

Guidelines accompanying Commission Regulation
No 801/2013

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1. Purpose of the guidelines and disclaimer

This guide should 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 1275/2008, Amendment means Regulation 801/2013 and amended Regulation means the Regulation 1275/2008 including the Amendment 801/2013.

For convenience an unofficial consolidated version of the amended Regulation is added as Annex.

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 accompanied 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,

- The product should be listed in the Annex I of regulation 1275/2008

Annex I limits the scope for ITE to those products intended primarily for use in the domestic environment, i.e. EMC Class B IT equipment. The definition of "information technology equipment" and "domestic environment" is identical to EN 55022 or EN55032 covering essential requirements of the "EMC" Directive 2004/108/EC.

Thus all products designated EN55022/EN55032 EMC Class A, especially commercial and industrial products such as data centre equipment are out of scope of this regulation.

and

- The product should be dependent from energy input from the mains

i.e. products that get their power from this grid directly.
and
- The product should have a nominal voltage rating of less than 250V.

Furthermore, Article 1 is now consolidated, i.e. includes the amendment on the exemption of products placed on the market with a low voltage power supply¹ which had been stipulated in Regulation 278/2009.
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.

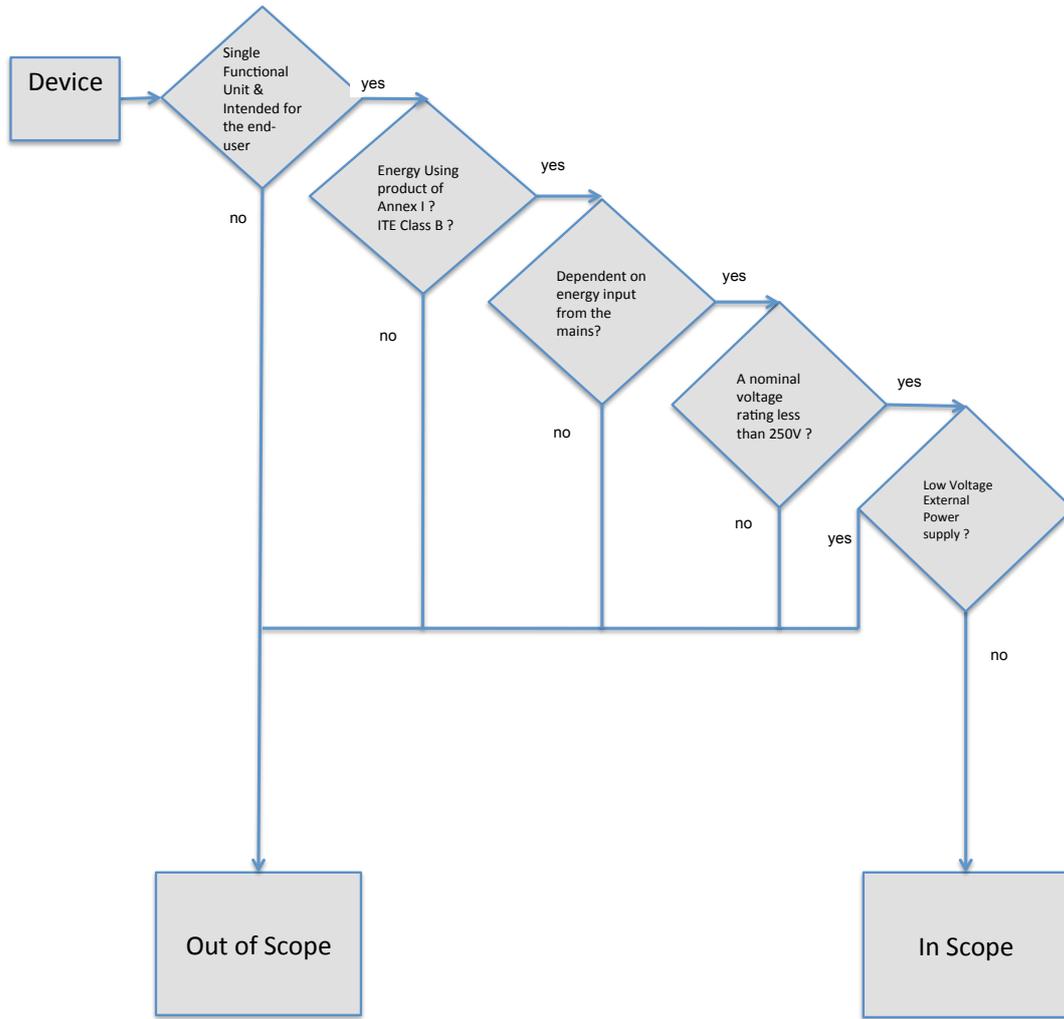
Products that are subject to a product-specific regulation which includes provisions for standby and networked standby should normally be taken out of the scope of the horizontal regulation. This would not happen automatically or implicitly but implies that the scope including Annex I would need to be amended accordingly. This has been done for:

