

## Joint Research Centre (JRC)

## EU Green Public Procurement (GPP) criteria revision for Imaging Equipment



Giannis Kougoulis  
IPTS - Institute for Prospective Technological Studies  
Seville – Spain

<http://www.jrc.ec.europa.eu/>  
[http://susproc.jrc.ec.europa.eu/product\\_bureau/](http://susproc.jrc.ec.europa.eu/product_bureau/)

## GPP criteria – general overview

### I. Definition and Scope

### II. Technical Background report main conclusions

### III. GPP Criteria Proposal

1. General overview of GPP criteria.
2. Criteria related to paper management
3. Criteria related to energy efficiency
4. Criteria related to health impacts in the use phase
5. Criteria related to Resource Efficiency and End-of-Life management of the cartridges
6. Criteria related to Resource Efficiency and End-of-Life management of the equipment
7. Criteria related to user instructions and contract perform



## I. Definition and Scope of GPP criteria for Imaging Equipment

### Definition



Use the definition of EU Ecolabel and Energy Star label.

**Printers – Copiers - Multifunctional Devices**

### Scope



1. Cover the scope of EU Ecolabel

*Large products not typically used in an office are excluded*

2. Additionally, cover leasing of this equipment

**Purchase and Leasing**

## II. Technical Background report main conclusions

Key Environmental Areas



1. Paper consumption
2. Energy consumption in use phase
3. Design of Product: Preventing the use of hazardous substances and materials
4. Design of Product: Facilitate Reuse, Recycling and sound End-of-life management
5. Ink and toner consumables
6. Noise emissions during operation
7. Indoor air emissions



**Key environmental impacts:**

The following key environmental impact categories along the product life cycle are covered:

global warming, acidification, ecotoxicity, human toxicity, eutrophication, resource depletion, energy consumption.

**GPP approach**

- Purchase products with efficient paper management
- Purchase energy efficient models
- Purchase products with a limited amount of hazardous constituents
- Purchase products which are resource efficient, generate little waste and facilitate reuse and recycling
- Purchase products with low indoor emissions and acoustic noise

**Overview of Criteria and Requirements given in GPP**

1. Technical specifications Core Comprehensive
2. Award criteria Core Comprehensive
3. Contract performance clause



**EU GPP Criteria Terminology**

Two sets of criteria are proposed:

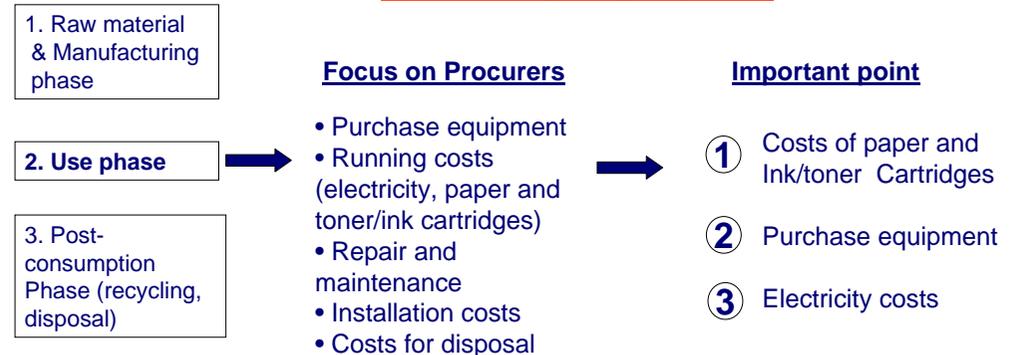
- The **core criteria** are those suitable for use by any contracting authority across the Member States and address the key environmental impacts. They are designed to be used with minimum additional verification effort or cost increases.
- The **comprehensive criteria** are for those who wish to purchase the best products available on the market. These may require additional verification effort or a slight increase in cost compared to other products with the same functionality.

**EU GPP Criteria for Imaging Equipment - Cost considerations**

It is recommended to carry out a LCC EU Energy Star calculator :

[http://www.eu-energystar.org/en/en\\_009.shtml](http://www.eu-energystar.org/en/en_009.shtml)

**Life Cycle Costing**



### GPP Criteria Overview

Requirements	Tech. Spec.		Award		Agenda point
1. Double side printing	Core	Com.			Paper management
2. Multiple page printing and/or copying in one paper sheet	Core	Com.			
3. Printouts produced after cancelation			Core	Com.	
4. Energy efficiency- Energy Star requirements	Core	Com.			Energy efficiency
5. Energy efficiency in Networked standby mode				Com.	

### GPP Criteria Overview

Requirements	Tech. Spec.		Award		Agenda point
6. Substances in plastic parts hazardous to health				Com.	Health impacts in the use phase
7. Acoustic noise		Com.			
8. Indoor air emissions				Com.	
9. Design for reuse of toner and/or ink cartridges		Com.			Resource efficiency and end-of-life management – Inks and toners Cartridges
10. Availability of high volume ink cartridges		Com.			

