

# Apple Product Environmental Specification

**Product: Apple Cinema Display, 23" Flat Panel**

**Date: 10/14/04**

**Model Number: M9178 (Agency Number A1082)**

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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### 1.0 *Environmental policy & environmental management*

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An environmental policy and environmental management system (EMS) demonstrates the commitment, purpose, objective and mission of a company. Apple has established an internal EMS, and has certified its facilities in Sacramento, CA, Ireland, and Singapore to ISO 14001.

### 2.0 *Environmentally conscious design*

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Environmentally conscious design is the systematic approach of identifying and incorporating product features and functions with respect to environmental, health and safety objectives throughout all stages of a product's life. Apple has established a process where we address these issues in the design, development, manufacture, use, and end-of-life of our products.

### 3.0 *Banned/restricted materials*

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Some materials that have traditionally been used in electronic products have been determined to be environmental or health hazards. The use of these materials has been banned or restricted by legislation or ecolabels.

### 4.0 *Batteries*

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Apple uses rechargeable batteries to provide power for notebooks, develops power management software and energy saving features to obtain maximum efficiency, and avoids batteries that contain lead, cadmium and/or mercury.

### 5.0 *Energy consumption*

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The use of energy-efficient products results in savings in energy costs and the reduction of pollution resulting from the generation of electricity. Apple promotes energy conservation in its product design and performance including our participation in the ENERGY STAR® program and no-load power consumption programs such as the EU Code of Conduct for external power supplies, and the U.S. Federal Energy Management Program. The energy data listed reflects standard configurations only. Other configurations may yield different energy values.

### 6.0 *Emissions*

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Apple products are tested and certified to international standards to assure the safe use of our products.

### 7.0 *Electrical Safety, EMC, and connection to telephone network*

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The safe use of Apple products is of foremost concern. Therefore, Apple tests and certifies our products to international standards to assure their safe use.

### 8.0 *Ergonomics*

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Visual ergonomics is an important concern to computer users. It affects user comfort and performance. Apple designs, tests and certifies our displays to meet stringent visual ergonomics (front of screen) criteria. In addition, our displays have the capability of tilting and swiveling to adjust to user needs.

### 9.0 *Packaging and documentation*

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Apple evaluates the environmental attributes of our packaging for hazardous materials as well as the minimization of the quantity and weight of the packaging materials. These considerations enable and promote recycling of packaging materials for our customers.

### 10.0 *Recycling*

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Apple designs its products with specific features and functions that promote the ease of recyclables. In addition, in specific countries, Apple has established takeback/recycling programs to assist customers.

### 11.0 *Additional Attributes*

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### 12.0 *Additional Information/Notes*

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APES (Apple's Product Environmental Specifications)		Requirement met			IT ECO	Blue Angel	TCO '03	ECMA
		Yes	No	Not rel.	('02)	Desktop CPUs	Desktop Display	(6/99)
1	<b>Environmental policy &amp; environmental management</b>							
1.1	The manufacturer has a documented environmental policy approved by the management	X			C3.1			5.1
1.2	The manufacturer has an environmental management system according to: ISO 14001 ____, EMAS ____ or internal system <u>X</u>	X			C3.2			5.1
1.3	The manufacturer regularly publishes an environmental report	X			C3.3		A.6.1	
1.4	The ISO/EMAS certification authority shall be accredited in accordance with ISO/IEC Guide 66, and shall meet the provisions of ISO/IEC Guide 61	X					A.6.1	
1.5	TCO-prepared Document to accompany product	X					A.1.1	
1.6	A document specifying how the TCO Document shall accompany the product, signed by the responsible person on behalf of the applicant company shall be submitted	X					A.1.1	
2.0	<b>Environmentally conscious design</b>							
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 plastic materials, regardless of their location in the product.	X			P6.3		A.6.3.3	
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 recycle is permitted		X			B.5		
2.5	All mechanical plastic parts, heavier than <u>X</u> 25 g / <u>__</u> 50 g have material codes according to ISO 11469 (version 1996)) or All mechanical plastic parts, heavier than <u>X</u> 25 g / <u>__</u> 50 g have material codes according to ISO 11469 (version 2000; addition of ISO 1043, parts 1-4 Plastics-Symbols and abbreviated terms)	X			P6.4, 6.5, 6.15	3.1.3	A.6.3.1	5.9
2.6	The coating of plastic components is limited to a minimum	X				B.3		
2.7	No internal or external metallization or molded-in or glued metal parts in the plastic housing shall be used	X					A.6.3.4	
2.8	Plastic parts are free from metal inlays that cannot be removed by one person alone with a standard tool	X			P6.6			
2.9	Labels should be inherent and separable for recycling	X			P6.7			
2.10	Components made of incompatible materials can be removed separately or via separation aids	X				A.1		
2.11	Connections to be separated during disassembly are easily traceable	X				A.3		
2.12	Connections to be separated during the disassembly of Flat Panel Display must be easy to take apart in order to not damage the mercury lamps. This means that gluing and welding must not be used to bond parts and make removal of the lamps complicated.	X					A.6.3.2	
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		

