

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Electrical and electronic household and office equipment – Measurement of networked standby power consumption of edge equipment

Appareils électriques et électroniques pour application domestique et équipement de bureau – Mesurage de la consommation d'énergie en veille avec maintien de la connexion au réseau des équipements de périphérie

63474-2023



THIS PUBLICATION IS COPYRIGHT PROTECTED
Copyright © 2023 IEC, Geneva, Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester. If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de l'IEC ou du Comité national de l'IEC du pays du demandeur. Si vous avez des questions sur le copyright de l'IEC ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de l'IEC de votre pays de résidence.

IEC Secretariat
3, rue de Varembe
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
info@iec.ch
www.iec.ch

About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigendum or an amendment might have been published.

IEC publications search - webstore.iec.ch/advsearchform

The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee, ...). It also gives information on projects, replaced and withdrawn publications.

IEC Just Published - webstore.iec.ch/justpublished

Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and once a month by email.

IEC Customer Service Centre - webstore.iec.ch/csc

If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: sales@iec.ch.

IEC Products & Services Portal - products.iec.ch

Discover our powerful search engine and read freely all the publications previews. With a subscription you will always have access to up to date content tailored to your needs.

Electropedia - www.electropedia.org

The world's leading online dictionary on electrotechnology, containing more than 22 300 terminological entries in English and French, with equivalent terms in 19 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

A propos de l'IEC

La Commission Electrotechnique Internationale (IEC) est la première organisation mondiale qui élabore et publie des Normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

A propos des publications IEC

Le contenu technique des publications IEC est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

Recherche de publications IEC -

webstore.iec.ch/advsearchform

La recherche avancée permet de trouver des publications IEC en utilisant différents critères (numéro de référence, texte, comité d'études, ...). Elle donne aussi des informations sur les projets et les publications remplacées ou retirées.

IEC Just Published - webstore.iec.ch/justpublished

Restez informé sur les nouvelles publications IEC. Just Published détaille les nouvelles publications parues. Disponible en ligne et une fois par mois par email.

Service Clients - webstore.iec.ch/csc

Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions contactez-nous: sales@iec.ch.

IEC Products & Services Portal - products.iec.ch

Découvrez notre puissant moteur de recherche et consultez gratuitement tous les aperçus des publications. Avec un abonnement, vous aurez toujours accès à un contenu à jour adapté à vos besoins.

Electropedia - www.electropedia.org

Le premier dictionnaire d'électrotechnologie en ligne au monde, avec plus de 22 300 articles terminologiques en anglais et en français, ainsi que les termes équivalents dans 19 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Electrical and electronic household and office equipment – Measurement of networked standby power consumption of edge equipment

Appareils électriques et électroniques pour application domestique et équipement de bureau – Mesurage de la consommation d'énergie en veille avec maintien de la connexion au réseau des équipements de périphérie

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 35.020

ISBN 978-2-8322-7029-5

**Warning! Make sure that you obtained this publication from an authorized distributor.
Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.**

CONTENTS

FOREWORD.....	4
INTRODUCTION.....	6
1 Scope.....	7
2 Normative references	7
3 Terms, definitions and abbreviations	7
3.1 Terms and definitions.....	7
3.2 Abbreviated terms.....	9
4 Information required for testing purposes.....	9
4.1 Information about network port(s)	9
4.2 Power management function - periods and conditions.....	10
4.3 Activation and deactivation of wireless network connections	10
5 Measurement conditions.....	10
5.1 Common requirements.....	10
5.2 Test room	11
5.3 Power supply	11
5.4 Power measuring instruments	11
5.5 Configuration of network ports	11
5.6 Measurement uncertainty.....	12
6 Measurement procedure.....	12
6.1 General.....	12
6.2 Wireless network connection management.....	12
6.2.1 Test sequence.....	12
6.2.2 Verifying that wireless connections are deactivated	12
6.2.3 Verifying that a wireless network connection is active.....	12
6.3 Preparation of the EUT and general testing aspects.....	12
6.4 Power management, reactivation, and networked standby power consumption	12
6.5 Measurement of standby power consumption with all network ports disconnected	13
6.6 Measurement of networked standby power consumption with all network ports connected	14
7 Test report.....	14
7.1 Test and laboratory details.....	14
7.2 Details of product under test	14
7.3 Test parameters and network configuration.....	14
7.4 Measured and documented data	15
Annex A (normative) Test conditions – Connection types and test conditions.....	16
Annex B (informative) Additional scope considerations – Equipment classification and examples	17
Annex C (informative) General information on network technologies and network configurations with respect to power consumption – Examples of network port configurations	19
Annex D (informative) Information to be provided to the user and other interested parties	20
D.1 Information available online	20
D.2 Information available in the user manual.....	20
Annex E (informative) Example of a test report template.....	21

