Basic Criteria for Award of the Environmental Label

Computers

RAL-UZ 78a

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RAL gGmbH

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1 Introduction

1.1 Preface

The Environmental Label Jury has set up these Basic Criteria for Award of the Blue Angel Eco-Label in co-operation with the Federal Minister for the Environment, Nature Conservation, Building and Nuclear Safety, the German Umweltbundesamt (Federal Environmental Agency) and considering the results of expert hearings conducted by RAL GmbH. RAL gGmbH has been tasked with awarding the Environmental Label. Upon application to RAL GmbH and on the basis of a Contract on the Use of the Environmental Label to be concluded with RAL GmbH permission to use the Blue Angel eco-label may be granted for all products, provided that they meet the requirements specified hereinafter.

1.2 Background

Four out of five citizens of the Federal Republic of Germany (79 percent) use a computer every day. The number of computers at workplaces in enterprises, authorities and educational institutions is over 26.5 millions. And there are the private households with often more than one computer. On the average, Blue Angel eco-labelled desktop PCs consume 40 percent less energy than standard efficiency models.[1] Considering the great number and the frequent use, there are significant energy saving potentials or CO_2 reduction potentials, respectively.

Computer manufacturing requires not only a lot of energy but also vast amounts of natural resources. These natural resources, such as indium, cobalt, neodymium or tantalum, are usually very valuable because they are extremely important to modern technology and because their availability is not always ensured. That is why it is imperative that computers have a long service life. Blue Angel eco-labelled computers meet this requirement, for example, thanks to the possibility to repair them and to expand their capacity. In addition, Blue Angel eco-labelled computers meet stringent requirements for recyclable design and selection of material, thus creating good general conditions for an efficient recovery of materials used and helping to save natural resources.

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[1] Öko-Institut e.V., Final Report TOP 100 – Eco-Label for Climate-Relevant Products, Freiburg 2013

And last but not least, the plastic parts of the Blue Angel-eco-labelled devices are made of environmentally compatible materials, thus reducing possible damage to environment and human health.

1.3 Objectives of the Blue Angel Eco-Label

Climate protection, reduction of energy consumption, greater resource efficiency as well as the avoidance of harmful substances and waste are key objectives of environmental protection.

The Blue Angel eco-label for computers may be awarded to appliances featuring the following environmental properties:

- low energy consumption;
- long-lived and recyclable design;
- avoidance of environmentally damaging materials;
- low noise emissions.

1.4 Basic Legal Provisions

It is a matter of course for Blue Angel eco-labelled products to comply with current laws and regulations, especially with the following ones:

- EU Regulation regarding the ecodesign for computers and computer servers (617/2013/EU)[2].
- EU Directives 2002/96/EC[3] and 2011/65/EU[4] transposed in German law by the Elektro- and Elektronikgesetz (ElektroG) (Electrical and Electronic Equipment Act)[5] concerning the disposal and the harmful substance content of the products.
- The substance requirements defined by EU Chemicals Regulation REACH (1907/2006/EC)[6] and Regulation (EC) 1272/2008[7].

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2 Commission Regulation (EU) No 617/2013 of 26 June 2013 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for computers and computer servers

3 Directive 2002/96/EC of the European Parliament and of the Council of 27 January 2003 on waste electrical and electronic equipment (WEEE)

4 Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (revised version)

5 Gesetz über das Inverkehrbringen, die Rücknahme und die umweltverträgliche Entsorgung von Elektro- und Elektronikgeräten (Act on the placing on the market, return and environmentally sound disposal of waste electrical and electronic equipment), Federal Law Gazette 2005, Part I, No.17 (23 May 2005)

6 REGULATION (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH),

- Regulation (EC) No 278/2009[8] (external power supply regulation) concerning the required energy efficiency of external power supplies.
- EU Directive 2006/66/EC[9] transposed into German law by the German Batteriegesetz (BattG) (Batteries Act) [10].

1.5 Definitions

The following definitions are based on the definitions in Article 2 of Regulation (EU) 617/2013 regarding the ecodesign of computers and computer servers.

1.5.1 Computer

Computer: means a device which performs logical operations and processes data, is capable of using input devices and outputting information to a display, and normally includes a central processing unit (CPU) to perform operations. If no CPU is present, then the device must function as a client gateway to a computer server which acts as a computational processing unit.
The term 'computer' includes both personal computers (desktop computers, integrated desktop computers, small-scale servers, thin clients and workstations) and portable computers (notebooks, tablet computers, slate computers, mobile thin clients, et al).