- Televisions (see Article 7 of Regulation (EC) No 642/2009)
- Computers (see Article 4 of regulation (EC) No 617/2013)

Voluntary Agreements are not considered to be regulations, as such they cannot exempt products from the Amended Regulation.

The flowchart below provides the decision tree to be followed to determine if a device is in scope

¹ 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 milli amperes)



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3. Inappropriate for the intended use

As the regulation is a so called horizontal regulation, it typically covers all household and office devices which are not regulated in a vertical approach (product/device specific). However, it is possible that particular equipment cannot fulfil certain requirements without losing essential functionalities. One example in the past has been networked equipment that would have been unable to be reactivated over a network if it had been required to fulfil the normal standby requirements.

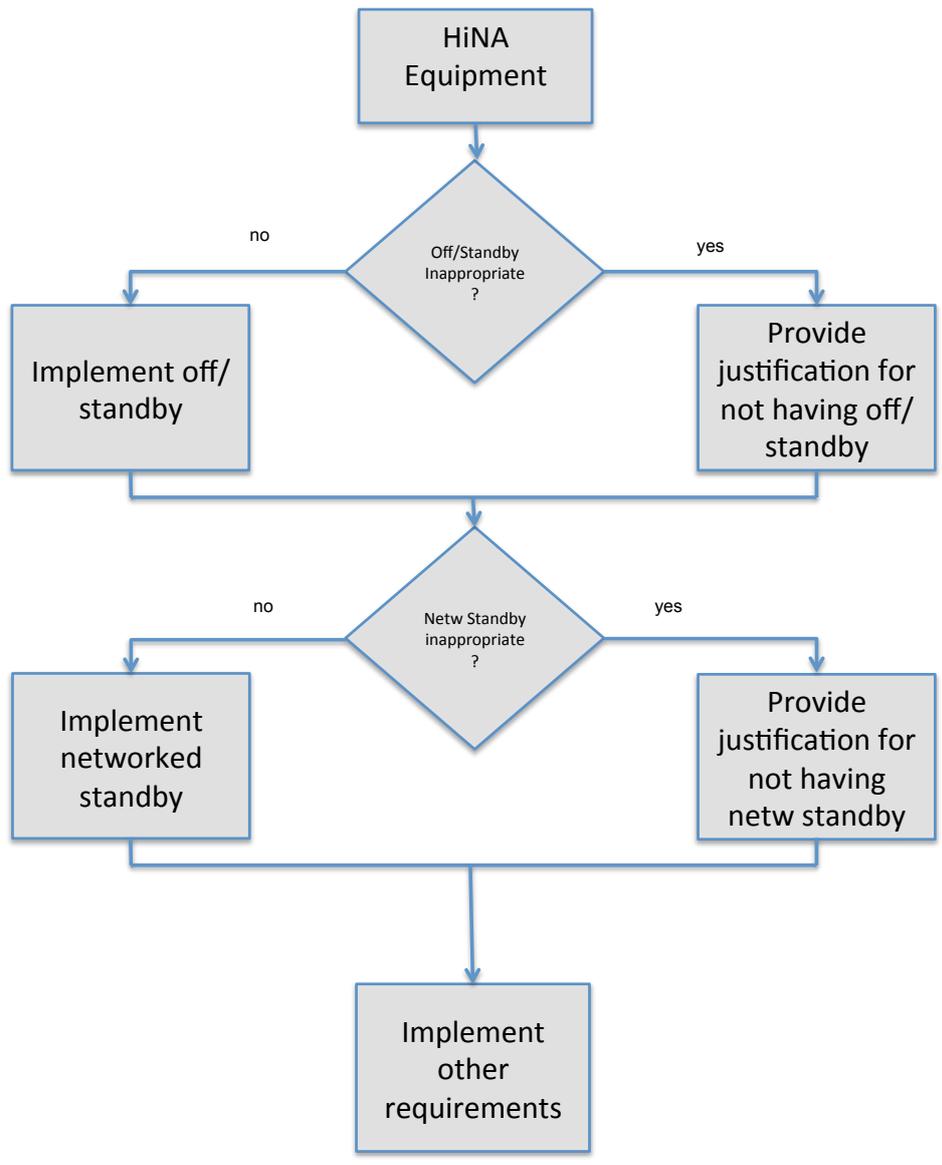
Therefore, the regulation includes a clause that would allow manufacturers to state that a certain requirement (e.g. power management) is inappropriate for the intended use of the equipment. This requires a technical justification to be included in the technical documentation.

