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General principles for the environmental labelling of consumer products

Methodological standard for the environmental assessment of a corporate LAN and telephony services

FAITS & CHIFFRES

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ACT FOR A BETTER PLANET

AGIT

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APL

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1. Scope of the standard

1.1. Purpose of the document

The Product Category Rules (PCR) provide the method for calculating the environmental labelling indicators of a product category. The environmental labelling objectives are as follows:

to inform consumers about the environmental impacts of the products and services they buy

to direct consumer demand towards more environmentally friendly products

to thereby encourage producers to ensure a more environmentally friendly design of their products so as to limit their impact on the environment.

The category rules are an adaptation of the repository of best practices BP X 30-323-0 "General principles for an environmental communication on mass market products".
The category rules adapt the items set out in Article A.1 paragraph 1 of the repository of best practices BP X 30-323-0. The repository of best practices BP X 30-323-0 states as a guiding principle that the assessment of the environmental impacts of products should be developed in accordance with the life cycle approach and the multi-criteria approach.

The digital services Product Category Rules document, the "parent" PCR, is intended to harmonise all sector-specific rules (PCR) for digital services around common rules. This document sets out these sector-specific rules for one of the elements of the digital service value chain: the LAN, as well as for some corporate digital telephony services. It is therefore necessary to read both of these documents, the "parent" digital services PCR and the "child" corporate LAN and telephony services PCR.

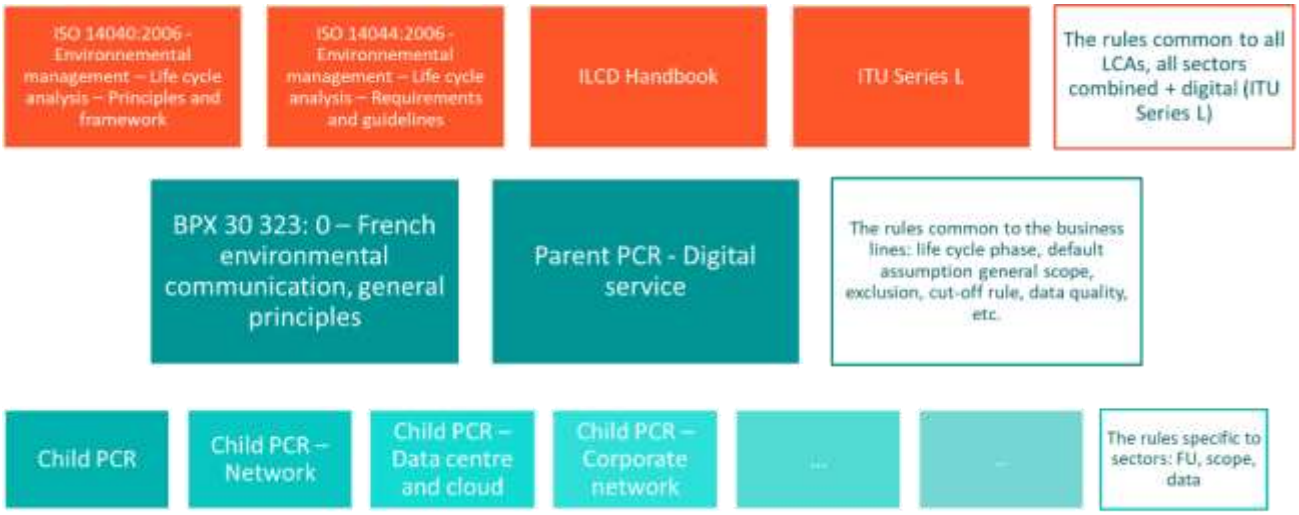

Figure 1 – Positioning of the standard in the global standard context

These PCR are built on the same methodological bases as the standards recognised in the digital sector, namely:

- IT equipment PEF
- ITU Series L, and specifically L.1410

The ITU L.1410 standard indicates the different stages in a digital service LCA, and those covered by the standard. The figure below summarises these stages and indicates those covered by this PCR.

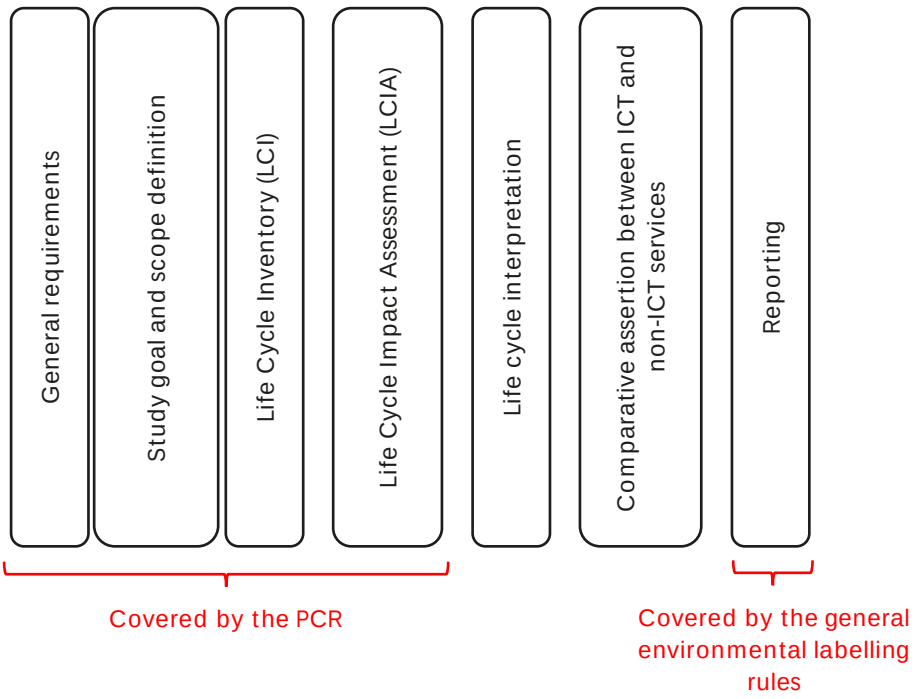

Figure 2 – Stages covered by the PCR, taken from standard ITU L.1410

1.2. Area of application

This standard is specifically dedicated to the environmental assessment of a corporate LAN and telephony services. It incorporates the concept of remote work or hybrid working, and has been drawn up to complement the Internet Access Provision PCR published in April 2021. It brings together the elements needed to calculate the environmental impacts of an LAN and three corporate telephony services, as defined below.

