Basic Criteria for Award of the Environmental Label

Computers

(Workstation Computers and Portable Computers)

RAL-UZ 78

for monitors

for system units and portable computers

for keyboards

June 2006

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1 Introduction

1.1 Introductory Comments

In co-operation with the Federal Minister for the Environment, Nature Conservation and Nuclear Safety, the Federal Environmental Agency and considering the results of expert hearings conducted by RAL the Environmental Label Jury has set up these Basic Criteria for Award of the Environmental Label. RAL, reg. assoc., has been tasked with awarding the Environmental Label.

Upon application to RAL and on the basis of a Contract on the Use of the Environmental Label to be concluded with RAL the permission to use the Environmental Label may be granted for all products, provided that they comply with the requirements as specified hereinafter.

1.2 Environmental Objectives

Avoidance of pollutants, emissions and waste, the lowest possible energy consumption of electronic devices during use as well as recycling of used products are primary aims of environmental protection. Pursuance of these aims helps to save resources, avoid the entry of pollutants into the environment and give weight to consumer protection. The use of devices with low energy consumption and low so-called no-load losses (when devices are not directly used) contributes to climate protection.

That is why the Environmental Label may be awarded to products offering the following features:

- The power consumption of the devices is relatively low, especially in sleep modes.
- The device features include potential system longevity, upgradability, principles of recyclable design as well as potential reuse and recycling of used products or product components.
- Where technically possible, the use of environmentally harmful substances in materials is avoided.
- EU Directives 2002/95/EC[1] and 2002/96/EC[2] transposed into German law by the Elektro- und Elektronikgeraetegesetz (ElektroG[3]) (Electrical and Electronic Equipment Act) are observed. Material requirements going beyond these provisions are met for precautionary reasons.

[1] Directive 2002/95/EC on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (Official Journal of the EU L 37, 13 February 2003)

[2] Directive 2002/96/EC of the European Parliament and of the Council on Waste from Electrical and Electronic Equipment, 27 January 2003

- The computers are so designed as to ensure the lowest possible noise emission during operation.
- Through appropriate user information in the product documents, users are informed about energy-saving options, possible noise generation and, where applicable, about special requirements for equipment setup as well as about disposal channels. Users are asked to follow all important advice and information.

2 Scope

These Basic Award Criteria apply to:

- Workstation computers that can be operated without being connected to a data network but need to be connected to the mains supply. They are hereinafter called

  system units. Included are comparable upgraded data terminals, so-called „thin clients“.
- **Portable computers** that can be operated without being connected to the mains supply and the data network. These are laptops and notebooks.
- separate **monitors**.
- separate **keyboards**.

3 Requirements and Compliance Verifications

3.1 General Requirements

3.1.1 Recyclable Design

Blue Angel-certified computers must be easily recyclable. The Checklist „Recyclable Design of Devices“ (Appendix 1 to the Basic Award Criteria) questions on features that are prerequisites for good recyclability.

Such features include, among others:

Structure and Joining Technique

- Avoidance of non-separable connections (e.g. glued, welded) between different materials, unless they are technically required;
- Easily separable mechanical connections;
- Easy detachability of devices and modules by just one person - for repair purposes too;

[3] Act governing the sale, return and environmentally sound disposal of electrical and electronic equipment, Bundesgesetzblatt 2005 [Federal Law Gazette 2005], Part I No.17, Bonn, 23 March 2005 http://www.umweltbundesamt.de/uba-info-daten/daten/elektrog/index.htm

Material Selection

- In order to reduce the multitude of materials plastic parts weighing more than 25 grams shall consist of a single polymer or polymer blend. A maximum of four different types of plastic may be used for these parts. Plastic casings may consist of two separable polymers or polymer blends at the most.
- Large-size casing parts must be so designed as to ensure that the plastics used can be recycled on the basis of existing recycling technologies for the manufacture of high-quality long-life products. Such casing parts shall not have a metallic coating.

  Metallic coatings shall be permissible in laptops if they are technically necessary.
- However, galvanic coatings shall not be allowed.
- Other coatings of special parts shall be kept to a minimum and reasons for coating shall be given.
- The use of recyclate plastics that meet the material requirements under para. 3.1.2 shall be permissible and desirable.
- Reusable parts that meet all relevant requirements shall be used with preference.

Recycling of Devices after Use

- The applicant shall provide information on the disassembly of equipment at recycling or treatment plants with regard to the different components and materials.
- Components and materials according to Annex III to the German Electrical and Electronic Equipment Act (ElektroG) must be easily identifiable and removable (e.g. mercury-containing lamps for the illumination of liquid crystal displays as well as the liquid crystal displays themselves).
- The applicant shall inform RAL about envisaged ways and methods of reuse of components and disposal (recycling and disposal) of devices, unless covered by the German Electrical and Electronic Equipment Act (ElektroG).

Compliance Verification:

The applicant shall complete the Checklist „Recyclable Design“ (completed Appendix 1 to the Basic Award Criteria = Annex 2 to the Application). The requirements shall be met if all Category M questions have been answered “Yes”.