Desktop Computer: means a computer where the main unit is intended to be located in a permanent location and is not designed for portability and which is designed for use with an external display and external peripherals such as a keyboard and mouse.

establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC

7 Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006

8 COMMISSION REGULATION (EC) No 278/2009 of 6 April 2009 implementing Directive 2009/125/EC (replacing 2005/32/EC) of the European Parliament and of the Council with regard to ecodesign requirements for no-load condition electric power consumption and average active efficiency of external power supplies

9 Directive 2006/66/EC of the European Parliament and of the Council of 6 September 2006 on batteries and accumulators and waste batteries and accumulators, OJ No L 339, p. 39, 2007, No L 139 p. 40

10 Batteriegesetz (Batteries Act) of 25 June 2009, Federal Law Gazette I, page 1582

Integrated Desktop Computer: means a computer in which the computer and the display function as a single unit, which receives its AC power through a single cable. Integrated desktop computers come in one of two possible forms:

1) a product where the display and the computer are physically combined into a single unit, or
2) a product where the display is separated from the computer but it is connected to the main chassis by a direct current (DC) power cord. An integrated desktop computer is intended to be located in a permanent location and is not designed for portability. Integrated desktop computers are not primarily designed for the display and reception of audio-visual signals.

Desktop Thin Client: means a computer that relies on a connection to remote computing resources (e.g. computer server, remote workstation) to obtain primary functionality and has no rotational storage media integral to the product. The main unit of a desktop thin client must be intended for use in a permanent location (e.g. on a desk) and not for portability. Desktop thin clients can output information to either an external or, where included with the product, an internal display.

Portable computer: a computer designed specifically for portability and to be operated for extended periods of time either with or without a direct connection to an AC power source. Portable computers utilise an integrated display, with a viewable diagonal screen size of at least 22,86 cm (9 inches), and are capable of operation on an integrated battery or other portable power source. In addition, most portable computers use an external power supply and most have an integrated keyboard and pointing device. Portable computers are usually designed to provide functions similar to those provided by desktop computers and to use software that is functionally similar to that used by desktop computers.

In terms of this specification, docking stations are considered as accessory and hence do not fall under the requirements for portable computers in paragraph 3 of these Basic Criteria.

The following are subcategories of portable computerss:

Tablet Computer/Slate Computer: a portable computer that can be fully operated via an integral touch-sensitive display. It does not require a possibly existing permanently attached physical keyboard for operating/controlling the device.

Mobile Thin Client: a portable computer that relies on a connection to remote computing resources (e.g. computer server, remote workstation) to obtain primary functionality and has no rotational storage media integral to the product.

Small-Scale Server: means a type of computer that typically uses desktop computer components in a desktop form factor but is designed primarily to be a storage host for other computers and to perform functions such as providing network infrastructure services and hosting data/ media, and which has the following characteristics

a) is designed in a pedestal, tower, or other form factor similar to those of desktop computers such that all data processing, storage, and network interfacing is contained within one box;
b) is designed to be operational 24 hours per day and 7 days per week;
c) is primarily designed to operate in a simultaneous multi-user environment serving several users through networked client units;
d) where placed on the market with an operating system, the operating system is designed for home server or low-end server applications;
e) is not placed on the market with a discrete graphics card (dGfx) meeting any classification other than G1.

Workstation: means a high-performance, single-user computer primarily used for graphics, Computer Aided Design, software development, financial and scientific applications among other compute intensive tasks, and which has the following characteristics

a) has a mean time between failures (MTBF) of at least 15 000 hours,
b) has error-correcting code (ECC) and/or buffered memory,
c) meets three of the following five characteristics:
    - has supplemental power support for high-end graphics (i.e. peripheral component interconnect (PCI)-E 6-pin 12 V supplemental power feed);
    - its system is wired for greater than x4 PCI-E on the motherboard in addition to the graphics slot(s) and/or PCI-X support ;
    - does not support uniform memory access (UMA) graphics;
    - includes five or more PCI, PCI-E or PCI-X slots;
    - is capable of multi-processor support for two or more CPUs (must support physically separate CPU packages/sockets, i.e. not met with support for a single multi-core CPU)

Mobile Workstation: means a high-performance, single-user computer primarily used for graphics, computer-aided design, software development, financial and scientific applications among other compute intensive tasks, excluding game play, and which is designed specifically for portability and to be operated for extended periods of time either with or without a direct connection to an AC power source. Mobile workstations utilise an integrated display and are capable of operation on an integrated rechargeable battery (accumulator) or other portable power source. Most mobile workstations use an external power supply and most have an integrated keyboard and pointing device.

