

EL433. Mobile Phones

[EL433-2002/4/2011-10]



1. Scope

The scope shall apply to the product used for verbal communication as mobile subscription wireless phone equipment (hereafter referred to as "mobile phone"), including the product in which the function of information communication is added.

2. Definitions

"Specific absorption rate (SAR)" refers to the energy rate per unit weight [W/kg] absorbed into a living body tissue, which is defined as the following equation.

$$SAR = \frac{\sigma E^2}{\rho}$$

- σ : Electric conductivity of tissue (S/m)
- ρ : Density of tissue (kg/m^3),
- E : Intensity of effective electric field(V/m)

3. Certification Criteria

3.1 Environmental Criteria

3.1.1

With respect to the safety to human body during the use stage, the product shall satisfy the following requirements.

3.1.1.1

Specific Absorption rate (SAR) of electronic wave emitted from the product shall be less than 01.2W/kg.

3.1.1.2

Nickel release emission from product's surface of button, case, and the 2nd battery pack (exposure product only) intended to come into direct and prolonged contact with the skin shall be less than $0.5\mu\text{g}/\text{cm}^2\cdot\text{week}$.

3.1.2

With respect to use of chemical substances in manufacturing process and recyclability of the parts of the product at disposal stage, the product shall comply with the following requirements.

Note) This Criteria shall not applied on materials which are exempted from Hazardous Substances Restriction lists on EU Directive 2002/95/EC and lead in solder of printed circuit board (PCB). However, in case of revision of EU Directive 2002/95/EC, this shall follow revised EU Directive which is applicable at the time the application for eco-label certification.

3.1.2.1

Lead, cadmium, mercury and their compounds, and hexavalent chromium compounds shall not be used in the product.

3.1.2.2

Content of lead, cadmium, mercury and hexavalent chromium (Cr^{6+}) in the parts of the product shall comply with one of the following requirements.

a) The applicant shall have an appropriate system to control the content of hazardous substances as following requirements.

Item	Pb	Cd	Hg	Hexavalent Chromium (Cr^{6+})
Criteria [mg/kg]	≤ 1000	≤ 100	≤ 1000	≤ 1000

b) Provided that the applicant does not have an appropriate system for the control of hazardous substances, the content of hazardous substances in the parts of the product shall comply with the following requirements.

Item	Pb	Cd	Hg	Hexavalent Chromium (Cr^{6+}) (note)
Criteria [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

3.1.2.3

PBBs (polybrominated biphenyls), PBDEs (polybrominated diphenylethers) and short-chain chlorinated paraffin (C= 10~13) whose chlorine concentration is 50% or more shall not be used in the product.

3.1.2.4

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

3.1.2.5

Provided that the product is equipped with a battery, the content of lead, cadmium, mercury in the batteries shall comply with EU Directive 2006/66/EC.

3.1.3

With respect to the recycling capability of product during the recycling or disposal stage of production process, the product shall satisfy the following requirements.

3.1.3.1

The product shall have a structure in which the recharging equipment shall be used jointly with kindred model products with similar production time.

3.1.3.2

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

3.1.3.3

According to the 'Act on Material Recycling of Electrical, Electronic Products and Automobiles', recycling rate of the product shall be over 70% of its weight.

3.1.4

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 product shall satisfy the 'technology standard of handset' in accordance with Information Communication Basic Act and Rules on Technology Standard of Electric Communication Equipment.

3.3 Consumer Information

Information on maximum generating power of transmission and ways of reducing electronic wave exposure

4. Test Methods

Certification Criteria			Test and Verification Methods
Environmental Criteria	3.1.1	3.1.1.1	Test report by an accredited testing laboratory in accordance with the 'measurement standard' of Article 47-2 Electronic Wave Act or certificate of equivalent ·Weight of applied living body tissue: 10g
		3.1.1.2	The test results of the officially recognized agency according to KS K 0853 (Test method for determination of nickel release from products intended to come into direct and prolonged contact with the skin: Alternate Exposure).
	3.1.2	3.1.2.1	Verification of submitted documents
		3.1.2.2	Submitted documents in accordance with '4.2 Test method
		3.1.2.3~3.1.2.5	Verification of submitted documents
	3.1.3~3.1.4	Verification of submitted documents	
Quality Criteria			Test report by an accredited testing laboratory in accordance with the 'technology standard of handset' in accordance with the Article 14 of Rules on Technology Standard of Electric Communication Equipment or certificate of equivalent
Consumer Information			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 sample 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 Compliance verification and test method regarding the control of harmful substances

4.2.1

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).

4.2.1.1

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

a) 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

b) 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)

c) 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')

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

4.2.1.2

In case the compliance of the management system cannot be verified by '4.2.1.1' 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 '4.2.2 Test method for measuring the content of the hazardous substances' for the parts collected at random by eco-label certification body.

4.2.2

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 (Cr^{6+}) 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.

4.2.2.1

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

4.2.2.2

Analysis method of lead (Pb), cadmium (Cd), mercury (Hg), hexavalent chromium (Cr^{6+}), total chromium (Cr)

a) Lead (Pb), cadmium (Cd): KS M 0016 (General rules for atomic absorption spectrochemical analysis), KS M 0032 (General rules for ICP emission spectrochemical analysis) and inductively coupled plasma mass spectrometry (ICP-MS)

b) Mercury (Hg): Atomic absorption spectrochemical analysis by using gold amalgamation method and KS M 0016 (General rules for atomic absorption spectrochemical analysis)

c) Hexavalent chromium (Cr^{6+}): Ultraviolet spectrophotometric analysis by diphenylcarbazide and Ultraviolet spectrophotometric analysis by lead acetate trihydrate

d) Total chromium (Cr): KS M 0016 (General rules for atomic absorption spectrochemical analysis), KS M 0032 (General rules for ICP emission spectrochemical analysis) and inductively coupled plasma mass spectrometry (ICP-MS)

5. Reasons for Certification

“Low electromagnetic wave emission, Preventing heavy metal contamination, Less environmental load”

Common Criteria, Notice No. 2012-36, the Ministry of Environment

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. When first applying for certification, the product manufacturer should observe the environment related laws and agreements pertaining to the region where the production factory or the place of service operation is located for a period of one year prior to the date of application. Any case of violation of the penalty clause will be verified by confirming documents involved during a period of one year to the date of application. Regarding any violation not related to the penalty clause, confirmation will be made on the completion of appropriate measures.

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. However, regarding any violation besides a penalty, confirmation will be made on the completion of appropriate measures.

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.

4. For Various standards referred in the certification criteria by target product, the latest revised edition applies at the date of application, if not specified otherwise.

5. In applying the quality related criteria for each target product, if no standard is available that can be applied as the quality criteria, 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 competent committee.