The applicant shall name the plastics used for parts > 25 grams and submit a list of plastics according to Annex 3 to the Application according to RAL-UZ 78 (see

form). This shall also include information on the range of the recyclate percentage in the plastics as permitted by applicant.

The applicant shall indicate the envisaged measures for reuse and recycling of equipment in Annex 4 to the Application.

The applicant shall declare in Annex 1 to the Application that the contracted recycling companies will be provided with information as required for an effective disassembly, on modules as well as on the substances and components requiring selective treatment.

3.1.2 Material Requirements

3.1.2.1 Material Requirements for Plastics of Casings, Casing Parts, Chassis and Keyboards

Halogenated polymers and additions of organic halogenated compounds as flame retardants shall not be permissible.

Exempted from this rule are:

- Fluoroorganic additives (as, for example, anti-dripping agents) used to improve the physical properties of plastics, provided that they do not exceed 0.5 weight percent.
- Fluoroplastics as, for example, PTFEs.
- Plastic parts weighing less than 25 grams. However, they may not contain PBBs (polybrominated biphenyls), PBDEs (polybrominated diphenyl ethers) or chlorinated paraffins. This exemption does, however, not apply to keyboards.

Flame retardants used in plastic parts with a mass greater than 25 grams shall be indicated and identified by their CAS Number.

Other substance bans according to Section 5, Electrical and Electronic Equipment Act (ElektroG) shall be respected.

Apart from that, no substances may be added to the plastics classified according to Directive 67/548/EEC as

- carcinogenic according to Category Carc.Cat.1, Carc.Cat.2 or Carc.Cat.3,
- mutagenic according to Category Mut.Cat.1, Mut.Cat.2 or Mut.Cat.3;
- reprotoxic according to Category Repr.Cat.1, Repr.Cat.2, Repr. Cat.3

or which are classified in TRGS 905

Both regulations have been considered in the overall list of all substances classified as carcinogenic, mutagenic or reprotoxic[4].

Exempted are process-related technologically unavoidable impurities.

[4] www.baua.de

Compliance Verification:

The applicant shall declare compliance with the requirements in Annex 1 to the Application. With regard to flame retardants the applicant shall prompt the plastic suppliers to send a written statement to RAL stating that the banned substances have not been added to the casing plastics (Form: Annex 5 to the Application). This also applies to the recyclate plastics used. At the same time, applicant undertakes to prompt the casing plastics suppliers to confidentially report the chemical designation of the flame retardants used (CAS-Nr.) to RAL (Annex 5 as well).

3.1.2.2 Material Requirements for the Plastics used in Printed Circuit Boards

No PBBs (polybrominated biphenyls), PBDEs (polybrominated diphenyl ethers) or chlorinated paraffins may be added to the base material of printed circuit boards.

Compliance Verification:

The applicant shall declare compliance with the requirement in Annex 1 to the Application or submit declarations from the suppliers of printed circuit boards stating that the banned substances are not contained in the boards.

3.1.3 Marking of Plastics

Plastic parts with a weight greater than 25 grams and a plane surface of at least 200 square millimeters must be permanently marked according to ISO 11469:2000, taking ISO 1043, Parts 1 - 4, into consideration.

Compliance Verification:

The applicant shall declare compliance with the requirement in Annex 1 to the Application and indicate the marking in the list of plastics according to para. 3.1.1 in Annex 3.

3.1.4 Batteries

Batteries and accumulators may not contain the heavy metals lead, cadmium or mercury. Exempted are technically unavoidable impurities. The latter may not exceed the limits given in Directive 91/157/EEC on Batteries and Accumulators, as amended (adapted to technical progress by Directive 98/101/EC.[5].

The applicant undertakes to accept the free return of the original user-exchangeable batteries/accumulators. A third party may be subcontracted for this task .

[5] The EU Battery Directive is currently being revised. The revised version must be complied with from the time of its coming into force.

Under the Batterieverordnung [Battery Ordinance], as amended, the Operating Instructions need to include the necessary relevant information as well as details regarding take-back options and user's obligation to dispose of batteries and accumulators at a return facility and under no circumstances via the household waste system.

Batteries and accumulators which are not designed for exchange by the user must be replaceable without needing to exchange the entire printed circuit board or similar parts holding such batteries and accumulators.

Compliance Verification:

The applicant shall declare compliance with the requirements in Annex 1 to the Application or submit a declaration from the battery manufacturer. In addition, the applicant shall name the types of batteries/accumulators in the user information and inform about the take-back system (see paragraph 4).

3.1.5 Guarantee of Repairs

The applicant undertakes to see to it that spare parts supply and necessary infrastructure for equipment repair is secured for a period of at least 5 years after the end of production and that users are informed about the guaranteed availability of spare parts.

Parts to be replaced are those parts which typically have the potential to fail during the normal use of the product. In contrast, those parts whose life cycle usually exceeds the average usual life of the product need not be provisioned as spare parts.

Compliance Verification:

The applicant shall demonstrate compliance with the requirement by presenting the user information (see paragraph 4).

