

Guidelines accompanying Commission Regulation (EU)
No xxxx/2013

Table of Contents

1. Purpose of the guidelines and disclaimer	2
2. Scope of the Amendment:	2
3. Inappropriate for the intended use	5
4. Definitions	7
5. Ecodesign requirements	13
<i>A. Non-networked equipment route vs. networked equipment route</i>	<i>13</i>
<i>B. Networked equipment route</i>	<i>16</i>
1. Network standby requirements	16
2. Wireless network ports	19
3. Standby requirements	20
6. Timing	25
Testing	26
<i>A. Tests for networked standby</i>	<i>26</i>
<i>B. Tests for standby</i>	<i>27</i>
7. Information to be provided	28
<i>A. Websites</i>	<i>28</i>
<i>B. Websites & user manuals</i>	<i>28</i>
<i>C. Technical documentation</i>	<i>28</i>
Annex	30
1. Consolidated lot 6/26 text	30

1. Purpose of the guidelines and disclaimer

This guide must be read in conjunction with the already published guide for SME's to regulation 1275/2008

(http://ec.europa.eu/energy/efficiency/ecodesign/doc/legislation/guidelines_for_smes_1275_2008_okt_09.pdf)

For the purpose of these guidelines, Regulation means Regulation EC/1275/2008, Amendment means Regulation EU/xxxx/2013 and amended Regulation means the Regulation including the Amendment. For convenience an unofficial consolidated version of the amended Regulation is added as Annex.

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2. Scope of the Amendment:

The scope of the Amendment, as the scope of the Regulation, applies to equipment which is made commercially available as a single functional unit and is intended for the end-user;

- a single functional unit:

A single functional unit is similar to an apparatus as defined in the EMC directive 2004/108 and is endowed with a Declaration of Conformity.

The EMC Directive defines "apparatus" as any finished appliance, or combination thereof made commercially available (i.e. placed on the market) as a single functional unit, intended for the end-user, and liable to generate electromagnetic disturbance, or the performance of which is liable to be affected by such a disturbance.

Examples of products not being a single functional unit include components that may be inside the defined products (and do not have their own CE-marking and Declaration of Conformity),

- intended for the end-user:

This is equipment which can be used by individuals directly and is being used "physically" by the end-user. In particular, the end-user has direct control over activation and de-activation of the product.

In addition, for products to be in scope, they should be listed in the Annex I of regulation 1275/2008 and they should be dependent from energy input from the mains and have a nominal voltage rating of less than 250V.

Apart from adding networked standby the following change has been made in Article 1 of the Amendment:

This Regulation establishes ecodesign requirements related to standby and off mode, and networked standby electric power consumption for the placing on the market of electrical and electronic household and office equipment.

The scope does specify clearly that this regulation is handling the conditions and requirements when a device is being placed on the market. As such, devices need to

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meet the requirements in this regulation upon delivery; any subsequent change e.g. by the user or a software update is out of the scope of the regulation.

This implies that it may be allowed to have the end-user change the configuration of the device into another setting which might not meet the requirements specified in this regulation.

Furthermore, Article 1 also explicitly exempts products with a low voltage power supply. (low voltage external power supply is an external power supply with a nameplate output voltage of less than 6 volts and a nameplate output current greater than or equal to 550 mill amperes) This was already done indirectly in the past via Regulation EC/278/2009, but is now explicitly mentioned. However for the equipment to be exempted, the equipment has to work as intended with the low voltage external power supply supplied with the equipment. Just adding a low voltage external power supply will not exempt the equipment.

Several products are exempted from the complying with the power consumption limits in a condition providing network standby for Tier 1 and/or Tier 2.

- Annex II 3(e) explains that for Tier 1 the power consumption limits in a condition providing network standby shall not apply to
 - (a) printing equipment with a power supply of a rated power larger than 750 W;
 - (b) large format printing equipment;
 - (c) tele-presence systems;
 - (d) desktop thin clients;
 - (e) workstations;
 - (f) mobile workstations;
 - (g) small-scale servers;
 - (h) computer servers;
- Annex II 4(c) explains that for Tier 2 the power consumption limits in a condition providing network standby shall not apply to
 - (i) large format printing equipment,
 - (j) desktop thin clients
 - (k) workstations
 - (l) mobile workstations
 - (m) small-scale servers
 - (n) computer servers

It is the intention that once a new vertical regulation is published for a specific product [family](#) and this regulation includes standby and network standby, then it also will include [some](#) text that refers to and amends the amended Regulation in order to take the requirements for standby and network standby out of the amended Regulation and into the specific regulation.

An example can be found in the computer Regulation EU/xxxx/2013 [and is shown here below](#).

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Article 4

Amendment to Regulation (EC) No 1275/2008

Point 2 of Annex I to Regulation (EC) No 1275/2008 is replaced by the following:
'2. Information technology equipment intended primarily for use in the domestic environment, but excluding desktop computers, integrated desktop computers and notebook computers as defined in Commission Regulation (EU) [...] *[Numbering of the Regulation to be added before publication in the OJ].*'

Voluntary Agreements are not considered to be regulations, as such they cannot exempt products from this regulation 1275 and [the Amendment](#).

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3. Inappropriate for the intended use

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As the regulation is a horizontal regulation, it typically covers all household and office devices which are not regulated in a vertical way. However, it might be that some of the requirements do not apply to a certain type of devices because it would not make sense to implement them;

Therefore, the regulation allows to claim, if applicable, that it is inappropriate for the intended use to apply power management.

The Explanatory Memorandum to Commission Regulation (EU) No.../... amending regulation 1275/2008 gives a hint on how and when to invoke inappropriateness for the intended use.

Electrical and electronic household and office equipment is subject to Commission Regulation (EC) Nr. 1275/2008 ("Standby Regulation") and hence obliged to switch into standby/off-mode after the shortest possible time appropriate for the intended use. The requirement does not apply where the power management requirements are inappropriate for the product's intended use (Annex II, 2(d)). This is the case for products that provide network availability for the purpose of resuming an application and that are able to be reactivated via a maintained network link or connection, such as gateways, printers, complex set top boxes and networked televisions.