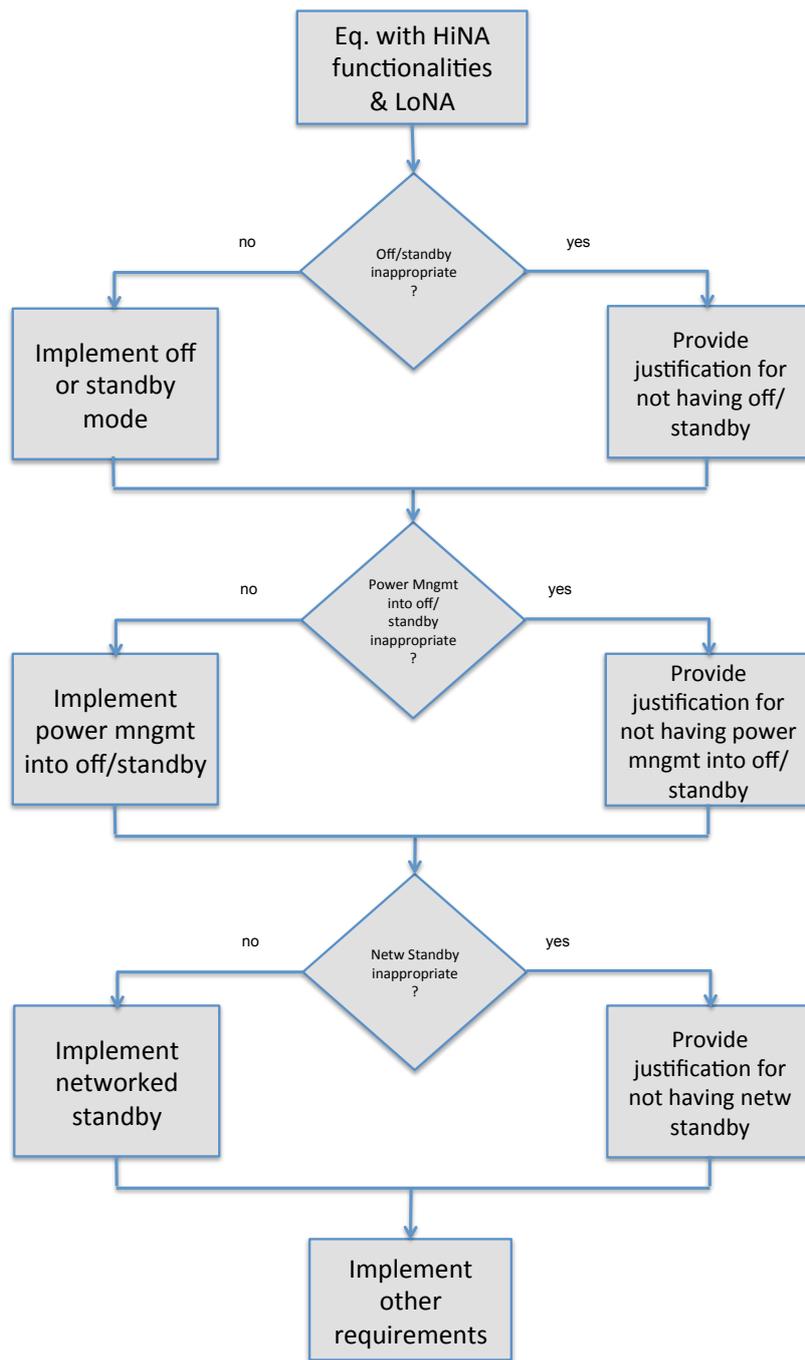
The responsibility to declare that a requirement as inappropriate for the intended use of a specific product is with the manufacturer who is best placed to assess the characteristics and functionality of the product. At the same time, the manufacturer must be able to substantiate vis-à-vis market surveillance that he has done so on solid grounds.