3.1.6 Product Take-Back

The applicant undertakes to take back own manufactured and Blue Angel-certified products after use in order to channel them with preference to reuse or to material recycling in terms of the German Electrical and Electronic Equipment Act (ElektroG). Non-recyclable device parts shall be disposed of in an environmentally sound manner. Waste equipment from private households[6] may always be given to municipal collection facilities free of charge. Waste equipment from the business sector shall be returned free of charge to the applicant or to a return facility to be named by applicant.

[6] including devices from small-scale business use

The return facilities named by applicant must be located in Germany or in the country where the product is offered with reference to the Blue Angel. It must be possible to return the device either personally or by shipping services**.** The product documents shall include details on the return options.

Compliance Verification:

The applicant shall declare compliance with the requirement in Annex 1 to the Application and establish compliance by submitting the respective user information in German (see paragraph 4).

3.1.7 Packaging

Plastics used for product packaging may not contain halogen-containing polymers.

The plastics used must be marked in accordance with the German Verpackungsordnung (Packaging Ordinance), as amended.

Compliance Verification:

The applicant shall declare compliance with the requirement and indicate the marking of packaging plastics in Annex 1 to the Application.

3.2. Specific Requirements for Devices under Paragraph 2

3.2.1 Power Consumption / Energy Consumption

3.2.1.1 Requirements for all Devices

Internal power supplies must be at least 70 percent efficient at 20 percent load and they must be at least 75 percent efficient at both full load and 50 percent load (in accordance with the specifications under [7]).

Appropriate external power supplies must meet the requirements of the European Commission Code of Conduct on Efficiency of External Power Supplies (see [8]). Their no-load power consumption (see the European Commission's code of conduct) shall not exceed the following limit:

Limit in watts = output power in watts × 0.004 + 0.4 watts.

The IEEE standard 1621 [9] shall be complied with in designing switches and buttons.

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7 „Proposed Test Protocol For Calculating The Energy Efficiency of Internal Ac-Dc Power Supplies"; Draft revision 5.0; August 2005; http://www.efficientpowersupplies.org/; see, among others, points 3.7 and 4.3

8 See Table 3 in „Code of Conduct on Efficiency of External Power Supplies - Version 2"; 24 January 2004; http://energyefficiency.jrc.cec.eu.int/pdf/Workshop_Nov.2004/PS%20meeting/Code%20of%20Conduct%20for%20PS%20Version%202%2024%20November%202004.pdf;

9 http://eetd.lbl.gov/Controls/1621

If the user can change the default times the device must be set to values upon shipment that would enable the device to comply with the requirements in Table 1.

Power consumption measurements shall be conducted with the device connected to 230 volt mains. Measurements shall be conducted - except for power supplies - in compliance with the Energy Star requirements [10] .

3.2.1.2 System Units and Portable Computers

The devices shall meet the Energy Star requirements (in terms of a minimum efficiency standard) as specified in the Agreement between the United States and the EU (see [11]).

The device must at least offer the ACPI S3 Mode[12] as well as the Off mode as energy-saving stand-by modes (designations: energy-saving mode, ready mode, sleep mode etc.). In both modes the power consumption of the device shall meet the values specified in Table 1. The ACPI S3 Mode shall be automatically activated after the period specified in Table 1.

The device shall support an operating system that enables activation of the energy-saving modes specified in Table 1.

The device shall have an On-and-Off switch. Such switch shall be located on the front of the device. Activation of this switch shall set the device into Off mode.

It shall be possible to disconnect the device from the mains for an extended period of time (at least 4 weeks) without the functionality of the device suffering damage (loss of the timer information is not considered as damage).

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[10] „Test Conditions for Energy Star Compliance Measurement for Computers, according to the stipulation in „Energy Star Requirements for Computers – Eligibility Criteria – Preliminary draft"

[11] „Agreement between the Government of the United States of America and the European Community on the coordination of energy-efficient labelling programs for office equipment" Annex C [Official Journal L 172, 26 June 2001]; http://europa.eu.int/eur-lex/pri/de/oj/dat/2001/l_172/l_17220010626de00030030.pdf

[12] ACPI S3= Advanced Configuration and Power Interface Specification (suspended to RAM)

Table 1: Power Consumption and Default Time Limits for System Units and Portable Computers

Operating Mode	Power Consumption	Activation of the Operating Mode
System units:		
ACPI S3	< 4.5 W	Pre-set to ≤ 30 minutes. User shall have the option to reduce the default time.
Off Mode ACPI S5:		Shut down of the computer or switch activation
- without wake-up function	< 2.5 W	
- with wake-up function (e.g. „wake on LAN“ - WOL) and with the network cable connected	< 3.5 W	
Portable Computers:		
ACPI S3	< 3.5 W	Pre-set to ≤ 15 minutes. User shall have the option to reduce the default time.
Off Mode	< 2.0 W	Shut down of the computer [13] or switch activation

Additional Requirements for System Units:

The device shall enable the user to adjust the monitor's default time to return to sleep mode in which the monitor meets the Energy Star requirements for monitors, Version 4.0, Tier 2 („sleep mode“). The pre-set default time shall be ≤ 15 minutes.

3.2.1.3 Monitors

The device shall meet the Energy Star requirements for monitors, Version 4.0, Tier 2, (see [14]). That means, the monitor shall meet, among others, the values given in Table 2.

