Apple Product Environmental Specification

Product: 15.4-inch MacBook Pro **Date:** 10/09/07
Model Numbers: MA895, MA896

This list of environmental attributes can be used as a guide to determine product compliance with various regional, country, and industry sector product environmental criteria. The environmental criteria listed is based on programs such as ECMA, IT ECO (formerly SITO), Blue Angel, ENERGY STAR®, and TCO.

Each criteria listed includes a reference to the section of the Eco-label specification where it is described.
Note: Not all environmental criteria apply to all products.

This environmental specification is provided for informational purposes only. Nothing contained within shall be construed as a warranty, expressed or implied, with respect to the product.

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Apple Product Environmental Specification		Requirement met			IT ECO	Blue Angel	TCO '99	ECMA
		Yes	No	N/A	('02)	Desktop CPUs	Desktop Display	(6/99)
1	**Environmental policy & environmental management**							
1.1	The manufacturer has a documented environmental policy approved by the management	X			C3.1		1.1.1	5.1
1.2	The manufacturer has an environmental management system according to: ISO 14001 _X_, EMAS ___ or internal system ___	X			C3.2		1.1.3	5.1
1.3	The manufacturer regularly publishes an environmental report		X		C3.3			
1.4	The manufacturer and the manufacturer's representative market its products in accordance with environmental rules in applicable marketing legislation	X					1.1.4	
2	**Environmentally conscious design**							
2.1	Large mechanical plastic parts consist of one material or of materials that are easy to separate	X			P6.3			5.9
2.2	All plastic components that weigh >100g shall be made from no more than 2 types of plastics	X			P6.3		1.4.2	
2.3	The variety of materials forming components of comparable functions are limited to one material	X				B.1		
2.4	The proportional use of recyclate is permitted		X			B.5		
2.5	Mechanical plastic parts, heavier than 25 g are marked with plastic identification code according to ISO 11469 and ISO 1043, parts 1-4 Plastics - Symbols and abbreviated terms	X			P6.4, 6.5, P6.15	3.1.3	1.4.1	5.9
2.6	The coating of plastic components is limited to a minimum	X				B.3		
2.7	Paints, lacquers or varnishes do not increase the weight of any plastic component weighing >25 g by more than 1%. In-mold decoration is not allowed in any plastic components weighing >25 g. Metallic paint (particles > 10 microns) is not allowed	X					1.4.3	
2.8	No internal or external metallization or molded in metal parts or glued parts in plastic housing for CRT or LCD			X			1.4.4(a)	
2.9	Plastic parts are free from metal inlays that cannot be removed by one person alone with a standard tool	X			P6.6			
2.10	Labels should be inherent and separable for recycling	X			P6.7			
2.11	Components made of incompatible materials can be removed separately or via separation aids	X				A.1		
2.12	Connections to be separated during disassembly are easily traceable	X				A.3		
2.13	The product is designed for easy dismantling during recycling; gluing/welding of different materials has been avoided	X			P6.1	3.1.1		
2.14	Disassembly can be done exclusively with all-purpose tools	X				A.4		
2.15	Disassembly can be done by a single person	X				A.9		
2.16	All screwed connections between modules can be separated with no more than three tools	X				A.7		
2.17	Large-size plastic case parts are so designed as to ensure the reutilization of the plastics on the basis of existing technologies for the production of high-quality and long-lived plastic products	X				3.1		
2.18	Materials and material compounds can be recycled on an industrial scale (technologically and economically useful)	X				B.4		
2.19	Future recycling and material utilization processes are taken into account	X				3.1		
2.20	Electronic modules containing harmful substances are easily traceable and removable for recycling	X				A.2		
2.21	The case parts are free from electronic modules	X				A.11		
2.22	The product has a modular design and no special tools are needed to upgrade the product	X			P6.8	4.4, C.1		
2.23	Processor, memory and cards of various types can be changed/upgraded	X			P6.9	4.4, C.2		5.2
2.24	Information on the ability to change/upgrade components is included in the product documentation	X				4.5		5.2
2.25	Design allows for installation, expansion exchange, upgrade, or attachment of a mass storage unit	X			P6.10	4.4, C.3		5.2