A mobile workstation has the following characteristics:

a) has a mean time between failures (MTBF) of at least 13 000 hours;
b) has at least one discrete graphics card (dGfx) meeting the G3 (with FB Data Width > 128-bit), G4, G5, G6 or G7 classification;
c) supports the inclusion of three or more internal storage devices;
d) supports at least 32 GB of system memory.

Within the scope of these Basic Criteria mobile workstations are treated like stationary workstations.

1.5.2 Operating Modes

Off Mode: a mode which cannot be switched off (influenced) by the user, other than through the movement of a mechanical switch, and which may persist for an indefinite period of time when the appliance is connected to the main electricity supply and used in accordance with the manufacturer's instructions. Where Advanced Configuration and Power Interface (ACPI) standards are applicable, off mode usually correlates to ACPI system level S5 state.

Sleep Mode: A low power state that the computer is capable of entering automatically after a certain period of inactivity or by manual selection. A computer with sleep capability can quickly "wake" in response to network connections or user interface devices with a latency of ≤ 5 seconds from initiation of wake event to system becoming fully usable including rendering of display. For systems where ACPI standards are applicable, Sleep mode most commonly correlates to ACPI System Level S3 (suspend to RAM) state.

Idle Mode: The state in which the operating system and other software have completed loading, a user profile has been created, the machine is not asleep, and activity is

limited to those basic applications that the system starts by default. The Idle mode can be composed of two sub-states: Short Idle and Long Idle. They provide different basic functionalities.

Active Mode: The state in which the computer is carrying out useful work in response to a) prior or concurrent user input or b) prior or concurrent instruction over the network. This state includes active processing, seeking data from storage, memory, or cache, including idle mode time while awaiting further user input and before entering low power modes.

TEC-Approach („Typical Energy Consumption“) A method of testing and comparing the energy performance of computers which focuses on the typical electricity consumed by a product while in normal operation during a representative period of time. For personal computers the key criterion of the TEC approach is a value for typical annual electricity use of a computer, measured in kilowatt-hours (kWh), based on measurements of average operating mode power levels scaled by an assumed typical usage model (duty cycle).

1.5.3 Rechargeable Battery

Rechargeable Battery: A battery designed to repeatedly restore its charge state by means of a special-purpose power supply (charging electronics), i.e. it can be recharged. The battery includes one or more battery cells coupled together by a housing, plastic film or in other suitable form. The battery may comprise electronic control units and is equipped with connecting terminals or a connecting cable. Rechargeable batteries are also called accumulators or accumulator packs.

2 Scope

A) These Basic Criteria apply to computers as defined in paragraph 1.5, except for those listed under B):

- Desktop computers und integrated desktop computers,
- Portable computers, except for tablets / slate computers and mobile thin clients
- Workstations (stationary and mobile),
- Small-scale servers that are not marketed for use in data centers,
- Thin clients.

B) The following products do not fall within scope of these Basic Criteria:

- Game consoles,

- Tablet computers/slate computers,
- Mobile thin clients,
- Small-scale servers marketed for use in data centers,
- Electronic organizers (MDAs, PDAs) and similar mobile devices,
- Video or audio players (MP3 players),
- Navigation devices,
- Devices that perform computer-like functions but do fall within the scope of other Basic Criteria for award of the Blue Angel eco-label:
  - Mobile Phones / Smartphones (RAL-UZ 106),
  - E-Book Readers (RAL-UZ 158),
  - Television Sets (RAL-UZ 145),
  - Computer Monitors / Monitors (RAL-UZ 78c).

3 Requirements

3.1 Energy and Power Consumption

3.1.1 Conformity with the Ecodesign Directive for Computers and Computer Servers

Desktop computers, integrated desktop computers and portable computers shall all meet the technical requirements specific to the type of computer as set forth in the Ecodesign Directive for Computers and Computer Servers – which will take effect on 1 January 2016.

Within the scope of the Blue Angel eco-label mobile workstations are subject to the same requirements as those for portable computers.

In the case of product families, the requirements shall be met by the model with the highest power consumption configuration in the respective product category.