APES (Apple's Product Environmental Specifications)		Requirement met			IT ECO	Blue Angel	TCO '03	ECMA
		Yes	No	Not rel.	('02)	Desktop CPUs	Desktop Display	(6/99)
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

3.0 Banned/restricted materials								
3.1	CFCs and HCFCs are not present in the product	X			P1.1			
3.2	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 Printed Wiring Boards and final assembly of the product	X						5.8
3.3	Asbestos, PCB and PCT are not present in the product.	X						5.8
3.4	Mercury is not present in the product (with the exception of mercury in flat panel backlighting)	X			P1.2			5.8
3.5	Connections to be separated during disassembly of FPD must be easy to take apart in order to not damage the mercury lamps. This means that gluing and welding must not be used to bond parts and make removal of the lamps complicated.	X					A.6.3.2	
3.6	Mercury (Hg) in flat panel display backlight bulb(s): __1.9__ mg (minimum) __3.0__ mg (average) __3.5__ mg (maximum) __12__ number of backlight bulbs	« Values			P6.17		A.6.3.2	
3.7	Brominated and chlorinated flame retardants, PBB and PBDEs are not present in mechanical plastic parts heavier than X 25 g / __ 50 g	X			P6.12			5.8
3.8	No PCB (polychlorinated biphenyls) or PCT (polychlorinated terphenyls) are present in product	X						5.8
3.9	The base material of Printed Wiring Board must not contain any PBB (polybrominated biphenyls), PBDE (polybrominated diphenyl ethers) or chlorinated paraffins	X				3.1.2.2		
3.10	Plastic components weighing more than 25 grams shall not contain flame retardants that contain organically bound chlorine or bromine. The flame retardant threshold value is 0.5 weight percent.	X					A.6.2.3	
3.11	A list of all plastic components in the product that weigh >25 grams shall be given. The list shall include information regarding use of flame retardants. CAS# and FR type must be provided for flame retardant concentrations over 0.5 weight percent. Part of the information can, for secrecy reasons, be sent directly from the plastic manufacturer to TCO certified lab.	X					A.6.2.4	
3.12	Plastic parts that weight more than 25 grams in the VDU shall not contain chlorine or bromine as a part of the polymer; i.e. polyvinyl chloride (PVC)	X					A.6.2.5	
3.13	No antimony trioxide (Sb <sub>2</sub> O <sub>3</sub> ) flame retardants are used in plastic enclosure resins	X						
3.14	No cadmium (Cd) or cadmium compounds & lead (Pb) or lead compounds are intentionally added to cable enclosures	X						5.8
3.15	Cadmium (Cd) and lead (Pb) are not present in mechanical plastic parts heavier than __X 25 g / __ 50g	X						5.8
3.16	Cadmium is not present in the CRT (Cathode Ray Tube)			X				5.8
3.17	No mercury (Hg) or cadmium (Cd) in electronic components	X					A.6.2.1	5.8

