

EL431. Television Sets [EL431-1999/9/2014-53]



1. Scope

The criteria shall apply to the broadcast reception television using a commercial power source for indoor use (hereinafter referred to as "TV"). Also, it includes multi-functional products that have TV functions as standard, and additional functions such as video (DVD, BD) playback, structure with built-in recorder, or connection to external network. It should be noted that CRT-type TVs are not included.

2. Definitions

2.1

"Standby mode" refers to the state in which power consumption is automatically reduced by the TV when the power is cut off by a remote control (or a switch on the body for the product without a remote control) or there is no broadcast signal or input signal over a certain period of time. This includes the state in which the TV mode can be changed through additional external signals other than the remote control or the network state in which the minimum level of data are being received from the service provider. But, if definite values of standby power that increases when the network is released in the inactivating state and then gets activated are provided as consumer information, the state of network may be excluded.

Note) Consumer information regarding the standby power shall be provided on the screen as a rule. When a valid reason is deemed, such consumer information may be stated in the user's manual.

2.2

"Standby power" refers to the power consumed by the product in the standby mode.

2.3

"Ozone depletion potential (ODP)" refers to the ratio of a particular ozone depleting compound of environmental effect compared to the depleting ability of a standard compound, CFC-11, which arbitrarily defined as 1.

2.4

"Power consumption in operation mode" refers to the power consumption measured in accordance with the Operation Regulations for Efficiency Management Equipment, which functions as a standard of consumption efficiency rating indices.

2.5

"Network product" refers to the product that is made for remote control among various products and information sharing by controlling digital home appliances, information

equipment, etc., with a single protocol. Products with the network function as an option are regarded as network products.

3. Certification Criteria

3.1 Environmental Criteria

3.1.1

Energy consumption during the use stage shall satisfy the following requirements.

3.1.1.1

The product's energy efficiency grading indicator(R), which is calculated by the following formula, must not exceed 60. Also, the active mode's power consumption of 3D products must not exceed values indicated by the manufacturer.

$$R = \frac{\text{Power consumption in operation mode [W]}}{\text{Square root of screen area } [\sqrt{m^2}]}$$

Note) "Values indicated by manufacturer" mean values that express Watt-hour (Wh) with Watt(W) when the standard video provided in IEC 62087 is played with 3D mode for one hour.

3.1.1.2

Unless broadcast signals or input signals such as DVD are received, the product shall be automatically converted to standby mode within 20 minutes.

3.1.1.3

The power switch (a switch for video/sound off) shall be on the product body, and the standby power shall be 0.3 W or lower.

3.1.1.4

The TV shall have a function in which picture brightness is automatically adjusted depending on ambient brightness. If the TV only has the function of being manually adjusted, however, the appropriate function shall be easily used by the user.

Note) Either installing a dedicated button for easily detecting brightness on a remote control or providing an alert message that says a power-saving feature is available by way of adjusting the brightness when making menu selections in operation mode.

3.1.2

With respect to resource consumption during the use stage, the product shall comply with the following criteria:

3.1.2.1

The weight of product body and stand (appropriate parts for a wall-mounted type TV) shall comply with the following:

Category	Television Receiver Size	Main Body Weight [kg]	
		Built-in Optical Disk Drive: Absent	Present
Other than plasma television	$S \leq 15$	≤ 3.0	≤ 3.5
	$15 < S$	$\leq 0.013 \times S^2$	$\leq 0.015 \times S^2$
Plasma television	-	$\leq 0.015 \times S^2$	$\leq 0.017 \times S^2$

Note1) S refers to the centimeter-denominated quotient, rounded at the decimal point, of division of the diagonal dimension of the driven display area of the display screen by 2.54.

Note2) Main body weight is based on the rounded value to the second decimal point of the measurement.

3.1.2.2

Parts for repair shall be held for eight years after the production of certified products is stopped.