Compliance Verification

The applicant shall declare in Annex 1 that all relevant requirements of the Ecodesign Directive for Computers and Computer Servers, effective from 1 January 2016, are met. Moreover, the applicant shall specify the admissible maximum value (E_{TEC_MAX}) as well as the typical annual total energy consumption (E_{TEC}) of the device determined in accordance with the provisions of the Ecodesign Directive as well as the power consumption in the different operating modes in Watts. Measurements shall be made in compliance with the current requirements of the Ecodesign Directive for Computers and Computer Servers (currently: Commission Regulation (EU) No 617/2013). The

applicant shall submit test protocols prepared by an independent testing laboratory accredited for this measurement in accordance with DIN EN ISO/EC 17025 as Annex 2 to the Contract. Test protocols prepared by the applicant will be accepted as equivalent if the latter uses a testing laboratory that has been accredited for these measurements by an independent body as Supervised Manufacturer's Testing (SMT) Laboratory).

3.1.2 Requirements for Discrete Graphics Systems

Discrete graphics systems (dGfx) can be taken into account as capability adjustments in the calculation of E_{TEC} in accordance with the requirements of the Ecodesign Directive for Computers and Computer Servers, as amended. Notwithstanding the Ecodesign Directive, possible allowances ($TEC_{GRAPHICS}$) for discrete graphics systems are, however, limited to a maximum value that corresponds to the tolerance for the graphics system of the dGfx category G3 listed in the Ecodesign Directive for Computers and Computer Servers:

Table 1 Capability adjustments of the $TEC_{GRAPHICS}$ value for discrete graphics cards; (Ecodesign Directive for Computers and Computer Servers, as amended)

	$TEC_{GRAPHICS}$ (kWh)	
dGfx Category	**Desktop / Integrated desktop computer**	**Portable computer**
G1 (FB_BW ≤ 16)	18	7
G2 (16 < FB_BW ≤ 32)	30	11
G3 (FB_BW > 32)	38	13

FB_BW = Frame buffer bandwidth in gigabytes per second (GB/s)

Compliance Verification

Provided that the computer comes with a discrete graphics system, the applicant shall specify its dGfx category (G1 to G7) in Annex 1 to the Contract as well as the corresponding $TEC_{GRAPHICS}$ value used in the calculation of the admissible maximum annual energy consumption (E_{TEC_MAX}).

3.1.3 Requirements for Workstations, Thin Clients and Small-Scale Servers

Workstations, thin clients and small-scale servers shall meet the ENERGY STAR Program Requirements for Computers applicable to the specific type of computer, as amended at the time of application (current version: 6.0).

Compliance Verification

The applicant shall declare in Annex 1 to the Contract that the product meets all applicable ENERGY STAR requirements for computers. Moreover, the applicant shall specify the admissible maximum value (E_{TEC_MAX}) as well as the typical annual energy consumption (E_{TEC}) of the device determined in accordance with the ENERGY STAR specifications as well as the power consumption in the various operating modes in Watts. Measurements shall be made in compliance with the current ENERGY STAR requirements for computers (current version: 6.0)[11]*. The applicant shall submit test protocols prepared by an independent testing laboratory accredited for this measurement in accordance with DIN EN ISO/EC 17025 - as Annex 3 to the Contract. Test protocols prepared by the applicant will be accepted as equivalent if the latter uses a testing laboratory that has been accredited for these measurements by an independent body as Supervised Manufacturer's Testing (SMT) Laboratory.*

3.2 Requirements for the Battery in Portable Computers

The following requirements (paras. 3.2.1 to 3.2.4) apply to batteries in portable computers used for the power supply of the devices. The requirements do not apply to battery cells which are only used, for example, to buffer CMOS memories or to run drivers.

3.2.1 Rechargeability

The computers must be equipped with rechargeable batteries meeting the definition in para. 1.5.3.

Compliance Verification

The applicant shall declare compliance with the requirements in Annex 1 to the Contract and present the product information on the battery used in Annex 4 to the Contract. The product information shall provide manufacturer's data and give name, type designation and capacity of the battery (accumulator pack).

[11] ENERGY STAR® Program Requirements, Product Specification for Computers, Eligibility Criteria, Version 6.0, Edition of October 2013, www.energystar.gov/certified-products/sites/products/uploads/files/Computers_Program_Requirements_Version_6_0.pdf

3.2.2 Replaceability

The computers shall be designed to allow the user to replace the rechargeable batteries (accumulators) without the need for special tools.