The Regulation does not prescribe any additional requirements in respect of the technical documentation to be provided by companies in this regard.

The flowchart below provides the decision tree to be followed for a networked equipment to determine what to do when it is

- inappropriate to have off/standby,
- inappropriate to have power management into off/ standby (not applicable to HiNA equipment)
- inappropriate to have power management into networked 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: Ethernet, ADSL, VDSL, DOCSIS cable, GPON, EPON, FXO, fax, DVB-C
 - Wireless technologies : WiMAX, 3G, 4G, 5G, EDGE, LTE , DVB-T, DVB-S
- For LAN/in-home networks
 - Wired technologies: Ethernet, MoCA, HDMI CEC, HDMI TDMS, DVI, 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 accompanied with a Declaration of Conformity. This means that the network cannot exist only within a single apparatus.

Examples: 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 definition different than the common industry definition of network port. A network interface is only a network port in the sense of the regulation if the device can be remotely activated via an external signal through this interface. 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, such as 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.

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;

Equipment can only be considered networked equipment when the interface ports qualify as network ports and when all necessary information as required in Annex II Point 9 (b) has been provided in the technical documentation. If not, the equipment will have to comply with the requirements of the “normal” standby/off mode-requirements.

(see chapter 5.A of this guide for more info on this).

An exception 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 (=HiNA and equipment with HiNA functionality); in that case the equipment is considered networked equipment regardless of the declaration made by 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;

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 be able to resume functions within milliseconds.

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 which are no genuine HiNA-equipment but include a router, switch or wireless access point are defined as equipment with HiNA functionality.

Examples: a Complex Set Top Box also contains a router and wireless access point.

Note that the functions that qualify a device as ‘equipment with HiNA functionality’ is somewhat different than the functions that qualify device ‘HiNA equipment’: it

only contains router, network switch, wireless network access point but does not contain hub, modem, VoIP telephone, video phone.

Annex II 9b also stipulates that the manufacturer needs to specify whether the equipment is HiNA-equipment or equipment with HINA-functionalities. If this is not done, the equipment will automatically not be considered HiNA or equipment with HiNA-functionality.

*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;

The definition of networked standby has deliberately been limited to one essential aspect (a condition in which the equipment is able to resume a function by a remotely initiated trigger from network connection) to allow different ways of implementation.

As an example for a condition providing networked standby, there could be 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 an external 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 (802.11az) , ADSL 2+, DOCSIS 3.0.

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

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

Edge devices (LoNA) such as TV's, imaging equipment, projectors, complex set top boxes which have network ports can go to a lower power mode when they are not performing a main function. This power management function typically starts after a period of inactivity of several minutes. In a condition with networked standby, these devices power down significant portions of the device electronics, in order to lower the power while maintaining a network connection for receipt of a remote trigger.

Networking devices (HiNA) however, such as routers, gateways, switches and wireless access points cannot power down significant portions of the device, which is due to 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 equipment 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.

