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Operational energy Efficiency for Users (OEU); Energy Consumption Measurement of Operational Information Technology Servers

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Contents

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Foreword

This Group Specification (GS) has been produced by ETSI Industry Specification Group (ISG) Operational energy Efficiency for Users (OEU).

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Introduction

Information and communication technology (ICT) sites constitute one of the most important areas of the worldwide growing energy consumption. They are responsible for at least 2 % of the worldwide greenhouse gas emissions, still growing.

Energy management performance of ICT sites is an important matter. It is now essential if not vital to implement commitments in order to reduce the energy consumption by ICT sites.

Further to the 1997 Kyoto protocol [i.1], the European Commission has issued, and will issue, Directives in order to improve energy management of networks, sites included, of whole industry sectors.

Therefore suppliers and users of ICT equipment are obliged to implement "Green" tools (indicators, recognized Green levels) to monitor the efficiency of their greener networks.

Consequently, ISG OEU has developed the present document in order to define this operational measurement method.

The present document defines requirements for operational measurement of energy consumption by ICT equipment as well as requirements for technical KPIs allowing selection of energy efficient equipment for specific uses.

1 Scope

The present document defines the current standpoint of ISG OEU members in relation to the operational measurement of energy performance and selection of ICT physical servers.

It defines an energy performance operational KPI and its related measurement points, measurement protocols and transmission. The measured KPI is simply and unequivocally linked to the measured ICT physical server.

It defines technical KPIs allowing to predict energy consumption and task efficiency for specific uses. The technical KPIs is simply and unequivocally linked to the measured ICT physical server. These KPIs allow differentiating energy consumption by noble parts (e.g. CPU, memory, disk, I/O) of ICT physical server of the overall consumption including cooling and power supplies.

An ICT physical server is a general-purpose ICT equipment with its own dedicated power supplies. The aforementioned KPIs applies to specified configurations, including type and count of CPU, memory, storage, power supplies, cooling (e.g. fans) and any other add-on hardware expected to be present in production. In particular, for a blade chassis, it includes the blade enclosure, the blades and all the required I/O interfaces (e.g. switches) included in the blade enclosure.

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.

[1] ETSI EN 300 019-1-3: "Environmental Engineering (EE); Environmental conditions and environmental tests for telecommunications equipment; Part 1-3: Classification of environmental conditions; Stationary use at weather protected locations".

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.

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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] Kyoto Protocol to the United Nations Framework Convention on Climate Change.