Bibliography.....	23
Table A.1 – Test conditions by type of connection.....	16
Table B.1 – Classification of networked equipment	17
Table B.2 – Examples of equipment definition and its classification	18
Table C.1 – Examples of technologies considered for networked standby	19

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[IEC 63474:2023](https://standards.iteh.ai/catalog/standards/sist/98007f45-fae7-4fed-b55e-c645952bda56/iec-63474-2023)

<https://standards.iteh.ai/catalog/standards/sist/98007f45-fae7-4fed-b55e-c645952bda56/iec-63474-2023>

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**ELECTRICAL AND ELECTRONIC HOUSEHOLD AND OFFICE EQUIPMENT –
MEASUREMENT OF NETWORKED STANDBY POWER
CONSUMPTION OF EDGE EQUIPMENT**

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) IEC draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). IEC takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, IEC had received notice of (a) patent(s), which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at <https://patents.iec.ch>. IEC shall not be held responsible for identifying any or all such patent rights.

IEC 63474 has been prepared by technical area 19: Environmental and energy aspects for multimedia systems and equipment, of IEC technical committee 100: Audio, video and multimedia systems and equipment. It is an International Standard.

The text of this document is based on EN 50643:2018. It was submitted to the National Committees for voting under the Fast Track Procedure.

The text of this International Standard is based on the following documents:

Draft	Report on voting
100/3836/CDV	100/3898/RVC

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 International Standard 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 document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

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

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[IEC 63474:2023](#)

<https://standards.iteh.ai/catalog/standards/sist/98007f45-fae7-4fed-b55e-c645952bda56/iec-63474-2023>

INTRODUCTION

The methods defined in this document are intended to define requirements for the measurement of the power consumed by the equipment having one or more wired or wireless network port(s) able to resume a function by way of a remotely initiated trigger or reactivation trigger from a network connection.

For the measurement of low power consumption, reference is made to EN 50564:2011. This document also provides a method to test power management and whether it is possible to deactivate wireless network connection(s).

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[IEC 63474:2023](https://standards.iteh.ai/catalog/standards/sist/98007f45-fae7-4fed-b55e-c645952bda56/iec-63474-2023)

<https://standards.iteh.ai/catalog/standards/sist/98007f45-fae7-4fed-b55e-c645952bda56/iec-63474-2023>

ELECTRICAL AND ELECTRONIC HOUSEHOLD AND OFFICE EQUIPMENT – MEASUREMENT OF NETWORKED STANDBY POWER CONSUMPTION OF EDGE EQUIPMENT

1 Scope

This document specifies methods of measurement of electrical power consumption in networked standby and the reporting of the results for edge equipment.

Power consumption in standby (other than networked standby) is covered by EN 50564, including the input voltage range.

This document also provides a method to test power management and to test whether it is possible to deactivate wireless network connection(s).

NOTE 1 This document applies to electrical products with a rated input voltage of 230 V a.c. for single phase products and 400 V a.c. for three-phase products.

NOTE 2 The measurement of energy consumption and performance of products during intended use are generally specified in product standards and are not covered by this document.

NOTE 3 The term "products" in this document includes household appliances or information technology products, consumer electronics, audio, video and multimedia systems; however, the measurement methodology can be applied to other products.

This document does not apply to the measurement of electrical power consumption in networked standby for interconnecting equipment.

NOTE 4 Measurement of electrical power consumption in networked standby for interconnecting equipment is the subject of ETSI standard EN 303 423.

2 Normative references

The following documents are referred to in the text in such way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 50564:2011, *Electrical and electronic household and office equipment – Measurement of low power consumption*

3 Terms, definitions and abbreviations

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 50564:2011 as well as in the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

3.1.1 edge equipment

networked equipment that can be connected to a network and interact with that network or other equipment and that does not have, as its primary function, the passing of network traffic to provide a network

Note 1 to entry: Examples of edge equipment are given in Annex B.

3.1.2 interconnecting equipment

networked equipment that has, as its primary function, the passing of network traffic to provide a network

Note 1 to entry: Examples of interconnecting equipment are given in Annex B.