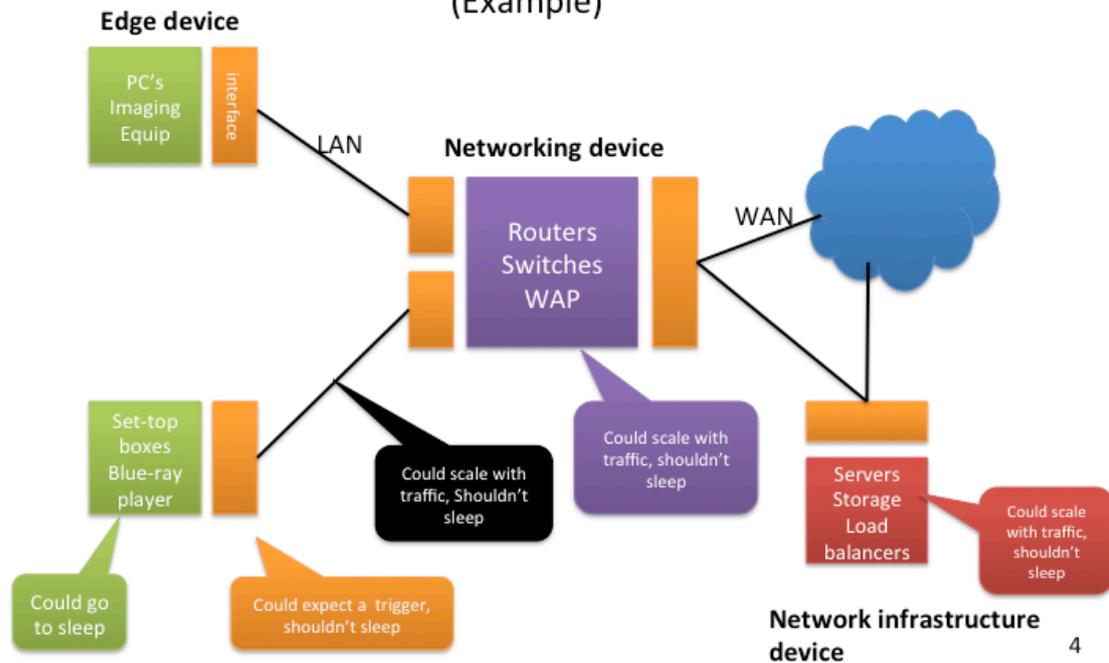
This graph below illustrates how most devices behave with respect to networked standby, depending on their place on the network .

Edge devices are mostly LoNA equipment. For networked 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+,...

The Big Picture (Example)



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 for example via menu or button/switch.

Deactivation is possible for wired and wireless network ports

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 networked standby state upon receiving an external network trigger from the network.

‘network connection’

A network connection is a port which can form a network.

Ports that cannot form a network are not network connections.

Example: the IR ports of a remote control and an A/V receiver which are sold together do not create a network and are not network connections.

‘wireless network connection’

A wireless network connection is a wireless port which can form a 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 and made available for the first time in the EU market without the end-user having changed any settings.

Manufacturer:

The manufacturer is any natural or legal person who is responsible for designing or manufacturing a product and places it on the market under his own name or trademark. The definition contains two cumulative conditions: the person has to manufacture (or has a product manufactured) and to market the product under his own name or trademark. So, if the product is marketed under another person's name or trademark, this person will be considered as the manufacturer.

The responsibilities of the manufacturer apply also to any natural or legal person who assembles, packs, processes or labels ready-made products and places them on the market under his own name or trademark. Further, the responsibility of the manufacturer is placed on any person who changes the intended use of a product in such a way that different essential or other legal requirements will become applicable, or substantially modifies or re-builds a product (thus creating a new product), with a view to placing it on the market.

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 when it can connect to a network and has one or more network ports. In addition, the manufacturer needs to specify several relevant aspects (e.g. number and type of network ports) in the technical documentation (see Annex II 9b).

Requirement 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 equipment (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 equipment.

