals, Transmission and Multiplexing (ATTM) and Cable in close collaboration with CENELEC via the Installations and Cabling Co-ordination Group (ICCG).

1 Scope

The present document specifies the general engineering of various broadband infrastructures to enable the most effective energy management (and management of other resources) and the appropriate measures for EoL treatment of ICT equipment.

The present document specifies the requirements for resource management of customer network infrastructures within homes (single-tenant), as recipients of broadband services, as a combination of:

- Energy management while maintaining or even improving the level of service is supported by requirements for:

  i) in new, refurbished and existing buildings: the selection of customer premises equipment and associated power supplies which meet specific energy consumption and energy efficiency requirements (by means of external references);

  ii) in new or refurbished buildings: the provision of appropriate spaces and pathways to accommodate cabling infrastructure.

- EoL of ICT equipment by reference to ETSI EN 305 174-8 [7].

2 References

2.1 Normative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

Referenced documents which are not found to be publicly available in the expected location might be found at https://docbox.etsi.org/Reference/.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

The following referenced documents are necessary for the application of the present document.

[1] CENELEC EN 50173-4:2018: "Information technology - Generic cabling systems - Part 4: Homes".

[2] CENELEC EN 50173-6: "Information technology - Generic cabling systems - Part 6: Distributed building services".

[3] CENELEC EN 50174-2: "Information technology - Cabling installation - Part 2: Installation planning and practices inside buildings".

[4] CENELEC EN 50491-6-1: "General requirements for Home and Building Electronic Systems (HBES) and Building Automation and Control Systems (BACS) - Part 6-1: HBES installations - Installation and planning".

[5] ETSI EN 301 575: "Environmental Engineering (EE); Measurement method for energy consumption of Customer Premises Equipment (CPE)".

[6] ETSI EN 303 423: "Environmental Engineering (EE); Electrical and electronic household and office equipment; Measurement of networked standby power consumption of Interconnecting equipment; Harmonised Standard covering the measurement method for EC Regulation 1275/2008 amended by EU Regulation 801/2013".

[7] ETSI EN 305 174-8: "Access, Terminals, Transmission and Multiplexing (ATTM); Broadband Deployment and Lifecycle Resource Management; Part 8: Management of end of life of ICT equipment (ICT waste/end of life)".

[8] ETSI ES 202 874-1: "Access, Terminals, Transmission and Multiplexing (ATTM); External Common Power Supply for Customer Premises Network and Access Equipment; Part 1: Functional requirements".

[9] ETSI ES 203 199: "Environmental Engineering (EE); Methodology for environmental Life Cycle Assessment (LCA) of Information and Communication Technology (ICT) goods, networks and services".

[10] ETSI TS 102 874-2: "Access, Terminals, Transmission and Multiplexing (ATTM); External Common Power Supply for Customer Premises Network and Access Equipment; Part 2: Integrated Broadband Cable and Television Networks".

[11] ETSI TS 102 874-3: "Access, Terminals, Transmission and Multiplexing (ATTM); External Common Power Supply for Customer Premises Network and Access Equipment; Part 3: CPS Type 1 implementation details".

[12] ETSI TS 102 874-4: "Access, Terminals, Transmission and Multiplexing (ATTM); External Common Power Supply for Customer Premises Network and Access Equipment; Part 4: CPS Type 2.b implementation details".

[13] ETSI TS 102 874-5: "Access, Terminals, Transmission and Multiplexing (ATTM); External Common Power Supply for Customer Premises Network and Access Equipment; Part 5: CPS Type 2.c implementation details".

[14] ETSI TS 102 874-6: "Access, Terminals, Transmission and Multiplexing (ATTM); External Common Power Supply for Customer Premises Network and Access Equipment; Part 6: CPS Type 2.d implementation details".

[15] EU Code of Conduct on Energy Efficiency of External Power Supplies - Version 5.

NOTE: Available at https://e3p.jrc.ec.europa.eu/sites/default/files/documents/publications/code_of_conduct_for_eps_version_5_-_final.pdf.

[16] EU Code of Conduct on Energy Consumption of Broadband Equipment - Version 6.