This part of the memo discusses the standby requirements from lot 6, not network standby from lot 26. However it explains how the inappropriateness clause can and should be used if it really does not make any sense to implement [power management](#). Below are some examples of devices that would not enter standby mode due to the inappropriateness clause.

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- A clock should not enter standby mode when no one is looking at it.

- A surveillance camera & system should not enter standby mode because nobody passed by during the last 10 minutes

- A router [or gateway](#) should not enter standby, it would bring the whole network down.

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- [Devices which have the main function of monitoring health, monitoring the environment, monitoring safety should always perform their monitoring activity. By consequence it is inappropriate for the intended use of these devices to enter network standby and standby.](#)

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- A device with wired RF interfaces (such as DOCSIS) is still not able to differentiate between a disconnected coax port and a temporary loss of signal from the network. Thus, this type of equipment is intended to continue scanning for signals from the network when the DOCSIS interface is not logically-disconnected.

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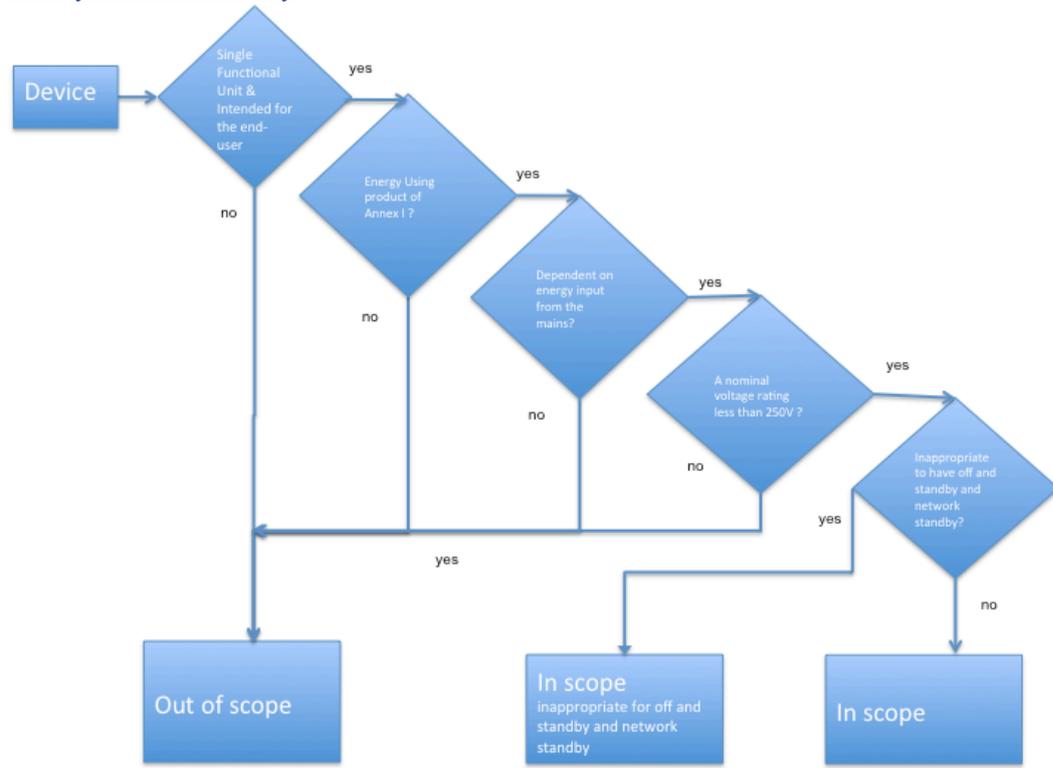
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- [Devices delivering voice services such as an eMTA \(Embedded-Multimedia Terminal Adapter\) device cannot permit any delay in wake-up time because a consumer needs to be able to reach the emergency services at all times - an exception. This interface \(and co-requisite DOCSIS interface\) must always be active and cannot have any standby functions.](#)

“Inappropriate for intended use” may be also used when - for a specific port technology - network standby technology including the remote activation function is (still) not available within industry:

- the network standby protocol standard is not (yet) published.
- the available HW and SW technology (e.g. chipset, driver, ...) on the market still don't incorporate that functionality.

The flowchart below provides the decision tree to be followed to determine if a device is in scope or whether is would be inappropriate to have power management into off, standby or network standby.



4. Definitions

10. **'network'** means a communication infrastructure with a topology of links, an architecture including the physical components, organisational principles, communication procedures and formats (protocols);

A network is an infrastructure that enables connections between devices. Networks can be local (Local Area Networks or LANs which themselves can be wired or wireless) and global (Wide Area Networks or WANs)

Examples of technologies/interfaces that can connect devices and form a network:

- For WAN
 - Wired technologies: ADSL, VDSL, DOCSIS cable, GPON, EPON, FXO, fax, [DVB-C](#)
 - Wireless technologies : WiMAX, 3G, LTE , DVB-T, DVB-T, [DVB-S](#)
- For LAN/in-home networks
 - Wired technologies: Ethernet, MoCA, HDMI CEC, HDMI TDMS, DVI, Bluetooth, USB, Firewire, Thunderbolt, HPNA, Power line, [Homeplug](#), MHL ([Mobile High definition Link](#)),
 - Wireless technologies: WiFi, DECT, ZigBee, Bluetooth

A network is only present when at least two devices or two single functional units are connected to one another. A single functional unit is similar to an apparatus as defined in the EMC directive 2004/108 and is endowed with a Declaration of Conformity. This means that a network cannot consist within an apparatus. E.g. a remote controller which is sold together with the device does not create a network.

[A device which can be controlled by a smartphone via Bluetooth forms a network with the smartphone.](#)

13. **'network port'** means a wired or wireless physical interface of the network connection located on the equipment through which the equipment is able to be remotely activated;

The regulation has provided a specific meaning different than the common industry meaning of **network port**. A network interface can only be designated a network port if the manufacturer has implemented a mechanism that allows a function within the device to be remotely activated via an external signal. A trigger coming from within the equipment itself is not a remote activation.