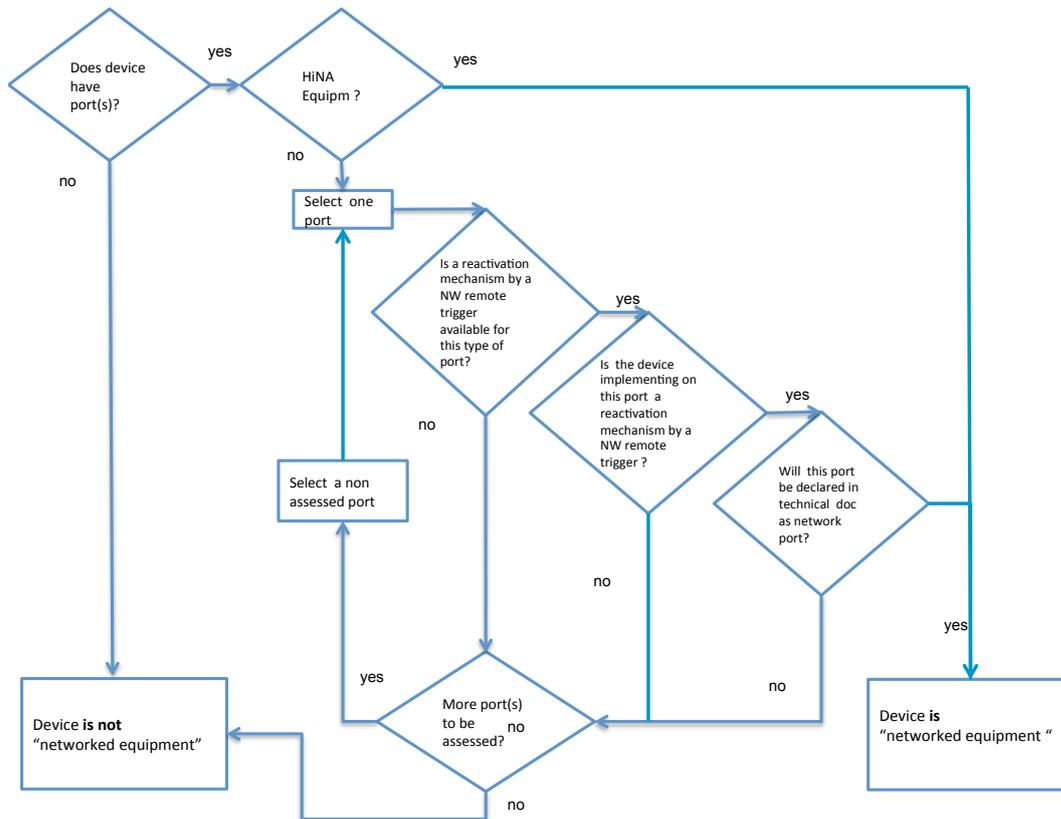
However, other equipment such as edge devices can either be networked equipment or non-networked equipment.

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.

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 not considered networked equipment. As soon as one interface is declared to be a network port, the device becomes networked equipment (see flowchart below).

and the device must comply with the networked standby and off/standby requirements for networked equipment, which is described under chapter 5.B.



In the case that is not considered to be networked equipment, the device must still comply with the following requirements as defined in the Regulation:

- implement an off/standby/other mode (unless inappropriate for the intended use)
- and
- a power management function that turns the device into the standby/off mode when not performing the main function (unless inappropriate for the intended use).
- The standby power shall not exceed 0,5 Watt respectively 1 Watt

However, when a device is not declared to be networked equipment in the sense of the regulation, it won't be possible for the manufacturer to claim that it is inappropriate for the intended use to implement the requirements regarding power management and standby/off mode, see Annex II 9d on the ground that the equipment needs to maintain a network connection -:

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 light switch cannot be remotely activated through the interface.

This light switch is not considered networked equipment.

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 not considered 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 considered networked equipment.

A complex set-top box has 4 interfaces: DOCSIS, HDMI, Ethernet, Wi-Fi.. The manufacturer did not 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 not considered networked equipment.

A router has 2 types of interfaces: Ethernet and Wi-Fi. The manufacturer did not indicate in the technical documentation that those interfaces are network ports In according with Annex II, Point 9 (b),. This router is considered networked equipment anyway, because it provides the functionalities of a router; it is HiNA equipment.

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 and provided all the necessary information set out in Point 9 (b). This video gateway is considered networked equipment.

B. Networked equipment route

1. Networked 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	8 W
Equipment with HiNA functionalities	12 W	8 W	8 W
LoNA equipment	6 W	3 W	2 W

Thus after 20 minutes of 1. inactivity of a main function and 2. when other devices connected in the network don't depend on the networked equipment, the power management function switch equipment into a condition of networked standby; in this condition equipment may not exceed the power consumption limits reflected in the table.

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 networked standby condition.
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, external power supply...), performing a scheduled background recording, searching for a network ...

It is acknowledged in Recital 5 of the Amending Regulation 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 maintenance or downloading of software. Power management should ensure that the product returns into a condition having networked standby after having completed the tasks and no other network activity is required.

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. It is not the goal that the networked standby state of one device hinders 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

Equipment does not need to provide a power management function if it meets the power consumptions limits in the idle/active mode.