Its aim is to:

- provide a framework for the method of assessing the environmental impacts of these services;
- simplify the calculation method to make environmental labelling easier for companies that market them;
- serve as a method for applying paragraph III of article 13 of law no. 2020-105 of 10 February 2020 on the fight against waste for a circular economy, known as the AGEC law.

This standard brings together the elements needed to calculate the environmental impacts of digital services as defined below.

A digital service is an activity characterised by the performance of a service or the provision of information using a set of digital equipment and infrastructure to capture, circulate, process, analyse, restore and store data. This equipment and infrastructure are characterised in three "physical parts/tiers": terminals, telecommunication networks and IT centres; a set of software being used at different levels to "orchestrate" the physical equipment and deliver the expected service.

Although this activity is linked to one or more physical products (terminals, networks, servers), it is transitory, often intangible in nature and does not normally result from the possession of one of the products.
These activities can be carried out between companies, individuals, administrations, communities and other entities without restriction.

Associated CPA codes (2008): See Annex A - List of CPA codes concerned
Note: the list of CPA codes is not suitable for the categorisation of digital services. It is provided as a reminder, but is not an exhaustive list.

1.2.1. Definition of a corporate LAN

An LAN is a collection of terminal equipment (computer, IP phone, printer, etc.) connected together with or without cables through network equipment (routers, switches, hubs, etc.) in order to share information. A corporate IT network is also made up of servers (computing and storage), which may be located in offices or in dedicated cabinets or rooms, and maintained by a building's technical infrastructure (support equipment for cooling, power supply and redundancy).

In this standard, we consider LANs that can be physical (LAN definition below) or logical (VLAN definition below)

LAN (Local Area Network)

The LAN is a geographically limited communication network that connects users in a defined area. A LAN is usually contained within a building or small group of buildings, and is managed and owned by a single company. Although an increasing number of LANs use Internet standards and protocols, they are normally protected from the public Internet by firewalls. They allow the defined coverage area to be interconnected with wider networks (WAN, Internet), and allow access to the following functions: telephony, messaging, video conferencing, data transfer, etc.

VLAN (Virtual LAN)
A VLAN is an independent logical LAN and is treated as a LAN segment "isolated from the other segments". VLANs can be proprietary or standardised (IEEE 802.1Q).

With the widespread use of practices such as teleworking, these LANs are no longer limited to the boundaries of the company (office, third party site), but are reaching the homes of employees or other places where they connect (coworking spaces, for example).

We therefore consider the scope to include wired network equipment (router) and non-wired network equipment (4G router for example). Connected objects (IoT) and the network linking them (SIGFOX, for example) are excluded from the scope of this PCR.

The main characteristics of an LAN are:

- Its size (number of IP addresses provided, number of terminal devices)
- Its type (wireless, wired or both embedded)
- Its bandwidth (the maximum amount of data that can be sent through the network per second)
- Its level of redundancy for each device or each network section
- Its level of security

Note that the level of service expected by the end user has a considerable influence on the characterisation of an LAN. Depending on the contractual commitments and Service Level Agreements (SLAs) identified, the corporate LAN will vary in the degree of complexity involved to deploy, install and operate it, and the hardware provided can be doubled, regardless of the number of workstations and the size of the company.

To characterise an LAN, several characteristics can be taken into account:

	"Simple" network	"Advanced" network
Level of availability	No commitment and no redundancy	Minimum 99.5% availability (contractual commitments and SLAs) and/or with redundancy
Level of security	Minimum level of security (integrated with CPE/router/UTM firewall)	Advanced level of security (dedicated virtualised or physical system)
Number of terminals	More telephony equipment Less user equipment and less network equipment	Less telephony equipment More user equipment and more network equipment

Table 1: Characteristics to take into account to interpret the environmental results communicated

1.2.2. Definition of corporate telephony services

The main characteristics of a corporate telephony service are those of a digital service. In order to deliver the service, the following must be identified:

- The terminals used
- The connectivity
- The infrastructure on which the data is hosted

The three corporate digital telephony services identified in this document are as follows:

- "Make a one-to-one audio call for a specified time"
- "Hold a video conference for a specified time"
- "Send a chat message containing a specified number of characters"

1.3. Positioning in relation to standard ITU L.1410 / ETSI 203 199[1]

The ITU L.1410 standard "Methodology for environmental life cycle assessments of information and communication technology goods, networks and services" developed jointly by the ITU and ETSI (ETSI numbering: 203 199) complements standards ISO 14040 and ISO 14044 for the IT products, networks and services sector.
It is currently the only international standard on the LCA of digital services.
Although not prescriptive, it indicates an ideal towards which LCA practitioners should strive, without it necessarily being possible to meet all the recommendations.

The position of this PCR in relation to this standard is:

- To respect the principles of the standard as soon as possible
- To complement the standard based on the specific needs of French environmental labelling
- To provide rules, assumptions and secondary data to simplify the conduct of LCAs of digital services for a less expert audience than that of the standard.

Overall, the PCR falls within the context of the standard and, although it provides certain specifications, it does not contradict the standard.

[1] https://www.itu.int/rec/T-REC-L.1410-201412-I/en

2. Display unit

2.1. Functional unit

2.1.1. Functional unit 1: Provide an LAN for a specified time

The functional unit chosen is as follows:
"Provide an LAN for a specified time"
The definition of this functional unit is based on the following questioning:

The function performed/service rendered: "What? "	Provide an LAN
The scope of the function or service: "How much/many? "	Depending on the usage scenario
The required level of quality: "How? "	With a defined level of availability, with or without redundancy and with a defined level of security
The lifespan of the product: "How long? "	Over 1 year

Table 2: Definition of the functional unit 1- Provide an LAN for a specified time"

This functional unit is:

- broken down at service level, and covers the entire scope chosen to deliver the service to all the company's users, in other words:
  - LANs
  - PMR networks
- Relates to the scope controlled by the LAN manager and as such excludes:
  - Hybrid networks (with a private and a public leg)
  - Professional networks operating on public networks[2]
  - IoT equipment
  - Satellite equipment