3.1.3 network

communication infrastructure with a topology of links, an architecture, including the physical components, organisational principles, communication procedures and formats (protocols)

3.1.4 network availability

capability of the equipment to resume functions after a remotely initiated trigger has been detected by a network port

3.1.5 network port

wired or wireless physical interface of the network connection located on the equipment through which the equipment can be remotely activated

Note 1 to entry: International Electrotechnical Vocabulary (IEC 60050) defines "port (of a network)" as: "a termination through which signals can enter or leave a network".

3.1.6 networked equipment

equipment that can connect to a network and has one or more network ports

3.1.7 networked standby

condition in which the equipment is able to resume a function by way of a remotely initiated trigger from a network connection

3.1.8 networked television set

television set that can connect to a network and has one or more network ports

3.1.9 reactivation trigger

signal that brings the EUT back to an active mode

Note 1 to entry: The reactivation is remotely initiated by a signal that comes from outside the equipment via a network.

3.1.10 logical network port

network technology running over a physical network port

3.1.11

physical network port

physical (hardware) medium of a network port that can host two or more network technologies

Note 1 to entry: A physical network port can consist of multiple logical network ports.

3.1.12

power management

automatic control mechanism that achieves the smallest input power consistent with a pre-determined level of functionality

[SOURCE: IEC 60050-904:2014, 904-03-01, modified – Note 1 to entry has been omitted.]

3.2 Abbreviated terms

For the purposes of this document, the following abbreviations apply.

CPU	central processing unit
DOCSIS ¹	Data Over Cable Service Interface Specification
EUT	equipment under test
HDMI® ²	High-Definition Multimedia Interface
HiNA	high network availability
LAN	local area network
MoCA® ³	Multimedia over Coax Alliance
PLC	power line communication
USB	Universal Serial Bus (IEC 62280 series)
WAN	wide area network

[https://standards.iteh.ai/catalog/standards/sist/98007f45-fae7-4fed-b55e-c645952bda56/iec-](https://standards.iteh.ai/catalog/standards/sist/98007f45-fae7-4fed-b55e-c645952bda56/iec-63474-2023)

4 Information required for testing purposes

4.1 Information about network port(s)

For each type of physical and associated logical network port, the following information shall be provided by the manufacturer:

- a) the default time after which the power management function, or a similar function, automatically switches the equipment into networked standby, and, if available, the procedure for:
 - 1) setting a time other than the default time; and/or
 - 2) manually switching the equipment into networked standby;

NOTE 1 The word "manually" in the above context refers to any user operation intervention such as pushing a button on the EuT itself, or sending a message from another machine.

¹ The DOCSIS specifications are the result of a cooperative effort undertaken at the direction of Cable Television Laboratories, Inc. for the benefit of the cable industry and its customers. This information is given for the convenience of users of this document and does not constitute an endorsement by IEC of the product named. Equivalent products may be used if they can be shown to lead to the same results.

² HDMI® and HDMI® High-Definition Multimedia Interface are registered trademarks of HDMI Licensing Administrator, Inc. This information is given for the convenience of users of this document and does not constitute an endorsement by IEC of the product named. Equivalent products may be used if they can be shown to lead to the same results.

³ MoCA® is a global member-driven, non-profit Alliance developing multi-gigabit coax connectivity standards. This information is given for the convenience of users of this document and does not constitute an endorsement by IEC of the product named. Equivalent products may be used if they can be shown to lead to the same results.

- b) the characteristics of the reactivation trigger (message, signal...) that is used to reactivate the equipment when in networked standby and how to remotely initiate it;
- c) the maximum performance specifications, for example the maximum speed or data rate supported by that network port;
- d) the (maximum) power consumption of the equipment in a condition providing networked standby into which power management function, or a similar function, will switch the equipment, if only this port is used for remote activation, for example the declared power consumption of the equipment under defined conditions for a type of port;
- e) the communication protocol used by equipment, except for networked televisions;
- f) the radio frequency range at which each radio wireless logical network port operates;
- g) the characteristics of wireless logical network ports other than radio wireless logical network ports.

NOTE 2 Annex D describes examples of product information for networked equipment.

4.2 Power management function - periods and conditions

The manufacturer shall provide information on:

- a) whether the equipment under test provides a power management or a similar function. If the EUT does not provide power management or a similar function, the manufacturer shall explain why such a function would be inappropriate for the intended use;
- b) the default period of time after which the power management function, or a similar function, switches the equipment automatically into a condition providing networked standby.