[13] After giving the shut-down command the computer will enter this mode (computer is connected to the mains via power supply, battery charged).

[14] „Energy Star Programme Requirements for Computer Monitors“ Version 4.0, Tier 2; http://www.energystar.gov/ia/partners/product_specs/program_reqs/MonitorSpecV40Final.pdf

Table 2: Power Consumption Limits for Monitors

Operating Mode	Total pixels of the device in millions („megapixel“)	Power consumption in watts
(„on mode“)	< 1	23
	≥ 1	28 × pixels
(„sleep mode“)	—	2
(„off mode“)	—	1

If the device receives signals to go to sleep mode from the system unit it shall switch to this mode.

Compliance Verification:

The applicant shall declare compliance with the requirement in Annex 1 to the Application, list the possible operating modes of the device, indicate the device values with regard to which requirements apply (power consumption etc.) and submit the respective measurement reports as Annex 6 to the Application.

3.2.2 Noise Emissions

3.2.2.1 System Units and Portable Computers

Evaluation of the noise emission is based on the indication of the declared sound-power level to one decimal place.

The declared A-weighted sound-power level L_{WAd} is determined and evaluated in dB(A) on the basis of EN ISO 7779:2001 in combination with ISO 9296:1988. In doing so, it shall be ensured that in the case of different configurations of devices of identical design measurements are conducted on the loudest individual components.

Measurements are to be conducted in the following operating modes.

(1) The hard disk drive is activated. Noise emission levels shall be determined in accordance EN ISO 7779:2001, No. C.9.3.2.

(2) The device operates at high load (processor cooling is activated at a CPU utilization of at least 90%[15]. Testing is done for 120 seconds following an operating time of 15 minutes at an ambient temperature of 23 ± 1 °C)

(3) The device operates in idle mode. Noise emission levels shall be determined in accordance with EN ISO 7779:2001, No. C.15.3.2.

(4) An optical drive in typical configuration is activated. Optical drives are to be tested in accordance with EN ISO 7779/A1:2003, No. C.19.3.2.

At least three devices have to be tested to make sure that the sound-power level can be regarded as declared. If the noise measurements can be taken on one device only the following formula may alternatively be used by analogy with ISO 9296 for determination of the declared A-weighted sound-power level L_{WAd} :

$$L_{WAd} = L_{WAE} + 3\ dB(A)$$

(L_{WAE} = sound-power level determined by single measurement in dB(A))

Measurement conditions and test results are to be entered into the form (Annex 7a to the Application).
The declared sound-power values given in said form shall not exceed 44.0 dB(A) with activated hard disk drive (1), 48.0 dB(A) at high load with a CPU utilization of at least 90% (2), 40.0 dB(A) in idle mode (3) and 52.0 dB(A) for the operation of the optical drives (4).
The determined values shall be documented in the user documents according to paragraph 4.

Compliance Verification:

The applicant shall demonstrate compliance with the criteria by submitting the completed Annex 7a to the Application. Said form is to be completed and confirmed by the testing laboratory on the basis of the test report.

The testing laboratory shall be accredited according to EN ISO 17025 and - with respect to the required acoustic tests - according to EN ISO 7779.

[15] A corresponding CPU utilization can be reached by benchmark or load programmes, e.g. Intel Maxpower or Futuremark PCMark.

When first testing for application for the Blue Angel a copy of the accreditation certificate shall be attached to the application .

3.2.2.2 Keyboards

Keyboards of workstation computers shall be tested in accordance with Annex C.5 to EN ISO 7779:2001 and the declared A-weighted sound-power level shall be indicated. However, for the time being, there will be no evaluation of the test results within the scope of the eco-label award.

Compliance Verification:

The declared A-weighted sound-power level shall be indicated and a test report shall be submitted as Annex 7b.

3.2.3 Performance Enhancement (Upgrading)

3.2.3.1 System Units of Workstation Computers

The system unit shall have a modular design and allow the exchange of the modules by the user without the need of using special tools.

The device shall be so designed as to allow performance enhancement (upgrading) by :

- RAM expansion,
- installation, exchange and expansion of a mass storage,
- upgrading the graphics performance,
- installation and exchange of CD-ROM, DVD or disk drive,
- at least two additional interfaces for external drives/peripherals (apart from the obligatory connection options for mouse, keyboard, monitor and printer).

Compliance Verification:

The applicant shall declare compliance with the requirement in Annex 1 to the Application and give details on the corresponding options in the user information (see paragraph 4).

3.2.3.2 Portable Computers

Portable computers shall offer the following upgrading options:

- RAM expansion,
- at least two additional interfaces for external drives/peripherals (apart from the obligatory connection options for mouse, keyboard, monitor and printer).

Compliance Verification:

The applicant shall declare compliance with the requirement in Annex 1 to the Application and give details on the corresponding options in the user information (see paragraph 4).

3.2.4 Additional Requirements for Keyboards

The ergonomic properties of keyboards for workstation computers shall be tested in accordance with Standard EN ISO 9241-4, as amended, and meet the parameters set forth therein.

