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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

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Foreword

This draft Harmonised European Standard (EN) has been produced by ETSI Technical Committee Environmental Engineering (EE), and is now submitted for the combined Public Enquiry and Vote phase of the ETSI standards EN Approval Procedure.

The present document has been prepared under the Commission's standardisation M/544 to provide one voluntary means of conforming to the ecodesign requirements of Commission Regulation (EU) n° 801/2013 [i.2] of 22 August 2013 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for standby, off mode electric power consumption of electrical and electronic household and office equipment (EC No 1275/2008 [i.1]) and ecodesign requirements for televisions (EC No 642/2009 [i.10]).

Once the present document is cited in the Official Journal of the European Union under that Regulation, compliance with the normative clauses of the present document given in table A.1 confers, within the limits of the scope of the present document, a presumption of conformity with the corresponding ecodesign requirements of that Regulation, and associated EFTA Regulations.

Proposed national transposition dates	
Date of latest announcement of this EN (doa):	3 months after ETSI publication
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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).

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Introduction

The methods defined in the present document are intended to define requirements for the measurement of the power consumed by the interconnecting equipment having one or more wired or wireless networked port(s) able to resume a function by way of a remotely initiated trigger or reactivation trigger from a network connection. The present document also provides a method to test power management and whether it is possible to deactivate wireless network connection(s).

For the measurement of low power modes, reference is made to CENELEC EN 50564 [1].

1 Scope

1.1 Equipment in the scope of the present document

The present document specifies methods of measurement of electrical power consumption in networked standby and the reporting of the results for network interconnecting equipment.

Example of interconnecting equipment are in Annex B.

Power consumption in standby (other than networked standby) is covered by CENELEC EN 50564 [1], including the input voltage range.

The present document also provides a method to test power management and whether it is possible to deactivate wireless network connection(s).

The present document applies to electrical products with a rated input voltage of 230 V a.c. for single phase products and 400 V a.c. for three phase products.

The present document is produced under the mandate M/544 and can be used to demonstrate compliance to the EU regulation 801/2013 [i.2].

NOTE 1: The EU regulation 801/2013 [i.2] applies to equipment designed for use with a nominal voltage rating of 250 V and below.

NOTE 2: EU regulation 801/2013 [i.2] does not apply to electrical and electronic household and office equipment placed on the market with a low voltage external power supply to work as intended.

NOTE 3: *"Low voltage external power supply"* is the definition provided in EU regulation 278/2009 [i.3].

NOTE 4: The measurement of energy consumption and performance of equipment during intended use are generally specified in product standards and are not covered by the present document.

NOTE 5: Where the present document is referenced by more specific standards or procedures, these should define and name the relevant conditions to which this test procedure is applied.

1.2 Equipment not in the scope of the present document

The present document does not apply to the measurement of electrical power consumption in networked standby for edge equipment. The edge equipment is a networked equipment that can be connected to a network and interact with that network or other devices and that does not have, as its primary function, the passing of network traffic to provide a network. Edge equipment are covered in CENELEC EN 50643 [i.8].

2 References

2.1 Normative references

References are specific, identified by date of publication and/or edition number or version number. Only the cited version 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 50564 (2011): "Electrical and electronic household and office equipment - measurement of low power consumption".

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] Commission Regulation (EC) No 1275/2008 of 17 December 2008 implementing Directive 2005/32/EC of the European Parliament and of the Council with regard to ecodesign requirements for standby and off mode electric power consumption of electrical and electronic household and office equipment.

[i.2] Commission Regulation (EU) No 801/2013 of 22 August 2013 amending 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, and amending Regulation (EC) No 642/2009 with regard to ecodesign requirements for televisions.

[i.3] 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.4] ETSI EN 301 575 (05-2012): "Environmental Engineering (EE); Measurement method for energy consumption of Customer Premises Equipment (CPE)".

[i.5] European Commission Directorate-General, Joint Research Centre: "Code Of Conduct on Energy Consumption of Broadband Communication Equipment"; Final V5: 20 December 2013.

NOTE: Available at http://iet.jrc.ec.europa.eu/energyefficiency/sites/energyefficiency/files/files/documents/ICT_CoC/cocv5-broadband_final.pdf.

[i.6] Cablelabs: "Data-Over-Cable Service Interface Specifications - DOCSIS® 2.0 Interface".

[i.7] Cablelabs: "Data-Over-Cable Service Interface Specifications- DOCSIS® 3.0 Interface".

[i.8] CENELEC EN 50643: "Electrical and electronic household and office equipment - Measurement of networked standby power consumption of edge equipment".

[i.9] IEC 60050: "International Electrotechnical Vocabulary".

[i.10] Commission Regulation (EC) No 642/2009 of 22 July 2009 implementing Directive 2005/32/EC of the European Parliament and of the Council with regard to ecodesign requirements for televisions.

[i.11] IEC IEV ref 904-03-01: "Enviromental standardization for electrical and elctronic products and systems".

NOTE: Available at http://www.electropedia.org/iev/iev.nsf/display?openform&ievref=904-03-01.

[i.12] IEEE 802.11™-2012: "IEEE Standard for Information technology--Telecommunications and information exchange between systems Local and metropolitan area networks--Specific requirements Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document the terms and definitions given in CENELEC EN 50564 [1] and the following apply:

NOTE: When the present document is used to provide presumption of conformity to a European Directive or Regulation, definitions given in the Directive or Regulation prevail.

edge equipment: networked equipment that can be connected to a network and interact with that network or other equipment and that does not have, as its primary function, the passing of network traffic to provide a network

NOTE: Examples of edge equipment are given in Annex B.

interconnecting equipment: networked equipment that has, as its primary function, the passing of network traffic to provide a network

NOTE: Examples of interconnecting equipment are given in Annex B.

logical network port: network technology running over a physical network port

NOTE 1: EU Commission Regulation n° 801/2013 [i.2] definition.