NOTE 1 A maximum default period of 20 min can be given during which the equipment has not been providing its main function.

NOTE 2 A maximum default period of 4 h following the last user interaction and/or channel change can be given.

4.3 Activation and deactivation of wireless network connections

The manufacturer shall provide information on the procedure the user needs to follow in order to activate and deactivate each wireless network connection, if any.

The above requirement does not apply to equipment that relies on a single wireless network connection for intended use and does not have a wired network connection.

5 Measurement conditions

5.1 Common requirements

The general conditions for measurements specified in EN 50564:2011, 4.1 shall apply.

The tests described in Clause 6 shall be repeated, if applicable, for each type of network port.

Each type of logical network port (as declared by the manufacturer) using the same physical network port shall be tested.

Where the manufacturer declares that multiple physical network ports have the same technical and logical specification(s), tests shall be executed with any one of these physical network ports being connected (the other ones being deactivated for wireless network ports and disconnected for wired network ports).

When a logical network port, as declared by the manufacturer, supports multiple editions of a communication technology standard (e.g. for backward compatibility), the logical network port is tested only in accordance with the specifications of the latest standard edition used by the EUT for retrieving a reactivation message. Examples are shown in Annex C.

NOTE Some devices can be designed to switch to a lower data rate during networked standby in order to further reduce energy consumption.

In order to restrict influence of external factors, the reactivation trigger shall be initiated within a local test network without external network connections. If a network connection external to the local test network is necessary for remote activation, this external network connection shall be established and maintained during testing so that the reactivation trigger can be received; where identified in the information provided by the manufacturer (see Clause 4), the stability of this external network connection may be checked or monitored.

EXAMPLE 1 External factors can be maintenance, information/software update or a denial of service attack.

EXAMPLE 2 External network connections can be WAN, cable network, satellite link, etc.

Where this document is referenced by more specific standards or procedures, these should define and name the relevant conditions to which this test procedure is applied.

5.2 Test room

The requirements specified in EN 50564:2011, 4.2 shall apply.

5.3 Power supply

The requirements specified in EN 50564:2011, 4.3 shall apply.

5.4 Power measuring instruments

The requirements specified in EN 50564:2011, 4.4 shall apply.

5.5 Configuration of network ports

When testing only one type of network port, the procedure given in 6.4 shall be followed. The network ports of the EUT, other than the network port under test, shall be deactivated for wireless network ports and disconnected for wired network ports, if possible. Logical network ports that can only be activated and deactivated together shall be tested together following the same procedures used for individual network ports.

The network port under test shall have networked standby functionality enabled and shall be connected to appropriate test equipment which will form the network configuration for the test. If more than one type of reactivation trigger is available per type of network port to reactivate the EUT when in networked standby, the configuration resulting in the highest power consumption in networked standby shall be determined, as given below:

- a) At least once, all configurations shall be set up with the information provided in 4.1 and tested following the procedure given in Clause 6 to determine the related power consumption to determine the configuration with the highest power consumption.
- b) When the configuration with the reactivation trigger resulting in the highest power consumption in networked standby is known, this configuration shall be selected to conduct the measurement. The source of this information shall be additionally given in the test report.
- c) When the power consumption does not depend on the configuration and its reactivation trigger used, the configuration with the default reactivation trigger setting shall be selected.

The test equipment shall be able to test the EUT at the maximum performance level of the network port's protocol supported by hardware and software of the EUT.

When testing the maximum configuration of network ports (see 6.6), the maximum number of wired network ports allowed for be the EUT shall be connected, and the maximum number of wireless network ports allowed by the EUT shall be activated.

5.6 Measurement uncertainty

Uncertainty introduced by the instrument that measures the input power shall be determined according to EN 50564:2011, 4.4.1. EN 50564:2011, Annex D also describes the determination of measurement uncertainty, taking other parameters into account.

In order to avoid additional sources of uncertainty for networked equipment, cable lengths and measurement distances specified in Annex A shall be applied. The test network should be restricted to the necessary test and ancillary equipment, directly related connected devices and the EUT.

6 Measurement procedure

6.1 General

The requirements specified in EN 50564:2011, 5.1 shall apply.

