



**Environmental criteria for sustainable public
procurement of**

Hardware for end users

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1. Scope/definition

The hardware for end users product group comprises desktops, laptops and monitors. The following products, with their corresponding CPV codes, are part of this product group. This list of products is non-exhaustive.

Products	CPV code
Computer equipment and supplies	30200000-1
Data processing machines (hardware)	30210000-4
Personal computers	30213000-5
Portable computers	30213100-6
Tablet PCs	30213200-7
Desktop computers	30213300-8
Monitors	30231300-0
Computer parts, accessories and supplies	30237000-9

Excluded from the scope of this product group are:

- software (there is a separate product group for this)
- reproduction equipment (there is a separate product group for this)
- networks (component of the product group Networks, telephone services and telephone equipment)
- infrastructure and data centres
- hardware-related services

2. Most significant environmental impacts

The following tables list the sustainability themes and describe the approach to each theme for the product group. The 'Approach' column presents a statement indicating the influence of sustainable purchasing and its criteria on the 'sustainability' of the theme. This column also includes a reference to any requirements, award criteria or points of attention/suggestions that may be useful in implementing the approach. The product group can also have an impact on other environmental themes but, for now at least, these are less relevant, of a much less significant level of concern or do not as yet have a suitable set of standard criteria.

Themes:		Approach:	No. of requirement/ Criterion
Energy and climate Energy consumption of hardware and server rooms and corresponding CO ₂ emissions, energy consumption of hardware production	⇒	• Use of energy-efficient models	AS3, ME1, GC3, GC4
		• Energy-efficient use and management of hardware	ME6
		• Use of equipment with functions for energy management on hardware	ME8
Supplies and Raw materials Raw materials consumption in the production of hardware, critical materials in hardware, hardware packaging, end-of-life	⇒	• Extend life cycle of hardware	AS2
		• Use equipment with replaceable parts	ME2, ME3

products, recycling, reuse		<ul style="list-style-type: none"> Use recycled packaging material 	ME7
		<ul style="list-style-type: none"> Ensure that parts can be reordered 	ME9
		<ul style="list-style-type: none"> Service for reuse and recycling 	AS4
Water and Soil Harmful substances in plastic parts, mercury in monitors	⇒	<ul style="list-style-type: none"> Use products with a limited number of (or no) hazardous components 	ME4, ME10
Health and welfare Noise level of equipment	⇒	<ul style="list-style-type: none"> Use product with a limited noise level 	ME5

3. Points of attention/suggestions

Every procurement project begins with cataloguing the needs of the internal customer. By considering sustainability at this early stage, it is possible to carry out an investigation of the most sustainable solution for the procurement needs. The following table presents points for attention and suggestions for promoting sustainability in procurement within this product group.

No.	Points of attention/suggestions (AS)
AS1	Take changes in the organisation into account When procuring computers, anticipate trends or the restructuring of the organisation, such as ICT trends, the increase in telecommuting and changes in the office environment, such as the creation of flexible workplaces. Rapid changes within the organisation require flexible workplaces and work systems.
AS2	Take hardware/software expansions into account When procuring new computers assess the possibilities of expanding the hardware and/or software in the future. Specific trends or restructuring within the organisation can lead to changing software applications and hardware use. Procure systems with sufficient capacity for expandability or systems that are easy to adapt. Note: laptops are more difficult to expand.
AS3	Use laptops or thin clients Where possible, purchase laptops or thin client systems instead of desktops and monitors when hardware expansion is less of a concern. The average laptop (notebook) uses 38% less energy in the production and use phase than the average desktop. Thin clients use 15% less energy on average than a desktop in these stages. Furthermore, the raw materials used to produce the overall product are less.
AS4	Service for reuse and recycling hardware Promote high-quality reuse of end-of-life hardware, or recycling of these products where reuse is not possible. This can be outsourced as a service. Important points of attention are: evaluation of the value and categorisation of the end-of-life hardware, deletion of data from all data-carrying hardware (AIVD requirement), maximising lifetime and value of the hardware through reuse and recycling of hardware that cannot be reused.

4. Selection criteria

Not defined for this product group.

