



World Class Standards

# ETSI “Environmental Engineering”

ETSI Green Agenda Seminar  
26 November 2009

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## ETSI EE “Green” activities

### Recommendations/Guidelines to:

- assess the environmental impact
- reduce the environmental impact

### Requirements on power consumption of specific telecom products. These publications include:

- Methods of measurement
- Power consumption indicators
- Power consumption targets (where defined)



**Recommendations/Guidelines to assess/reduce the environmental impact**

## Environmental Engineering publications

- ❑ **TR102530 “Reduction of energy consumption in telecommunications equipment and related infrastructure”**
  - **Published in June 2008**
  - **This is a Technical Report**
  - **It gives overview of techniques for the reduction of energy consumption in telecom equipment and infrastructure.**
  - **This first edition is mainly focused on Broadband Access technologies.**
  
- ❑ **TR102531 “Better determination of equipment power and energy consumption for improved sizing of power plant”**
  - **Published in April 2007**
  - **This is a Technical Report**
  - **It provides an analysis of power draw data in respect to the design points of power plants**
  - **It gives recommendations for the better sizing of power plants**

## Environmental Engineering publications

- ❑ **TR102532 “The use of alternative energy sources in telecommunication installations”**
  - **Published in June 2009**
  - **This is a Technical Report**
  - **It gives overview of alternative energy sources**
  - **In the first edition no analysis of advantages/disadvantages of different alternative sources have been included**
- ❑ **TR102489 “Thermal Management Guidance for equipment and its deployment”**
  - **This TR has been revised (ref.: DTR/EE-00011)**
  - **The new version of the TR introduces guidelines to increase the efficiency of the cooling system in data center and telecommunication center**
  - **A new installation layout is proposed to improve heat dissipation of equipment**
  - **This new edition has been approved (it is in publication process)**

## Environmental Engineering publications

- ❑ **EN300132-3: “Power supply interface at the input to telecommunications equipment; Part 3: Operated by rectified current source, alternating current source or direct current source up to 400 V”**
  - **Published in August 2003**
  - **This is an European Norm**
  - **This document standardizes a new power interface common to telecom and ICT equipment.**
  - **This is a single power distribution, with backup, suitable to supply all type of equipment in a data center without using UPS or AC/DC converters at 48 V**
  - **The global energy efficiency of this power architecture is greater than the -48V-DC solution**

## Environmental Engineering publications

- ❑ **ES202336-x: “Infrastructure equipment control and monitoring system interface” series**
  - This ETSI Standard is subdivided in 10 subparts for each specific interface/application (different AC power distribution systems, DC power distributions systems, air conditioning systems etc.)
  - The control processes defined in these publications reduce the energy consumption by optimizing equipment settings (e.g. cooling systems)
  - Furthermore, the remote monitoring and setting reduce the CO2 emissions (less on-site interventions)
  - The published parts are:
    - “1” General interface
    - “2” DC power systems
    - “3” AC-UPS power systems
    - “8” Remote power feeding
  - Other parts are in the approval process (e.g. part 5 “AC diesel generator” and 7 “Other utilities”) and the completion of the remaining parts is expected by September 2010

## Environmental Engineering Work Program

- ❑ **DTR/EE-00008 “Environmental Impact Assessment of ICT including the Positive Impact by using ICT Services”**
  - **Publication expected in June 2010**
  - **This is a Technical Report**
  - **It defines criteria to evaluate the energy used for the operation of ICTs and the energy saved in using ICTs (e.g. video-conference, dematerialization of documents etc)**
  - **Draft available at Working Group level**
- ❑ **DES/EE-00014 “Life Cycle Analysis assessment of telecommunication equipment and service: General definition and common requirements”**
  - **Publication expected in February 2011**
  - **This is an ETSI Standard**
  - **Draft available at Working Group level**



## Environmental Engineering Work Program

- ❑ **DEN/EE-00017 “Power supply interface at the input to telecommunications equipment; Part 3: Operated by rectified current source, alternating current source or direct current source up to 400 V”**
  - This is the revision of the EN300132-3
  - Publication expected in May 2011
  - Scope of this revision is to clarify the voltage range, the inrush current and the connection to ground for the power interfaces defined in this standard
  - This revision is managed in cooperation with ITU-T SG5
  - Draft available at Working Group level

## Environmental Engineering Work Program

- ❑ **DTR/EE-00019 “Reduction of energy consumption in telecommunications equipment and related infrastructure”**
  - Publication is expected in June 2010
  - This is the revision of the TR102530
  - It will be improved by adding:
    - methods to reduce diesel running time by using batteries
    - strategy of monitoring of power consumptions will be extended
  - Draft available at Working Group level
- ❑ **RTR/EE-00020 “The use of alternative energy solutions in telecommunication installations”**
  - Publication expected in December 2010
  - This is the revision of the TR102532
  - It will be improved to include:
    - guidelines for the application of alternative energy solutions (both for powering and cooling) based on real deployments and experience available up to now
    - the disposal of waste materials
    - Life Cycle Analysis related to alternative energy solutions (e.g. batteries)
  - First draft in preparation