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3	**Banned/restricted materials**							
3.1	Compliant with EU Directive 2002/95/EC on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS) Exempted applications to Directive 2002/95/EC in use: • Lead in electronic ceramic parts • Lead in glass of cathode ray tubes, electronic components and fluorescent tubes • Lead as an alloying element in steel containing up to 0.35% lead by weight, aluminum containing up to 0.4% lead by weight, and copper containing up to 4% lead by weight	X						
3.2	No CFCs or HCFCs present in the product	X			P1.1			
3.3	No substances included in annex A, B or C of the Montreal Protocol on Substances that Deplete the Ozone Layer are used in the manufacture of the printed wiring boards, assembly of the PWBs and final assembly of the product	X					1.2.1	5.8
3.4	No asbestos, PCB (polychlorinated biphenyls) or PCT (polychlorinated terphenyls) present in the product	X						5.8
3.5	No mercury present in the product	X			P1.2			5.8
3.6	Mercury (Hg) content in flat panel display: 0 mg	← See Value			P6.17		1.3.2	
3.7	No brominated or chlorinated flame retardants, PBB or PBDEs present in mechanical plastic parts heavier than 25 g	X			P6.12		1.3.5(a)	5.8
3.8	The base material of PWB must not contain any PBB (polybrominated biphenyls), PBDE (polybrominated diphenyl ethers) or chlorinated paraffins	X				3.1.2.2		
3.9	Plastic components that weigh >25 g shall not contain flame retardants that contain organically bound chlorine or bromine. PVC is inherently flame retardant with organically bound chlorine and, therefore, not allowed (exception: PVC cables)	X					1.3.5	
3.10	No Antimony Trioxide (Sb_2O_3) flame retardants in plastic enclosures	X						
3.11	No polyvinyl chloride (PVC) is used in plastic enclosures (exception: cable enclosures)	X					1.4.2	
3.12	No cadmium (Cd), cadmium compounds, lead (Pb), or lead compounds are intentionally added to cable enclosures	X						5.8
3.13	No cadmium (Cd) or lead (Pb) present in mechanical plastic parts heavier than 25 g	X						5.8
3.14	No cadmium (Cd) in the CRT (Cathode Ray Tube)			X			1.3.1	5.8
3.15	No mercury (Hg) or cadmium (Cd) in electronic components	X					1.3.4	5.8
3.16	No cadmium (Cd) or lead (Pb) in paints and inks used in the product	X			P1.4			5.8
3.17	No chloroparaffins with chain length 10-13 carbon atoms and chlorinated greater than 50% are present in mechanical plastic parts heavier than 25 g	X						5.8
4	**Batteries**							
4.1	Batteries defined as hazardous in the EU Directive 91/157/EEC and amendments 98/101/EC are not used in the product	X				3.1.4		5.10
4.2	Battery handling information is provided in the product documentation	X				3.1.4		5.10
4.3	No mercury (Hg) or cadmium (Cd) in batteries	X			P2.2	3.1.4	1.3.3(a)	5.8
4.4	Remote battery chemical composition: Lithium manganese dioxide	← See Values						
	Backup battery chemical composition: Lithium manganese dioxide							
	Power battery chemical composition: Lithium-ion polymer							

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5	**Energy consumption**							
5.1	Power supply maximum continuous power rating 85 W **Mode** / **100V** / **115V** / **230V** Off / 0.84 W / 0.84 W / 0.85 W Sleep – WOL off / 1.21 W / 1.17 W / 1.16 W Sleep – WOL on / 1.98 W / 1.97 W / 1.90 W Idle – Display off / 17.2 W / 17.4 W / 17.7 W Idle – Display on / 21.4 W / 21.8 W / 22.3 W	← See Values			P8.1	4.1.1.6	4.5	5.3
5.2	External power supply (AC adaptor) no-load power consumption **Mode** / **115V** / **230V** No-Load / 0.22 W / 0.26 W Average Efficiency / 88% / 87%	← See Values						
5.3	Product meets ENERGY STAR® v4.0 criteria	X			P8.4	4.1.1.1	4.5	5.3
5.4	External power supply (AC adapter) meets ENERGY STAR® criteria	X						
5.5	External power supply (AC adapter) meets European Code of Conduct (2003) criteria	X						
5.6	Product meets US FEMP (Federal Energy Management Program) criteria	X						
5.7	Information about the energy save function is given in the user manual	X			P8.3			5.3
5.8	Sleep mode is activated automatically	X			P8.1	4.1.1.2		
5.9	Product shall not be damaged if separated from power source for at least 4 weeks	X				4.1.1.4		
5.10	The computer supports an operating system allowing the implementation of power-saving functions. Unit must offer at least one power-saving rest mode which activates automatically after a factory pre-set interval	X				4.1.1.2		

Definitions of energy consumption modes in section 5.1:

In each mode, the system is connected to AC power and the battery is fully charged.

Idle - Display on: State in which the system has completed loading Mac OS X with its default settings, with the display at its full brightness.

The following modes correspond to the requirements of the Energy Star Program Requirements for Computers Version 4.0 specification. Refer to the specification for the complete test conditions. The system is connected to a gigabit Ethernet network for each mode.

Idle - Display off: State in which the system has completed loading Mac OS X and the display is off after a period of inactivity.

Sleep - WOL on: Low power state that is entered automatically after a period of inactivity or by selecting sleep from the Apple menu. Wake-on-LAN, a Mac OS X default feature that allows the system to wake from sleep when directed by a network request, is enabled for this test.

Sleep - WOL off: Low power state that is entered automatically after a period of inactivity or by selecting sleep from the Apple menu. Wake-on-LAN functionality, which allows the system to wake from sleep when directed by a network request, is disabled through the Energy Saver System Preference panel.

Off: Lowest power mode of the system, also referred to as standby-mode or shutdown.

Definitions of energy consumption modes in section 5.2:

The following modes correspond to the requirements of the Energy Star Program Requirements for Single Voltage External AC-DC and AC-AC Power Supplies.