2.1.2. Functional units 2 to 4: corporate telephony services

It should be noted that functional units 2 to 4 represent digital services and that this is not an exhaustive list of corporate telephony services: it may include future updates to incorporate corporate data services

2.1.2.1. Functional unit 2: "Make an audio call for 1 minute"

The functional unit chosen is as follows:
"Make a one-to-one audio call for a specified time with a specific terminal"

This functional unit has a global scope and covers all the elements used to deliver the digital service, whether or not they are controlled by the digital service operator (terminals, networks, data centre)
The definition of this functional unit is based on the following questioning:

The function performed/service rendered: "What? "	Make an audio call
The scope of the function or service: "How much/many? "	Depending on the usage scenario
The required level of quality: "How? "	Using a mobile phone (mobile data) Using a laptop (fixed data) Using an IP phone (fixed data) + using a desktop computer + 21-23" screen (fixed data)
The lifespan of the product: "How long? "	For 1 minute

[2] Included in the scope of the Internet Access Provision PCR

Table 3: Definition of functional unit 2- Make a one-to-one audio call for a specified time with a specific terminal

2.1.2.2. Functional unit 3: "Hold a video conference for 1 hour"

The functional unit chosen is as follows:
"Hold a video conference for a specified time with a specific terminal"

This functional unit has a global scope and covers all the elements used to deliver the digital service, whether or not they are controlled by the digital service operator (terminals, networks, data centre)
The definition of this functional unit is based on the following questioning:

The function performed/service rendered: "What? "	Holding a video conference
The scope of the function or service: "How much/many? "	Depending on the usage scenario
The required level of quality: "How? "	Using a mobile phone Using a laptop or desktop computer + 21/23 monitor**"** In addition, using a video conference terminal Number of participants (pilot scenario: 10 versus 100) Video quality (HD, 4K)
The lifespan of the product: "How long? "	For 1 hour

Table 4: Definition of functional unit 3 - Hold a video conference for a specified time with a specific terminal

2.1.2.3. Functional unit 4: "Send a chat message containing a specified number of characters"

The functional unit chosen is as follows:
"Send a chat message containing a specified number of characters"

This functional unit has a global scope and covers all the elements used to deliver the digital service, whether or not they are controlled by the digital service operator (terminals, networks, data centre)

The definition of this functional unit is based on the following questioning:

The function performed/service rendered: "What? "	Send a chat message
The scope of the function or service: "How much/many? "	Number of characters (size in Kb)
The required level of quality: "How? "	Number of recipients With or without attachment or gif,
The lifespan of the product: "How long? "	Once

Table 5: Definition of functional unit 4: "Send a chat message containing a specified number of characters"

2.2. Block diagram and data flow diagram

In order to understand the digital service, identify the structural data and establish the scope and the boundaries of the system to be considered, a block diagram and a data flow diagram of the digital service concerned must be produced.

- **The block diagram** indicates the main sets of equipment or sites used to perform the digital service.
- **The data flow diagram** shows the connection and the use of each of these sets through the use of the digital service.

As a reminder, the following table summarises the different approaches and their characteristics:

Approach	Life cycle phases	Indicators	Collection data	Modelling data
Single criterion or single stage approach	Incomplete	Incomplete	Impact data not covering all indicators	N/A
Screening approach	Complete	Complete	Non-homogeneous impact data and/or sources (manufacturers' environmental statements, studies, etc.)	Broad level of granularity (tier, or broad system)
Simplified approach	Complete	Complete	Secondary homogeneous LCI data	Intermediate level of granularity (more detailed systems, equipment)
Comprehensive approach	Complete	Complete	Primary homogeneous LCI data	Detailed level of granularity (specific equipment)

Table 6: Details of approaches

The approach chosen for the functional units is defined below.

2.2.1. Functional unit 1: Provide a corporate LAN

As this functional unit concerns a digital service tier (network), no block diagram and data flow diagram have been defined.

However, it should be noted that the modelling of the equipment and the LAN should respect **the simplified approach**: life cycle inventory data should be based primarily on primary data (specific data)

2.2.2. Functional units 2 to 4: corporate telephony digital services

The main sets of computer equipment and sites used to deliver corporate telephony services are:

- Terminals (see Terminals and connected objects PCR)
- Mobile and fixed telecommunication networks (see Internet Access Provision PCR)
- Data centre services and cloud services (see Services for hosting IT equipment in data centre and cloud services PCR)

The approach adopted here is **the simplified approach.**
The boundary between what should and should not be considered as part of this PCR versus other existing PCRs is shown in the diagram below:

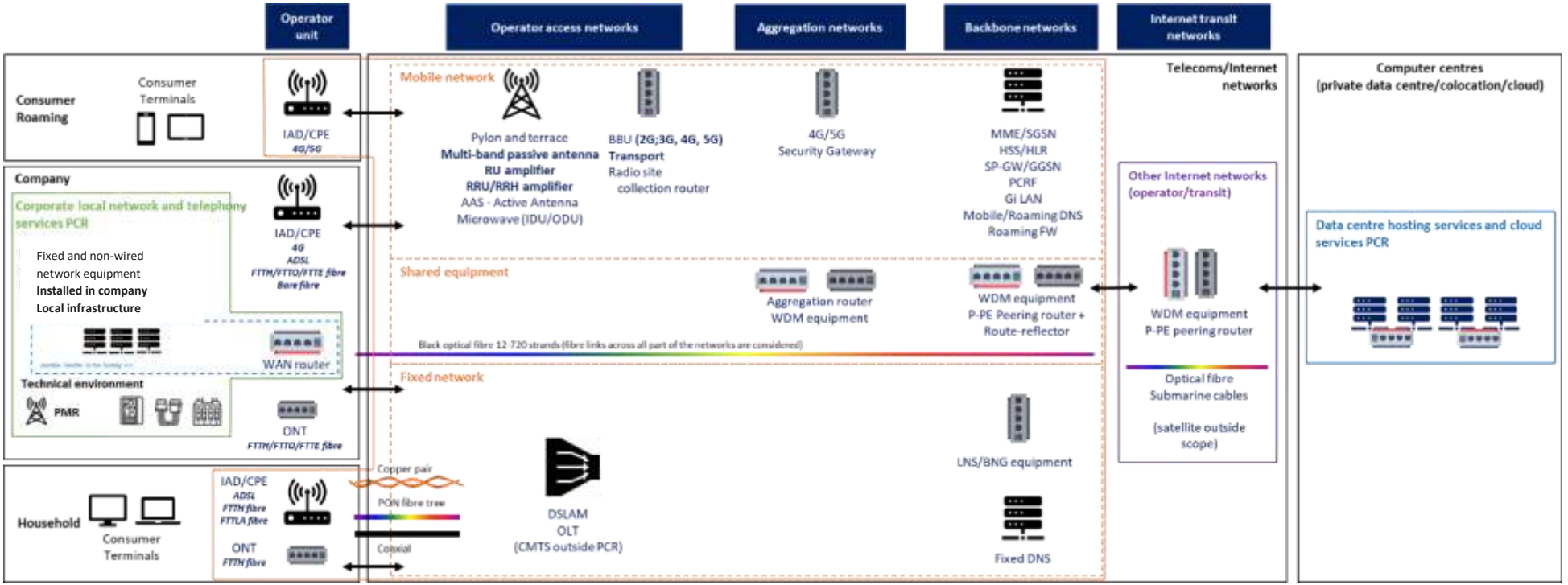

Figure 3: Block diagram of the connection between the different PCRs of a digital service

Keys:

Green: Corporate local network and telephony services – PCR scope

Blue: Distribution of equipment between the different parts of the networks (Access, Aggregation and Backbone)

↔ Data exchange

3. System boundaries

3.1. Stages and flows included

The environmental assessment of products covered by this standard should take into account the life cycle stages and processes specified in this chapter.

All tiers of the digital services considered should be taken into account for functional units 2 to 4 relating to corporate telephony services.
For functional unit 1 on the provision of an LAN, only the "Network" tier will be taken into account.

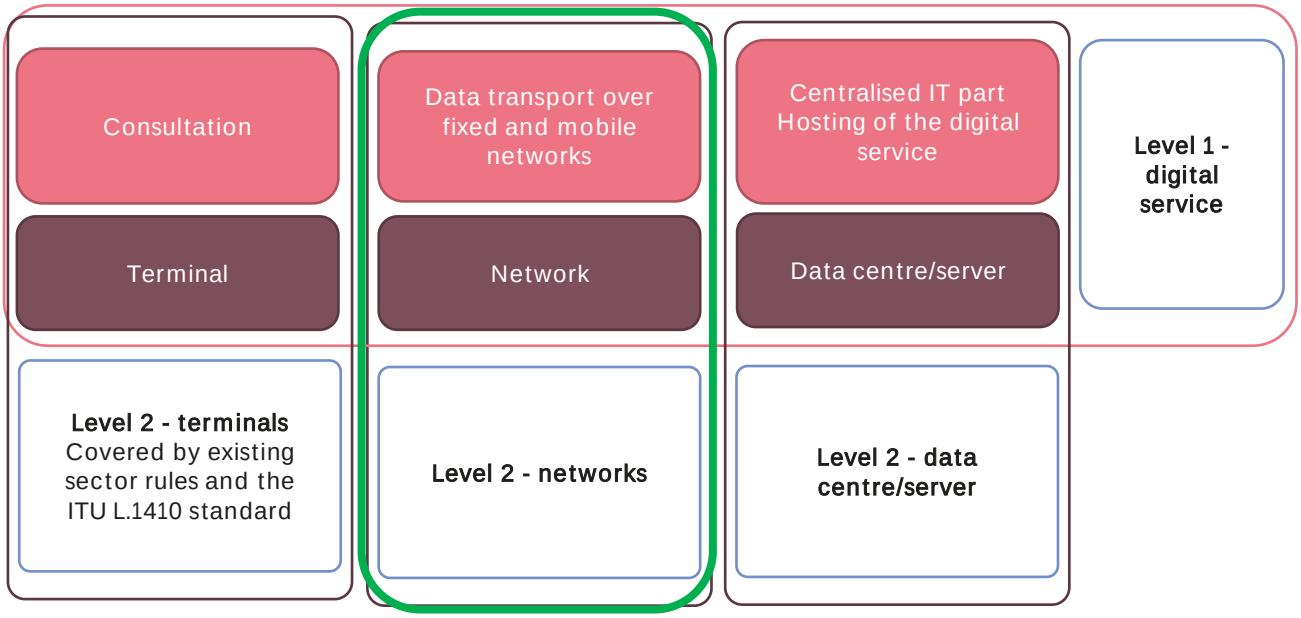

Figure 4: Analysis levels

For all equipment of each tier (terminal, network, data centre/server), the following life cycle stages must be taken into account:

Environmental labelling	ITU L.1410			Coverage by the "parent" PCR
Life cycle stage	Tag	Life cycle stage		
Manufacturing	A	Raw material acquisition		
	A1		Raw material extraction	Mandatory
	A2		Raw material processing	Mandatory
	B	Production		
	B1		ICT good production	
	B1.1		Parts production	Mandatory
	B1.2		Assembly	Mandatory
	B1.3		ICT manufacturer support activities	*Excluded*
	B2		Support goods manufacturing	

	B2.1			Support goods manufacturing	*Excluded*
	B3		Construction of ICT-specific site		
	B3.1			Construction of ICT-specific site	*Excluded*
Distribution					**Included**
Installation					*Excluded*
Use	C	Use			
	C1		ICT goods use		Mandatory
	C2		Support goods use		Mandatory
	C3		Operator support activities		**Included (maintenance and installation of new equipment)**
	C4		Service provider support activities		*Excluded*
End of life	D	Goods end-of-life treatment			
	D1		Preparation of ICT goods for reuse		Mandatory
	D2		ICT-specific EoLT Support goods EoLT?		
	D2.1			Storage / Disassembly / Dismantling / Shredding	Mandatory

Table 7: Life cycle scope

Note: the tags are not taken from standard EN 15804 despite their similarity, but from ITU L.1410.

3.2. Exclusion

In accordance with the ADEME standard on "General principles for an environmental communication on mass market products - Part 0: general principles and methodological framework", the following stages are excluded from the environmental assessment:

- Flows related to R&D
- Flows related to employees' transport from home to work and business trips.
- Flows related to services associated with a product or system such as advertising, canvassing and marketing.