### GPP Criteria Overview

Requirements	Tech. Spec.		Award		Agenda point
11. Design for disassembly, recycling and end of life management			Core	Com.	Resource Efficiency, Recycling and End-of-Life of the equipment
12. Mercury in fluorescent lamps				Com.	
13. Resource efficiency: Minimum recycled and reused content		Com.			

### GPP Criteria Overview

Requirements	Tech. Spec.		Award		Agenda point
14. User instructions for green performance management	Core	Com.			User Instructions
Guarantee of spare parts	Contract performance clause			Guarantee	
Guarantee of repair or replacement	Contract performance clause				

Agenda point 3.

GPP criteria related to paper management

- Double side printing
- Multiple page printing in one paper sheet
- Printouts produced after cancelation



Agenda point 3. Paper management - Criteria Overview

Requirements	Tech. Spec.		Award		Agenda point
	Core	Com.			
1. Double side printing	Core	Com.			Paper management
2. Multiple page printing and/or copying in one paper sheet	Core	Com.			
3. Printouts produced after cancelation			Core	Com.	



As Core criterion formulation:

Double side printing

Imaging equipment devices with a maximum operating speed for monochrome printing/copying of **30 ipm (images per minute) or more** for A4 size paper shall be equipped with an automatic double-side print/copy unit (a duplex-unit).

The duplex printing and/or copying function shall be set as default in the original software provided by the manufacturer.

Verification

Products holding a relevant Type 1 Eco-label fulfilling the listed requirements will be deemed to comply.

A technical dossier from the manufacturer demonstrating that these requirements have been met is also accepted.

Multiple page printing and/or copying in one paper sheet

Core same as Comprehensive criterion

Formulation

Imaging equipment devices shall offer as a standard feature the capability to print and/or copy several pages of a document on one sheet of paper when the product is managed by original software provided by the manufacturer (printer driver).

Verification

Products holding a relevant Type 1 Eco-label fulfilling the listed requirements will be deemed to comply.

A technical dossier from the manufacturer demonstrating that these requirements have been met is also accepted.

**Printouts produced after cancelation**

**AWARD CRITERION**  
Core same as comprehensive

**Formulation**

Points can be awarded to imaging equipment devices based on their performance regarding the maximum number of pages which are printed after the user has cancelled the printing process for monochrome one side printing. The measurement shall be conducted using the measurement procedure described in Annex 2. The following formula shall be used:

$$a = b (1 - 0.05x)$$

Where: a = points awarded using this criterion t for the offered imaging device  
 b = maximum points that can be awarded from this criterion  
 x = number of maximum printouts produced after cancelling printing  
 if x is over 20 pages no points can be awarded

**Verification**

Products holding a relevant Type 1 Eco-label fulfilling the listed requirements will be deemed to comply. A technical dossier or a declaration from the manufacturer demonstrating that these requirements have been met is also accepted.

**Agenda point 4.**

**GPP criteria related to energy efficiency**

- Energy efficiency –Energy Star requirements
- Energy efficiency in Networked standby mode



**Agenda point 4. Energy efficiency criteria overview**

Requirements	Tech. Spec.		Award		Agenda point
	Core	Com.			
4. Energy efficiency- Energy Star requirements	Core	Com.			Energy efficiency
5. Energy efficiency in Networked standby mode				Com.	

**Energy efficiency –Energy Star requirements**

**Technical Specification**  
Core same as comprehensive

**Formulation**

All products shall meet the requirements of the latest ENERGY STAR specifications for imaging equipment available at: [www.eu-energystar.org](http://www.eu-energystar.org)

**Verification**

Products holding a relevant Type 1 Eco-label fulfilling the listed requirements and products holding the Energy Star v.2.0 label (or if applicable a more recent one) will be deemed to comply.  
 A technical dossier from the manufacturer demonstrating that these requirements have been met is also accepted.

**Energy efficiency in Networked standby mode**

Award additional points to products achieving performance of **tier 2** of the Ecodesign Directive Implementing Measures for networked standby losses

**Award criterion**  
Only as comprehensive

Formulation

Imaging equipment device which fulfils the following requirement:  
"the power consumption of the networked product with low network availability in the modes with networked standby which the product is switched into by the power management function does not exceed 2,00 W"

Verification

Products holding a relevant Type 1 Eco-label fulfilling the listed requirements will be deemed to comply.  
A technical dossier or a declaration from the manufacturer demonstrating that these requirements have been met is also accepted.