As will be discussed later, a manufacturer clearly needs to indicate in the technical documentation which network interfaces are network ports.

When a device has multiple [physical](#) USB network ports, a USB 2.0 and a USB 3.0 network port, these are considered to be different network ports (if indicated by the manufacturer as such).

Similarly a network port that supports 10Base-T Ethernet port is a different port than a network port that supports 100Base-T or a 1G Ethernet port.

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14. **'logical network port'** means the network technology running over a physical network port;

15. **'physical network port'** means the physical (hardware) medium of a network port. A physical network port can host two or more network technologies;

A physical network port may consist of multiple logical network ports.

For example, a single physical network port consisting of a cable F-connector could be used to concurrently support logical network ports consisting of multiple network technologies such as DOCSIS and MoCA. In this case, the two logical network ports would be the DOCSIS interface and the MoCA interface.

A logical network port is considered "logical-disconnected" when the network technology associated with the logical network port is disabled or switched off via vendor-defined means.

17. **'networked equipment'** means equipment that has the ability to connect to a network and has one or more network ports;

Once that interface ports have been declared in the technical documentation to be network ports, the device becomes networked equipment.

If no interfaces have been specified as network ports, then the device is not considered to be networked equipment. As such it won't need to meet the network standby criteria but it will have to comply with the "normal" Off mode, Standby/Another Condition mode, and power management function criteria.

An exemption is when the equipment provides the functionalities of a router or network switch or wireless network access point or hub or modem or VoIP telephone or video phone; in that case the equipment is considered networked equipment regardless the declaration of the manufacturer.

18. **'networked equipment with high network availability' (HiNA equipment)** means an equipment with one or more of the following functionalities but no other, as the main function(s): router, network switch, wireless network access point, hub, modem, VoIP telephone, video phone;

Standalone networking equipment such as routers, switches,... that have routing, switching,... as their main function are being defined as HiNA equipment.

Networked equipment with high network availability is intended to maintain the activity of its primary function in order to provide a WAN and/or LAN permanent network connectivity.

19. **'networked equipment with high network availability functionality' (equipment with HiNA functionality)** means equipment with the functionality of a router, network switch, wireless network access point or combination thereof included, but not being HiNA equipment;

Devices such as TV's, radio's, printers, projectors, Complex Set Top Boxes which also include a router, switch or wireless access point are defined as equipment with HiNA functionality.

All networked equipment which cannot be classified as HiNA or as equipment with HiNA functionality automatically are considered as LoNA equipment. The term

LoNA equipment is not defined in the regulation, but for the sake of simplicity and to avoid repetition, we describe the term LoNA equipment in this guide as follows:

- LoNA equipment is usually an edge/end device that has a primary function in addition to the ability to be connected to one or several networks.
- The network connection may be used as part of the primary function or as part of a secondary function.
- LoNA equipment may act as a source (e.g. document scanner) of or a sink (e.g. media player, projector, printer) or both as a source and sink (Network Attached Storage) for data on the network and may depend on interaction with the network to change operational mode.

Annex II 9b also explains us that when no information is given about the HiNA functionality, then the device becomes LoNA:

*the technical documentation shall contain the following elements:
... whether the equipment qualifies as HiNA equipment or equipment with HiNA functionality; if no information is provided the equipment is considered not to be HiNA equipment or equipment with HiNA functionality;*

11. **'networked standby'** means a condition in which the equipment is able to resume a function through a remotely initiated trigger via a network connection;

When the networked standby condition is implemented, the device provides the capability to be reactivated to an active mode by a network trigger received on the network port.

In the networked standby condition, there is network integrity communication (periodic signals exchanged between the devices to confirm their presence in the network) between devices but no payload traffic such as a print job being sent or other data transfer related to a main function of the device.

In this condition, the device is inactive (not performing a main function) but needs to be in a state that allows it to be reactivated via a network signal.

The condition under which a technology provides networked standby varies greatly. Some technologies may define a "magic packet" that acts as a remotely initiated trigger. One example of technology utilizing a "magic packet" is Ethernet WOL. Some technologies may instead define a protocol that provides a trigger to place a logical network port into and out of a state that maintains the network connection at a reduced power. Examples of these technologies include Energy Efficient Ethernet, ADSL 2+, DOCSIS 3.0.

This network reactivation trigger is not exclusive and comes if needed in addition to other types of reactivation such remote control key press, internal timer, etc.

A network standby condition differs quite well depending on the type of device (LoNA or HiNA):

Edge devices (LoNA) such as TV's, printers, projectors, complex set top boxes which have network ports can go to a lower sleep mode when they are not performing a main function. This power management function typically starts after a period of

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Other technologies allow the power of the link between devices to scale with traffic, but don't provide a mechanism to reactivate the device itself. Examples of these are Energy Efficient Ethernet (802.11az), ADSL 2+, the new Docsis implementation that falls back to 1 channel when traffic is low. -

inactivity of several minutes. In a condition with networked standby, these devices power down portions of the device, significantly reducing the device functionality, in order to lower the power while maintaining a network connection for receipt of a remote trigger.

Networking devices (HiNA) however, such as routers, switches and wireless access points cannot power down significant portions of the device – as part of their main function. HiNA equipment has to be able to process and forward packets all the time. They also must forward remote triggers from other edge devices to their destination.

Networking devices commonly scale their power with traffic such that the more traffic is processed, the more the device consumes. They enter a networked standby state immediately after processing the last packet. HiNA devices must be prepared to receive packets at any time and may leave the networked standby state immediately when another packet arrives. Hence they are called High Network Availability products.

Note: resume time is not part of the requirements of the Amendment - it is up to the manufacturer to consider the requirements of their customers and to specify and implement the appropriate resume time in relation with the functionalities provided by the equipment.