3.1.2.3

A nationwide after-sales service system shall be established, and repairs shall be conducted in accordance with users' requests.

3.1.3

With respect to use and disposal of chemical substance in the manufacturing process, the product shall satisfy the following requirements regarding recyclability of the part of the product.

Note) This Criteria shall not apply to materials that are exempted from Hazardous Substances Restriction lists on EU Directive 2002/95/EC or the Act on Resource Circulation of Electrical/Electronic Equipment and Vehicles. In case of the revision of EU Directive 2002/95/EC or the Act on Resource Circulation of Electrical/Electronic Equipment and Vehicles, however, this shall follow the revised EU Directive or Act which is to be applied at the time of the application for eco-label certification

3.1.3.1

Contents of lead (Pb), cadmium (Cd), mercury (Hg), and hexavalent chromium (Cr⁶⁺) contained in parts of the product shall comply with the following requirements. However, when the applicant has an appropriate system to control the content of hazardous substances as following requirements, it shall be deemed to have satisfied such requirements.

Substance	Pb	Cd	Hg	hexavalent chromium(Cr ⁶⁺) ^{note)}
Content [mg/kg]	≤1000	≤100	≤1000	≤1000

Note) In case the content of total chromium (Cr) is 1000 mg/kg or less, it is regarded as equivalent

3.1.3.2

PBBs(polybrominated biphenyls), PBDEs(polybrominated diphenylethers), HBCDD(Hexa bromocyclododecane), short-chain chlorinated paraffins (C=10~13) that has more than 50% of chlorine shall not be used in the product

3.1.3.3.

Provided that the product (including remote control, 3D glasses, etc.) is equipped with a battery, the content of lead, cadmium, mercury and their compounds in the batteries shall comply with EU directive 2006/66/EC.

3.1.3.4

Halogenated plastics such as PVC shall not be used for the plastic case parts weighing 25 g or more, and also halogenated compounds shall not be contained in the plastic parts. Exempted from this criterion are the organic fluoro additives with less than 0.5 wt % (e.g. anti-dripping agent).

3.1.4

With respect to resource consumption in manufacturing and usage process and pollutant emission and the recyclability of the product at disposal stage, the product shall comply with the following requirements.

3.1.4.1

The classification of quality shall be marked on each part of synthetic resin used for the product (with more than 25 g of weight and more than 200 mm² of area of the flat part) in order to make separation and withdrawal of the product easily in the disposal stage.

3.1.4.2

Plastic case parts weighing 25 g or more shall be made of maximum four different materials in easily separable way. At the same time, each plastic case part weighing 25 g or more shall be made of a single polymer (homo- / copolymer) or recyclable polymer blends (polymer alloys). In addition, labels, markings and stickers shall be made of the same material as the plastic parts to which they are affixed or shall not cause inconvenience to recycle.

3.1.4.3

Halogenated plastics such as PVC shall not be used for packaging materials.

3.1.4.4

Separate shock-absorbing material in packaging of a product shall meet one of the following criteria and shall be composed of a single quality of material.

3.1.4.4.1 Recycled paper and pulp material, such as pulp mold

3.1.4.4.2 Shock-absorbing materials with the eco-label certification as "EL606. Packing Material" of the certification criteria by eco-label subject product.

3.1.4.4.3 Shock-absorbing materials in packaging manufactured by using more than 50 wt % of waste synthetic resin.

3.1.4.4.4 Shock-absorbing materials made of foamed synthetic resins (EPS, EPE, EPP) manufactured by using substances with ODP of 0 as foaming agents

3.1.4.4.5 Air-cell shock-absorbing materials made by injecting air into synthetic resin material

3.1.4.5

Packaging made of synthetic resin material and shock-absorbing materials made of foamed synthetic resins shall indicate separate discharge marks according to the Guidance on Indicating Separate Discharge.

3.1.4.6

The product shall be designed to have a recycling rate of more than 65 wt %.