**Agenda point 5.**

**GPP criteria related to health impacts in the use phase**

- Hazardous substances
- Acoustic noise
- Indoor air quality



**Agenda point 5. Health impacts in the use phase criteria overview**

Requirements	Tech. Spec.	Award	Agenda point
6. Substances in plastic parts hazardous to health		Com.	Health impacts in the use phase
7. Acoustic noise	Com.		
8. Indoor air emissions		Com.	

**Substances in plastic parts hazardous to health**

**Award criterion**  
Based on current GPP criterion in Comprehensive

Formulation

Plastic parts heavier than 25g do not contain substances or preparations (including additives used as flame retardants) that are assigned any of the following risk phrases as defined in Council Directive No. 1272/2008:

- R45 (may cause cancer).
- R46 (may cause heritable genetic damage).
- R60 (may impair fertility).
- R61 (may cause harm to the unborn child).

Verification

Products holding a relevant Type 1 ecolabel fulfilling the listed criteria will be deemed to comply. Other appropriate means of proof will also be accepted.

**Acoustic Noise**

Based on EU Ecolabel proposal

Technical Specification  
in Comprehensive

Formulation

For devices with a printing function the 'Declared A-weighted Sound Level' (LWAd) according to the methods specified in ISO 7779 3rd edition (2010) shall not exceed the limits set by the following formula:

$$L_{WAd,lim,bw} = 37 + 20 \cdot \log(S_{bw} + 8) \text{ dB}$$

Where  $S_{bw}$  = images per minute for monochrome images

$L_{WAd,lim,bw}$  = A-weighted sound power level limit for monochrome printouts given in dB

and  $L_{WAd,lim,co} = 38 + 20 \cdot \log(S_{co} + 8) \text{ dB}$

Where  $S_{co}$  = images per minute for colour images

$L_{WAd,lim,co}$  = A-weighted sound power level limit for colour printouts given in dB

The devices shall additionally not exceed 75 (dB)  $L_{WAd}$  except for devices with a printing speed over 71 ipm.

Verification

Products holding a relevant Type 1 Eco-label fulfilling the listed requirements will be deemed to comply. A technical dossier from the manufacturer demonstrating that these requirements have been met is also accepted.

**Indoor emissions**

Based on EU Ecolabel proposal

Award criterion  
in Comprehensive

Formulation

In the use phase the product does not emit the below listed pollutants in amounts higher than the maximum emission rates given below:

Substance	Emission rate Print phase (mg/h)		Emission rate Ready phase (mg/h).	
	Monochrome printing	Total in ready + print phase	Desktop products	Floor-mounted equipment (Volume >250 litres)
TVOC	18	10	1	2
Benzene	<0.05	<0.05		
Styrene	1.8	1.0		
Non identifiable VOC	1.8	1.0		
Ozone*	3.0	1.5		
Dust*	4.0	4.0		

\*applies only for Electrophotography (laser) printing technology

All the above emission rates must be measured in accordance with the requirements described in ECMA-328 5th edition (based on Annex C9. Model for RAL-UZ 122 Option) or Blue Angel: RAL-UZ 122 Version June 2006.

Verification

Products holding a relevant Type 1 Eco-label fulfilling the listed requirements will be deemed to comply. A technical dossier from the manufacturer demonstrating that these requirements have been met is also accepted.

**Thank You Very Much**



Agenda point 6.

GPP criteria related to Resource Efficiency and End-of-Life management of the cartridges

- Design for reuse of toner and/or ink cartridges
- Availability of high volume ink



**Agenda point 6. Resource Efficiency and End-of-Life management of cartridges – Criteria Overview**

Requirements	Tech. Spec.		Award		Agenda point
9. Design for reuse of toner and/or ink cartridges		Com.			Resource efficiency and end-of-life management – Inks and toners Cartridges
10. Availability of high volume ink cartridges		Com.			

**Resource efficiency: Design for reuse of toner and/or ink cartridges**

Based on EU Ecolabel developments Technical Specification in Comprehensive

Formulation

The products must accept reused (remanufactured) toner and/or ink cartridges. Any cartridge provided or recommended for use in the product shall be designed for reuse with no technical barriers via chips, compatibility of cartridge and printer software which hamper reusing the cartridge.

Verification

Products holding a relevant Type 1 Eco-label fulfilling the listed requirements will be deemed to comply. A technical dossier from the manufacturer demonstrating that these requirements have been met is also accepted.

**Resource efficiency: Availability of high volume ink cartridges**

Based on EU Ecolabel developments Technical Specification in Comprehensive

Formulation

Monochrome high volume inkjet cartridges with a performance of minimum 1500 page yield shall be available for imaging equipment (applying inkjet technology) of printing speed of 30 images-per-minute or more.

Verification

Products holding a relevant Type 1 Eco-label fulfilling the listed requirements will be deemed to comply. A technical dossier or a declaration from the manufacturer demonstrating that these requirements have been met is also accepted.