Compliance Verification

The applicant shall declare compliance with the requirements in Annex 1 to the Contract and highlight the respective passages of the product information in Annex 5 to the Contract.

3.2.3 Battery Capacity

The battery capacity shall be measured in accordance with Standard EN 61960, as amended (current version: DIN EN 61960:2012-04), after a first discharge and charge cycle (discharge with 0.2 I_t A) in accordance with para. 7.3.1 „Discharge Behaviour at a Temperature of 20 °C (rated capacity)“ for three different batteries each in the following five successive cycles. During at least one measurement cycle, the output capacity of all three batteries (according to para. 7.3.1 – step 3 of the standard, in Ah) must be not less than 100 % of the rated capacity specified by the manufacturer.

Compliance Verification

The applicant shall present a test report in Annex 6 to the Contract stating that a minimum of three batteries have been analysed and that all three batteries meet the requirement. The test report shall be prepared by a testing laboratory that meets the general requirements for the competence of testing and calibration laboratories under DIN EN ISO/IEC 17025. Test protocols prepared by the applicant will be accepted as equivalent if the latter uses a testing laboratory that has been accredited for these measurements by an independent body as Supervised Manufacturer's Testing (SMT) Laboratory. Test protocols prepared by manufacturer-owned testing laboratories of the battery manufacturers will also be accepted.

3.2.4 Life and Life Cycle Test

The life of the rechargeable batteries shall be determined. For this purpose, the applicant shall specify the test method used to determine the batteries' life, give the number of charge and discharge cycles during the test as well as the remaining charge capacity at the end of life cycle test. The applicant shall give consent to RAL using this information for future revisions of these Basic Criteria.

Compliance Verification

The applicant shall specify the test method used to perform the life cycle test (e.g. by specifying a standard or by presenting a measuring instruction), give the rechargeable battery's life obtained from the life cycle test, the number of test cycles as well as the remaining charge capacity at the end of the tests in Annex 1 to the Contract.

3.3 Longevity

3.3.1 Repairability

The applicant undertakes to make sure that the availability of spare parts for appliance repair is guaranteed for at least 5 years from the time that production ceases.
Spare parts are those parts which, typically, may break down within the scope of the ordinary use of a product - whereas those parts which normally exceed the life of the product are not to be considered as spare parts. Rechargeable batteries, (if any) in particular, must be available for a period of 5 five years from the end of production.
The product information shall include details on the above requirements.

Compliance Verification

The applicant shall declare compliance with the requirements in Annex 1 to the Contract and present the relevant pages of the product information in Annex 5 to the Contract.

3.3.2 Capacity Expansion

The computers shall provide the following enhancement options:

- Expandable RAM (applies to thin clients only if they are equipped with a processor, it does not apply to portable computers).
- It shall be possible to install, replace and expand the mass storage unit (does not apply to thin clients and portable computers).
- Existence of a minimum of two USB 3.0 ports.
- It shall be possible to connect an external monitor (does not apply to integrated desktop computers).

Compliance Verification

The applicant shall declare compliance with the requirement in Annex 1 to the Contract, explain the respective options for capacity expansion in the consumer information a submit the latter in Annex 7 to the Contract.

3.4 Recyclable Design

3.4.1 Structure and Connection Technology

The following shall apply to computers:

- Blue Angel eco-labelled devices shall be so designed as to allow easy disassembly for recycling purposes in order to make sure that housing parts, chassis and batteries (if any), display units (if any) and printed circuit boards can be separated as fractions from materials of other functional units and, if possible, recycled by material type. They shall be so designed as to allow manual disassembly by a specialist company by the use of universal tools[12] and it shall be possible for a single person to disassemble the device.
- Rechargeable batteries (accumulators), if any, must be easy to remove without the use of tools or with the use of universal tools.
- Electrical/electronic components must be easy to remove from the housing.

Compliance Verification

The applicant shall declare compliance with the requirements in Annex 1 to the Contract and present instructions showing/explaining the professional disassembly of the computer (Annex 8 to the Contract). These instructions shall focus in particular on the professional separation of housing parts, chassis, batteries (if any), display units (if any) and printed circuit boards. These free-of-charge instructions shall be presented either in writing, by photo documentation, drawings or video format. Moreover, the applicant shall undertake in Annex 1 to the Contract to provide the recycling companies hired by applicant, if necessary, with information on efficient disassembly, components and the substances and assemblies that need to be treated selectively.