[This graph below illustrates how most devices behave with respect to network standby, depending on their place on the network.](#)
[Edge devices are mostly LoNA equipment. For network standby to be available, they cannot shut down the interface that expects an external trigger. However, a large part of the device can be put 'to sleep' when not performing a main function.](#)
[Networking devices and network infrastructure devices scale their power with traffic; the more traffic is processed, the more the device consumes.](#)
[The links between networked equipment cannot be shut off, since they would not be able to send or receive the external triggers. However, those links can scale with traffic. E.g. Ethernet 802.11az, DOCSIS 3.0, ADSL2+,....](#)

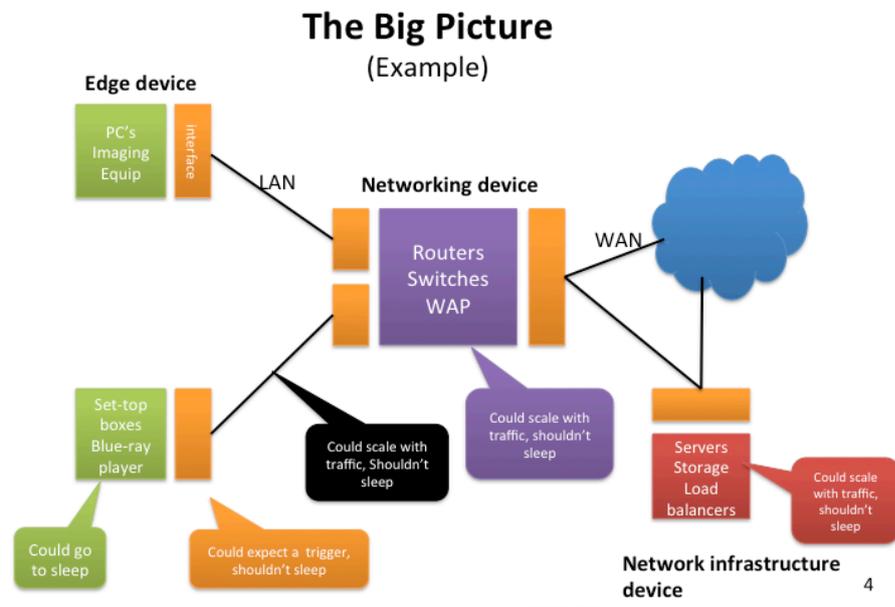
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Annex gives an illustration of HiNa and LoNA devices in the network and explains which parts of a device can be turned off while remaining in a network standby state.

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Other terms used:

Deactivate:

Whenever the term “deactivate” is used in the regulation, it is meant that a network port can be disabled or switched off via an intended intervention of the user via menu or button/switch.

Deactivation is possible for wired and wireless network ports

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Logical-Disconnect:

The term “logical-disconnect” means that the network technology associated with the logical network port is deactivated.

Disconnect:

Whenever disconnect is being used in the regulation (without “logical” before it), it means that a cable is being disconnected/pulled out of the wired equipment under test. Disconnection in this context is only possible for wired network ports.

If multiple logical network ports are hosted by a single physical network port, disconnection of the physical network port would disconnect all associated logical network ports.

Reactivation function:

In this regulation, the term “reactivation” has a meaning which is distinct from the terms deactivation/activation of an interface or network port. The term instead refers to resuming a function within a device. For example a device receives a trigger to

resume from a standby state via a trigger as defined in 1275/2008 or to resume from a trigger from a networked standby state.

Remotely Activated:

In this regulation, remotely activated is referring to a function within a device, whereby it is able to resume normal operation from a network standby state upon receiving an external network trigger from the network.

Placing on the market:

Is defined in the ecodesign directive as making available for the first time on the EU market with a view to its distribution or use within the EU, whether for reward or free of charge and irrespective of the selling technique.

Default condition:

Is the state of the equipment as delivered by the manufacturer (or service provider) and made available for the first time in the EU market without the end-user having changed any settings.

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5. Ecodesign requirements

A. Non-networked equipment route vs. networked equipment route

As described in the section with definitions, a device is considered networked equipment

- which has network interfaces that can remotely activate the device.

And

- where the manufacturer has indicated in the technical documentation that those interfaces are network ports. (see Annex II 9b)

the number and type of network ports and, except for wireless network ports, where these ports are located at the equipment; in particular it shall be noted if the same physical network port accommodates several types of network ports;

*If no information is provided, the equipment is considered **not** to be networked equipment unless it provides the functionalities of a router, network switch, wireless network access point, hub, modem, VoIP telephone, video phone.*

Thus HiNA devices (router, switch, wireless AP,...) are always considered networked equipment; they scale their power with traffic. So the decision process below is not applicable for HiNA devices.

However, other equipment such as edge devices can either be networked equipment or non-networked equipment.

In a case where, by product design, a network interface does not allow remote reactivation then the interface is not considered to meet the term “network port” as specifically defined in the regulation.

A manufacturer may also deliberately choose not to declare an interface as a network port even when remote activation is possible.

If the network interface is not declared as a network port, then this particular network interface shall not be taken into account to determine if the device is a networked equipment and this interface will not be required to comply with requirements for network ports as defined under this measure

If no network interfaces are declared to be network ports then the device is a non-networked equipment, but as soon as one interface is declared to be a network port, the device becomes networked equipment (see flowchart [below](#)).