With regard specifically to these sector rules, the following stages are excluded from the environmental assessment:

- Flows related to sales services (shops, after-sales service, etc.)
- Flows related to administrative services
- Equipment packaging and end of life are excluded from this PCR.

4. Rules for allocation between products and co-products

As a reminder, the elements used for the assessment of the digital service can be considered based on:

An equipment-based approach: all equipment used by the digital service constitutes primary or secondary data. The digital service is considered as a sum of the use of each equipment item, each use being defined through an allocation rule in relation to the total impact of the equipment.

Example: for the terminal part, a "Send an email" digital service consists of a smartphone for example.

- **A system-based approach:** a number of equipment items can be grouped into a physical (e.g. data centre) or virtual (e.g. virtual machine) system, at the level of which the environmental impacts have been determined and which constitutes primary or secondary data. The digital service is considered as a sum of the use of each system, each use being defined through an allocation rule in relation to the total impact of the system.

Example: for the network part, a "Send an email" digital service consists of all the equipment on the 4G network needed for data transmission.

The equipment-based approach will be more accurate but more difficult to implement than the system-based approach.

It is recommended to use an equipment-based approach on the scope controlled by the digital service operator and a system-based approach on the uncontrolled scope.

When assessing a digital service, the two approaches can be used on different parts of the overall scope.

For the purposes of this PCR, the following approaches were chosen:

Functional unit	Approach chosen
FU1: "Provide an LAN for 1 year"	Equipment-based approach
FU2: : "Make an audio call for 1 minute"	System-based approach
FU3: : "Hold a video conference for 1 hour"	System-based approach
FU4: "Write a chat for 1 minute"	System-based approach

For each element (equipment or system) considered in the scope, allocation rules have been defined for each stage of the element's life cycle in order to quantify the share attributed to the delivery of the digital service.

4.1. Functional unit 1: provide an LAN for a specified time

For all equipment considered in the scope, allocation rules will need to be defined for each stage of the equipment's life cycle in order to quantify the share allocated to the LAN delivery.

For the manufacturing, distribution, use and end-of-life phases, the following allocations will be used, unless otherwise justified:

Parameter	Definition
dU	Time considered in the FU, in years.
DDV_eqt	Estimated total lifespan of the equipment + First life time if refurbished equipment.

dU: duration of the study **eqt_LS:** equipment lifespan **FU_impacts:** Impacts allocated to the FU of the system of the line in the LC phase in column measured over the dU duration **EF (X years):** Emission factor for the LC phase in column measured over X years

Scope	Allocation rules			
	Manufacturing (mandatory)	**Distribution (mandatory)**	**Use (mandatory)**	**End of life (mandatory)**
Network equipment	Impacts_UF = $\frac{dU}{DDV\_eqt}$ × EF (eqt_LS)	Impacts_UF = $\frac{dU}{DDV\_eqt}$ × EF (eqt_LS)	Impacts_UF = FE (dU)	Impacts_UF = $\frac{dU}{DDV\_eqt}$ × EF (eqt_LS)
Technical infrastructure	Impacts_UF = $\frac{dU}{DDV\_eqt}$ × EF (eqt_LS)	Impacts_UF = $\frac{dU}{DDV\_eqt}$ × EF (eqt_LS)	Impacts_UF = FE (dU)	Impacts_UF = $\frac{dU}{DDV\_eqt}$ × EF (eqt_LS)
Software (digital service)	Impacts_UF = FE (dU)	Impacts_UF = FE (dU)	Impacts_UF = FE(dU)	Impacts_UF = FE(dU)
Network installations & maintenance (mandatory)	Impacts_UF = 0	Impacts_UF = 0	Impacts_UF = FE(dU)	Impacts_UF = 0

Table 8: Allocation rules for calculating functional unit 1

In the use phase, the calculation of energy consumption and other direct consumption and emissions of the LAN should be considered as a priority.
In the use phase, the allocation factor is applied to the emission factors calculated over one year.

The installation phase is excluded from the scope.

For **the end-of-life phase**, reference should be made to the rules for environmental labelling in "GENERAL PRINCIPLES FOR AN ENVIRONMENTAL COMMUNICATION ON MASS MARKET PRODUCTS - PART 0: GENERAL PRINCIPLES AND METHODOLOGICAL FRAMEWORK", March 2016, chapter B.2.3.
http://www.base-impacts.ademe.fr/gestdoclist

4.2. Functional unit 2: make a one-to-one audio call for a specified time

For the manufacturing, distribution, use and end-of-life phases, the following allocations will be used, unless otherwise justified:

Parameter	Definition
dU	Time considered in the FU, in years.
dU_sec	Time considered in the FU, in seconds.
DDV_eqt	Estimated total lifespan of the equipment + First life time if refurbished equipment
$débit_{mont}$	Uplink speed of the call
$débit_{desc}$	Downlink speed of the call
$No.Participants$	Number of videoconference participants

Usage scenario and allocation and calculation rules

dU: duration of the study — **eqt_LS**: equipment lifespan — **FU_Impacts**: Impacts allocated to the FU of the system of the line in the LC phase in column measured over the dU duration — **EF (X years)**: Emission factor for the LC phase in column measured over X years

Scope	Allocation rules			
	Manufacturing (mandatory)	**Distribution (mandatory)**	**Use (mandatory)**	**End of life (mandatory)**
Terminals	Impacts_UF = $\frac{dU}{DDV\_eqt}$ * FE (DDV_eqt)	Impacts_UF = $\frac{dU}{DDV\_eqt}$ * FE (DDV_eqt)	Impacts_UF = FE (DDV_eqt)	Impacts_UF = $\frac{dU}{DDV\_eqt}$ * FE (DDV_eqt)
Network data	Impacts_UF = $Nbparticipants * dU_{sec} * (débit_{mont} + débit_{desc}) *$ FE(1 GB)	Impacts_UF = $Nbparticipants * dU_{sec} * (débit_{mont} + débit_{desc}) *$ FE(1 GB)	Impacts_UF = $Nbparticipants * dU_{sec} * (débit_{mont} + débit_{desc}) *$ FE(1 GB)	Impacts_UF = $Nbparticipants * dU_{sec} * (débit_{mont} + débit_{desc}) *$ FE(1 GB)