3.4.2 Material Selection

- The following applies to plastic parts with a mass greater than 25 grams as well as to key caps, provided that their total mass is greater than 25 grams: A maximum of 4 types of plastic may be used for these parts. The plastic housings may consist of two separable polymers or polymer blends at the most.
- Plastic parts with a mass greater than 25 grams and an even surface area of more than 200 sq. mm. shall be permanently marked in accordance with ISO 11469

[12] The term “universal tools” stands for general commerical tools

taking ISO 1043, Parts 1 to 4, into consideration. Transparent plastic parts the function of which requires transparency (e.g. visible plastic films for displays) shall be exempt from labelling according to ISO 11469.

- It shall not be permitted to apply metallic coatings to plastic housing parts. Exception: housing parts of portable consumers may have a galvanic coating if it is technically required. However, galvanic coatings shall be prohibited.
- (Post-consumer) recyclate material may be used in housing parts and chassis. It may be used on a percentage basis.
- 90% of the mass of plastics and of the metals of housing parts and chassis must be recyclable by type of material (this does not include the recovery of thermal energy by incineration).

Compliance Verification

The applicant shall declare compliance with the requirements in Annex 1 to the Contract, specify the plastics used for plastic parts greater than > 25 grams in mass and give the respective percentage of recycled plastics related to the mass of the plastic part in Annex P-L 25 to the Contract (see form).

3.5 Material Requirements

3.5.1 Material Requirements for the Plastics used in Housings and Housing Parts

The plastics must not contain as constituent parts any substances that are classified as:

- carcinogenic of categories 1A and 1B according to Table 3.1 of Annex VI to Regulation (EC) 1272/2008[13],

[13] Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006, Annex VI Harmonised classification and labelling for certain hazardous substances, Part 3: Harmonised classification and labelling – Tables, Table 2.3 List of harmonised classification and labelling of hazardous substances from Annex I to Directive 67/548/EEC,

short: GHS Regulation http://www.reach-info.de/ghs_verordnung.htm, as amended. The GHS Regulation (Global Harmonization System), that has come into force on January 20, 2009, replaces the old Directives 67/548/EEC and 1999/45/EC. According to the said regulation, substances are classified, labelled and packed until December 1, 2010 according to Directive 67/548/EEC (Dangerous Substances Directive) while mixtures are classified, labelled and packed until June 1, 2015 according to Directive 1999/45/EC (Dangerous Preparations Directive). Notwithstanding this, substances and preparations may be classified, labelled and packed according to the provisions of the

- mutagenic of categories 1A and 1B according to Table 3.1 of Annex VI to Regulation (EC) 1272/2008,
- toxic to reproduction of categories 1A and 1B according to Table 3.1 of Annex VI to Regulation (EC) 1272/2008,
- being of very high concern for other reasons according to the criteria of Annex XIII to the REACH Regulation, provided that they have been included in the List (so-called Candidate List[14]).

Halogenated polymers shall not be permitted. Nor may halogenated organic compounds be added as flame retardants.

The following shall be exempt from this rule:

- process-related, technically unavoidable impurities;
- 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;
- plastic parts less than or equal to 25 grams in mass.

Compliance Verification:

The applicant shall declare compliance with the requirements in Annex 1 to the Contract and submit a written declaration from the plastic manufacturers or ensure the submission of such declaration to RAL gGmbH. Such declaration shall confirm that the banned substances have not been added to the plastics and give the chemical designation of the flame retardants used, including CAS No. and classifications (H Statements) (Annex P-M to the Contract). When first applying for the Blue Angel eco-label the declaration submitted must not be older than 6 months. If one applicant files additional applications for the eco-labelling of products containing the same plastics the declarations submitted may be presented unchanged during the term of the Basic Criteria. Notwithstanding this, RAL shall be entitled to ask for an updated version of the declarations if the Umweltbundesamt (Federal Environmental Agency) finds that product-relevant substances have been added to the Candidate List.

GHS Regulation already before December 1, 2010 or June 1, 2015, respectively. In such case, the provisions of Dangerous Substances Directive or Dangerous Preparations Directive do not apply.

[14] The Candidate List, as amended at the time of application (first-time application) shall apply. Link to the Candidate List in Regulation (EC) No 1907/2006 concerning the Registration, Evaluation, Authorization, and Restriction of Chemicals (REACH): http://echa.europa.eu/web/guest/candidate-list-table

3.5.2 Requirements for the Plastics used in Printed Circuit Boards

Neither PBBs (polybrominated biphenyls), nor PBDEs (polybrominated diphenyl ethers), nor chlorinated paraffins may be added to the carrier material of the printed circuit boards.