Radiation patterns of wireless keyboards shall be characterised by indication of the power flux density and electric field strength.

Compliance Verification:

The applicant shall declare compliance with the requirement in Annex 1 to the Application and identify the laboratory performing the test.

The data required for wireless keyboards shall be indicated (Annex 1 as well).

3.2.5 Additional Requirements for Monitors

- Monitors for workstation computers shall meet the TCO 03 requirements for electric and magnetic fields.
- With respect to their ergonomic properties flat screen monitors for workstation computers shall be tested according to EN ISO 13406-2 and they shall at least be ranked in pixel error class 2 and, with respect to reflection, in quality class 2.
- The mercury content of the lamps for the background illumination of flat screen monitors shall not exceed 3 milligrams per lamp in average.
- The liquid crystal displays (LCDs) shall not contain any substances classified as carcinogenic, mutagenic or reprotoxic in Category 1, 2 or 3 or as toxic or very toxic according to the current Annex I to Directive 67/548/EEC and/or which are to be marked accordingly according to Annex VI to the said directive.

Compliance Verification:

The applicant shall declare in Annex 1 to the Application that the product meets the TCO'03 label requirements for electric and magnetic fields.

Applicant shall establish compliance with the ergonomic requirements by submission of the test report from an independent testing laboratory accredited according to EN ISO/IEC 17025 (Annex 8).

The applicant shall indicate in Annex 1 to the Application the number of lamps contained in the display unit and confirm that the average mercury content per lamp does not exceed 3 milligrams.

The applicant shall submit a written declaration from the manufacturer of liquid crystal substances as Annex 9.

4 User Information

The printed product documentation supplied along with the devices (User Manual, Product Documents) shall be printed on chlorine-free bleached paper, preferably made of recycled paper.

As long as a printed summary is separately included for installation purposes these product papers can also be made available on other media (CD, DVD, internet).

Apart from the technical descriptions the product documentation shall also include essential environmental and health-related user information and shall be written at least in German.

The following essential user information shall additionally be summarized on a separate Information and Data Sheet:

Information on

- Battery types and battery take-back system according to para. 3.1.4,
- Guarantee of repairs according to para. 3.1.5,
- Product take-back according to para. 3.1.6,
- Energy consumption according to the specifications in Appendix 2 to the Basic Award Criteria. This means, above all, detailed information on energy-saving goals as well as on energy-related device data (power consumption in the individual modes of operation On Mode/Ready for Input/, Sleep Modes as well as Off Mode),
- Noise emission given as declared sound-power level in idle mode, during hard disk operation, at high CPU load and during operation of the loudest optical drive according to para. 3.2.2.1 and
- Performance enhancement (upgrading) options according to para. 3.2.3.

The Data Sheet shall be enclosed with products offered and/or supplied under the Blue Angel eco-label. In addition, its contents have to be published by applicant about 4 weeks after concluding the Contract on the Use of the Environmental Label on the website where the respective device is presented. This can also be done by

offering a respective link to this specific user information (e.g. „User Information for *(Device designation*) according to the RAL-UZ 78 Blue Angel requirements“).

Compliance Verification:

The applicant shall submit the Information and Data Sheet providing the user information as Annex 10 to the Application. The applicant shall state in Annex 1 to the Contract that this data sheet will be enclosed with the products, that its contents will be published on the Web around 4 weeks after conclusion of the Contract on the Use of the Environmental Label and that the environmental and health-related information is also contained in the detailed product documents (User Manual or electronic media), and, if applicable, the applicant shall name the link providing electronic access to this information.

5 Outlook on Possible Future Requirements

Within the scope of the next revision of these Basic Award Criteria the following aspects are expected to be taken into account:

- Options of further harmonisation with other national eco-labels,
- Specific requirements for use of recycled plastics in the manufacture of computers,
- Avoidance of mercury-containing lamps for background illumination of liquid crystal displays,
- Tightening of the requirements for internal and external power supplies and
- Limitation of the noise emissions of keyboards.

6 Applicants and Parties Involved

6.1 Distributors of products according to paragraph 2 shall be eligible for application.

6.2 Parties involved in the award process

- RAL to award the Blue Angel eco-label,
- the federal state where applicant’s production site is located,
- Umweltbundesamt, (Federal Environmental Agency) which, after signing of the contract, receives all data and documents submitted in application for the Blue Angel in order to be able to proceed with the development of the Basic Award Criteria .

7 Use of the Environmental Label

7.1 The terms governing the use of the Environmental Label by the applicant are stipulated by a Contract on the Use of the Environmental Label to be concluded with

RAL.

7.2 Within the scope of such contract the applicant undertakes to comply with the requirements under paragraph 3 as long as applicant makes use of the Environmental Label.

7.3 Contracts on the Use of the Environmental Label are concluded to fix the terms for the labelling of products under paragraph 2. Such contracts shall run until December 31, 2008.

They shall be extended by periods of one year each, unless terminated in writing by March 31, 2008 or March 31 of the respective year of extension**.**

After the expiry of the contract the Environmental Label may neither be used for labelling nor for advertising purposes. This regulation shall not affect products being still in the market.