**Agenda point 7.**

**GPP criteria related to Resource Efficiency, Recycling and end-of-life management of the equipment**

- Design for recycling, end-of-life management and disassembly
- Mercury in fluorescent lamps
- Minimum recycled and reused content

**Agenda point 7. Resource Efficiency, Recycling and End-of-life management of the equipment –Criteria Overview**

Requirements	Tech. Spec.		Award		Agenda point
11. Design for disassembly, recycling and end of life management			Core	Com.	Resource Efficiency, Recycling and End-of-Life of the equipment
12. Mercury in fluorescent lamps				Com.	
13. Resource efficiency: Minimum recycled and reused content		Com.			

**Resource Efficiency and End-of-Life management of the equipment**

**Design for recycling, end-of-life management and disassembly**

Based on EU Ecolabel developments

Award Criterion  
in Core and Comprehensive

Formulation

The formulation is the same for core and comprehensive

Design for disassembly and recycling

A.The external plastic casings, the cables, and the recommended for use by the manufacturer (OEM) cartridges of weight 25gr or more of the imaging equipment offered does not contain brominated aromatic substances used as flame retardants nor PVC.

B.The imaging device offered is easy to dismantle by professionally trained personnel using the tools usually available to them, for the purpose of repairs and replacements of worn-out parts, upgrading older or obsolete parts, and separating parts and materials, ultimately for recycling or reuse.

**Design for recycling, end-of-life management and disassembly**

Verification

Regarding point A. Products holding a relevant Type 1 Eco-label fulfilling the listed requirements will be deemed to comply. A declaration from the manufacturer that the requirements have been met is also accepted. The applicant shall declare the substances used as flame retardants.

Regarding point B. Products holding a relevant Type 1 Eco-label fulfilling the listed requirements will be deemed to comply.

A technical dossier from the manufacturer demonstrating that the requirements have been met is also accepted. This technical dossier from the manufacturer shall contain either a completed "checklist for recyclable design" indicating that all the requirements have been met (s . Annex 1) or a technical report showing the dismantling of the imaging equipment with an exploded diagram of the imaging equipment labelling the main components as well as identifying any hazardous substances in these components. This diagram shall be in written and audiovisual format which shall be available in the manufacturer website. Information regarding hazardous substances shall be provided to the authority in the form of a list of materials identifying material type, quantity used and position on the imaging equipment.

**Mercury in fluorescent lamps**

Based on EU Ecolabel developments

Award Criterion  
in Comprehensive

Formulation

Offered imaging equipment devices in which mercury or its compounds is not intentionally be added to the backlights displays used.

Verification

Products holding a relevant Type 1 Eco-label fulfilling the listed requirements will be deemed to comply.

A technical dossier or a declaration from the manufacturer demonstrating that these requirements have been met is also accepted.

**Minimum recycled and reused content**

Based on EU Ecolabel developments

Technical Specification  
in Comprehensive

Formulation

The external plastic casing parts shall have in total a post-consumer recycled and reused content of not less than 10 % by mass.

Verification

Products holding a relevant Type 1 Eco-label fulfilling the listed requirements will be deemed to comply.  
A technical dossier from the manufacturer demonstrating that these requirements have been met is also accepted.

**Agenda point 8.**

**GPP Criteria related to user instructions**

**-User instructions for green performance management**

**Contract performance clause**

**-guarantee for spare parts  
-guarantee for repair and**



**Agenda point 8.**

**GPP Criteria related to user instructions  
Contract performance clause**

Requirements	Tech. Spec.		Award	Agenda point
14. User instructions for green performance management	Core	Com.		User Instructions
Guarantee of spare parts	Contract performance clause			Guarantee
Guarantee of repair or replacement	Contract performance clause			

**GPP Criteria related to User instructions for green performance management**

Technical Specification  
in Core and Comprehensive

Formulation

Environmental performance guide for the particular imaging equipment device (covering paper management functions, energy efficiency functions, waste management of the product and of consumables ink and/or toner cartridges) in written form as a separate part of the user manual and in digital form accessible via the manufacturers website shall be provided.

Additionally, interactive training instructions regarding the paper management functions, energy efficiency functions, waste management of the product and of consumables ink and/or toner cartridges for the particular imaging equipment device shall be provided via a software or be available via a website.

Verification

A copy of the instruction manual shall be supplied to the authority. This manual shall be available for access on the manufacturer's website. A technical dossier from the manufacturer demonstrating that these requirements have been met is also accepted.

## Contract performance clause

**Both in Core and  
Comprehensive criteria**

### Formulation

- 1.The contractor shall guarantee the availability of spare parts for at least 5 years from the time that production ceases.
2. Guarantee for repair or replacement of minimum 5 years shall be given.

### Verification

Products holding a relevant Type 1 ecolabel fulfilling the listed criteria will be deemed to comply. Other appropriate means of proof will also be accepted.

# Thank You Very Much