Compliance Verification:

The applicant shall declare compliance with the requirement in Annex 1 to the Contract and present declarations from the suppliers of printed circuit boards stating that the printed circuit boards do not contain the banned substances (Annex 9 to the Contract).

3.5.3 Use of Biocidal Silver

The use of biocidal silver on touchable surfaces shall not be permitted.

Compliance Verification

The applicant shall declare compliance with the requirements in Annex 1 to the Contract.

3.6 Noise Emissions

The evaluation of noise emissions is based on the specification of the declared A-weighted sound power levels in decibel (dB) to the first decimal place. The A-weighted sound power levels $L_{WA(1..3)}$ shall be determined and calculated on the basis of ISO/FDIS 7779:2010. In doing so, it must be made sure that in the case of configuration variants of structurally identical devices the measurements are performed on the loudest individual components. Measurements shall be taken in the following operating modes:

1. The device is in idle mode. The $L_{WA(1)}$ shall be measured in accordance with ISO/FDIS 7779:2010 in the operating made according to ECMA-74:2008 Annex C.15.3.1. The measurement can be dropped if no fans are installed (e.g. CPU fans, power supply fans, computer system fans).
2. The hard-disk drive is enabled. The measurement of $L_{WA(2)}$ shall be performed in accordance with ISO/FDIS 7779:2010 in the operating mode according to ECMA-74:2008, Annex C.9.3.2. The measurement can be dropped if no mechanical hard disk drive is installed.
3. An optical drive in a typical configuration is enabled. The measurement of $L_{WA(3)}$ shall be performed in accordance with ISO/FDIS 7779:2010 in the operating mode

according to ECMA-74:2008, Annex C.19.3.2. The measurement can be dropped if no optical drive is installed.

To make sure that the sound power level can be considered declared a minimum of three devices need to be tested in each operating mode in accordance with ISO 9296:1988. The declared sound power levels $\boldsymbol{L_{WAd(1...3)}}$ shall be determined on the basis of ISO 9296:1988 and given in decibel (dB) to the first decimal place.

Alternatively, if the noise measurements can only be performed on one device the declared A-weighted sound power level L_{WAd} may be determined using the following formula following ISO 9296:1988:

$$\boldsymbol{L_{WAd} = L_{WAE} + 3\ dB}$$

($\boldsymbol{L_{WAE}}$ = sound power level determined by means of a single measurement in dB).

The measurement conditions and test results shall be entered into the form (Annex 15 to the Contract).

The values of the declared A-weighted sound power level $\boldsymbol{L_{WAd(1...3)}}$ recorded therein shall not exceed the following:

Operating Mode		**Desktop computers, integrated desktop computers, workstations, small-scale servers**	**Portable computers and mobile workstations**
(1) Idle mode	$L_{WAd(2)}$	38.0 dB	35.0 dB
(2) Hard disk drive enabled	$L_{WAd(1)}$	42.0 dB	40.0 dB
(3) Optical drive enabled	$L_{WAd(3)}$	50.0 dB	48.0 dB

The values determined shall be included in the User Manual according to para 3.7.

The noise emission requirements for computers do not apply to thin clients.

Compliance Verification

The applicant shall verify compliance with the requirements by submitting the completed form of Annex 10 to the Contract. This form shall be completed and confirmed by the testing laboratory on the basis of the test protocol. The testing laboratory shall be accredited according to DIN EN ISO/IEC 17025 and according to ISO/FDIS 7779 for the acoustic tests required. When performing the tests for the first time for application for the Blue Angel eco-label the testing laboratory shall attach a copy of the accreditation certificate.

3.7 Consumer Information / User Manual

The documentation included with the computer shall include both the technical specifications and the environment and health-related user information. It shall be either installed on the computer, supplied as a CD-ROM or in printed form together with the device or made available on the Internet from the time of delivery until a minimum of 5 years after the end of production.

