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JAPANESE INDUSTRIAL STANDARD

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JIS C 0045 : 1993

(IEC 68-2-7 : 1983)

Basic environmental testing procedures Part 2 : Tests— Test Ga and guidance : Acceleration, steady state

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JIS C 60068-2-7:1993

ICS 19.080; 19.040

Descriptors : electrical and electronic testing; environmental testing

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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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JAPANESE INDUSTRIAL STANDARD

JIS C 60068-2-7:1993
(IEC 68-2-7 : 1983)

Basic environmental testing procedures

Part 2: Tests — Test Ga and guidance: Acceleration, steady state

Foreword for Japanese Industrial Standard

This Japanese Industrial Standard has been prepared based on the 2nd edition issued in 1983 of **IEC 68-2-7** (Basic environmental testing procedures, Part 2: Tests, Test Ga and guidance: Acceleration, steady state) and 1986 Amendment No. 1 without changing the technical contents.

Furthermore, the "Informative references" that are indicated by underline (dotted line) do not appear in the original International Standard.

1. Scope

To prove the structural suitability and the satisfactory performance of components, equipment and other electrotechnical products, hereinafter referred to as "specimens", when subjected to forces produced by steady acceleration environments (other than gravity) such as occur in moving vehicles, especially flying vehicles, rotating parts and projectiles, and to provide a test of structural integrity for certain components.

2. General of test

Equipment, components and other electrotechnical products intended to be installed in moving bodies will be subjected to forces caused by steady accelerations. Naturally, such an environment is most pronounced in flying vehicles and rotating machinery, although in certain conditions accelerations in land vehicles may be of significant magnitude.

In general, the accelerations encountered in service have different values along each of the major axes of the moving body, and, in addition, usually have different values in the opposite senses of each axis.

If the attitude of the specimen is not fixed with regard to the moving body, then the relevant specification should prescribe a level, which may be applied along each of the major axes and senses of the specimen, having taken into account the maximum accelerations in different axes of the moving body.

This standard is to be used in conjunction with **JIS C 0010**: 1993 Environmental testing Part 1: General and guidance.

Informative reference: **JIS C 0010**-1993 is identical to **IEC 68-1**: 1988 (Basic environmental testing procedures, Part 1: General and guidance).

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3. Conditions for testing

3.1 *Characteristics of the test apparatus*

3.1.1 *General*

Acceleration conditions are applied by means of a centrifuge where the acceleration is directed towards the centre of the rotating system. In certain special cases, however, the specimen may be sensitive to gyroscopic couples, and it may only be possible to perform the test by using a machine capable of applying linear acceleration, in which case the relevant specification shall state this requirement.

3.1.2 *Tangential acceleration*

When increasing the rotational speed of a centrifuge from zero to the value necessary to achieve the specified acceleration, or when decreasing back to zero, the machine shall be so controlled that the specimen is not subjected to a value of tangential acceleration greater than 10% of the specified acceleration.

3.1.3 *Acceleration gradient*

The dimensions of a centrifuge relative to the specimen shall be such that no part of the specimen, other than flying leads, shall be subjected to a value of acceleration outside the tolerances given in Sub-clause 3.1.4.

3.1.4 *Acceleration tolerance*

If the linear dimensions of the specimen are less than 10 cm, the acceleration on all parts of the specimen (excluding flying leads) shall not depart from the specified steady-state acceleration by more than ±10%.

In other cases, the tolerance on the specified steady-state acceleration is −10% +30%.

3.2 *Mounting*

The specimen shall be mounted on the test apparatus in accordance with the requirements in **JIS C 0040**-1987, **Appendix D**: Basic Environmental Testing Procedures. Mounting of Components, Equipment and Other Articles for Dynamic Tests and Guidance.

Informative reference: **JIS C 0040**-1987, **Appendix D** is equivalent to **IEC 68-2-47**: 1982 [Basic environmental testing procedures. Part 2: Mounting of components, equipment and other articles for dynamic tests including shock (Ea), bump (Eb), vibration (Fc and Fd) and steady-state acceleration (Ga) and guidance].

Note. — For reasons of safety, care should be taken to prevent the specimens under test from being thrown off if the mounting attachments are broken but any safety devices used should not introduce additional constraint during the test.

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