7.4 The Contract on the Use of the Environmental Label shall give the following particulars**:**

7.4.1 Applicant (Distributor)

7.4.2 Brand/trade name, product designation

Appendix 1 to the Basic Award Criteria according to RAL-UZ 78

{This Appendix is available as fillable Word Document in Annex 2}

Checklist „Recyclable Design for Computers“

Use of the Checklist

1) The devices must have a recyclable design and comply with the following requirement groups:

   A: Structure and Connection Technology

   B: Material Selection and Marking

   C: Longevity

   The Checklist is subdivided according to these requirement groups.

2) The requirements apply to certain modules named in the column "applies to module(s)“; entire unit/all modules; case parts, chassis parts, mechanical parts, electric modules.

   Modules consist of at least two components linked by power or design.

   Case parts protect the built-in parts from environmental effects and the user from getting into contact with moving, radiating or current-carrying components.

   The **chassis** is the carrying part of the device.

   Electric modules (and parts) include at least one electric or electronic component.

   Mechanical parts are not contained in electric modules. They perform either mechanical or optical functions (except for case and chassis).

   Recycling stands for material recycling of used (plastic) components.

   Reuse means the more than one-time use of components in their original form.

3) The requirements are grouped into **"M"** requirements which must be fulfilled and **"S"** requirements which should be fulfilled. The category of the respective requirement can be seen from the column "Cat".

   Fulfilment of the requirements is to be confirmed in the respective column under "**Yes"** . If a tested unit includes none of the module(s) concerned "Yes" shall be marked as well.

   The requirements for an environmentally acceptable and recyclable design shall be considered fulfilled if "Yes" appears at the end of the Checklist.

Distributor (Applicant):*		
Product Trade Name: *		
Product designation: * (system unit, portable computer, monitor, keyboard)		

* Please limit your entry to 20 characters; if applicable, the designations may be abbreviated .

Requirement	Applies to Module(s)	Cat.	Fulfilled?
			Yes

A: Structure and Connection Technology

A.1	Components made of materials incompatible with each other are connected separably or via separation aids.	Case parts, chassis, electric modules	M	☐

Important connections are those between case and chassis as well as those between chassis and electric modules. Their separability is a prerequisite for separate use/recycling of modules and materials as well as for a quick and save separation of pollutant-containing components. Adhesive labels (e.g. company logos and labels) are concerned as well.
The term "separation aids" stands, for example, for predetermined breaking points.

A.2	Electric modules are easily traceable and removable.	Entire unit, including lamps	M	☐

Minimum recycling strategy means: removal of the pollutant freight.
Electric modules and components according to Annex III, ElektroG (Electrical and Electronic Equipment Act), as, for example, batteries and condensers involving the risk of pollutant-containing ingredients as well as mercury-containing fluorescent lamps must be easily traceable and separable.

A.3	Separable connections are easily traceable.	Case parts, chassis	S	☐

Connections to be separated during disassembly must be easily and quickly traceable. If they are hidden the product should bear corresponding notes (e.g. laser labeling or injection-moulded).

Requirement	Applies to Module(s)	Cat.	Fulfilled ?
			Yes
A.4	Disassembly can be done with universal tools exclusively.	Case, chassis, electric modules	M	☐

"The term „universal tool“ stands for general commercial tools.

A.5	Necessary points of application and working space for disassembly tools have been taken into consideration.	Case parts, chassis, electric modules	M	☐

A point of application is the point from where the impact is transferred from tool to connecting element. Sufficient working space is needed for the execution of the tool's separating movement.
This requirement particularly refers to snap connections which, unlike during assembly, often require tools to be disconnected.

A.6	All connection elements to be separated for recycling purposes are axially accessible.	Case parts, chassis, electric modules	S	☐

If connections to be separated are difficult to reach or only indirectly accessible disassembly becomes more strenuous. If radially accessible, the separation of screwed connections, for example, is very time consuming.

A.7	Screwed connections between modules can be separated with no more than three tools .	Case parts, chassis, electric modules	M	☐

Standardized and uniform connection elements facilitate disassembly. The less tools must be changed the easier is assembly and disassembly.
A tool is characterized by the type of drive (e.g. cross recession) and the drive size (spanner size).

A.8	At least 50% of the separable connections between plastic components are plug/snap connections.	Case parts, chassis,	S	☐

The manufacturer’s choice of connection techniques allowing easy disassembly will be judged by the percentage of plug/snap connections.

Requirement	Applies to Module(s)	Cat.	Fulfilled ?
			Yes
A.9	Disassembly can be done by a single person.	Entire unit	M	☐

An optional number of snap connections of the same joining direction may be assembled at a time but not always be disassembled if the re-entrant angle is ≥ 90°. This requirement shall be considered not fulfilled if more than two snap connections must be separated at a time.

A.10	The supporting surface can be maintained during the entire disassembly work.	Unit to be handled	S	☐

The purpose of this requirement is to indirectly check the unit for a hierarchical structure.

A.11	Case parts are free from electronic modules.	Case parts	M	☐

With regard to a clean and quick pollutant removal and separation of the electronic parts all electric modules must be connected to the chassis. The case may not contain any electronic modules. Here, a control element attached to the case and case parts which simultaneously perform the functions of the chassis are not considered as case parts.