No-Load: Condition in which the power adapter is connected to AC power, but not connected to the system.

Average Efficiency: Average of the power adapter's measured efficiency when tested at 100%, 75%, 50%, and 25% of the power adapter's rated power output.

6	**Emissions**							
6.1	Alternating Electric Field: Band I: 5 Hz to 2 kHz, < 10 V/m, measured 30 cm & 50 cm in front of display; Band II: 2 kHz to 400 kHz, < 1 V/m, measured at 50 cm around display & at 30 cm in front (Products with CRTs and Flat Panels)			X			4.3	
6.2	Alternating Magnetic Fields: Band I: 5 Hz to 2 kHz, ≤ 200 nT, measured at 50 cm around & at 30 cm in front; Band II: 2 kHz to 400 kHz, ≤ 25 nT measured at 50 cm around display (Products with CRTs and Flat Panels)			X			4.4	

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		Yes	No	N/A	('02)	Desktop CPUs	Desktop Display	(6/99)
7	**Electrical safety, EMC and connection to the telephone network**							
7.1	The product is CE-marked and a CE certificate of conformity is available	X			P3.4			5.4
7.2	The product meets applicable EMC Directives	X			P3.2			
7.3	The product is to be connected to the PTT network and meets the EU telecommunications Directive	X			P3.3			
7.4	Product meets the Low Voltage Directive (LVD) regarding electrical safety (73/23/EEC and 93/68/EEC)	X			P3.1			
7.5	The product meets the requirements of EN 60950 for electrical safety	X					5.1	
8	**Ergonomics**							
8.1	The personal computer system meets the ergonomic requirements of ISO 9241-3, -7, -8 for CRT and ISO 13406-2 for flat panel displays			X	12.1			
8.2	The product keyboard meets the requirements of ISO 9995 and EN ISO 9241-4			X	12.2			
8.3	The computer input device meets the requirements of ISO 9241-9			X	12.3			
8.4	The LCD panel meets the ergonomic requirements of TCO'99			X			B.1,B.2	
9	**Packaging and documentation**							
9.1	The product package material does not contain heavy metals	X			P5.1			
9.2	The product package material does not contain CFC/HCFC	X			P13.1			5.8
9.3	Product packaging materials and weights: Material type: / Retail Box Weight / Retail and Outer Box Weight Corrugated cardboard and paperboard: 525g / 1085g EPS (expanded polystyrene): 155g / 195g HDPE/LDPE: 45g / 75g	← See Values			P13.2			5.11
9.4	Plastic packaging material is marked according to: DIN 6120_____ ISO 11469 / ISO 1043 _____ SPI _X_	X			13.3	3.1.8		5.11
9.5	The company participates in or has its own system for collection and recycling of packaging material (refer to item 13)	X			C1.1			5.11
9.6	No polyvinyl chloride (PVC) used in packaging	X			P13.5			
9.7	Packaging is in conformance with national guidelines, regulations and/or standards such as those implementing the EU Directive 94/62/EEC and/or the Ordinance on Packaging, as amended	X						5.11
10	**Recycling**							
10.1	The company has a system for reuse/recycling of the product and/or consumables (refer to item 13)	X			C2.1	3.1.7	1.4.5	5.12
10.2	Information about the system for reuse/recycling can be found in the user manual or specified elsewhere (refer to item 13)	X			C4.1	3.1.7		5.12
11	**Additional Attributes**							
11.1	The supply of spare parts for repair of the product is guaranteed for at least 5 years from termination of production	X			P6.11	3.1.6		5.2
11.2	Information on modularity of design, expansion capacity and guarantee is included in product documentation	X				3.1.7		5.2

12	Noise Characteristics		
12.1	Declared Noise Emissions in accordance with ISO 9296		
	Condition	Sound Power Level L_{Wad} (B) 1B = 10dB	Sound Pressure Level, Operator Position, Unit on Table L_{pAm} (dB)
	Idle	3.0	19
	Hard drive accessing	3.0	20
	Optical drive accessing	3.8	34

13	Additional Information/Notes
13.1	Product recycling/take-back systems are local and regionalized. They may not exist, in the same manner, in all municipalities/countries.
13.2	Apple has established regional systems for packaging take-back/recycling in those countries with packaging legislation.
13.3	Definitions: CAS Chemical Abstract Service CFC chlorofluorocarbon CRT cathode ray tube EMAS Eco Management and Audit Scheme EMC electromagnetic compatibility EPS expanded polystyrene HCFC hydro chlorofluorocarbon ISO International Organization of Standardization IT ECO Association of the Swedish IT and Telecom Industry LCD liquid crystal display LDPE low density polyethylene MSDS material safety data sheet PBB polybrominated biphenyls PBDE polybrominated diphenyl ethers PCB polychlorinated biphenyls PCT polychlorinated terphenyl PVC polyvinyl chloride PWB printed wiring board SPI Society of Plastics Industry TBBA tetrabrominated bisphenol A VDT visual display terminal