Table 9: Allocation rules for calculating functional unit 2

For **the end-of-life phase**, reference should be made to the rules for environmental labelling in "GENERAL PRINCIPLES FOR AN ENVIRONMENTAL COMMUNICATION ON MASS MARKET PRODUCTS - PART 0: GENERAL PRINCIPLES AND METHODOLOGICAL FRAMEWORK", March 2016, chapter B.2.3.
http://www.base-impacts.ademe.fr/gestdoclist

4.3. Functional unit 3: make a one-to-one audio call for a specified time

For the manufacturing, distribution, use and end-of-life phases, the following allocations will be used, unless otherwise justified:

Parameter	Definition
dU	Time considered in the FU, in years.
dU_sec	Time considered in the FU, in seconds.
DDV_eqt	Estimated total lifespan of the equipment + First life time if refurbished equipment
$débit_{mont}$	Uplink speed of the call
$débit_{desc}$	Downlink speed of the call
$No.Participants$	Number of videoconference participants

Usage scenario and allocation and calculation rules

dU: duration of the study

eqt_LS: equipment lifespan

FU_impacts: Impacts allocated to the FU of the system of the line in the LC phase in column measured over the dU duration

EF (X years): Emission factor for the LC phase in column measured over X years

Scope	Allocation rules			
	Manufacturing (mandatory)	**Distribution (mandatory)**	**Use (mandatory)**	**End of life (mandatory)**
Terminals	Impacts_UF = $\frac{dU}{DDV\_eqt}$ * FE (DDV_eqt)	Impacts_UF = $\frac{dU}{DDV\_eqt}$ * FE (DDV_eqt)	Impacts_UF = FE (DDV_eqt)	Impacts_UF = $\frac{dU}{DDV\_eqt}$ * FE (DDV_eqt)
Network data	Impacts_UF = $Nbparticipants * dU_{sec} * (débit_{mont} + débit_{desc}) *$ FE(1 GB)	Impacts_UF = $Nbparticipants * dU_{sec} * (débit_{mont} + débit_{desc}) *$ FE(1 GB)	Impacts_UF = $Nbparticipants * dU_{sec} * (débit_{mont} + débit_{desc}) *$ FE(1 GB)	Impacts_UF = $Nbparticipants * dU_{sec} * (débit_{mont} + débit_{desc}) *$ FE(1 GB)

Table 10: Allocation rules for calculating functional unit 3

For **the end-of-life phase**, reference should be made to the rules for environmental labelling in "GENERAL PRINCIPLES FOR AN ENVIRONMENTAL COMMUNICATION ON MASS MARKET PRODUCTS - PART 0: GENERAL PRINCIPLES AND METHODOLOGICAL FRAMEWORK", March 2016, chapter B.2.3. http://www.base-impacts.ademe.fr/gestdoclist

4.4. Functional unit 4: write a chat

For the manufacturing, distribution, use and end-of-life phases, the following allocations will be used, unless otherwise justified:

Parameter	Definition
dU	Time considered in the FU, in seconds. Time to write the message.
DDV_eqt	Estimated total lifespan of the equipment + First life time if refurbished equipment
$QtéDonnées$	Amount of data transferred in GB. This variable can be calculated with the formula: $QtéDonnées = NbCaractères * Données_{caractère} + \sum_{PJ} Taille\_PJ$
$NbCaractères$	Number of characters in the message
$Données_{caractère}$	Average amount of data transferred per character in a chat message (in GB)
PJ	Attachments and GIFs included in the document
$Taille\_PJ$	Size of the attachment (in GB)
$No.Recipients$	Number of recipients of the chat message

Usage scenario and allocation and calculation rules

dU: duration of the study

eqt_LS: equipment lifespan

FU_impacts: Impacts allocated to the FU of the system of the line in the LC phase in column measured over the dU duration

EF (X years): Emission factor for the LC phase in column measured over X years

Scope	Allocation rules			
	Manufacturing (mandatory)	**Distribution (mandatory)**	**Use (mandatory)**	**End of life (mandatory)**
Terminals	Impacts_UF = $\frac{dU}{DDV\_eqt}$ * FE (DDV_eqt)	Impacts_UF = $\frac{dU}{DDV\_eqt}$ * FE (DDV_eqt)	Impacts_UF = FE (dU)	Impacts_UF = $\frac{dU}{DDV\_eqt}$ * FE (DDV_eqt)
Network data	Impacts_UF = $NbDestinataires * QtéDonnées *$ FE(1 GB)	Impacts_UF = $NbDestinataires * QtéDonnées *$ FE(1 GB)	Impacts_UF = $NbDestinataires * QtéDonnées *$ FE(1 GB)	Impacts_UF = $NbDestinataires * QtéDonnées *$ FE(1 GB)

Table 11: Allocation rules for calculating functional unit 4

For **the end-of-life phase**, reference should be made to the rules for environmental labelling in "GENERAL PRINCIPLES FOR AN ENVIRONMENTAL COMMUNICATION ON MASS MARKET PRODUCTS - PART 0: GENERAL PRINCIPLES AND METHODOLOGICAL FRAMEWORK", March 2016, chapter B.2.3.
http://www.base-impacts.ademe.fr/gestdoclist

5. Connection between data

Primary activity data (or specific data) is a quantified value derived from a direct measurement or a calculation from direct measurements of an activity or process in the product life cycle. After multiplication by an emission or characterisation factor, this value can be used to calculate an impact category indicator.

Secondary data (or generic data) is a quantified value of a product life cycle activity or process obtained from sources other than direct measurement or calculation from direct measurements.

Semi-specific data is:

primary (or specific) data to be entered by the operator but for which a default value is proposed;

data provided by default but which can be specified by the operator to improve the environmental assessment.

These semi-specific values, which are deliberately conservative, are intended to encourage stakeholders in the sector to substitute their own values in order to improve the results of the environmental assessment. The conservative values proposed are not average values and must be used strictly within the context of this methodological standard.

5.1. Primary data collection method

Primary data should be collected over a one-year period to avoid seasonal variations.
If the digital service in question has a total duration of less than one year, the collection period must include the entire duration of the digital service.