6.2 Wireless network connection management

6.2.1 Test sequence

Wireless network connection management shall be tested using the following steps, using (where applicable) information supplied by the manufacturer:

- a) identify all wireless network connections supported by the EUT and make sure the EUT is connected to a suitable transceiving device (e.g. antenna), using information provided in accordance with 4.3;
- b) deactivate all wireless network connections supported by the EUT;
- c) verify that all wireless transmitters corresponding to the wireless network connections identified in step 1 are deactivated, in accordance with 6.2.2.

NOTE On some edge devices, a wireless network technology running on different frequencies (e.g. RF networks operating at 2,4 GHz and 5,0 GHz) is seen as a single wireless network connection, if carrier frequencies cannot be switched on or off separately.

6.2.2 Verifying that wireless connections are deactivated

To verify that wireless transmitters are off, a suitable detection device shall be used to determine that wireless signals are not transmitted by the EUT in the operating frequencies or wavelengths identified by the manufacturer for each wireless network connection.

NOTE For determining whether an RF transmitter has been deactivated, an antenna connected to a suitable measurement instrument (including an RF Spectrum Analyser, RF Fast Fourier Transform analyser, or an RF Receiver) is used.

6.2.3 Verifying that a wireless network connection is active

A wireless network connection is deemed to be active when it allows the EUT to identify other devices or to be identified by them by transmitting wireless signals.

6.3 Preparation of the EUT and general testing aspects

The requirements specified in EN 50564:2011, 5.2 shall apply.

6.4 Power management, reactivation, and networked standby power consumption

This clause describes the procedure to test the power management function, measure the network standby power consumption, and test the reactivation function. This procedure shall be applied to each type of logical network port on an individual basis. Where network ports cannot be managed separately, the procedure shall be applied to groups of network ports managed simultaneously.

The EUT shall be tested using the following steps, using information supplied by the manufacturer (see Clause 4):

- a) determine the main functions provided by the EUT (including whether it has HiNA functionality) as well as other devices which depend on any function provided by the EUT in order to operate as intended. If the EUT is equipment with HiNA functionality, the HiNA function shall be enabled;
- b) configure the EUT and dependent devices so that the power management function automatically initiates the transition of the EUT into a condition having networked standby and the logical network port through which the EUT will be reactivated is enabled; disable all other logical network ports;
- c) measure, with an accuracy of 10 s, the time after which the power management function automatically initiates the transition of the EUT into a condition providing networked standby by the following steps:
 - leave the EUT in a mode where it is not providing a main function (as determined in step 1) and no other devices are dependent on its functions. Start the timer used for measurement;
 - measure the time taken until the power management function initiates an automatic power mode change instigating network standby;

NOTE 1 According to the EU Regulation 801/2013, the default period of time after which the power management function, or a similar function, switches the equipment automatically into a condition providing networked standby is not to be set to exceed 20 minutes.

NOTE 2 After no more than 4 hours in on mode following the last user interaction and/or a channel change, the television set can be automatically switched from on mode to a condition of networked standby or any other condition which does not exceed the applicable power consumption requirements for conditions providing networked standby.

- d) when the EUT has entered a condition providing networked standby, measure the power consumption in accordance with EN 50564:2011, 5.3. For an EUT requiring connection to an external network, if stability of networked standby power consumption is not attained, then the network connection shall be checked to detect influence of external factors (see 5.1);

NOTE 3 Instability of power consumption due to external influences can be compared with periodic or cyclic patterns being present. See EN 50564:2011, 5.3.2, Note 2.

- e) verify that the EUT can be reactivated through the network port configuration being tested. The EUT shall be reactivated using a network trigger appropriate for the logical network port being tested. The required reactivation trigger shall be declared by the manufacturer. If this reactivation trigger uses proprietary technology, it shall be specified in detail or provided by the manufacturer. If the reactivation trigger does not initiate reactivation of the EUT, the EUT is not considered to be in networked standby.

Steps b) to e) above shall be repeated for each type of logical network port.

If the EUT can be manually set to networked standby, perform steps d) and e) of 6.4 after manually setting the EUT to networked standby. This shall also be repeated for each type of logical network port.

6.5 Measurement of standby power consumption with all network ports disconnected

The EUT shall be tested using the following steps, using information (including whether it has HiNA functionality) supplied by the manufacturer (see Clause 4):

- a) configure the EUT and dependent devices so that all wired network ports are disconnected and all wireless network ports are deactivated (in accordance with 5.5);
- b) configure the EUT that the power management function automatically initiates the transition of the EUT into a condition having standby (or a similar low power mode). If applicable, the EUT may be manually set to standby;