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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)

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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 8 of a multi-part deliverable covering lifecycle resource management of broadband deployment as identified below:

Part 1: "Overview, common and generic aspects";

Part 2: "ICT sites";

Part 3: " Core, regional metropolitan networks";

Part 4: "Access networks";

Part 5: "Customer network infrastructures; Sub-part 1 Homes (single-tenant)";

Part 6: "Cable accesss networks";

Part 7: "Digital multiservice cities";

Part 8: "Management of end of life of ICT equipment (ICT waste/end of life)".

Other documents are planned for development to extend this multi-part deliverable. These are listed in annex A and are mentioned in the present document.

National transposition dates	
Date of adoption of this EN:	24 January 2018
Date of latest announcement of this EN (doa):	30 April 2018
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	31 October 2018
Date of withdrawal of any conflicting National Standard (dow):	31 October 2018

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).

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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 this 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.

This 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 has been developed against the following background:

- Waste of Electrical and Electronic Equipment (WEEE) such as the ICT equipment used within broadband deployment systems and mobile networks has joined computers, televisions, refrigerators and mobile telephones phones as one the fastest growing waste streams in the European Union (EU) and is expected to grow to more than 12 million tonnes by 2020.

- Further to the 1997 Kyoto Protocol, the European Commission (EC) has issued, and will issue, Directives and Regulations in order to improve e-waste processing of whole industry sectors and producers and users of ICT equipment are obliged to monitor waste processing of that equipment.

Independent of national regulation and legislation concerning WEEE, the present document specifies requirements for processes in relation to management of EoL for ICT equipment used within infrastructures of broadband deployment.

The objective of the present document is to specify requirements and recommendations for the ICT sector to contribute actively to the WEEE collection objectives as defined in the WEEE Directive.

1   Scope

The present document is part 8 of a multi-part deliverable which specifies requirements for processes in relation to management of end-of-life of ICT equipment.

The present document specifies requirements and recommendations for the ICT sector to contribute actively to the WEEE collection objectives as defined in the WEEE Directive.

Interpretation of regulation and legislation concerning the topic are outside the outside the scope of the present document and are covered by other standards and regulations. However, information given in the present document may be of assistance in meeting these standards and regulations.

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/.

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

Not applicable.

2.2   Informative references

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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]   Directive 2012/19/EU of the European Parliament and of the Council of 4 July 2012 on waste electrical and electronic equipment (WEEE) Text with EEA relevance.

NOTE   Referred to as the "WEEE Directive".

[i.2]   Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment Text with EEA relevance.

NOTE: Referred to as the "RoHS Directive".

[i.3]   Directive 2006/66/EC of the European Parliament and of the Council of 6 September 2006 on batteries and accumulators and waste batteries and accumulators and repealing Directive 91/157/EEC (Text with EEA relevance).

[i.4]   ETSI EN 305 174-1: "Access, Terminals, Transmission and Multiplexing (ATTM); Broadband Deployment and Lifecycle Resource Management; Part 1: Overview, common and generic aspects".

[i.5]   Recommendation ITU-T I.113: "Vocabulary of terms for broadband aspects of ISDN".

[i.6]   Regulation (EC) 1013/2006 of the European Parliament and of the Council of 14 June 2006 on shipments of waste.

[i.7]   Regulation (EC) 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC (Text with EEA relevance).

[i.8]   Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal.

[i.9]   Mandate M/462: "Standardisation mandate addressed to CEN, CENELEC and ETSI in the field of ICT to enable efficient energy use in fixed and mobile information and communication networks".

[i.10]   ETSI EN 305 174-3: "Access, Terminals, Transmission and Multiplexing (ATTM); Broadband Deployment and Lifecycle Resource Management; Part 3: Core, regional metropolitan networks".

[i.11]   ETSI EN 305 174-4-1: "Access, Terminals, Transmission and Multiplexing (ATTM); Broadband Deployment and Lifecycle Resource Management; Part 4-1: Fixed access networks (excluding cable).

[i.12]   ETSI EN 305 174-4-2: "Access, Terminals, Transmission and Multiplexing (ATTM); Broadband Deployment and Lifecycle Resource Management; Part 4-2: Mobile access networks".