APES (Apple's Product Environmental Specifications)		Requirement met			IT ECO	Blue Angel	TCO '03	ECMA
		Yes	No	Not rel.	('02)	Desktop CPUs	Desktop Display	(6/99)
3.18	Paint, lacquer, plastic parts, connectors, batteries, and solder in the VDU shall not contain cadmium (Cd) or mercury (Hg). The threshold value per listed part is 2 ppm for mercury and 5 ppm for cadmium.	X					A.6.2.1	
3.19	Batteries, paint, lacquer, external cables, plastic materials and external adaptors belonging to the VDU shall not contain lead (Pb). The threshold value is 50 ppm per weight per listed part	X					A.6.2.2	
3.20	Paints and inks used in the product are free from cadmium (Cd) and lead (Pb)	X			P1.4			5.8
3.21	Chloroparaffins with chain length 10-13 C atoms, chlorinated greater than 50% are not present in mechanical plastic parts heavier than X_25g / __50g	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 given in the product documentation			X		3.1.4		5.10
4.3	Batteries may not contain mercury (Hg) or cadmium (Cd)			X	P2.2	3.1.4	A.6.2.1	5.8
4.4	The battery chemical composition: Logic board/memory/clock battery _____ Power battery _____	N/A		X				5.10

5 Energy consumption								
5.1	Power supply maximum continuous power rating __90__ W at 115V/60Hz, and 175 CD/m <sup>2</sup> Standby: __48__ W Sleep mode: __1.6__ W Off: __1.0__ W at 230V/50Hz, and 175 Cd/m <sup>2</sup> Standby: __52__ W Sleep mode: __1.5__ W Off: __1.0__ W at 100V/50Hz & 60HZ Sleep mode: ____ W	« Values					A.7.1	
		« Values						
		« Values						
		N/A	X	P8.1	4.1.1.6			5.3
5.2	External power supply (AC adaptor) no-load power consumption at 115v/60Hz __0.8__ watts at 230v/50Hz __0.8__ watts	« Values						
5.3	Product meets the requirements of ENERGY STAR®	X			P8.4	4.1.1.1		5.3
5.4	External power supply/AC Adaptor meets EU CoC (Code of Conduct) criteria	X						
5.5	Product meets US FEMP (Federal Energy Management Program) criteria	X						
5.6	Information about the energy save function is given in the user manual	X			P8.3			5.3
5.7	There shall be a description, from the user's point of view, how the VDU is brought into energy mode(s) and how this is indicated on the VDU.	X					A.7.1	
5.8	The sleep mode is activated automatically	X			P8.1	4.1.1.2		
5.9	The appliance may be separated from the mains for at least 4 weeks without damage to the appliance	X				4.1.1.4		
5.10	The computer must be so equipped as to support an operating system allowing the implementation of power-saving functions. Unit must offer at least one power-saving rest mode as a special operating mode. This mode must activate itself automatically after a factory pre-set activation time	X				4.1.1.2		
5.11	First step sleep must be ≤15W, readable screen within 3 sec (5 sec for AIO). If Sleep ≤5W in second step or in first step then no wakeup time requirement applies.	X					A.7.1	