A.12	The manufacturer did a trial disassembly (e.g. according to A.1 - A.11) and prepared a test report focussing on the weak-points.	Entire unit	M	☐

B: Selection and Marking of Materials

B.1	The variety of materials forming plastic components performing comparable functions is limited to one material.	Case parts, chassis, mechanical parts (≥ 25g)	M	☐

The smaller the number of materials the more efficient are separation and recycling processes. This requirement shall not apply to parts that have been reused as can be proved.

Requirement	Applies to Module(s)	Cat.	Fulfilled ?
			Yes
B.2	Components made of the same sort of plastics are dyed uniformly or compatibly.	Case parts, chassis,	S	☐

Uniform dyeing of parts made of the same sort of plastics makes the introduction of material recycling cycles easier. Compatible dyeing stands for different shades of one colour (e.g. grey and anthracite). If, in addition, different types of plastics have different colours, such "colour code" would be useful for a safe type-specific separation of plastics. Integrated control elements shall be exempted from this requirement.

B.3	The coating of plastic components has been limited to the minimum necessary and metallic coating of case parts has been avoided.	Case parts	M	☐

Large-area layers of lacquer, vapour depositions and printings on plastic components require additional removal processes if recycling by the material is to be done thereafter. Reasons shall be given if metallic coatings are used (Exemption: portable computers if no electro-plating has been used.) Laser-produced labelings shall not be considered as printings. This requirement shall not apply to parts that have been reused, as can be proved.

B.4	The materials and material compounds used can be recycled by the material.	Case parts, chassis,	M	☐

This means that recyclate materials identical to the original material (original recycling) can be obtained.

B.5	The proportional use of recyclate material is permitted.	Case parts, chassis,	M	☐

A real "cycle" does not exist before the manufacturer actually uses recyclate goods or promises to do so along with the product specification.

B.6	The percentage of recyclates in the total mass of plastics is at least 5%.	Case parts, chassis,	S	☐

The use of suitable recyclates particularly helps to preserve resources and is, to the extent available, specifically desired.

Requirement	Applies to Module(s)	Cat.	Fulfilled ?
			Yes
B.7	Components and materials under Annex III to ElektroG (Electrical and Electronic Equipment Act) can be easily exchanged.	Entire unit	M	☐
B.8	Material selection according to B.1-B.5 has been done and recorded in writing.	Entire unit	M	☐
B.9	The reuse of modules and compo-nents is possible and permitted.	Entire unit	M	☐

The manufacturer shall be prepared to use modules and components as spare parts or ETN-parts in the product, provided that they have been reprocessed under his guidance - (ETN- equivalent to new).

All "M" Requirements have been met and answered „Yes"	M	☐

Place: Applicant:

Date: (Signature of authorized representative and company stamp)

Appendix 2 to the Basic Award Criteria according to RAL-UZ 78

Requirements for the User Information with respect to paragraph 3.2.1

The product papers, i.e. at least the User Manual or additional sheets printed afterwards as supplements which are to be attached to the User Manual in any case must at least contain the following information. They are to be listed under the heading „Information according to the RAL-UZ 78 Blue Angel requirements“. (These details shall not be spread over the entire user information but combined for the purpose of clarity and understanding, preferably on one sheet, see paragraph 4 of the Basic Award Criteria UZ 78).

- Saving of energy: detailed information on the energy-saving modes and recommendations for settings and their use. (if applicable, information on a software-based energy management support) ;
- Modes of operation: details on how the device can be switched to the individual operating modes and how the user can set them. It must be definitely indicated what user action activates which (operating) mode with which power consumption. This includes information on master, mains or similar switches as well as on the symbols used for their identification.
- On Mode: indication of the amount of power consumption
  - for monitors in the so-called „on mode“ (Energy Star)
  - for system units and portable computers in the ACPI S 0 mode („idle mode“)
- Ready for Input for system units and portable computers: indication of the amount of power consumption
  - With respect to system units Ready for Input means: a usual operating system is activated and immediately ready for operation (Energy Star: „idle mode“);
  - With respect of portable computers Ready for Input means: access to hard disk, disk, CD or DVD drives (Energy Star: „idle mode“);
- Other operating modes and the like: indication of power consumption in all modes the device can go to after leaving On Mode or Ready for Input either automatically or by user command and which are settable via the operating system. Apart from that, the product documents shall describe the significance of the respective mode of operation. Here, it will not be sufficient to merely name a condition, e.g. „stand-by“. If applicable, distinction shall be made according to the level of upgrade.

- Off Mode: Power consumption in the Off Mode (Energy Star: „off mode“);
- Mains disconnect: If the device cannot be completely disconnected from the mains by user's switch operation or if the device does not automatically do so, a note that and how energy consumption can be avoided if the device is completely disconnected from the mains (for instance, for system units - by using a switchable multiple socket outlet or for portable computers - by unplugging the power supply from the socket).
- Internal power supplies: efficiency of the power supply at 20 %, 50 % and 100 % load according to the data under [16].
- External power supplies: Power consumption in idle mode (according to [17]).