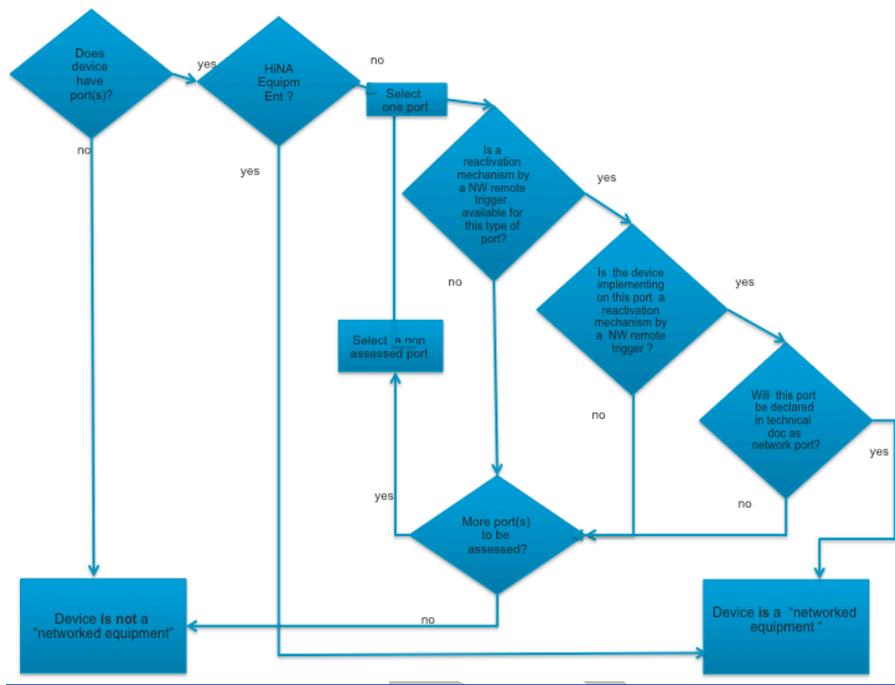
[As soon as one interface has been declared as a network port in the technical documentation, the device must comply with the new networked standby and off/standby requirements for networked equipment, which is described under chapter B.](#)

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In the case of non-networked equipment, the device must still comply with the following requirements as defined in the Regulation:

- implement an off/standby/other mode (unless inappropriate) and
- a power management function that turns the device into the standby state when not performing the main function (unless inappropriate).

Implementing such a low power standby solution is likely to provide greater energy efficiency than a higher power network standby solution.

However, when a device is not declared to be networked equipment per the regulation, it won't be possible for the manufacturer to claim that it is inappropriate to have power management into standby because of the need to maintain a connection. The following section in Annex II 9d is clear on this:

The need to maintain one or more network connections or to wait for a remotely initiated trigger is not considered a technical justification for exemption from the requirements set out in 2(d) in the case of equipment that is not defined as networked equipment by the manufacturer..

Examples:

A light switch with dimmer only has 1 interface: a zigbee interface. The zigbee protocol does not have a reactivation mechanism. This light switch is non-networked equipment.

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|

A webcam has only 1 interface: an Ethernet interface. Although Wake on Lan (WoL) exists for ethernet technologies, the manufacturer decided not to implement WoL over Ethernet.

This webcam is non-networked equipment

A printer has 3 interfaces: Wifi, Ethernet and USB. The manufacturer decided not to implement WoWLAN (wake on Wireless LAN) but did implement a reactivation mechanism for USB and Ethernet. In the technical documentation, the USB and Ethernet interfaces have been identified as network ports.

This printer is networked equipment.

A complex set-top box has 4 interfaces: DOCSIS, HDMI, Ethernet, Wi-Fi.. The manufacturer decided not to indicate in the technical documentation that those interfaces are network ports even though some of them might have a working reactivation function.

This set-top box is non-networked equipment.

A router has 2 types of interfaces: Ethernet and Wi-Fi. The manufacturer decided not to indicate in the technical documentation that those interfaces are network ports.

| This router is networked equipment anyway, because it provides routing functionalities; it is a HiNA device.

A video gateway has 4 interfaces: DOCSIS, Ethernet, MoCA, and Wi-Fi. The manufacturer indicated in the technical documentation that those interfaces are network ports.

This video gateway is networked equipment.

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B. Networked equipment route

1. Network standby requirements

Requirement 3 (b) *Power management for networked equipment*

Equipment shall, unless inappropriate for the intended use, offer a power management function or a similar function. When networked equipment is not providing a main function and other energy-using product(s) are not dependent on its functions, the power management shall switch equipment after the shortest possible period of time appropriate for the intended use of the equipment, automatically into a condition having networked standby.

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 shall not exceed 20 minutes.

In a condition providing networked standby, the power management function may switch equipment automatically into standby mode or off mode or another condition which does not exceed the applicable power consumption requirements for standby and/or off mode.

Requirement 3 (e) *The power consumption of HiNA equipment or equipment with HiNA functionality in a condition providing networked standby into which the equipment is switched by the power management function, or a similar function shall not exceed 12,00 W.*

The power consumption of other networked equipment in a condition providing networked standby into which the equipment is switched by the power management function, or a similar function, shall not exceed 6,00 W.

Requirement 4(c) *The power consumption of HiNA equipment or equipment with HiNA functionality, in a condition providing networked standby into which the equipment is switched by the power management function, or a similar function, shall not exceed 8,00 W.*

The power consumption of other networked equipment in a condition providing networked standby into which the equipment is switched by the power management function, or a similar function, shall not exceed 3,00 W.

Requirement 5: *As of 1 January 2019: The power consumption of networked equipment other than HiNA equipment or equipment with HiNA functionality, in a condition providing networked standby into which the equipment is switched by the power management function, or a similar function, shall not exceed 2,00 W.*

Within 20 minutes	Tier 1 (1-Jan-2015)	Tier 2 (1-Jan-2017)	Tier 3 (1-Jan-2019) Subject to review in 2016
HiNA equipment	12 W	8 W	<u>8 W</u>
Equipment with HiNA functionalities	12 W	8 W	<u>8 W</u>
LoNA equipment	6 W	3 W	2 W

Thus after 20 minutes of inactivity of a main function and when other devices connected in the network don't depend on the networked equipment, power management shall be invoked in order to meet the targets in the table.

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1. When the device is not providing a main function:
A device can have several main functions. When performing one of these main functions, the device is considered to be active and does not need to enter the network standby state.
Examples of such main functions could be: receiving scheduled software updates, downloading software, warming up, monitoring health, monitoring the environment, monitoring safety, delivering sound, video or images(via HDMI, USB, Ethernet...), charging (via USB, MHL,...), performing a scheduled background recording, searching for a network ...

In addition, it is acknowledged that equipment, reactivated by an external or internal trigger, can be in an active mode for a limited period of time independently from its main function(s), e.g. to enable servicing or downloading of software. Power management should ensure that the product returns into a condition having networked standby after having completed the tasks.