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		Yes	No	Not rel.	('02)	Desktop CPUs	Desktop Display	(6/99)
6	<b>Emissions</b>							
6.1	Alternating Electric Field: Band I: 5 Hz - 2 kHz, ≤ 10 V/m, measured 30 cm & 50 cm in front of VDU; Band II: 2 - 400 kHz, ≤ 1 V/m, measured 50 cm around VDU and 30 cm in front of VDU	X					A.4.2	
6.2	Alternating Magnetic Fields: Band I: 5 Hz - 2 kHz, ≤ 200 nT, measured 30 cm in front of VDU and 50 cm around the VDU; Band II: 2 - 400 kHz, ≤ 25 nT measured 50 cm around VDU	X					A.4.3	
7	<b>Electrical safety, EMC and connection to the telephone network</b>							
7.1	The product is CE-marked. A CE certificate of conformity is available	X			P3.4			5.4
7.2	The product meets applicable EMC Directive (electromagnetic compatibility)	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 & 93/68/EEC)	X			P3.1			
7.5	The VDU shall be certified according to EN 60950 / IEC 60950 for electrical safety of information technology equipment including business equipment	X					A.5.1	
8	<b>Ergonomics</b>							
8.1	The LCD meets the ergonomic requirements of ISO 13406-2 for flat panel displays	X			12.1			
8.2	The LCD panel meets the ergonomic requirements of TCO'03	X					A.2,A.3	
9	<b>Packaging and documentation</b>							
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:				P13.2			5.11
	Material type: corrugated cardboard Weight: 2.1 kg	« Value						
	Material type: EPS foam Weight: 0.76 kg	« Value						
	Material type: HDPE/LDPE laminated bag Weight: 0.017 kg	« Value						
9.4	Plastic packaging material is marked according to: DIN 6120 _____ ISO 11469 / ISO 1043 _____ SPI <u>X</u>	X			13.3	3.1.8		5.11
9.5	The company participates in/ has its own system for collection and recycling of packaging material. (Refer to section 13)	X			C1.1			5.11
9.6	Product plastic packaging is free from polyvinyl chloride (PVC)	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	<b>Recycling</b>							
10.1	The company has a system for reuse/ recycling of the product and/or consumables. (see item 13)	X			C2.1	3.1.7		5.12
10.2	The TCO'03 certificate holder (or his representative, associated company or affiliate) shall inform its customers of the possibility to dispose of the VDU by environmentally acceptable recycling. The information shall be made available to customers in the geographical markets in the following way: (1) For VDUs sold within EU: Customers in at least three countries where the VDU is sold. (2) For VDUs sold in Asia: For customers in at least one Asian country. (3) For VDUs sold in America (North and South): For customers in at least one country or one state in the USA.	X					A.6.3.5	
10.3	Information about the system for reuse/recycling can be found in the user manual or specified elsewhere. (see item 13)	X			C4.1	3.1.7		5.12

APES (Apple's Product Environmental Specifications)		Requirement met			IT ECO	Blue Angel	TCO '03	ECMA
		Yes	No	Not rel.	('02)	Desktop CPUs	Desktop Display	(6/99)
<b>11 Additional Attributes</b>								
11.1	The supply of spare parts for a repair of the product is guaranteed for at least 5 years from the termination of the production	X			P6.11	3.1.6		5.2
11.2	Information on modularity of design, expansion capacity and guarantee are included in product documentation	X				3.1.7		5.2

<b>12 Additional Information/Notes</b>	
12.1	Product recycling/takeback systems are local and regionalized. They may not exist, in the same manner, in all municipalities/countries. See: <a href="http://www.apple.com/environment/summary.html">www.apple.com/environment/summary.html</a>
12.2	Apple has established regional systems for packaging takeback/recycling in those countries with packaging legislation.

CAS	Chemical Abstract Service
CFC	chlorofluorocarbon
CRT	cathode ray tube
EMAS	EU Eco Management and Audit Scheme
EMC	electromagnetic compatibility
EPS	expanded polystyrene
FPD	flat panel display
HCFC	hydro chlorofluorocarbon
ISO	International Organization of Standardization
IT ECO	Association of the Swedish IT and Telecom Industry (formerly SITO)
LCD	liquid crystal display
LDPE	low density polyethylene
MSDS	material safety data sheet
PBB	polybrominated biphenyl
PBDE	polybrominated diphenyl ether
PCB	polychlorinated biphenyl
PCT	polychlorinated terphenyl
PVC	polyvinyl chloride
PWB	printed wiring board
SPI	Society of Plastics Industry
TBBA	tetrabrominated bisphenol A
VDU	visual display unit