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Sensing devices for non-intrusive load monitoring (NILM) systems

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The text of this Technical Specification is based on the following documents:

Draft	Report on voting
85/727/DTS	85/750/RVDTS

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this Technical Specification is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

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

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- reconfirmed,
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- replaced by a revised edition, or
- amended.

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INTRODUCTION

Non-intrusive load monitoring (NILM), or non-intrusive appliance and load monitoring (NIALM), is a process for providing estimated energy usage, e.g. by type of use (heating, cooling, etc.) or type of appliance (microwave, etc.) based on load signatures at a single point in the installation.

NILM systems can be used to survey the specific uses of electrical power in homes, buildings or industrial areas (see Figure 1).

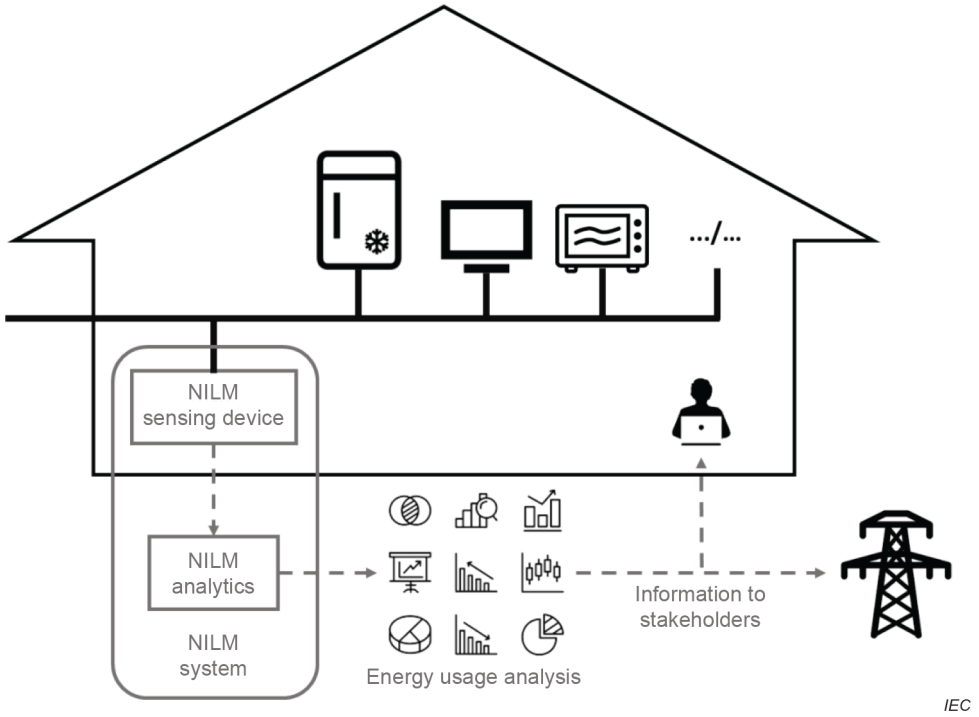

Figure 1 – Principle of non-intrusive load monitoring (NILM)

At the moment, NILM systems are essentially used in AC distribution networks, but DC networks are not excluded.

SENSING DEVICES FOR NON-INTRUSIVE LOAD MONITORING (NILM) SYSTEMS

1 Scope

This Technical Specification is an attempt to provide classification of NILM sensing devices for use in NILM systems, according to the state of the art of NILM technologies.

The classification of NILM analytics and NILM systems, as well as performance indicators for NILM systems, can be considered in the future.

NILM systems produce estimated disaggregation into energy usages. When accurate measurement and analysis of energy consumption and/or other electrical parameters is needed (e.g. for monitoring the electrical installation), systems based on standardized measuring devices (e.g. PMD, PQI or meters) are used.

NOTE Standardized measuring devices have guaranteed accuracy over a specified range and have limited deviations in presence of influence quantities (temperature, frequency deviations, etc.) in addition to safety and constructional requirements. See Annex C for more information.

2 Normative references

There are no normative references in this document.