5.2. Completeness and connection between primary, secondary and semi-specific data

It is difficult to apply the principle of mass, energy or impact cut-off rules in the case of digital services. The preferred approach here is therefore that of the **representativeness (completeness) of the equipment or systems**, depending on the approach chosen.

The measurement and modelling of the digital service should cover a defined percentage (greater than or equal to 90%) of the equipment or systems, in terms of the energy consumption of the modelled elements in relation to the energy consumption of all elements associated with the digital service concerned, for each tier (terminals, network, data centre).

The following table lists the primary, semi-specific and secondary data to be used:

User environment		
	Block diagram element	Type of data
Terminals	Computer - CPU	Secondary data
	Computer - Laptop	Secondary data
	Tablet	Secondary data
	Smartphone	Secondary data
	Docking station	Primary data
	Computer monitor	Secondary data

Telephony and video conferencing		
	Block diagram element	Type of data
Terminals	Telepresence system	Primary data
	Video conferencing system (Lifesize type)	Semi-specific data
	80" screen	Semi-specific data
	Video projector	Primary data
	Audio conference stations (spider type)	Semi-specific data
	Camera/webcam	Primary data
	IP phone	Semi-specific data
	Digital phone	Primary data
	DECT phone	Primary data
	Analogue phone	Primary data
	Wireless VoIP phone	Primary data
Network	PABX	Semi-specific data
	IPBX	Semi-specific data

Local area network (LAN)		
	Block diagram element	Type of data
Network	WiFi transmission terminal (Box)	Secondary data
	PMR transmission terminal	Primary data
	DECT transmission terminal	Primary data
	Hub	Primary data
	Bridge	Primary data
	Modem	Primary data
	Repeater	Primary data
	Router	Semi-specific data
	Switch	Semi-specific data
	Console port server	Semi-specific data
	Server - security appliance	Semi-specific data
	Local storage/appliance	Semi-specific data
	VoIP gateway	Primary data
	Analogue gateway (Beronet type)	Primary data
	Firewall (physical)	Semi-specific data
	IPSec VPN (physical)	Primary data
	Fabric interconnect	Primary data
	Antenna	Primary data

Local area network (WLAN)		
	Block diagram element	Type of data
Network	WAN	Semi-specific data
	WLAN controller	Semi-specific data
	WLAN adapter	Primary data
	WLAN solution engine	Primary data
	Wireless control system	Primary data

	Wireless location appliance	Primary data
	4G router	Semi-specific data

Network support assets and infrastructure		
	Block diagram element	Type of data
Data centre	Technical room (including switch, servers, local storage and WAN gateway)	Semi-specific data
	Air conditioning	Semi-specific data
	Batteries	Semi-specific data
	RJ45 cabling	Primary data
	Fibre optic cabling	Primary data
	High current cabling	Primary data
	Low current cabling	Primary data
	Cross-connect bay	Primary data
	Main low voltage switchboard	Primary data
	Inverter	Semi-specific data

Local area network (LAN) - Software		
	Block diagram element	Type of data
Network	Virtual Machine	Secondary data

Table 12: Interconnection of primary, semi-specific and secondary data

For specific data, default values have been identified: they have been integrated into the mini-calculator made available in addition to this standard.

6. Data quality

For the determination of the data quality, see the document "GENERAL PRINCIPLES FOR AN ENVIRONMENTAL COMMUNICATION ON MASS MARKET PRODUCTS - PART 0: GENERAL PRINCIPLES AND METHODOLOGICAL FRAMEWORK", March 2016, chapter 7. http://www.base-impacts.ademe.fr/gestdoclist

Data quality criteria can also be based on the approaches developed in chapter 2.2. (screening, simplified, comprehensive approaches)

7. Specific details related to the use phase

See the "Methodological standard for the environmental assessment of digital services" PCR: no changes.

8. Environmental indicators

8.1. Data leading to environmental impacts

See the "Methodological standard for the environmental assessment of digital services" PCR: no changes.

8.2. Environmental indicators selected

See the "Methodological standard for the environmental assessment of digital services" PCR: no changes.

8.3. Other relevant environmental indicators

See the "Methodological standard for the environmental assessment of digital services" PCR: no changes.

9. Temporary data validation and update frequency

See the methods specified in the general principles for an environmental communication on mass market products (part 0). http://www.base-impacts.ademe.fr/gestdoclist

10. Validation method for data and results

See the "Methodological standard for the environmental assessment of digital services" PCR: no changes.

11. Method for taking into account the time lag in GHG (greenhouse gas) emissions

The products covered by this standard are not considered long-life products (lifespan <15 years).

It is not therefore relevant to take into account the time lag in greenhouse gas emissions for this product category.

12. Limits

See the "Methodological standard for the environmental assessment of digital services" PCR: no changes.

13. Annexes

13.1. Annex A - List of CPA codes concerned

CPA code	Description
J	INFORMATION AND COMMUNICATION SERVICES
58	Publishing services
58.1	Publishing services of books, periodicals and other publishing services
58.11	Book publishing services
58.11.3	On-line books
58.11.30	On-line books
58.11.4	Advertising space in books
58.11.42	Advertising space in books, electronic
58.12	Publishing services of directories and mailing lists
58.12.2	On-line directories and mailing lists
58.12.20	On-line directories and mailing lists
58.13	Publishing services of newspapers
58.13.2	On-line newspapers

58.13.20	On-line newspapers
58.13.3	Advertising space in newspapers
58.13.32	Advertising space in newspapers, electronic
58.14	Publishing services of journals and periodicals
58.14.2	On-line journals and periodicals
58.14.20	On-line journals and periodicals
58.14.3	Advertising space in journals and periodicals
58.14.32	Advertising space in journals and periodicals, electronic
58.19	Other publishing services
58.19.2	Other on-line content
58.19.21	On-line adult content
58.19.29	Other on-line content n.e.c.
58.2	Software publishing services
58.21	Publishing services of computer games
58.21.2	Computer games downloads
58.21.20	Computer games downloads
58.21.3	On-line games
58.21.30	On-line games
58.29	Other software publishing services
58.29.3	Software downloads
58.29.31	System software downloads
58.29.32	Application software downloads
58.29.4	On-line software
58.29.40	On-line software
59	Motion picture, video and television programme production services, sound recording and music publishing
59.1	Motion picture, video and television programme services
59.11	Motion picture, video and television programme production services
59.11.2	Motion picture, video and television programme products
59.11.24	Films and other video downloads
59.11.25	Streamed video content
59.2	Sound recording and music publishing services
59.20	Sound recording and music publishing services
59.20.3	Music publishing services
59.20.32	Electronic scores
59.20.35	Music downloads
59.20.36	Streamed audio content
60	Programming and broadcasting services
60.1	Radio broadcasting services
60.10	Radio broadcasting services
60.10.1	Radio broadcasting services; broadcast originals
60.10.11	Radio programming and broadcasting services
60.2	Television programming and broadcasting services; broadcasting originals
60.20	Television programming and broadcasting services; broadcasting originals
60.20.1	Television programming and broadcasting services
60.20.11	Linear television programming and broadcasting services