5. Technical specifications

No.	Technical specifications (ME)
ME1	<p>"Energy Star" requirements for computers and/or monitors All products meet the most recent Energy Star standards for energy performance. See: www.eu-energystar.org.</p> <p><i>Explanation</i> As from 7 September 2015, computers are subject to the Energy Star standards version 6.1, and as from 7 May 2015 monitors are subject to version 6.0.</p> <p><i>Verification</i> The tenderer may be asked to submit documentation demonstrating compliance with the criteria above. Products in the Energy Star database (see http://www.eu-energystar.org/nl/database.shtml) are in compliance. Products with a relevant type 1 environmental label answering to the listed criteria will also be assumed to be in compliance. Other appropriate forms of documentation will also be accepted, such as a technical file from the manufacturer or approval report of an accredited institution (for example, an ISO 17025-accredited institution authorised to issue approval reports) showing that the products answer to the criteria.</p> <p>For an explanation of type I environmental label, see: http://www.nen.nl/NEN-Shop/Norm/NENENISO-140242000-en.htm</p> <p>For information on ISO 17025 in reference to performance of trials and calibrations, see: http://www.nen.nl/NEN-Shop/Norm/NENENISOIEC-170252005-nl.htm</p> <p><i>Source EU GPP</i></p>
ME2	<p>Replacement of parts in PCs PCs are designed such that:</p> <ul style="list-style-type: none"> the memory is easy to access and can be replaced or updated the hard disk (or components that run the functions of the hard disk) and, if applicable, CD-ROM/DVD station can be replaced. <p><i>Verification</i> The tenderer may be asked to submit documentation demonstrating compliance with the criteria above. Products with a Type 1 environmental label or environmental declaration answering to the listed criteria will be assumed to be in compliance. Other appropriate documentation will also be accepted.</p> <p>For an explanation of type I environmental label, see: http://www.nen.nl/NEN-Shop/Norm/NENENISO-140242000-en.htm</p> <p><i>Source EU GPP</i></p>
ME3	<p>Replacement of components in Notebooks Notebooks will be designed such that the memory is easy to access and can be replaced or updated.</p> <p><i>Verification</i> The tenderer may be asked to submit documentation demonstrating compliance with the criteria above. Products with a Type 1 environmental label or environmental declaration answering to the listed criteria will be assumed to be in compliance. Other appropriate documentation will also be accepted.</p> <p>For an explanation of type I environmental label, see: http://www.nen.nl/NEN-Shop/Norm/NENENISO-140242000-en.htm</p> <p><i>Source EU GPP</i></p>
ME4	<p>Mercury in screens The backlighting of LCD screens must be mercury-free.</p> <p><i>Verification</i> The tenderer may be asked to submit documentation demonstrating compliance with the</p>

	<p>criteria above. All products with a relevant EU Ecolabel are considered to be in compliance. Likewise, products with a different type I environmental label or environmental declaration meeting this criterion are acceptable. Other appropriate documentation will also be accepted.</p> <p>For an explanation of type I environmental label, see: http://www.nen.nl/NEN-Shop/Norm/NENENISO-140242000-en.htm</p> <p><i>Source EU GPP</i></p>
ME5	<p>Noise level of PCs and notebooks</p> <p>To be in compliance with point 3.2.5 of ISO 9296, the “Declared A-weighted Sound Power Level” (re 1 pW) of PCs and notebooks, measured in accordance with ISO 7779 (or equivalent standard) may not exceed:</p> <p><i>For PCs:</i></p> <ul style="list-style-type: none"> • 4.0 B(A) in non-active status (equal to 40 dB(A)); • 4.5 B(A) when reading a hard disk (equal to 45 dB(A)). <p><i>For notebooks</i></p> <ul style="list-style-type: none"> • 3.5 B(A) in non-active status (equal to 35 dB(A)); • 4.0 B(A) when reading a hard disk (equal to 40 dB(A)). <p><i>Verification</i></p> <p>The tenderer may be asked to submit documentation for PCs demonstrating compliance with the criteria above. All products with a relevant EU Ecolabel are considered to be in compliance. Likewise, products with a different type I environmental label or environmental declaration meeting this criterion are acceptable. Other appropriate documentation will also be accepted.</p> <p>Notebooks with a relevant type 1 environmental label answering to the listed criteria will be assumed to be in compliance. Other appropriate documentation will also be accepted. This may be a report confirming that the noise emission levels have been measured in accordance with ISO 7779 and declared in compliance with ISO 9296 or equivalent standards. The report must state the noise emission levels measured in both non-active status and when accessing a disk station, and be declared in compliance with 3.2.5 of ISO 9296 or equivalent standard.</p> <p>For an explanation of type I environmental label, see: http://www.nen.nl/NEN-Shop/Norm/NENENISO-140242000-en.htm</p> <p><i>Source EU GPP</i></p>
ME6	<p>Environmentally friendly hardware management</p> <p>As part of ensuring that hardware is managed in an environmentally friendly manner, instructions and/or courses will be offered to IT employees.</p> <p><i>Verification</i></p> <p>The tenderer may be asked to provide a copy of the instruction guide. This instruction guide may be preloaded onto the computer (or for monitors, supplied with the operating system software) to allow the user to access it. The instruction guide must also be available on a website. The instruction guide may address subjects such as the use of energy-saving functions. Another option is to offer a simple training course (interactive, in accordance with the nature of the equipment) or an information package.</p> <p><i>Source EU GPP</i></p>
ME7	<p>Proportion of recycled material in packaging</p> <p>Any cardboard boxes used must consist of at least 80% recycled material. If plastic bags or sheets are used in the consumer packaging, they must be made up of at least 75% recycled material or must be biodegradable or compostable in accordance with the definitions of EN 13432.</p> <p><i>Verification</i></p> <p>The tenderer may be asked to submit documentation demonstrating compliance with the criteria above. Products with a Type 1 environmental label or environmental declaration answering to the listed criteria will be assumed to be in compliance. As an alternative, a declaration of compliance with this criterion for the product packaging may be submitted. This criterion applies only to primary packaging within the definition of Regulation 94/62/EC.</p>