NOTE 2: Different communication protocols result in different network technologies.

low voltage power supply: external power supply with a nameplate output voltage of less than 6 volts and a nameplate output current greater than or equal to 550 milliamperes

NOTE: EC Commission Regulation n° 278/2009 [i.3] definition.

network: communication infrastructure with a topology of links, an architecture, including the physical components, organizational principles, communication procedures and formats (protocols)

NOTE: EU Commission Regulation n° 801/2013 [i.2] definition.

network availability: capability of the equipment to resume functions after a remotely initiated trigger has been detected by a network port

NOTE: EU Commission Regulation n° 801/2013 [i.2] definition.

network port: wired or wireless physical interface of the network connection located on the equipment through which the equipment can be remotely activated

NOTE 1: EU Commission Regulation n° 801/2013 [i.2] definition.

NOTE 2: The International Electrotechnical Vocabulary (IEC 60050 [i.9]) defines "port (of a network)" as: *"a termination through which signals can enter or leave a network"*.

networked equipment: equipment that can connect to a network and has one or more network ports

NOTE: EU Commission Regulation n° 801/2013 [i.2] definition.

networked standby: condition in which the equipment is able to resume a function by way of a remotely initiated trigger from a network connection

NOTE: EU Commission Regulation n° 801/2013 [i.2] definition.

physical network port: physical (hardware) medium of a network port. A physical network port can host two or more network technologies

NOTE 1: EU Commission Regulation n° 801/2013 [i.2] definition.

NOTE 2: A "physical network port" can consist of multiple "logical network ports".

power management: automatic control mechanism that achieves the smallest input power consistent with a pre-determined level of functionality

NOTE: Source: IEV 904-03-01 [i.11], modified by omission of the note to entry.

reactivation trigger: signal that brings the equipment back to active mode

NOTE: The reactivation may be remotely initiated.

remotely initiated trigger: signal that comes from outside the equipment via a network

NOTE: EU Commission Regulation n° 801/2013 [i.2] definition.

3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

AC	Alternating Current
ADSL	Asymmetric Digital Subscriber Line
ADSL2plus	Second generation ADSL with extended bandwidth
AP	Access Point
BOB	Buffered On Board
CPU	Central Processing Unit
CRC	Cyclic Redundancy Check
DC	Direct Current
DOCSIS®	Data Over Cable Service Interface Specification
DSL	Digital Subscriber Line
ECC	Error-Correcting Code
EFTA	European Free Trade Association
EPON	Ethernet Passive Optical Network
EUT	Equipment Under Test
FB	Frame Buffer
FXS	Foreign eXchange Station
GPON	Gigabyte Passive Optical Network
HiNA	High Network Availability
HPNA	Home Phoneline Networking Alliance
IP	Internet Protocol
LAN	Local Area Network
MTBF	Mean Time Between Failures
OS	Operating System
PCI	Peripheral Component Interconnect
PCI-E	Peripheral Component Interconnect Express
PCI-X	Peripheral Component Interconnect eXtended
POF	Plastic Optical Fiber
PSD	Power Spectral Density
QAM	Quadrature Amplitude Modulation
RF	Radio Frequency
UMA	Uniform Memory Access
USB	Universal Serial Bus
VDSL	Very high speed Digital Subscriber Line
VDSL2	Second generation VDSL
WAN	Wide Area Network
WiMAX	Worldwide Interoperability for Microwave Access
XG-PON	10-Gigabit-capable Passive Optical Network

4 Information required for testing purposes

4.1 Information about networked port(s)

For each type of physical and associated logical networked port, the following information shall be provided by the manufacturer:

a) the default time after which the power management function, or a similar function, automatically switches the equipment into networked standby, and if available, the procedure for:

   1) setting a time shorter than the default time; and/or

   2) manually switching the equipment into networked standby;

b) the characteristics of the reactivation trigger (message, signal, etc.) that is used to reactivate the equipment when in networked standby and how to remotely initiate it;

c) the maximum performance specifications, e.g. the maximum speed or data rate supported by that networked port;

d) the (maximum) power consumption of the equipment in a condition providing networked standby into which power management function, or a similar function, will switch the equipment, if only this port is used for remote activation, e.g. the declared power consumption of the equipment under defined conditions for a type of port;

e) the communication protocol used by equipment;

f) the radio frequency range at which each radio wireless logical network port operates;

g) the characteristics of wireless logical network ports other than radio wireless logical network ports.

NOTE: Annex D describes examples of product information for network equipment.

4.2 Power management function - periods & conditions

The manufacturer shall provide information on:

- whether the equipment under test provides a power management or a similar function. If the EUT does not provide power management or a similar function, the manufacturer shall indicate why such a function would be inappropriate for the intended use;

- the default period of time after which the power management function, or a similar function, switches the equipment automatically into a condition providing networked standby.

NOTE: According to European Regulation n° 1275/2008 [i.1] (as amended by EU Regulation n° 801/2013 [i.2]), the maximum default period is given as 20 minutes during which the equipment has not been providing its main function.

4.3 Activation and deactivation of wireless network connections

The manufacturer shall provide information on the procedure the user needs to follow in order to activate and deactivate each wireless network connection, if any.

The above requirement does not apply to equipment which relies on a single wireless network connection for intended use and does not have a wired network connection.