2. When the functionalities of other devices do not depend on the networked equipment:
It is not the goal of the Amendment to let the network infrastructure collapse after 20 minutes of inactivity. The network standby state of one device should not hinder the functionality of the other devices in the network e.g. the networked device should permanently provide energy to others devices such as PoE devices (e.g. IP phone; IP videophone), USB device (3G or WiFi Key), etc

If the device is not providing a main function and the functionalities of other devices do not depend on the networked equipment, devices must enter a condition with networked standby unless inappropriate for the intended use.

It is permitted that a device could meet the targets instantaneously. In that case, there is no need to see some sort of power management to become active after 20 minutes.

[E.g. a LoNA device with an idle or on mode of less than 6W should not provide power management \(in 2015 - Tier 1\)](#)

As described in the scope section of this guidance document, this regulation treats products at the point in time when they are placed onto the market. It does not prohibit that the end-user can change this default configuration into a state which does not meet the requirements. As an example, it is allowed to give the end-user the opportunity to change the time for the power management function to operate from the default 20 minutes to 30 minutes or even higher. It may be advised to add statements in the Graphical User Interface (GUI) or menu or in the user documentation that changing the default configuration may result in higher energy use of the product.

The power management function, or a similar function, shall be available for all network ports of the networked equipment.

Every interface which is indicated in the technical documentation to be a network port shall by definition be able to activate a function of the device remotely. Every port which is declared a network port must be tested.

The power management function, or a similar function, shall be activated, unless all network ports are deactivated. In that case the power management function, or a similar function, shall be activated if any of the network ports is activated.

The Regulation is handling the conditions and requirements when a product is being placed on the market. It is perfectly permissible to deactivate all network ports upon delivery to save power. However, once a network port is activated again, it shall allow the equipment to be remotely activated again and the equipment will need to comply with the networked standby requirements

We need more info here what happens if ports are deactivated when shipped, but then re-enabled by user

Exemptions exist for

1. Printing equipment with a power supply of a rated power larger than 750W
2. Telepresence systems
3. Large format printers
4. Workstations
5. Desktop Thin Clients
6. Small scale servers
7. Computer servers
8. Mobile workstations

Those devices (1-8) don't need to meet the network standby requirements as defined in 3 (b) (Tier 1) and devices 3-8 don't need to meet requirement 4 (c) (Tier 2).

However they still are subject to requirements 3 (a) need to deactivate wireless network ports and 3 (c) / 3 (d) / 4 (a) / 4 (b) need to have off/standby

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2. Wireless network ports

As of 1 January 2015

Requirement 3 (a) *Possibility to deactivate wireless network connection(s)*

If networked equipment has the ability to connect to a wireless network, equipment shall offer the possibility for the user to deactivate the wireless network connection(s). This requirement does not apply to products which rely on a single wireless network connection for intended use and have no wired network connection.

For any networked equipment it shall be possible to deactivate any wireless network connection, regardless whether this is a network port or not, for example via a menu or a physical switch.

This is to ensure that the user can save energy by deactivating the wireless connections.

E.g.

- on a smart book computer, there is a button to turn on/off wireless functions easily,
- the wireless network port can be deactivated only by connecting a wired cable in a wired network port
- a menu or switch deactivates simultaneously the wired and wireless network ports.

However, if the device relies solely upon the wireless network to perform its function, for example, a wireless speaker system, then the ability to deactivate the wireless connection is not required.

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3. Standby requirements

a. As of 1 January 2015

Requirement 3 (c) *Networked equipment that has one or more standby modes shall comply with the requirements for these standby mode(s) when all network ports are deactivated.*

Requirement 2 (a), (b) & (c) request the device to have either an off mode or a standby mode or another condition, unless it can be demonstrated in the technical documentation that providing either of them is inappropriate for the intended use of the product.

Requirement 3 (a) requests that the device must be able to deactivate all wireless network ports, but there is no requirement to implement a mechanism to deactivate wired network ports.

The objective of this requirement 3 (c) is to request that, when a networked equipment is no longer logically connected to any network (after deactivating all wired and wireless network ports), the power consumption in off/standby mode/ another condition mode should not be higher than the power consumption in standby mode of non-networked equipment:

IF the device has a standby mode as defined in requirement 2 (b),

And

IF all the network ports can be and are deactivated (e.g. via a menu/ switch),
THEN the device may not consume more than 0,5W in a standby/other mode without display or not more than 1W with display.

Networked equipment which does not offer the capability to deactivate all wired network ports, has no obligation to provide a standby mode or another condition which complies with the 0,5W power limit.

Examples:

- A printer has the following network ports: USB and Ethernet. The printer also has a standby mode. When the USB and Ethernet ports have been deactivated, then the standby mode which is offered by the printer needs to be below 0,5W (or 1W offering display).

- A DVD player has a HDMI [CEC](#) network port and has a standby mode. The [manufacturer decided that the user cannot](#) deactivate the HDMI port. The standby mode does not need to be below 0,5W

- A network switch has an off mode, but no standby mode. The switch does not need to have a 0,5W [standby](#) mode.

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Requirement 3 (d) *Networked equipment other than HiNA equipment shall comply with the provisions under 2(d) when all network ports are deactivated.*

LoNA and Equipment with HiNA functionality must have a power management function into a standby mode or off mode, unless inappropriate for the intended use. The objective of this requirement 3 (d) is to request that when a networked equipment is no longer logically connected to any network (all wired and wireless network ports are deactivated), the equipment must provide the same power management function as the non-networked equipment:

- IF all wired and wireless network ports can be and have been deactivated (e.g. via a menu or a switch,...)

And

- IF the device does not provides the main function

And

- IF other energy-using product(s) are not dependent on its functions,

THEN the networked equipment must switch into off mode, or standby mode or another condition mode after the shortest possible time appropriate for the intended use.

Mind that there is no requirement on how soon this must happen, it can be different than 20 minutes.

It is possible to justify in the technical documentation that it is inappropriate for the intended use to implement this function.

This power management function under 2(d) should be activated by default when the product is put on the market.

