JIS

JAPANESE INDUSTRIAL STANDARD

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Part 3 : Classification of groups of environmental parameters and their severities
Section 3 : Stationary use at weatherprotected locations

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Foreword

This translation has been made based on the original Japanese Industrial Standard established by the Minister of International Trade and Industry through deliberations at Japanese Industrial Standards Committee in accordance with the Industrial Standardization Law:

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In the event of any doubts arising as to the contents, the original JIS is to be the final authority.

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JIS C 60721-3-3:1997
(IEC 60721-3-3 : 1994)

Classification of environmental conditions Part 3: Classification of groups of environmental parameters and their severities Section 3: Stationary use at weatherprotected locations

Introduction

This Japanese Industrial Standard has been prepared based on the second edition issued in 1994 of "IEC 60721-3-3, *Classification of environmental conditions Part 3: Classification of groups of environmental parameters and their severities Section 3: Stationary use at weatherprotected locations,*" Amendment 1 (1995) and Amendment 2 (1996) without changing the technical contents. The contents of these Amendments are compiled into this text.

The IEC standard number is based on the new numbering system implemented since January 1, 1997. The numbers of the standards issued prior to the date have also been changed to those with 60000 added. This means that only the numbers have been changed with the same contents of the standards.

1 Scope

This Standard classifies groups of environmental parameters and their severities to which products are subjected when mounted for stationary use at weatherprotected locations under use conditions, including periods of erection work, down time, maintenance and repair.

Weatherprotected locations, where products may be mounted for stationary use permanently or temporarily, include land-based and offshore enclosed and sheltered locations. Use in and on vehicles is excepted.

The environmental conditions specified in this standard are limited to those which may directly affect the performance of products. Only environmental conditions as such are considered. No special description of the effects of these conditions on the products is given.

Environmental conditions directly related to fire or explosion hazards and conditions related to ionizing radiation are excluded. Any other unforeseen incidents are also excluded. The possibility of their occurrence should be taken into account in special cases.

Microclimate within a product is not included.

Conditions of stationary use at non-weatherprotected locations, portable and non-stationary use, use in vehicles and ships, conditions of storage and transportation, and microclimates inside products are given in other sections of IEC 60721-3.

Informative reference IEC 60721-3 means a series of IEC 60721-3 (*Classification of environmental conditions Part 3: Classification of groups of environmental parameters and their severities*).

A limited number of classes of environmental conditions is given, covering a broad field of application. The user of this standard should select the lowest classification necessary for covering the conditions of the intended use.

2 Normative references

The following normative references contain provisions which, through reference in this text, constitute provisions of this Standard. At the time of publication, the editions indicated are valid.

JIS C 0110: 1995 *Classification of environmental conditions Part 1: Classification of environmental parameters and their severities.*

Note JIS C 0110 : 1995 is identical to IEC 60721-1 : 1990, Classification of environmental conditions Part 1 : Environmental parameters and their severities.

JIS C 0111: 1995 *Classification of environmental conditions Part 2: Environmental conditions appearing in nature Temperature and humidity.*

Note JIS C 0111 : 1995 is identical to IEC 60721-2-1 : 1982, Classification of environmental conditions Part 2 : Environmental conditions appearing in nature Section 1 : Temperature and humidity.

JIS C 0112: 1995 *Classification of environmental conditions Part 3: Classification of groups of environmental parameters and their severities Introduction.*

Note JIS C 0112 : 1995 is identical to IEC 60721-3-0 : 1984, Classification of environmental conditions Part 3 : Classification of groups of environmental parameters and their severities Section 0: Introduction.

IEC 721-2-8: 1994 Classification of environmental conditions Part 2: Environmental conditions appearing in nature Section 8: Fire exposure
ISO/IEC Guide 52: 1990 Glossary of fire terms and definitions

3 Definitions

In addition to the definitions in clause 3 (Definitions) of **JIS C 0110** and **ISO/IEC Guide 52**, the following definitions apply to this standard :

3.1 stationary use: The product is mounted firmly on the structure or on mounting devices or it is permanently placed at a certain site. It is not intended for portable or non-stationary use, but short periods of handling during erection work, down time, maintenance and repair at the location are included.