**Requirements on power consumption of specific telecom products.**

## Environmental Engineering publications

- ❑ **TS102533 “Energy consumption in broad band telecommunication network equipment”**
  - **Published in June 2008**
  - **This is a Technical Specification**
  - **It defines the test methods and power targets for Broadband Access equipment (at the network side)**
  
- ❑ **TS102706 “Energy efficiency of wireless access network equipment”**
  - **Published in August 2009**
  - **This is a Technical Specification**
  - **It defines the criteria for the assessment of power consumption in Wireless Access Networks**

## Environmental Engineering Work Program

- ❑ **DES/EE-00015 “Measurement method and limits for energy consumption in broadband telecommunications equipment”**
  - Publication expected in September 2010
  - This is an ETSI Standard
  - This WI is the continuation of the work already done for the TS102533 and to add further new Access technologies (e.g. GPON) that are part of the latest version of the European Code of Conduct
  - It will replace the TS102533
  - Draft available at Working Group level
- ❑ **DTS/EE-00018 “Measurement methods and limits for Energy consumption of End-user Broadband equipment (CPE)”**
  - Publication is expected in December 2010
  - This WI will cover:
    - the power consumption limits based on the European Code of Conduct of Power Consumption of Broad-Band Access equipment
    - the methodology and the tests conditions to measure the power consumption of end-user broadband equipment that are not covered by the WI DEN/EE-00021
  - First draft in preparation

## Environmental Engineering Work Program

- ❑ **DEN/EE-00021 “Measurement methods for Energy consumption of End-user Broadband equipment (CPE)”**
  - Publication is expected in April 2011
  - This is an European Norm
  - This WI will define the methodology and the tests conditions to measure the power consumption of end-user broadband equipment (CPE) within the scope of the EU regulation 1275/2008 in the following conditions:
    - Off mode
    - Standby
    - Networked Standby
    - Low Power states On mode
  - It is under the frame of the EU Mandate M/439 for the standardization in the field of standby and off-modes power consumption measurement of the Commission Regulation N° 1275/2008
  - No power consumption limits are defined in this EN
  - Draft available at Working Group level

## Environmental Engineering Work Program

- ❑ **DTS/EE-00022 “Energy Efficiency of Wireless Access Network Equipment”**
  - **Publication is expected in February 2011**
  - **This is the revision of the present TS 102 706 to define efficiency parameters taking into account traffic load.**
  - **The Energy Efficiency metric defined shall promote power saving features**
  - **Metric and measurement should be applicable for GSM/EDGE, WCDMA/HSPA, LTE and WiMAX**
  - **Draft available at Working Group level**

## Environmental Engineering Work Program

- ❑ **DTS/EE-00023 “Measurement Methods for Power Consumption in Transport Telecommunication Networks Equipment”**
  - It will be a Technical Specification
  - Publication is expected in June 2011
  - It will define the measurement methods for power consumption, and efficiency indicators for transport equipment
  - The document should be in line with similar published document from ATIS-NIPP TEE
  - No draft available (WI approved in October 2009)
- ❑ **DTS/EE-00024 “Measurement Methods and limits for Power Consumption of Router and switching Networks Equipment”**
  - It will be a Technical Specification
  - Publication is expected in June 2011
  - It will define the measurement methods for power consumption, and efficiency indicators for Router and switching Networks Equipment
  - The document should be in line with similar published document from ATIS-NIPP TEE
  - No draft available (WI approved in October 2009)





## Cooperation with other Organizations

## Liaison established by ETSI EE

### ❑ ETSI ATTM/TM6

- Liaison has been established with ETSI ATTM/TM6 for the WI DTR/EE-02038 (TR 102 614) “Reverse powering of access network; end-user equipment” and for the WI DES/EE-00015 “Measurement method and limits for energy consumption in broadband telecommunications equipment”.

### ❑ ETSI M2M

- Liaison has been received on the mandate M/441. This was considered at the EE#35 meeting and the answer is in preparation by the EE chairmen coordination group.

### ❑ ITU-T

- Liaison has been established with ITU-T Study Group 5 and JCA on ICT&CC as these groups are in charge for the eco-environmental topics.

### ❑ ATIS-NIPP

- Liaison has been established on the energy saving topics.

## Liaison established by ETSI EE

### ❑ Home Gateway Initiative (HGI)

- Liaison has been established on the energy saving topics for CPE.
- Contribution from HGI has been received and is under consideration for the WIs on measurement methods and energy efficiency parameters of CPEs (WI: DTS/EE-00018 and DEN/EE-00021).

### ❑ 3GPP, GSMA & BRAN

- Liaison is in place for cooperation on the WI of energy efficiency of wireless access networks.

### ❑ Broadband Forum

- Liaison is in place for cooperation on energy efficiency of broadband equipment.

### ❑ CENELEC

- Liaison will be established with CENELEC JWG on the mandate M/439 on the standardization in the field of standby and off-mode power consumption measurement for energy using products



**Thank you for the attention!**