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When all network ports can be and have been deactivated then it must go into standby. However this power management function must not be invoked when it is not possible to deactivate all wired network ports or when there is only a single wireless network port.

Thus if a device other than HiNA device has:

- no wired network port:
 - o and 1 or more wireless network port which **can** be deactivated, then it shall provide a power management function under 2(d)
 - o and only 1 wireless network port which **cannot** be deactivated, then it has no obligation to provide a power management function under 2(d)
- one or more wired network port and no wireless network ports:
 - o If all the wired network ports can be deactivated, then it shall provide a power management function under 2(d)
 - o If not all wired network port can be deactivated it has no obligation to provide a power management function under 2(d)

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Examples:

A complex set-top box has 2 network ports: Ethernet and Homeplug but the Homeplug port cannot be deactivated. The set-top box does not need switch into off/standby/any other condition.

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b. As of 1 January 2017:

Requirement 4 (a) *Networked equipment that has one or more standby mode(s) shall comply with the requirements for these standby mode(s) when all wired network ports are disconnected and when all wireless network ports are deactivated.*

Requirement 2 (c) mandates that a device has either an off mode or a standby mode, unless it can be demonstrated in the technical documentation that providing either of them is inappropriate for the intended use of the product.. .

Requirement 3(a) mandates that a device has a way to deactivate the wireless network port in the device via e.g. a menu/key/switch.

It is generally possible to disconnect the cables from a wired network port, eg Ethernet, but may not be possible for some ports eg Homeplug.

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The objective of this requirement 4 (a) is to mandate that when a networked equipment is no longer physically connected (for wired network ports) or/and logically connected (for wireless network ports) to any network, the power consumption in standby mode (or another condition mode) should not be higher than the power consumption in standby mode of non-networked equipment:

IF the device has a standby mode as defined in point 2 of Article 2,
And
IF all the wireless network ports are deactivated
And
IF all the wired network ports are disconnected
THEN the device may not consume more than 0,5W in a standby mode without display and 1W with display.

Remark:

- The regulation says nothing about the methodology to be used to detect the disconnection of a wired interface. Disconnection could occur:
 - . At the mechanical level (e.g. plug or connector insertion),
 - . At the physical level (e.g. medium detection, voltage or current measurement, electric signal detection, energy measurement)
 - . or at a more logical level protocol layer(s) disconnection.
- The regulation does not require the equipment to wake up from standby (or networked standby) upon the re-connection of the wired interface; however when possible it could be convenient for the end user to do it if the device did so automatically.
- The regulation says nothing about the behaviour of the device when all wireless ports are deactivated and when some wired ports are disconnected and connected while other wired ports are deactivated while they remain connected, however we may presume that the power consumption in standby mode (or another condition mode) power consumption should not be higher than the power consumption in standby mode of non-networked equipment

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Requirement 4 (b) Networked equipment other than HiNA equipment shall comply with the provisions under 2(d) when all wired network ports are disconnected and when all wireless network ports are deactivated.

The objective of this requirement 4 (b) is to mandate that when a LoNA equipment or an equipment with HiNA functionality is no more physically or/and logically connected to any network, the equipment must provide the same power management function as the non-networked equipment:

- IF all wireless network ports have been deactivated (e.g. via a menu or a switch...)

And

- IF all wired network ports have been disconnected

And

- IF the device does not provide the main function

And

- IF other energy-using product(s) are not dependent on its functions, THEN the networked equipment must switch into off mode, or standby mode or another condition mode after the shortest possible time appropriate for the intended use, but there is no requirement on how soon this must happen.

It is possible to justify in the technical documentation that it is inappropriate for the intended use to implement this power management function into off, standby mode or another condition.

The power management function must be invoked even when it is not possible to deactivate all wired network ports.

Remark:

- The regulation says nothing about the behaviour of the device when all wireless port are deactivated and when some wired ports are disconnected and connected while others wired ports are deactivated while they remain connected, however we may presume that in such situation, the equipment must provide the same power management function as the non-networked equipment
- It is clear that the requirements of 2015 to enter standby when all network ports are deactivated are also in force after 1/1/2017.

Examples:

- A complex set-top box has 2 network ports: Ethernet and HDMI. The HDMI port cannot be deactivated. The set-top box needs to switch into off/standby/any other condition when when the complex set-top box is not performing a main function and both the Ethernet and HDMI cable have been disconnected from their ports.
- A Blue-Ray player has 3 network ports : Wifi, Ethernet and HDMI. When the Wifi port has been deactivated and the Ethernet and HDMI cables have been disconnected, then the Blue-Ray player needs to switch into off/standby/any other condition.
- A device that is not considered HiNA equipment with wired RF network ports (such as DOCSIS or MoCA) should not automatically go into standby mode when all wired network ports are disconnected and when all wireless network ports are deactivated because is it considered inappropriate for the intended use of the device: it is not possible for such equipment to differentiate between a disconnected coax port and a temporary loss of signal from the network. Recovery from a fault condition requires

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this type of equipment to continue to scan for signals from the network when the DOCSIS or MoCA interface is not logically-disconnected.

- Disconnecting the Power Line or Homeplug network port from a device will turn the device off, as the network port is shared with the mains power connector.

- A router is HiNA equipment, thus it does not need to enter standby when all cables are disconnected because the requirement is only for *Networked equipment other than HiNA equipment*.

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6. Timing

[As from 7 January 2010](#)

[Non-networked equipment needs to comply with Point 1 of Annex II: off mode, standby mode](#)

[As from 7 January 2013](#)

[Non-networked equipment needs to comply with Point 2 of Annex II: off mode, standby mode, power management](#)

Networked equipment doesn't need to implement power management for standby until 1/1/2015.