3.2 weatherprotected location: A location at which the product is protected from weather influences:

- *totally weatherprotected location* (enclosed location): direct weather influences are totally excluded;
- *partially weatherprotected location* (sheltered location): direct weather influences are not totally excluded.

4 General

For further general guidance, see JIS C 0112.

During periods of erection work, which are often connected with down time, the user should be aware that conditions might differ from those experienced during the period of operation. Therefore the selection of another class may be necessary for this period, unless special precautions have been taken.

The severities specified are those which will have a low probability of being exceeded. All specified values are maximum or limit values. These values may be reached, but do not occur permanently. Depending on the local situation there may be different frequencies of occurrence related to a certain period of time. Such frequencies of occurrence should be considered for any environmental parameter. They should additionally be specified if applicable. Information on duration and frequencies of occurrence is given in JIS C 0112 clause 6 (Duration and frequency of occurrence).

Attention is drawn to the fact that combinations of the environmental parameters given may increase the effect on a product. This applies especially to the presence of high relative humidity in addition to biological conditions or to conditions of chemically or mechanically active substances.

The environmental conditions present at a location may be affected by other influences, e.g. heat dissipation sources, special process conditions, etc.

Measurements of the environmental conditions present at a location should be made at a representative point in the vicinity of the product.

It is recognized that extreme or special environmental conditions may exist. Specifications for products to operate under such special conditions are a matter for negotiation between supplier and user.

5 Classification of groups of environmental parameters and their severities

A number of classes are specified in tables 1 to 6 and 8 to 12 for:

- climatic conditions (K);
- special climatic conditions (Z);
- biological conditions (B);
- conditions of chemically active substances (C);
- conditions of mechanically active substances (S);
- mechanical conditions (M);
- conditions during the initial phase of a fire (T, P, F, V, H).

This classification allows a number of possible combinations of environmental conditions, which bear upon products wherever used. It represents the real situation in respect of world-wide conditions of use, due to local influences of open-air climate, construction of buildings, mounting, process conditions, etc. (see also clause 6.)

A class of conditions normally includes classes with lower severity digits.

For certain parameters it has not yet been possible to specify quantitative severities.

For a given location or product, reference should be made to the total set of classes, e.g.:

3K2/3Z1/3Z4/3B1/3C2/3S1/3M4 and 3T1/3P3/3F2/3V2/3H3.

(see also clause 6.)

Annex A explains the basis of the classes. It contains a summary of the conditions covered by each class and gives a survey of conditions affecting the choice of environmental parameters and their severities.

Annex B contains climatograms showing the interdependence of air temperature, relative humidity and absolute humidity for the climatic classes specified in Table 1.

Annex C gives two examples for practical application of this classification.

5.1 *Climatic conditions*

The climatic conditions specified for classes 3K1 to 3K8 represent the conditions at weatherprotected locations. (Annex A classifies the climatic conditions.) They have been experienced world-wide over long periods of time, taking into account all the parameters that can influence them, e.g. external (open-air) climatic conditions, type of building construction, temperature/humidity controlling systems and internal conditions, e.g. heat dissipation from mounted equipment, presence of humans, etc. The conditions should cover all normal cases, but not exceptional events, e.g. failure of air-conditioning systems.

Climatic conditions in tropical areas as specified in classes 3K9 and 3K10 are explained in Annex E.

When selecting appropriate classes attention should be paid to the fact that the climatic conditions inside buildings depend on the outside (open-air) conditions, especially air temperature and solar radiation, and the type of building construction. Walls with good thermal insulation or high thermal capacity can consistently smooth the peaks of outside air temperature variations between day and night, or exceptionally for a longer period. Walls with poor thermal insulation or low thermal capacity cannot have that effect, and peaks can be magnified due to the effect of solar radiation during the day and the effect of building radiation at night. The effect of solar radiation can be increased by either heat-trap or greenhouse effects.

The actual interdependence of air temperature and humidity cannot be shown by stating severities only. Therefore climatograms are given in Annex B.