NOTE: Available at http://publications.jrc.ec.europa.eu/repository/bitstream/JRC106039/ictcoc-ecbe-v6_feb_2017_final.pdf.

[17] EU Code of Conduct on Energy Efficiency for Digital TV Services Systems - Version 9.

NOTE: Available at https://e3p.jrc.ec.europa.eu/sites/default/files/documents/publications/code_of_conduct_digital_tv_service_systems_v9_final.pdf.

[18] IEEE Std 802.3™: "IEEE Standard for Ethernet".

2.2 Informative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

[i.1] Void.

[i.2] CENELEC EN 50174-1: "Information technology - Cabling installation: Installation specification and quality assurance".

[i.3] CENELEC EN 50174-3: "Information technology - Cabling installation: Installation planning and practices outside buildings".

[i.4] CENELEC EN 50491 series: "General requirements for Home and Building Electronic Systems (HBES) and Building Automation and Control Systems (BACS)".

[i.5] CENELEC EN 60603-7 series: "Connectors for electronic equipment".

[i.6] Commission Regulation (EC) No 278/2009 of 6 April 2009 implementing Directive 2005/32/EC of the European Parliament and of the Council with regard to ecodesign requirements for no-load condition electric power consumption and average active efficiency of external power supplies.

[i.7] Commission Regulation (EC) No 642/2009 with regard to ecodesign requirements for televisions.

NOTE: Commission Regulation (EC) No 642/2009 is subsequently amended by Commission Regulation (EU) 2016/2282 with regard to the use of tolerances in verification procedures.

[i.8] Commission Regulation (EC) No 1275/2008 with regard to ecodesign requirements for standby, off mode electric power consumption of electrical and electronic household and office equipment.

NOTE: Commission Regulation (EC) No 1275/2008 is subsequently amended by Commission Regulation (EU) 2016/2282 with regard to the use of tolerances in verification procedures.

[i.9] Commission Regulation (EU) No 801/2013 of 22 August 2013 amending Commission Regulation (EC) No 1275/2008 and Regulation (EC) No 642/2009 by introducing requirements for networked standby.

[i.10] ETSI TS 102 973: "Access Terminals, Transmission and Multiplexing (ATTM); Network Termination (NT) in Next Generation Network architectures".

[i.11] ETSI TS 103 247: "Access, Terminals, Transmission and Multiplexing (ATTM); Singlemode Optical Fibre System Specifications for Home Cabling".

[i.12] ETSI TS 105 175-1: "Access, Terminals, Transmission and Multiplexing (ATTM); Plastic Optical Fibre System Specifications for 100 Mbit/s and 1 Gbit/s".

[i.13] ETSI EN 305 174-2: "Access, Terminals, Transmission and Multiplexing (ATTM); Broadband Deployment and Lifecycle Resource Management; Part 2: ICT Sites".

[i.14] ETSI EN 305 200 series: "Access, Terminals, Transmission and Multiplexing (ATTM); Energy management; Operational infrastructures; Global KPIs".

[i.15] ISO 14040: "Environmental management -- Life cycle assessment -- Principles and framework".

[i.16] ISO/IEC 11801-4: "Information technology - Generic cabling for customer premises: Part 4: Homes".

[i.17] ISO/IEC 11801-6: "Information technology - Generic cabling for customer premises: Part 6: Distributed building services".

[i.18] Recommendation ITU-T L.113: "Vocabulary of terms for broadband aspects of ISDN".

[i.19] Recommendation ITU-T L.1000: "Universal power adapter and charger solution for mobile terminals and other hand-held ICT devices".

[i.20] Recommendation ITU-T L.1001: "External universal power adapter solutions for stationary information and communication technology devices".

[i.21] Recommendation ITU-T L.1002: "External universal power adapter solutions for portable information and communication technology devices".

[i.22] Recommendation ITU-T L.1005: "Test suites for assessment of the universal charger solution".

[i.23] Recommendation ITU-T L.1006: "Test suites for assessment of the external universal power adapter solutions for stationary information and communication technology devices".

[i.24] Home Gateway Initiative HGI-GD035: "HGI Smart Home Use Cases".