60.20.12	On-line video-on-demand services
60.20.13	Other video-on-demand services
61	Telecommunications services
61.1	Wired telecommunications services
61.10	Wired telecommunications services
61.10.1	Data and message transmitting services
61.10.11	Fixed telephony services - access and use
61.10.12	Fixed telephony services - calling features
61.10.13	Private network services for wired telecommunications systems
61.10.2	Carrier services for wired telecommunications
61.10.20	Carrier services for wired telecommunications
61.10.3	Data transmission services over wired telecommunications networks
61.10.30	Data transmission services over wired telecommunications networks
61.10.4	Wired Internet telecommunications services
61.10.41	Internet backbone services
61.10.42	Narrow-band Internet access services over wired networks
61.10.43	Broad-band Internet access services over wired networks
61.10.49	Other wired Internet telecommunications services
61.10.5	Home programme distribution services over wired infrastructure
61.10.51	Home programme distribution services over wired infrastructure, basic programming package
61.10.52	Home programme distribution services over wired infrastructure, discretionary programming package
61.10.53	Home programme distribution services over wired infrastructure, pay-per-view
61.2	Wireless telecommunications services
61.20	Wireless telecommunications services
61.20.1	Mobile telecommunications services and private network services for wireless telecommunications systems
61.20.11	Private network services for wireless telecommunications systems
61.20.12	Mobile voice services
61.20.13	Mobile text services
61.20.14	Mobile data services, except text services
61.20.2	Carrier services for wireless telecommunications
61.20.20	Carrier services for wireless telecommunications
61.20.3	Data transmission services over wireless telecommunications networks
61.20.30	Data transmission services over wireless telecommunications networks
61.20.4	Wireless Internet telecommunications services
61.20.41	Narrow-band Internet access services over wireless networks
61.20.42	Broad-band Internet access services over wireless networks
61.20.49	Other wireless Internet telecommunications services
61.20.5	Home programme distribution services over wireless networks
61.20.50	Home programme distribution services over wireless networks
61.3	Satellite telecommunications services
61.30	Satellite telecommunications services
61.30.1	Satellite telecommunications services, except home programme distribution services via satellite
61.30.10	Satellite telecommunications services, except home programme distribution services via satellite

61.30.2	Home programme distribution services via satellite
61.30.20	Home programme distribution services via satellite
61.9	Other telecommunications services
61.90	Other telecommunications services
61.90.1	Other telecommunications services
61.90.10	Other telecommunications services
62	Computer programming, consultancy and related services
62.0	Computer programming, consultancy and related services
62.01	Computer programming services
62.01.1	IT design and development services
62.01.11	IT design and development services for applications
62.01.12	IT design and development services for networks and systems
62.03	Computer facilities management services
62.03.1	Computer facilities management services
62.03.11	Network management services
62.03.12	Computer systems management services
63	Information services
63.1	Data processing, hosting and related services; web portals
63.11	Data processing, hosting and related services
63.11.1	Data processing, hosting, application services and other IT infrastructure provisioning services
63.11.11	Data processing services
63.11.12	Web hosting services
63.11.13	Application service provisioning
63.11.19	Other hosting and IT infrastructure provisioning services
63.11.2	Advertising space or time in Internet
63.11.20	Advertising space or time in Internet
63.12	Web portal services
63.12.1	Web portal content
63.12.10	Web portal content
63.12.2	Internet advertising space in web portals
63.12.20	Internet advertising space in web portals

Table 13: CPA codes

INDEX OF TABLES AND FIGURES

ABBREVIATIONS AND ACRONYMS

ADEME	French Environment and Energy Management Agency
PCR	Product Category Rules

THE ADEME IN BRIEF

At the ADEME - the French agency for ecological transition - we are firmly committed to the fight against global warming and resource degradation.

On all fronts, we are mobilising citizens, economic players and regions, giving them the means to move towards a resource-efficient, low-carbon, fairer and more harmonious society.

In all areas - energy, air, circular economy, food, waste, land, etc. - we advise, facilitate and help finance many projects, from research to sharing solutions.

At all levels, we put our expertise and foresight capacities to work on behalf of public policy.

The ADEME is a public institution under the supervision of the French Ministry of Ecological Transition and Ministry of Higher Education, Research and Innovation.

THE ADEME COLLECTIONS

FACTS AND FIGURES
The ADEME as a reference: It provides objective analyses based on regularly updated numerical indicators.

KEYS TO ACTION
The ADEME as a facilitator: It develops practical guides to help players to implement their projects methodically and/or in compliance with the regulations.

THEY DID IT
The ADEME as a catalyst: The players share their experiences and know-how.

EXPERTISE
The ADEME as an expert: It reports on the results of research, studies and collective achievements carried out under its supervision

HORIZONS
The ADEME looks to the future: It proposes a forward-looking and realistic vision of the challenges of the energy and ecological transition, for a desirable future to be built together.

RÉPUBLIQUE FRANÇAISE
Liberté
Égalité
Fraternité

ADEME
AGENCE DE LA TRANSITION ÉCOLOGIQUE

FAITS & CHIFFRES

GENERAL PRINCIPLES FOR THE ENVIRONMENTAL LABELLING OF CONSUMER PRODUCTS

This methodological standard for the environmental assessment of the corporate LAN and telephony services provides the method for calculating the environmental labelling indicators of this product category.

This document supplements and clarifies the sectoral rules of the "parent" PCR: "Methodological standard for the environmental assessment of digital services" for the case of corporate LAN and telephony services, and should be read in parallel.