Example: Networked equipment with a power consumption in idle or on mode of less than 6W (under Tier 1) does not need to provide power management

Ecodesign implementing measures address equipment at the point of time when they are placed on the market. Manufacturers may offer the user the possibility to modify or disable functions/conditions, even if that means that the equipment would not comply anymore with the provisions of the regulation. 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 is 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 type 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.

As said, the Regulation is handling the conditions and requirements when a product is being placed on the market. The network ports may all be deactivated upon delivery to save power. However, once a deactivated network port is activated (e.g. by users or by market surveillance authorities) after the equipment has been placed on the market, it shall allow the equipment to be remotely activated again and the equipment will need to comply with the networked standby requirements

If the product requires port reactivation for functionality of the system, the network power management function must be activated for those ports upon reactivation.

Exemptions from the power consumption limits as specified in 3 (e) and from the power management function as specified in 3 b, exist for

- I. Printing equipment with a power supply of a rated power larger than 750W
- II. Large format printers
- III. Telepresence systems
- IV. Desktop Thin Clients
- V. Workstations
- VI. Mobile workstations
- VII. Small scale servers
- VIII. Computer servers

Exemptions from the power consumption limits as specified in 4c) and logically from the power management function as specified in 3 b, exist for

- I. Large format printers
- II. Desktop Thin Clients
- III. Workstations
- IV. Mobile workstations
- V. Small scale servers
- VI. Computer servers

However they still are subject to requirements 3 (a) (possibility of deactivation of wireless network ports) and 3 (c) / 3 (d)/ 4 (a)/ 4 (b) (provisions on when to comply with normal standby/off requirements) and the information requirements.

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2. Wireless network connections

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 connection 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 and/or avoid EMC spurious emissions by deactivating the wireless connections.

Examples:

- on a notebook computer, there is a button to turn on/off wireless functions easily,
- on edge devices, the deactivation of wireless functions is controlled by software settings controlled by the user,
- the wireless network port of a device 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.

The deactivation of the connection shall be available either from the device itself or from another equipment in the network (example, a computer)

It is the manufacturer that shall decide what the best option applicable to the equipment

A network is only present when at least two devices or two single functional units are connected to one another. Those two devices can have network connections and network ports.

As stated already previously, a remote control unit which is sold together with a device, forms a single functional unit together with the device. Within a single function unit, one cannot have a network. By consequence, the IR or Zigbee RF4CE ports of the main device and of the remote control are not network connections.

However regulation 801/2013 explains that if the device relies solely upon the wireless network to perform its intended use which is specified in the manufacturers documentation then the ability to deactivate the wireless connection is not required.

Examples:

- a wireless speaker system
- a TV needs the DVB-T wireless connection as it relies on this network connection for intended use.

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) require 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) requires the device to give users the possibility to deactivate all wireless connections, but there is no requirement to implement a mechanism to deactivate wired network ports.

The rationale behind requirement 3 (c) is to make sure that, when a networked equipment is no longer logically connected to any network (after deactivating all wired and wireless network ports) and behaves like a non-networked product, 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 network ports because only the wireless but not the wired network ports can be deactivated, has no obligation to provide a standby mode or another condition not exceeding the power consumption requirements (0,5W/1 Watt) .

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.

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

Networked equipment other than HiNA equipment must offer a power management function, unless inappropriate for the intended use. When all network ports are deactivated, this power management function shall switch equipment into standby/off mode or another condition not exceeding the power consumption requirements (0,5W/1 Watt).

The objective of this requirement 3 (d) is to request that when a networked equipment (other than HiNA 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 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 after the shortest possible time appropriate for the intended use. Note 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.

When all network ports can be and have been deactivated then the equipment is required to comply with the provisions under 2 (d). The equipment does not need to comply with the provisions under 2(d), when it is not possible to deactivate all wired network ports or when there is only a single wireless network port.

Thus if equipment other than HiNA equipment 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 as stipulated 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 equipment needs to comply with the provisions under 2(d)
 - o If not all wired network port can be deactivated equipment does not need to comply with the provisions under 2(d),

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 to switch into off/standby/any other condition.

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.*

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.

The rationale behind point 4 (a) is to make sure that, when a networked equipment is no longer logically connected to any network (after deactivating all wired and wireless network ports) and behaves like a non-networked product, 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 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 must comply with the provisions under 2d (i.e. switching to standby/off mode/another condition).

