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Network-based energy consumption measurement – Energy saving system – Conceptual model

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NETWORK-BASED ENERGY CONSUMPTION MEASUREMENT – ENERGY SAVING SYSTEM – CONCEPTUAL MODEL

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Technical specifications are subject to review within three years of publication to decide whether they can be transformed into International Standards.

IEC 62654, which is a technical specification, has been prepared by technical area 12: AV energy efficiency and smart grid applications, of IEC technical committee 100: Audio, video and multimedia systems and equipment.

The text of this technical specification is based on the following documents:

Enquiry draft	Report on voting
100/1928/DTS	100/1987/RVC

Full information on the voting for the approval of this technical specification can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- transformed into an International Standard,
- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

A bilingual version of this publication may be issued at a later date.

INTRODUCTION

Due to unusual climate change such as global warming, the need for technologies regarding energy efficiency and reduction of carbon dioxide emission through energy saving and efficient energy usage is growing. Especially in the IT industry, although its energy consumption is low compared to other business areas, an increase in energy efficiency for whole business areas is expected by using IT technologies. For example, a substantial reduction in energy consumption can be achieved in homes, where most of electrical energy is consumed.

As technologies evolve, the number of electric appliances in homes increases. Accordingly, the consumers tend to check the amount of energy consumption of each appliance and its rate. In addition, for users' convenience, many appliances including multi-media equipment are provided with remote controls, and become network-enabled. Thus, their standby power is increasing considerably.

If the energy consumption of home appliances can be monitored or shown in real time, energy consumption can be reduced by 10 % to 20 % according to statistics. Furthermore, by decreasing the standby mode power for the appliances that are not in use, additional power can be saved. Besides, the use of renewable energies like solar energy or wind energy is spreading in homes. Furthermore, smart grid, an intelligent power network, is expected to be introduced soon. So a system that manages production, consumption, and sales of energy is indispensable.

This specification defines an energy saving system (ESS) providing functions and architecture for a network-based energy consumption measurement model of AV multimedia equipment and systems, efficient usage of electric energy, intelligent energy saving, and a basic possible platform in homes for future power network systems. Specifically, it provides the following:

- basic architecture of ESS;
- functional requirements of an ESS client;
- functional requirements of an ESS server;
- classification of ESS clients;
- classification of ESS servers;
- energy consumption measurement of home electronic devices;
- energy consumption measurement of an ESS client.

NETWORK-BASED ENERGY CONSUMPTION MEASUREMENT – ENERGY SAVING SYSTEM – CONCEPTUAL MODEL

1 Scope

This Technical Specification defines the architecture and functional requirements of an energy saving system (ESS) that measures energy consumption of each home appliance, including AV multimedia equipment and systems, and shows how to reduce its standby power. With respect to energy consumption measurements, this specification extends only to AC power environments in premises.