The documentation shall include at least the following user information:

1. Energy consumption (E_{TEC}) in kilowatt hours (kWh/a) in accordance with para. 3.1.1 as well as the power consumption in different operating modes. Also included shall be instructions on how to set the devices to the energy-saving modes,
2. Information that a reduction in energy consumption goes along with a reduction in operating costs and that energy consumption can be cut down to zero if the device is disconnected from the mains socket outlet completely,
3. Information that the device draws power even when in the Off mode,
4. Information that lowering the display brightness helps reduce energy consumption.
5. Repairability according to para. 3.3.1,
6. Capacity expansion options according to para. 3.3.2,
7. Sound power level in all operating modes according to para. 3.6,
8. Instructions for environmentally sound disposal at the end of the life cycle in accordance with the German Elektrogesetz (Electrical and Electronic Equipment Act),
9. Information on manufacturer-operated product take-back programs to promote reuse and recycling,
10. Information that the batteries must not be disposed of with the normal household waste but instead should be taken to a waste collection facility.

Compliance Verification

The applicant shall declare compliance with the requirement in Annex 1 to the Contract and present the product information in Annex 5 to the Contract.

4 Outlook on Possible Future Requirements

The next revision of these Basic Criteria is expected to consider the following aspects:

- More detailed requirements for the use of recycled plastics in the manufacture of computers, monitors and keyboards,

- Requirements for battery capacity and for the life of batteries for portable computers.

5 Applicants and Parties Involved

5.1 Manufacturers and distributors of products under para. 2 shall be eligible for application.

5.2 Parties involved in the Award Procedure:

- RAL gGmbH to award the Blue Angel eco-label,
- the federal state being home to applicant's production site,
- Umweltbundesamt, (Federal Environmental Agency) which after the signing of the contract receives all data and documents submitted in application for the Blue Angel in order to be able to further develop the Basic Award Criteria.

6 Use of the Blue Angel Environmental Label

6.1 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 gGmbH.

6.2 Within the scope of such contract the applicant undertakes to meet the requirements under paragraph 3 for as long as the Blue Angel eco-label is used.

6.3 Contracts on the Use of the Environmental Label are concluded to fix the terms for the certification of products under paragraph 2. Such contracts shall run until December 31, 2016. They shall be extended by periods of one year each, unless terminated in writing by March 31, 2016 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.

6.4 The applicant (manufacturer) shall be entitled to apply to RAL gGmbH for an extension of the right to use the eco-label to the product entitled to the label if it is to be marketed under another brand/trade name and/or other marketing organizations.

6.5 The Contract on the Use of the Environmental Label shall specify:

6.5.1 Applicant (manufacturer, distributor)

6.5.2 Brand / trade name and product designation

6.5.3 Distributor (label user), i.e. the marketing organisation according to para. 5.4.

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CONTRACT

No.

on the Award of the Blue Angel Environmental Label

RAL gGmbH as the label-awarding agency and the firm of

(Distributor)
as applicant conclude the following

Contract on the Use of the Environmental Label:

S P E C I M E N

1. The applicant shall - under the following conditions - be entitled to use the Environmental Label forming the basis of this Contract for the labelling of the product / product group / project **„Computers“** 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 may only be used in the above given shape and colour with the bottom surrounding text "Jury Umweltzeichen". The entire inner surrounding text of the eco-label shall always be identical as regards font size, form, thickness and colour and it shall be easy to read.
2. The Environmental Label according to para. 1 may only be used for the above-mentioned product / product group / project.
3. If the Environmental Label is used for advertising purposes or other applicant activities 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 "Vergabegrundlage für Umweltzeichen RAL-UZ **78a**" (Basic Criteria for Award of the Environmental Label RAL-UZ **78a**), as amended. This shall also apply to the reproduction of the Environmental Label (including surrounding text). Claims for damages against RAL gGmbH, especially on the grounds of third party objections to 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 gGmbH and stop the use of the Environmental Label until the conditions are complied with again. Should the applicant fail to restore the state required for the use of the label immediately or should the applicant seriously offend against this contract RAL gGmbH may, if necessary, withdraw the Environmental Label and prohibit the applicant from using the label any longer. Claims for damages against RAL gGmbH 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 gGmbH (see above: paragraph 6, sentence 3).
8. The applicant undertakes to pay RAL gGmbH an amount according to the "Entgeltordnung für das Umweltzeichen" (Schedule of Fees 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 **78a**" this contract will run until **December 31, 2016**. It shall be extended by periods of one year each, unless terminated in writing by **March 31, 2016** 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. Blue Angel eco-labelled products / projects 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 ……..20..

Place, Date

RAL gGmbH
Management

(Authorized signature
and company stamp)