	<p>For an explanation of type I environmental label, see: http://www.nen.nl/NEN-Shop/Norm/NENENISO-140242000-en.htm</p> <p><i>Source EU GPP</i></p>
ME8	<p>Functions for hardware energy management Functions for energy management are present on the equipment itself (for all products).</p> <p><i>Verification</i> The tenderer may be asked to indicate clearly for each product that the energy management function is on the device, where it is found and how it is operated.</p> <p><i>Source EU GPP</i></p>
ME9	<p>Availability of spare parts The tenderer must ensure that spare parts will be available for at least five years after the end of production.</p> <p><i>Verification</i> The tenderer may be asked to submit documentation demonstrating compliance with the criteria above. Products with a relevant type 1 environmental label answering to the listed criteria will be assumed to be in compliance. Other appropriate documentation will also be accepted.</p> <p><i>Source EU GPP</i></p>
ME10	<p>Hazardous substances in plastic parts Materials hazardous to health in plastic parts heavier than 25 g may not contain flame retardants or preparations that have been assigned any of the following risk phrases within the definition of Regulation (EC) 1272/2008:</p> <ul style="list-style-type: none"> • R45 (may cause cancer) • R46 (may cause inheritable genetic damage) • R60 (may impair fertility) • R61 (may cause harm to the unborn child) <p><i>Verification</i> The tenderer may be asked to submit documentation demonstrating compliance with the criteria above. Products with a Type 1 environmental label or environmental declaration answering to the listed criteria will be assumed to be in compliance. Other appropriate documentation will also be accepted.</p> <p>For an explanation of type I environmental label, see: http://www.nen.nl/NEN-Shop/Norm/NENENISO-140242000-en.htm</p> <p><i>Source EU GPP</i></p>

6. Award criteria

No.	Award criteria (GC)
GC1	<p>Options for assembly and recycling The easier the products are to disassemble and the more recyclable the plastic parts are, the higher this section of the tender will be rated:</p> <ul style="list-style-type: none"> • connections are easy to find, accessible with standard tools and standardised to the maximum possible extent • plastic parts heavier than 25 g are identified with a permanent manufacturer's mark in accordance with ISO 11469:2000 or equivalent standard to identify the material. This criterion does not apply to extruded plastic materials or the light conductor of flat screens. • Plastic components must consist of a single polymer or compatible polymers, excepting the housing, which must consist of no more than two separable types of polymer. <p><i>Verification</i> The tenderer may be asked to submit a test report with details concerning the disassembly of the</p>

	<p>personal computer. This report must include an explosion drawing of the personal computer indicating the most important components and any hazardous substances in the parts. The report may be submitted in written or audiovisual form. Information on hazardous substances must be provided to the competent authority in the form of a list of materials indicating the types of material, the quantity used and the places they are used.</p> <p><i>Source EU GPP</i></p>
GC2	<p>Recycled material and recyclability (for PCs, notebooks and monitors)</p> <p>The higher the percentage by weight of the external plastic housing of the system unit, screen and keyboard is made of post-consumer recycled materials, the higher this component of the tender will be rated.</p> <p>This percentage by weight of post-consumer recycled material must be at least 10%.</p> <p><i>Verification</i></p> <p>The tenderer may be requested to provide a declaration of the percentage of post-consumer recycled material.</p> <p><i>Source: EU GPP</i></p>
GC3	<p><i>(In connection with the European Energy Efficiency Directive 2012/27/EU, this award criteria is mandatory for national government procurement tenders).</i></p> <p>Most energy-efficient PCs and notebooks</p> <p>Points are assigned for every 5% of energy consumption lower than the specifications in the minimum requirement ME1 Energy Star requirements for computer and/or monitor.</p> <p><i>Verification</i></p> <p>The tenderer they be requested to submit a technical file from the manufacturer. The substantiation is to be derived from the submission of the TEC value (and accompanying test report) the manufacturer uses to show that the product is indeed x% better.</p> <p><i>Source EU GPP</i></p>

7. Contract provisions

Not defined for this product group.