[i.13]   ETSI EN 305 174-5-2: "Access, Terminals, Transmission and Multiplexing (ATTM); Broadband Deployment and Lifecycle Resource Management; Part 5-2: Office premises (single-tenant)".

[i.14]   ETSI EN 305 174-5-4: "Access, Terminals, Transmission and Multiplexing (ATTM); Broadband Deployment and Lifecycle Resource Management; Part 5-4: Multi-tenant premises (residential and commercial)".

[i.15]   ETSI EN 305 174-6: "Access, Terminals, Transmission and Multiplexing (ATTM); Broadband Deployment and Lifecycle Resource Management; Part 6: Cable Access Networks".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions apply:

access network: functional elements (that is equipment and infrastructure) that enable communication between an operator site (OS) and a customer network

Base Station (BS): network telecommunications equipment which serves one or more cells within a coverage area of a mobile network

base station site: network distribution node (NDN) which accommodates a base station

broadband: telecommunications service capable of providing more than 2 048 kbit/s (Recommendation ITU-T I.113 [i.5]) full-rate capacity in at least one direction

NOTE: ISDN is not considered to be a broadband technology and is not addressed in the present document.

cable access network: access network provided by cable operators comprising optical fibre and metallic cabling providing direct connection to customer premises

collection (of WEEE): gathering of waste, including the preliminary sorting and preliminary storage of waste for the purposes of transport to a waste treatment facility

core network: functional elements (that is equipment and infrastructure) that enable communication between operator sites (OSs) or equivalent ICT sites

disposal (of WEEE): any operation which is not recovery even where the operation has as a secondary consequence the reclamation of substances, materials or products or energy

Electrical and Electronic Equipment (EEE): equipment which is dependent on electric currents or electromagnetic fields in order to work properly and equipment for the generation, transfer and measurement of such currents and fields and designed for use with a voltage rating not exceeding 1 000 volts for alternating current and 1 500 volts for direct current

End-of-Life (EoL): established point in a product life cycle after a period of primary use and at which a decision is required with regard to reuse, recycling or disposal

Fibre Node (FN): device which performs a media conversion between an optical fibre cable link and a coaxial cable link in a cable access network

fixed access network: access network provided by telecommunications operators comprising optical fibre and metallic cabling providing direct connection to customer premises

fraction (of WEEE): separate output material generated by WEEE treatment

ICT equipment: equipment providing data storage, processing and transport services

> NOTE: A combination of Information Technology Equipment and Network Telecommunications Equipment

ICT site: site containing structures or group of structures dedicated to the accommodation, interconnection and operation of ICT equipment together with all the facilities and infrastructures for power distribution and environmental control together with the necessary levels of resilience and security required to provide the desired service availability

Information Technology Equipment (ITE): equipment providing data storage, processing and transport services for subsequent distribution by network telecommunications equipment (NTE)

mobile access network: telecommunications network in which the access to the network (connection between user equipment and network) is implemented over the air interface

Network Data Centre (NDC): data centre embedded within the core network

> NOTE: A network data centre of a cable access network may be termed a master head-end

Network Distribution Node (NDN): grouping of NTE equipment within the boundaries of an access network providing distribution of service from an operator site (OS)

> NOTE: Where all the Network Telecommunications Equipment (NTE) at a given location is under common governance, any supporting infrastructure for power distribution and environmental control together with the necessary levels of resilience and security required to provide the desired service availability is included as part of the NDN.

Network Interface Unit (NIU): principal device within customer premises allowing user access to the services provided by the cable access network

Network Telecommunications Equipment (NTE): equipment between the boundaries of, and dedicated to providing connection to, core and/or access networks

Network Termination Point (NTP): physical point(s) at which a subscriber is provided with access to the operator network (this may be co-located with an external network test interface)

Operator Site (OS): premises accommodating network telecommunications equipment (NTE) providing direct connection to the core and access networks and which may also accommodate information technology equipment (ITE)

> NOTE 1: An operator site that is only connected to the core network is considered as a network data centre.

> NOTE 2: An operator site of a cable access network may be termed a local head-end.

recovery (of WEEE): any operation the principal result of which is waste serving a useful purpose in replacing other substances, materials or products that have been used for a particular purpose, or waste being prepared to be used for this purpose