However, devices that do not have any declared network ports within the technical documentation, are considered not to be networked equipment; the devices that are not considered to be networked equipment must comply with requirements set out in 2(d) (i.e. power management for standby). Also, *the need for maintaining one or more network connections or waiting for a remotely initiated trigger is not considered a technical justification for the exemption from the requirements set out in 2(d) in the case of equipment that is not defined as networked equipment by the manufacturer.*

Thus it is strongly advised that manufacturers begin to declare network ports in the documentation as soon as possible. [Otherwise those products will not be considered networked equipment, making it more difficult to claim inappropriate to have standby.](#)

[As from 1 January 2015](#)

[Networked equipment needs to comply with Point 3 of Annex II :](#)

[The need to deactivate wireless network ports and the networked standby and standby requirements](#)

[And with Point 7 of Annex II:](#)

[The information requirements](#)

[As from 1 January 2017](#)

[Networked equipment needs to comply with Point 4 of Annex II:](#)

[The networked standby and standby requirements](#)

[As from 1 January 2019](#)

[Networked equipment needs to comply with Point 5 of Annex II:](#)

[The networked standby requirements will be subject to review in 2016](#)

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Testing

A. Tests for networked standby

The test procedures can be described as follows:

Tier 1:

Step 1: Take a product configured in its default configuration and based on product technical documentation:

- Identify if the product is a HiNA equipment, a LoNA equipment or an equipment with HiNA functionalities.
- Identify the types of media a network port supports and the number of networked ports (including logical network ports).
- For each network port identify the network trigger to be used to reactivate a function within the product

Step 2: The unit is put in the on mode

Step 3: For each type of network port:

Step 3a: Connect a randomly chosen network port to the appropriate network and activate the port.

Step 3b: When possible deactivate all other network ports that are not under test and disconnect all cables from the other wired network ports.

Step 3c: Ensure that the unit does not perform a main function so that it is able to go into the networked standby mode. After 20 minutes measure average power consumption over a period not less than 5 minutes to check that the power is below the power target associated with the type of the equipment.

Step 3d: Using the appropriated network trigger, check that a function within the equipment is remotely reactivated from networked standby to on mode.

Repeat steps 3a to 3d for all other types of network ports.

To be compliant: every measurement must be below the relevant power target and each network trigger must reactivate the product.

Tier 2:

Step 1: Take a product configured in its default configuration. Based on product technical documentation.

- Identify if the product is a HiNA equipment, a LoNA equipment or an equipment with HiNA functionalities,
- Identify the types of media a network port supports and the number of network ports (including logical network ports)
- For each networked port identify the network trigger to be used to reactivate a function within the product

Step 2: The unit is put in the on mode and all wired network port are activated (if they are not by default)

Step 3: For each type of network port:

Step 3a: Connect a randomly chosen network port to the appropriate network and activate the port.

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Step 3b: When possible deactivate all wireless network ports not under test, logically disconnect all logical network ports not under test and disconnect the cable from the wired networked ports not under test.

Step 3c: Ensure that the unit does not perform a main function so that it is able to go into the networked standby. After 20 minutes measure average power consumption over a period not less than 5 minutes to check that the power is below the power target associated with the type of the equipment.

Step 3d: Using the appropriated network trigger, check that a function within the equipment is remotely reactivated from networked standby to on mode.

Repeat steps 3a to 3d for all other types of network ports.

To be compliant: every measurement must be below the relevant power target and each network trigger must reactivate the product.

The test method clearly specifies: *the unit is allowed to go into the condition providing networked standby and the power consumption is measured*

For devices which easily remain under the targets in an operational mode, there is no need to change modes (i.e. enter networked standby) after 20 minutes of inactivity. HiNA devices which scale their power consumption with traffic such as routers and switches, go almost immediately into this lower power state.

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B. Tests for standby

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7. Information to be provided

Technical documentation: consists of two parts:

- Test report containing the measured values
- Information to be provided to market surveillance authorities as described in the product information requirements.

The technical documentation is **not** the users manual / guide.

There's also a requirement to provide information on a freely accessible website(s).

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A. Websites

(a) For each standby and/or off mode and the condition providing networked standby into which the equipment is switched by the power management function or similar function:

- *the power consumption data in Watt rounded to the first decimal place,*
- *the period of time after which the power management function, or a similar function, switches the equipment automatically into standby and/or off mode and/or the condition providing networked standby,*

B. Websites & user manuals

(b) the power consumption of the product in networked standby if all wired network ports are connected and all wireless network ports are activated.

(c) Guidance on how to activate and deactivate wireless network ports.

On the website the manufacturer needs to provide

1. the power consumption of each networked standby state as measured according to the measurement methods described in the regulation (one network port at a time) and
2. the power consumption in a special case of networked standby: when all wired network ports are connected and all wireless network ports are activated.

It is recognised and permissible that the second value may sometimes exceed the networked standby limits given in the regulation.

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C. Technical documentation

(a) for each standby and/or off mode:

– the power consumption data in Watt rounded to the first decimal place,

– the measurement method used,

– a description of how the equipment mode was selected or programmed,

– the sequence of events leading to the condition where the equipment automatically changes modes,

– any notes regarding the operation of the equipment, e.g. information on how the user switches the equipment into a condition having networked standby.

– if applicable, the default time after which the power management function, or similar function, has switched the equipment into the applicable low power mode or condition;

(b) for networked equipment:

– the number and type of network ports and, with the exception of wireless network ports, where these ports are located on the equipment; in particular it shall be declared if the same physical network port accommodates two or more types of network ports,

– whether all network ports are deactivated before delivery,

– whether the equipment qualifies as HiNA equipment or equipment with HiNa functionality; where no information is provided, this is considered not to be the case;

for each type of network port:

– the default time after which the power management function, or a similar function, switches the equipment into a condition providing networked standby,
– the trigger that is used to reactivate the equipment,

For HiNA equipment, a preparatory study concluded that the condition having networked standby can be equivalent to the idle mode.

Thus the default time after which power management for networked standby becomes active is very fast. One could say that a HiNA device enters networked standby condition right after processing the last packet.

The trigger that reactivates the HiNA equipment is any other new packet.

– the (maximum) performance specifications,

– the (maximum) power consumption of the equipment in a condition providing networked standby into which the power management function, or a similar function, will switch the equipment, if only this port is used for remote activation,

– the communication protocol used by the equipment;

Annex

1. Consolidated lot 6/26 text

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