Remark:

- The regulation says nothing about the methodology to be used to detect the disconnection of a wired interface. Disconnection could refer to a physical or a logical disconnect
- 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 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 activated and disconnected, 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) should be equivalent with the power consumption for standby/off mode.

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 longer 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 needs to comply with the provisions under 2(d) (i.e. 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 activated and disconnected and, 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 comply with the provisions under 2(d) when both the Ethernet and HDMI cable have been disconnected from their ports.

- A Blu-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 Blu-Ray player needs to comply with the provisions under 2(d)

- 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*.

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 as Regulation 801/2013 is already in effect as of now, it is strongly advised that manufacturers begin to declare network ports for their networked equipment in the technical documentation as soon as possible.

If the network ports are not declared in the technical documentation, then equipment with HiNA functionalities and LoNA equipment will not be considered networked equipment. In that case, it is not possible to claim inappropriate to have standby because of *the need for maintaining one or more network connections or waiting for a remotely initiated trigger*

As from 1 January 2015

Networked equipment needs to comply with Point 3 and Point 7 of Annex II:

- Possibility for user to deactivate wireless network ports (3 a of Annex II)
- Power management for networked equipment (3 b of Annex II)
- Behaviour of equipment when network ports are deactivated (3 c +d of Annex II):
- Power consumption requirements for networked standby (3 e of Annex II)
- information requirements (point 7 of Annex II)

As from 1 January 2017

Networked equipment needs to comply with Point 4 of Annex II:

Behaviour of equipment when wireless network ports are deactivated and wired network ports are disconnected (4 a+b of Annex II)

Power consumption requirements for networked standby (4 c of Annex II)

As from 1 January 2019

Networked equipment needs to comply with Point 5 of Annex II:

Networked standby power consumption requirements for equipment other than

HiNA-equipment/equipment with HINA-functionality.
This requirement will be subject to review in 2016

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7. Tests for networked standby

The test procedures can be described as follows:

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

- Identify if the product is a HiNA equipment, equipment with HiNA functionalities or not.
- Identify the types of technology a network port supports and the number of networked ports (including logical network ports).
For example, a coax F-connector could support DOCSIS and MOCA at the same time.
- For each network port identify the network trigger to be used to reactivate a function within the product

Step 2: The unit is placed 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: If possible deactivate all other network ports that are 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 mode. For HiNA equipment, this would mean that no traffic is sent. 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. E.g. for IP traffic, an ICMP ping could be sent and one could look for a response back

Step 3e: Disconnect all cables. The unit under test may need to be reset.

Repeat steps 3a to 3e 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 not providing a main function..

HiNA Equipment which scale their power consumption with traffic such as routers and switches, go almost immediately into this lower power state.

8. 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 as described in 8.C.

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

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

A. Information to be provided on 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,*

For LoNA devices, this time typically would be about 20 minutes or less.

For HiNA equipment, this time is much shorter since those devices scale their power with traffic. The condition providing networked standby may be entered within seconds or even milliseconds after sending the last packet.

This information can be posted in English on a website or on a document posted on a website or on some kind of database on a website.

It could be stored on one single corporate website, but each EU national website should have a link that leads to this corporate web page.

B. Information to be provided on 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.

The goal of requirement (b) is to give the user an idea of what the device may consume once installed in the home.

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

It is permissible to communicate this information under (b) and (c) via a URL or via a QR-code which is included in the user manual or users instructions.

If connection of a wired network port automatically deactivates wireless network ports then it is not possible to test when all network ports are activated, thus it is not possible to test this configuration. In that case, the configuration with the highest power should be provided.

Similarly, if networked equipment does not have wired network ports, then one should provide the power of the configuration with all wireless network ports active. And, if networked equipment does not have wireless network ports, then one should provide the power of the configuration with all wired network ports connected.

For configurable products (e.g. Workstations) power data from a ‘typical’ configuration should be reported.

C. Information to be provided in the 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 HiNA equipment 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,*

This refers to the maximum speed that a network port supports.

– 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;

D. Declaration of Conformity

Regulation 801/2013 only amends the existing 1275/2008 regulation. Thus compliance should be stated against 1275/2008.

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Annex : Consolidated lot 6/26 text

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