

Environmental Engineering (EE); The reduction of energy consumption in telecommunications equipment and related infrastructure

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Foreword

This Technical Report (TR) has been produced by ETSI Technical Committee Environmental Engineering (EE).

Introduction

Recent Life Cycle Assessment (LCA) studies have revealed that the energy consumption of network telecom equipment during operation is one of the most significant environmental impact factor of the telecom business.

Raw material production, manufacturing, distribution and disposal have also an energy impact which can be pointed out in a complete the LCA Telecom operators should pay attention on several factors linked to energy consumption:

- the cost of the energy is significant and rising due to the cost of raw materials and government policies, which will impact on the operating cost of telecom services. It is therefore in the interest of operators to reduce their energy usage, distribution and unit cost;
- CO₂ emission at each step of the life cycle;
- compliancy with current and anticipation with future regulation on energy saving and CO₂ emission reduction.

The present document covers various methods of increasing the energy efficiency of telecom systems by controlling/reducing the energy consumption in the telecommunication network equipment and related infrastructure.

The present document is in particular dedicated to the Broadband Access technology.

1 Scope

The present document is an accumulation of ideas on the methods to increase the energy efficiency of telecommunication systems in order to reduce its operational energy use; the present document considers telecommunication equipment and infrastructure equipment (power station, air cooling, control of equipment, etc.) in telecommunication centres.

The energy efficiency of end-user equipment is not considered.

Focus is on the operational phase.

2 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 reference document (including any amendments) applies.

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2.1 Normative references

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

Not applicable.

2.2 Informative references

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] ETSI EN 300 019 (all series): "Environmental Engineering (EE); Environmental conditions and environmental tests for telecommunications equipment".
- [i.2] ETSI EN 300 132-2: "Environmental Engineering (EE); Power supply interface at the input to telecommunications equipment; Part 2: Operated by direct current (dc)".
- [i.3] ETSI EN 300 132-3: "Environmental Engineering (EE); 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".
- [i.4] IEC 60896-21:2004: "Stationary lead-acid batteries; Part 21: Valve regulated types. Methods of test".
- [i.5] IEC 60950-22: "Information technology equipment Safety; Part 22: Equipment to be installed outdoors".
- [i.6] BS EN 50272-2: "Safety requirements for secondary batteries and battery installations - Part 2: Stationary batteries".
- [i.7] ETSI TS 102 533: "Environmental Engineering (EE) Measurement Methods and limits for Energy Consumption in Broadband Telecommunication Networks Equipment".
- [i.8] IEC 60950-1: "Radiation monitoring equipment for accident and post-accident conditions in nuclear power plants. Part 1: General requirements".