3.1.4.7

The applicant shall establish, implement and operate the collecting and recycling system of the product (including the packaging shock-absorbing). However, in case that the applicant has managed the system by designating a professional agency and suggest specific results, he or she shall be regarded to satisfy the requirement.

3.1.4.8

Product disassembly shall be possible with ordinary tools.

3.1.4.9

The batteries built in the product shall have indications meeting the KPS (batteries) in accordance with the Act on Safety Control of Quality Management & Industrial Products, and which shall be replaced or removed without replacement of the entire PCB.

3.1.4.10

The screws on the back of the product shall have identification symbols so that they can be easily found. However, this may not apply to the screws for a plastic part whose screws can

be easily identified without identification symbols, which have the weight of less than 25 g, or whose even sides have the area of less than 200 mm².

3.1.5

The product shall be designed and manufactured in consideration of resource-energy saving, reduction of emitting pollutants and using harmful substances, use of recycled materials, improvement of recycling capability and expansion of life span of the product in order to reduce the environmental burden in the whole process of the product.

3.2 Quality Criteria

The quality of the product shall satisfy the safety standard of electric appliances in accordance with the Electric Appliances Safe Control Act.

3.3 Information for Consumers

3.3.1 Indication on the items that the product contributes to the reasons for certification (Power-saving, Design for environment) during its consumption stage

3.3.2 Power consumption in playback and standby mode

3.3.3 Information on how to use energy saving functions

3.3.4 Product quality warranty period, parts supply, after-sales service information and contact information

3.3.5 Guide for collection of waste products

4. Test Methods

Certification Criteria		Test and Verification Methods
Envir. Criteria	3.1.1	3.1.1.1 Test report by an accredited testing laboratory in accordance with the methods of measuring consumption efficiency of TV sets required to meet the Operation Regulations for Efficiency Management Equipment or higher standards. The power consumption of 3D image is based on the value measured by 3D mode.
		3.1.1.2 Test report by an accredited testing laboratory in accordance with the test method specified in 4.1 and 4.2
		3.1.1.3 Verification of submitted documents & test report by an accredited testing laboratory in accordance with KS C IEC 62087 (Methods of Measuring Power Consumption of Audio, Video and Relevant Equipment) or higher standards
		3.1.1.4 Verification of submitted documents

	3.1.2	Verification of submitted documents
3.1.3	3.1.3.1	Verification of submitted documents in accordance with the test method specified in and 4.3
	3.1.3.2 ~3.1.3.4	Verification of submitted documents
	3.1.4 ~3.1.5	Verification of submitted documents
Quality Criteria		Test report by an accredited testing laboratory in accordance with the Safety Standard of Electric Appliances or certificate of equivalent
Information for Consumers		Verification of submitted documents

4.1 General Matters

4.1.1

One test sample shall be required for each applied product.

4.1.2

Test samples shall be collected at random by a certification institute from products in market or those in storage at the production site.

4.1.3

It makes a rule that all the measurements shall be conducted after setting up the product at the usual use state, when the product reaches the normal state and becomes stable.

4.1.4

Test result shall be numerically set according to KS Q 5002 (Statistical interpretation method of the data – Part 1: Statistical description of the data).

4.2

Time for automatic switching to standby mode: measuring the time for switching to standby mode after the broadcast signal is cut off at normal operation

4.3 Compliance verification and test method regarding the control of harmful substances

4.3.1

Verification method for the hazardous substance management system

Note) This is the method to verify the compliance with the requirement of the restriction of the use of lead, cadmium, mercury and their compounds, and hexavalent chromium

compounds in the parts of the product. This method is applicable to verify that the applicant properly controls PBBs (polybrominated biphenyls), PBDEs (polybrominated diphenylethers) and short-chain chlorinated paraffins (C=10~13).

4.3.1.1

Compliance verification shall be done by one of the following documents or more.