The following should be noted with respect to energy value indication:

- The designations of operating modes shall be selected and used in a way to allow the user a definite assignment of the values for power consumption and, if applicable, default times to the respective modes. That means the user documents should use just one designation for one and the same operating mode. If, nevertheless, different designations are used it must be easily noticeable that they refer to the same mode.
- All energy data (values of power consumption, energy consumption etc.) shall refer to a mains voltage of 230 V at 60 Hz .
- Precise values are to be given for values of power consumption and default time. Indication of ranges - as for example „< 45 watts“, will not be sufficient (exemption: indication of the ranges within which the user can set a value).
- Physical units shall at least be indicated in the SI-system. Indication in inch only shall not be sufficient (Germany uses the metric system).
- Where the text speaks of power consumption this term shall be used and not electricity consumption, energy consumption or the like.

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[16] „Proposed Test Protocol For Calculating The Energy Efficiency of Internal Ac-Dc Power Supplies“; Draft revision 5.0; August 2005; http://www.efficientpowersupplies.org/; see, among others, point 3.7.

[17] „Code of Conduct on Efficiency of External Power Supplies - Version 2; 24 January 2004“; http://energyefficiency.jrc.cec.eu.int/pdf/Workshop_Nov.2004/PS%20meeting/Code%20of%20Conduct%20for%20PS%20Version%202%2024%20November%202004.pdf

- If additional energy consumption data are given in watt hours or in derived units it shall be added to which time these data refer.
- If additional energy consumption data are given in watt hours or in derived units it shall be added to which time these data refer.

CONTRACT

No.

on the Award of the Environmental Label

RAL, reg. assoc., as label awarding agency, and the firm of **(Distributor)**
as applicant, conclude the following Contract

on the Use of the Environmental Label:

SPECIMEN

1. Under the following conditions the applicant shall be entitled to use the Environmental Label for the labelling of the product / product group / project:
   Computers (Workstation and Portable Consumers for
   "Brand/Trade Name".

   This shall not include the right to use the Environmental Label as part of a brand.
   Unless otherwise agreed, the Environmental Label shall only be used in the above given shape and colour and shall be marked at the bottom "Jury Umweltzeichen" (Environmental Label Jury). The entire inner surrounding text shall always be identical as regards size, form, thickness and colour of the letters and it shall be easy to read.
2. The Environmental Label according to para. 1 shall only be used for the above-mentioned product / product group / project.
3. If the Environmental Label is used for advertising or other purposes the applicant shall make sure that it is exclusively used in connection with the above-named product / product group / project for which the use of the Environmental Label has been granted and settled under this contract. The applicant shall be solely responsible for the way the label is used, above all, in advertising.
4. During the entire period of label use the product / product group / project to be labelled shall comply with all requirements and conditions for the use of the label as specified in the "Grundlage für Umweltzeichen-Vergabe **RAL-UZ 78**" (Basic Criteria for Award of the Environmental Label **RAL-UZ 78**), as amended. This shall also apply to the reproduction of the Environmental Label (including the surrounding text). Claims for damages against RAL, especially on the grounds of third party objections to the applicant's use of the label and the accompanying advertising shall be ruled out.
5. If the "Basic Criteria for Award of the Environmental Label" provide for checks by third parties the applicant shall bear the costs accruing in connection therewith.
6. Should the applicant himself or third parties find out that the applicant does not comply with the conditions as stipulated in paras. 2-5 the applicant shall be liable to inform RAL and stop the use of the Environmental Label until the conditions are complied with again. Should the applicant be incapable of restoring the state required for the use of the label immediately or should the applicant seriously offend against this contract RAL may, if necessary, withdraw the Environmental Label and prohibit the applicant from using the label any longer. Claims for damages against RAL because of the withdrawal of the label shall be ruled out.
7. The Contract on the Use of the Environmental Label may be terminated for good reason.
   Examples of good reasons are:
   - unpaid contributions
   - substantiated risk of injury and death.

   In such case, applicant's continued use of the Environmental Label shall be prohibited. The applicant shall not be entitled to bring a claim for damages against RAL (see above: paragraph 6, sentence 3).
8. The applicant undertakes to pay RAL an amount according to the "Beitragsordnung für das Umweltzeichen" (Schedule of Contributions for the Environmental Label), as amended, for the period of use.
9. According to the Basic Criteria for Award of the Environmental Label **RAL-UZ 78** this contract will run until **December 31, 2008**. It shall be extended by periods of one year each, unless terminated in writing by **March 31, 2008** or by March 31 of the respective year of extension. After the expiry of the contract the Environmental Label may neither be used for labelling nor for advertising purposes. This regulation shall not affect the products being still in the market.
10. Products / projects marked with the Environmental Label and the advertising for these products/ projects may reach the consumer only when naming the company of the

    Applicant / Distributor.

Sankt Augustin, this … day of 200..

Place, Date

RAL e.V.

(Signature of authorized representative and company seal)

RAL DEUTSCHES INSTITUT FÜR GÜTESICHERUNG UND KENNZEICHNUNG E. V.
Gegründet 1925
Siegburger Straße 39, D-53757 Sankt Augustin