4.3.1.1.1

Explanatory note on the management system, established by the manufacturer on purpose to control the hazardous substances when each part of the product is supplied from the suppliers, and relevant documents

4.3.1.1.2

Test result conducted by the manufacturer in order to control the hazardous substances when each part of the product is supplied from the suppliers (In this case, test method including pre-conditioning method applied shall be specified in detail)

4.3.1.1.3

Certificate issued by the accredited third party showing that each part of the product satisfies the relevant requirements (e.g. Certificate of eco-label according to 'EL 763. Electric and Electronic Parts')

4.3.1.1.4

Other documents showing that the manufacturer properly controls the hazardous stances when each part of the product is supplied from the suppliers.

4.3.1.2

In case the compliance of the management system cannot be verified by '4.3.1.1' or the test result for specific parts of the product is required by deliberation committee of eco-label certification, compliance verification shall be done by the following '4.3.2 Test method for measuring the content of the hazardous substances' for the parts collected at random by eco-label certification body.

4.3.2

Test method for measuring the content of the hazardous substances

Note) This is one of the test methods applicable to verify the content of lead (Pb), cadmium (Cd), mercury (Hg) and hexavalent chromium (Cr⁶⁺) contained in the parts of the product. The content of the hazardous substances can be also verified according to the internationally recognized test methods. In this case, test method including pre-conditioning method shall be specified in detail and the specified test method shall be approved by deliberation committee of eco-label certification.

4.3.2.1.

Test samples shall be homogenized by pre-conditioning method such as pulverization of each part.

4.3.2.2

Analysis method of lead (Pb), cadmium (Cd), mercury (Hg), hexavalent chromium (Cr^{6+}), and total chromium (Cr) : Measurement of contents of KS C IEC 62321 (electronics and electrical products-6 regulated substances (Pb, Hg, Cd, Cr^{6+} , PBBs, PBDEs))

5. Reasons for Certification

“Power-saving”, “Design for environment”

Common Criteria

1. Eco-label products must follow the following provisions with regard to the proper treatment of environmental pollution substances, such as air and water wastes and noxious chemical substances emitted in the process of manufacturing or service operation.
 - A. If it is confirmed that the applicant for eco-labeling certification has violated environment-related laws and agreements pertaining to the region where the production factory or the place of service operation is located within one year before application, he/she cannot apply for the certification. With regard to violations other than penalty-related ones, however, the applicant can apply for the certification after appropriate actions are completed.
 - B. A person who has received a certification of eco-labeling shall observe the environment related laws and agreements pertaining to the region where the production factory or the place of service operation is located during the period of certification. If the violation of penalty-related provisions is confirmed within the period of certification, however, the certification may be canceled. With regard to violations other than penalty-related ones, however, the certification can be suspended until appropriate actions are completed.
2. As a general rule, information for consumers shall be indicated on the surface of the product in such a way not to be easily erased. However, in case that indication on the surface of the product is impossible or undesirable, it can be indicated on the appropriate part such as product packaging, product guidebook and user's manual that consumers can recognize. However, the service information should be indicated inside and outside of the place of service operation. In case that indication inside and outside of the place of service operation is impossible or undesirable, it can be indicated on the appropriate part such as an agreement, letter of delivery, letter of guarantee, and PR materials that consumers can recognize.
3. In order to establish fair trade and to protect consumer, the applicant for eco-label and the holder of eco-label license shall observe the Act on the Fairness of Indication and Advertisement with respect to the environmental aspects of the product. Otherwise, application for certification may be rejected or certification may be canceled.
4. For various standards referenced in the certification criteria by target product, the latest revisions at the date of application shall be applied, if not otherwise specified.
5. If it is judged that it is not appropriate to apply quality-related standards in accordance with the certification criteria for each target product, the president of Korea Environmental Industry & Technology Institute (KEITI) (hereafter referred to as "president of KEITI") may establish and operate the quality criteria for the product involved after review by a deliberation committee or expert consultation.